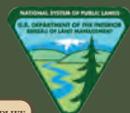




# Federal Subsistence Board Public Meeting Meeting Materials: Volume II

April 20-23, 2020  
Via Teleconference



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# Volume II (Non-Consensus Agenda Proposals, Wildlife Closure Reviews, and other documents)

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### *Non-Consensus Agenda Proposals and Wildlife Closure Reviews*

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<b>631</b>	WP20-06	<b>1280</b>	WP20-49
<b>659</b>	WP20-07	<b>1314</b>	WP20-50
<b>687</b>	WP20-18b	<b>1344</b>	WCR20-42
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<b>791</b>	WCR20-03	<b>1385</b>	Request for Reconsideration RFR15-01
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<b>1087</b>	WP20-42		
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<b>1121</b>	WCR20-28		
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<b>1171</b>	WCR20-44		
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**FEDERAL SUBSISTENCE BOARD  
PUBLIC MEETING AGENDA  
April 20-23, 2020**

April 20, 2020: 1:30 p.m. to 5:00 p.m. (or until recessed)  
April 21-23, 2020: 9:00 a.m. to 5:00 p.m. (or until recessed) daily

The meeting will convene by **teleconference only**  
To participate, dial toll free **(888) 566-1030**, (passcode **3344290**)

On April 20<sup>th</sup>, prior to start of the Public Meeting, the Federal Subsistence Board will meet at 9:00 a.m. to conduct Tribal Government-to-Government and ANCSA Corporation consultations regarding proposals to change Federal Subsistence Regulations. The Public Meeting will begin at 1:30 p.m. Updates on the Board's progress through the agenda can be obtained by calling (800) 478-1456 or (907) 786-3888 or visit <https://www.doi.gov/subsistence/board/> or [www.facebook.com/subsistencealaska](http://www.facebook.com/subsistencealaska).

**Public Meeting**

**\*Asterisk denotes Action Item**

1. **Call to Order and Welcome**
2. **Review and Adopt Agenda\***
3. **Federal Subsistence Board Information Sharing**
4. **Regional Advisory Council Chairs Discuss Topics of Concern with the Board**
5. **Public Comment Period on Non-Agenda Items** (*This opportunity is available at the beginning of each day*)
6. **Old Business**
7. **2020–2022 Subparts C&D Proposals and Closure Reviews** (*Wildlife Regulations*)
  - a. Announcement of Consensus Agenda (*see detailed agenda that follows*)
  - b. Public Comment Period on Consensus Agenda Items (*This opportunity is available at the beginning of each subsequent day prior to the final action*)
  - c. Board deliberation and action on Non-Consensus Agenda items\* (*See detailed agenda that follows*)
  - d. Adoption of Consensus Agenda\*
8. **Deferred Proposal WP18-19\***
9. **RFR15-01**

**10. Fortymile Caribou Herd Harvest Plan\***

**11. Schedule of Upcoming Board meetings\***

- a. 2020 Summer Work Session (*Date and topics to be determined*)
- b. 2021 Winter Public Meeting (*Fish and Shellfish Regulations – late January?*)

**12. Other Business**

**13. Adjourn**

**FEDERAL SUBSISTENCE BOARD  
CONSENSUS AGENDA PROPOSALS**

The following proposals have been included on the consensus agenda. These are proposals for which there is agreement among Federal Subsistence Regional Advisory Councils, the Federal Interagency Staff Committee, and the Alaska Department of Fish and Game concerning Board action. Anyone may request that the Board remove a proposal from the consensus agenda and place it on the regular agenda. The Board retains final authority for removal of proposals from the consensus agenda. The Board will take final action on the consensus agenda after deliberation and decisions on all other proposals.

<b>Proposal</b>	<b>Region/Unit/Species</b>	<b>Recommendation</b>	<b>Page</b>
WP20-03	Southeast/Unit 2/Deer	Oppose	1
WP20-04	Southeast/Unit 2/Deer	Oppose	31
WP20-05	Southeast/Unit 2/Deer	Oppose	61
WP20-08	Statewide/All units/All trapping species	Oppose	88
WP20-09	Southeast/Units 1-4/Beaver	Support	105
WP20-10	Statewide /Units 1-5/Black Bear	Support	114
WP20-11	Statewide/Units 1-5/Brown Bear	Support	147
WP20-12	Southeast/Unit 3/Deer	Support	185
WP20-13	Statewide/Unit 3/Elk	Support	207
WP20-14	Statewide/Units 1-5/Goat	Support	227
WP20-15	Statewide/Units 1-5/Moose	Support	247
WP20-16/17	Statewide/Unit 2/Wolf	Support	267
WP20-18a	Southcentral/Unit 7/Goat	Support with modification	300
WP20-19	Southcentral, Eastern Interior/Unit 11/Sheep	Oppose	328
WP20-20	Southcentral/Unit 7/All species	Oppose	356
WP20-22a	Statewide/Unit 15/Caribou	Support with modification	366
WP20-23a	Statewide/Unit 15/Goat	Support with modification	385
WP20-24a	Southcentral/Unit 15/Sheep	Support	406
WP20-28/29	Bristol Bay, YK Delta/Unit 17/Moose	Support	416

<b>Proposal</b>	<b>Region/Unit/Species</b>	<b>Recommendation</b>	<b>Page</b>
WP20-31	Statewide/Unit 9/Ptarmigan	Support	430
WP20-32/33	YK Delta/Unit 18/Moose	Support	445
WP20-34	Statewide/Unit 18/Mink, Weasel	Support	466
WP20-35	YK Delta/Unit 18/Moose	Oppose	478
WP20-39	Western Interior, YK Delta/Unit 19/Moose	Take no action	500
WP20-48	Eastern Interior/Units 20, 25/ Caribou	Support	514
WP20-51	Eastern Interior, Southcentral/Unit 12/Sheep	Support	552



**FEDERAL SUBSISTENCE BOARD  
NON-CONSENSUS AGENDA**

**Procedure for considering proposals:**

- Analysis (*Lead Author*)
- Summary of public comments (*Regional Council Coordinator*)
- Open floor to public testimony
- Regional Advisory Council recommendation(s) (*Chair or designee*)
- Tribal/Alaska Native Corporation comments (*Native Liaison*)
- Alaska Department of Fish and Game comments (*State Liaison*)
- Interagency Staff Committee comments (*ISC Chair*)
- Board discussion with Council Chairs and State Liaison
- Federal Subsistence Board action

Note that all Wildlife Closure Reviews have been included on the non-consensus agenda. Although some of these reviews meet the criteria of a consensus item, they are included here for deliberation and for transparency during this transitional cycle. In future cycles, closure reviews will be reviewed in a manner identical to regulatory proposals, and may be assigned to the consensus agenda when there is agreement among Federal Subsistence Regional Advisory Councils, the Federal Interagency Staff Committee, and the Alaska Department of Fish and Game concerning Board action.

<b>Proposal</b>	<b>Region/Unit/Species</b>	<b>Page</b>
WP20-01	Southeast/Unit 1/Moose	565
WP20-02	Southeast/Unit 2/Deer	593
WP20-06	Southeast/Unit 2/Deer	631
WP20-07	Southeast/Unit 2/Deer	659
WP20-18b	Southcentral/Unit 7/Goat	687
WP20-22b	Statewide/Unit 15/Caribou	712
WP20-23b	Statewide/Unit 15/Goat	737
WP20-24b	Southcentral/Unit 15/Sheep	765
WCR20-03	Southcentral/Unit 7/Moose	791
WCR20-41	Southcentral/Unit 6/Moose	801
WP20-25	Kodiak-Aleutians/Unit 10/Caribou	814
WP20-26	Statewide/Units 9, 17/Wolf, Wolverine	847

<b>Proposal</b>	<b>Region/Unit/Species</b>	<b>Page</b>
WP20-27	Bristol Bay, YK Delta, Western Interior/Unit 17/Caribou	870
WP20-30	Statewide/Unit 9/Hare	891
WCR20-04/06	Bristol Bay, Kodiak-Aleutians/Unit 9/Caribou	904
WCR20-38	YK Delta/Unit 18/Moose	920
WCR20-40	YK Delta/Unit 18/Moose	932
WP20-36/37	Western Interior/Unit 21/Moose	940
WCR20-20	Western Interior/Unit 24/Moose	979
WCR20-39	Western Interior, YK Delta/Unit 19/Moose	993
WCR20-43	Western Interior, YK Delta/Unit 19/Moose	1008
WP20-38	Seward Peninsula/Unit 22/Moose	1029
WP20-40	Seward Peninsula/Unit 22/Moose	1053
WP20-41	Seward Peninsula/Unit 22/Moose	1070
WP20-42	Seward Peninsula/Unit 22/Moose	1087
WCR20-10	Seward Peninsula/Unit 22/Muskox	1110
WCR20-28	Seward Peninsula/Unit 22/Muskox	1121
WCR20-29	Seward Peninsula/Unit 22/Muskox	1138
WCR20-30	Seward Peninsula/Unit 22/Muskox	1155
WCR20-44	Seward Peninsula/Unit 22/Muskox	1171
WP20-43/44/45/46	Northwest Arctic, Seward Peninsula, Western Interior, North Slope/Unit23/Caribou	1188
WP20-47	Northwest Arctic, North Slope/Unit23/Caribou	1239
WCR20-19	Northwest Arctic/Unit 23/Muskox	1267
WP20-49	Eastern Interior, North Slope/Unit 25/Sheep	1280
WP20-50	Eastern Interior, Southcentral/Unit 12/Moose	1314
WCR20-42	Easter Interior, Southcentral/Unit 12/Caribou	1344
WCR20-31	North Slope/Unit 26/Moose	1368

<b>WP20-01 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-01 requests that the Federal Subsistence Board (Board) repeal the Federal season for moose in Unit 1C Berners Bay. <i>Submitted by: Alaska Department of Fish and Game</i>
<b>Proposed Regulation</b>	<p><b>Unit 1C - Moose</b></p> <p><del>Unit 1C — Berners Bay drainages —1 bull by Federal drawing permit. Only one moose permit may be issued per household. A household receiving a State permit for Berners Bay drainages moose may not receive a Federal permit. The annual harvest quota will be announced by the USDA Forest Service, Juneau office, in consultation with ADF&amp;G. The Federal harvest allocation will be 25% (rounded up to the next whole number) of bull moose permits</del></p> <p><b>No Federal open season Sept. 15-Oct. 15 (will be announced starting in 2019)</b></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Southeast Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>2 Support</b>

**STAFF ANALYSIS  
WP20-01**

**ISSUES**

Wildlife Proposal WP20-01, submitted by the Alaska Department of Fish and Game (ADF&G), requests that the Federal season for moose in Unit 1C, Berners Bay be rescinded.

**DISCUSSION**

The proponent states that the Federal subsistence moose hunt in Berners Bay amounts to a restriction to non-Federally qualified users, which conflicts with the Federal Subsistence Boards (Board) Closure Policy. The proponent requests that the Board rescind the Federal moose hunt in Berners Bay because there is no demonstrated conservation concern and Federally qualified subsistence users are provided significant moose hunting opportunity throughout Unit 1C and the remainder of Southeast Alaska. The proponent states that subsistence uses will not be affected, there will be little effect on sport/recreational and commercial uses, and there will be no impact to the Berners Bay moose population.

**Existing Federal Regulation**

**Unit 1C - Moose**

*Unit 1C — Berners Bay drainages — 1 bull by Federal drawing permit. Only one moose permit may be issued per household. A household receiving a State permit for Berners Bay drainages moose may not receive a Federal permit. The annual harvest quota will be announced by the USDA Forest Service, Juneau office, in consultation with ADF&G. The Federal harvest allocation will be 25% (rounded up to the next whole number) of bull moose permits*      *Sept. 15-Oct. 15 (will be announced starting in 2019)*

**Proposed Federal Regulation**

**Unit 1C - Moose**

~~*Unit 1C — Berners Bay drainages — 1 bull by Federal drawing permit. Only one moose permit may be issued per household. A household receiving a State permit for Berners Bay drainages moose may not receive a Federal permit. The annual harvest quota will be announced by the USDA Forest Service, Juneau office, in consultation with ADF&G. The Federal harvest allocation will be 25% (rounded up to*~~      ~~*Sept. 15-Oct. 15 (will be announced starting in 2019)*~~  
*No Federal open*

*the next whole number) of bull moose permits*

*season*

**Existing State Regulation**

**Unit 1C - Moose**

*Unit 1C Berners Bay drainages only – One bull by permit DM041*

*Sept 15 – Oct 15*

**Extent of Federal Public Lands**

Unit 1C is comprised of approximately 95% Federal Public Lands and consist of 62% U.S. Forest Service (USFS) managed lands and 33% National Park Service (NPS) managed lands (**see Unit Map**). Berners Bay drainages are comprised of approximately 97% Federal public lands and consist of 97% USFS managed lands.

**Customary and Traditional Use Determination**

Rural residents of Units 1, 2, 3, 4 and 5 have a customary and traditional use determination for moose in Unit 1C, including the Berners Bay drainages.

**Regulatory History**

State regulatory history

State harvest regulations for moose in Unit 1C, including Berners Bay are summarized in **Table 1**. The State has managed the hunt under a draw permit system since 1978, with the exception of 1985, when it was a Tier II hunt due to a change in State law. No permits were issued for the 2007-2013 seasons due to conservation concerns. ADF&G began issuing draw permits again in 2014 when five bull permits were issued. Five permits were issued for bulls in 2015 and 2016 while seven bull permits were issued in both 2017 and 2018.

**Table 1.** State of Alaska and Federal moose hunting regulations for Unit 1C, including Berners Bay drainages, since 1959 (Sell 2017, pers. comm.).

Year	Season	Season	Limit	Conditions and Limitations
1959	Open	Sept 15-Oct 15	One	One bull, except Berners Bay drainages (closed)
1960-1961	Open	Sept 15-Oct 15	One	One bull, except Berners Bay drainages (closed)
1962	Open	Sept 15-Oct 15	One	One bull S. of Endicott-Sherman line; except Berners Bay drainages (closed)
1963-1964	Open	Sept 1-Oct 15	One	One bull, North of the latitude of the Endicott-Sherman line
1965-1967	Open	Sept 1-Oct 15	One	One moose, antlerless moose from 10/14 to 10/15 only

Year	Season	Season	Limit	Conditions and Limitations
1968	Open	Sept 1-Oct 15	One	One moose
1969-1970	Open	Sept 1-Oct 15	One	One moose, closed after 50 antlerless moose are taken
1971-1973	Open	Sept 15-Oct 15	One	Berners Bay drainages, one moose by permit only, up to 40 permits issued
1974	Open	Sept 15-Oct 15	One	Berners Bay drainages, 50 moose by permit only
1975-1977		No open season		Berners Bay drainages only
1978-1979	Open	Sept 15-Oct 15	One	Berners Bay drainages, one bull by drawing permit, up to 20 permits issued
1980-1982	Open	Sept 15-Oct 15	One	Berners Bay drainages, one bull by drawing permit, up to 25 permits issued
1983-1984	Open	Sept 15-Oct 15	One	Berners Bay drainages, one antlerless moose by drawing permit, up to 15 permits issued
1985	General	No open season		Berners Bay drainages
1985	State Subsistence	Sept 15-Oct 15	One	Berners Bay drainages, one moose by Tier II permit, up to 15 permits may be issued
1986	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 7 permits issued
1987-1990	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 5 permits issued
1991-1992	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 10 permits issued
1993-2000	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 20 permits issued
2001-2007	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 30 drawing permits issued
2008-2013	General	No open season	-	Berners Bay drainages
2014-2016	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 5 drawing permits issued
2017-2018	General	Sept 15-Oct 15	One	Berners Bay drainages, one moose by drawing permit, up to 7 drawing permits issued
1990-2018	Federal Subsistence	No open season	-	Berners Bay drainages
2019	Federal Subsistence	Sept 15-Oct 15	One	Berners Bay drainages, 1 bull by Federal drawing permit, up to 2 permits issued

### Federal regulatory history

Prior to 2010, no customary and traditional use determination had been made for moose in the Berners Bay drainages. The Board adopted Proposal WP10-11 submitted by the Southeast Alaska Subsistence Regional Advisory Council (Council), which requested recognition of customary and traditional uses

of moose in Unit 1C, including Berners Bay, by residents of Units 1-5.

Prior to 2019, there was never a Federal season for moose in Berners Bay as the State season was not adopted into Federal regulation at the beginning of the Federal Subsistence Management Program.

Proposal WP02-14 requested establishment of a Federal season in Berners Bay, but was deferred because no customary and traditional use determination had been made. Proposal WP08-06b requested establishment of a Federal season, but the proposal was deferred because of conservation concerns with the population at the time. The deferred proposal (Proposal WP10-18b) was rejected during the 2010 cycle also due to conservation concerns.

These previous proposals requested a Federal season through a registration hunt. A Berners Bay moose hunt was requested by a resident of Gustavus during the 2018 wildlife proposal cycle. Wildlife Proposal WP18-11 requested that the Board provide a Federal priority for moose in Unit 1C Berners Bay for Federally qualified subsistence users, or that Federal lands be closed to the harvest of moose by all users, or that it be clearly stated on record why a Federal subsistence priority for moose should not be provided to rural residents. The Council recommended opposing the proposal during its fall 2018 regulatory meeting, but requested additional options from staff. During the Councils' winter 2019 meeting (which occurred prior to the Board meeting) the Council considered additional information provided by staff. At the Board meeting, the Council Chair submitted the original recommendation to oppose the proposal, but asked the Board to consider a compromise, developed by the Council, where 25% of available permits would be issued to Federally qualified subsistence users and to delay implementation until Fall 2019. The Board adopted the alternative suggested by the Council (FSB 2018). ADF&G opposed the recommendation of the Council.

Following the Board's decision, Territorial Sportsmen Inc. submitted a request for reconsideration to the Board to revisit their decision on WP18-11, citing no conservation concern or customary and traditional use of Berners Bay moose. During its April, 2019 meeting, the Board denied this request because it did not meet the threshold requirements for further consideration as outlined in 36 CFR 242.20(d) and 50 CFR 100.20(d) (FSB 2019). The Federal subsistence drawing for the 2019 season occurred on July 15 and two permits were issued to randomly selected applicants.

### **Biological Background**

Berners Bay moose are an introduced population in a small, geographically isolated location where no moose existed before. Fifteen moose calves from the Matanuska and Susitna Valleys were released in Berners Bay in 1958, and a supplemental release of six more calves occurred in 1960. This introduction was a cooperative effort by ADF&G, U.S. Fish and Wildlife Service (USFWS), and Territorial Sportsmen Inc., while the U.S. Air Force and Air National Guard provided transportation (Paul 2009).

### Habitat

The majority of the Berners Bay drainages (including the most important moose habitats) are managed by the USFS in an undeveloped condition. Radio-collared moose in the Berners Bay area primarily use lowland areas close to the major rivers and do not utilize alpine areas (White and Barten 2009, White et. al. 2012). The geography of the area allows for minimal migration and has limited habitat. Because of this, ADF&G has used a variety of harvest management strategies, changing the harvest from bulls only to bulls and cows, in an attempt to balance the sex ratio and to keep the population size within the carrying capacity of the habitat. The use of a habitat capability model and moose browse surveys in the early 1980s helped develop the present management strategy of maintaining a post hunting survey count of 80-90 moose and a bull:cow ratio of 25:100 (Barton 2008, Sell 2014).

### Population Information

In 2006, the Berners Bay moose population appeared to be near the estimated carrying capacity of between 100 and 150 animals (Barten 2008). Subsequent surveys by White and Barten (2009) (**Table 2**) indicated that the population had declined approximately 30% since 2006, which they attributed to harsh winter conditions resulting in poor spring body condition and moderate-low adult survival and pregnancy rates. Low calf survival rates (including summer predation mortality) were another factor in the population decline (White and Barten 2009). Moose in Berners Bay are subject to predation by wolves, brown bears, and black bears, but the amount has not been quantified. ADF&G did not issue any harvest permits for this hunt from 2007-2013 due to conservation concerns about the population. Population estimates are not available for surveys prior to 2006 because there were no collared moose to develop sightability correction factors, which are used to estimate the total population when not all animals can confidently be counted. Prior to 2006, ADF&G assumed that 80-90 moose observed equated to a population within the estimated carrying capacity (Barten 2008). Survey results from 1990-2019 are included in **Table 3**. ADF&G uses the aerial survey results to determine the number of bull and cow moose draw permits to issue. The low numbers of moose observed in 2007-2011 led to the season closures of 2007-2013. Surveys since 2013 indicate the population had recovered to harvestable levels.



**Table 2.** Population estimates for Berners Bay moose 2006-2019 (White and Barten 2009, Sell 2017, pers. comm.; Churchwell 2019, pers. comm.).

Survey Year	Survey Date	Total Moose Seen	Total Collared Moose	Marked Moose Seen	Proportion Moose Observed	Population Estimate
2006	11/25/2006	85	31	22	0.71	119 ± 22
2006	1/11/2007	76	31	20	0.65	116 ± 25
2006	1/26/2007	69	31	16	0.52	131 ± 36
2006	2/13/2007	78	30	19	0.63	121 ± 27
2007	12/19/2007	59	30	17	0.57	102 ± 25
2007	1/7/2008	62	30	18	0.6	102 ± 23
2007	2/18/2008	41	28	13	0.46	86 ± 26
2007	2/23/2008	34	28	11	0.39	84 ± 29
2008	12/16/2008	33	32	12	0.38	85 ± 28
2008	2/17/2009	55	32	21	0.66	83 ± 15
2009	12/15/2009	51	33	22	0.65	78 ± 18
2010	12/3/2010	73	34	28	0.82	88 ± 10
2011	11/19/2011	73	27	18	0.67	108 ± 23
2012	12/7/2012	102	30	27	0.9	113 ± 11
2013	12/3/2013	73	27	21	0.78	93 ± 15
2014	12/4/2014	105	30	29	0.967	109 ± 6
2015	No Survey					
2016	12/11/2016	115	21	17	0.81	141 ± 25
2017	No Survey					
2018	No Survey					
2019	02/8/2019	106	30	23	0.77	137 ± 23

**Table 3.** Survey data for the Berners Bay moose herd 1990-2019 (White and Barten 2009; Sell 2017, pers. comm.; Churchwell 2019, pers. comm.).

Survey Year	Survey Date	Bulls	Cows	Calves	Unknown	Total moose	Count time (hrs)	Bulls per 100 Cows	Calves per 100 Cows	Calves % in herd	Moose per hour
1990	11/25/1990	14	53	18	0	85	2.6	26	34	21	33
1991	1/27/1992	---	---	11	50	61	1.2	---	---	18	50
1992	1/5/1993	14	61	8	0	83	2.8	23	13	10	29
1993	1/21/1994	---	---	12	45	67	2.8	---	---	18	24
1994	11/16/1994	17	45	13	0	75	2	38	29	17	38
1995	No Survey										
1996	No Survey										
1997	1/7/1998	6	11	12	31	60	2.1	---	---	20	29
1998	12/19/1998	14	9	10	37	70	2.6	---	---	14	27
1999	11/29/1999	14	11	13	70	108	2.4	17	16	12	45
2000	2/15/2001	---	10	12	57	79	2.4	---	---	15	33
2001	2/2/2002	---	10	10	46	66	2	---	---	15	33
2002	2/28/2003	---	4	4	50	58	2.2	---	---	7	26
2002	3/16/2003	---	7	7	28	42	2.7	---	---	17	22
2003	11/19/2003	18	11	13	39	81	2.6	36	26	16	31
2004	11/3/2004	7	12	12	55	86	---	10	18	14	26
2005	12/6/2005	15	12	13	60	100	---	21	18	13	40
2006	11/11/2006	10	56	9	0	75	---	18	16	12	21
2006	11/25/2006	10	60	12	3	85	---	17	20	14	---
2006	1/11/2007	3	9	11	53	76	---	---	---	14	---
2006	1/26/2007	1	6	7	55	69	---	---	---	10	---
2006	2/13/2007	0	6	8	64	78	---	---	---	10	---
2007	12/19/2007	10	44	5	0	59	---	23	11	8	---
2007	1/7/2008	5	5	5	47	62	---	---	---	8	---
2007	2/18/2008	0	0	5	36	46	---	---	---	12	---
2007	2/23/2008	0	0	2	32	34	---	---	---	5	---
2008	12/16/2008	3	22	3	5	33	---	11	14	9	---
2008	2/17/2009	---	8	8	39	57	---	---	---	14	---
2009	12/15/2009	12	20	4	15	51	3	34	11	8	17
2010	12/3/2010	18	45	10	0	73	4.3	40	22	14	17
2011	11/19/2011	22	41	10	0	73	---	54	24	14	---
2012	11/27/2012	23	53	14	0	85	2.3	43	17	11	37
2012	12/7/2012	21	67	14	0	102	4	31	21	14	26
2013	12/3/2013	18	47	8	0	73	---	38	17	11	---
2014	12/4/2014	22	52	24	7	105	4.6	37	41	23	23
2015	No Survey										
2016	12/11/2016	18	31	27	39	115	3.83	26	39	23	30
2017	No Survey										
2018	No Survey										
2019	02/8/2019	2	26	13	65	106	4.83	8	50	12	22

## Cultural Knowledge and Traditional Practices

All rural residents of Southeast Alaska (Units 1-5) are eligible to harvest moose within the Berners Bay hunt area during the Federal hunt. The rural area of the Southeast Region is comprised of about 33 small to medium sized communities, ranging in population from 20 or less (Point Baker, Elfin Cove, and Game Creek) to over 8,000 (Sitka). Many were established by Tlingit and are situated at historical village sites or were established by Haida (Hydaburg) or Tsimshian (Metlakatla). Beginning in the 1970s, timber logging camps sprang up and some have persisted as new communities, such as Game Creek and Thorne Bay. Many rural communities in the Southeast Region have at their core a *kwaan* or tribe of Alaska Natives. Kwaan territories mapped in 1947 by Goldschmidt and Haas (1998) covered all of the Southeast Region. Since 1960, the rural population of the Southeast Region has doubled from 13,102 people in 1960 to 26,343 people in 2010 (**Table 4**).

**Table 4.** The number of people in Southeast Alaska communities according to the 2010 U.S. Census (Source: ADCCED 2017).

Community	2010 Number of people	2010 Number of households
Angoon	459	167
Coffman Cove	176	89
Craig	1,201	523
Edna Bay	42	19
Elfin Cove	20	15
Game Creek	18	10
Gustavus	442	199
Haines Borough	2,508	991
Hollis CDP	112	55
Hoonah	760	300
Hydaburg	376	133
Hyder	87	47
Kake	557	246
Kasaan	49	17
Klawock	755	313
Klukwan	95	44
Kupreanof	27	15
Metlakatla	1,405	469
Naukati Bay	113	60
Pelican	88	70
Petersburg Borough	2,948	1,252
Point Baker	15	8
Port Alexander	52	22
Port Protection	48	26
Saxman	411	120

Community	2010 Number of people	2010 Number of households
Sitka borough	8,881	3,545
Skagway	920	410
Tenakee Springs	131	72
Thorne Bay	471	214
Whale Pass	31	20
Whitstone	114	30
Wrangell Borough	2,369	1,053
Yakutat Borough	662	270
<b>Total</b>	<b>26,343</b>	<b>10,824</b>

Moose (*dzisk'w* in Tlingit) are recent arrivals in Southeast Alaska according to historical records (Brown 2004). Documented moose migrations into Southeast Alaska have been by way of river valley corridors from the Interior through the Coast Range. By the 1950s, moose were present on all major ranges in Southeast Alaska. Prior to the migration of moose into hunting areas, moose skins and sinew were valued and traded by the Tlingit (Goldschmidt and Hass 1998, Kamenskii 1985 [1906], Oberg 1973). For example, Stikine Tlingit traded with Tahltan hunters in the Interior. Taku Tlingit were harvesting moose prior to 1946 from upriver areas. As soon as moose became available in Southeast Alaska, local hunters, both Native and non-Native, began utilizing this resource. Emmons (1991) lists moose among Tlingit crests for the Raven moiety, and several Houses throughout Southeast Alaska are named after moose. In Unit 1C, the first documented migration of moose was in 1962. On the Gustavus forelands, the first sightings of moose occurred in 1968. Fifteen moose calves were introduced to Berners Bay in 1958, and a supplemental release of six more calves occurred in 1960. Moose is the primary terrestrial resource harvested by residents of Units 1C and 1D, unlike other areas of Southeast Alaska where deer predominate (ADF&G 2007).

The use of river drainages to harvest wild resources in Southeast Alaska is well documented (Davidson 1928, Goldschmidt and Haas 1998). Drainages were regularly used to hunt goat and bear, trap furbearers, and collect plants and berries. Cabins and smokehouses were often located on these routes where meat was preserved by smoking. After migrating into these areas, moose were also harvested. Berners Bay (*Daxanáak* in Tlingit) was visited by both Chilkat Tlingit, from Skagway and Haines areas, and Auk Tlingit, from Juneau and Admiralty Island areas, to harvest wild resources during the late nineteenth and early twentieth centuries. In the nineteenth century, there were two, year-round villages, and several seasonally occupied camps and smokehouses located along Berners Bay drainages. The two, year-round villages were located between Lace River and Berners River. In addition, smokehouses were built at the mouth of Antler River. The area was used to hunt, fish, and gather berries. Seaweed and mussels were gathered from Echo Cove near the entrance to the bay. Coho and chum salmon were harvested and preserved. Goats were harvested, and mink, lynx, and

wolverine were trapped. Cabins and smokehouses were accessed by poling boats upriver (Davidson 1928; Goldschmidt and Haas 4 1998:28, 33, 113, 116, and 190–192).

Detailed Berners Bay harvest data is available up to 2007 after which the season was closed until 2013 (Table 5). From 1993–2007 cumulative, 32 rural communities in Southeast Alaska applied for draw permits to harvest moose in Berners Bay. Most of the applicants (15,840 of 17,939 applicants, about 88%) were residents of the nonrural Juneau area. For all communities, during this 15-year period (1993–2007), on average 1,196 people applied for 11 permits each year. The corresponding draw success rate was 1%. The number of applicants demonstrates that people were interested in using the area, but the actual level of interest in hunting moose in the Berners Bay drainage has not been documented.

**Table 5.** Applicants: Berners Bay drawing permit, 1993 to 2007 (Source: ADF&G 2007).

Unit	Community	Number of applicants	Unit	Community	Number of applicants
	Nonresident	91	4	<b>Pelican</b>	27
	Residency unknown	4	4	<b>Port Alexander</b>	4
1A	Ketchikan	113	4	<b>Sitka</b>	409
1A	<b>Metlakatla*</b>	9	4	<b>Tenakee Springs</b>	68
1A	<b>Meyers Chuck</b>	11	4	<b>Whitestone logging camp</b>	4
1A	<b>Neets Bay</b>	1	5	<b>Yakutat</b>	2
1A	<b>Yes Bay</b>	1	6C	Cordova	3
1C	Auke Bay	1,083	6D	Valdez	2
1C	Douglas	1,490	7	Seward	4
1C	<b>Gustavus</b>	19	8	Kodiak	43
1C	<b>Hobart Bay</b>	6	8	Port Lions	2
1C	Juneau	13,267	11	Copper Center	1
1C	<b>Swanson Harbor</b>	10	12	Tok	3
1C	<b>Thorne Bay</b>	5	13A	Glennallen	2
1D	<b>Haines</b>	543	14A	Wasilla Palmer Area	23
1D	<b>Klukwan</b>	1	14C	Eagle River	5
1D	<b>Skagway</b>	35	14C	Anchorage	160
2	<b>Craig</b>	38	15A	Kenai	11
2	<b>Kasaan</b>	6	15A	Sterling	1
2	<b>Klawock</b>	1	15B	Soldotna	7
2	<b>Point Baker</b>	1	15C	Homer	3
2	<b>Port Protection</b>	6	19C	Kasilof	2
2	<b>Port St Nicholas</b>	1	20B	Eielson AFB	3
3	<b>Kake</b>	2	20B	Fairbanks	48
3	<b>Petersburg</b>	155	20B	North Pole	3
3	<b>Wrangell</b>	17	20B	Two Rivers	3
4	<b>Angoon</b>	13	20D	Delta Junction	6
4	<b>Cube Cove</b>	7	20E	Chicken	2
4	<b>Elfin Cove</b>	37	22D	Savoonga	2
4	<b>Funter Bay</b>	4	22C	Nome	2
4	<b>Gull Cove</b>	2	28	Barrow	15
4	<b>Hoonah</b>	90			
	(continue next column)			TOTAL	17,939

\* **Bolded** communities are rural communities in Southeast Alaska.

## Harvest History

The first limited moose hunting season in Berners Bay was held in 1963, when four bulls were harvested. Since that time, the annual harvest has ranged from 0 to 23 animals (Sell 2014). **Table 6** shows the number of draw permits issued and moose harvested from 1983 through 2018. The number of permits issued remained steady at 8-9 permits between 2003 and 2006. However, this was down from the previous ten years when between 15 and 20 permits were issued each year. Hunters that receive permits have a high success rate, ranging from 60% to 100% in any given year. The success rate is high because the narrow valley bottoms contain good moose habitat, which concentrates moose along river corridors that provide hunter access. However, accessing many of the drainages in Berners Bay is difficult because of tidal influence and river gradient. Jet boats and air boats are the preferred means of access. The season was closed between 2007 and 2013 due to conservation concerns resulting from mortality during harsh winters. Four bulls were harvested in 2014, 2015 and 2016. Seven bulls were harvested in 2017 and six bulls were harvested in 2018. A total of seven permits were issued in 2019, two of which were allocated to the Federal draw hunt.

**Table 6.** Number of permits issued and moose harvested in Unit 1C, Berners Bay 1983 through 2018 (ADF&G 2019a, 2019b; Sell 2017 pers. comm.; Churchwell 2019, pers. comm.).

Year	Permits			Harvest			
	Bulls	Cows	Total	Bulls	Cows	Unknown	Total
1983	---	---	---	---	8	1	9
1984	---	---	---	1	13	0	14
1985	---	---	---	8	5	0	13
1986	---	---	---	5	0	0	5
1987	---	---	---	5	0	0	5
1988	---	---	---	4	0	0	4
1989	---	---	---	5	0	0	5
1990	---	---	5	5	0	0	5
1991	---	---	10	5	5	0	10
1992	---	---	10	5	4	0	9
1993	8	7	15	7	7	0	14
1994	8	7	15	8	6	0	14
1995	8	7	15	11	2	0	13
1996	9	8	17	7	7	0	14
1997	8	7	15	8	7	0	15
1998	8	7	15	8	7	0	15
1999	10	8	18	10	5	0	15
2000	10	10	20	8	7	0	15
2001	10	10	20	7	6	0	13
2002	8	7	15	5	4	0	9
2003	9	0	9	8	0	0	8

Year	Permits			Harvest			
	Bulls	Cows	Total	Bulls	Cows	Unknown	Total
2004	8	0	8	6	0	0	6
2005	8	0	8	5	0	0	5
2006	6	2	8	5	2	0	7
2007	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0
2014	5	0	5	4	0	0	4
2015	5	0	5	4	0	0	4
2016	5	0	5	4	0	0	4
2017	7	0	7	7	0	0	7
2018	7	0	7	6	0	0	6

**Table 7** shows the Berners Bay moose harvest by community of residence for 1990 through 2018. **Tables 8 and 9** show the community of residence of applicants for the Berners Bay bull (hunt DM041) and antlerless (hunt DM042) harvest permits from 1993 through 2018. It is likely that many of the applicants for the bull hunt also apply for the antlerless hunt. By far, the majority of applicants come from the Juneau area. Haines shows a consistent number of applicants that exceeds the number of permits issued on an annual basis. Gustavus and Skagway show fairly consistent, low numbers of applicants. The demand for Berners Bay moose from rural communities is greater than the number of permits available annually.

**Table 7.** Residency of successful hunters in the Berners Bay portion of Unit 1C (State hunts DM041 and DM042), from 1990 through 2018 (ADF&G 2019c; Churchwell 2019, pers. comm.).

Year	Residency												Total
	Anchorage	Angoon	Auke Bay	Douglas	Fairbanks	Haines	Juneau	Nome	Petersburg	Sitka	Thorne Bay	Non-resident	
1990							5						5
1991						1	9						10
1992							9						9
1993						1	13						14
1994						1	13						14
1995	1						11	1					13
1996							14						14
1997							13			1		1	15
1998			2	1		1	9		1	1			15
1999			2	2		1	10						15
2000			2	1	1		10		1				15
2001	1		3	1			7		1				13
2002				2		1	6						9
2003		1	1	1			5						8
2004				1			5						6
2005							5						5
2006			1				6						7
2007													0
2008-2013	Hunt Closed												
2014			1				3						4
2015				2			2						4
2016							4						4
2017			1	2			2				1	1	7
2018	1			2			3					1	7
<b>Total</b>	<b>2</b>	<b>1</b>	<b>12</b>	<b>11</b>	<b>1</b>	<b>6</b>	<b>159</b>	<b>1</b>	<b>3</b>	<b>2</b>		<b>1</b>	<b>199</b>



**Table 8.** Residency of applicants for the Unit 1C, Berners Bay, bull moose hunt (State hunt DM041) for the 1993/94 through 2016/17 regulatory years (Sell 2017, pers. comm.). The percent of Federally qualified applicants is probably slightly higher because the “Other” column is comprised of an unknown number of Federally qualified applicants.

Year	Community							Percent Federally qualified applicants*
	Excursion Inlet	Gustavus	Haines	Klukwan	Skagway	Other	Unknown	
1993			6			595	55	1%
1994		1	14			648	88	2%
1995			28			748	68	4%
1996			22		2	746	56	3%
1997			19		5	586	30	4%
1998			31		1	596	60	5%
1999		1	38		4	864		5%
2000		1	31		2	882		4%
2001		1	32			800		4%
2002		1	28		2	795		4%
2003		5	19		3	746		3%
2004		2	16			720		2%
2005			12			597		2%
2006			15		2	507		3%
2007			7			458		2%
2008-2013	Hunt closed							
2014			13		3	492	4	3%
2015		1	3			584		1%
2016			4		2	711		1%

\* The percent Federally qualified applicants is probably slightly higher because the “other” column is comprised of an unknown number of Federally qualified applicants.

**Table 9.** Residency of applicants for the Unit 1C, Berners Bay, antlerless moose hunt (State hunt DM042) for the 1993/94 through 2016/17 regulatory years (Sell 2017, pers. comm). The percent Federally qualified applicants is probably slightly higher because the “other” column is comprised of an unknown number of Federally qualified applicants.

Year	Community							Percent Federally qualified applicants*
	Excursion Inlet	Gustavus	Haines	Klukwan	Skagway	Other	Unknown	
1993			5			559	55	1%
1994		1	13			608	90	2%
1995			26			712	66	4%
1996			19		1	669	53	3%
1997			20		6	535	25	5%
1998			20		1	539	55	4%
1999		1	23	1		762		3%
2000		1	27		3	827		4%
2001		1	33			745		4%
2002		2	28		2	750		4%
2003						6		0%
2004-2005	No antlerless quota							
2006		1	11		1	342		4%
2007-2018	No antlerless quota							

\* The percent Federally qualified applicants is probably slightly higher because the “other” column is comprised of an unknown number of Federally qualified applicants.

**Effects of the Proposal**

Non-Federally qualified users have been the primary harvesters of Berners Bay moose since the inception of a State season in the area because they are the overwhelming majority of applicants for the State draw hunt. If the Federal season for moose in Berners Bay drainages in Unit 1C is rescinded, Federally qualified subsistence users would once again have to compete with many non-Federally qualified users for few permits, resulting in little chance of drawing a permit. Rescinding the Federal season would also remove the subsistence priority for Federally qualified subsistence users to harvest moose there. Consequently, Federally qualified subsistence users would lose harvest opportunity while non-Federally qualified users would gain opportunity because more permits would be available to them. The Berners Bay moose population would not be affected by this proposal because the number of permits available would not be affected.

**OSM CONCLUSION**

**Oppose** Proposal WP20-01.

## Justification

Section 802(2) of ANILCA requires that subsistence uses by rural residents of Alaska shall be “the priority consumptive uses of all such resources on the public lands of Alaska.” Section 804 provides a preference for subsistence uses, specifically “...the taking on public lands of fish and wildlife for nonwasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes.” Section 815(3) provides that the Board may restrict nonsubsistence uses on Federal public lands if “necessary for the conservation of healthy populations of fish and wildlife” or “to continue subsistence uses of such populations.”

Rescinding the Federal season for moose in Berners Bay drainages in Unit 1C would remove the subsistence priority for Federally qualified subsistence users to harvest moose there. The priority harvest of moose by Federally qualified subsistence users is consistent with ANILCA Title VIII and the Board’s Closure Policy. For over 30 years prior to 2019, Federally qualified subsistence users residing in Units 1-5 have not been provided a meaningful priority to hunt moose in Berners Bay. The demand for Berners Bay moose from all eligible hunters under State and Federal regulations is greater than the harvestable surplus as shown by the harvest history, population data, and applicant data. The Berners Bay moose population would not be affected by this proposal because the number of permits available would not be affected.

## LITERATURE CITED

ADF&G, 2019a. Alaska hunting information. [http://www.adfg.alaska.gov/index.cfm?adfg=moosehunting.main\\_](http://www.adfg.alaska.gov/index.cfm?adfg=moosehunting.main_)  
Retrieved: May 20, 2019.

ADF&G, 2019b. Alaska moose harvest statistics.  
<http://www.adfg.alaska.gov/index.cfm?adfg=moosehunting.harvest> Retrieved: May 21, 2019.

ADF&G, 2019c. General harvest reports. <http://www.adfg.alaska.gov/index.cfm?adfg=hunting.general>  
Retrieved: May 22, 2019.

ADF&G. 2018. Community Subsistence Information System.  
<http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=main.home>, accessed June 13, 2018. Division of Subsistence, Anchorage, AK.

Barten, N.L. 2008. Unit 1C moose management report. Pages 27–52 in P. Harper, ed. Moose management report of survey and inventory activities 1 July 2005 – 30 June 2007. ADF&G. Project 1.0. Juneau, Alaska.

Brown, C., editor. 2004. Moose management report of survey and inventory activities 1 July 2001–30 June 2003. ADF&G. Project 1.0. Juneau, AK.

Churchwell, R. 2019. Wildlife Biologist III. Personal Communication: email. ADF&G. Juneau, AK.

Davidson, D. S. 1928. Family hunting territories in northwestern North America. Museum of the American Indian, Heye Foundation, New York.

De Laguna, F. 1990. Tlingit. Pages 203–228 in Suttles, W., editor. Handbook of North American Indians: Volume 7 Northwest Coast. Smithsonian Institution, Washington, DC. 777 pages.

Emmons, G.T. 1991. The Tlingit Indians. Vol. 70 of Anthropological Papers of the American Museum of Natural History. University of Washington Press, Seattle, and American Museum of Natural History, New York.

FSB. 2019. Transcripts of Federal Subsistence Board proceedings. April 17, 2019. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2018. Transcripts of Federal Subsistence Board proceedings. April 12, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.

Goldschmidt, W. R., and T. Haas. 1998. Haa Aani: Our Land. Tlingit and Haida land rights and use. University of Washington Press, Seattle and London; and Sealaska Heritage Foundation, Juneau, AK. 219 pages.

Kamenskii, A. 1985 [1906]. Tlingit Indians of AK. Translated by S. Kan, edited by M.W. Falk. The Rasmuson Library Historical Translation Services Volume II. University of AK Press. Fairbanks, AK. 166 pages.

Oberg, K. 1973. The social economy of the Tlingit Indians. University of Washington Press, Seattle.

Paul, T. W. 2009. Game transplants in Alaska. Technical bulletin No. 4, second edition. Alaska Department of Fish and Game. Juneau, Alaska. 150pp.

Sell, S. 2014. Unit 1C moose management report. Chapter 3, Pages 3-1 through 3-24 [In] P. Harper and L. A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011–30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC-2014-6, Juneau.

Sell, S. 2017. Wildlife Biologist III. Personal Communication: email. ADF&G. Juneau, AK.

White, K.S., and N.L. Barten. 2009. Moose assessment and monitoring along the Juneau Access Road corridor, southeast Alaska. Wildlife research annual progress report. ADF&G, Douglas, AK. 9 pages.

White, K.S., Gregovich, D.P., Barten N.L and R. Scott. 2012. Moose population ecology and habitat use along the Juneau Access Road corridor, Alaska. Wildlife research annual progress report. ADF&G, Douglas, AK. 36 pages.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Southeast Alaska Subsistence Regional Advisory Council

**Oppose** WP20-01. The Council felt it had carefully considered the issues surrounding a Berners Bay moose hunt during its fall 2017 and winter 2018 meetings. During these meetings the Council spent considerable time discussing Proposal WP18-11, which requested a rural priority, and the Council voted for a Federal preference on a portion of this hunt. Since there is no new information to warrant a reconsideration or lead to a change, the Council feels Proposal WP20-01 is not necessary, as this issue was previously settled. The Council added that its 2017 fall meeting discussion and the Chair’s testimony at the following Federal Subsistence Board meeting show the care taken in formulating its recommendation for a 25% subsistence priority for permits and stated that a 25% priority does not unnecessarily restrict other users. Right now, all rural residents in Units 1 through 5 have a customary and traditional use in Unit 1C, which includes Berners Bay. The Council thinks that it is perfectly legitimate to afford a priority to rural users that want to hunt in Berners Bay, as long as moose is available. The Council also requested that the previous justification for this proposal from 2017 be incorporated herein by reference:

*“2017 Fall Meeting Justification: The Council decided that there needs to be a way to address proponent’s concerns (to provide a federal subsistence priority) but that this proposal couldn’t be implemented to do so and at the same time maintain a management system on this limited population of moose. The Council felt that they could not support this proposal based on the information and analysis given (including constitutionality of how a federal draw might work with a state draw), and without certain specific analyses, this proposal could create a conservation concern because the moose population is so small. The Council stated that it would like to continue discussion in order to solve this problem in the future, including entertaining a future proposal, after learning how best to do this and implement same without creating a conservation concern.”*

*“2018 Winter Meeting: After considering biological information, local knowledge and public testimony on the matter, the Council voted 11-0 for the following alternative to be presented to the Board at its April meeting:*

*In Berners Bay drainages, only one moose permit may be issued per household. A household receiving a State permit for Berners Bay drainages moose may not receive a Federal permit. The annual harvest quota will be announced by the U.S. Forest Service, Juneau Ranger District office, in consultation with ADF&G. The Federal harvest allocation will be 25% (rounded up to the next whole number) of moose permits.*

*Council Justification: The Council recognizes this is a complex issue but feels like this alternative would provide for a priority for Federally qualified rural residents hunting moose in Berners Bay. The Council further notes this is an option for providing priority access to limited moose resources on Federal public lands in the area. The Council feels that a Federal drawing hunt would be beneficial in meeting subsistence needs but suggests delaying implementation of this alternative hunt structure until Fall of 2019 so as not to conflict with current State draw hunt.”*

## INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

## ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-01:** This proposal, submitted by the Alaska Department of Fish and Game, would repeal the regulation establishing a Federal season and harvest limit for Unit 1C moose in the Berners Bay drainages.

**Introduction:** The Berners Bay moose population is located within the State's Juneau Nonsubsistence Area of Unit 1C. Although a limited amount of suitable moose habitat exists within the Berners Bay drainages, the area is isolated from other moose populations by rugged, mountainous terrain, the Juneau Icefield, and saltwater. Moose are not native to Berners Bay and the current population originated from introductions of a total of 21 calves from the Mat-Su area in 1958 and 1960. At the time of the introduction, it was understood that isolation and limited suitable habitat would always constrain the size and sustainable harvest of this moose population.

The Berners Bay moose introduction was successful and in 1963 a limited hunting season for bull moose was established. Since that time, the annual harvest has ranged from 0–23 animals. Because the Berners Bay moose population is geographically isolated and has access to a limited amount of suitable habitat, ADF&G has used a variety of harvest strategies to manage the population within the capability of the available habitat. Those strategies include permit hunts and alternating from bulls-only hunts to bull and cow hunts in an attempt to balance the herd's sex ratio and keep the population size within the carrying capacity of the range.

In the 1980s browse surveys and a habitat capability model suggested the habitat could support a post-hunt population of about 90 moose. Aerial minimum count surveys during late fall or early winter were used to track population size and composition and to inform future harvest management with the goal of keeping the post-hunt population at 80-90 moose with a bull:cow ratio of 25:100. In the mid-2000s ADF&G began live-capturing and radiocollaring moose in Berners Bay. That allowed department biologists to collect information on body condition and productivity. Both indices suggested the habitat could support more than 90 moose. Maintaining 20-30 radiocollared moose in this population has also allowed ADF&G to estimate population size with a measure of precision using a modified mark-resight technique, rather than relying on minimum counts. Based on those estimates ADF&G has allowed the population to rise as high as an estimated 141 animals without apparent detrimental effects to the habitat or body condition of moose.

The department currently monitors herd size and manages harvest using a population model updated annually with vital statistics collected over the previous year. Harvest management is also informed by

data on habitat use and behavior of collared moose and measures of winter severity. The department closed the Berners Bay population to all harvest in 2008 after the severe winter of 2006-2007 with record-setting snowfall caused the population to decline. The number of moose observed during aerial surveys decreased from 100 total moose in 2005 to 77, 50, and 45 total moose in 2006, 2007, and 2008 respectively. The herd gradually recovered, and when bull:cow ratios exceeded the management objective of 25 bulls:100 cows, the state authorized a limited drawing hunt for bull moose in 2013 with an open season between November 1–December 15. Initially, the state issued 5 permits annually, and the harvest averaged 4 moose each year. However, following a population estimate of  $141 \pm 25$  total moose and good recruitment (39calves:100cows) in RY2016, ADF&G increased the number of draw permits available from 5 to 7.

**Impact on Subsistence Users:** If adopted, this proposal would have little effect on subsistence users. Very few federally qualified users have historically participated in this hunt and few are expected to pursue this harvest opportunity due to difficult access to the area. Southeast Alaska has many other more accessible moose hunting opportunities available to subsistence hunters.

There are two federal non-rural areas in Southeast Alaska: Ketchikan (excluding Saxman) and Juneau. Juneau and Ketchikan residents are not eligible to participate in federal hunting opportunities; however, they may participate in state hunting opportunities. All the remaining communities are federally qualified, and those residents may participate in both state and federal hunts. Through registration permits—6 of 8 unique moose hunts in Southeast Alaska are administered by registration or permit, neither of which are limited—all residents of Southeast Alaska have significant moose hunting opportunity. In Unit 1D a Tier II permit is used to administer the hunt. Federally qualified moose hunters harvest an estimated 76% of moose taken in the region.

**Impact on Other Users:** This would benefit all Alaska residents by providing additional harvest opportunities for moose in Southeast.

**Opportunity Provided by State:** See above

**State customary and traditional use findings:** There is no customary and traditional use finding because Berners Bay is located within the state Juneau Nonsubsistence Area.

**Amounts Reasonably Necessary for Subsistence (ANS):** Because the Berners Bay moose population is within the state’s Juneau Nonsubsistence Area, no ANS can be established.

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident</u>	<u>Nonresident</u>
<i>Unit 1C</i>	<i>1 Bull</i>	<i>Sept. 15- Oct. 15 (DM041)</i>	<i>Sept. 15- Oct. 15 (DM041)</i>

**Special instructions:** Successful hunters must report in person or by mail with required specimens

(lower front teeth on 5-inch section of jaw) to the Douglas ADF&G office within 10 days of kill. A portion of the sex organ must remain naturally attached to the meat until the moose is transported to the hunter's residence.

**Conservation Issues:** There are no conservation issues as it pertains to the management of the Berners Bay moose population. ADF&G has a 60-year record of sustainably managing this moose herd. Harvest is currently managed through a drawing hunt with a limited number of permits available, which reflects the limited carrying capacity of the range rather than a conservation concern. Moose habitat in Unit 1C is limited and often occurs in isolated pockets. The Berners Bay moose herd is a small introduced population that is isolated by mountains, an icefield, saltwater, and other unsuitable moose habitat. The population is closely monitored by biologists to determine when the herd can sustain a harvest. Berners Bay is colder than the Juneau area, with heavier accumulations of snow. During winters with deep and persistent snow the moose population is susceptible to declines. For example, following the severe winter of 2006–2007 department biologists only observed 33 total moose with composition ratios of 11bulls:100cows and 14calves:100cows, and the hunt was closed. The population took years to recover, and the hunt was not reopened until RY2014.

The Berners Bay moose population is managed at a very fine scale because it is isolated from immigration, subject to occasional high winter mortality, and constrained by the amount of available habitat. Nonetheless, most current management objectives (“1990 Moose Management Plan for Berners Bay, Unit 1C”) are being met with the exception of the harvest objective. The harvest objective (8 moose) has not been met for several years because management decisions limited permit availability in an effort to rebuild the population. Since RY2017, seven drawing permits have been available for Berners Bay moose, and in 2017 and 2018 all permit holders were successful, including a resident of Thorne Bay, a federally qualified community on Prince of Wales Island.

**Enforcement Issues:** *None.*

**Recommendation:** The department **SUPPORTS** this proposal because we believe reserving a portion of the harvest from this small, isolated, introduced population for federally qualified users exceeded Congressional intent for ANILCA. Section 815 in ANILCA states that “Nothing in this title shall be construed as...authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on the public lands (other than national parks and park monuments) unless necessary for the conservation of healthy population of fish and wildlife, for reasons set forth in section 816 (public safety, administration or to assure the continued viability of such population), to continue subsistence uses of such populations, or pursuant to other applicable law.” We cannot find where any of these reasons apply. As explained above there is no biological concern for the Berners Bay moose herd. Federally qualified users already account for 76 percent of the moose harvest in Southeast Alaska. Since other, much better opportunities are available for subsistence harvest of moose for local subsistence use, there is no reason to set aside a portion of this introduced population which has little historical use for subsistence purposes. Many other areas are more accessible to subsistence users.



Literature Cited

ADF&G 1990. Strategic plan for management of moose in Region I, Southeast Alaska 1990–1994.

## WRITTEN PUBLIC COMMENTS



THE STATE  
of **ALASKA**  
GOVERNOR MICHAEL J. DUNLEAVY

### Alaska Board of Game

1255 West 8<sup>th</sup> Street  
P.O. Box 115526  
Juneau, Alaska 99811-5526  
Main: 907.465.6136  
Fax: 907.465.2332

June 24, 2019

Mr. Anthony Christianson, Chairman  
Federal Subsistence Board  
USF&WS Office of Subsistence Management  
1011 East Tudor Road M/S 121  
Anchorage, AK 99503-6199

Subject: WP20-01 regarding Berners Bay federal moose hunting regulations

Dear Chairman Christiansen and Members of the Federal Subsistence Board,

As chairman of the Board of Game (board), I want to express the board's concerns with the federal moose hunting regulation for the Berners Bay Drainages in Unit 1C which was created in April 2018. During our February 2018 board meeting in Dillingham, the board agreed to send a letter urging the Federal Subsistence Board to reject the proposal to create the hunt (WP18-110) for the following reasons:

- Moose were transplanted to Berners Bay primarily for the benefit of Juneau hunters and with substantial support from Territorial Sportsmen Inc., a Juneau-based hunting and sport fishing organization.
- Historically, Juneau hunters have accounted for the overwhelming majority of hunter effort and harvest in Berners Bay including the moose hunt.
- Hunters from federally qualified communities in northern Southeast have virtually no record of hunting or harvesting game in Berners Bay.
- Adopting the proposals establishing federal priorities would disenfranchise Juneau hunters.
- The Department of Fish and Game currently devotes considerable effort to monitoring the Berners Bay moose population and determining sustainable harvest levels. That work is accomplished using funds from state license sales and Federal Aid in Wildlife Restoration grants. All Alaska hunters contribute to those funding sources and have a right to benefit from their expenditure.

I submit this comment to ask the FSB members to consider these concerns by the Board of Game when you address Wildlife Proposal #20-01 by the Department of Fish and Game seeking repeal the federal moose hunt in Berners Bay.

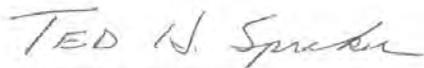
Chairman Anthony Christianson  
Federal Subsistence Board

pg. 2/2

June 24, 2019

Thank you for your consideration of this important matter.

Sincerely,

Handwritten signature of Ted Spraker in cursive.

Ted Spraker, Chairman  
Alaska Board of Game

cc: Deanna Perry, Subsistence Advisory Council Coordinator, Forest Service  
Kevin Maier, Chairman, Juneau-Douglas Fish and Game Advisory Committee  
Eddie Grasser, Director, ADF&G, Division of Wildlife Conservation  
Ryan Scott, Assistant Director, ADF&G, Division of Wildlife Conservation

**Ketchikan Advisory Committee**  
**June 6<sup>th</sup>, 2019**  
**ADF&G Conference Room**

- i. **Call to Order:** 5:40pm by Matt Allen, Secretary
- ii. **Roll Call:** 8 voting members present, 1 via phone  
**Members Present:** Allen, Crittenden, Dale, James, Westlund, Roth, Shaw, Bezneck, Fox, Scoblic (Phone)  
**Members Absent (Excused):** Doherty, McQuarrie, Skan, Franulovich, Miller  
**Members Absent (Unexcused):**  
**Number Needed for Quorum on AC:** 8  
**List of User Groups and Public Present:** Public, Sportfish Charter, ADFG (Sport Fish, Wildlife)  
**Motion:** **Bezneck**, motion to make **Allen** meeting Chair, **Roth**, second. 9-0 in favor. **Allen** sits as meeting Chair
- iii. **Approval of Agenda:**  
**Allen**, motion to amend agenda to include discussion of Federal Subsistence Proposals 10, 11, 13,14. **Westlund** seconded. Motion passed unanimously (9-0). **Westlund**, moved to approve agenda, **Dale** seconded. Motion passed unanimously (9-0)
- iv. **Approval of Previous Meeting Minutes:**  
Previous meeting minutes incomplete at this time
- v. **Fish and Game Staff Present:**  
Kelly Reppert, Ross Dorendorf, Tessa Hasbrouck
- vi. **Guests Present:** **Jim Moody, Nick Hashagan, Martin Caplan, Tony Azure**
- vii. **Chairman Report:** **Allen** read co-chair letter from Scoblic/Doherty
- viii. **ADF&G Sportfish Report:** **Reppert**, report regarding catch and release chinook fishing. Discussion and comment followed report.
- ix. **Old Business:**  
Federal Subsistence Proposals 2020-2022, WP20-01-08, WP20-10-15
- x. **New Business:**  
Catch and Release of chinook by Charter fishermen  
Set next meeting date, September 12<sup>th</sup>, 2019, 5:30pm ADFG Conference Room

Federal Subsistence Management Program 2020-2022 Wildlife Proposal Comments			
Proposal Number	Proposal Description		
Support, Support as Amended, Oppose, No Action	Number Support	Number Oppose /Abstain	Comments, Discussion (list Pros and Cons), Amendments to Proposal, Voting Notes
WP20-01 Support	8	0/1 abstain	Southeast, Moose, Unit 1C, Eliminate Unit 1C – Berners Bay moose hunt A biological concern does not currently exist necessitating a subsistence priority. Majority of traditional use comes from Juneau area. A fair system is currently in place to provide for opportunity
WP20-02 Support	9	0	Southeast, Deer, Unit 2, Remove harvest limits to non-federally qualified users We support State managers in their assessment of the deer population and the opportunity it can support.
WP20-03 Oppose	1	8	Southeast, Deer, Unit 2, Eliminate doe harvest Though the AC does not agree with doe harvest, we do not support this proposal because it would have minimal impact.
WP20-04 Oppose	3	6	Southeast, Deer, Unit 2, Revise harvest limit Some AC members support cessation of doe harvest if only for a short period of time.
WP20-05 Support	7	1/1	Southeast, Deer, Unit 2, Establish a registration permit for does AC supports the proposal as it may lead to better data for management.
WP20-06 Support	9	0	Southeast, Deer, Unit 2, Revise season AC supports removal of January hunt due to small amount of harvest, reduced quality of meat and difficulty in distinguishing bucks and does.
WP20-07 Support	9	0	Southeast, Deer, Unit 2, Revise harvest limit
WP20-08 Oppose	1	8	Statewide, All Trapping Species, Require traps or snares to be marked with name or State Identification number Though some type of compromise should be reached in regards to labeling of traps/snares a one size fits all regulation could be overly burdensome in some areas
WP20-09 No Action			Southeast, Beaver, Units 1-4, Revise trapping season
WP20-10			Statewide, Black Bear, Units 1-5, Revise Customary and Traditional Use Determination

Oppose	2	6	Hunting of Black Bear is not customary and traditional in all units residing in Southeast
WP20-11	Statewide, Brown Bear, Units 1-5, Revise Customary and Traditional Use Determination		
	3	4	Hunting of Brown Bear is not customary and traditional in all units residing in Southeast.
WP20-12	Southeast, Deer, Unit 3, Revise hunt areas, season dates, and harvest limits		
WP20-13	Statewide, Elk, Unit 3, Establish Customary and Traditional Use Determination		
	0	9	This is a population introduced by the State in 1986, due to this fact we do not believe this population is traditional and customary for any Unit in Southeast Alaska. The authors of this proposal do not demonstrate how this particular species in this area has been used to meet the definition as customary and traditional.
WP20-14	Statewide, Goat, Unit 1-5, Revise Customary and Traditional Use Determination		
	4	4	Hunting of Mountain Goat is not Customary and Traditional in all Units residing in Southeast.
WP20-15	Statewide, Moose, Unit 1-5, Revise Customary and Traditional Use Determination		
	0	8	Hunting of Moose is not customary and traditional in all units residing in Southeast.
WP20-16	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			
WP20-17	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			

Adjournment:

Minutes Recorded By: \_\_\_\_\_

Minutes Approved By: \_\_\_\_\_

Date: \_\_\_\_\_

<b>WP20–02 Executive Summary</b>	
<b>General Description</b>	Proposal WP20–02 requests that the reduced deer harvest limit for non-Federally qualified users in Unit 2 be rescinded. <i>Submitted by: Alaska Department of Fish and Game.</i>
<b>Proposed Regulation</b>	<p><b>Unit 2—Deer</b></p> <p><i>5 deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct.15-Jan. 31. Harvest ticket number five must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.</i></p> <p><i>The Federal public lands on Prince of Wales Island, excluding the southeaster portion (lands south of the West Arm of Chomondeley Sound draining into Chomondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1- Aug. 15, except by Federally qualified subsistence users hunting under these regulations. <del>Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.</del></i></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Southeast Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee (ISC) agrees with the Southeast Subsistence Regional Advisory Council that Federally qualified subsistence users are still not meeting their needs in Unit 2 and there is a conservation concern for this resource. The ISC also agrees with the Southeast Council and Federal Subsistence Board

<b>WP20–02 Executive Summary</b>	
	<p>(Board) that the existing Unit 2 deer regulations will continue to provide opportunity for non-Federally qualified deer hunters on Prince of Wales Island while providing for a subsistence priority and conservation of deer.</p> <p>The ISC noted that no substantive information changes have been presented to the Board since the Board’s original decision on WP18-01, which resulted in harvest limit restrictions for non-Federally qualified users for deer in Unit 2.</p>
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>1 Support</b>



## STAFF ANALYSIS

### WP20-02

#### ISSUES

Wildlife Proposal WP20-02, submitted by the Alaska Department of Fish and Game (ADF&G), requests that the reduced deer harvest limit for non-Federally qualified users in Unit 2 be rescinded.

#### DISCUSSION

The Federal Subsistence Board (Board) reduced the deer harvest limit in Unit 2 for non-Federally qualified users from four to two male deer at the April 2018 meeting (WP18-01). The proponent strongly disagrees with this action and encourages the Board to return the non-Federally qualified user deer harvest limit back to four male deer.

The proponent contends that the Board does not have the authority to unnecessarily restrict non-Federally qualified users, and that Alaska National Interest Lands Claim Act (ANILCA) Section 1314 affirms the States sovereign responsibility and authority for management of fish and wildlife on all lands “except as may be provided in Title VIII.” The proponent states that numerous sections in Title VIII specifically recognize the State’s role in providing a priority for customary and traditional subsistence uses of fish and wildlife on Federal public lands, and that consultation is necessary to evaluate whether proposed Federal regulatory actions are “consistent with management of fish and wildlife in accordance with recognized scientific principles” and “assure the continued viability of a fish or wildlife population,” which Congress recognized is the purview of the State.

The proponent contends that the extent and consistency of directions in ANILCA Title VIII confirm that Congress intended for the State to continue to manage fish and wildlife in accordance with established scientific principles, to continue to regulate harvests and other uses, and to be involved in implementation of the Federal subsistence priority. The State of Alaska, and not the Board, is authorized to establish methods and means and to establish seasons for non-Federally qualified users.

Furthermore, the proponent contends that the Board’s harvest limit restriction is unnecessary and unjustified in these circumstances and that this is the first known occurrence of the Board reducing State harvest limits. The proponent states that there is no conservation concern for the deer population, and that the deer population continues to be viable, as indicated by the generous harvest limits and season for Federally qualified subsistence users. The proponent states that no restrictions are needed to continue subsistence uses of deer, and that there is no credible argument that restricting non-Federally qualified users to two bucks instead of four is necessary to continue subsistence uses. They state that the effect is likely to be very marginal and any benefit will not be quantifiable.

The proponent also states that ADF&G conducted a review of the biological and management metrics, and that there is nothing to suggest there is a significant decline in deer numbers in Unit 2.

## Existing Federal Regulation

### Unit 2—Deer

*5 deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct.15-Jan. 31. Harvest ticket number five must be used when recording the harvest of a female deer, buy may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.* July 24-Jan 31

*The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Chomondeley Sound draining into Chomondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1- Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.*

## Proposed Federal Regulation

### Unit 2—Deer

*5 deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct.15-Jan. 31. Harvest ticket number five must be used when recording the harvest of a female deer, buy may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.* July 24-Jan 31

*The Federal public lands on Prince of Wales Island, excluding the southeaster portion (lands south of the West Arm of Chomondeley Sound draining into Chomondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1- Aug. 15, except by Federally qualified subsistence users hunting under these regulations. ~~Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.~~*

## Existing State Regulation

### Unit 2 – Deer

*Residents and non-residents: Four bucks*

*Aug. 1 – Dec. 31*

*Harvest tickets must be validated in sequential order, and unused tickets must be carried when you hunt.*

## Extent of Federal Public Lands

Unit 2 is comprised of 74% Federal public lands and consist of 73% U.S. Forest Service (USFS) managed lands and less than 1% U.S. Fish and Wildlife Service (USFWS) managed lands (see **Unit Map**).

## Customary and Traditional Use Determinations

Rural residents of Units 1, 2, 3, 4 and 5 have a customary and traditional use determination for deer in Unit 2.

## Regulatory History

Hunting regulations have permitted the harvest of deer in Unit 2 since 1925 (**Appendix 1**). During this period, season closing dates have varied between November and December, with December 31 being the most common closing date since 1988. Seasons and harvest limits for Federally qualified subsistence users in Unit 2 are more liberal than State regulations. Federal regulations have allowed the harvest of one female deer in Unit 2 since 1995, as well as the harvest of five deer beginning in 2006.

Following years of numerous Unit 2 related deer proposals (**Appendix 2**) submitted to the Federal Subsistence Board (Board), the Unit 2 Deer Planning Subcommittee (Subcommittee) was formed in 2004 to address contentious deer management issues in Unit 2. At the request of the Board, the Council established the 12-member Subcommittee to address concerns that Federally qualified subsistence users in Unit 2 were unable to harvest enough deer to meet their needs. The Subcommittee included residents of Craig, Hydaburg, Ketchikan, Petersburg, Point Baker, and Wrangell, to reflect the range of users of Unit 2 deer, along with representatives from State and Federal wildlife management agencies.

The Subcommittee developed management recommendations at a series of five public meetings held in communities that depend upon Unit 2 deer. Both Federally and non-Federally qualified users participated at these meetings. The Subcommittee recommended that deer harvest management tools could be applied in Unit 2 as deer population trends and hunting use patterns changed. The degree to which these tools would be employed would be decided through the established public regulatory processes (SEASRAC 2006).

In 2006, the Board implemented two major changes to the Unit 2 deer hunt by adopting Proposals WP06-08 and WP06-09, both with modification. Adoption of WP06-08 as modified, reopened a portion of Federal public lands to non-Federally qualified users on the southeast side of Prince of Wales Island. Adoption of WP06-09 as modified, established the current five deer harvest limit for Federally qualified subsistence users (FSB 2006). Two other proposals, WP06-06 and WP06-10, related to the use of harvest tickets in Unit 2 and were unanimously opposed by the Council and rejected by the Board (FSB 2006).

Three proposals related to Unit 2 deer were submitted from 2007-2012. Proposal WP07-07 requested the female deer season be closed, Proposal WP10-19 requested a change to the female deer season, and Proposal WP10-20 requested the August closure to non-Federally qualified users be lifted. The Council opposed and the Board rejected these proposals (FSB 2007, 2010).

Also during 2010, the Board adopted WP10-22 with modification delegating management authority for wildlife by letter to the ten District Rangers located in Units 1-5. As a result, the delegated authority in Unit 2 changed from the Tongass Forest Supervisor to the District Rangers of both the Craig and Thorne Bay Ranger Districts. For deer, their scope of delegation allows them to set harvest quotas; to close, reopen or adjust Federal subsistence deer seasons; and to adjust harvest and possession limits for that species. Most likely, this type of action would occur prior to the season. Any action greater than 60 days in length requires a public hearing before implementation. They may also close Federal Public lands to the take of this species to all users. This type of action would most likely take place during the season. Action on the proposal also removed the requirement for consultation with the both Council Chair and ADF&G, as this was already defined protocol within the Special Action process (FSB 2010).

Two proposals were considered for deer in Unit 2 in 2013. Proposal WP14-03 requested the female deer season be eliminated whereas Proposal WP14-04 asked for an earlier season to be established for Federally qualified subsistence users over the age of 60 or physically disabled. The Council unanimously opposed and the Board rejected these proposals (SEASRAC 2013; FSB 2014).

Three proposals were considered for deer in Unit 2 in 2015. Proposal WP16-01 requested a harvest limit reduction for non-Federally qualified users as well as an extension of the Federal season through the month of January. This proposal was broken into two sub-proposals by the Council who opposed the harvest limit reduction but supported the season extension with the following justifications: 1) the Unit 2 deer population was stable; 2) January harvest was a traditional practice according to testimony; 3) any additional female deer harvest was believed to be minimal and sustainable; and 4) the USFS District Ranger in Unit 2 has delegated authority to close the season early if conservation needs arise. The Board adopted the proposal as modified by the Council. Proposal WP16-05 requested removal of language regarding a harvest limit reduction during times of conservation because that authority is included by delegation to the Federal in-season manager and WP16-08 requested harvest ticket #5 be used out of sequence when harvesting a female deer. Both proposals were unanimously supported by the Council and adopted by the Board (SEASRAC 2015; FSB 2016).

Proposal WP18-01 was considered during the 2018 regulatory cycle. The proposal requested a reduction of both the season length and the harvest limit for non-Federally qualified users. The Council divided the proposal into two action items where they supported the harvest limit reduction but opposed the shortening of the season. The Board adopted the harvest limit reduction as recommended by the Council based on testimony from Federally qualified subsistence users that they were not meeting their needs. The Board rejected the season date reduction because they believed it would not provide additional benefits as harvests in December were minimal by both user groups and that subsistence users already had additional priorities available in the form of; the week in July, the closure to non-Federally qualified users in August, the ability to harvest a female deer starting October 15, a season extension into the month of January and the ability to harvest up to five deer total (SEASRAC 2017; FSB 2018a).

Due to administrative delays in the Federal Rule Making Process, on August 8, 2018, the Board approved temporary delegated authority to some Federal land managers to enact temporary changes to Federal Subsistence Regulations adopted by the Board during the April 2018 regulatory meeting (FSB 2018b). This delegation of authority was established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6). As a result, emergency special action 13-BD-06-18 was issued on August 16, 2018 by the USFS District Ranger restricting the harvest of deer by non-Federally qualified users to two male deer on Federal Public lands in Unit 2. The action was set to expire on October 15, 2018 or when the 2018-2020 Federal Subsistence Wildlife Regulations were published in the Federal Register.

Proposal WP18-02, requesting the Customary and Traditional use determination for deer in Units 1-5 be modified to include all rural residents of Units 1-5, was also considered during the 2018 regulatory cycle. This proposal had unanimous support from the Council and was adopted by the Board as a consensus agenda item (SEASRAC 2017; FSB 2018a).

### **Biological Background**

Sitka black-tailed deer spend the winter and early spring at low elevation on steep slopes where there is less snow accumulation, and old-growth forests provide increased intermixing of snow-intercept and foraging opportunities. Fawning occurs in late May and early June as vegetation greens-up, providing abundant forage to meet energetic needs of lactating does. Some deer migrate and follow the greening vegetation up to alpine for the summer, while others remain at lower elevations. The breeding season, or rut, generally occurs late October through late November (ADF&G 2009) generally peaking around mid- November. Wolves and black bears are the primary predators present in Unit 2, and may reduce deer populations or increase recovery times after severe winters.

Deer populations in Southeast Alaska fluctuate and are primarily influenced by winter snow depths (Olson 1979). Deer in Southeast Alaska typically have trouble meeting their energy needs in winter (Hanley and McKendrick 1985, Parker et al. 1999), and winters with long periods of deep snow that restrict the availability of forage can result in deer depleting their energy reserves to the point of starvation (Olson 1979).

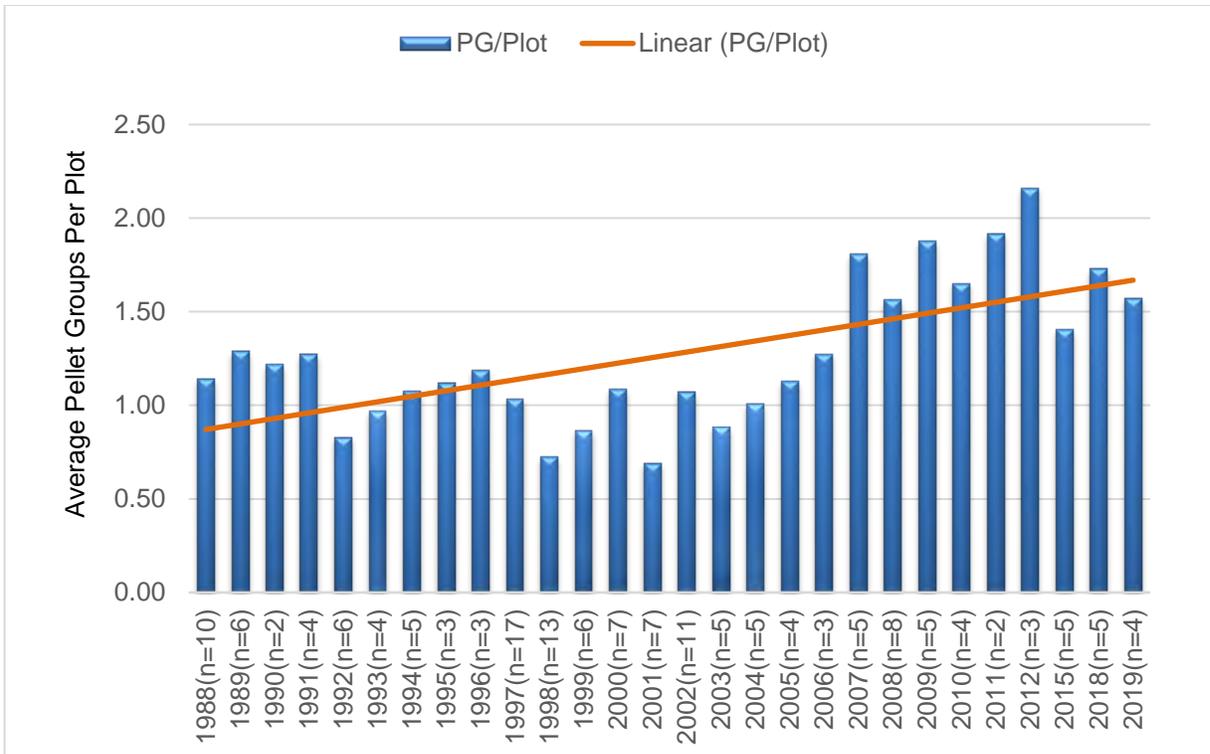
Summer nutrition is important for building body reserves to sustain deer through the winter (Stewart et al. 2005). Few studies have been conducted on summer habitat conditions because winter habitat carrying capacity is generally considered to be the limiting factor for deer in Southeast Alaska. However, deer populations at or above habitat carrying capacity are affected by intra-specific competition for food and may enter winter in reduced body condition compared to deer populations below carrying capacity (Kie et al. 2003, Stewart et al. 2005). This can result in higher susceptibility to severe winters and lower productivity (Kie et al. 2003, Stewart et al. 2005). In addition, nutritionally stressed does produce smaller and fewer fawns (Olson 1979).

### Recent population indices

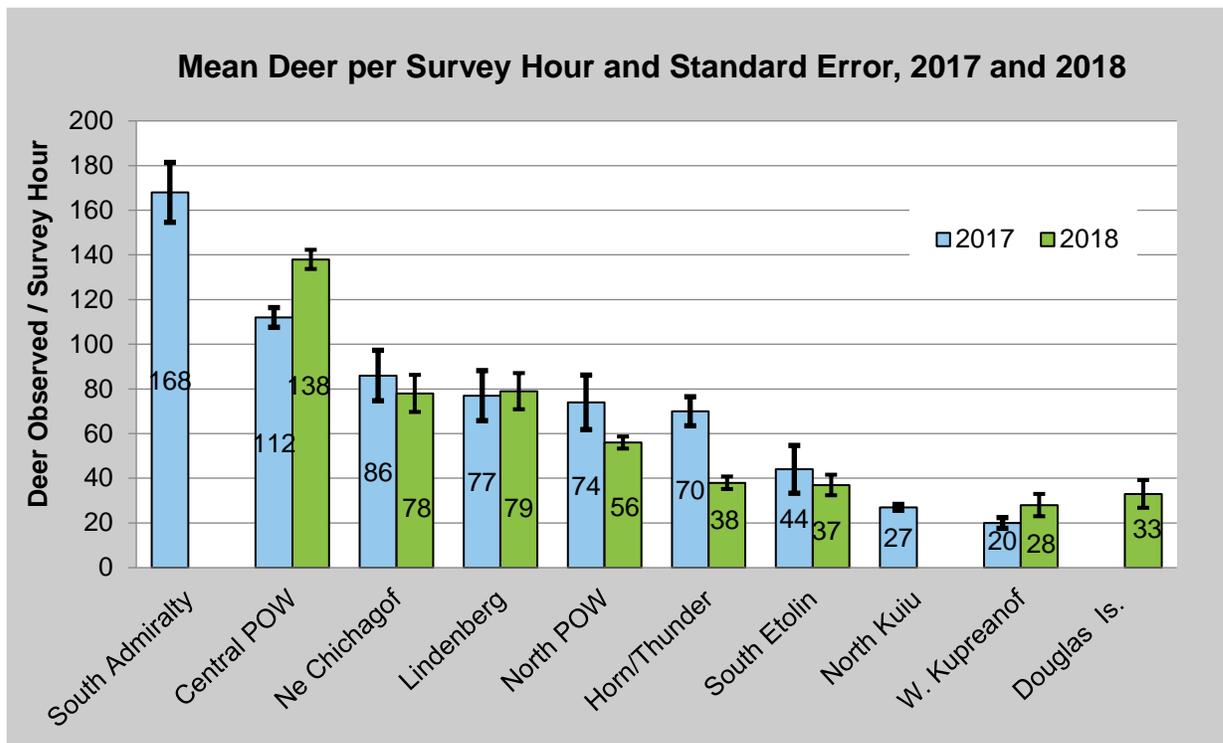
There are no methods to directly count deer in Southeast Alaska, so ADF&G conducts deer pellet surveys as an index to the relative abundance of the deer population. Relating pellet group data to population levels is difficult, however, because factors other than changes in deer population size can affect deer pellet-group density. Snowfall patterns influence the annual distribution and density of deer pellets, and snow persisting late into the spring at elevations below 1,500 feet limits the ability to consistently survey the same zones each year. In mild winters, deer can access forage in a greater variety of habitats, not all of which are surveyed. Conversely, in severe winters, deep snow concentrates deer (McCoy 2011).

Brinkman et al. (2013) questioned the value of pellet-group surveys for monitoring population trends due to the variability in the data compared to DNA based pellet counts. Pellet group transects were designed to detect large (>30%) changes in abundance and are not an appropriate tool for monitoring smaller year to year changes. Although pellet-group surveys remain the only widely available deer population data, the results should be interpreted with caution. Pellet-group data in Unit 2 suggests a generally increasing population trend since a low during the late 1990s and early 2000s (**Figure 1**). This contrasts with Brinkman et al. (2011) who used a DNA based technique and estimated a 30% population decrease from 2006–2008 which they attributed to three consecutive winters with deep snow. Brinkman's study was limited to three watersheds, and the population changes during the study varied by watershed. It appears that populations subsequently increased after those severe winters and Bethune (2011) felt that by 2010 the Unit 2 deer population was healthy, stable to increasing, and at a 12-15 year high.

ADF&G began testing alpine deer aerial survey techniques in 2013 (**Figure 2**). 2017 was the first year with an established protocol and consistent surveys across southeast Alaska. ADF&G is still researching the correlation between alpine surveys and actual deer populations. Aerial survey numbers seem to reflect the relative abundances expected among various locations, but correlations with population trends are unknown at this time.



**Figure 1:** Annual average pellet group counts and general trend for deer in Unit 2 through 2019 (McCoy 2019a).



**Figure 2:** Aerial alpine surveys across southeast Alaska for 2017 and 2018 (McCoy 2019b).

Habitat

Old-growth forests are considered primary deer winter range, in part because the complex canopy cover allows sufficient sunlight through for forage plants to grow and intercepts snow, making it easier for deer to move and forage during winters when deep snow hinders access to other habitats. Deep snow deer winter range is defined as high value productive old growth (size class 5, 6, 7) on south facing slopes below 800 feet, and this is considered to be the limiting habitat for deer in Southeast Alaska. Some areas of Unit 2 have been impacted by large scale changes in habitat due to timber harvest, while the habitat is largely intact in other areas. Young-growth forest treatments (e.g., thinning, small gap creation, branch pruning) can benefit deer forage development in previously harvested stands. Regardless, areas with substantial timber harvest are expected to have lower long-term carrying capacity compared to pre-harvest conditions.

There is 62% of deer winter habitat remaining in GMU 2 (**Table 1**) with WAAs 1214, 1315, 1317, 1318, 1420, 1421, 1525, 1529, 1530, 1531 having below 50% habitat remaining. This is from past timber harvest and road building. In the case of a severe winter, these will be the areas hit hardest with deer mortality since there is little habitat left to sustain them. Habitat conditions would not improve as the areas harvested have reached stem exclusion which can last from 25 year post harvest to 150 years post-harvest. **Figure 3** can be used to see where the least amount of habitat remains and if you compare it to **Table 1** you can see where harvest is greatest compared to available habitat. Most wildlife analysis areas (WAA) with less than 50% deep snow deer winter habitat have the highest harvest rates.

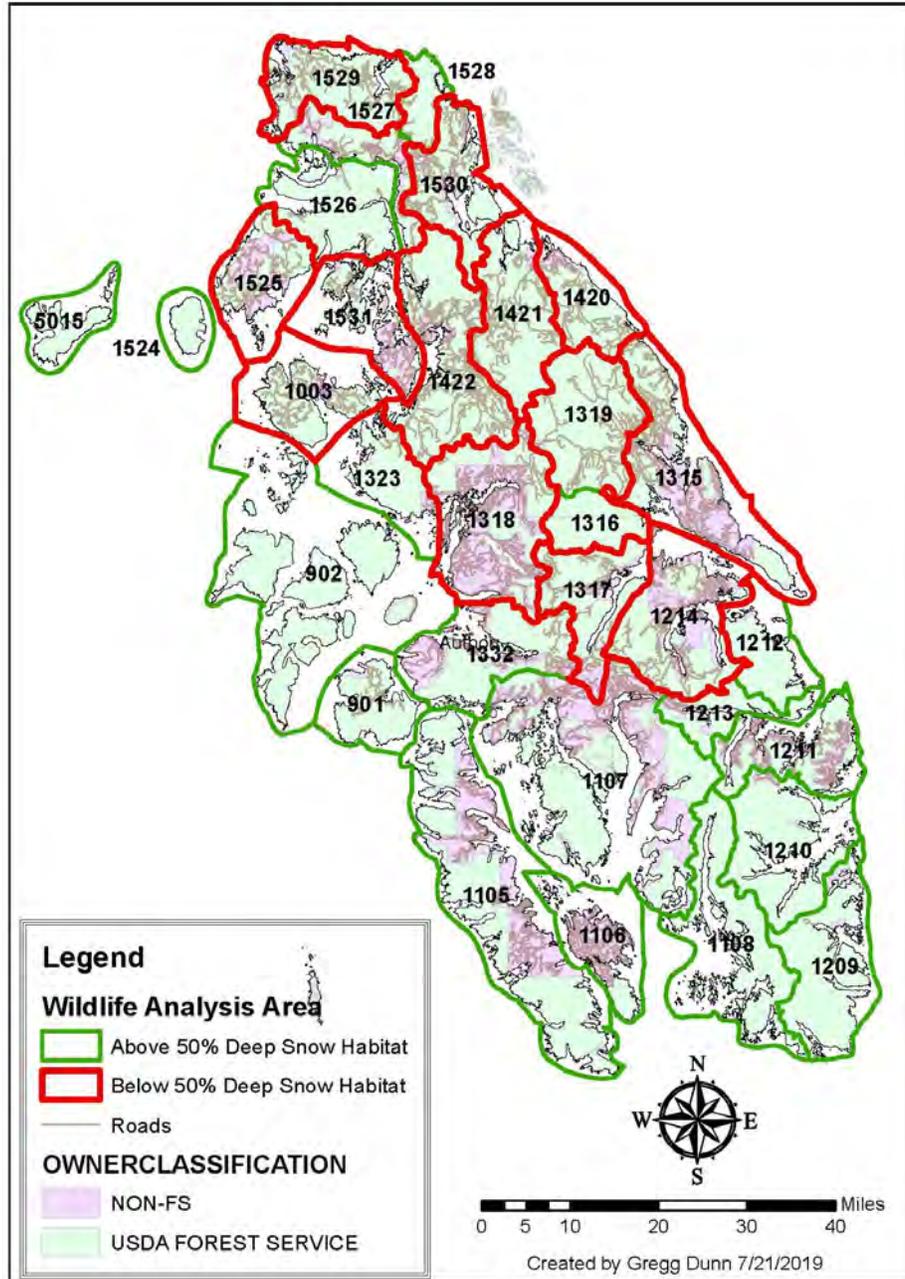
Conditions on the ground within the last few years have remained stable because of mild winters and later arrival of snow in Unit 2 allowing the deer to forage longer at altitude and in areas such as muskegs. Prolonged snowpack during a severe winter or within later stages of winter could have a greater effect on deer populations going forward since there is far less habitat available during those periods.

**Table 1:** Overall percent of historical habitat since 1954 (beginning of large scale logging) remaining by wildlife analysis area (WAA) in GMU 2 for deep snow deer winter habitat and all productive old growth, average harvest since 2005, and harvest trend.

WAA	Productive Old Growth	Deep Snow Deer Winter Habitat (HPOG below 800 feet on south facing slopes)	Average Reported Harvest by WAA since 2005 and trend
901	89	85	69 ↑
902	100	100	79 ↓
1003	51	49	46 ↑
1105	99	99	84 ↑
1106	100	100	25 ↓
1107	97	93	138 ↑
1108	99	99	17 ↑
1209	100	100	10 ↑



<b>WAA</b>	<b>Productive Old Growth</b>	<b>Deep Snow Deer Winter Habitat (HPOG below 800 feet on south facing slopes)</b>	<b>Average Reported Harvest by WAA since 2005 and trend</b>
1210	99	99	50 ↑
1211	83	78	36 ↑
1213	99	99	21 ↑
1214	67	48	245 ↑
1315	55	29	350 ↑
1316	99	100	27 ↓
1317	56	23	145 ↑
1318	78	49	220 ↑
1319	74	61	229 ↓
1323	90	76	18 ↓
1332	80	72	76 →
1420	54	27	308 ↑
1421	71	44	107 ↓
1422	51	29	386 ↓
1525	51	40	21 ↑
1526	93	83	18 ↑
1527	67	61	23 ↓
1528	82	84	37 →
1529	55	46	144 ↓
1530	50	37	145 ↑
1531	55	49	37 ↓



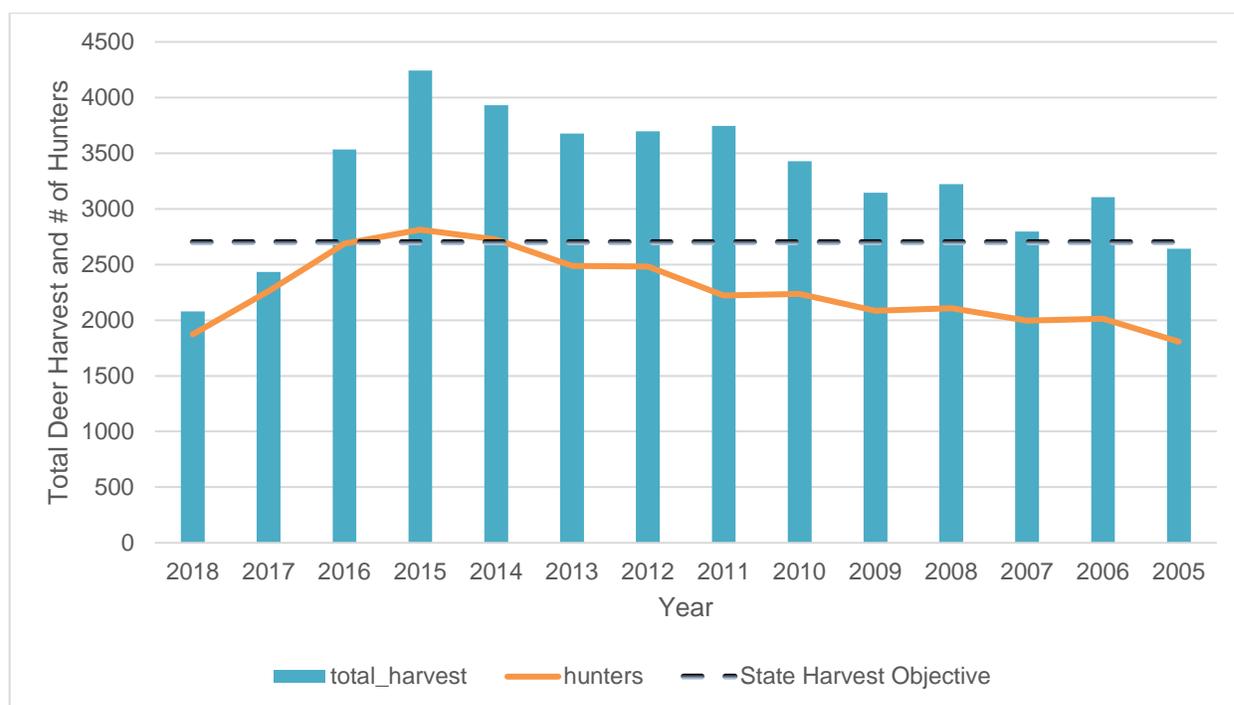
**Figure 3:** Map of Unit 2 showing deep snow deer winter habitat availability and where habitat is below 50% in WAAs. Note: WAA 5015 is not part of Unit 2.

### Harvest History

Harvest data reported below are provided by ADF&G (McCoy 2019b) and are gathered by several reporting systems including the Region 1 (Southeast Alaska) deer survey, Unit 2 deer harvest report, and the State-wide deer harvest report. The Region 1 deer survey is the most consistent report, covering the years 1997–2010 and is based on a sample of hunters. In general, 35% of hunters from each community were sampled annually and while response rates vary by community, the overall

response rate across communities was approximately 60% each year. Harvest numbers were extrapolated using expansion factors that are calculated as the total number of harvest tickets issued to a community divided by the total number of survey responses for that community. If response was low from a community, an individual hunter may have a disproportionate effect on the data. As confidence intervals are not available for these data, harvest numbers should be considered estimates and interpreted with caution. Trends, however, should be fairly accurate, especially at larger scales. The Unit 2 deer report was in place from 2005–2010 and was instituted specifically for reporting deer harvest in Unit 2. In 2011, the statewide deer report replaced the other deer harvest reporting systems and requires reporting of harvest by all deer hunters. Different expansion factors are used for the various data sets so that total harvest estimates between years are comparable (McCoy 2013).

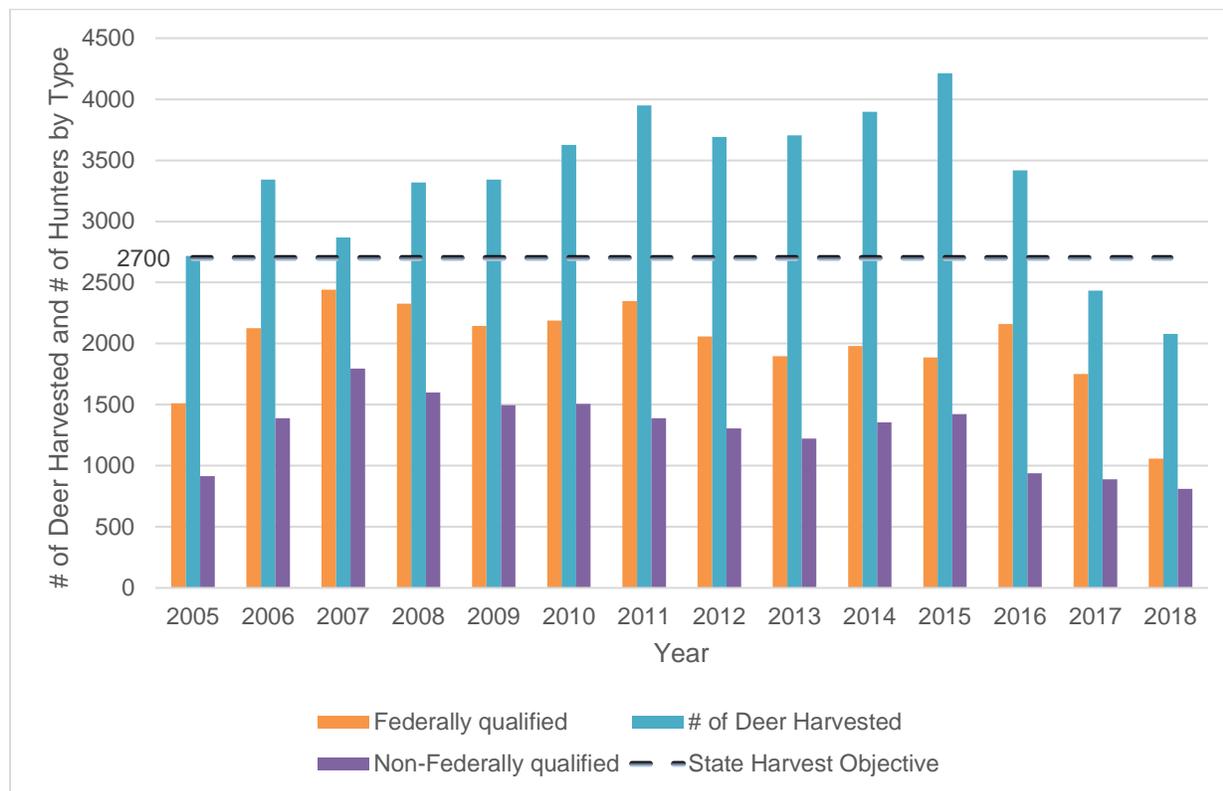
Action taken by the Alaska Board of Game in fall 2000 established a harvest objective of 2,700 deer for Unit 2 as they identified the population as important for satisfying high levels of human consumptive use (Bethune 2013). Estimated deer harvest in Unit 2 from 2005–2018 can be found in **Figure 4**. The estimated average total annual harvest is 3,467 deer. Harvests have been at or above ADF&G’s Unit 2 harvest objective from 2005-2016 and fell below harvest objectives during the 2017 and 2018 seasons. Deer harvest reached historically high levels in 2015 and then began to decline since. The same pattern can also be seen with hunter numbers participating in Unit 2 (**Figure 4**).



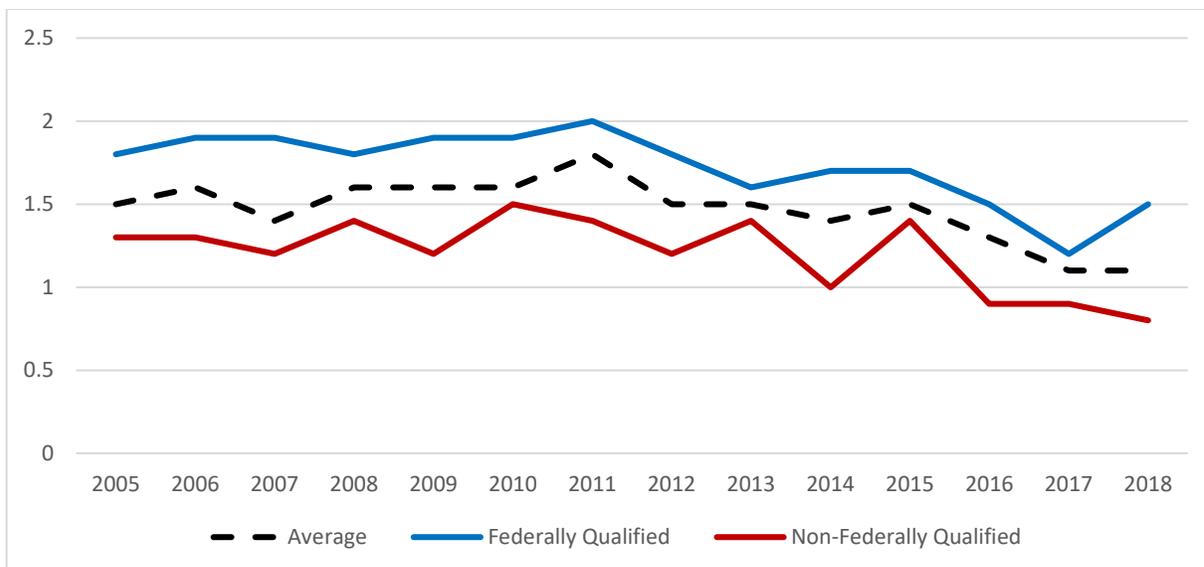
**Figure 4:** Total deer harvest and number of hunters during the 2005-2018 seasons in Unit 2 and showing the state harvest objective of 2,700 deer (McCoy 2019b).

Federally qualified subsistence users tend to harvest the most deer in Unit 2, which has ranged from 59%-71% of the total harvest from 2005-2018 (**Figure 5**). This estimate may be significantly higher, as past testimony has suggested that some communities do not fully report

harvests taken during the year (SERAC 2015; SERAC 2017). The average number of deer harvested per hunter has seemed to remain stable for Unit 2 residents since 2005 until 2015, and after that there is a noticeable decline (**Figure 6**). Since then, a slight increase has been noted for Federally-qualified subsistence users.



**Figure 5:** Estimated total deer harvest and number of hunters by user type from 2005-2018 in Unit 2 (McCoy 2019b)



**Figure 6:** Number of deer harvested per hunter by user type in Unit 2, 2005-2018 (McCoy 2019b)

Federally qualified subsistence users in Unit 2 had a higher success rate than other hunters from 1997-2017 with an average success rate of 74.4% during this period compared to 59.6% success rate for non-Federally qualified hunters (Table 2). Five deer have only been allowed since 2006.

**Table 2:** Overall percentage of hunters by number of deer reported harvested from 1997-2017 (McCoy 2019b). Note: Non-Federally qualified hunters are only allowed to harvest up to four deer.

Hunter Type	No Deer	1-2 Deer	3-4 Deer	5 Deer	Overall Success
<b>Federally Qualified</b>	<b>25.6%</b>	<b>48.7%</b>	<b>23.8%</b>	<b>1.8%</b>	<b>74.4%</b>
<b>Non-Federally Qualified</b>	<b>40.4%</b>	<b>46.4%</b>	<b>13.1%</b>	<b>0</b>	<b>59.6%</b>

Despite current abundant deer populations, historically high harvest, and liberalized seasons and harvest limits, there are continued concerns from members of the subsistence community regarding their inability to meet their subsistence needs. One concern is the perception of increased crowding from and competition with non-Federally qualified users, which may partly be a result of the Access Travel Management Plan (ATM) enacted by the USDA Forest Service in 2009. The ATM reduced access for hunters by reducing miles of roads accessible to hunters in Unit 2. The ATM may have concentrated hunters into smaller areas, affirming the perception of increasingly crowded hunting conditions. In addition, as clear-cuts advance past early seral stages, deer are less visible from the road which may also be leading to the misperception that fewer deer are available (Bethune 2013).

Other Mortality

It is believed that Unit 2 has one of the highest illegal and unreported harvest rates in the region, estimated to be equal to the legal harvest (Table 5 in Bethune 2015). That estimate is based on anecdotal reports, interviews with law enforcement personnel, and fates of radio-collared deer. If that

estimate is correct, over 4% of the estimated 75,000 deer in Unit 2 may be illegally harvested each year. This high illegal take is likely due in large part to the extensive and remote road system and few law enforcement personnel patrolling the unit.

Flynn and Suring (1989) reported that actual mortality from legal hunting could be 38% greater than the estimated harvest because of unknown or unreported crippling loss. Field observations and voluntary reports of wounding loss suggest that this estimate might be conservative.

Historically and prior to extensive road paving on the island, deer/vehicle collisions were rare (10–25 deer/year) and were not considered a significant source of mortality. However, the collision risk increased with completion in 2003 of extensive new POW highway paving projects, which now extend from Craig to Coffman Cove and east to Thorne Bay. Construction and paving of the main 30 road to Coffman Cove was completed in 2008. Construction is currently underway to extend the paved surface of Road 20 to Whale Pass. Higher vehicle speeds, as well as an attractive food source created by planting grass for erosion control near the roads will likely cause more deer/vehicle collisions, prompting managers to raise estimates to 30-50 deer per year beginning in 2004.

### **Effects of the Proposal**

If adopted, the proposal would return the State deer harvest limit back to four, increasing opportunity on Federal public lands for non-Federally qualified users. This would likely increase both the number of non-Federally qualified user days hunted and encounters between Federally qualified subsistence users and non-Federally qualified users, thereby decreasing harvest opportunity for Federally qualified subsistence users through increased competition. The number of deer taken by non-Federally qualified users would likely increase, also decreasing harvest opportunity for Federally qualified subsistence users.

### **OSM CONCLUSION**

**Oppose** Proposal WP20-02.

### **Justification**

The Board adopted the reduced deer harvest limit for non-Federally qualified users in response to extensive testimony that Federally qualified subsistence users needs were not being met. Current data indicate harvest is below the average of the previous ten years (2007-2016), peaking in 2015 and declining 2016-2018. Although results from recent deer pellet surveys in Unit 2 show a slight decrease in mean pellet-group counts, they are within the high end of the normal range, indicating populations are likely doing well. Other factors such as changing weather patterns, reductions in access, changes to deer behavior related to the presence of predators, and competition with non-Federally qualified users may limit harvest success. The current harvest limit for non-Federally qualified users only affects the few individuals that harvest more than two deer in Unit 2 annually, and it will likely contribute to greater hunting success for Federally qualified subsistence users through decreased competition.

## LITERATURE CITED

ADF&G. 2009. Deer Trails. Issue 1.

Bethune, S. 2011. Unit 2 deer management report. Pages 31–44 in P. Harper, editor. Deer management report of survey and inventory activities 1 July 2008-30 June 2010. ADF&G. Juneau, AK.

Bethune, S. 2013. Unit 2 deer management report. Pages 33–47 in P. Harper, editor. Deer management report of survey and inventory activities 1 July 2010-30 June 2012. ADF&G. Juneau, AK.

Bethune, S. 2015. Unit 2 deer. Chapter 4, pages 4–1 through 4–15 [In] P. Harper and L. A. McCarthy, editors. Deer management report of survey and inventory activities 1 July 2012–30 June 2014. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-3, Juneau.

Brinkman, T.J., D.K. Person, F.S. Chapin III, W. Smith, and K.J. Hundertmark. 2011. Estimating abundance of Sitka black-tailed deer using DNA from fecal pellets. *J. Wildlife Manage.* 75(1): 232–242.

Brinkman, T.J., D.K. Person, W. Smith, F.S. Chapin, III, K. McCoy, M. Leonawicz, K.J. Hundertmark. 2013. Using DNA to test the utility of pellet-group counts as an index of deer counts. *Wildlife Society Bulletin*; DOI: 10.1002/wsb.270.

Flynn, R. W. and L. Suring. 1989. Harvest rates of Sitka black-tailed deer populations in Southeast Alaska for land-use planning. Unpublished report.

FSB. 2006. Transcripts of Federal Subsistence Board proceedings, May 16, 2006. Office of Subsistence Management, FWS. Anchorage, AK.

FSB. 2007. Transcripts of Federal Subsistence Board proceedings, April 30, 2007. Office of Subsistence Management, FWS. Anchorage, AK.

FSB. 2010. Transcripts of Federal Subsistence Board proceedings, May 18, 2012. Office of Subsistence Management, FWS. Anchorage, AK.

FSB. 2014. Transcripts of Federal Subsistence Board proceedings, April 18, 2014. Office of Subsistence Management, FWS. Anchorage, AK.

FSB. 2016. Transcripts of Federal Subsistence Board proceedings, April 12, 2016. Office of Subsistence Management, FWS. Anchorage, AK.

FSB. 2018a. Transcripts of Federal Subsistence Board proceedings, April 11, 2018. Office of Subsistence Management, FWS. Anchorage, AK.

FSB. 2018b. Transcripts of Federal Subsistence Board proceedings, August 8, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.

Hanley, T.A., and J.D. McKendrick. 1985. Potential nutritional limitations for black-tailed deer in a spruce-hemlock forest, Southeastern Alaska. *Journal of Wildlife Management* 49:103–114.

- Kie, J.G., R.T. Bowyer, and K.M. Stewart. 2003. Ungulates in western forests: habitat relationships, population dynamics, and ecosystem processes. Pages 296–340 in: Zabel, C., and R. Anthony, editors. *Mammal community dynamics in western coniferous forests: management and conservation*. The Johns Hopkins University Press, Baltimore.
- McCoy, K. 2011. Sitka black-tailed deer pellet-group surveys in southeast Alaska, 2011 report. ADF&G, Juneau, AK. 47 pages.
- McCoy, K. 2013. Wildlife Biologist. Personal communication: email to J. Reeves (USFS) containing ADF&G deer pellet count data. ADF&G, Craig, AK.
- McCoy, K. 2019a. Wildlife Biologist. Personal communication: email to J. Reeves (USFS) containing ADF&G deer pellet count data. ADF&G, Craig, AK.
- McCoy, K. 2019b. Wildlife Biologist. Personal communication: email to G. Dunn (USFS) containing ADF&G deer harvest data. ADF&G, Sitka, AK.
- Olson, S.T. 1979. The life and times of the black-tailed deer in southeast Alaska. Pages 160–168 in O.C. Wallmo and J.W. Schoen, editors. *Sitka black-tailed deer: Proceedings of a conference in Juneau, Alaska*. USFS, Alaska Region, in cooperation with the ADF&G. Series No. R10-48, May 1979.
- Parker, K.L., M.P. Gillingham, T.A. Hanley, and C.T. Robbins. 1999. Energy and protein balance of free-ranging black-tailed deer in a natural forest environment. *Wildlife Monographs* 143:3–48.
- SEASRAC. 2006. Unit 2 Deer Management Final Report from the Unit 2 Deer Planning Subcommittee of the Southeast Subsistence Regional Advisory Council.
- SEASRAC. 2013. Transcripts of the Southeast Subsistence Regional Advisory Council, October 23, 2013 in Wrangell, Alaska. Office of Subsistence Management, FWS. Anchorage, AK.
- SEASRAC. 2015. Transcripts of the Southeast Subsistence Regional Advisory Council, October 27, 2015 in Yakutat, Alaska. Office of Subsistence Management, FWS. Anchorage, AK.
- SEASRAC. 2017. Transcripts of the Southeast Subsistence Regional Advisory Council, October 31, 2017 in Juneau, Alaska. Office of Subsistence Management, FWS. Anchorage, AK.
- Stewart, K.M., R.T. Bowyer, B.L. Dick, B.K. Johnson, and J.G. Kie. 2005. Density-dependent effects on physical condition and reproduction in North American elk: an experimental test. *Oecologia* 143:85–93.



## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Southeast Alaska Subsistence Regional Advisory Council

**Oppose** WP20-02. The Council generated a proposal for harvest limit restrictions on non-Federally qualified users for deer in Unit 2 in 2017 after hearing local testimony and traditional ecological knowledge that people were struggling to get their subsistence needs met. At the 2019 regulatory meeting, the Council heard testimony from the Ketchikan Indian Community and Prince of Wales Island (POW) residents that POW rural residents were still not meeting their subsistence needs. The Council looked closely at the data presented in the analysis and felt that out of balance buck-to-doe ratio, that stem exclusion inhibiting productive deer habitat, that an abundance of road access to almost every area on the island, and that the high wolf and bear populations were all potential reasons for the limited numbers of deer. The analysis showed that harvest by non-local hunters averaged less than two deer and the overall harvest is below harvest objectives, even though there has recently been a reduction of 1,300 hunters. The Council finds that because subsistence users are still not meeting their needs, there is a conservation concern for this resource and there is the potential for a dire conservation concern in the future, if action is not taken to conserve the population.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee (ISC) agrees with the Southeast Subsistence Regional Advisory Council that Federally qualified subsistence users are still not meeting their needs in Unit 2 and there is a conservation concern for this resource. The ISC also agrees with the Southeast Council and Federal Subsistence Board (Board) that the existing Unit 2 deer regulations will continue to provide opportunity for non-Federally qualified deer hunters on Prince of Wales Island while providing for a subsistence priority and conservation of deer.

The ISC noted that no substantive information changes have been presented to the Board since the Board's original decision on WP18-01, which resulted in harvest limit restrictions for non-Federally qualified users for deer in Unit 2.

### ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

Proposal WP20-02, requested by the Alaska Department of Fish and Game, would repeal the regulatory change for Unit 2 that changed the Sitka black-tailed deer harvest limit for non-Federally qualified hunters from 4 to 2 bucks

**Introduction:** Proposal WP20-02 was submitted by the Alaska Department of Fish and Game to rescind the previous decision of the Federal Subsistence Board to restrict nonfederally qualified users without the necessary justification as defined in ANILCA.

Game Management Unit 2 encompasses Prince of Wales (POW) Island and the surrounding archipelago. Hunters residing in Southeast Alaska (Units 1-5), excluding Juneau and Ketchikan, are

eligible to harvest deer in Unit 2 under federal subsistence regulations. In 2018 the Federal Subsistence Board reduced the bag limit for nonfederally qualified users from four to two bucks.

Proposal WP20-02 explains the legal setting and ADF&G's argument for returning the Unit 2 bag limit for deer on federally managed lands to four bucks. The reduction in Unit 2 bag limit implies that there is a conservation concern for the deer population. These comments provide updated information on indices of deer abundance and deer hunter effort and harvest in Unit 2.

ADF&G reviewed several biological and management metrics, and none suggest a significant or widespread decline in Unit 2 deer numbers. Deer pellet group data, hunter effort and harvest information, and seven consecutive mild to moderate winters all suggest the Unit 2 deer population remains relatively high and stable.

### Population Indices

Trends in abundance of deer living in forested habitat are challenging to monitor because deer cannot be directly counted through ground or aerial surveys. For over thirty years ADF&G has used spring pellet group counts to monitor broad ( $\geq 30\%$ ) changes in deer abundance. Spring pellet group surveys are conducted in numerous US Forest Service Value Comparison Units across Southeast Alaska after snow melts and before spring green-up. Pellet groups are counted along transects in deer winter habitat (forested habitat from sea level to 1,500 feet elevation), and a pellet group density is calculated. Winters with deeper and more persistent snow concentrate deer in old-growth forest and generally produce higher pellet group densities than winters with little snow when deer are able to use a wider variety of habitats. Consequently, winter severity must be considered when interpreting pellet group counts.

Figure 1 summarizes average spring pellet group densities for surveys in Unit 2 from 1988 through 2019. Although average pellet group densities have declined slightly from surveys in 2007 through 2012, they remain high and exceed densities recorded during the 18-year period of 1988 through 2006. This index of deer abundance suggests that the Unit 2 population remains relatively high compared to the previous 30 years. Each of the areas surveyed in Unit 2 resulted in  $>1.0$  pellet groups per plot; the Thorne Lakes VCU resulted in a 2.33 pellet groups per plot. 1.0 pellet groups per plot is considered a moderate density while 2.33 is considered high. In comparison, 2 areas in Southeast Alaska resulted in counts below 1.0 groups per plot; 8 areas resulted in 1.0-2.0 groups per plot; and 6 areas resulted in  $>2.0$  groups per plot.

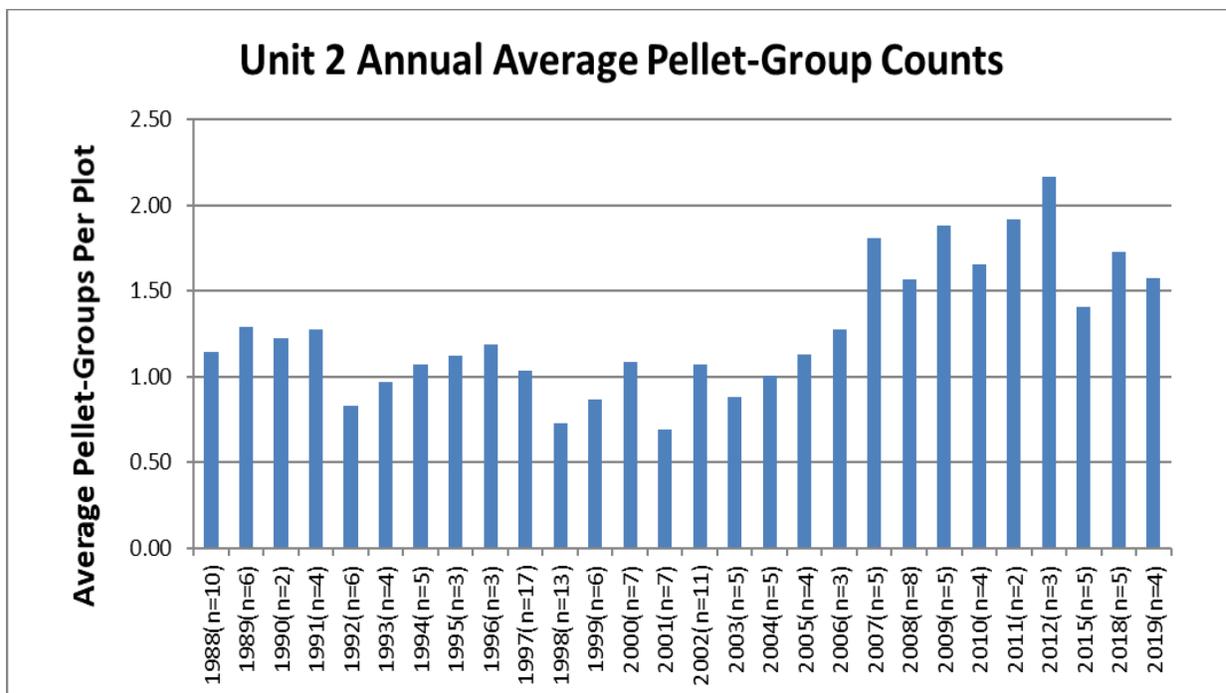


Figure 1. Unit 2 spring deer pellet group density, 1988 – 2019.

In 2013 ADF&G began experimenting with mid-summer aerial counts of deer in alpine habitat. We flew repeated surveys in each survey area each year under a protocol designed to minimize and document variability in conditions during individual survey flights. The first survey in Unit 2 was flown in 2014 in a survey area on northern Prince of Wales Island and adjacent Kosciusko Island. Multiple surveys of that area were flown in 2016. Beginning in 2017 repeated surveys were flown in the northern survey area and a new survey area on central Prince of Wales Island north of Harris River. The findings of those surveys, summarized as deer counted per hour of survey time, are presented in Figure 2.

ADF&G does not know whether trends in the numbers of deer seen in the alpine reflect trends in the larger deer population and has not yet completed our analysis of how survey conditions may affect numbers of deer seen during alpine surveys. Consequently, we do not know what value to attach to findings in Figure 2. Across the Southeast Region, ten areas were surveyed in 2017 and 2018. Those areas include Douglas Island; northeast Chichagof Island; south Admiralty Island; north Kuiu Island; west Kupreanof Island; south Etolin Island; Lindenberg Peninsula; Horn Cliffs; north Prince of Wales Island; and central Prince of Wales Island. Central and north Prince of Wales Island have recorded the second and sixth (out of 10) highest deer per survey hour counts in both 2017 and 2018.

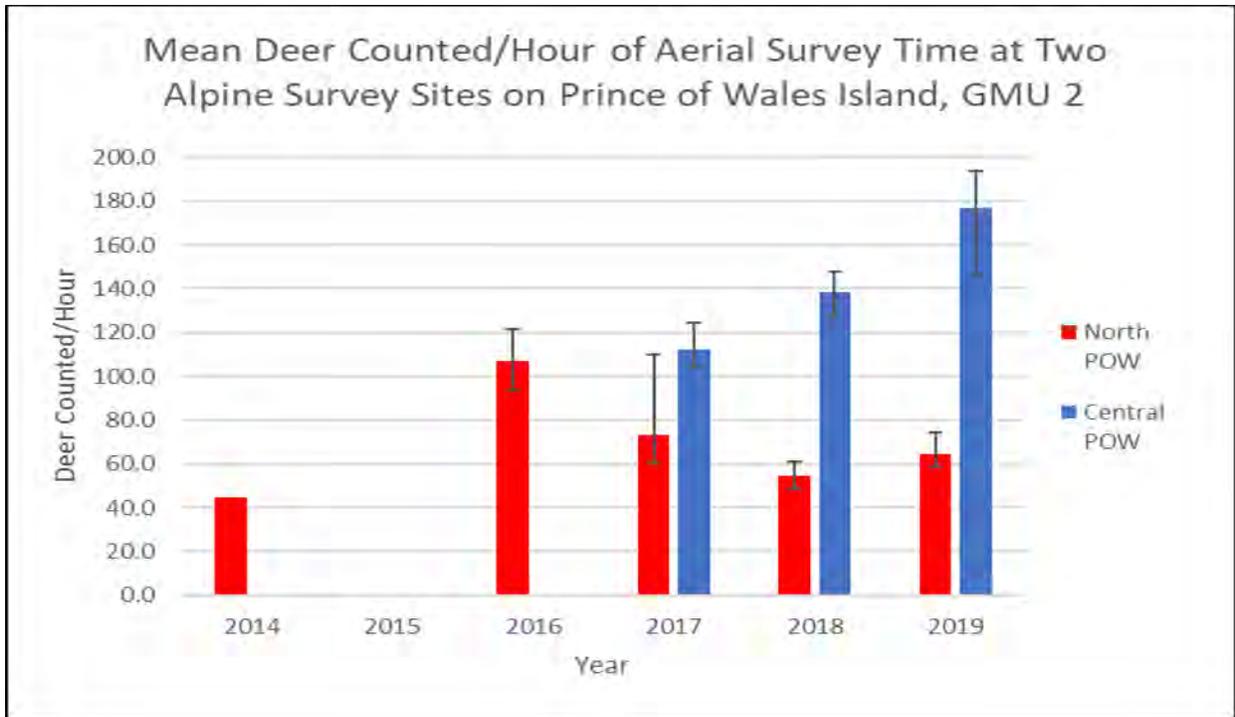


Figure 2. Mean number of deer counted per hour during mid-summer aerial alpine deer surveys on northern and central Prince of Wales Island, 2014 – 2019. Error bars represent the range of deer counted per hour during repeated surveys. Only one survey was flown during 2014. No surveys were flown during 2015.

Taken together, these two indices of deer abundance (pellet group surveys and alpine counts) suggest the Unit 2 deer population is stable. Pellet group densities were designed to detect substantial (>30%) changes in deer abundance. Although pellet group densities have declined slightly since 2012, in spring 2019 they remained above 1.5 pellet groups per plot and higher than any year from 1988 through 2006. Furthermore, spring pellet groups densities in 2018 and 2019 were higher than in 2015, the year of record high deer harvest. Aerial count data are more difficult to interpret, with one count area declining from 2016 to 2017 and then stabilizing and the other increasing by over 50% from 2017 to 2019. Neither index suggests a major decline in deer abundance or a conservation concern for the Unit 2 deer population.

Hunter Effort and Harvest

ADF&G estimates hunter effort and harvest using information provided by hunters. To hunt deer in Southeast Alaska all hunters must obtain harvest tickets. Prior to 2011 ADF&G mailed survey forms to one third of hunters in each community who obtained harvest tickets. Since 2011 harvest tickets have come with a mandatory reporting requirement. People who obtain harvest tickets are required to report whether they (or a proxy or federal designated hunter) hunted or not. Those who did hunt are required to report where they hunted, days of hunting effort, and information about deer they harvested.

Figure 3 summarizes information on the total numbers of Unit 2 hunters and deer harvest for the past 22 years. The estimated average annual harvest during that period was 2,847 deer with estimated annual harvests exceeding the Unit 2 harvest objective of 2,700 deer during 12 years and falling below that objective during 10 years. The total number of Unit 2 hunters and deer harvest began growing around 2005 and peaked in 2015 with new record deer harvests set in 2011, 2014 and 2015. Numbers of hunters and harvests began declining in 2016. Harvests in 2017 and 2018 were similar to the period 1997 – 2004.

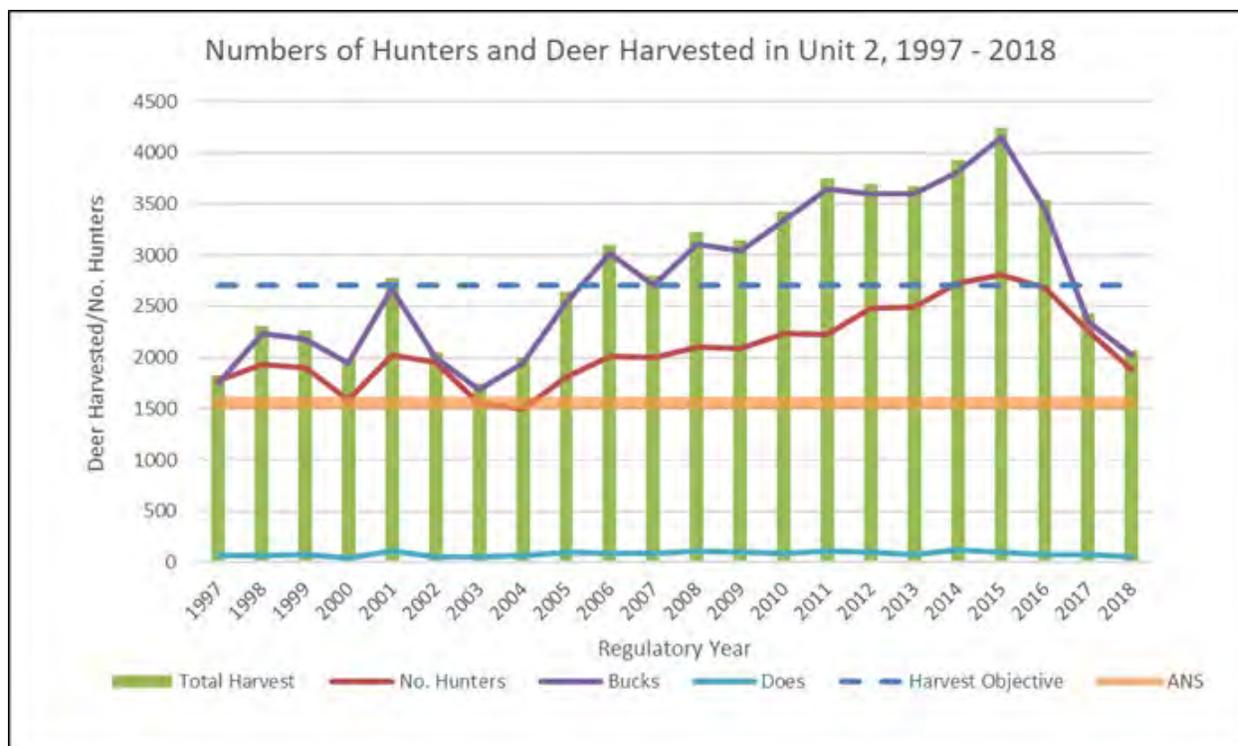


Figure 3. Total Unit 2 hunter effort and deer harvest, RY1997-RY2018. In RY2018 eligibility to participate in the federal subsistence hunt was expanded from all federally qualified residents of Units 1A, 2, and 3 to all federally qualified residents of Units 1-5. The bag limit for non-federally qualified hunters on federally managed lands was also reduced from four bucks to two bucks. The orange bar indicates the state amount necessary for subsistence (ANS) of 1,500 – 1,600 deer annually.

Figure 4 summarizes estimated Unit 2 deer harvest by federally qualified and non-federally qualified hunters. Overall harvest depends on a number of factors, including deer abundance, hunter effort, and hunting conditions, particularly during the rut when most Unit 2 deer are harvested. Harvest by both groups of hunters peaked in 2015 and has since declined. Compared to 2015, harvest by federally qualified hunters declined by 35% through 2017. Harvest in 2018 was similar to harvest in 2017. Since 2015 harvest by non-federally qualified hunters has declined by 65% and harvest continued to decline through 2018. Part of the continued decline in harvest by non-federally qualified hunters could result

from the 2018 reduction in bag limit on federal lands. Total Unit 2 deer harvest in 2017 and 2018 was lower than the previous 11 years, but similar to harvests from 1997 – 2004 (Figure 3).

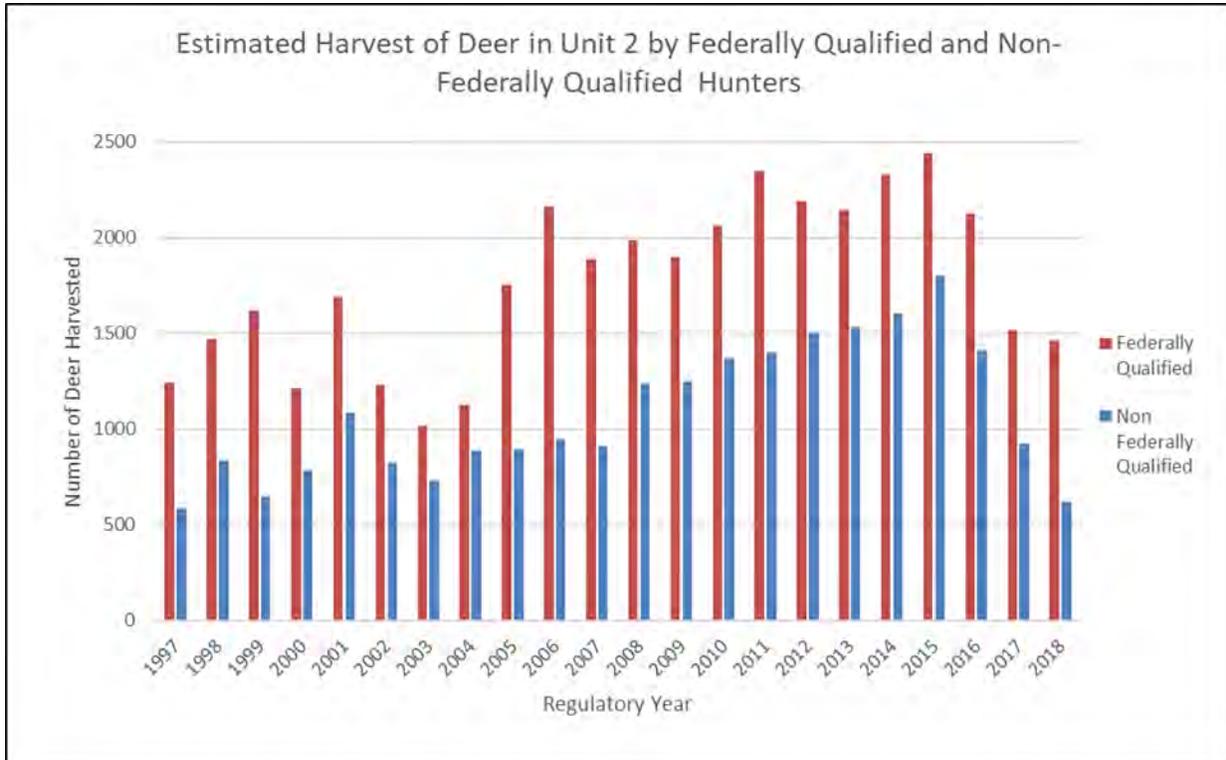


Figure 4. Deer harvested by federally qualified and non-federally qualified hunters in Unit 2, RY1997–RY2018. In RY2018 eligibility to participate in the federal subsistence hunt was expanded from federally qualified residents of Units 1A, 2, and 3 to federally qualified residents of Units 1-5. The bag limit for non-federally qualified hunters on federally managed lands was also reduced from four bucks to two bucks.

One argument in support of adopting the 2018 federal regulation reducing non-federal deer bag limit in Unit 2 was that federally qualified hunters were having difficulty meeting their subsistence needs due to competition with non-federally qualified hunters, primarily hunters from Ketchikan. Unlike state harvest objectives or amounts reasonably necessary for subsistence, both of which are in state regulation, federal subsistence needs remain undefined so there is no objective way to verify when those needs are or are not being met. However, data from mandatory deer harvest reports provides some insight into effort and harvest by federally qualified and non-federally qualified hunters over time.

Figure 5 summarizes the numbers of federally qualified and non-federally qualified hunters who hunted deer in Unit 2 from 1997 through 2018. The total number of hunters peaked from 2014 – 2016 with non-federally qualified hunters exceeding federally qualified hunters during each of those years. Since 2015 the number of Unit 2 deer hunters has declined by 33%. Numbers of non-federally

qualified hunters have declined by over 40%, whereas federally qualified hunters have declined by 25%. The numbers of participating hunters affect total hunting effort and harvest. One likely reason Unit 2 deer harvest has declined is that the number of hunters has declined. We do not know why fewer federally qualified and non-federally qualified hunters are choosing to hunt in Unit 2.

Prior to 2018 only federally qualified hunters who resided in Units 1A, 2 and 3 were eligible to hunt under federal subsistence regulations in Unit 2. In 2018 the Federal Subsistence Board expanded the pool of hunters eligible to hunt deer under federal regulations in Unit 2 to include all federally qualified residents of Units 1-5. In 2018 only 18 federally qualified hunters who were not previously eligible hunted deer in Unit 2.

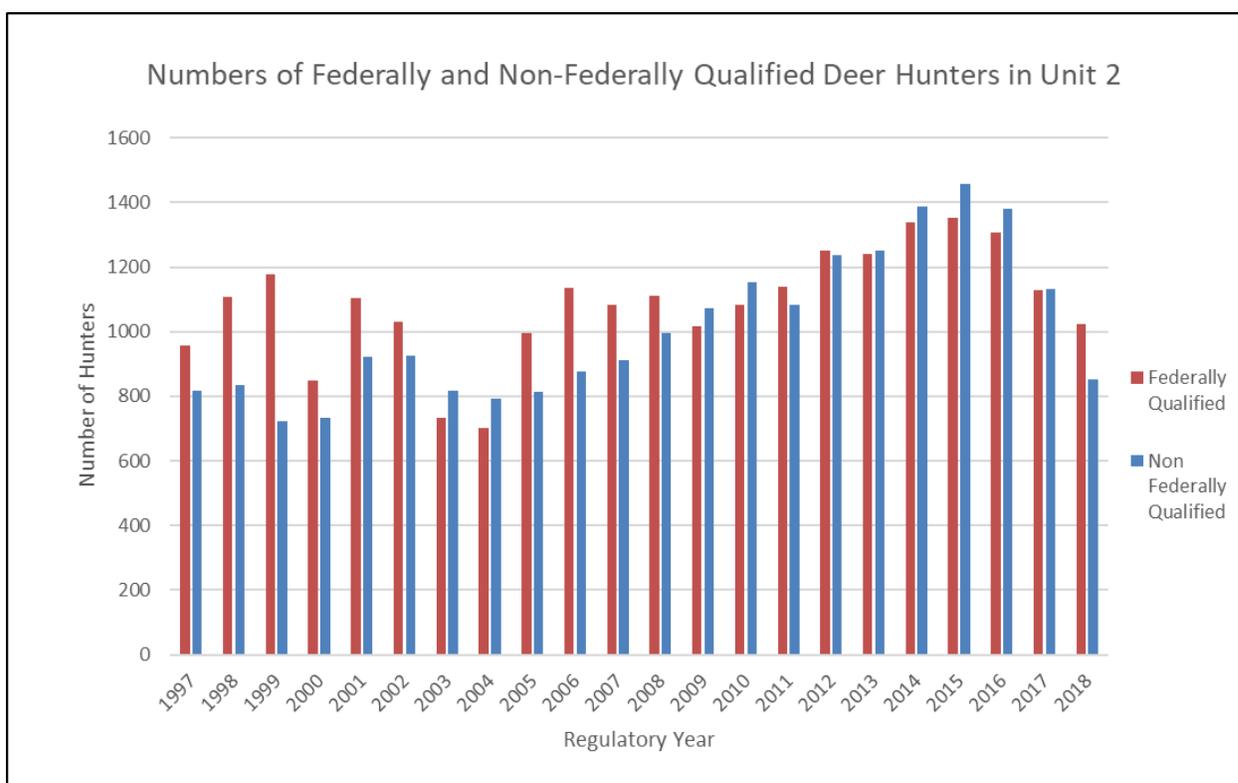


Figure 5. Number of federally qualified and non-federally qualified hunters hunting deer in Unit 2, RY1997 – RY2018. In RY2018 eligibility to participate in the federal subsistence hunt was expanded from all federally qualified residents of Units 1A, 2, and 3 to all federally qualified residents of Units 1-5. The bag limit for non-federally qualified hunters on federally managed lands was also reduced from four bucks to two bucks.

Figure 6 summarizes information on hunting effort by federally qualified and non-federally qualified deer hunters in Unit 2. In recent years the total days of hunting effort and effort by non-federally qualified hunters peaked in 2015. Since 2015 hunting effort by non-federally qualified hunters has declined by 46%. In the last decade hunting effort by federally qualified users peaked in 2014. By 2018, hunting effort by federally qualified users had declined by 21%. This was far less than the

decline in effort by non-federally qualified hunters, but it also represented the fourth lowest effort by federally qualified hunters since 1997. We do not know the reason for these declines in hunting effort, but they likely contribute toward the overall decline in harvest.

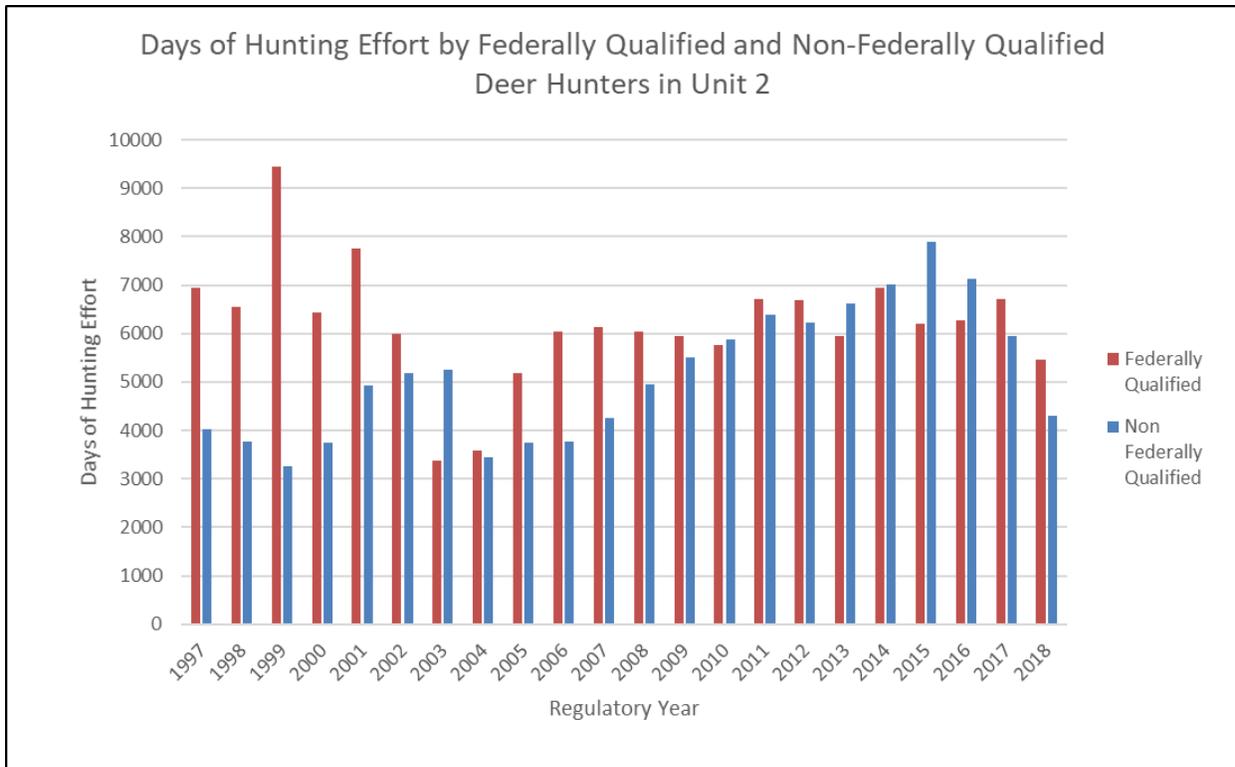


Figure 6. Days of hunting effort by federally qualified and non-federally qualified hunters hunting deer in Unit 2, RY1997–RY2018. In RY2018 eligibility to participate in the federal subsistence hunt was expanded from federally qualified residents of Units 1A, 2, and 3 to federally qualified residents of Units 1-5. The bag limit for non-federally qualified hunters on federally managed lands was also reduced from four bucks to two bucks.

Hunter efficiency, or the days of hunting effort required to harvest one deer, is another indicator of the availability of deer to Unit 2 hunters. Figure 7 summarizes data on the number of days of hunting required to harvest a deer by federally qualified and non-federally qualified hunters in Unit 2. Federally qualified hunters are consistently more efficient at harvesting deer and in some years require only half the effort required by non-federally qualified hunters. Despite steadily increasing participation by non-federally qualified hunters, from 2003 – 2016 the days of hunting for federally qualified hunters remained close to 3 days per deer harvested. Effort required by federally qualified hunters increased to 4.4 days in 2017 but then declined to 3.7 days in 2018. In contrast, from 1997 – 2002 effort for federally qualified hunters in Unit 2 to harvest one deer averaged 5.1 days, or nearly 40% higher than the effort required in 2018.



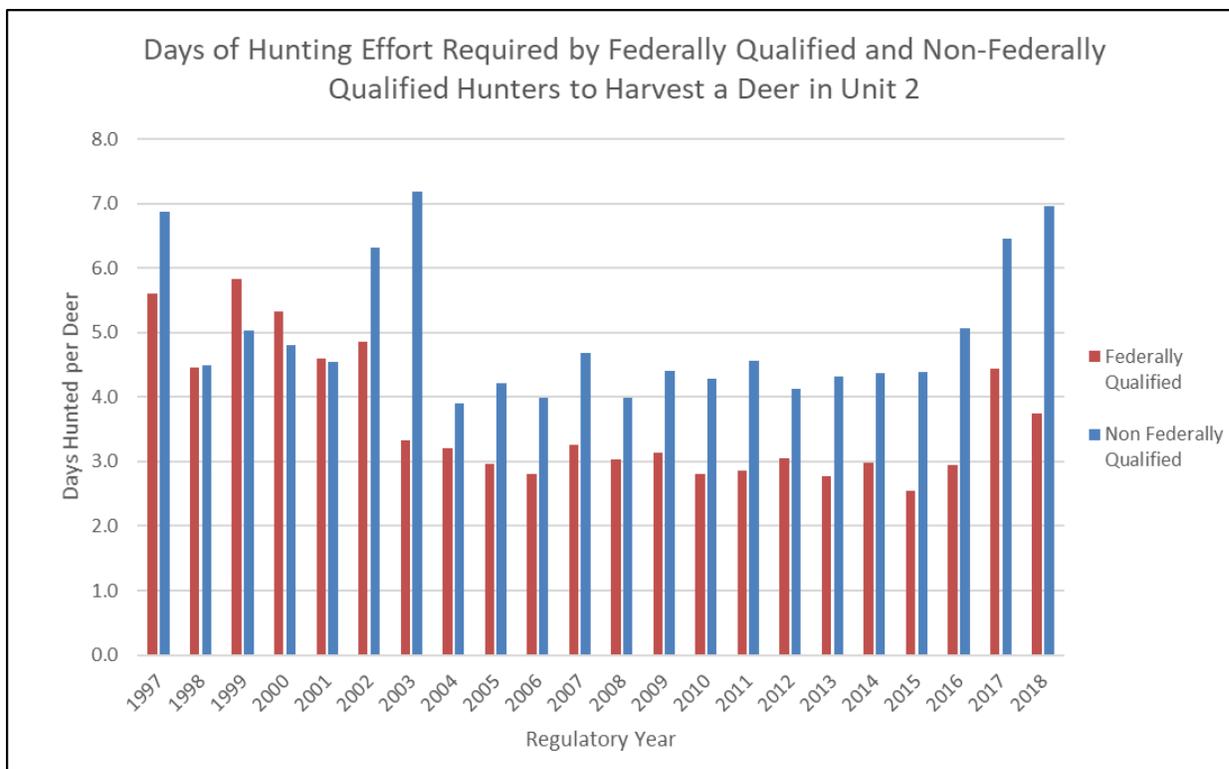


Figure 7. Average number of days hunted by federally qualified and non-federally qualified hunters per deer harvested in Unit 2, RY1997–RY2018. In RY2018 eligibility to participate in the federal subsistence hunt was expanded from federally qualified residents of Units 1A, 2, and 3 to federally qualified residents of Units 1-5. The bag limit for non-federally qualified hunters on federally managed lands was also reduced from four bucks to two bucks.

**Impact on Subsistence Users:** This proposal could potentially result in a marginal increase in competition between federally qualified and unqualified hunters because nonfederally qualified hunters could continue to hunt on federal public lands after harvesting two bucks.

**Impact on Other Users:** Opportunity for non-federally qualified hunters to harvest deer for subsistence and other uses on federal public lands in Unit 2 would increase somewhat. Bag limits for non-federally qualified hunters would increase from two bucks to four bucks.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for deer in Unit 2.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for noncommercial customary and traditional uses. The board does this by reviewing

extensive harvest data relating to a game population, collected either by ADF&G or from other sources.

Contrary to its name, ANS does not indicate subsistence “need”. Instead, ANS is determined by the board to provide a range (of numbers of animals) in which the harvestable portion is sufficient to provide a reasonable opportunity for subsistence uses. “Reasonable opportunity” is that which allows a normally diligent hunter a reasonable expectation of success.

The ANS for deer in Unit 2 is 1,500–1,600 animals. The season and bag limit for GMU 2 is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season</u>	
		<u>Resident</u>	<u>Nonresident</u>
2	4 bucks	Aug. 1 – Dec. 31 (Harvest ticket)	Aug. 1 – Dec. 31 (Harvest ticket)

**Special instructions for the state hunt:** Harvest tickets must be validated in sequential order, all unused harvest tickets must be carried when hunting, evidence of sex must remain attached to meat, and mandatory harvest ticket reports must be submitted within 30 days after the season closes.

**Conservation Issues:** None. Following seven consecutive mild winters the available population indices suggest the Unit 2 deer population remains relatively high and stable. Deer harvest has declined since several record-setting harvests between 2011 and 2015, but existing information suggests that decline may be more related to a decline in hunter effort than to a decline in the deer population.

Changing hunting conditions may contribute toward the decline in harvest. Due to behavioral changes associated with breeding that result in increased vulnerability to hunters, a high proportion of Unit 2 deer are harvested during the rut, roughly mid-October through mid-November. In the last few years a number of long-time Unit 2 resident deer hunters have commented to ADF&G that the timing and intensity of the rut appears to be changing and is less predictable than it once was. Those hunters have partially attributed declines in their hunting success to this apparent change in deer behavior.

Finally, hunter effort and harvest data for 2018 indicate that although harvest by federally qualified hunters has declined since the historic high of 2015 and effort required to harvest a deer has increased, both measures remain within historical norms. Harvest during 2018 was similar to or greater than harvest during 7 of the previous 21 years. Effort required for a federally qualified hunter to harvest a deer remained within about half a day of the mean from 2003 – 2015 (3.0 days) and far below the mean effort required from 1997 – 2002 (5.1 days).

Based on the information provided to ADF&G by Unit 2 deer hunters, we conclude that there is no conservation concern for the Unit 2 deer population.

**Enforcement Issues:** Because it can be difficult to know where an individual animal was taken, aligning state and federal harvest regulations would make enforcement easier.

**Recommendation:** The department's recommendation is to **SUPPORT** this proposal to repeal the bag limit change because there is no evidence that hunting by non-federally qualified hunters has resulted in a biological concern for the Unit 2 deer population or affected subsistence uses by federally qualified hunters. We believe that failing to adopt this proposal would unjustly deprive non-federally qualified users, particularly Ketchikan hunters, of deer hunting opportunity in Unit 2.

Over 72% of land in Unit 2 is federally managed, and current federal regulations provide substantially greater opportunity to federally qualified deer hunters compared to non-federally qualified hunters. Those advantages include a season that runs from July 24 – January 31, including 54 days when only federally qualified users are eligible to hunt on federal land; a higher bag limit of 5 deer, including one doe harvested after October 15, compared to the non-federally qualified hunter bag limit of two antlered deer on federal lands; and a season that extends through January when deer are at low elevation or on the beach and more vulnerable to hunters. In contrast, non-federally qualified deer hunters hunt under State regulations with an open season from August 1 – December 31 and a bag limit of 4 buck deer. However, only two bucks may be taken on federal land, and most federal public lands are closed to hunting by non-federally qualified hunters from August 1–15.

As directed by Congress in Section 802 of ANILCA, subsistence uses of wildlife shall be the priority consumptive use on federal public lands “when it is necessary to restrict taking in order to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population.” Section 815 of ANILCA provides that a restriction on taking wildlife for non-federally qualified hunters is only authorized if “necessary for the conservation of healthy populations of fish and wildlife, for the reasons in Section 816, to continue subsistence uses of such populations, or pursuant to other applicable law.” None of those reasons apply. There is no conservation concern for the deer population, and no restrictions are needed to continue subsistence uses of deer. The deer population continues to be viable, as explained above. No other applicable laws support the current restrictions.

## WRITTEN PUBLIC COMMENTS

**Ketchikan Advisory Committee**  
**June 6<sup>th</sup>, 2019**  
**ADF&G Conference Room**

- I. **Call to Order:** 5:40pm by Matt Allen, Secretary
- II. **Roll Call:** 8 voting members present, 1 via phone  
**Members Present:** Allen, Crittenden, Dale, James, Westlund, Roth, Shaw, Bezneck, Fox, Scoblic (Phone)  
**Members Absent (Excused):** Doherty, McQuarrie, Skan, Franulovich, Miller  
**Members Absent (Unexcused):**  
**Number Needed for Quorum on AC:** 8  
**List of User Groups and Public Present:** Public, Sportfish Charter, ADFG (Sport Fish, Wildlife)  
**Motion:** **Bezneck**, motion to make **Allen** meeting Chair, **Roth**, second. 9-0 in favor. **Allen** sits as meeting Chair
- III. **Approval of Agenda:**  
**Allen**, motion to amend agenda to include discussion of Federal Subsistence Proposals 10, 11, 13,14. **Westlund** seconded. Motion passed unanimously (9-0). **Westlund**, moved to approve agenda, **Dale** seconded. Motion passed unanimously (9-0)
- IV. **Approval of Previous Meeting Minutes:**  
Previous meeting minutes incomplete at this time
- V. **Fish and Game Staff Present:**  
Kelly Reppert, Ross Dorendorf, Tessa Hasbrouck
- VI. **Guests Present:** Jim Moody, Nick Hashagan, Martin Caplan, Tony Azure
- VII. **Chairman Report:** **Allen** read co-chair letter from Scoblic/Doherty
- VIII. **ADF&G Sportfish Report:** **Reppert**, report regarding catch and release chinook fishing. Discussion and comment followed report.
- IX. **Old Business:**  
Federal Subsistence Proposals 2020-2022, WP20-01-08, WP20-10-15
- X. **New Business:**  
Catch and Release of chinook by Charter fishermen  
Set next meeting date, September 12<sup>th</sup>, 2019, 5:30pm ADFG Conference Room

Federal Subsistence Management Program 2020-2022 Wildlife Proposal Comments			
Proposal Number	Proposal Description		
Support, Support as Amended, Oppose, No Action	Number Support	Number Oppose /Abstain	Comments, Discussion (list Pros and Cons), Amendments to Proposal, Voting Notes
WP20-01	Southeast, Moose, Unit 1C, Eliminate Unit 1C – Berners Bay moose hunt		
Support	8	0/1 abstain	A biological concern does not currently exist necessitating a subsistence priority. Majority of traditional use comes from Juneau area. A fair system is currently in place to provide for opportunity
WP20-02	Southeast, Deer, Unit 2, Remove harvest limits to non-federally qualified users		
Support	9	0	We support State managers in their assessment of the deer population and the opportunity it can support.
WP20-03	Southeast, Deer, Unit 2, Eliminate doe harvest		
Oppose	1	8	Though the AC does not agree with doe harvest, we do not support this proposal because it would have minimal impact.
WP20-04	Southeast, Deer, Unit 2, Revise harvest limit		
Oppose	3	6	Some AC members support cessation of doe harvest if only for a short period of time.
WP20-05	Southeast, Deer, Unit 2, Establish a registration permit for does		
Support	7	1/1	AC supports the proposal as it may lead to better data for management.
WP20-06	Southeast, Deer, Unit 2, Revise season		
Support	9	0	AC supports removal of January hunt due to small amount of harvest, reduced quality of meat and difficulty in distinguishing bucks and does.
WP20-07	Southeast, Deer, Unit 2, Revise harvest limit		
Support	9	0	
WP20-08	Statewide, All Trapping Species, Require traps or snares to be marked with name or State Identification number		
Oppose	1	8	Though some type of compromise should be reached in regards to labelling of traps/snares a one size fits all regulation could be overly burdensome in some areas
WP20-09	Southeast, Beaver, Units 1-4, Revise trapping season		
No Action			
WP20-10	Statewide, Black Bear, Units 1-5, Revise Customary and Traditional Use Determination		

Oppose	2	6	Hunting of Black Bear is not customary and traditional in all units residing in Southeast
WP20-11	Statewide, Brown Bear, Units 1-5, Revise Customary and Traditional Use Determination		
	3	4	Hunting of Brown Bear is not customary and traditional in all units residing in Southeast.
WP20-12	Southeast, Deer, Unit 3, Revise hunt areas, season dates, and harvest limits		
WP20-13	Statewide, Elk, Unit 3, Establish Customary and Traditional Use Determination		
	0	9	This is a population introduced by the State in 1986, due to this fact we do not believe this population is traditional and customary for any Unit in Southeast Alaska. The authors of this proposal do not demonstrate how this particular species in this area has been used to meet the definition as customary and traditional.
WP20-14	Statewide, Goat, Unit 1-5, Revise Customary and Traditional Use Determination		
	4	4	Hunting of Mountain Goat is not Customary and Traditional in all Units residing in Southeast.
WP20-15	Statewide, Moose, Unit 1-5, Revise Customary and Traditional Use Determination		
	0	8	Hunting of Moose is not customary and traditional in all units residing in Southeast.
WP20-16	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			
WP20-17	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			

Adjournment:

Minutes Recorded By: \_\_\_\_\_

Minutes Approved By: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX

Appendix 1: Regulatory framework of State and Federal deer seasons by year since 1925

Year	Type of Season	Season	Limit	Conditions & Limitations
1925	Open	Sept 15-Dec 16	3	Buck, 3" antlers or longer
1925-1929	Open	Sept 1-Nov 30	3	
1930-1941	Open	Aug 20-Nov 15	2	
1942-1943	Resident	Sept 16-Nov 15	2	
1942-1943	Non-resident	Sept 16-Nov 15	1	
1944-1948	Resident	Sept 1-Nov 7	2	
	Non-resident	Sept 1-Nov 7	1	
1949	Resident	Sept 1-Nov 15	2	
	Non-resident		1	
1950-1951	Resident	Aug 20-Nov 15	2	
1950-1951	Non-resident	Aug 20-Nov 15	1	
1952	Open	Aug 20-Nov 22	2	
1953-1954	Open	Aug 20-Nov 22	3	
1955	Open	Aug 20-Nov 22	3	
1956	Open	Aug 20-Nov 26	3	3 bucks or 2 bucks and one antlerless, bucks 3" antlers or longer, antlerless may be taken Nov 13-Nov 26
1957-1959	Open	Aug 20-Nov 30	4	4 deer, does may be taken Oct 15-Nov 30
1960	Open	Aug 20-Dec 15	4	4 deer, does may be taken Oct 15-Nov 30
1961	Open	Aug 20-Nov 30	4	4 deer, antlerless deer may be taken Sept 15-Nov 30
1962	Open	Aug 1-Dec 15	4	4 deer, antlerless deer may be taken Sept 15-Dec 15

<b>Year</b>	<b>Type of Season</b>	<b>Season</b>	<b>Limit</b>	<b>Conditions &amp; Limitations</b>
<b>1963-1967</b>	Open	Aug 1-Dec 31	4	4 deer, antlerless deer may be taken Sept 15-Dec 31
<b>1968</b>	Open	Aug 1-Dec 15	4	4 deer, antlerless deer may be taken Sept 15-Dec 15
<b>1969-1971</b>	Open	Aug 1-Dec 31	4	4 deer, antlerless deer may be taken Sept 15-Dec 31
<b>1972</b>	Open	Aug 1-Dec 31	3	3 deer, antlerless deer may be taken Nov 1-Nov 30
<b>1973-1977</b>	Open	Aug 1-Nov 30	3	1 antlerless deer may be taken Nov 1-Nov 30
<b>1978-1984</b>	Open	Aug 1-Nov 30	3	Antlered deer
<b>1985-1986</b>	State General	Aug 1-Nov 30	3	Antlered deer
<b>1987</b>	State General	Aug 1-Nov 30	4	1 antlerless deer may be taken Oct 10-Oct 31
<b>1988-2018</b>	State General	Aug 1-Dec 31	4	Antlered deer/bucks
<b>1991-1994</b>	Federal Subsistence	Aug 1-Dec 31	4	Antlered deer
<b>1995-1997</b>	Federal Subsistence	Aug 1-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken only during Oct 15-Dec 31
<b>1998-2002</b>	Federal Subsistence	Aug 1-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken Oct 15-Dec 31 by Federal registration permit only
<b>2003-2005</b>	Federal Subsistence	July 24-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken Oct 15-Dec 31 by Federal registration permit only
<b>2006-2009</b>	Federal Subsistence	July 24-Dec 31	5	No more than one may be an antlerless deer; antlerless deer may be taken Oct 15-Dec 31
<b>2010-2015</b>	Federal Subsistence	July 24-Dec 31	5	No more than one may be a female deer; female deer may be taken Oct 15-Dec 31



Year	Type of Season	Season	Limit	Conditions & Limitations
2016-2018	Federal Subsistence	July 24-Jan 31	5	No more than one may be a female deer; female deer may be taken Oct 15-Jan 31.

**Appendix 2:** History of Federal regulatory actions related to deer in Unit 2 taken by the Federal Subsistence Board

Proposal number	Reg Year	FSB action	Proposal request
P95-01	1995	Adopt w/ mod to require harvest report requirement	Create an antlerless season in Unit 2
R95-09	1995	Reject	Requested rescinding antlerless deer season created by adoption of P95-01
P97-07	1997	Reject	Reduce deer season from Aug. 1-Dec. 31 to Sept. 1-Dec. 31, and eliminate harvest of antlerless deer in Unit 2.
P98-09	1998	Reject	Eliminate antlerless season
P98-10	1998	Reject	Eliminate antlerless season and apply antler restriction of forked horn or larger
P98-11	1998	Reject	Shorten deer season from Sept 1 -Nov. 30
P98-12	1998	Reject	Eliminate antlerless season
P00-005	2000	Reject	Eliminate antlerless season
P00-05	2000	Reject	Eliminate antlerless deer season
P00-06	2000	Reject	Community harvest permit request of 500 deer per Unit 2 community
WP01-03	2001	Reject	Eliminate antlerless deer season
WP02-08	2002	Reject	Request increase of deer harvest limit for Unit 2 residents and reduction for Unit 1A and 3 residents
WP02-09	2002	Took no action	Restrict non-Federally qualified users from hunting on Federal lands between Aug. 1-31 and Oct. 16-Nov. 14
WRFR02-01	2002	Reject	Requested reconsideration of the Board rejecting WP02-09 to close Federal lands in Unit 2.
WP03-04	2003	Adopt with modification adding one week in July at front of season (July 24-31)	Requested earlier extension of deer season for Federally qualified users

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP03-05</b>	2003	Adopt with modification restricting non-Federally qualified users from Aug 1-21 on Federal Public Lands on Prince of Wales Island (closure for 1 year)	Requested closure of Federal public lands from Aug 1-Sept. 1 and reduction of harvest limit to 2 deer for non-Federally qualified subsistence users.
<b>WP04-03</b>	2004	Took no action	Requested closure be changed from Aug 1-21 to Oct. 16-Nov. 14 and reduction of harvest limit for non-Federally qualified users
<b>WP04-04</b>	2004	Took no action	Requested antlerless deer season be modified from Oct. 15-Dec. 31 to Aug. 1-Sept. 15
<b>WP04-05</b>	2004	Took no action	Requested closure to non-Federally qualified users be reduced by one week
<b>WP04-06</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-07</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-08</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-09</b>	2004	Took no action	Requested removal of the antlerless deer season and the July 24 start date for subsistence users and to replace closure with antler restrictions for non-Federally qualified users.
<b>WP04-10</b>	2004	Took no action	Requested removal of the antlerless deer season and the July 24 start date for subsistence users and to replace closure with a 3 buck harvest limit for non-Federally qualified users.
<b>WP04-11</b>	2004	Took no action	Requested removal of the July 24 start date for subsistence users and to modify closure from Aug. 1-21 to Oct. 16-Dec. 31 and implement a 2 buck harvest limit for non-Federally qualified users.
<b>WP04-12</b>	2004	Took no action	Requested modifying Federal season from July 24-Dec. 31 to Aug. 1-Jan. 31 for subsistence users and modified the August closure to the month of January to all but Unit 2 residents

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP04-13</b>	2004	Took no action	Requested modifying Federal season from July 24-Dec. 31 to Aug. 1-10 and removing the antlerless deer season for subsistence users and reducing the August closure from Aug. 1-10 for non-Federally qualified users.
<b>WP04-14</b>	2004	Took no action	Reduce deer season from July 24-Dec. 31 to Aug. 1-Dec. 31 for Federally qualified users in Unit 2.
<b>WP04-15</b>	2004	Adopt with modification restricting non-Federally qualified users from Aug 1-15 on Federal Public Lands on Prince of Wales Island	Requested continuation of the one year closure as passed by the FSB during the 2003 regulatory cycle.
<b>WP05-04</b>	2005	Adopt with modification removing registration requirement, but required use of a joint State/Federal harvest report as recommended by the Unit 2 Deer Subcommittee	Requested that all hunters obtain a Federal registration permit to hunt deer in Unit 2.
<b>WP06-06</b>	2006	Reject	Requested removing sequential use of harvest tickets and possession of all unused harvest ticket requirements.
<b>WP06-07</b>	2006	Took no action	Requested expansion of closure area to non-Federally qualified users.
<b>WP06-08</b>	2006	Adopt with modification. Modifications included: 1) removal of the August closure on SE portion of Prince of Wales Island; 2) rejected closure to non-Federally qualified users on Suemez Island; and 3) rejected a closure to non-Federally qualified users on the islands located along the SW coast of Prince of Wales Island.	Requested expansion of closure area to non-Federally qualified users.
<b>WP06-09</b>	2006	Adopt with modification. The Board modified the Council recommendation by eliminating the need to have a Federal permit for harvesting a 5th deer. The Board also delegated the Forest Supervisor the ability to lower the harvest limit to 4 deer if needed.	Requested increasing the deer harvest limit to 6 deer.
<b>WP06-10</b>	2006	Reject	Requested use of harvest ticket #1 to record harvest of a female deer.
<b>WP07-07</b>	2007	Reject	Requested either elimination of antlerless deer hunt or to only allow for antlerless deer harvest every other year.
<b>WP10-19</b>	2010	Reject	Requested modification of female deer season from Oct. 15-Dec. 31 to Sept. 15-Oct. 15

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP10-20</b>	2010	Reject	Requested modification of the non-Federally qualified closure from Aug. 1-15 to July 24-31.
<b>WP10-22</b>	2010	Adopt with modification. The modification provided delegations to the ten USFS District Rangers via letter and was to apply only to wildlife. Any fish delegation requests would have to be submitted to the Board.	The delegated in-season management for wildlife on a species by species basis, by letter, to the ten District Rangers located in Units 1-5
<b>WSA11-01</b>	2011	Adopted	To rescind requirement of joint State/Federal harvest report
<b>WP12-08</b>	2012	Adopted	To rescind requirement of joint State/Federal harvest report
<b>WP14-03</b>	2014	Reject	Eliminate antlerless deer season
<b>WP14-04</b>	2014	Reject	Request early start date for Federally qualified users over 60 or disabled.
<b>WP16-01</b>	2016	Adopt with mod adding January season, but rejected non-qualified harvest reduction	Requested non-Federally qualified users be restricted to two deer and extension season closing date from Dec. 31 to Jan. 31
<b>WP16-05</b>	2016	Adopted	Requests the language stating the Unit 2 deer harvest limit may be reduced to four deer in times of conservation be removed
<b>WP16-08</b>	2016	Adopted	Requests deer harvest ticket #5 be validated out of sequence to record female deer taken in Unit 2.
<b>WP18-01</b>	2018	Adopt w/ mod to accept harvest limit restriction but oppose season reduction	Limit harvest to two deer from Federal public lands the reduce season by one week or more for non-Federally qualified subsistence users
<b>WP18-02</b>	2018	Adopted	Requested modification of deer C&T for Units 1-5 to all rural residents of Units 1-5.

## WP20–06 Executive Summary

<b>General Description</b>	Proposal WP20–06 requests reducing the season ending date for deer in Unit 2 from January 31 to December 31. <i>Submitted by: East Prince of Wales Fish and Game Advisory Committee.</i>
<b>Proposed Regulation</b>	<p><b>Unit 2—Deer</b></p> <p><i>5 deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct. 15–<del>Jan</del>Dec. 31. Harvest ticket number five must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.</i></p> <p><i>The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Cholmondeley Sound draining into Cholmondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1 to Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.</i></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Southeast Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>1 Support</b>

## STAFF ANALYSIS WP20-06

### ISSUES

Wildlife Proposal WP20-06, submitted by the East Prince of Wales Fish and Game Advisory Committee, requests reducing the season ending date for deer in Unit 2 from January 31 to December 31.

### DISCUSSION

The proponent states that removing the January portion will prevent regulatory confusion for subsistence users while benefiting the Unit 2 deer population. The proponent believes removing January from the season will not be detrimental to Federally qualified subsistence users, as they still have a subsistence priority to harvest deer starting on July 24, prior to the beginning of the State season on August 1.

### Existing Federal Regulation

#### Unit 2—Deer

*5 deer; however, no more than one may be a female deer. Female deer July 24-Jan. 31 may be taken only during the period Oct. 15–Jan. 31. Harvest ticket number five must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.*

*The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Cholmondeley Sound draining into Cholmondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1 to Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.*

## Proposed Federal Regulation

### Unit 2—Deer

*5 deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct. 15–~~Jan~~Dec. 31. Harvest ticket number five must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.*

*The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Cholmondeley Sound draining into Cholmondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1 to Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.*

## Existing State Regulation

### Unit 2 – Deer

*Residents and non-residents: Four bucks*

*Aug. 1 – Dec. 31*

*Harvest tickets must be validated in sequential order, and unused tickets must be carried when you hunt.*

## Extent of Federal Public Lands/Waters

Unit 2 is comprised of 74% Federal public lands and consist of 73% U.S. Forest Service (USFS) managed lands and less than 1% U.S. Fish and Wildlife Service (USFWS) managed lands (see **Unit 2 Map**).

## Customary and Traditional Use Determinations

Rural residents of Units 1, 2, 3, 4, and 5 have a customary and traditional use determination for deer in Unit 2.

## Regulatory History

Hunting regulations have permitted the harvest of deer in Unit 2 since 1925 (**Appendix 1**). During this period, season closing dates have varied between November and December, with December 31 being the most common closing date since 1988. Seasons and harvest limits for Federally qualified

subsistence users in Unit 2 are more liberal than State regulations. Federal regulations have allowed the harvest of one female deer in Unit 2 since 1995, as well as the harvest of five deer beginning in 2006.

Following years of numerous Unit 2 related deer proposals (**Appendix 2**) submitted to the Federal Subsistence Board (Board), the Unit 2 Deer Planning Subcommittee (Subcommittee) was formed in 2004 to address contentious deer management issues in Unit 2. At the request of the Board, the Council established the 12-member Subcommittee to address concerns that Federally qualified subsistence users in Unit 2 were unable to harvest enough deer to meet their needs. The Subcommittee included residents of Craig, Hydaburg, Ketchikan, Petersburg, Point Baker, and Wrangell, to reflect the range of users of Unit 2 deer, along with representatives from State and Federal wildlife management agencies.

The Subcommittee developed management recommendations at a series of five public meetings held in communities that depend upon Unit 2 deer. Both Federally and non-Federally qualified users participated at these meetings. The Subcommittee recommended that deer harvest management tools could be applied in Unit 2 as deer population trends and hunting use patterns changed. The degree to which these tools would be employed would be decided through the established public regulatory processes (SEASRAC 2006).

In 2006, the Board implemented two major changes to the Unit 2 deer hunt by adopting Proposals WP06-08 and WP06-09, both with modification. Adoption of WP06-08 as modified, reopened a portion of Federal public lands to non-Federally qualified users on the southeast side of Prince of Wales Island. Adoption of WP06-09 as modified, established the current five deer harvest limit for Federally qualified subsistence users (FSB 2006). Two other proposals, WP06-06 and WP06-10, related to the use of harvest tickets in Unit 2 and were unanimously opposed by the Council and rejected by the Board (FSB 2006).

Three proposals related to Unit 2 deer were submitted from 2007-2012. Proposal WP07-07 requested the female deer season be closed, Proposal WP10-19 requested a change to the female deer season, and Proposal WP10-20 requested the August closure to non-Federally qualified users be lifted. The Council opposed and the Board rejected these proposals (FSB 2007, 2010).

Also during 2010, the Board adopted WP10-22 with modification delegating management authority for wildlife by letter to the ten District Rangers located in Units 1-5. As a result, the delegated authority in Unit 2 changed from the Tongass Forest Supervisor to the District Rangers of both the Craig and Thorne Bay Ranger Districts. For deer, their scope of delegation allows them to set harvest quotas; to close, reopen or adjust Federal subsistence deer seasons; and to adjust harvest and possession limits for that species. Most likely, this type of action would occur prior to the season. Any action greater than 60 days in length requires a public hearing before implementation. They may also close Federal Public lands to the take of this species to all users. This type of action would most likely take place during the season. Action on the proposal also removed the requirement for consultation with the both Council Chair and ADF&G, as this was already defined protocol within the Special Action process (FSB 2010).



Two proposals were considered for deer in Unit 2 in 2013. Proposal WP14-03 requested the female deer season be eliminated whereas Proposal WP14-04 asked for an earlier season to be established for Federally qualified subsistence users over the age of 60 or physically disabled. The Council unanimously opposed and the Board rejected these proposals (SEASRAC 2013; FSB 2014).

Three proposals were considered for deer in Unit 2 in 2015. Proposal WP16-01 requested a harvest limit reduction for non-Federally qualified users as well as an extension of the Federal season through the month of January. This proposal was broken into two sub-proposals by the Council who opposed the harvest limit reduction but supported the season extension with the following justifications: 1) the Unit 2 deer population was stable; 2) January harvest was a traditional practice according to testimony; 3) any additional female deer harvest was believed to be minimal and sustainable; and 4) the USFS District Ranger in Unit 2 has delegated authority to close the season early if conservation needs arise. The Board adopted the proposal as modified by the Council. Proposal WP16-05 requested removal of language regarding a harvest limit reduction during times of conservation because that authority is included by delegation to the Federal in-season manager and WP16-08 requested harvest ticket #5 be used out of sequence when harvesting a female deer. Both proposals were unanimously supported by the Council and adopted by the Board (SEASRAC 2015; FSB 2016).

Proposal WP18-01 was considered during the 2018 regulatory cycle. The proposal requested a reduction of both the season length and the harvest limit for non-Federally qualified users. The Council divided the proposal into two action items where they supported the harvest limit reduction but opposed the shortening of the season. The Board adopted the harvest limit reduction as recommended by the Council based on testimony from Federally qualified subsistence users that they were not meeting their needs. The Board rejected the season date reduction because they believed it would not provide additional benefits as harvests in December were minimal by both user groups and that subsistence users already had additional priorities available in the form of; the week in July, the closure to non-Federally qualified users in August, the ability to harvest a female deer starting October 15, a season extension into the month of January and the ability to harvest up to five deer total (SEASRAC 2017; FSB 2018a).

Due to administrative delays in the Federal Rule Making Process, on August 8, 2018, the Board approved temporary delegated authority to some Federal land managers to enact temporary changes to Federal Subsistence Regulations adopted by the Board during the April 2018 regulatory meeting (FSB 2018b). This delegation of authority was established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6). As a result, emergency special action 13-BD-06-18 was issued on August 16, 2018 by the USFS District Ranger restricting the harvest of deer by non-Federally qualified users to two male deer on Federal Public lands in Unit 2. The action was set to expire on October 15, 2018 or when the 2018-2020 Federal Subsistence Wildlife Regulations were published in the Federal Register.

Proposal WP18-02, requesting the Customary and Traditional use determination for deer in Units 1-5 be modified to include all rural residents of Units 1-5, was also considered during the 2018 regulatory cycle. This proposal had unanimous support from the Council and was adopted by the Board as a consensus agenda item (SEASRAC 2017; FSB 2018a).

## **Current Events Involving the Species**

The proponent also submitted Proposals WP20-03, -04, -05, and -07 regarding deer in Unit 2. The proponent was contacted to clarify the intent and reasoning of each proposal. The proponent stated their overall intent was to provide the Board with a suite of management options to increase the deer population and hunter success in Unit 2. Additionally, WP20-02 was submitted by the Alaska Department of Fish and Game (ADF&G), requesting removal of the harvest limit reduction for non-Federally qualified users.

## **Biological Background**

Sitka black-tailed deer spend the winter and early spring at low elevation on steep slopes where there is less snow accumulation, and old-growth forests provide increased intermixing of snow-intercept and foraging opportunities. Fawning occurs in late May and early June as vegetation greens-up, providing abundant forage to meet energetic needs of lactating does. Some deer migrate and follow the greening vegetation up to alpine for the summer, while others remain at lower elevations. The breeding season, or rut, generally occurs late October through late November (ADF&G 2009) generally peaking around mid-November. Wolves and black bears are the primary predators present in Unit 2, and may reduce deer populations or increase recovery times after severe winters.

Deer populations in Southeast Alaska fluctuate and are primarily influenced by winter snow depths (Olson 1979). Deer in Southeast Alaska typically have trouble meeting their energy needs in winter (Hanley and McKendrick 1985, Parker et al. 1999), and winters with long periods of deep snow that restrict the availability of forage can result in deer depleting their energy reserves to the point of starvation (Olson 1979).

Summer nutrition is important for building body reserves to sustain deer through the winter (Stewart et al. 2005). Few studies have been conducted on summer habitat conditions because winter habitat carrying capacity is generally considered to be the limiting factor for deer in Southeast Alaska. However, deer populations at or above habitat carrying capacity are affected by intra-specific competition for food and may enter winter in reduced body condition compared to deer populations below carrying capacity (Kie et al. 2003, Stewart et al. 2005). This can result in higher susceptibility to severe winters and lower productivity (Kie et al. 2003, Stewart et al. 2005). In addition, nutritionally stressed does produce smaller and fewer fawns (Olson 1979).

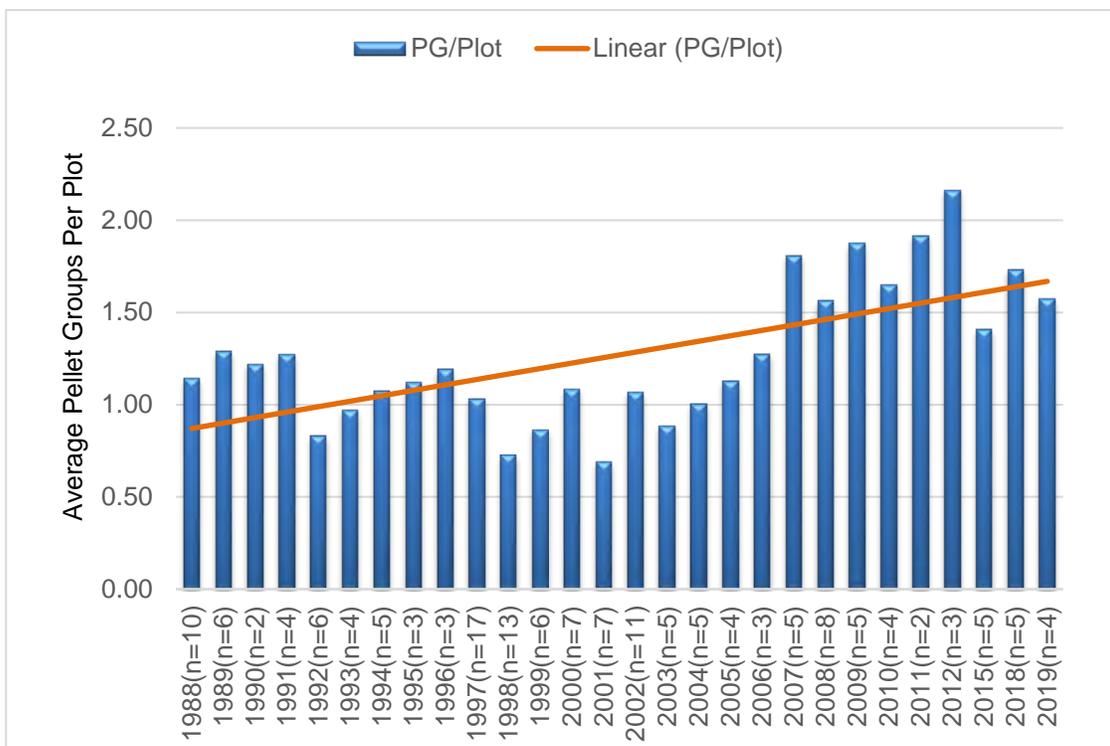
## Recent population indices

There are no methods to directly count deer in Southeast Alaska, so ADF&G conducts deer pellet surveys as an index to the relative abundance of the deer population. Relating pellet group data to population levels is difficult, however, because factors other than changes in deer population size can affect deer pellet-group density. Snowfall patterns influence the annual distribution and density of deer pellets, and snow persisting late into the spring at elevations below 1,500 feet limits the ability to consistently survey the same zones each year. In mild winters, deer can access forage in a greater

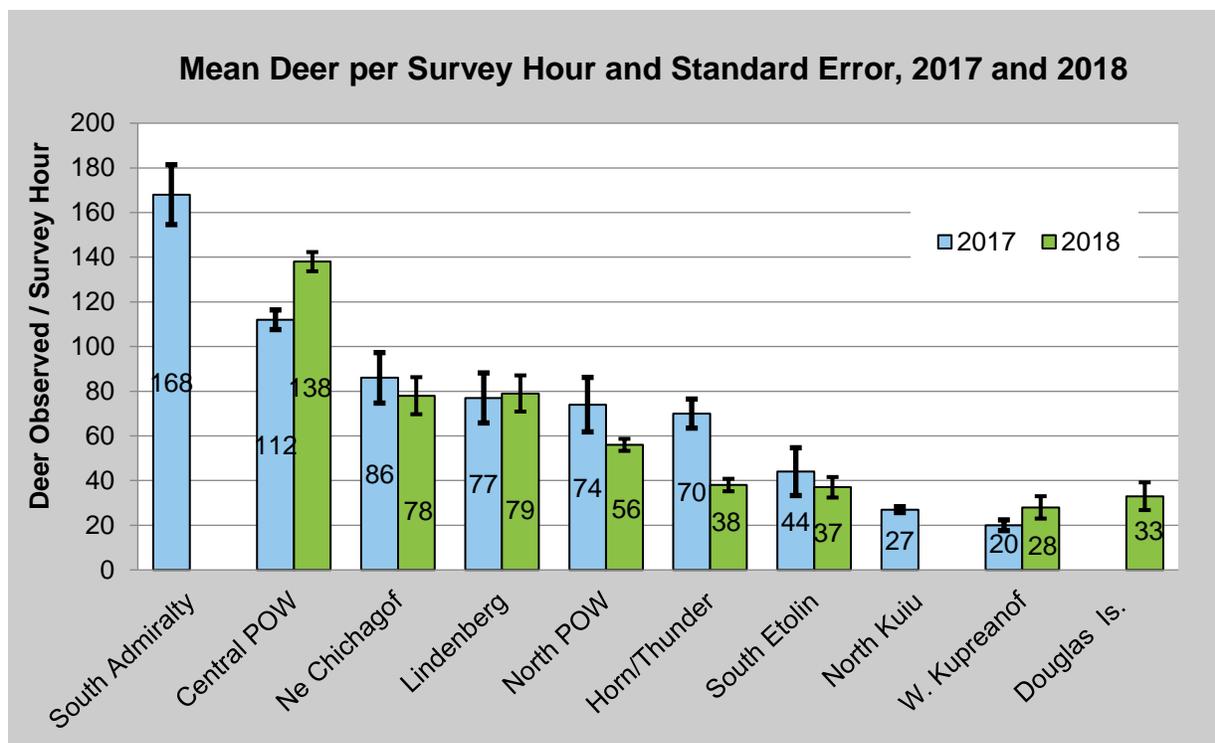
variety of habitats, not all of which are surveyed. Conversely, in severe winters, deep snow concentrates deer (McCoy 2011).

Brinkman et al. (2013) questioned the value of pellet-group surveys for monitoring population trends due to the variability in the data compared to DNA based pellet counts. Pellet group transects were designed to detect large (>30%) changes in abundance and are not and appropriate tool for monitoring smaller year to year changes. Although pellet-group surveys remain the only widely available deer population data, the results should be interpreted with caution. Pellet-group data in Unit 2 suggests a generally increasing population trend since a low during the late 1990s and early 2000s (**Figure 1**). This contrasts with Brinkman et al. (2011) who used a DNA based technique and estimated a 30% population decrease from 2006–2008 which they attributed to three consecutive winters with deep snow. Brinkman's study was limited to three watersheds, and the population changes during the study varied by watershed. It appears that populations subsequently increased after those severe winters and Bethune (2011) felt that by 2010 the Unit 2 deer population was healthy, stable to increasing, and at a 12-15 year high.

ADF&G began testing alpine deer aerial survey techniques in 2013 (**Figure 2**). 2017 was the first year with an established protocol and consistent surveys across southeast Alaska. ADF&G is still researching the correlation between alpine surveys and actual deer populations. Aerial survey numbers seem to reflect the relative abundances expected among various locations, but correlations with population trends are unknown at this time.



**Figure 1:** Annual average pellet group counts and general trend for deer in Unit 2 through 2019 (McCoy 2019a).



**Figure 2:** Aerial alpine surveys across southeast Alaska for 2017 and 2018 (McCoy 2019b).

Habitat

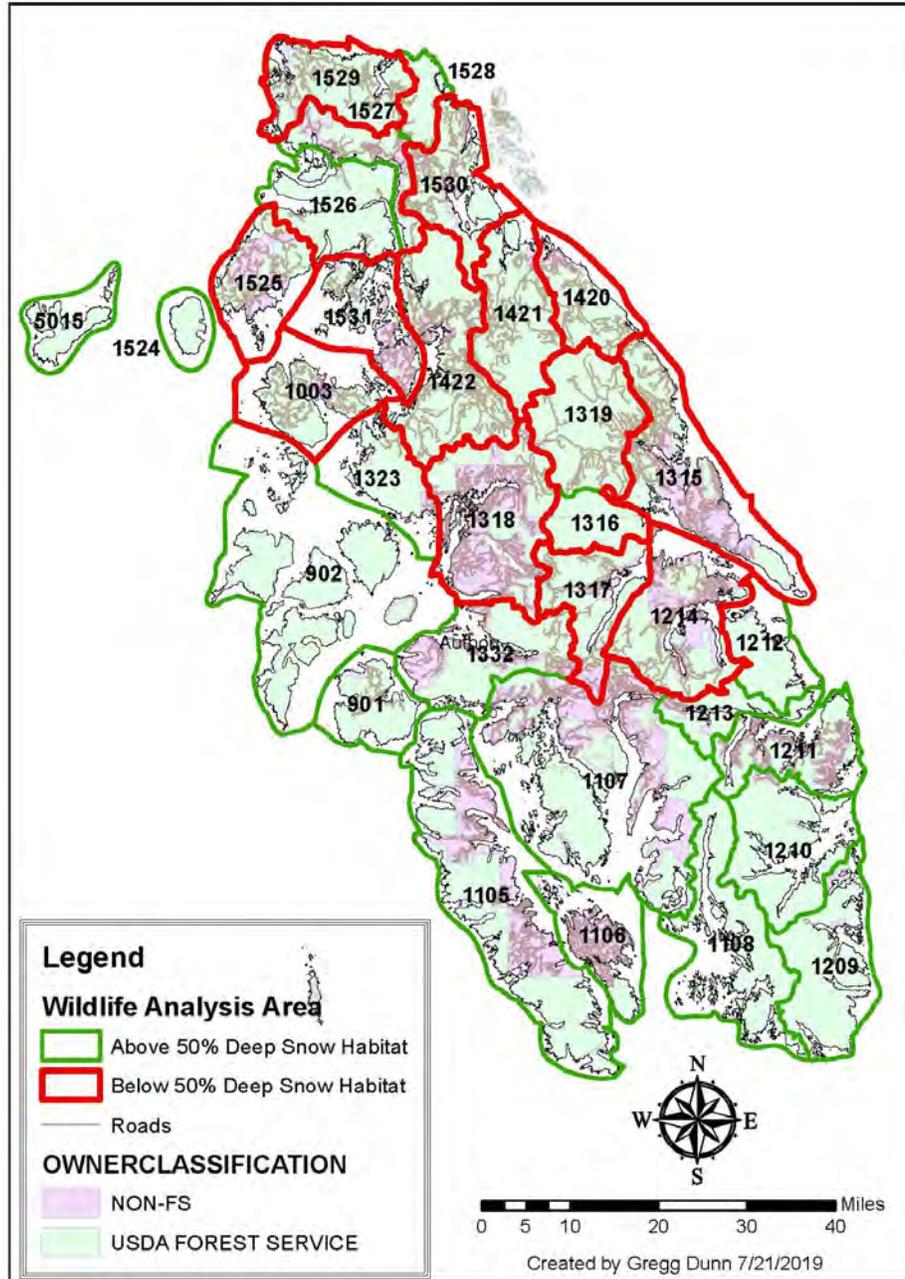
Old-growth forests are considered primary deer winter range, in part because the complex canopy cover allows sufficient sunlight through for forage plants to grow and intercepts snow, making it easier for deer to move and forage during winters when deep snow hinders access to other habitats. Deep snow deer winter range is defined as high value productive old growth (size class 5, 6, 7) on south facing slopes below 800 feet, and this is considered to be the limiting habitat for deer in Southeast Alaska. Some areas of Unit 2 have been impacted by large scale changes in habitat due to timber harvest, while the habitat is largely intact in other areas. Young-growth forest treatments (e.g., thinning, small gap creation, branch pruning) can benefit deer forage development in previously harvested stands. Regardless, areas with substantial timber harvest are expected to have lower long-term carrying capacity compared to pre-harvest conditions.

There is 62% of deer winter habitat remaining in GMU 2 (**Table 1**) with WAAs 1214, 1315, 1317, 1318, 1420, 1421, 1525, 1529, 1530, 1531 having below 50% habitat remaining. This is from past timber harvest and road building. In the case of a severe winter, these will be the areas hit hardest with deer mortality since there is little habitat left to sustain them. Habitat conditions would not improve as the areas harvested have reached stem exclusion which can last from 25 year post harvest to 150 years post-harvest. **Figure 3** can be used to see where the least amount of habitat remains and if you compare it to **Table 1** you can see where harvest is greatest compared to available habitat. Most wildlife analysis areas (WAA) with less than 50% deep snow deer winter habitat have the highest harvest rates.

Conditions on the ground within the last few years have remained stable because of mild winters and later arrival of snow in Unit 2 allowing the deer to forage longer at altitude and in areas such as muskegs. Prolonged snowpack during a severe winter or within later stages of winter could have a greater effect on deer populations going forward since there is far less habitat available during those periods.

**Table 1:** Overall percent of historical habitat since 1954 (beginning of large scale logging) remaining by wildlife analysis area (WAA) in GMU 2 for deep snow deer winter habitat and all productive old growth, average harvest since 2005, and harvest trend.

WAA	Productive Old Growth	Deep Snow Deer Winter Habitat (HPOG below 800 feet on south facing slopes)	Average Reported Harvest by WAA since 2005 and trend
901	89	85	69 ↑
902	100	100	79 ↓
1003	51	49	46 ↑
1105	99	99	84 ↑
1106	100	100	25 ↓
1107	97	93	138 ↑
1108	99	99	17 ↑
1209	100	100	10 ↑
1210	99	99	50 ↑
1211	83	78	36 ↑
1213	99	99	21 ↑
1214	67	48	245 ↑
1315	55	29	350 ↑
1316	99	100	27 ↓
1317	56	23	145 ↑
1318	78	49	220 ↑
1319	74	61	229 ↓
1323	90	76	18 ↓
1332	80	72	76 →
1420	54	27	308 ↑
1421	71	44	107 ↓
1422	51	29	386 ↓
1525	51	40	21 ↑
1526	93	83	18 ↑
1527	67	61	23 ↓
1528	82	84	37 →
1529	55	46	144 ↓
1530	50	37	145 ↑
1531	55	49	37 ↓



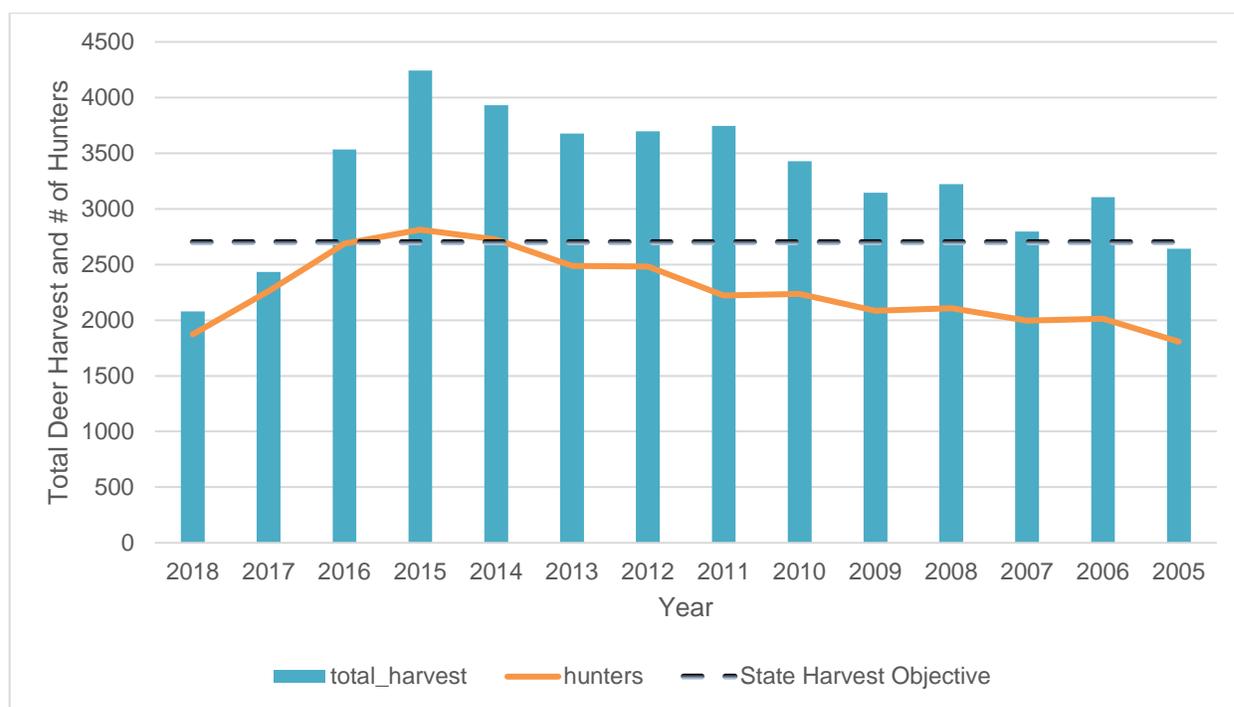
**Figure 3:** Map of Unit 2 showing deep snow deer winter habitat availability and where habitat is below 50% in WAAs. Note: WAA 5015 is not part of Unit 2.

### Harvest History

Harvest data reported below are provided by ADF&G (McCoy 2019b) and are gathered by several reporting systems including the Region 1 (Southeast Alaska) deer survey, Unit 2 deer harvest report, and the State-wide deer harvest report. The Region 1 deer survey is the most consistent report, covering the years 1997–2010 and is based on a sample of hunters. In general, 35% of hunters from each community were sampled annually and while response rates vary by community, the overall

response rate across communities was approximately 60% each year. Harvest numbers were extrapolated using expansion factors that are calculated as the total number of harvest tickets issued to a community divided by the total number of survey responses for that community. If response was low from a community, an individual hunter may have a disproportionate effect on the data. As confidence intervals are not available for these data, harvest numbers should be considered estimates and interpreted with caution. Trends, however, should be fairly accurate, especially at larger scales. The Unit 2 deer report was in place from 2005–2010 and was instituted specifically for reporting deer harvest in Unit 2. In 2011, the statewide deer report replaced the other deer harvest reporting systems and requires reporting of harvest by all deer hunters. Different expansion factors are used for the various data sets so that total harvest estimates between years are comparable (McCoy 2013).

Action taken by the Alaska Board of Game in fall 2000 established a harvest objective of 2,700 deer for Unit 2 as they identified the population as important for satisfying high levels of human consumptive use (Bethune 2013). Estimated deer harvest in Unit 2 from 2005–2018 can be found in **Figure 4**. The estimated average total annual harvest is 3,467 deer. Harvests have been at or above ADF&G’s Unit 2 harvest objective from 2005-2016 and fell below harvest objectives during the 2017 and 2018 seasons. Deer harvest reached historically high levels in 2015 and then began to decline since. The same pattern can also be seen with hunter numbers participating in Unit 2 (**Figure 4**).



**Figure 4:** Total deer harvest and number of hunters during the 2005-2018 seasons in Unit 2 and showing the state harvest objective of 2,700 deer (McCoy 2019b).

Prior to implementation of Federal regulations, opportunity to harvest female or antlerless deer was available under State regulations from 1955-1972. From 1973-1977, opportunity for female deer was still available, however, the harvest limit was reduced. During the 1987 season, the opportunity to

harvest one female deer under State regulations was re-implemented, but did not get extended due to the unpopularity of the hunt in many local communities. Harvest data for these years are not available.

Although Federal regulations for hunting deer in Unit 2 started in 1991, the opportunity to harvest female or antlerless deer was not allowed until the 1995 season. Between 1998 and 2005, a Federal permit was required, however this requirement was removed with the establishment of first a unit-wide, then statewide harvest report attached to the deer harvest tickets. From 2001-2018, the reported female deer harvest in Unit 2 has ranged from 57 to 119 animals per year, with an overall annual average of 88 female deer. During this same period, the harvest of female deer has averaged only 3% of the total deer harvest (OSM 2019; McCoy 2019b). More recently, although the average reported female deer harvest increased to 101 since 2005, the female deer harvest percentage has actually decreased to 2.9% of the total reported deer harvest (McCoy 2019b).

Opportunity to legally harvest deer in January in Unit 2 under Federal regulations has been available since the 2016 regulatory season. Reported deer harvests during the month of January in Unit 2 (**Table 2**) have ranged from 11 to 26 (<1% of total harvest) with male deer comprising 45.4% to 61.5% of this harvest (McCoy 2019b).

**Table 2:** Deer harvests by month in Unit 2 from 2016-2018 (McCoy 2019b)

<b>Reg. year</b>	<b>July</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Totals</b>
<b>2016</b>	<b>175</b>	<b>540</b>	<b>362</b>	<b>642</b>	<b>1627</b>	<b>168</b>	<b>26</b>	<b>3532</b>
<b>2017</b>	<b>101</b>	<b>436</b>	<b>208</b>	<b>312</b>	<b>1247</b>	<b>99</b>	<b>12</b>	<b>2432</b>
<b>2018</b>	<b>55</b>	<b>339</b>	<b>162</b>	<b>269</b>	<b>1165</b>	<b>73</b>	<b>11</b>	<b>2079</b>

**Effects of the Proposal**

If adopted, the proposal would reduce harvest opportunity for Federally qualified subsistence users hunting deer on Federal public lands in Unit 2. Removing the opportunity to harvest deer during January would reduce harvest but does not guarantee reproductive success within the Unit 2 deer population. The amount of deer available for future seasons would be negligible. Reported deer harvest during January have been very low (12-26 deer) and does not appear to be limiting the deer population on a unit-wide scale. Adoption of the proposal does not prevent future conservation issues as deer populations in Unit 2 are more greatly affected by habitat and winter weather conditions than by harvest.

**OSM CONCLUSION**

**Oppose** Proposal WP20-06.



**Justification**

During the 2016 regulatory cycle, both the Council and the Board unanimously supported the January season extension and provided thorough justifications on the record in support. Removal of the January season is unnecessarily contradictory to the Board's intent when they adopted the regulation change as recommended by the Council.

Reducing the season length is not necessary for continuation of future subsistence opportunity for Federally qualified subsistence users nor for the conservation of the deer populations in Unit 2. Deer harvest during January has been very minimal (12-26 deer) and does not appear to be creating a conservation issue across the unit. Adopting the proposal will not prevent future conservation issues as the deer population is affected more by available habitat and winter weather conditions than current levels of harvest. If future harvests increase or winter conditions dramatically reduce deer numbers creating a conservation concern, the delegated in-season manager can reduce the season length accordingly.

## LITERATURE CITED

- ADF&G. 2009. Deer Trails. Issue 1. Juneau, AK.  
[https://www.adfg.alaska.gov/static/hunting/deerhunting/pdfs/deer\\_trails\\_spring\\_2009.pdf](https://www.adfg.alaska.gov/static/hunting/deerhunting/pdfs/deer_trails_spring_2009.pdf). 7 pages.
- Bethune, S. 2011. Unit 2 deer management report. Pages 31–44 in P. Harper, editor. Deer management report of survey and inventory activities 1 July 2008-30 June 2010. ADF&G. Juneau, AK.
- Bethune, S. 2013. Unit 2 deer management report. Pages 33–47 in P. Harper, editor. Deer management report of survey and inventory activities 1 July 2010-30 June 2012. ADF&G. Juneau, AK.
- Brinkman, T.J., D.K. Person, F.S. Chapin III, W. Smith, and K.J. Hundertmark. 2011. Estimating abundance of Sitka black-tailed deer using DNA from fecal pellets. *J. Wildlife Manage.* 75(1): 232–242.
- Brinkman, T.J., D.K. Person, W. Smith, F.S. Chapin, III, K. McCoy, M. Leonawicz, K.J. Hundertmark. 2013. Using DNA to test the utility of pellet-group counts as an index of deer counts. *Wildlife Society Bulletin*; DOI: 10.1002/wsb.270.
- FSB. 2006. Transcripts of Federal Subsistence Board proceedings, May 16, 2006. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 2007. Transcripts of Federal Subsistence Board proceedings, April 30, 2007. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 2010. Transcripts of Federal Subsistence Board proceedings, May 18, 2012. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 2014. Transcripts of Federal Subsistence Board proceedings, April 18, 2014. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 2016. Transcripts of Federal Subsistence Board proceedings, April 12, 2016. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 2018a. Transcripts of Federal Subsistence Board proceedings, April 11, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 2018b. Transcripts of Federal Subsistence Board proceedings, August 8, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.
- Hanley, T.A., and J.D. McKendrick. 1985. Potential nutritional limitations for black-tailed deer in a spruce-hemlock forest, Southeastern Alaska. *Journal of Wildlife Management* 49:103–114.
- Kie, J.G., R.T. Bowyer, and K.M. Stewart. 2003. Ungulates in western forests: habitat relationships, population dynamics, and ecosystem processes. Pages 296–340 in: Zabel, C., and R. Anthony, editors. *Mammal community dynamics in western coniferous forests: management and conservation*. The Johns Hopkins University Press, Baltimore.

- McCoy, K. 2011. Sitka black-tailed deer pellet-group surveys in southeast Alaska, 2011 report. ADF&G, Juneau, AK. 47 pages.
- McCoy, K. 2013. Wildlife Biologist. Personal communication: email to J. Reeves (USFS) containing ADF&G deer pellet count data. ADF&G, Craig, AK.
- McCoy, K. 2019a. Wildlife Biologist. Personal communication: email to J. Reeves (USFS) containing ADF&G deer pellet count data. ADF&G, Craig, AK.
- McCoy, K. 2019b. Wildlife Biologist. Personal communication: email to G. Dunn (USFS) containing ADF&G deer harvest data. ADF&G, Sitka, AK.
- Olson, S.T. 1979. The life and times of the black-tailed deer in southeast Alaska. Pages 160–168 in O.C. Wallmo and J.W. Schoen, editors. Sitka black-tailed deer: Proceedings of a conference in Juneau, Alaska. USFS, Alaska Region, in cooperation with the ADF&G. Series No. R10-48, May 1979.
- Office of Subsistence Management (OSM). 2019. Subsistence permit database, updated June 2019.
- Parker, K.L., M.P. Gillingham, T.A. Hanley, and C.T. Robbins. 1999. Energy and protein balance of free-ranging black-tailed deer in a natural forest environment. *Wildlife Monographs* 143:3–48.
- SEASRAC. 2006. Unit 2 Deer Management Final Report from the Unit 2 Deer Planning Subcommittee of the Southeast Subsistence Regional Advisory Council.
- SEASRAC. 2013. Transcripts of the Southeast Subsistence Regional Advisory Council, October 23, 2013 in Wrangell, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- SEASRAC. 2015. Transcripts of the Southeast Subsistence Regional Advisory Council, October 27, 2015 in Yakutat, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- SEASRAC. 2017. Transcripts of the Southeast Subsistence Regional Advisory Council, October 31, 2017 in Juneau, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- Stewart, K.M., R.T. Bowyer, B.L. Dick, B.K. Johnson, and J.G. Kie. 2005. Density-dependent effects on physical condition and reproduction in North American elk: an experimental test. *Oecologia* 143:85–93.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS:**

### **Southeast Alaska Subsistence Regional Advisory Council**

**Oppose** WP20-06. The Council believes that shortening this deer season would put more pressure on rural hunters to be able to get game in a timely manner. Most hunters are finished by Christmas, but there are some that are still hunting and need to get a deer. A hunter may need that additional month to get his/her subsistence needs met and decreasing the hunt by a month may put undue pressure on individuals. The Council knows that not everyone has access to electricity and can use a freezer and during the winter months deer can be hang outside for a long time if the season is longer. The Council recommends maintaining the Federal rural priority and, though it recognizes that it is sometimes prudent to align with State regulations, it is not always practical, and there should not be unnecessary restrictions placed on the rural user.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-06:** This proposal, submitted by the East Prince of Wales Fish and Game Advisory Committee, would reduce the deer season for federally qualified hunters in Unit 2 by one month, from July 24 – January 31 to July 24 – December 31.

**Introduction:** Game Management Unit 2 encompasses Prince of Wales (POW) Island and the surrounding archipelago. Hunters residing in Southeast Alaska (Units 1-5), excluding the federal non-rural areas of Juneau and Ketchikan, are eligible to harvest deer in Unit 2 under federal subsistence regulations. The federal Unit 2 deer season was first extended through January during RY2016, but few deer are reported harvested during January.

Shortening the season by one month would reduce a federally qualified hunter's deer hunting opportunity but would align the end of the federal season with the end of the state deer hunting season. During the winter deer are commonly found on tidelands, which are owned by the state and closed to deer hunting after the state season closes on December 31. Some federally qualified users may not understand that distinction or know where federally owned uplands begin, which could result in illegal harvest. Male deer generally drop their antlers by January making it difficult to distinguish between bucks and does. Federally qualified users in Unit 2 may harvest only one doe per year, so hunters who have already harvested a doe must take caution when determining sex in January. There are two goals for this proposal: reduce illegal take of deer on state land during federal deer seasons and simplify regulations to reduce confusion about land management status for hunters.

**Impact on Subsistence Users:** This proposal would reduce deer hunting opportunity for federally qualified hunters on federal lands in Unit 2 by one month. For regulatory years 2016 – 2018 the average estimated annual harvest in Unit 2 was 2,680 deer per year. During those same years the estimated average harvest during January was only 17 deer per year or 0.6% of the total harvest.

**Impact on Other Users:** None. The state season already closes on December 31.

**Opportunity Provided by State:**

The State of Alaska season and bag limit for deer is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident</u>	<u>Nonresident</u>
2	4 bucks	Aug. 1 – Dec. 31 (GD000)	Aug. 1 – Dec. 31 (GD000)

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for deer in Unit 2.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for deer in Unit 2 is 1,500 – 1,600 animals.

Special instructions: None

**Conservation Issues:** None

**Enforcement Issues:** Adoption of this proposal may alleviate some confusion over land ownership and hunting regulations between state and federal entities. It may also make deer selection by sex easier since more male deer retain their antlers during December.

**Recommendation:** The Alaska Department of Fish and Game **SUPPORTS** this proposal because it will better align federal and state regulations and it may reduce take on state intertidal lands that are closed in January.

## WRITTEN PUBLIC COMMENTS

Ketchikan Advisory Committee  
June 6<sup>th</sup>, 2019  
ADF&G Conference Room

- I. **Call to Order:** 5:40pm by Matt Allen, Secretary
- II. **Roll Call:** 8 voting members present, 1 via phone  
**Members Present:** Allen, Crittenden, Dale, James, Westlund, Roth, Shaw, Bezneck, Fox, Scoblic (Phone)  
**Members Absent (Excused):** Doherty, McQuarrie, Skan, Franulovich, Miller  
**Members Absent (Unexcused):**  
**Number Needed for Quorum on AC:** 8  
**List of User Groups and Public Present:** Public, Sportfish Charter, ADFG (Sport Fish, Wildlife)  
**Motion:** Bezneck, motion to make Allen meeting Chair, Roth, second. 9-0 in favor. Allen sits as meeting Chair
- III. **Approval of Agenda:**  
 Allen, motion to amend agenda to include discussion of Federal Subsistence Proposals 10, 11, 13,14. Westlund seconded. Motion passed unanimously (9-0). Westlund, moved to approve agenda, Dale seconded. Motion passed unanimously (9-0)
- IV. **Approval of Previous Meeting Minutes:**  
 Previous meeting minutes incomplete at this time
- V. **Fish and Game Staff Present:**  
 Kelly Reppert, Ross Dorendorf, Tessa Hasbrouck
- VI. **Guests Present:** Jim Moody, Nick Hashagan, Martin Caplan, Tony Azure
- VII. **Chairman Report:** Allen read co-chair letter from Scoblic/Doherty
- VIII. **ADF&G Sportfish Report:** Reppert, report regarding catch and release chinook fishing. Discussion and comment followed report.
- IX. **Old Business:**  
 Federal Subsistence Proposals 2020-2022, WP20-01-08, WP20-10-15
- X. **New Business:**  
 Catch and Release of chinook by Charter fishermen  
 Set next meeting date, September 12<sup>th</sup>, 2019, 5:30pm ADFG Conference Room

Federal Subsistence Management Program 2020-2022 Wildlife Proposal Comments			
Proposal Number	Proposal Description		
Support, Support as Amended, Oppose, No Action	Number Support	Number Oppose /Abstain	Comments, Discussion (list Pros and Cons), Amendments to Proposal, Voting Notes
WP20-01	Southeast, Moose, Unit 1C, Eliminate Unit 1C – Berners Bay moose hunt		
Support	8	0/1 abstain	A biological concern does not currently exist necessitating a subsistence priority. Majority of traditional use comes from Juneau area. A fair system is currently in place to provide for opportunity
WP20-02	Southeast, Deer, Unit 2, Remove harvest limits to non-federally qualified users		
Support	9	0	We support State managers in their assessment of the deer population and the opportunity it can support.
WP20-03	Southeast, Deer, Unit 2, Eliminate doe harvest		
Oppose	1	8	Though the AC does not agree with doe harvest, we do not support this proposal because it would have minimal impact.
WP20-04	Southeast, Deer, Unit 2, Revise harvest limit		
Oppose	3	6	Some AC members support cessation of doe harvest if only for a short period of time.
WP20-05	Southeast, Deer, Unit 2, Establish a registration permit for does		
Support	7	1/1	AC supports the proposal as it may lead to better data for management.
WP20-06	Southeast, Deer, Unit 2, Revise season		
Support	9	0	AC supports removal of January hunt due to small amount of harvest, reduced quality of meat and difficulty in distinguishing bucks and does.
WP20-07	Southeast, Deer, Unit 2, Revise harvest limit		
Support	9	0	
WP20-08	Statewide, All Trapping Species, Require traps or snares to be marked with name or State Identification number		
Oppose	1	8	Though some type of compromise should be reached in regards to labelling of traps/snares a one size fits all regulation could be overly burdensome in some areas
WP20-09	Southeast, Beaver, Units 1-4, Revise trapping season		
No Action			
WP20-10	Statewide, Black Bear, Units 1-5, Revise Customary and Traditional Use Determination		



Oppose	2	6	Hunting of Black Bear is not customary and traditional in all units residing in Southeast
WP20-11	Statewide, Brown Bear, Units 1-5, Revise Customary and Traditional Use Determination		
	3	4	Hunting of Brown Bear is not customary and traditional in all units residing in Southeast.
WP20-12	Southeast, Deer, Unit 3, Revise hunt areas, season dates, and harvest limits		
WP20-13	Statewide, Elk, Unit 3, Establish Customary and Traditional Use Determination		
	0	9	This is a population introduced by the State in 1986, due to this fact we do not believe this population is traditional and customary for any Unit in Southeast Alaska. The authors of this proposal do not demonstrate how this particular species in this area has been used to meet the definition as customary and traditional.
WP20-14	Statewide, Goat, Unit 1-5, Revise Customary and Traditional Use Determination		
	4	4	Hunting of Mountain Goat is not Customary and Traditional in all Units residing in Southeast.
WP20-15	Statewide, Moose, Unit 1-5, Revise Customary and Traditional Use Determination		
	0	8	Hunting of Moose is not customary and traditional in all units residing in Southeast.
WP20-16	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			
WP20-17	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			

Adjournment:

Minutes Recorded By: \_\_\_\_\_  
 Minutes Approved By: \_\_\_\_\_  
 Date: \_\_\_\_\_

## APPENDIX 1

Appendix 1: Regulatory framework of State and Federal deer seasons by year since 1925

Year	Type of Season	Season	Limit	Conditions & Limitations
1925	Open	Sept 15-Dec 16	3	Buck, 3" antlers or longer
1925-1929	Open	Sept 1-Nov 30	3	Buck, 3" antlers or longer
1930-1941	Open	Aug 20-Nov 15	2	Buck, 3" antlers or longer
1942-1943	Resident	Sept 16-Nov 15	2	Buck, 3" antlers or longer
1942-1943	Non-resident	Sept 16-Nov 15	1	Buck, 3" antlers or longer
1944-1948	Resident	Sept 1-Nov 7	2	Buck, 3" antlers or longer
1944-1948	Non-resident	Sept 1-Nov 7	1	Buck, 3" antlers or longer
1949	Resident	Sept 1-Nov 15	2	Buck, 3" antlers or longer
1949	Non-resident	Sept 1-Nov 15	1	Buck, 3" antlers or longer
1950-1951	Resident	Aug 20-Nov 15	2	Buck, 3" antlers or longer
1950-1951	Non-resident	Aug 20-Nov 15	1	Buck, 3" antlers or longer
1952	Open	Aug 20-Nov 22	2	Buck, 3" antlers or longer
1953-1954	Open	Aug 20-Nov 22	3	Buck, 3" antlers or longer
1955	Open	Aug 20-Nov 22	3	3 bucks or 2 bucks and one antlerless, bucks 3" antlers or longer, antlerless may be taken Nov 15-Nov 22
1956	Open	Aug 20-Nov 26	3	3 bucks or 2 bucks and one antlerless, bucks 3" antlers or longer, antlerless may be taken Nov 13-Nov 26
1957-1959	Open	Aug 20-Nov 30	4	4 deer, does may be taken Oct 15-Nov 30
1960	Open	Aug 20-Dec 15	4	4 deer, does may be taken Oct 15-Nov 30
1961	Open	Aug 20-Nov 30	4	4 deer, antlerless deer may be taken Sept 15-Nov 30

<b>Year</b>	<b>Type of Season</b>	<b>Season</b>	<b>Limit</b>	<b>Conditions &amp; Limitations</b>
1962	Open	Aug 1-Dec 15	4	4 deer, antlerless deer may be taken Sept 15-Dec 15
1963-1967	Open	Aug 1-Dec 31	4	4 deer, antlerless deer may be taken Sept 15-Dec 31
1968	Open	Aug 1-Dec 15	4	4 deer, antlerless deer may be taken Sept 15-Dec 15
1969-1971	Open	Aug 1-Dec 31	4	4 deer, antlerless deer may be taken Sept 15-Dec 31
1972	Open	Aug 1-Dec 31	3	3 deer, antlerless deer may be taken Nov 1-Nov 30
1973-1977	Open	Aug 1-Nov 30	3	1 antlerless deer may be taken Nov 1-Nov 30
1978-1984	Open	Aug 1-Nov 30	3	Antlered deer
1985-1986	State General	Aug 1-Nov 30	3	Antlered deer
1987	State General	Aug 1-Nov 30	4	1 antlerless deer may be taken Oct 10-Oct 31
1988-2018	State General	Aug 1-Dec 31	4	Antlered deer/bucks
1991-1994	Federal Subsistence	Aug 1-Dec 31	4	Antlered deer
1995-1997	Federal Subsistence	Aug 1-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken only during Oct 15-Dec 31
1998-2002	Federal Subsistence	Aug 1-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken Oct 15-Dec 31 by Federal registration permit only
2003-2005	Federal Subsistence	July 24-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken Oct 15-Dec 31 by Federal registration permit only
2006-2009	Federal Subsistence	July 24-Dec 31	5	No more than one may be an antlerless deer; antlerless deer may be taken Oct 15-Dec 31

<b>Year</b>	<b>Type of Season</b>	<b>Season</b>	<b>Limit</b>	<b>Conditions &amp; Limitations</b>
<b>2010-2015</b>	Federal Subsistence	July 24-Dec 31	5	No more than one may be a female deer; female deer may be taken Oct 15-Dec 31
<b>2016-2018</b>	Federal Subsistence	July 24-Jan 31	5	No more than one may be a female deer; female deer may be taken Oct 15-Jan 31.

## Appendix 2

**Appendix 2:** History of Federal regulatory actions related to deer in Unit 2 taken by the Federal Subsistence Board.

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>P95-01</b>	1995	Adopt w/ mod to require harvest report requirement	Create an antlerless season in Unit 2
<b>R95-09</b>	1995	Reject	Requested rescinding antlerless deer season created by adoption of P95-01
<b>P97-07</b>	1997	Reject	Reduce deer season from Aug. 1-Dec. 31 to Sept. 1-Dec. 31, and eliminate harvest of antlerless deer in Unit 2.
<b>P98-09</b>	1998	Reject	Eliminate antlerless season
<b>P98-10</b>	1998	Reject	Eliminate antlerless season and apply antler restriction of forked horn or larger
<b>P98-11</b>	1998	Reject	Shorten deer season from Sept 1 -Nov. 30
<b>P98-12</b>	1998	Reject	Eliminate antlerless season
<b>P00-005</b>	2000	Reject	Eliminate antlerless season
<b>P00-05</b>	2000	Reject	Eliminate antlerless deer season
<b>P00-06</b>	2000	Reject	Community harvest permit request of 500 deer per Unit 2 community
<b>WP01-03</b>	2001	Reject	Eliminate antlerless deer season
<b>WP02-08</b>	2002	Reject	Request increase of deer harvest limit for Unit 2 residents and reduction for Unit 1A and 3 residents
<b>WP02-09</b>	2002	Took no action	Restrict non-Federally qualified users from hunting on Federal lands between Aug. 1-31 and Oct. 16-Nov. 14
<b>WRFR02-01</b>	2002	Reject	Requested reconsideration of the Board rejecting WP02-09 to close Federal lands in Unit 2.
<b>WP03-04</b>	2003	Adopt with modification adding one week in July at front of season (July 24-31)	Requested earlier extension of deer season for Federally qualified users
<b>WP03-05</b>	2003	Adopt with modification restricting non-Federally qualified users from Aug 1-21 on Federal Public Lands on Prince of Wales Island (closure for 1 year)	Requested closure of Federal public lands from Aug 1-Sept. 1 and reduction of harvest limit to 2 deer for non-Federally qualified subsistence users.
<b>WP04-03</b>	2004	Took no action	Requested closure be changed from Aug 1-21 to Oct. 16-Nov. 14 and reduction of harvest limit for non-Federally qualified users
<b>WP04-04</b>	2004	Took no action	Requested antlerless deer season be modified from Oct. 15-Dec. 31 to Aug. 1-Sept. 15

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP04-05</b>	2004	Took no action	Requested closure to non-Federally qualified users be reduced by one week
<b>WP04-06</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-07</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-08</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-09</b>	2004	Took no action	Requested removal of the antlerless deer season and the July 24 start date for subsistence users and to replace closure with antler restrictions for non-Federally qualified users.
<b>WP04-10</b>	2004	Took no action	Requested removal of the antlerless deer season and the July 24 start date for subsistence users and to replace closure with a 3 buck harvest limit for non-Federally qualified users.
<b>WP04-11</b>	2004	Took no action	Requested removal of the July 24 start date for subsistence users and to modify closure from Aug. 1-21 to Oct. 16-Dec. 31 and implement a 2 buck harvest limit for non-Federally qualified users.
<b>WP04-12</b>	2004	Took no action	Requested modifying Federal season from July 24-Dec. 31 to Aug. 1-Jan. 31 for subsistence users and modified the August closure to the month of January to all but Unit 2 residents
<b>WP04-13</b>	2004	Took no action	Requested modifying Federal season from July 24-Dec. 31 to Aug. 1-10 and removing the antlerless deer season for subsistence users and reducing the August closure from Aug. 1-10 for non-Federally qualified users.
<b>WP04-14</b>	2004	Took no action	Reduce deer season from July 24-Dec. 31 to Aug. 1-Dec. 31 for Federally qualified users in Unit 2.
<b>WP04-15</b>	2004	Adopt with modification restricting non-Federally qualified users from Aug 1-15 on Federal Public Lands on Prince of Wales Island	Requested continuation of the one year closure as passed by the FSB during the 2003 regulatory cycle.

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP05-04</b>	2005	Adopt with modification removing registration requirement, but required use of a joint State/Federal harvest report as recommended by the Unit 2 Deer Subcommittee	Requested that all hunters obtain a Federal registration permit to hunt deer in Unit 2.
<b>WP06-06</b>	2006	Reject	Requested removing sequential use of harvest tickets and possession of all unused harvest ticket requirements.
<b>WP06-07</b>	2006	Took no action	Requested expansion of closure area to non-Federally qualified users.
<b>WP06-08</b>	2006	Adopt with modification. Modifications included: 1) removal of the August closure on SE portion of Prince of Wales Island; 2) rejected closure to non-Federally qualified users on Suemez Island; and 3) rejected a closure to non-Federally qualified users on the islands located along the SW coast of Prince of Wales Island.	Requested expansion of closure area to non-Federally qualified users.
<b>WP06-09</b>	2006	Adopt with modification. The Board modified the Council recommendation by eliminating the need to have a Federal permit for harvesting a 5th deer. The Board also delegated the Forest Supervisor the ability to lower the harvest limit to 4 deer if needed.	Requested increasing the deer harvest limit to 6 deer.
<b>WP06-10</b>	2006	Reject	Requested use of harvest ticket #1 to record harvest of a female deer.
<b>WP07-07</b>	2007	Reject	Requested either elimination of antlerless deer hunt or to only allow for antlerless deer harvest every other year.
<b>WP10-19</b>	2010	Reject	Requested modification of female deer season from Oct. 15-Dec. 31 to Sept. 15-Oct. 15
<b>WP10-20</b>	2010	Reject	Requested modification of the non-Federally qualified closure from Aug. 1-15 to July 24-31.
<b>WP10-22</b>	2010	Adopt with modification. The modification provided delegations to the ten USFS District Rangers via letter and was to apply only to wildlife. Any fish delegation requests would have to be submitted to the Board.	The delegated in-season management for wildlife on a species by species basis, by letter, to the ten District Rangers located in Units 1-5
<b>WSA11-01</b>	2011	Adopted	To rescind requirement of joint State/Federal harvest report
<b>WP12-08</b>	2012	Adopted	To rescind requirement of joint State/Federal harvest report
<b>WP14-03</b>	2014	Reject	Eliminate antlerless deer season
<b>WP14-04</b>	2014	Reject	Request early start date for Federally qualified users over 60 or disabled.

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP16-01</b>	2016	Adopt with mod adding January season, but rejected non-qualified harvest reduction	Requested non-Federally qualified users be restricted to two deer and extension season closing date from Dec. 31 to Jan. 31
<b>WP16-05</b>	2016	Adopted	Requests the language stating the Unit 2 deer harvest limit may be reduced to four deer in times of conservation be removed
<b>WP16-08</b>	2016	Adopted	Requests deer harvest ticket #5 be validated out of sequence to record female deer taken in Unit 2.
<b>WP18-01</b>	2018	Adopt w/ mod to accept harvest limit restriction but oppose season reduction	Limit harvest to two deer from Federal public lands the reduce season by one week or more for non-Federally qualified subsistence users
<b>WP18-02</b>	2018	Adopted	Requested modification of deer C&T for Units 1-5 to all rural residents of Units 1-5.



## WP20–07 Executive Summary

<b>General Description</b>	Proposal WP20–07 requests reducing the Federal harvest limit for deer in Unit 2 from five deer to four deer. <i>Submitted by: East Prince of Wales Fish and Game Advisory Committee.</i>
<b>Proposed Regulation</b>	<p><b>Unit 2—Deer</b></p> <p><del>54</del> deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct. 15–Jan. 31. Harvest ticket number <del>five</del><b>four</b> must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number <del>five</del><b>four</b>.</p> <p><i>The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Cholmondeley Sound draining into Cholmondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1 to Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.</i></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Southeast Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>1 Support</b>

## STAFF ANALYSIS WP20-07

### ISSUES

Wildlife Proposal WP20-07, submitted by the East Prince of Wales Fish and Game Advisory Committee, requests a reduction of the Federal harvest limit for deer in Unit 2 from five deer to four deer and no more than one may be a female deer.

### DISCUSSION

The proponent states that deer populations have been in decline in the unit due to both a growing predator population (wolves and black bears) and years of increasing harvests by hunters. They also state that in addition to the Federal Subsistence Board (Board) reducing the harvest limit of non-Federally qualified users in the unit, that a reduction in harvest to Federally qualified subsistence users is also necessary to rebound the deer population.

Clarification with the proponent over the word “deer” in the proposed language indicated that they were not seeking to change the hunt to the harvest of any deer, but were simply wanting to cap the harvest limit at 4 deer, while retaining the opportunity to harvest a female deer. Although not specified by the proponent in the proposed regulation, modification of which harvest ticket to be required for tagging a female deer will be necessary.

### Existing Federal Regulation

#### Unit 2—Deer

*5 deer; however, no more than one may be a female deer. Female deer July 24-Jan. 31 may be taken only during the period Oct. 15–Jan. 31. Harvest ticket number five must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number five.*

*The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Cholmondeley Sound draining into Cholmondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1 to Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.*

## Proposed Federal Regulation

### Unit 2—Deer

*54 deer; however, no more than one may be a female deer. Female deer may be taken only during the period Oct. 15–Jan. 31. Harvest ticket number ~~five~~four must be used when recording the harvest of a female deer, but may be used for recording the harvest of a male deer. Harvest tickets must be used in order except when recording a female deer on tag number ~~five~~four.* July 24-Jan. 31

*The Federal public lands on Prince of Wales Island, excluding the southeastern portion (lands south of the West Arm of Cholmondeley Sound draining into Cholmondeley Sound or draining eastward into Clarence Strait), are closed to hunting of deer from Aug. 1 to Aug. 15, except by Federally qualified subsistence users hunting under these regulations. Non-Federally qualified users may only harvest up to 2 male deer on Federal public lands in Unit 2.*

## Existing State Regulation

### Unit 2 – Deer

*Residents and non-residents: Four bucks* Aug. 1 – Dec. 31

*Harvest tickets must be validated in sequential order, and unused tickets must be carried when you hunt.*

## Extent of Federal Public Lands/Waters

Unit 2 is comprised of 74% Federal public lands and consist of 73% U.S. Forest Service (USFS) managed lands and less than 1% U.S. Fish and Wildlife Service (USFWS) managed lands (see **Unit Map**).

## Customary and Traditional Use Determinations

Rural residents of Units 1, 2, 3, 4, and 5 have a customary and traditional use determination for deer in Unit 2.

## Regulatory History

Hunting regulations have permitted the harvest of deer in Unit 2 since 1925 (**Appendix 1**). During this period, season closing dates have varied between November and December, with December 31 being the most common closing date since 1988. Seasons and harvest limits for Federally qualified

subsistence users in Unit 2 are more liberal than State regulations. Federal regulations have allowed the harvest of one female deer in Unit 2 since 1995, as well as the harvest of five deer beginning in 2006.

Following years of numerous Unit 2 related deer proposals (**Appendix 2**) submitted to the Federal Subsistence Board (Board), the Unit 2 Deer Planning Subcommittee (Subcommittee) was formed in 2004 to address contentious deer management issues in Unit 2. At the request of the Board, the Council established the 12-member Subcommittee to address concerns that Federally qualified subsistence users in Unit 2 were unable to harvest enough deer to meet their needs. The Subcommittee included residents of Craig, Hydaburg, Ketchikan, Petersburg, Point Baker, and Wrangell, to reflect the range of users of Unit 2 deer, along with representatives from State and Federal wildlife management agencies.

The Subcommittee developed management recommendations at a series of five public meetings held in communities that depend upon Unit 2 deer. Both Federally and non-Federally qualified users participated at these meetings. The Subcommittee recommended that deer harvest management tools could be applied in Unit 2 as deer population trends and hunting use patterns changed. The degree to which these tools would be employed would be decided through the established public regulatory processes (SEASRAC 2006).

In 2006, the Board implemented two major changes to the Unit 2 deer hunt by adopting Proposals WP06-08 and WP06-09, both with modification. Adoption of WP06-08 as modified, reopened a portion of Federal public lands to non-Federally qualified users on the southeast side of Prince of Wales Island. Adoption of WP06-09 as modified, established the current five deer harvest limit for Federally qualified subsistence users (FSB 2006). Two other proposals, WP06-06 and WP06-10, related to the use of harvest tickets in Unit 2 and were unanimously opposed by the Council and rejected by the Board (FSB 2006).

Three proposals related to Unit 2 deer were submitted from 2007-2012. Proposal WP07-07 requested the female deer season be closed, Proposal WP10-19 requested a change to the female deer season, and Proposal WP10-20 requested the August closure to non-Federally qualified users be lifted. The Council opposed and the Board rejected these proposals (FSB 2007, 2010).

Also during 2010, the Board adopted WP10-22 with modification delegating management authority for wildlife by letter to the ten District Rangers located in Units 1-5. As a result, the delegated authority in Unit 2 changed from the Tongass Forest Supervisor to the District Rangers of both the Craig and Thorne Bay Ranger Districts. For deer, their scope of delegation allows them to set harvest quotas; to close, reopen or adjust Federal subsistence deer seasons; and to adjust harvest and possession limits for that species. Most likely, this type of action would occur prior to the season. Any action greater than 60 days in length requires a public hearing before implementation. They may also close Federal Public lands to the take of this species to all users. This type of action would most likely take place during the season. Action on the proposal also removed the requirement for consultation with the both Council Chair and ADF&G, as this was already defined protocol within the Special Action process (FSB 2010).

Two proposals were considered for deer in Unit 2 in 2013. Proposal WP14-03 requested the female deer season be eliminated whereas Proposal WP14-04 asked for an earlier season to be established for Federally qualified subsistence users over the age of 60 or physically disabled. The Council unanimously opposed and the Board rejected these proposals (SEASRAC 2013; FSB 2014).

Three proposals were considered for deer in Unit 2 in 2015. Proposal WP16-01 requested a harvest limit reduction for non-Federally qualified users as well as an extension of the Federal season through the month of January. This proposal was broken into two sub-proposals by the Council who opposed the harvest limit reduction but supported the season extension with the following justifications: 1) the Unit 2 deer population was stable; 2) January harvest was a traditional practice according to testimony; 3) any additional female deer harvest was believed to be minimal and sustainable; and 4) the USFS District Ranger in Unit 2 has delegated authority to close the season early if conservation needs arise. The Board adopted the proposal as modified by the Council. Proposal WP16-05 requested removal of language regarding a harvest limit reduction during times of conservation because that authority is included by delegation to the Federal in-season manager and WP16-08 requested harvest ticket #5 be used out of sequence when harvesting a female deer. Both proposals were unanimously supported by the Council and adopted by the Board (SEASRAC 2015; FSB 2016).

Proposal WP18-01 was considered during the 2018 regulatory cycle. The proposal requested a reduction of both the season length and the harvest limit for non-Federally qualified users. The Council divided the proposal into two action items where they supported the harvest limit reduction but opposed the shortening of the season. The Board adopted the harvest limit reduction as recommended by the Council based on testimony from Federally qualified subsistence users that they were not meeting their needs. The Board rejected the season date reduction because they believed it would not provide additional benefits as harvests in December were minimal by both user groups and that subsistence users already had additional priorities available in the form of; the week in July, the closure to non-Federally qualified users in August, the ability to harvest a female deer starting October 15, a season extension into the month of January and the ability to harvest up to five deer total (SEASRAC 2017; FSB 2018a).

Due to administrative delays in the Federal Rule Making Process, on August 8, 2018, the Board approved temporary delegated authority to some Federal land managers to enact temporary changes to Federal Subsistence Regulations adopted by the Board during the April 2018 regulatory meeting (FSB 2018b). This delegation of authority was established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6). As a result, emergency special action 13-BD-06-18 was issued on August 16, 2018 by the USFS District Ranger restricting the harvest of deer by non-Federally qualified users to two male deer on Federal Public lands in Unit 2. The action was set to expire on October 15, 2018 or when the 2018-2020 Federal Subsistence Wildlife Regulations were published in the Federal Register.

Proposal WP18-02, requesting the Customary and Traditional use determination for deer in Units 1-5 be modified to include all rural residents of Units 1-5, was also considered during the 2018 regulatory cycle. This proposal had unanimous support from the Council and was adopted by the Board as a consensus agenda item (SEASRAC 2017; FSB 2018a).

## **Current Events Involving the Species**

The proponent also submitted Proposals WP20-03, -04, -05, and -06 regarding deer in Unit 2. The proponent was contacted to clarify the intent and reasoning of each proposal. The proponent stated their overall intent was to provide the Board with a suite of management options to increase the deer population and hunter success in Unit 2. Additionally, WP20-02 was submitted by the Alaska Department of Fish and Game (ADF&G), requesting removal of the harvest limit reduction for non-Federally qualified users.

## **Biological Background**

Sitka black-tailed deer spend the winter and early spring at low elevation on steep slopes where there is less snow accumulation, and old-growth forests provide increased intermixing of snow-intercept and foraging opportunities. Fawning occurs in late May and early June as vegetation greens-up, providing abundant forage to meet energetic needs of lactating does. Some deer migrate and follow the greening vegetation up to alpine for the summer, while others remain at lower elevations. The breeding season, or rut, generally occurs late October through late November (ADF&G 2009) generally peaking around mid-November. Wolves and black bears are the primary predators present in Unit 2, and may reduce deer populations or increase recovery times after severe winters.

Deer populations in Southeast Alaska fluctuate and are primarily influenced by winter snow depths (Olson 1979). Deer in Southeast Alaska typically have trouble meeting their energy needs in winter (Hanley and McKendrick 1985, Parker et al. 1999), and winters with long periods of deep snow that restrict the availability of forage can result in deer depleting their energy reserves to the point of starvation (Olson 1979).

Summer nutrition is important for building body reserves to sustain deer through the winter (Stewart et al. 2005). Few studies have been conducted on summer habitat conditions because winter habitat carrying capacity is generally considered to be the limiting factor for deer in Southeast Alaska. However, deer populations at or above habitat carrying capacity are affected by intra-specific competition for food and may enter winter in reduced body condition compared to deer populations below carrying capacity (Kie et al. 2003, Stewart et al. 2005). This can result in higher susceptibility to severe winters and lower productivity (Kie et al. 2003, Stewart et al. 2005). In addition, nutritionally stressed does produce smaller and fewer fawns (Olson 1979).

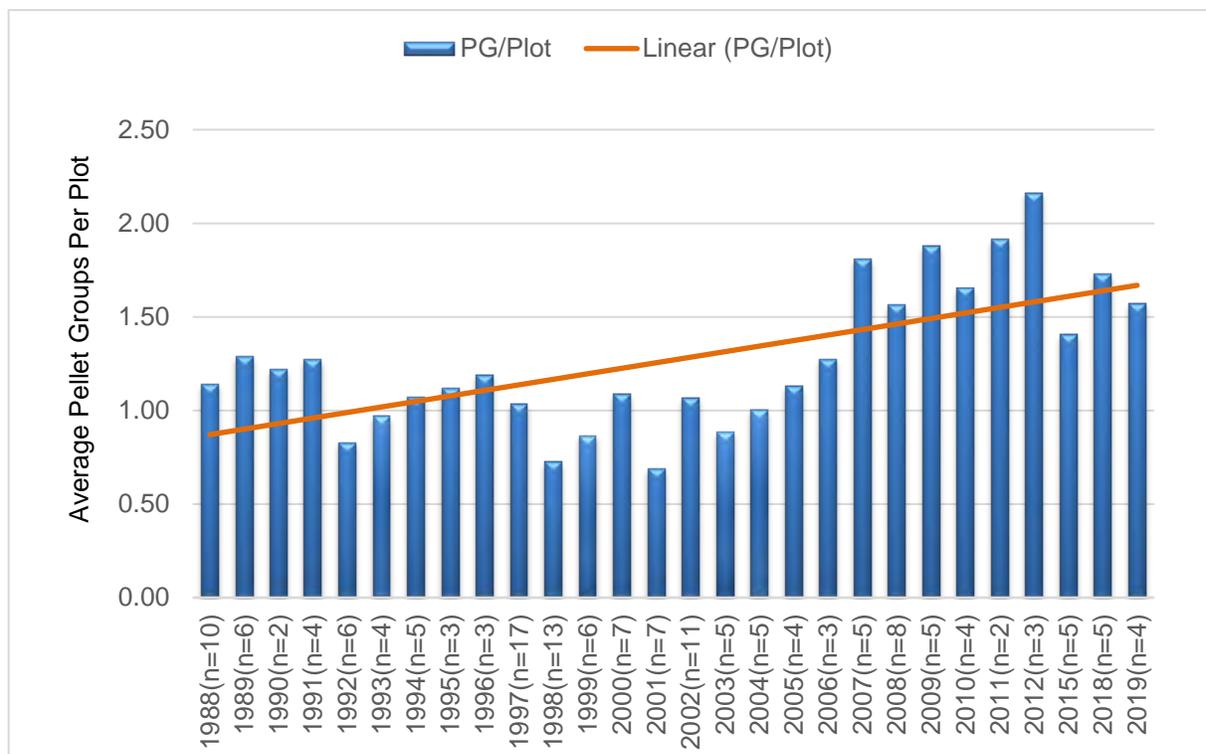
### Recent population indices

There are no methods to directly count deer in Southeast Alaska, so ADF&G conducts deer pellet surveys as an index to the relative abundance of the deer population. Relating pellet group data to population levels is difficult, however, because factors other than changes in deer population size can affect deer pellet-group density. Snowfall patterns influence the annual distribution and density of deer pellets, and snow persisting late into the spring at elevations below 1,500 feet limits the ability to consistently survey the same zones each year. In mild winters, deer can access forage in a greater

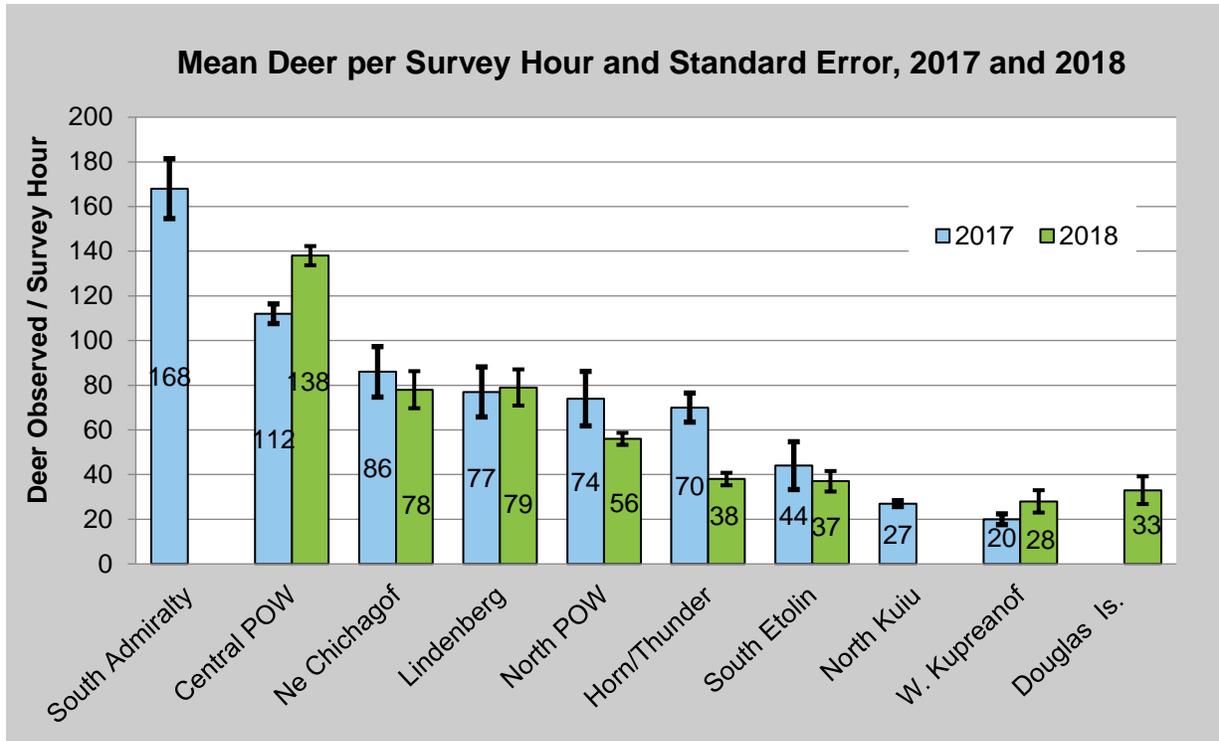
variety of habitats, not all of which are surveyed. Conversely, in severe winters, deep snow concentrates deer (McCoy 2011).

Brinkman et al. (2013) questioned the value of pellet-group surveys for monitoring population trends due to the variability in the data compared to DNA based pellet counts. Pellet group transects were designed to detect large (>30%) changes in abundance and are not and appropriate tool for monitoring smaller year to year changes. Although pellet-group surveys remain the only widely available deer population data, the results should be interpreted with caution. Pellet-group data in Unit 2 suggests a generally increasing population trend since a low during the late 1990s and early 2000s (**Figure 1**). This contrasts with Brinkman et al. (2011) who used a DNA based technique and estimated a 30% population decrease from 2006–2008 which they attributed to three consecutive winters with deep snow. Brinkman's study was limited to three watersheds, and the population changes during the study varied by watershed. It appears that populations subsequently increased after those severe winters and Bethune (2011) felt that by 2010 the Unit 2 deer population was healthy, stable to increasing, and at a 12-15 year high.

ADF&G began testing alpine deer aerial survey techniques in 2013 (**Figure 2**). 2017 was the first year with an established protocol and consistent surveys across southeast Alaska. ADF&G is still researching the correlation between alpine surveys and actual deer populations. Aerial survey numbers seem to reflect the relative abundances expected among various locations, but correlations with population trends are unknown at this time.



**Figure 1:** Annual average pellet group counts and general trend for deer in Unit 2 through 2019 (McCoy 2019a).



**Figure 2:** Aerial alpine surveys across southeast Alaska for 2017 and 2018 (McCoy 2019b).

Habitat

Old-growth forests are considered primary deer winter range, in part because the complex canopy cover allows sufficient sunlight through for forage plants to grow and intercepts snow, making it easier for deer to move and forage during winters when deep snow hinders access to other habitats. Deep snow deer winter range is defined as high value productive old growth (size class 5, 6, 7) on south facing slopes below 800 feet, and this is considered to be the limiting habitat for deer in Southeast Alaska. Some areas of Unit 2 have been impacted by large scale changes in habitat due to timber harvest, while the habitat is largely intact in other areas. Young-growth forest treatments (e.g., thinning, small gap creation, branch pruning) can benefit deer forage development in previously harvested stands. Regardless, areas with substantial timber harvest are expected to have lower long-term carrying capacity compared to pre-harvest conditions.

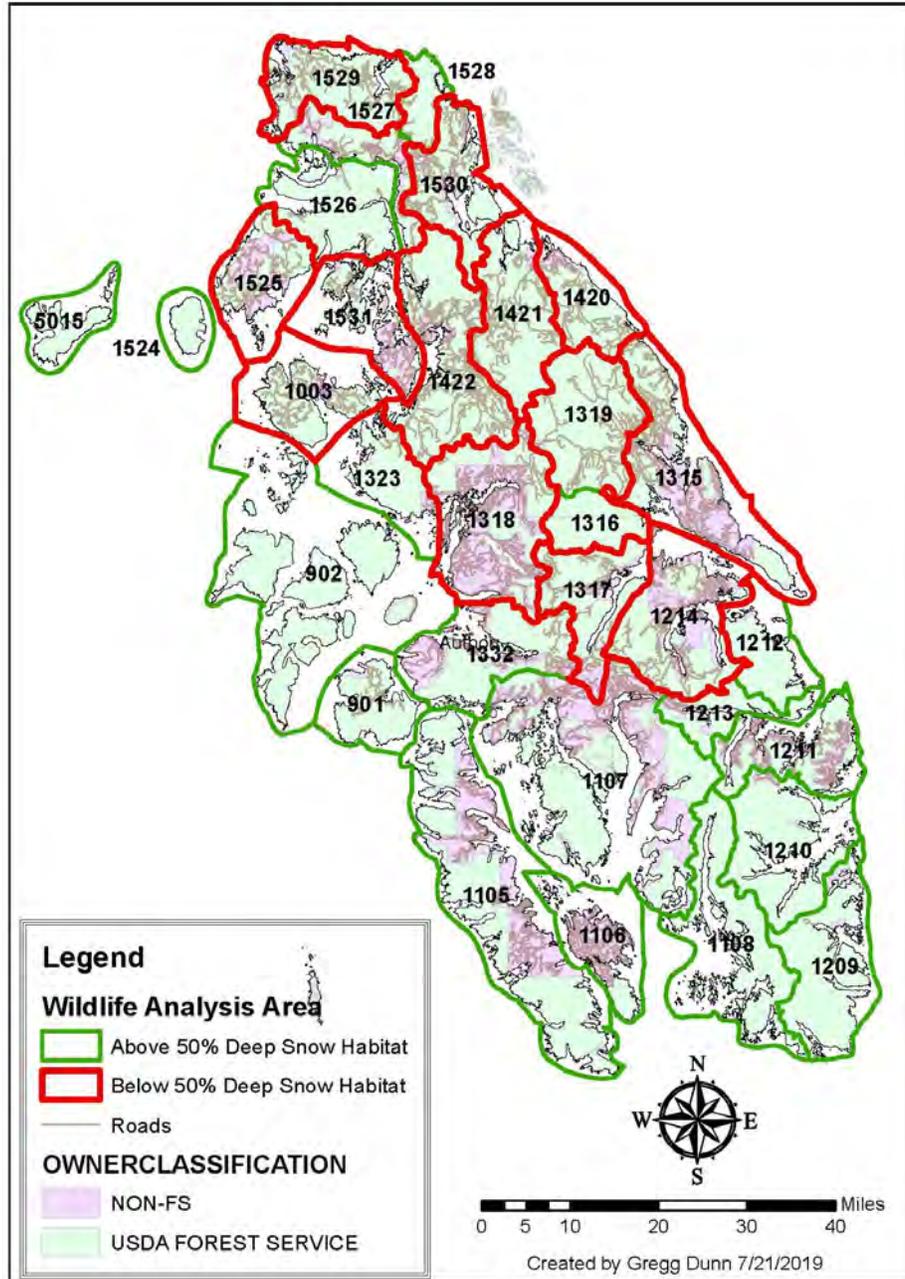
There is 62% of deer winter habitat remaining in GMU 2 (**Table 1**) with WAAs 1214, 1315, 1317, 1318, 1420, 1421, 1525, 1529, 1530, 1531 having below 50% habitat remaining. This is from past timber harvest and road building. In the case of a severe winter, these will be the areas hit hardest with deer mortality since there is little habitat left to sustain them. Habitat conditions would not improve as the areas harvested have reached stem exclusion which can last from 25 year post harvest to 150 years post-harvest. **Figure 3** can be used to see where the least amount of habitat remains and if you compare it to **Table 1** you can see where harvest is greatest compared to available habitat. Most wildlife analysis areas (WAA) with less than 50% deep snow deer winter habitat have the highest harvest rates.



Conditions on the ground within the last few years have remained stable because of mild winters and later arrival of snow in Unit 2 allowing the deer to forage longer at altitude and in areas such as muskegs. Prolonged snowpack during a severe winter or within later stages of winter could have a greater effect on deer populations going forward since there is far less habitat available during those periods.

**Table 1:** Overall percent of historical habitat since 1954 (beginning of large scale logging) remaining by wildlife analysis area (WAA) in GMU 2 for deep snow deer winter habitat and all productive old growth, average harvest since 2005, and harvest trend.

WAA	Productive Old Growth	Deep Snow Deer Winter Habitat (HPOG below 800 feet on south facing slopes)	Average Reported Harvest by WAA since 2005 and trend
901	89	85	69 ↑
902	100	100	79 ↓
1003	51	49	46 ↑
1105	99	99	84 ↑
1106	100	100	25 ↓
1107	97	93	138 ↑
1108	99	99	17 ↑
1209	100	100	10 ↑
1210	99	99	50 ↑
1211	83	78	36 ↑
1213	99	99	21 ↑
1214	67	48	245 ↑
1315	55	29	350 ↑
1316	99	100	27 ↓
1317	56	23	145 ↑
1318	78	49	220 ↑
1319	74	61	229 ↓
1323	90	76	18 ↓
1332	80	72	76 →
1420	54	27	308 ↑
1421	71	44	107 ↓
1422	51	29	386 ↓
1525	51	40	21 ↑
1526	93	83	18 ↑
1527	67	61	23 ↓
1528	82	84	37 →
1529	55	46	144 ↓
1530	50	37	145 ↑
1531	55	49	37 ↓



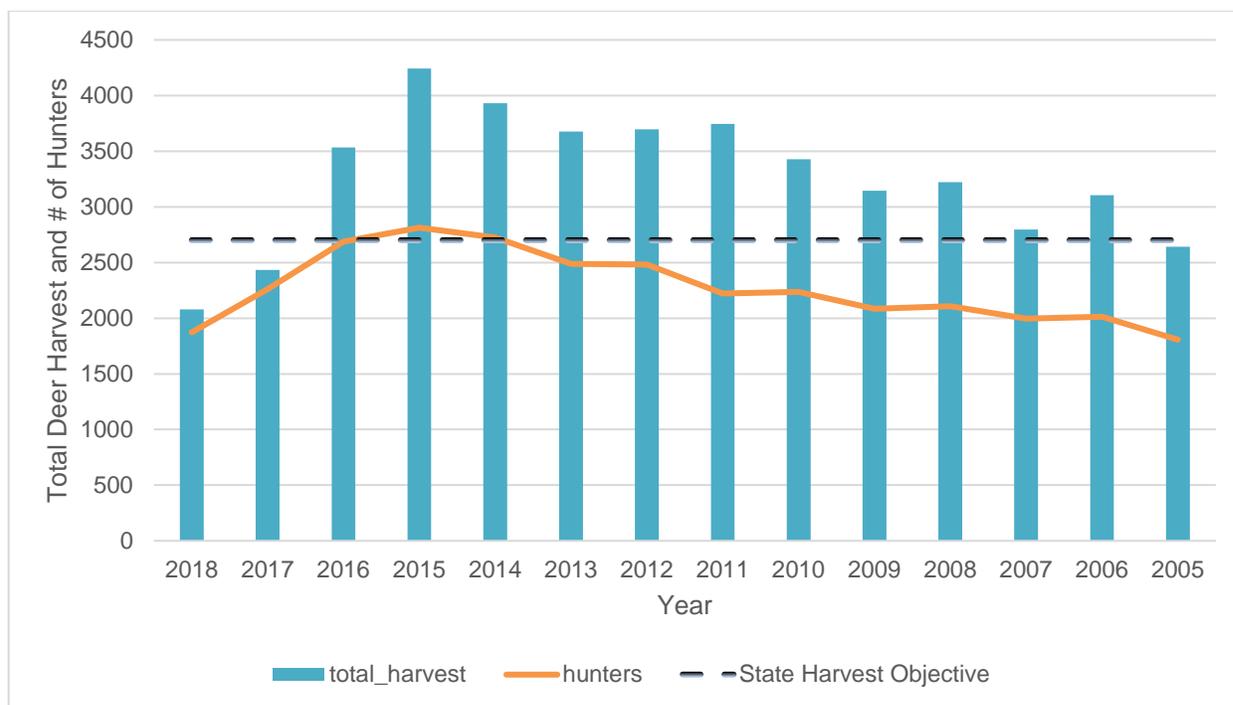
**Figure 3:** Map of Unit 2 showing deep snow deer winter habitat availability and where habitat is below 50% in WAAs. Note: WAA 5015 is not part of Unit 2.

**Harvest History**

Harvest data reported below are provided by ADF&G (McCoy 2019b) and are gathered by several reporting systems including the Region 1 (Southeast Alaska) deer survey, Unit 2 deer harvest report, and the State-wide deer harvest report. The Region 1 deer survey is the most consistent report, covering the years 1997–2010 and is based on a sample of hunters. In general, 35% of hunters from each community were sampled annually and while response rates vary by community, the overall

response rate across communities was approximately 60% each year. Harvest numbers were extrapolated using expansion factors that are calculated as the total number of harvest tickets issued to a community divided by the total number of survey responses for that community. If response was low from a community, an individual hunter may have a disproportionate effect on the data. As confidence intervals are not available for these data, harvest numbers should be considered estimates and interpreted with caution. Trends, however, should be fairly accurate, especially at larger scales. The Unit 2 deer report was in place from 2005–2010 and was instituted specifically for reporting deer harvest in Unit 2. In 2011, the statewide deer report replaced the other deer harvest reporting systems and requires reporting of harvest by all deer hunters. Different expansion factors are used for the various data sets so that total harvest estimates between years are comparable (McCoy 2013).

Action taken by the Alaska Board of Game in fall 2000 established a harvest objective of 2,700 deer for Unit 2 as they identified the population as important for satisfying high levels of human consumptive use (Bethune 2013). Estimated deer harvest in Unit 2 from 2005–2018 can be found in **Figure 4**. The estimated average total annual harvest is 3,467 deer. Harvests have been at or above ADF&G’s Unit 2 harvest objective from 2005-2016 and fell below harvest objectives during the 2017 and 2018 seasons. Deer harvest reached historically high levels in 2015 and then began to decline since. The same pattern can also be seen with hunter numbers participating in Unit 2 (**Figure 4**).



**Figure 4:** Total deer harvest and number of hunters during the 2005-2018 seasons in Unit 2 and showing the state harvest objective of 2,700 deer (McCoy 2019b).

Federally qualified subsistence users tend to harvest the most deer in Unit 2 which has ranged from 59%-71% of the total harvest during this period. This estimate may be significantly higher, as past testimony has suggested that some communities do not fully report harvests taken during the year

(SEASRAC 2015; SEASRAC 2017). The average number of deer harvested per hunter has remain stable for Unit 2 residents since 2005. The average number of days it takes to harvest a deer also appears to be stable for Unit 2 residents and is currently half what it was during the late 1990s (Bethune 2013). Recent harvest data supports the past pellet-group data, suggesting the deer population in Unit 2 is healthy and stable to increasing.

Prior to implementation of Federal regulations, opportunity to harvest female or antlerless deer was available under State regulations from 1955-1972. From 1973-1977, opportunity for female deer was still available, however, the harvest limit was reduced. During the 1987 season, the opportunity to harvest one female deer under State regulations was re-implemented, but did not get extended due to the unpopularity of the hunt in many local communities. Harvest data for these years are not available.

Although Federal regulations for hunting deer in Unit 2 started in 1991, the opportunity to harvest female or antlerless deer was not allowed until the 1995 season. Between 1998 and 2005, a Federal permit was required, however this requirement was removed with the establishment of first a unit-wide, then statewide harvest report attached to the deer harvest tickets. From 2001-2017, the reported female deer harvest in Unit 2 (**Table 2**) has ranged from 57 to 126 animals per year, with an overall annual average of 94 female deer. During this same period, the harvest of female deer has averaged only 3% of the total deer harvest (OSM 2019; McCoy 2019b). More recently, although the average reported female deer harvest increased to 101 since 2005, the female deer harvest percentage has actually decreased to 2.9% of the total reported deer harvest (McCoy 2019b).

**Table 2:** Female deer harvest compared to overall deer harvest, Unit 2 2001-2017 (McCoy 2019b)

Regulatory year	Female deer harvest	Total deer harvest	Percent of harvest (female)
2001	109	2775	3.9
2002	57	2054	2.8
2003	56	1747	3.2
2004	63	2008	3.1
2005	103	2642	3.9
2006	90	3105	2.9
2007	87	2795	3.1
2008	112	3222	3.5
2009	107	3145	3.4
2010	88	3428	2.6
2011	106	3746	2.8
2012	96	3696	2.6
2013	77	3677	2.1
2014	119	3931	3.0
2015	96	4243	2.3
2016	84	3534	2.4
2017	79	2433	3.2
<b>Average</b>	<b>90</b>	<b>3069</b>	<b>3.0</b>

The opportunity to harvest up to five deer did not begin under Federal regulations until the 2006 regulatory season. Harvest data derived from Unit 2 harvest reports suggests that the percentage of Federally qualified subsistence users harvesting a season's harvest limit is very small and is comprised primarily of Unit 2 residents. A breakdown of percentage of Federally qualified subsistence users and the number of deer harvested can be found in **Table 3** (McCoy 2019b).

**Table 3:** Percentages of hunters by number of deer reported harvested from 1997-2017 (McCoy 2019b).

Hunter Type	No deer	1 deer	2 deer	3 deer	4 deer	5 deer*
Unit 2 Residents	24.5%	28.3%	19.7%	13.8%	11.6%	2%
Other Federally qualified	32.7%	28.4%	24.3%	8.6%	5.9%	0.4%

\*Federal regulations allowed for harvest of a fifth deer beginning in 2006.

The small percentage of Federally qualified subsistence users harvesting a full limit of five deer is not necessarily an indicator of a low deer population. This could be a result of multiple hunters from the same household harvesting deer, thus reducing the burden on an individual hunter to harvest a full harvest limit.

### Effects of the Proposal

If adopted, this proposal would reduce the harvest limit for Federally qualified subsistence users hunting deer on Federal public lands in Unit 2. Adoption of this proposal aligns State and Federal regulations regarding the maximum number of deer allowed to be harvested in Unit 2 which may result in reduced regulatory complexity and user confusion.

While a reduction in the harvest limit may appear to make more deer available, the percentage of Federally qualified subsistence users harvesting five deer is so low that the resulting amount of deer available would be negligible. During the 2015 regulatory season, when reported harvests in the unit were the highest, it is estimated that 1050 hunters residing in Unit 2 communities participated in the deer hunt. With an average of 3% of Unit 2 residents harvesting the five deer harvest limit since 2006, this equates to a total of 32 hunters harvesting a fifth deer during the 2015 regulatory season making 32 additional deer available. Unit harvest data of female deer during this same period averages 2.9% of the total harvest. If the harvest limit was reduced to four deer, of the 32 deer made available, only one female would potentially be available to contribute to future breeding. With the number of available female deer this low, there would not be any positive affect on rebuilding Unit 2 deer numbers with this regulatory change.

### OSM CONCLUSION

**Oppose** Proposal WP20-07.

## Justification

Reducing the harvest limit for Federally qualified subsistence users in Unit 2 is not necessary for conservation or for the continuation of meeting subsistence needs. Although recent deer harvest trends in Unit 2 are lower than previous years, recent harvest numbers are close to the harvest objective for the unit established by the Alaska Board of Game in 2000. In 2006, the Board justified increasing the harvest limit as data suggested the Unit 2 deer population was stable. Current harvest levels are very similar to those just prior to that regulatory change.

Recent harvest data indicates the number of hunters in Unit 2 has also declined, which may have a direct correlation to the drop in harvest. Harvest data have not shown dramatic decreases in deer per hunter, nor dramatic increases in hunt days per deer for Federally qualified subsistence users. Hunt performance and deer pellet monitoring data suggest the deer population in Unit 2 is currently stable.

While reducing the harvest limit could make more deer available for reproduction, the resulting amount of deer would be negligible. With the majority of harvest being male deer, there is no guarantee of improved reproductive success as a result of the proposed change as deer populations in the unit are more greatly affected by habitat and winter weather conditions than by harvest.

The Craig District Ranger has delegated authority from the Board to close or reopen Federal seasons or to adjust harvest and possession limits for deer in Unit 2. As intended by the Board when approving the harvest limit increase, the Federal in-season manager can take action during times of conservation concern.

## LITERATURE CITED

ADF&G. 2009. Deer Trails. Issue 1. Juneau, AK.

[https://www.adfg.alaska.gov/static/hunting/deerhunting/pdfs/deer\\_trails\\_spring\\_2009.pdf](https://www.adfg.alaska.gov/static/hunting/deerhunting/pdfs/deer_trails_spring_2009.pdf). 7 pages.

Bethune, S. 2011. Unit 2 deer management report. Pages 31–44 in P. Harper, editor. Deer management report of survey and inventory activities 1 July 2008-30 June 2010. ADF&G. Juneau, AK.

Bethune, S. 2013. Unit 2 deer management report. Pages 33–47 in P. Harper, editor. Deer management report of survey and inventory activities 1 July 2010-30 June 2012. ADF&G. Juneau, AK.

Brinkman, T.J., D.K. Person, F.S. Chapin III, W. Smith, and K.J. Hundertmark. 2011. Estimating abundance of Sitka black-tailed deer using DNA from fecal pellets. *J. Wildlife Manage.* 75(1): 232–242.

Brinkman, T.J., D.K. Person, W. Smith, F.S. Chapin, III, K. McCoy, M. Leonawicz, K.J. Hundertmark. 2013. Using DNA to test the utility of pellet-group counts as an index of deer counts. *Wildlife Society Bulletin*; DOI: 10.1002/wsb.270.

FSB. 2006. Transcripts of Federal Subsistence Board proceedings, May 16, 2006. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2007. Transcripts of Federal Subsistence Board proceedings, April 30, 2007. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2010. Transcripts of Federal Subsistence Board proceedings, May 18, 2012. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2014. Transcripts of Federal Subsistence Board proceedings, April 18, 2014. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2016. Transcripts of Federal Subsistence Board proceedings, April 12, 2016. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2018a. Transcripts of Federal Subsistence Board proceedings, April 11, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2018b. Transcripts of Federal Subsistence Board proceedings, August 8, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.

Hanley, T.A., and J.D. McKendrick. 1985. Potential nutritional limitations for black-tailed deer in a spruce-hemlock forest, Southeastern Alaska. *Journal of Wildlife Management* 49:103–114.

Kie, J.G., R.T. Bowyer, and K.M. Stewart. 2003. Ungulates in western forests: habitat relationships, population dynamics, and ecosystem processes. Pages 296–340 in: Zabel, C., and R. Anthony, editors. *Mammal community dynamics in western coniferous forests: management and conservation*. The Johns Hopkins University Press, Baltimore.

McCoy, K. 2011. Sitka black-tailed deer pellet-group surveys in southeast Alaska, 2011 report. ADF&G, Juneau, AK. 47 pages.

McCoy, K. 2013. Wildlife Biologist. Personal communication: email to J. Reeves (USFS) containing ADF&G deer pellet count data. ADF&G, Craig, AK.

McCoy, K. 2019a. Wildlife Biologist. Personal communication: email to J. Reeves (USFS) containing ADF&G deer pellet count data. ADF&G, Craig, AK.

McCoy, K. 2019b. Wildlife Biologist. Personal communication: email to G. Dunn (USFS) containing ADF&G deer harvest data. ADF&G, Sitka, AK.

Olson, S.T. 1979. The life and times of the black-tailed deer in southeast Alaska. Pages 160–168 in O.C. Wallmo and J.W. Schoen, editors. *Sitka black-tailed deer: Proceedings of a conference in Juneau, Alaska*. USFS, Alaska Region, in cooperation with the ADF&G. Series No. R10-48, May 1979.

Office of Subsistence Management (OSM). 2019. Subsistence permit database, updated June 2019.

Parker, K.L., M.P. Gillingham, T.A. Hanley, and C.T. Robbins. 1999. Energy and protein balance of free-ranging black-tailed deer in a natural forest environment. *Wildlife Monographs* 143:3–48.

SEASRAC. 2006. Unit 2 Deer Management Final Report from the Unit 2 Deer Planning Subcommittee of the Southeast Subsistence Regional Advisory Council.

SEASRAC. 2013. Transcripts of the Southeast Subsistence Regional Advisory Council, October 23, 2013 in Wrangell, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.

SEASRAC. 2015. Transcripts of the Southeast Subsistence Regional Advisory Council, October 27, 2015 in Yakutat, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.

SEASRAC. 2017. Transcripts of the Southeast Subsistence Regional Advisory Council, October 31, 2017 in Juneau, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.

Stewart, K.M., R.T. Bowyer, B.L. Dick, B.K. Johnson, and J.G. Kie. 2005. Density-dependent effects on physical condition and reproduction in North American elk: an experimental test. *Oecologia* 143:85–93.



## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Southeast Alaska Subsistence Regional Advisory Council

**Oppose** WP20-07. The Council mentioned that two proposals, WP20-03 and WP20-07, put forward by the East Prince of Wales Advisory Committee, contradict each other in a way, since WP20-03 proposes to harvest 5 antlered bucks, and WP20-07 proposes to harvest 4 deer and no more than one may be a doe. The Council stated that there is no conservation concern at this time and adoption of WP20-07 will impose unnecessary restrictions on Federally qualified subsistence users, which is not in accordance with Title VIII of ANILCA. The Council also pointed out that in many communities, high harvesters provide food to other people in their communities, and unnecessary reduction of the bag limit would make the life of these communities more difficult. These proxy hunters are good providers for others and hunt legally in accordance with Federal regulations. This tradition is a part of customary and traditional life in Southeast Alaska.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-07:** This proposal, submitted by the East Prince of Wales Fish and Game Advisory Committee, would reduce the Unit 2 bag limit for deer for federally qualified hunters on federal land from 5 deer to 4 deer (of which only one may be a doe).

**Introduction:** Game Management Unit 2 encompasses Prince of Wales (POW) Island and the surrounding archipelago. Hunters residing in Southeast Alaska (Units 1-5), excluding the federal non-rural areas of Juneau and Ketchikan, are eligible to harvest deer in Unit 2 under federal subsistence regulations. In 2003 the Federal Subsistence Board raised the bag limit for federally qualified hunters in Unit 2 from 4 deer including one antlerless deer to 5 deer of which one may be a doe.

This proposal would reduce the Unit 2 deer bag limit on federal land with the goal of reducing harvest to grow the deer population to provide additional opportunity for all hunters. The author of the proposal references the reduction in harvest from 2015 - 2018 and expresses the concern of East Prince of Wales residents for the current deer population. Deer harvest peaked at an all-time high in 2015 and has decreased thereafter (Table 1). There was also a drop in the number of hunters and an increase in the average number of days it took to harvest one deer (days per deer). Reasons for the decline in harvest are unknown.

**Table 1.** Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) harvest from 2014 – 2018 in Game Management Unit 2. Days per deer is the average number of days it took a hunter to harvest one deer. Harvest represents the total for the corresponding regulatory year. Hunters represents the total number of hunters that reported hunting in Unit 2.

Year <sup>a</sup>	Hunters	Harvest	Days per deer
2014	2725	3931	3.5
2015	2813	4243	3.3
2016	2688	3534	3.8
2017	2261	2433	5.2
2018	1874	2079	4.7
Average	2409	3072	4.3

<sup>a</sup>Regulatory year (e.g., Regulatory year 2016 = 1 July 2016–30 June 2017).

**Impact on Subsistence Users:** From RY2014 through RY2018 an estimated average of 25 federally qualified hunters harvested five deer in Unit 2. If the bag limit were reduced about 25 hunters would be affected and the overall Unit 2 harvest would be reduced by about 25 deer or 0.8%. Average harvest for Unit 2 from 2014-2018 was 3,072 deer (Table 1).

**Impact on Other Users:** None. Non-federally qualified hunters are already limited to a four deer bag limit.

**Opportunity Provided by State:** The State of Alaska season and bag limit for deer is:

Unit/Area	Bag Limit	Open Season (Permit/Hunt #)	
		Resident <sup>a</sup>	Nonresident
2	4 bucks	Aug. 1 – Dec. 31 (GD000)	Aug. 1 – Dec. 31 (GD000)

<sup>a</sup> Subsistence and General Hunts.

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for deer in Unit 2.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for

customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for deer in Unit 2 is 1,500 – 1,600 animals.

Special instructions: None.

**Conservation Issues:** There are no conservation concerns. A potential decrease in harvest of 25 deer is negligible and will likely have little effect on the unit-wide population.

**Enforcement Issues:** None.

**Recommendation:** The Alaska Department of Fish and Game **SUPPORTS** this proposal. If the Board adopts this proposal the impacts due to a reduction in bag limit will likely be negligible but efforts to increase deer numbers for all hunters warrant support. Furthermore, this change will better align state and federal regulations to reduce user confusion.

## WRITTEN PUBLIC COMMENTS

Ketchikan Advisory Committee  
June 6<sup>th</sup>, 2019  
ADF&G Conference Room

- I. Call to Order: 5:40pm by Matt Allen, Secretary
- II. Roll Call: 8 voting members present, 1 via phone  
Members Present: Allen, Crittenden, Dale, James, Westlund, Roth, Shaw, Bezneck, Fox, Scoblic (Phone)  
Members Absent (Excused): Doherty, McQuarrie, Skan, Franulovich, Miller  
Members Absent (Unexcused):  
Number Needed for Quorum on AC: 8  
List of User Groups and Public Present: Public, Sportfish Charter, ADFG (Sport Fish, Wildlife)  
Motion: Bezneck, motion to make Allen meeting Chair, Roth, second. 9-0 in favor. Allen sits as meeting Chair
- III. Approval of Agenda:  
Allen, motion to amend agenda to include discussion of Federal Subsistence Proposals 10, 11, 13,14. Westlund seconded. Motion passed unanimously (9-0). Westlund, moved to approve agenda, Dale seconded. Motion passed unanimously (9-0)
- IV. Approval of Previous Meeting Minutes:  
Previous meeting minutes incomplete at this time
- V. Fish and Game Staff Present:  
Kelly Reppert, Ross Dorendorf, Tessa Hasbrouck
- VI. Guests Present: Jim Moody, Nick Hashagan, Martin Caplan, Tony Azure
- VII. Chairman Report: Allen read co-chair letter from Scoblic/Doherty
- VIII. ADF&G Sportfish Report: Reppert, report regarding catch and release chinook fishing. Discussion and comment followed report.
- IX. Old Business:  
Federal Subsistence Proposals 2020-2022, WP20-01-08, WP20-10-15
- X. New Business:  
Catch and Release of chinook by Charter fishermen  
Set next meeting date, September 12<sup>th</sup>, 2019, 5:30pm ADFG Conference Room

Federal Subsistence Management Program 2020-2022 Wildlife Proposal Comments			
Proposal Number	Proposal Description		
Support, Support as Amended, Oppose, No Action	Number Support	Number Oppose /Abstain	Comments, Discussion (list Pros and Cons), Amendments to Proposal, Voting Notes
WP20-01	Southeast, Moose, Unit 1C, Eliminate Unit 1C – Berners Bay moose hunt		
Support	8	0/1 abstain	A biological concern does not currently exist necessitating a subsistence priority. Majority of traditional use comes from Juneau area. A fair system is currently in place to provide for opportunity
WP20-02	Southeast, Deer, Unit 2, Remove harvest limits to non-federally qualified users		
Support	9	0	We support State managers in their assessment of the deer population and the opportunity it can support.
WP20-03	Southeast, Deer, Unit 2, Eliminate doe harvest		
Oppose	1	8	Though the AC does not agree with doe harvest, we do not support this proposal because it would have minimal impact.
WP20-04	Southeast, Deer, Unit 2, Revise harvest limit		
Oppose	3	6	Some AC members support cessation of doe harvest if only for a short period of time.
WP20-05	Southeast, Deer, Unit 2, Establish a registration permit for does		
Support	7	1/1	AC supports the proposal as it may lead to better data for management.
WP20-06	Southeast, Deer, Unit 2, Revise season		
Support	9	0	AC supports removal of January hunt due to small amount of harvest, reduced quality of meat and difficulty in distinguishing bucks and does.
WP20-07	Southeast, Deer, Unit 2, Revise harvest limit		
Support	9	0	
WP20-08	Statewide, All Trapping Species, Require traps or snares to be marked with name or State Identification number		
Oppose	1	8	Though some type of compromise should be reached in regards to labelling of traps/snares a one size fits all regulation could be overly burdensome in some areas
WP20-09	Southeast, Beaver, Units 1-4, Revise trapping season		
No Action			
WP20-10	Statewide, Black Bear, Units 1-5, Revise Customary and Traditional Use Determination		

Oppose	2	6	Hunting of Black Bear is not customary and traditional in all units residing in Southeast
WP20-11	Statewide, Brown Bear, Units 1-5, Revise Customary and Traditional Use Determination		
	3	4	Hunting of Brown Bear is not customary and traditional in all units residing in Southeast.
WP20-12	Southeast, Deer, Unit 3, Revise hunt areas, season dates, and harvest limits		
WP20-13	Statewide, Elk, Unit 3, Establish Customary and Traditional Use Determination		
	0	9	This is a population introduced by the State in 1986, due to this fact we do not believe this population is traditional and customary for any Unit in Southeast Alaska. The authors of this proposal do not demonstrate how this particular species in this area has been used to meet the definition as customary and traditional.
WP20-14	Statewide, Goat, Unit 1-5, Revise Customary and Traditional Use Determination		
	4	4	Hunting of Mountain Goat is not Customary and Traditional in all Units residing in Southeast.
WP20-15	Statewide, Moose, Unit 1-5, Revise Customary and Traditional Use Determination		
	0	8	Hunting of Moose is not customary and traditional in all units residing in Southeast.
WP20-16	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			
WP20-17	Statewide, Wolf, Unit 2, Eliminate harvest limit/quota and revise sealing requirement		
No Action			

Adjournment:

Minutes Recorded By: \_\_\_\_\_  
 Minutes Approved By: \_\_\_\_\_  
 Date: \_\_\_\_\_

## APPENDIX 1

Appendix 1: Regulatory framework of State and Federal deer seasons by year since 1925

Year	Type of Season	Season	Limit	Conditions & Limitations
1925	Open	Sept 15-Dec 16	3	Buck, 3" antlers or longer
1925-1929	Open	Sept 1-Nov 30	3	Buck, 3" antlers or longer
1930-1941	Open	Aug 20-Nov 15	2	Buck, 3" antlers or longer
1942-1943	Resident	Sept 16-Nov 15	2	Buck, 3" antlers or longer
1942-1943	Non-resident	Sept 16-Nov 15	1	Buck, 3" antlers or longer
1944-1948	Resident	Sept 1-Nov 7	2	Buck, 3" antlers or longer
1944-1948	Non-resident	Sept 1-Nov 7	1	Buck, 3" antlers or longer
1949	Resident	Sept 1-Nov 15	2	Buck, 3" antlers or longer
1949	Non-resident	Sept 1-Nov 15	1	Buck, 3" antlers or longer
1950-1951	Resident	Aug 20-Nov 15	2	Buck, 3" antlers or longer
1950-1951	Non-resident	Aug 20-Nov 15	1	Buck, 3" antlers or longer
1952	Open	Aug 20-Nov 22	2	Buck, 3" antlers or longer
1953-1954	Open	Aug 20-Nov 22	3	Buck, 3" antlers or longer
1955	Open	Aug 20-Nov 22	3	3 bucks or 2 bucks and one antlerless, bucks 3" antlers or longer, antlerless may be taken Nov 15-Nov 22
1956	Open	Aug 20-Nov 26	3	3 bucks or 2 bucks and one antlerless, bucks 3" antlers or longer, antlerless may be taken Nov 13-Nov 26
1957-1959	Open	Aug 20-Nov 30	4	4 deer, does may be taken Oct 15-Nov 30
1960	Open	Aug 20-Dec 15	4	4 deer, does may be taken Oct 15-Nov 30
1961	Open	Aug 20-Nov 30	4	4 deer, antlerless deer may be taken Sept 15-Nov 30

<b>Year</b>	<b>Type of Season</b>	<b>Season</b>	<b>Limit</b>	<b>Conditions &amp; Limitations</b>
<b>1962</b>	Open	Aug 1-Dec 15	4	4 deer, antlerless deer may be taken Sept 15-Dec 15
<b>1963-1967</b>	Open	Aug 1-Dec 31	4	4 deer, antlerless deer may be taken Sept 15-Dec 31
<b>1968</b>	Open	Aug 1-Dec 15	4	4 deer, antlerless deer may be taken Sept 15-Dec 15
<b>1969-1971</b>	Open	Aug 1-Dec 31	4	4 deer, antlerless deer may be taken Sept 15-Dec 31
<b>1972</b>	Open	Aug 1-Dec 31	3	3 deer, antlerless deer may be taken Nov 1-Nov 30
<b>1973-1977</b>	Open	Aug 1-Nov 30	3	1 antlerless deer may be taken Nov 1-Nov 30
<b>1978-1984</b>	Open	Aug 1-Nov 30	3	Antlered deer
<b>1985-1986</b>	State General	Aug 1-Nov 30	3	Antlered deer
<b>1987</b>	State General	Aug 1-Nov 30	4	1 antlerless deer may be taken Oct 10-Oct 31
<b>1988-2018</b>	State General	Aug 1-Dec 31	4	Antlered deer/bucks
<b>1991-1994</b>	Federal Subsistence	Aug 1-Dec 31	4	Antlered deer
<b>1995-1997</b>	Federal Subsistence	Aug 1-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken only during Oct 15-Dec 31
<b>1998-2002</b>	Federal Subsistence	Aug 1-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken Oct 15-Dec 31 by Federal registration permit only
<b>2003-2005</b>	Federal Subsistence	July 24-Dec 31	4	No more than one may be an antlerless deer, antlerless deer may be taken Oct 15-Dec 31 by Federal registration permit only
<b>2006-2009</b>	Federal Subsistence	July 24-Dec 31	5	No more than one may be an antlerless deer; antlerless deer may be taken Oct 15-Dec 31



Year	Type of Season	Season	Limit	Conditions & Limitations
2010-2015	Federal Subsistence	July 24-Dec 31	5	No more than one may be a female deer; female deer may be taken Oct 15-Dec 31

## Appendix 2

**Appendix 2:** History of Federal regulatory actions related to deer in Unit 2 taken by the Federal Subsistence Board

Proposal number	Reg Year	FSB action	Proposal request
P95-01	1995	Adopt w/ mod to require harvest report requirement	Create an antlerless season in Unit 2
R95-09	1995	Reject	Requested rescinding antlerless deer season created by adoption of P95-01
P97-07	1997	Reject	Reduce deer season from Aug. 1-Dec. 31 to Sept. 1-Dec. 31, and eliminate harvest of antlerless deer in Unit 2.
P98-09	1998	Reject	Eliminate antlerless season
P98-10	1998	Reject	Eliminate antlerless season and apply antler restriction of forked horn or larger
P98-11	1998	Reject	Shorten deer season from Sept 1 -Nov. 30
P98-12	1998	Reject	Eliminate antlerless season
P00-005	2000	Reject	Eliminate antlerless season
P00-05	2000	Reject	Eliminate antlerless deer season
P00-06	2000	Reject	Community harvest permit request of 500 deer per Unit 2 community
WP01-03	2001	Reject	Eliminate antlerless deer season
WP02-08	2002	Reject	Request increase of deer harvest limit for Unit 2 residents and reduction for Unit 1A and 3 residents
WP02-09	2002	Took no action	Restrict non-Federally qualified users from hunting on Federal lands between Aug. 1-31 and Oct. 16-Nov. 14
WRFR02-01	2002	Reject	Requested reconsideration of the Board rejecting WP02-09 to close Federal lands in Unit 2.
WP03-04	2003	Adopt with modification adding one week in July at front of season (July 24-31)	Requested earlier extension of deer season for Federally qualified users

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP03-05</b>	2003	Adopt with modification restricting non-Federally qualified users from Aug 1-21 on Federal Public Lands on Prince of Wales Island (closure for 1 year)	Requested closure of Federal public lands from Aug 1-Sept. 1 and reduction of harvest limit to 2 deer for non-Federally qualified subsistence users.
<b>WP04-03</b>	2004	Took no action	Requested closure be changed from Aug 1-21 to Oct. 16-Nov. 14 and reduction of harvest limit for non-Federally qualified users
<b>WP04-04</b>	2004	Took no action	Requested antlerless deer season be modified from Oct. 15-Dec. 31 to Aug. 1-Sept. 15
<b>WP04-05</b>	2004	Took no action	Requested closure to non-Federally qualified users be reduced by one week
<b>WP04-06</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-07</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-08</b>	2004	Took no action	Requested elimination of August closure to non-Federally qualified users.
<b>WP04-09</b>	2004	Took no action	Requested removal of the antlerless deer season and the July 24 start date for subsistence users and to replace closure with antler restrictions for non-Federally qualified users.
<b>WP04-10</b>	2004	Took no action	Requested removal of the antlerless deer season and the July 24 start date for subsistence users and to replace closure with a 3 buck harvest limit for non-Federally qualified users.
<b>WP04-11</b>	2004	Took no action	Requested removal of the July 24 start date for subsistence users and to modify closure from Aug. 1-21 to Oct. 16-Dec. 31 and implement a 2 buck harvest limit for non-Federally qualified users.
<b>WP04-12</b>	2004	Took no action	Requested modifying Federal season from July 24-Dec. 31 to Aug. 1-Jan. 31 for subsistence users and modified the August closure to the month of January to all but Unit 2 residents

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP04-13</b>	2004	Took no action	Requested modifying Federal season from July 24-Dec. 31 to Aug. 1-10 and removing the antlerless deer season for subsistence users and reducing the August closure from Aug. 1-10 for non-Federally qualified users.
<b>WP04-14</b>	2004	Took no action	Reduce deer season from July24-Dec. 31 to Aug. 1-Dec. 31for Federally qualified users in Unit 2.
<b>WP04-15</b>	2004	Adopt with modification restricting non-Federally qualified users from Aug 1-15 on Federal Public Lands on Prince of Wales Island	Requested continuation of the one year closure as passed by the FSB during the 2003 regulatory cycle.
<b>WP05-04</b>	2005	Adopt with modification removing registration requirement, but required use of a joint State/Federal harvest report as recommended by the Unit 2 Deer Subcommittee	Requested that all hunters obtain a Federal registration permit to hunt deer in Unit 2.
<b>WP06-06</b>	2006	Reject	Requested removing sequential use of harvest tickets and possession of all unused harvest ticket requirements.
<b>WP06-07</b>	2006	Took no action	Requested expansion of closure area to non-Federally qualified users.
<b>WP06-08</b>	2006	Adopt with modificaton. Modifications included: 1) removal of the August clousure on SE portion of Prince of Wales Island; 2) rejected closure to non-Federally qualified users on Suemez Island; and 3) rejected a closure to non-Federally qualified users on the islands located along the SW coast of Prince of Wales Island.	Requested expansion of closure area to non-Federally qualified users.
<b>WP06-09</b>	2006	Adopt with modification. The Board modified the Council recommendation by eliminating the need to have a Federal permit for harvesting a 5th deer. The Board also delegated the Forest Supervisor the ability to lower the harvest limit to 4 deer if needed.	Requested increasing the deer harvest limit to 6 deer.
<b>WP06-10</b>	2006	Reject	Requested use of harvest ticket #1 to record harvest of a female deer.
<b>WP07-07</b>	2007	Reject	Requested either elimination of antlerless deer hunt or to only allow for antlerless deer harvest every other year.
<b>WP10-19</b>	2010	Reject	Requested modification of female deer season from Oct. 15-Dec. 31 to Sept. 15-Oct. 15

<b>Proposal number</b>	<b>Reg Year</b>	<b>FSB action</b>	<b>Proposal request</b>
<b>WP10-20</b>	2010	Reject	Requested modification of the non-Federally qualified closure from Aug. 1-15 to July 24-31.
<b>WP10-22</b>	2010	Adopt with modification. The modification provided delegations to the ten USFS District Rangers via letter and was to apply only to wildlife. Any fish delegation requests would have to be submitted to the Board.	The delegated in-season management for wildlife on a species by species basis, by letter, to the ten District Rangers located in Units 1-5
<b>WSA11-01</b>	2011	Adopted	To rescind requirement of joint State/Federal harvest report
<b>WP12-08</b>	2012	Adopted	To rescind requirement of joint State/Federal harvest report
<b>WP14-03</b>	2014	Reject	Eliminate antlerless deer season
<b>WP14-04</b>	2014	Reject	Request early start date for Federally qualified users over 60 or disabled.
<b>WP16-01</b>	2016	Adopt with mod adding January season, but rejected non-qualified harvest reduction	Requested non-Federally qualified users be restricted to two deer and extension season closing date from Dec. 31 to Jan. 31
<b>WP16-05</b>	2016	Adopted	Requests the language stating the Unit 2 deer harvest limit may be reduced to four deer in times of conservation be removed
<b>WP16-08</b>	2016	Adopted	Requests deer harvest ticket #5 be validated out of sequence to record female deer taken in Unit 2.
<b>WP18-01</b>	2018	Adopt w/ mod to accept harvest limit restriction but oppose season reduction	Limit harvest to two deer from Federal public lands the reduce season by one week or more for non-Federally qualified subsistence users
<b>WP18-02</b>	2018	Adopted	Requested modification of deer C&T for Units 1-5 to all rural residents of Units 1-5.

WP20–18b Executive Summary	
<b>General Description</b>	<p>Proposal WP20-18b requests that a goat season be established in Unit 7 with a harvest limit of one goat by Federal registration permit, with a quota of two goats, a season of Aug. 10-Nov. 14, and a prohibition on the taking of nannies with kids. The proponent also requests that the Seward District Ranger be given authority to close the season when the harvest quota is reached, and that a hunter be eligible for a permit three years after harvesting a billy goat, and five years after harvesting a nanny. <i>Submitted by: Michael Adams of Cooper Landing.</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 7—Goat</b></p> <p><i>1 goat by Federal registration permit. The harvest quota is 2 goats. The season may be closed by announcement from the Seward District Ranger. Harvest of nannies accompanied by kids is prohibited. If a billy is taken, the hunter will be eligible for a permit again in 3 years. If a nanny is taken, the hunter will be eligible for permit again in 5 years.</i></p> <p style="text-align: right;"><del>No Federal open-season</del> <b>Aug. 10 – Nov. 14</b></p>
<b>OSM Conclusion</b>	<p><b>Support</b> Proposal WP20-18b <b>with modification</b> to establish a Federal drawing permit for goat, and delegate authority to the Seward District Ranger to close the season, set any needed sex restrictions, the number of permits to be issued, and permit conditions via delegation of authority letter only.</p> <p><b>Unit 7—Goat</b></p> <p><i>1 goat by Federal drawing permit. Nannies accompanied by kids may not be taken. The harvest quota is up to two goats.</i></p> <p style="text-align: right;"><del>No Federal open-season</del> <b>Aug. 10 – Nov. 14</b></p>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<p><b>Support</b> Proposal WP20-18b <b>with modification</b> to include the OSM modifications but also include the proposed restrictions on nanny and billy goat harvest as proposed in the original proposal and to have these restrictions in regulation.</p>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee (ISC) agrees with the Southcentral Subsistence Regional Advisory Council that establishing a Federal subsistence goat season in Unit 7 would provide additional opportunity for Federally qualified subsistence users. The ISC</p>

<b>WP20–18b Executive Summary</b>	
	<p>agrees with OSM’s conclusion to support Proposal WP20-18b with modification to establish a Federal drawing permit for goat and delegate authority to the Seward District Ranger to close the season, set any needed sex restrictions, set the number of permits to be issued, and establish permit conditions via delegation of authority letter only. Due to the small size of the goat populations, habitat limitations, susceptibility to over hunting, and the intensive State management, the Federal manager would need to work closely with the State to monitor harvest under both State and Federal hunts if this proposal is adopted by the Board.</p> <p>The ISC asked for legal counsel clarification related to the proponent’s and the Southeast Regional Subsistence Advisory Council’s request to limit eligibility following a successful hunt. The proposal specifies that a hunter be ineligible for a permit until three years after harvesting a billy goat, and five years after harvesting a nanny. Legal counsel responded as follows:</p> <p>Per ANILCA Section 804, subsistence uses can be restricted only when “it is <i>necessary</i> to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses.” [Emphasis added.] Even where this threshold is met, any restrictions on subsistence uses must apply the following priority criteria:</p> <p>customary and direct dependence upon the population as the mainstay of livelihood; local residency; and the availability of alternative resources.</p> <p>Since past permit drawing and/or hunting success is not a relevant criteria for implementing a priority, a rule that attempted to restrict subsistence uses on that basis would violate Section 804.</p> <p>The ISC concluded that the component of the proposal that restricts subsistence use is not permitted under ANILCA Section 804.</p>
<b>ADF&amp;G Comments</b>	<b>Oppose</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS  
WP20-18b**

**ISSUES**

Wildlife Proposal WP20-18b, submitted by Michael Adams of Cooper Landing, requests that a goat season be established in Unit 7 with a harvest limit of one goat by Federal registration permit, with a quota of two goats, a season of Aug. 10-Nov. 14, and a prohibition on the taking of nannies with kids. The proponent also requests that the Seward District Ranger be given authority to close the season when the harvest quota is reached, and that a hunter be eligible for a permit three years after harvesting a billy goat, and five years after harvesting a nanny.

**DISCUSSION**

The proponent states that these changes are needed to provide for subsistence opportunity and a meaningful preference for Cooper Landing residents to harvest goats in Unit 7. The proponent states that goats have been customarily and traditionally harvested by Cooper Landing residents in Unit 7. Given the increase in the goat populations in Unit 7, a reasonable opportunity to harvest goats should be given to residents of Cooper Landing. No season was indicated on the original proposal request so the proponent was contacted on May 16, 2019. The proponent stated that the season for goat in Unit 7 should be Aug. 10-Nov. 14, which is similar to the State season.

Note: Proposal WP20-18a requests that the customary and traditional use determination (C&T) for goats in Unit 7 be revised to include residents of Cooper Landing.

**Existing Federal Regulations**

**Unit 7—Goat**

*No Federal open season*

**Proposed Federal Regulations**

**Unit 7—Goat**

*1 goat by Federal registration permit. The harvest quota is 2 goats. The season may be closed by announcement from the Seward District Ranger. Harvest of nannies accompanied by kids is prohibited. If a billy is taken, the hunter will be eligible for a permit again in 3 years. If a nanny is taken, the hunter will be eligible for permit again in 5 years.*

~~*No Federal open season  
Aug. 10 – Nov. 14*~~

## Existing State Regulations

### Unit 7—Goat

*Residents and Nonresidents: One DG331-DG352 Aug. 10–Oct. 15  
goat by permit*

*Residents and Nonresidents: One RG331-RG352 Nov. 1–Nov. 14  
goat by permit online at  
<http://hunt.alaska.gov> or in  
person in Anchorage, Homer,  
Palmer, and Soldotna or  
beginning Oct. 23 (only selected  
areas open)*

*Taking of nannies with kids prohibited*

*If a nanny is taken in Units 7 or 15, the hunter is prohibited from hunting any goats in Units 7 and 15  
for 5 regulatory years*

*Nonresident hunters must be accompanied by a guide*

## Extent of Federal Public Lands

Unit 7 is comprised of approximately 77% Federal public lands and consist of 52% USDA Forest Service (USFS) managed lands, 23% National Park Service (NPS) managed lands, and 2% U.S. Fish and Wildlife Service (USFWS) managed lands. NPS managed lands in Unit 15 are within Kenai Fjords National Park and are closed to subsistence.

## Customary and Traditional Use Determinations

Rural residents of English Bay (Nanwalek) and Port Graham have a customary and traditional use determination for goat in Unit 7, Brown Mountain hunt area.

## Regulatory History

The Alaska Department of Fish and Game (ADF&G) has managed a hunt for goats in Unit 7 since the 1990s through a combination of drawing and registrations hunts. The annual harvest limit has been one goat since 1974. From 2001/02 to 2002/03, there was no registration hunt and the drawing season was Aug. 10- Dec. 31. Since 2003/04 the season for the drawing hunt has been Aug. 10-Oct. 15. Since 2003, the length of the registration hunt has varied. The registration hunt season set in regulation was Nov. 1-Nov. 30, but the season length was managed by emergency closure or permit conditions. In 2016/17 the registration hunt season was shortened to Nov. 1-7. From 2003 to 2016, permit holders had a seven day window which to hunt, starting from the date the permit was issued or Nov. 1 if the permit was issued before the opening of the season (Herreman 2019, pers. comm.). Due



to an increase in the goat population the registration hunt season was changed to Nov. 1-Nov. 14, and has not been managed by emergency closure since 2017/2018.

In 1993, the Board recognized the customary and traditional use of goats by residents of Port Graham and English Bay (Nanwalek) in Unit 7, Brown Mountain Hunt Area.

To encourage the harvest of males in the mid-1990s, ADF&G managers on the Kenai Peninsula recorded each nanny as two “goat units” so a quota of four males would be equal to two females in Units 7 and 15. Thus the effective quota for each hunt area was reduced if a nanny was taken (McDonough and Selinger 2006).

Nannies with kids were not protected until 2001. In 2009, the Alaska Board of Game changed restrictions on the goat hunt in Units 7 and 15 to reduce the negative impact of nanny harvests. These restrictions prohibited any hunter who harvested a nanny in Units 7 and 15 from hunting any goats in those units for 5 regulatory years.

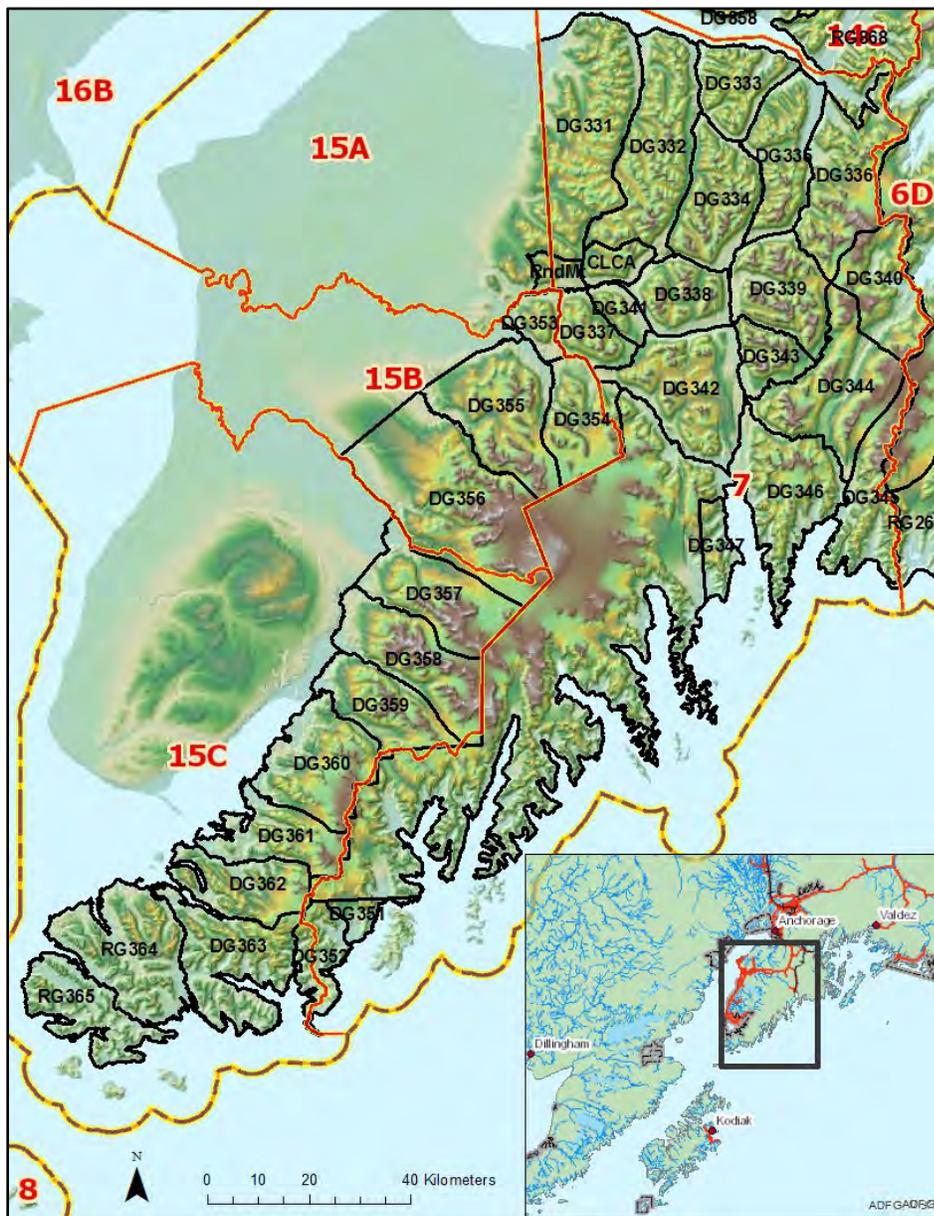
### **Biological Background**

Goats occur naturally throughout the eastern Kenai Mountains (Sherwood 1974), which extend the length of the length of the eastern Kenai Peninsula. They can be found from sea level to 6,000 feet, and are most abundant in the coastal mountains and least abundant in the drier interior portions, where they coexist with Dall sheep and caribou. Over 90% of goat habitat on the Kenai Peninsula (4633 mi<sup>2</sup>) occurs within the high mountain areas of Kenai Fjords National Park (KFNP), Kenai National Wildlife Refuge, Chugach National Forest, and Kachemak Bay State Park (**Map 1**) (McDonough and Selinger 2008). It is estimated that approximately 5,600 goats occur on the Kenai Peninsula (Schmidt et al. 2019, ADF&G 2019a).

Goats in Alaska inhabit alpine areas adjacent to steep cliffs or rocky terrain that provide escape from predators during the summer. They usually graze on grasses, forbs, and low-growing shrubs in high alpine meadows. As winter approaches, most goats migrate downhill and spend the winter months below tree line or on south-facing cliffs, where they feed on hemlock, grasses, and shrubs. Others may remain on the wind swept ridges feeding on mosses and lichens. Forested habitat near alpine ridges may provide critical winter range, especially during periods of heavy snow accumulation (Shafer et al. 2012).

Goats typically occur in small isolated populations and have little interchange with other populations. Genetic studies have shown that goats maintain a strong fidelity to discrete ridge systems, indicating very little movement across high elevation habitats (Shafer et al. 2012). Goats breed in November and December and, except during the rut, adult males remain segregated from females and young animals. The age of first reproduction of goats is more comparable to brown bears than other northern ungulates (Cote et al. 2001). Although there is regional variation, the age of first reproduction for goats is 4.6 years (Cote et al. 2001) compared to 4-5 years in brown bears (Schwartz et al. 2003), 3.0 years in caribou (Adams and Dale 1998), and 2-3 years in moose (Boertje et al. 2007). Females with kids are generally found in small groups, although larger nursery bands may form during early and mid-

summer. Kids remain with their nannies until the next breeding season. Due to extreme climatic conditions (total snowfall) often encountered in the high alpine habitat close to cliffs, goat populations often suffer high mortality during severe winters (Hjeljord 1973, Cote and Festa-Bianchet 2003). Males have lower survival than females, and older animals have lower survival than young prime-aged goats. During winter, goats are in a negative energy balance and must rely on fat reserves built up during the summer. In addition, summer range conditions may affect goat survival because they are subject to heat stress and may shift to sub-optimal foraging habitats on warm summer days. Previous studies have also shown that high alpine plants are less nutritious when growing in warmer temperatures (White et al. 2011a).



**Map 1.** Dall sheep and goat survey units for the Kenai Peninsula, Units 7 and 15, Southcentral Alaska (Herreman 2018).

Predation by wolves can have a significant impact on goats especially when they are forced into smaller winter ranges due to logging or development. The harvest of even a few females can be unsustainable (Hamel et al. 2006) and hunting mortality can depress populations for a number of years. In addition, they are susceptible to overharvest in local areas due to groups site fidelity, because of their low reproductive rate, and due to the difficulty of hunters in distinguishing between males and females.

Goats are also particularly susceptible to disturbance by helicopter overflights that occur during industrial and recreational activities during the summer and winter (Goldstein et al 2005, Cote et al. 2013). Increased recreational activities (helicopter skiing, snowmobiling) (Cote et al. 2013) have been shown to increase stress in the winter, which is already the most difficult period for goats (White et al. 2011b). Limiting disturbance during winter, and maintaining a 2,000 m buffer between goats and helicopter activities was recommended by Cote (2013) to minimize adverse impacts. Helicopter overflights during summer (e.g. ecotourism, transportation flights, biological surveys, development activities), all-terrain vehicles, road construction and blasting associated with industrial activities, may also be a contributing factor to population declines in some goat populations (White et al. 2011b, Cote et al. 2013, St-Louis et al. 2013). More accurate seasonal movement data could be used to help minimize disturbance in critical winter and summer habitats (White et al. 2011b, Herreman 2014).

ADF&G has monitored goat populations through aerial surveys since the 1970s. The Kenai Peninsula goat range, excluding KFNP (which is closed to hunting), is divided up into 18 count areas in Unit 7 and one area, 352, is shared between Units 7 and 15 (**Map 1**). Populations within the count areas vary greatly, with some units having over 300 goats and others fewer than 30 (McDonough and Selinger 2008). ADF&G does not allow any harvest of goat populations under 50 goats. Currently three goat hunt areas, 331, 338, and 344, have the minimum goat population needed to allow a harvest but are not over 100 (Herreman 2019, pers comm.). Eight hunt areas are currently closed to all hunting due to the small goat populations (Table 1) (Herreman 2018, pers. comm.).

Surveys are conducted when weather conditions allow; meaning the flight and visibility ceilings are high enough to survey the entire area and turbulence and temperatures are low. All these variables are figured into the “count conditions,” which are rated by the observer on a scale of 1-3, where 1 = excellent (goats up high, light is great, and temperature and turbulence is low), 2 = good to fair conditions, and 3 = poor (results are likely to be significantly biased by the conditions).

Surveys are flown following the topography of the landscape. Transects are flown parallel to the mountain starting at the tree/shrub line and work up the mountain. Each face receives 2-3 passes depending on mountain height and visibility. Animals are classified as adults (subadults and adults) and kids. When goats are observed, pilots circle the location so that the observer can note the number and classifications of the animals in each group, as well as habitat conditions and GPS (Global Positioning System) location. Often, additional goats not seen initially are encountered while circling, which are noted so that they are not recounted on consecutive passes. By starting transects at lower elevations, animals higher on the ridge are less likely to move down below the tree/alder line where they can disappear. Survey length depends on count conditions, area covered, and number of animals

seen. Initially the aerial surveys within the sampling units were conducted following the contours of the mountains during the early morning (within three hours of sunrise) or in the evening (within three hours of sunset) when there is the greatest goat activity and the best visibility. However, biologists found that they achieved better counts later in the year during midday if the conditions are right (Herreman 2019, pers. comm.). ADF&G attempts to survey each sampling area every three years.

State management objectives for goats in Units 7 and 15 are to monitor population trends, minimize the take of nannies in the harvest, and issue hunting permits based on conservative population estimates and trends (Herreman 2014). Overall, goat populations decreased by 30-50% due to high hunting pressure from the 1990s to 2006 based on fall trend counts (McDonough and Selinger 2008). Since 2006, the overall goat population has increased to numbers not seen since the 1990s. However, some populations have stabilized at low numbers and a few populations continue to decline (**Table 1**) (Herreman 2014).

**Table 1.** Goat population trends and harvest from 2009-2013 and 2014-2018 by hunt areas in Unit 7 (Herreman 2019, ADF&G 2019b, Winfonet 2019).

Hunt Area	Unit	Area Description	Population Trend	Most Recent Count		Harvest 2009-2013	Harvest 2014-2018
				Total (Year)	Survey Year		
331	7	Resurrection Creek West	stable	50	2018	4	2
332	7	Gilpatrick Mt.	decreasing	24	2018	0	10
333	7	Seattle Creek	stable at low numbers	39	2017	1	3
334	7	Mills Creek	decreasing	34	2016	22	2
335	7	Placer River West	stable at low numbers	30	2016	0	0
336	7	Spencer Glacier	decreasing	24	2018	9	5
337	7	Cooper Mt.	decreasing	18	2016	0	0
338	7	Crescent Lake	decreasing	81	2017	0	15
339	7	Grant Lake	increasing	71	2017	3	3
340	7	Kings River	stable at low numbers	27	2017	2	0
341	7	Cecil Rhodes Mt.	increasing	85	2017	7	10
342	7	Lost Lake	stable	73	2017	26	20
343	7	Victor Creek (Andy Simmons Mts.)	stable at low numbers	15	2016	0	0

Hunt Area	Unit	Area Description	Population Trend	Most Recent Count		Harvest 2009-2013	Harvest 2014-2018
				Total (Year)	Survey Year		
344	7	Nellie Juan Lake	stable	55	344	4	3
345	7	Whidbey Bay	stable at low numbers	154	2018	16	34
346	7	Resurrection Peninsula	decreasing	187	2018	34	31
347	7	West Seward	stable	127	2018	18	22
351	7	Petrof Lake	increasing	75	2017	0	0
352	7,15C	Brown Mt.	increasing	174	2017	18	19
<b>Total</b>						164	177

### Harvest History

During the 1920s and 1930s, some small populations of goats were extirpated because of the combination of long seasons, (typically from August through December), no restrictions on hunter distribution, and the lack of a permit requirements (Klein 1953). During this time, less than 100 goats were reported harvested annually, although reporting was likely low (Klein 1953). The harvest limit for goats on the Kenai Peninsula decreased from three in the 1920s to two from the 1930s through the 1960s, and then to one for a portion of Unit 7 in 1971 (McDonough and Selinger 2008). The one goat harvest limit didn't take place in Unit 15 until 1974. The reduction in the harvest limit in 1971 was due in part to the lack of harvest permits to track the harvest, unrestricted hunting, and unsustainable harvest rates, which resulted in the extirpation of some small local populations (e.g. Cecil Mountain) (Smith and Nichols 1984, McDonough and Selinger 2008).

From 1960 to 1964, when there was a two goat harvest limit, the goat populations from Cecil Rhode Mountain, an easily accessible area south of Cooper Landing, declined to low levels, and the hunt was closed in 1965 (Paul 2009). Even though this area remained closed, the population did not recover and by 1983, was down to four males. Consequently in 1983, 12 goats were transplanted from nearby mountains to augment this population (Paul 2009).

Prior to 1976, no permit was required to hunt goats on the Kenai Peninsula, and Alaskans could hunt nearly everywhere (McDonough and Selinger 2008). From 1976-1979, all hunters were required to obtain registration permits so managers could assess the hunting effort but there were no limits to the number of registration permits issued and few restrictions on where hunters could hunt. During the 1970s, hunting demand was high, with over 1000 registration permits being issued one year for a Kenai goat population of less than 2000 animals (McDonough and Selinger 2008). The harvest of nannies peaked between 1972 and 1975 when the average annual harvest ranged from 166-203, with an average of 200 nannies (Herreman 2019, pers. comm.; Winfonet 2019). Unlimited registration

permits were issued from 1976 until 1980 when draw permits were first established. Even after the establishment of the draw season, liberal late season registration hunts were opened in 1982. In 1985, 20 areas were switched to a liberal registration hunt only. Almost anyone who wanted a goat permit could get one from 1980 to 1990 due to the very liberal registration hunts across the Kenai. Even though limited goat hunting opportunity began in 1990s, the overall goat population on the Kenai Peninsula declined by 30% from 1990-2006. The current State harvest strategy, implemented in 2008, follows the recommendations of McDonough and Selinger (2008) (Herreman 2019, pers. comm.).

Harvest rates in the early 1970s were well over 10% and in some areas were 15-40% (McDonough and Selinger 2008). Small populations may only be able to sustain harvest rates of  $\leq 2\%$  assuming that only males are harvested (Hamel et al. 2006). Since 1974, the harvest limit has been one goat per season and hunters were encouraged to harvest only males. Starting in 1976, successful hunters have been required to bring in the horns for sex determination, aging, and measurements (McDonough et al. 2006). Despite encouragement to hunt only billies, nannies were still being harvested. To limit the decline of goat populations and to maintain sustainable harvest levels, ADF&G implemented a restriction in 2009, which prohibited a hunter from hunting any goats in Units 7 and 15 for five years if a nanny was harvested. A conservative maximum allowable harvest for each year is established for each hunt area, based on the number of goats seen during the last survey, based upon the population trend, estimated mortality, and timing of the last survey for each individual count area. During the population decline during the 1990s, the maximum allowable harvest rate of goats on the Kenai was 7% but this was reduced to 5% in 2008. The maximum allowable harvest for easily accessible areas is currently 4% and 5% for areas with more limited access with nannies counting for two goats. The number of drawing permits issued each year is determined using a formula that takes into account the most recent minimum count, the age of the survey data, area access, recent harvest levels, and the population trend (McDonough and Selinger 2008, Burch 2019). In years when the number of goats harvested exceeds the maximum allowable harvest, the permit allocation is adjusted the following year (McDonough and Selinger 2008, Herreman 2019, pers. comm.).

At the beginning of the Federal Subsistence Management Program in Alaska in 1992, the Board adopted the State's customary and traditional use determinations. Residents of Nanwalek and Port Graham have a customary and traditional use determination for goats in the Brown Mountain Hunt Area only. There has never been a Federal subsistence season for goat in Unit 7. Alaska residents have hunted under State regulations since Statehood in 1959. Since 2001, ADF&G has managed goat hunting on the Kenai Peninsula through a combination of drawing and registration hunts, which are generally limited to a specific area. This allows control of each subpopulation within an area. Only a few animals may be harvested from each subpopulation without causing a decline. Since 2003, the State drawing hunt (Aug. 10 - Oct. 15) has been followed by a registration hunt (Nov. 1 – Nov. 30), if the area can sustain additional harvest. The timing of the late registration hunt varies between Nov. 1 and Nov. 30. The number of goats that can be taken during the late season registration hunt may not occur or be limited, depending on hunter success during the earlier drawing permit season. In most years, registration permits are still available in at least one of the hunt areas at the close of the season (Burch 2019). Past harvest rates, sex and age structure of the harvest, population size and trends, age of the survey data, ease of access, ecotype, and weather severity are some of the factors used to

determine the number of annual permits issued each year (McDonough and Selinger 2008, Herreman 2014).

From 2009 to 2013, approximately 165 goats were harvested, with an average annual harvest of 31 during the drawing season and 2 during the registration season (**Table 2**). From 2014 to 2018, approximately 189 goats were harvested, with an annual harvest of 35 during the drawing season and 2 during the registration season (**Table 3**). From 2014-2019, the count areas where the greatest number of goats were harvested were 338, 341, 342, 345, 346, 347, and 352 (**Table 1**). Unlike Unit 15, almost all the goats taken in Unit 7 were harvested during the early season (93%) using drawing permits (**Table 2, Table 3**). Although harvest occurs in all months, September is typically the month with the greatest harvest.

**Table 2.** Number of permits issued and goat harvest in Unit 7, 2009-2013 (Herreman 2019,pers. comm; ADF&G 2019b, Winfonet 2019).

Permit Type	Year	Permits Issued	Hunted	Harvest			% Success
				Males	Females	Total	
Drawing	2009	215	85	27	11	38	45
	2010	211	74	19	15	34	46
	2011	181	43	23	7	30	70
	2012	188	52	20	5	25	48
	2013	189	56	15	13	28	50
	<b>Total</b>		<b>984</b>	<b>310</b>	<b>104</b>	<b>51</b>	<b>155</b>
Registration	2009	52	13	6	3	9	69
	2010	5	0	0	0	0	0
	2011	15	10	2	0	2	20
	2012	0	0	0	0	0	0
	2013	16	2	0	0	0	0
	<b>Total</b>		<b>88</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>11</b>

**Table 3.** Number of permits issued and goat harvest in Unit 7, 2014-2018 (Herreman 2014, ADF&G 2019b, Winfonet 2019).

Permit Type	Year	Permits Issued	Hunted	Males	Harvest			% Success
					Females	Unk	Total	
Drawing	2014	160	68	16	13		29	43
	2015	160	68	28	5		33	49
	2016	177	88	31	8		39	44
	2017	168	97	27	5	4	36	37
	2018	178	99	37	7	6	47	47
	<b>Total</b>		<b>833</b>	<b>420</b>	<b>136</b>	<b>38</b>	<b>10</b>	<b>177</b>
Registration	2014	5	0	0	0		0	0
	2015	0	0	0	0		0	0
	2016	50	20	7	1		8	40
	2017	16	13	4	0		4	31
	2018	16	0	0	0		0	0
	<b>Total</b>		<b>87</b>	<b>33</b>	<b>11</b>	<b>1</b>		<b>12</b>

From 2009 to 2013, residents from Alaska outside of Unit 7 took a majority of the goats (87%), followed by residents from non-rural areas in Unit 7 (6%), non-residents (7%), and rural residents from Unit 7 (1%) (**Table 4**). The number of rural residents is based on mailing addresses in the State harvest database, which may not be the same as the communities where they live. To the extent that hunters receive mail in nearby larger community, harvest from smaller communities may be under-represented some smaller community harvests while harvest from larger communities with post offices may be over-represented. Thus, information on rural residents are estimates, which are used to look at general harvest patterns. From 2014 to 2018, the harvest increased for nonresidents and Alaska residents not living in Unit 7, and decreased for nonrural residents not living in Unit 7 when compared to the previous 5-year period. From 2009-2018, residents from Alaska outside of Unit 7 took a majority of goats (85%), followed by non-rural areas in Unit 7 (3%), non-residents (10%), and rural residents from Unit 7 (1%) (**Table 4**) (ADF&G 2019b). Overall, goat harvest has increased slightly in Unit 7 as the population increased (**Table 1**). From 1980-1990, only four out of 961 goat hunters (0.4%) listed Cooper Landing for their mailing address and only two goats were harvested. Only one goat was harvested from 2009-2014 by a resident of Cooper Landing in 2009 from Unit 7.

**Table 4.** Resident status of successful hunters that harvested goats in Unit 7 from 2009-2013 and 2014-2018 (Winfonet 2019). Due to rounding, percentages do not add up to 100%.

Harvest Period	Rural Resident in Unit 7 <sup>a</sup>	Nonrural Resident in Unit 7	Alaska Resident not in Unit 7	Nonresident
<b>2009-2013</b>	1 (1%)	10 (6%)	143 (87%)	11 (7%)
<b>2014-2018</b>	1 (0.5%)	2 (1%)	160 (85%)	26 (14%)

<sup>a</sup> Hunters were classified as Federally qualified subsistence users by the reported mailing address in ADF&G's harvest database. As reported, residency may not reflect the location of one's permanent residence, these data should be considered estimates.



## Effects of the Proposal

If this proposal is adopted, it would establish a Federal subsistence season for goat in Unit 7, which would provide additional hunting opportunity for Federally qualified subsistence users, since no hunt currently exists under Federal regulations. Although the Federally qualified subsistence users have an additional hunting opportunity when the State season is closed Oct. 16-Oct. 31, the Seward District Ranger could close the hunt during the rut to avoid disturbance during the breeding period. Goat populations in Unit 7 are small and vulnerable, and even at optimal population levels, the harvest of even a few extra goats could result in a conservation concern. ADF&G has been managing the goat populations on the Kenai Peninsula through the use of registration and drawing permits. Because of the small and relatively unstable or fluctuating herd sizes, variable permit numbers, and the risk of overharvest, any Federal permits issued should still fall within the same general framework established by the State for those hunts. Thus Federal drawing hunts should be specific to the herd as is done by the State. Appropriate coordination must be made to determine how many State and Federal permits are issued to limit the potential for overharvest.

Alaska residents not living in Unit 7 have been the primary harvesters of goats in Unit 7 since 2009 (**Table 4**). If this proposal is adopted, the Federal manager would be able to closely manage this hunt through the proposed delegated authority, while working closely with the State. The Cecil Rhode Mountain population, due to its proximity and relatively easy access by residents from Cooper Landing, should be monitored closely to prevent overharvest that occurred in the 1960s.

## OSM CONCLUSION

**Support** Proposal WP20-18b **with modification** to establish a Federal drawing permit for goat, and delegate authority to the Seward District Ranger to close the season, set any needed sex restrictions, the number of permits to be issued, and permit conditions via delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

### Unit 7—Goat

*1 goat by Federal drawing permit. Nannies accompanied by kids may not be taken. The harvest quota is up to two goats.*

*~~No Federal open season~~  
Aug. 10 – Nov. 14*

## Justification

Establishing a Federal subsistence goat season in Unit 7 would provide additional opportunity for Federally qualified subsistence users. Currently, there is no Federal open season for goat in Unit 7, and Federally qualified subsistence users have had to rely on State drawing and registration permits in order to harvest goats in the unit. Providing this opportunity is consistent with Section 804 of the Alaska National Interest Lands Conservation Act (ANILCA), which calls for the priority consumptive

use of fish and wildlife populations by rural Alaska residents. The demand for goats in Unit 7 from all eligible hunters is greater than the harvestable surplus as shown by the harvest history, population data and applicant data. Due to the small size of the goat populations, habitat limitations, and susceptibility to over hunting, these populations are highly regulated by the State.

Since the demand for goat is greater than the harvestable surplus, a drawing permit hunt is recommended, so that harvest is limited by restricting the number of permits issued and thus minimizing the threat of overharvest. Establishing a quota of two goats in regulation is an appropriate conservation measure given the potential impact even a small harvest can have on goat populations and it also minimizes the role of the in-season manager. Establishing a Federal drawing permit hunt would allow for better harvest monitoring, while delegating authority to the Seward District Ranger will allow for hunt management flexibility through in-season adjustments, and a more timely response to changes in population status, hunting conditions, or hunter access while maximizing harvest opportunities for Federally qualified subsistence users. Setting sex restrictions may be necessary to prohibit or limit the take of nannies, which are the most important cohort in the population. Setting permit conditions, such as reporting requirements, would assist the Seward District Ranger in closing the season early if needed. In order to prevent overharvest and population declines a system that closely mirrors and works in conjunction with the current State system is recommended. The Federal manager would need to work closely with the State to monitor harvest under both State and Federal hunts if this proposal is adopted by the Board.

## **LITERATURE CITED**

Adams, L. G. and B.W. Dale. 1998. Reproductive performance of female Alaskan Caribou. *Journal of Wildlife Management* 65:1184-1195.

ADF&G. 2019a. Species Profile, Goat. <http://www.adfg.alaska.gov/index.cfm?adfg=goat.main>, accessed May 10, 2019, Anchorage, AK.

ADF&G. 2019b. Harvest General Reports database. [https://secure.wildlife.alaska.gov/index.cfm?adfg=harvest.main&\\_ga=1.109733509.1089519111.1465854136](https://secure.wildlife.alaska.gov/index.cfm?adfg=harvest.main&_ga=1.109733509.1089519111.1465854136), accessed March 4, 2019. Anchorage, AK.

Boertje, R. D., K.A. Kellie, C.T. Seaton, M.A. Keech, D.D. Young, B.D. Dale, L.G. Adams, and A.R. Alderman. 2007. Ranking Alaska Moose Nutrition: Signals to Begin Liberal Antlerless Harvests. *Journal of Wildlife Management* 71:1494-1506.

Burch, M. 2019. Special Projects Coordinator. Personal communication: email. ADF&G. Palmer, AK.

Cote, S.D. and M. Festa-Bianchet. 2003. Goat. Pages 1061-1075 *in* G.A. Feldhamer, B.C. Thompson, and J.A. Chapman, eds. *Wild Mammals of North America: biology, management, and conservation*. Second edition. John Hopkins University Press, London.

Cote, S.D., S. Hamel, A. St-Louis, and J. Mainguy. 2013. Do goats habituate to helicopter disturbance? *Journal of Wildlife Management*, 77:1244-1248.

- Cote, S.D., M. Festa-Bianchet, and K.G. Smith. 2001. Compensatory reproduction in harvested goat populations: a word of caution. *Wildlife Society Bulletin* 29:726-730.
- Goldstein, M.I., A.J. Poe, E. Cooper, D. Youkey, B.A. Brown, and T.L.McDonald. 2005. Goat response to helicopter overflights in Alaska. *Wildlife Society Bulletin*, 33(2):688-699.
- Hamel, S., S.D. Cote, K.G. Smith, and M.Festa-Bianchet. 2006. Population dynamics and harvest potential of goat herds in Alberta. *Journal of Wildlife Management*, 70:1044-1053.
- Herreman, J. 2014. Units 7 and 15 Goat management report. Pages 106-121 *in* P. Harper, editor. Goat management report of survey and inventory activities 1 July 2011- 30June 2013, ADF&G. Species Management Report ADF7G/DWC/SMR 2014-3, Juneau.
- Herreman, J. K. 2018. Dall sheep management report and plan, Game Management Units 7 and 15. Report period 1 July 2011-30 June 2016, and plan period 1 July 2016-30 June 2021. ADF&G, Species Management Report and Plan ADF&G/DWCSMR&P-2018-34, Juneau.
- Herreman, J. 2019. Wildlife Biologist. Personal communication: email. ADF&G. Homer, AK.
- Hjeljord, O. 1973. Goat forage and habitat preference in Alaska. *Journal of Wildlife Management*, 37(3):353-362.
- Klein, D.R. 1953. A reconnaissance study of the goat in Alaska. Thesis, University of Alaska, Fairbanks, AK.
- McDonough, T. J. and J. Selinger. 2008. Goat management on the Kenai Peninsula Alaska: a new direction. Proceedings of the biennial Symposium of the Northern Wild Sheep and Goat Council 16:50-67.
- McDonough, T.J. J.R. Crye, and G.G. Del Frate. 2006. Can horn length of goats be used as a measure of habitat quality? Proceedings of the Biennial Symposium of the Northern Wild Sheep and Goat Council 15:158-166.
- Paul, T. W. 2009. Game transplants in Alaska. Technical bulletin No. 4, second edition. ADF&G, Juneau, AK. 153 pp.
- Schmidt, J. H., J.H. Reynolds, K.L. Rattenbury, L.M. Phillips, K.S. White, D. Schertz, J.M. Morton, and H.Sharon Kim. 2019. Integrating distance sampling with minimum counts to improve monitoring. *Journal of Wildlife Management* 83(6):1454-1465.
- Schwartz, C.C., K.A. Keating, H.V. Reynolds, V.G. Barnes, R.A. Sellers, J.E. Swenson, S.D. Miller, B.N. McLellan, J. Keay, R. McCann, M. Gibeau, W.F. Wakkinen, R.D. Mace, W. Kasworm, R. Smith, and S. Herrero. 2003. Reproductive maturation and senescence in the female brown bear. *Ursus* 14:109-119.
- Shafer, A.B.A., J.M. Northrup, K.S. White, M.S. Boyce, S.D. Cote, and D.W. Coltman. 2012. Habitat selection predicts genetic relatedness in an alpine ungulate. *Ecology*, 93:1317-1329.
- Sherwood, M. 1974. The Cook Inlet Collection, Two hundred Years of Selected Alaskan History. Alaska Northwest Publishing Company, Anchorage, AK.
- Smith, C.A. and L. Nichols, Jr. 184. Goat transplants in Alaska: restocking depleted herds and mitigating mining impacts. Proceedings of the Biennial Symposium of the Northern Wild Sheep and Goat Council 4:467-480.

St-Louis, A, S. Hamel, J. Mainguy, and S.D. Cote. 2013. Factors influencing the reaction of goats towards All-terrain vehicles. *Journal of Wildlife Management* 77(3):599-605.

USFWS. 2019. Harvest database. Office of Subsistence Management, FWS, Anchorage, AK.

White, K.S., A. Crupi, R. Scott, and B. Seppi. 2011a. Goat movement patterns and population monitoring in the Haines-Skagway area. ADF&G, Wildlife Research Annual Progress Report, Juneau.

White, K.S., G.W. Pendelton, D. Crowley, H. Griese, K.J. Hundertmark, T. McDonough, L. Nichols, M. Robus, C.A. Smith, and J.W. Schoen. 2011b. Goat survival in coastal Alaska: effects of age, sex and climate. *Journal of Wildlife Management*, 75:1731-1744.

WinfoNet. 2019. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION

### Southcentral Alaska Regional Advisory Council

**Support** WP20-18b **with modification** to include the OSM modifications but also include the proposed restrictions on nanny and billy goat harvest as proposed in the original proposal and to have these restrictions in regulation. The Council believes that these restrictions are needed in the regulations versus as a stipulation under the permit conditions due to conservation concerns for the species.

The modified regulation should read:

#### Unit 7—Goat

*1 goat by Federal drawing permit. Nannies accompanied by kids may not be taken. The harvest quota is up to two goats. If a billy is taken, the hunter will be eligible for a permit again in 3 years. If a nanny is taken, the hunter will be eligible for permit again in 5 years.*

*No Federal open season  
Aug. 10 – Nov. 14*

## INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee (ISC) agrees with the Southcentral Subsistence Regional Advisory Council that establishing a Federal subsistence goat season in Unit 7 would provide additional opportunity for Federally qualified subsistence users. The ISC agrees with OSM’s conclusion to support Proposal WP20-18b with modification to establish a Federal drawing permit for goat and delegate authority to the Seward District Ranger to close the season, set any needed sex restrictions, set the number of permits to be issued, and establish permit conditions via delegation of authority letter only. Due to the small size of the goat populations, habitat limitations, susceptibility to over hunting, and the intensive State management, the Federal manager would need to work closely with the State to monitor harvest under both State and Federal hunts if this proposal is adopted by the Board.

The ISC asked for legal counsel clarification related to the proponent’s and the Southeast Regional Subsistence Advisory Council’s request to limit eligibility following a successful hunt. The proposal specifies that a hunter be ineligible for a permit until three years after harvesting a billy goat, and five years after harvesting a nanny. Legal counsel responded as follows:

Per ANILCA Section 804, subsistence uses can be restricted only when “it is *necessary* to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses.” [Emphasis added.] Even where this threshold is met, any restrictions on subsistence uses must apply the following priority criteria:

customary and direct dependence upon the population as the mainstay of livelihood; local residency; and the availability of alternative resources.

Since past permit drawing and/or hunting success is not a relevant criteria for implementing a priority, a rule that attempted to restrict subsistence uses on that basis would violate Section 804.

The ISC concluded that the component of the proposal that restricts subsistence use is not permitted under ANILCA Section 804.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-18:** This proposal, submitted by Michael Adams, would add residents of Cooper Landing to the pool of federally-qualified users eligible to hunt mountain goats in Unit 7, and establish a new federal subsistence registration mountain goat hunting season in Unit 7 for residents of Cooper Landing with a bag limit of 1 goat. The season will be closed when 2 goats are harvested. Any hunter that harvests a billy would be ineligible to receive a permit for 3 years and any hunter that harvests a nanny would be ineligible to receive a permit for 5 years. The harvest of a nanny accompanied by a kid would be prohibited.

**Introduction:** Mountain goats are unique compared to other ungulate species due to the habitat they utilize and their reproductive capacity. Mountain goats inhabit alpine and coastal habitats that are adjacent to steep cliffs and rocky terrain that can be used as escape terrain from predators. They typically occur in small isolated populations and have little interchange between these groups. Telemetry and genetic studies have shown that mountain goats maintain a strong fidelity to discrete homeranges (White 2006, Shafer et al. 2012). Mountain goats breed in November and December and adult males typically remain segregated from females and young animals during a large portion of the year. The average age of first reproduction of mountain goats is 4.5 years old (Festa-Bianchet and Cote 2008, White et al 2011).

Mountain goats in Unit 7 are currently managed under a limited permit system in small discreet hunt areas. Unit 7 currently contains 19 different hunt areas. Due to low population numbers as determined by minimum counts, 8 of these areas were closed to harvest in 2019. Early season hunts are managed under the state draw system and late season hunts are managed under a registration permit system. The guidelines for calculating permit numbers are based on a system described in McDonough and Selinger (2008).

For a drawing hunt to open, the population must contain more the 50 goats. The second criteria considered is whether the quota was exceeded in previous years. For small populations, if the quota was exceeded in the 2 previous seasons no hunt is held. In larger populations, if the quota was exceeded the number of permits issued is reduced. The third criteria considered is the age of the survey data. If the survey data is greater than 3 years old and the population less than 75 goats, no permits are issued. For areas with greater than 75 goats and data older than 2 years, permit numbers

are reduced. The fourth criteria considered is the population trend. If populations are declining, permits are reduced. The fifth criteria considered is access to the area. A greater number of permits are made available for areas with difficult access. The number of animals available for harvest (goat points, nannies equal two) is the final factor that affects the number of permits issued. Goat points are calculated at a rate of 4% of the most recent minimum count for areas with easy access and 5% for areas with difficult access. The criteria outlined above are used as a general guideline to determine the number of permits to be issued for hunt areas. Other factors may enter the final calculation for permit numbers.

Registration hunts are only opened if an area contains more than 100 goats. If the population is not stable or increasing a hunt is not held. If the survey data is greater than 2 years old a hunt is not held. If the previous year's quota was exceeded a hunt is not held. Lastly, if there are less than 4 goat units available in an area after the draw season harvest is accounted for no hunt is held. Registration hunts have been open every year on the Kenai Peninsula since the establishment of this system.

**Impact on Subsistence Users:** If this hunt was established, it would initially provide additional opportunity to residents of Cooper Landing, but not to currently-qualified residents of Nanwalek and Port Graham, who are limited to the Brown Mountain Hunt Area, where there is currently no federal open season. However, it could reduce opportunity for other subsistence users on the Kenai Peninsula because if goats are harvested in areas with limited population numbers or nannies are harvested it will decrease future hunting opportunity for all subsistence users. Federal public lands in the Kenai Fjords National Park would remain closed to all hunting, including the hunting of wildlife for subsistence purposes, due to the separate regulations of the park.

**Impact on Other Users:** If the proposed hunt is adopted in the suggested format (all areas of Unit 7), it could disrupt the current state management system especially in areas in Unit 7 that the state believes should not be open for harvest due to conservation concerns. Opening all of Unit 7 could negatively affect other hunters because managers would take a more cautious management approach, including limiting permits issued in Unit 7. If goats were harvested in areas with low numbers or areas permanently closed by the state to goat harvest, it could decrease future hunting opportunities for other users and potentially impact nonconsumptive uses (for example, in the Cooper Landing Closed Area).

#### **Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for mountain goats in Units 7 and 15C outside the Anchorage-Matsu-Kenai Nonsubsistence Area. However, all of Unit 7 is within this state nonsubsistence area.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for mountain goats in Units 7 and 15C outside the Anchorage-Matsu-Kenai Nonsubsistence area is 7–10 animals; however, subsistence hunts are authorized only in Unit 15C.

The season and bag limit for Unit 7 is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (DG 331-352 &amp; RG 331-352)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
7	1 goat	Aug.10–Oct. 15 (Draw Permit)	Aug.10–Oct. 15 (Draw Permit)
	1 goat	Nov.1–Nov. 14 (Registration Permit)	Nov.1–Nov. 14 (Registration Permit)

<sup>a</sup> General Hunts Only.

Special instructions: Taking of nannies with kids is prohibited. If a nanny is taken the hunter is prohibited from hunting any goats in units 7 and 15 for 5 regulatory years.

**Conservation Issues:** Mountain goats are a slowly reproducing species with distinct home ranges. The average age of first reproduction is 4.5 years (Festa-Bianchet and Cote 2008) and studies of Alaska populations show only a 68% parturition rate (White et al. 2013). Due to these factors, small populations of goats are easily extirpated from distinct areas. If reproductive-age nannies are harvested from a small herd it is possible to completely curtail reproduction in that herd. As such, mountain goats should not be managed on a unitwide basis and adding additional harvest on top of current state harvest could negatively impact herds. Hunts must be established to reflect local home ranges and population levels.

Many of the hunt areas in Unit 7 are along the road system with easy access, have high winter recreation, and are valued for viewing purposes. Hunting in some of these easily accessible areas, such as Cecil Rhode Mountain (DG341), has led to the near extirpation of discreet populations in the past (Paul 2008). The current state hunt structure minimizes the potential to overharvest goat populations.

**Enforcement Issues:** None.



**Recommendation:** ADF&G is **NEUTRAL** on the eligibility requirements for the federal subsistence program. However, ADF&G is **OPPOSED** to opening a unit wide hunt for mountain goats in Unit 7 due to conservation concerns. ADF&G could support the portion of the proposal that seeks to establish seasons and harvest limits with modification to establish a drawing hunt, instead of a registration hunt, in Unit 7. The proposed bag limit of one goat and the quota of two goats should not be modified, due to conservation concerns. Similarly, the proposed prohibition of taking a nanny with kids should not be modified, nor should the proposed stipulation that if a nanny is taken, the hunter is prohibited from hunting any goats in Unit 7 for 5 regulatory years. The proposed stipulation that if a billy is taken, the hunter is prohibited from hunting any goats in Unit 7 for 3 regulatory years should also not be modified, due to conservation concerns. Modifications should include that permits be allocated within the current state hunt areas and the areas in which tags will be issued each year should be determined in consultation with ADF&G in September/October previous to the permit year.

### **Citations**

Fiesta-Bianchet, M. and S. D. Cote. 2008. Mountain Goats (Ecology, Behavior, and Conservation of an Alpine Ungulate). Island Press, Washington D. C.

McDonough, T. J. and J. Selinger. 2008. Mountain goat management on the Kenai Peninsula Alaska: a new direction. Proceedings of the biennial Symposium of the Northern Wild Sheep and Goat Council 16:50-67.

Paul, T. W. 2009. Game transplants in Alaska. Technical Bulletin No. 4, second edition. Alaska Department of Fish and Game, Wildlife Conservation. Juneau, AK. 150pp.

White, K. S. 2006. Seasonal and Sex-specific variation in terrain use and movement patterns of mountain goats in southeastern Alaska. Biennial Symposium of Northern Wild Sheep and Goat Council 15: 183-193.

White, K. S., G. W. Pendleton, D. Crowley, H J. Griese, K. J. Hundertmark, T. McDonough, L. Nichols, M. Robus, C. A. Smith, J. W. Schoen. 2011 Mountain Goat Survival in Coastal Alaska: Effects of age, sex, and climate. Journal of Wildlife Management 75: 1731-1744.

White, K. S., P. Mooney, K. Bovee 2013. Mountain goat movement patterns and population monitoring on Baranof Island. Wildlife Research Annual Progress Report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Douglas, AK.

Appendix 1



**Federal Subsistence Board**

1011 East Tudor Road, MS121  
Anchorage, Alaska 99503-6199



FISH and WILDLIFE SERVICE  
BUREAU of LAND MANAGEMENT  
NATIONAL PARK SERVICE  
BUREAU of INDIAN AFFAIRS

FOREST SERVICE

FWS/OSM \*\*\*\*\*.\*\*

Seward District Ranger  
U.S. Forest Service  
Chugach National Forest  
P.O. Box 390  
Seward, Alaska 99664

Dear Seward District Ranger:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the Seward District Ranger of the Chugach National Forest to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within the Seward Ranger District of the Chugach National Forest for the management of goat on these lands.

It is the intent of the Board that actions related to management of goat by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council

Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

## **DELEGATION OF AUTHORITY**

**1. Delegation:** The Seward District Ranger of the Chugach National Forest is hereby delegated authority to issue emergency or temporary special actions affecting goat on Federal lands as outlined under the **Scope of Delegation** below. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

To close the season, set sex restrictions, the number of permits to be issued, and set any needed permit conditions for goat.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve goat populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Unit 7 within the Seward Ranger District of the Chugach National Forest.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine: (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair, Federal Subsistence Board

cc: Federal Subsistence Board  
Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management  
Wildlife Division Supervisor, Office of Subsistence Management  
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Southcentral Alaska Subsistence Regional Advisory Council  
Regional Forester, U.S. Forest Service, U.S. Department of Agriculture  
Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record

WP20–22b Executive Summary	
<b>General Description</b>	<p>Proposal WP20-22b requests that an Aug. 10 - Oct. 10 caribou season be established in Unit 15, with a harvest limit of one caribou. The proponent also requests that the Kenai National Wildlife Refuge Manager be given authority to open and close the season in consultation with the Alaska Department of Fish and Game (ADF&amp;G) and the Chair of the Southcentral Alaska Subsistence Regional Advisory Council. <i>Submitted by: Ninilchik Traditional Council.</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 15—Caribou</b></p> <p><i>1 caribou by Federal registration permit only. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&amp;G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.</i></p> <p style="text-align: right;"><del>No Federal open-season</del> <b>Aug. 10 – Oct. 10</b></p>
<b>OSM Conclusion</b>	<p><b>Support</b> Proposal WP20-22b <b>with modification</b> to establish a Federal drawing permit hunt for caribou in Unit 15, with a season of Aug. 10 – Sep. 20, establish three new hunt areas and delegate authority to the Kenai National Wildlife Refuge Manager to close the season, set the harvest quota, and set any needed permit conditions via delegation of authority letter only.</p> <p><b>Unit 15—Caribou</b></p> <p><i>Unit 15B, within the Kenai National Wildlife Refuge Wilderness Area</i>      <b>1 caribou by Federal drawing permit.</b></p> <p><i>Unit 15C, north of the Fox River and east of Windy Lake</i>      <b>1 caribou by Federal drawing permit.</b></p> <p><i>Unit 15, remainder</i>      <i>No Federal open season</i></p>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>

**WP20–22b Executive Summary**

<p><b>Interagency Staff Committee Comments</b></p>	<p>The Interagency Staff Committee (ISC) agrees that creating this Federal hunt will provide a new meaningful preference for Federally Qualified Users by ensuring an allocation of caribou permits to qualified rural users. The ISC agrees with OSM’s modification for WP20-22b. The three primary Kenai caribou herds in Unit 15 are small, vulnerable to overharvest, and slow growing.</p> <p>Consequentially, they require conservative and careful management. The modification by OSM to align Federal season dates and hunt management boundaries with the State framework is appropriate to reduce regulatory confusion and ensure successful administration of a hunt with limited permits that will be co-administered by Federal and State offices. To avoid overharvest, proactive, frequent and timely coordination between Federal and State agencies will be crucial, along with timely harvest reporting from permitted hunters. To increase the season length beyond September 20, as requested by the Southcentral Subsistence Regional Advisory Council, could further stress these small populations by disturbing bulls during the critical rut period, which initiates in mid-September. Creation of Federal hunt areas that align with State boundaries is imperative to reduce regulatory confusion and to ensure that caribou are harvested from only those populations that have a harvestable surplus. The ISC concurs with OSM that only the Killey River herd has a population that can currently sustain harvest. Harvest from the Kenai Lowlands and Fox River herds should remain closed until minimum population objectives are met.</p> <p>The Federal Manager will have authority to modify seasons, quotas, etc., via special action if necessary to improve hunting opportunities or restrict harvest when quotas are met. The recent Kenai fires may have caused negative impacts to caribou habitat and create yet another factor that managers need to consider in setting future harvest quotas.</p> <p>If proposals WP20-23b and WP 20-24b are passed by the Board, there will be three new federal hunts established that will all require significant time and coordination commitments by the Kenai NWR staff to administer. Reducing regulatory complexity between Federal and State Hunts, to ensure successful implementation, may be important to consider when evaluating this proposal.</p>
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<b>WP20–22b Executive Summary</b>	
<b>ADF&amp;G Comments</b>	<b>Oppose</b>
<b>Written Public Comments</b>	<b>None</b>



**STAFF ANALYSIS  
WP20-22b**

**ISSUES**

Wildlife Proposal WP20-22b, submitted by the Ninilchik Traditional Council (NTC), requests that a Aug. 10 - Oct. 10 caribou season be established in Unit 15, with a harvest limit of one caribou. The proponent also requests that the Kenai National Wildlife Refuge Manager be given authority to open and close the season in consultation with the Alaska Department of Fish and Game (ADF&G) and the Chair of the Southcentral Alaska Subsistence Regional Advisory Council.

**DISCUSSION**

The proponent states that these changes are needed to provide for subsistence opportunity and a meaningful preference for rural residents to harvest caribou in Unit 15, referencing a significant decline by Ninilchik residents between 1994 and present. The proponent also states that the requested changes would provide opportunity for rural residents of Unit 15 to engage in subsistence caribou hunting and provide for a meaningful subsistence preference.

Note: Proposal WP20-22a requests the customary and traditional use determination for caribou in Units 15B and 15C be revised. Upon clarification with the proponent, this request was not intended to exclude other rural residents of Unit 15; however, Ninilchik Traditional Council’s request is specific to Ninilchik.

**Existing Federal Regulations**

**Unit 15—Caribou**

*No Federal open season*

**Proposed Federal Regulations**

**Unit 15—Caribou**

*1 caribou by Federal registration permit only. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.*

~~*No Federal open season*~~  
*Aug. 10 – Oct. 10*

## Existing State Regulations

### Unit 15—Caribou

<i>15B, within the Kenai National Wildlife Refuge Wilderness Area</i>	<i>Residents and Nonresidents: One caribou by permit</i>	<i>DC608</i>	<i>Aug. 10 – Sept. 20</i>
<i>15C, north of the Fox River and east of Windy Lake</i>	<i>Residents and Nonresidents: One caribou by permit</i>	<i>DC618</i>	<i>Aug. 10-Sept. 20</i>
<i>15 remainder</i>	<i>Residents and Nonresidents:</i>		<i>No open season</i>

## Extent of Federal Public Lands/Waters

Unit 15 is comprised of approximately 47% Federal public lands and consist of 46% U.S. Fish and Wildlife Service (USFWS) managed lands, 1.1% Bureau of Land Management (BLM) managed lands, 0.4% USDA Forest Service (USFS) managed lands, and 0.1% National Park Service (NPS) managed lands. Unit 15B is comprised of approximately 77% Federal public lands and consist of 71% USFWS managed lands, 4.7% BLM managed lands, and 0.6% USFS managed lands. Unit 15C is comprised of approximately 28% Federal public lands and consist of 28% USFWS managed lands and 0.3% NPS managed lands. NPS managed lands in Unit 15 are within Kenai Fjords National Park and are closed to subsistence.

## Customary and Traditional Use Determinations

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for caribou in Unit 15. Therefore, all Federally qualified subsistence users are eligible to harvest this species in this unit.

## Regulatory History

In 1993, the Board rejected Proposal P93-037, submitted by the Ninilchik Traditional Council to establish a subsistence caribou season in Unit 15C from Sept. 15-Oct. 4, so that a management plan could be developed for the Truuli Creek Plateau Caribou Herd (TCPH) (OSM 1993). This population is now referred to as the Fox River Caribou Herd (FRCH). The plan would include harvest objectives and a harvest strategy that would identify user groups the Board could use to address customary and traditional use of caribou on the Kenai Peninsula and whether or not there were subsistence uses that needed to be provided (FSB 1993, p. 266-267).

## Biological Background

Caribou were an abundant endemic woodland species on the Kenai Peninsula in the 1800s until nearly being wiped out in 1912 due to a combination of overhunting and habitat loss from human caused fires (Palmer 1938, Spencer and Hakala 1964, Davis and Franzmann 1979). The fires, which include a massive fire in 1883, likely destroyed much of the lichen used by caribou and due to the long regeneration times, were likely a major contributing factor to the caribou decline in the late 1880s (Leopold and Darling 1953, Sherwood 1974). Market hunters hunted caribou for mining camps during the early 1900s and may have killed most of the remaining native caribou populations (Davis and Franzmann 1979). Allen (1901) noted: “Caribou ... are already very scarce on the Kenai Peninsula, and will doubtless soon be exterminated, the region being greatly frequented by visiting sportsmen, while native (local) hunters kill the moose and caribou for their heads, disposing of them at good prices for shipment to San Francisco.”

There are currently four caribou herds on the Kenai Peninsula: the Kenai Mountain Herd (KMCH), Kenai Lowlands Caribou Herd (KLCH), Killey River Caribou Herd (KRCH) and the Fox River Caribou Herd (FRCH) (**Map 1, Map2, Map 3**). A map of the KMCH was not included because it occurs primarily in Unit 7. These herds were established from transplants from the Nelchina Caribou Herd in 1965-1966 (KMCH and KLCH) and 1985-1986 (KRCH, FRCH) (Paul 2009).

The Caribou Working Group, consisting of members from the USFS, USFWS and ADF&G, established the following management objectives for the caribou populations on the Kenai Peninsula (ADF&G et al. 2003):

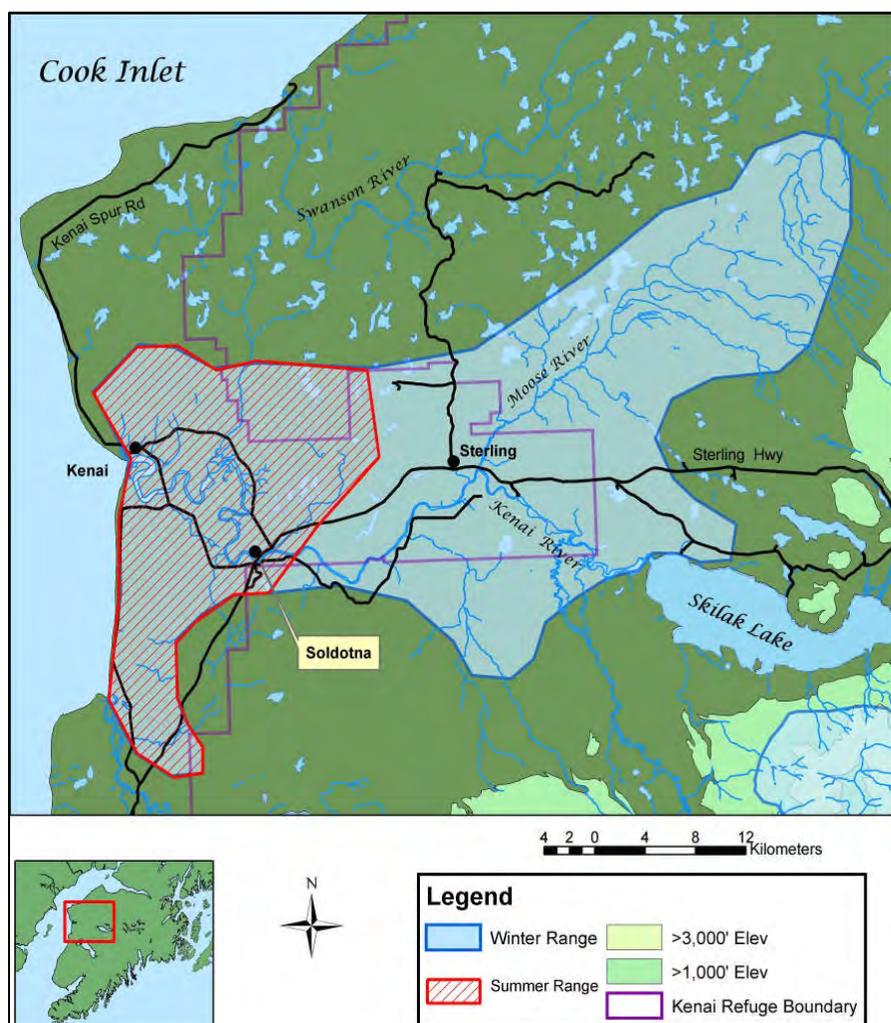
- Manage to maintain caribou populations at levels commensurate with long-term habitat protection
  - Maximum density of 2 caribou/km<sup>2</sup>
  - Minimum fall recruitment of 20-25 calves:100 cows
  - Minimum post-hunting bull:cow ratio of 30-40 bulls:100 cows
  - Monitor calf weights in the spring and fall as another indicator of herd health
  - Monitor habitat changes
- Provide the opportunity for herds to expand into suitable but unoccupied range
  - Control snowmachine use in the Caribou Hills
- Provide for multiple use of caribou herds
  - Hunting and Viewing
- Provide for scientific research on the introduced caribou herds.

### Kenai Lowlands Caribou Herd

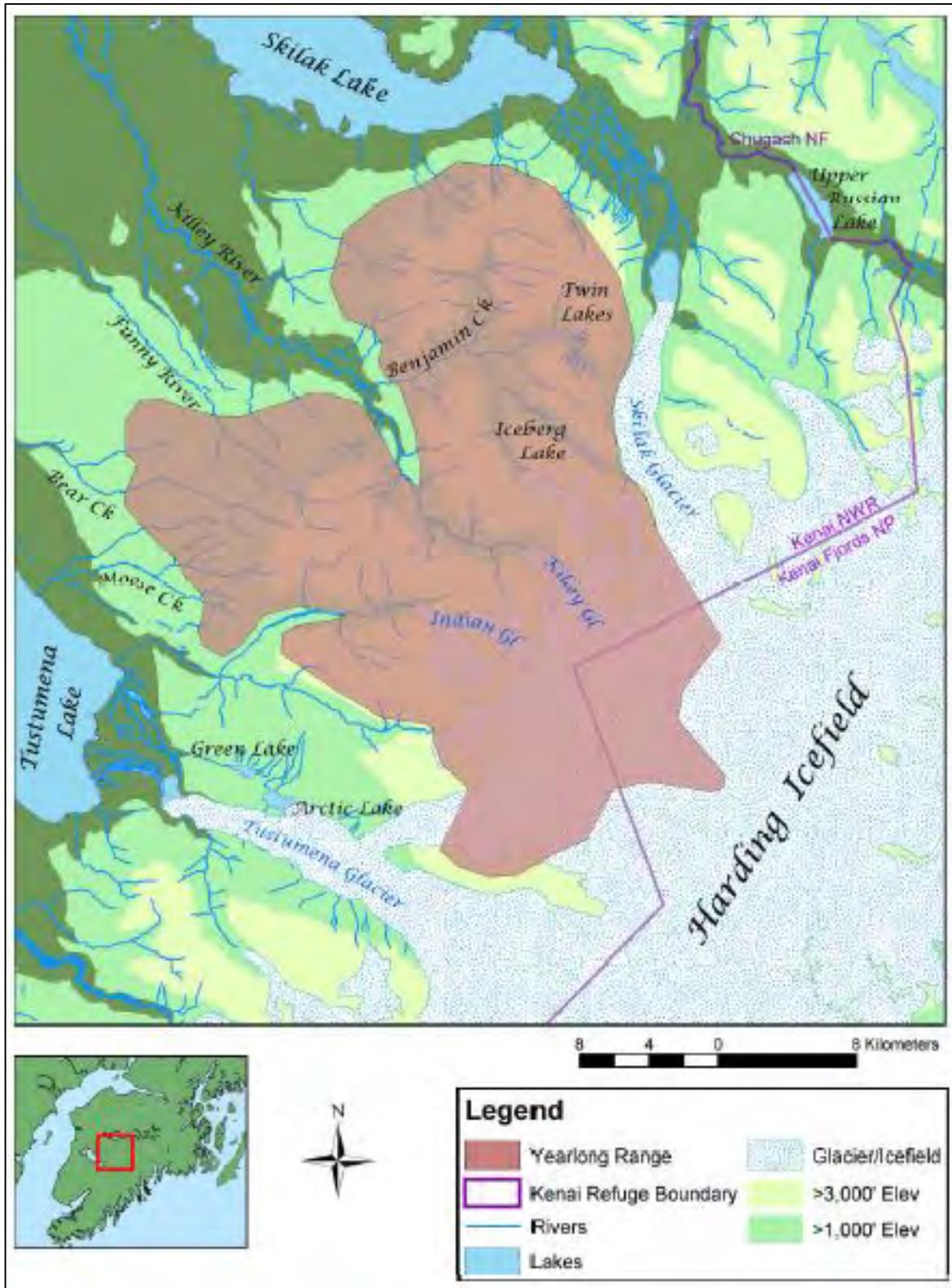
The KLCH range encompasses approximately 535 mi<sup>2</sup> near the communities of Soldotna, Kenai, and Sterling extending from Kalifornisky Beach Road to Mystery Creek in Units 15A and 15B. The KLCH summers in bog-muskeg and open wetlands north of the Kenai River toward Swanson River in Unit 15A and the northwestern portion of Unit 15B (Kenai Peninsula Caribou Management Plan

2003). The KLCH winters in the spruce forest and open muskeg from the headwaters of Moose River to the outlet of Skilak Lake and in the area around Browns Lake (ADF&G et al. 2003, Herreman 2015).

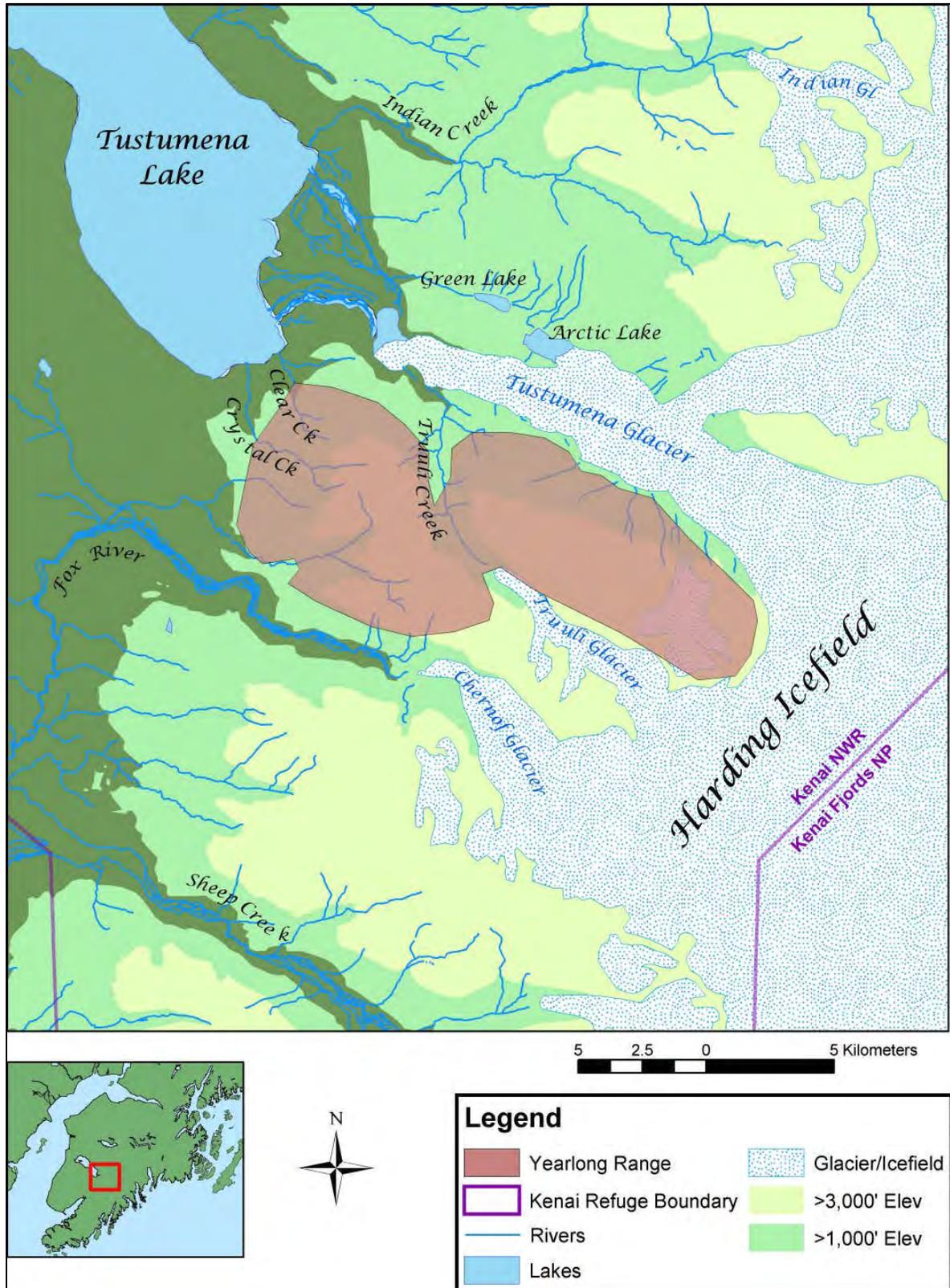
As of 2018, the KLCH was at approximately 91 animals, which is below the States management objective of 150 caribou for this population (Herreman 2018, pers. comm.). The KLCH is the slowest growing caribou herd on the Kenai Peninsula. It took over 20 years for the herd to grow from 29 in 1966 to slightly over a 100 in 1986 and during the next 20 years the population only increased by 25-30 animals. The KLCH is the only Kenai caribou herd that has not reached the minimum of 20-25 calves: 100 cows and the post-hunting bull:cow ratio of 30-40 bulls:100 cows. Predation by free ranging dogs and wolves, road kills, and limited habitat are the main factors limiting growth of this population (Selinger 2005, 2013). No hunting permits have been issued since 1992 (Selinger 2005). Given the proximity near the towns of Kenai and Soldotna during the summer, this population is popular for viewing by residents and visitors (Herreman 2015).



**Map 1.** Approximate range of the Kenai Peninsula Lowland Caribou Herd (ADF&G et al. 2003).



**Map 2.** Approximate range of the Killey River Caribou Herd (ADF&G et al. 2003).



**Map 3.** Range of the Fox River Caribou Herd (ADF&G et al. 2003).

### Killey River Caribou Herd

The KRCH range includes approximately 295 mi<sup>2</sup> in the Kenai National Wildlife Refuge wilderness, primarily in the drainages of the Funny and Killey rivers north to Skilak Lake in Unit 15B. The Yearlong Range on Map 2 should be extended to the north edge of the Tustumena Glacier and overlap Green and Arctic Lake (Herreman 2019, pers. comm.). The KRCH occur primarily in alpine and subalpine habitat between 2,000 and 4,000 ft. on the benchlands and foothills between Skilak Lake and Tustumena Glacier during both summer and winter. The benchlands contain shrub-lichen tundra, which is very sensitive to physical disturbance. The wetter and lower areas are dominated by willow and the drier upland sites have primarily white birch. The shrub subalpine habitat, which contains tussocks with willow and cranberry, is interspersed with areas of bare rock (ADF&G et al. 2003). Peak calving on the higher mountain ridges above 4,000 ft. occurs between May 16 and May 26. The parturient cows select isolated mountain habitat primarily to avoid predators (ADF&G et al. 2003). Preliminary habitat analysis conducted in the 1980s, prior to the transplant, indicated that the winter range 199 mi<sup>2</sup> could support 400-500 caribou (Kenai Peninsula Caribou Management Plan 2003).

The population grew steadily to more than 700 animals in 2001 and then declined to 300 animals in 2005 (McDonough 2007). Avalanches between 2001 and 2004 killed at least 191 caribou, with most of the mortalities being cows and calves (Selinger 2005). The KRCH has been hunted since 1994 under a drawing permit hunt under State regulations. The minimum count in 2017 was 301 and 413 in 2018 caribou (Herreman 2019, pers. comm.). The States management goals for the KRCH are to maintain a population of 400-500 caribou (Kenai Peninsula Caribou Management Plan 2003).

### Fox River Caribou Herd

The FRCH has the smallest range of the four populations on the Kenai Peninsula (46 mi<sup>2</sup>). The FRCH occupies alpine and subalpine habitats between Tustumena Glacier and the upper Fox River and Truuli Creek in Unit 15C. The FRCH uses the high elevations of the Truuli Creek drainage between 2,000 and 5,000 ft. Similar to the KRCH, the summer and winter ranges are the same, although the area east of Truuli Creek seems to be used more during the summer. The Truuli Creek Plateau is primarily alpine shrub-lichen tundra. Between 1,000 and 2,000 feet, the area contains subalpine shrub habitat and below 1,000 feet is mature spruce forest, most of which is dead from bark beetles. Vegetation is sparse above 4,000 feet. As of 2003, the area west of Truuli Creek lacked lichens and much of the area was trampled, whereas the area east of Truuli Creek was not as heavily impacted. Calving takes place along the high mountain ridge between Truuli and Chernof glaciers and the ridge north of Truuli Glacier. As with the KRCH, limited habitat and predation (wolves and bears) are the primary factors affecting population growth and expansion (ADF&G et al. 2003, McDonough 2011). Preliminary habitat analysis conducted in the 1980s, prior to the transplant, indicated that the winter range (33mi<sup>2</sup>) could support 80 caribou (Kenai Peninsula Caribou Management Plan 2003).

The estimated population for the KRCH in 2013 was 90-100 animals (Herreman 2015). Caribou from the FRCH could potentially expand into two areas that contain suitable caribou habitat, the benchlands south of the Fox River (50 km<sup>2</sup>) and the Caribou Hills west of Truuli Creek (70 km<sup>2</sup>) (ADF&G et al.

2003). In 2017, 59 caribou were counted during surveys and in 2018 the minimum count was 0 which suggests that the herd joined the KRCH (Herreman 2019, pers. comm.). The State Management goal for the FRCH was to maintain a caribou herd of approximately 80 caribou.

### **Harvest History**

Habitat limitations, predation, and the effects of climate change, such as snow availability, depth, icing conditions and the advance of treeline have allowed a harvest from only two of the three available caribou populations in Unit 15 (Selinger 2005, 2013; McDonough 2007, Herreman 2015). Of the three caribou populations in Unit 15, only the KRCH and FRCH currently have hunting seasons under State regulations (**Table 1, Table 2, Table 3**). More caribou were harvested from both populations between 2014 and 2018 than during the period from 2009 to 2013 (**Table 2, Table 3**). Approximately 118 caribou were harvested from Unit 15 from 2014-2018, and the annual average was 24 caribou. Most of the harvest has occurred from Aug. 10-Sept 15 (Herreman 2015).

From 1995 to 2018, rural residents of Unit 15 took a total of 10 caribou, which was about 3% of the total harvest (**Table 4**). From 1995-2018, residents from non-rural areas in Unit 15 took a majority of caribou (59%), followed by residents not living in Unit 15 (27%), and non-residents (10%) (**Table 4**). It should be noted that the number of rural residents is based on mailing addresses in the State harvest database, which may not be the same as the communities in which they live. To the extent that hunters receive mail in nearby larger community, it may under-represent some smaller community harvests and over-represent harvests in larger communities with post offices. Thus information on rural residents are estimates which are used to represent general harvest patterns.

### **Kenai Lowlands Caribou Herd**

Hunts under State regulations occurred in 1981 and from 1988/1989 to 1992/1993 (ADF&G et al. 2003). An average of three permits were issued per year resulting in an average annual harvest of two caribou. The hunting season was closed in 1993/1994. The current management objective from the Kenai Peninsula Caribou Management Plan (2003) is to allow the KLCH to increase to 150 caribou before hunting is reestablished.

### **Killey River Caribou Herd**

In 1994, hunting began under State regulations using a limited drawing and registration permit system, when the estimated population reached 300 animals. By 2004, the population increased to 600-750 caribou and there were concerns that it might have exceeded carrying capacity. As a result, a registration hunt with a harvest limit of up to three cows was established and fewer bull permits were issued. From 1999-2003, 140 cows and 64 bulls were taken (ADF&G et al. 2003). Following the population decline in 2004 due to high mortality from avalanches, the registration hunt for cows was discontinued and the drawing hunt (DC608) reduced from 75 (harvest limit of three caribou only one bull) to 25 permits with a one bull limit (McDonough 2007). From 2005-2013, an average of five bulls were harvested annually (Herreman 2015). The number of permits issued increased to 40 in



2014, 70 in 2015, and then decreased to 50 from 2016-2018. From 2014-2018, an average of 20 bull caribou were harvested annually (**Table 1**).

### Fox River Caribou Herd

A hunting season was established in 1995 and continued through 2003 and again from 2011- 2019 (DC618). Fifteen drawing permits were issued in 1995, 10 drawing permits annually from 1996-2003, the season was closed from 2004-2010, and ten drawing permits were issued annually from 2011-2014. An average of two caribou per year have been harvested from the FRCH since 1995 (**Table 1**) (Herreman 2015).

**Table 1.** State bull caribou harvest in Unit 15, 1995-2018. Drawing hunts from the Killey River/Twin Lakes area (DC608, DC610/612) in Unit 15B and the Fox River/Truuli Creek area (DC618) in Unit 15C (ADF&G et al. 2003, Herreman 2019, pers. comm.; USFWS 2019, WinfoNet 2019). NS=No Season.

Year	DC608/610/612 KRCH	DC618 FRCH	Total Harvest
1995	8	5	13
1996	12	2	14
1997	23	2	25
1998	26	4	30
1999	20	2	22
2000	16	3	19
2001	54	1	55
2002	46	1	47
2003	30	1	31
2004	11	NS	11
2005	3	NS	3
2006	6	NS	6
2007	4	NS	4
2008	3	NS	3
2009	6	NS	6
2010	5	NS	5
2011	6	1	7
2012	6	3	9
2013	6	1	7
2014	11	4	15
2015	29	4	33
2016	21	4	25
2017	20	3	23
2018	18	4	22
<b>Total</b>	390	45	435

**Table 2.** Number of permits issued and caribou harvested from the Killey River Caribou Herd on the Kenai Peninsula, Alaska, 2009-2018 (Unit 15, DC608) (ADF&G et al. 2003, Herreman 2015, USFWS 2019, WinfoNet 2019).

Regulatory Year	Permits Issued	Hunted	Harvest			% Success
			Males	Females	Total	
2009	25	12	6	0	6	50
2010	25	15	5	0	5	33
2011	25	12	6	0	6	50
2012	25	18	6	0	6	33
2013	25	9	6	0	6	66
<b>Total</b>	<b>125</b>	<b>66</b>	<b>29</b>	<b>0</b>	<b>29</b>	<b>Avg. (46%)</b>
2014	40	20	11	0	11	55
2015	70	44	25	4	29	66
2016	50	27	14	7	21	77
2017	50	37	17	3	20	54
2018	50	24	15	3	18	75
<b>Total</b>	<b>260</b>	<b>152</b>	<b>82</b>	<b>17</b>	<b>99</b>	<b>Avg. (65%)</b>

**Table 3.** Number of permits issued and caribou harvested from the Fox River Caribou Herd on the Kenai Peninsula, Alaska, 2009-2018 (Unit 15, DC618) (ADF&G et al. 2003, Herreman 2015, WinfoNet 2019). NS=No Season.

Regulatory Year	Permits Issued	Hunted	Harvest			% Success
			Males	Females	Total	
2009	NS					
2010	NS					
2011	10	2	1	0	1	50
2012	10	3	2	1	3	100
2013	10	2	1	0	1	50
<b>Total</b>	<b>30</b>	<b>7</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>Avg. (66%)</b>
2014	10	6	4	0	4	66
2015	10	5	3	1	4	80
2016	10	5	3	1	4	80
2017	10	6	1	2	3	50
2018	10	6	3	1	4	66
<b>Total</b>	<b>5</b>	<b>28</b>	<b>14</b>	<b>6</b>	<b>21</b>	<b>Avg. (68%)</b>

**Table 4.** Resident status of successful hunters that harvested caribou from the Killey River and the Fox River caribou herds Unit 15, 1995-2018 (ADF&G et al. 2003, Herreman 2015, WinfoNet 2019).

<b>Population</b>	<b>Rural Resident in Unit 15<sup>a</sup></b>	<b>Nonrural Resident in Unit 15</b>	<b>Alaska Resident not in Unit 15</b>	<b>Nonresident</b>
<b>Killey River</b>	8 (3% )	179 (59%)	83 (27%)	32 (11%)
<b>Fox River</b>	2 (4%)	27 (60%)	12 (27%)	4 (9%)
<b>Total</b>	10 (3%)	206 (59%)	95 (27%)	36 (10%)

<sup>a</sup> Hunters were classified as Federally qualified subsistence users by the reported residency in ADF&G's harvest database. As reported, residency may not reflect the location of one's permanent residence, these data should be considered estimates.

### **Effects of the Proposal**

Establishing a caribou season for the KRCH and FRCH herds in Unit 15 (15B, 15C) would provide additional opportunity for Federally qualified subsistence users to harvest caribou on Federal public lands. Since no caribou were observed during the 2018 survey of the FRCH, no hunt should occur for conservation concerns until the FRCH increases to 80 caribou.

Small caribou herds on the Kenai Peninsula are subject to overharvest if not managed carefully. ADF&G has been managing the caribou populations on the Kenai Peninsula through the use of registration and drawing permits based on the status and composition of the caribou populations. Because of the small and relatively unstable or fluctuating herd sizes, variable permit numbers, and the risk of overharvest, any Federal permits issued should still fall within the same general framework established by the State for those hunts.

Non-rural residents of Units 15 have been the primary harvesters of caribou since 1995. Almost all the hunting of caribou in Unit 15 occurs on Federal public lands. The Kenai National Wildlife Refuge Manager, through delegated authority, would be able to close the caribou season on Federal public lands when harvest quotas have been met. Appropriate allocation coordination must occur to determine how many State and Federal permits are issued to limit the potential for overharvest.

### **OSM CONCLUSION**

**Support** Proposal WP20-22b **with modification** to establish a Federal drawing permit hunt for caribou in Unit 15, with a season of Aug. 10 – Sep. 20, establish three new hunt areas and delegate authority to the Kenai National Wildlife Refuge Manager to close the season, set the harvest quota, and set any needed permit conditions via delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

**Unit 15—Caribou**

<i>Unit 15B, within the Kenai National Wildlife Refuge Wilderness Area</i>	<i>1 caribou by Federal drawing permit.</i>	<i>Aug. 10 – Sep. 20</i>
<i>Unit 15C, north of the Fox River and east of Windy Lake</i>	<i>1 caribou by Federal drawing permit.</i>	<i>Aug. 10 - Sep. 20</i>
<i>Unit 15, remainder</i>		<i>No Federal open season</i>

**Justification**

Establishing a Federal subsistence caribou season in Unit 15 would provide additional opportunity for Federally qualified subsistence users. Currently, there is no Federal season for caribou in Unit 15 and Federally qualified subsistence users have to rely on the limited number of State drawing permits in order to harvest caribou in the unit. Providing this opportunity for subsistence harvest of caribou is consistent with Section 804 of the Alaska National Interest Lands Conservation Act (ANILCA), which calls for priority consumptive use of fish and wildlife populations by rural Alaska residents. The demand for caribou in Unit 15 from all eligible hunters under State and Federal regulations is greater than the harvestable surplus as shown by the harvest history, and population data. Due to the small size of the caribou populations, habitat limitations, predation, and susceptibility to over hunting, these populations are highly regulated by the State.

Only the KRCH in Unit 15 is currently large enough to sustain a hunt. For conservation concerns, the FRCH should be allowed to increase to 80 animals, the minimal management threshold established by the State, before hunting is allowed. The proposed hunt areas in Units 15B and 15C encompass the Killey River and Fox River caribou herds, respectively.

Since the demand for caribou is greater than the harvestable surplus a drawing permit is recommended, so that harvest is limited by restricting the number of permits issued thus minimizing the threat of overharvest. Establishing a Federal drawing permit hunt would allow for better harvest monitoring, while delegating authority to the Kenai National Wildlife Refuge Manager will allow for hunt management flexibility through in-season adjustments, and a more timely response to changes in population status, hunting conditions, or hunter access while maximizing harvest opportunities for Federally qualified subsistence users. Setting permit conditions, such as reporting requirements, will assist the Kenai National Wildlife Refuge Manager in closing the season early if needed. The Federal manager will need to work closely with the State to monitor harvest under both State and Federal hunts if this proposal is adopted by the Board.

The proposed season dates were shortened from Aug. 10-Oct. 10 to Aug. 10-Sep. 20 because most of the harvest previously occurred before Sep. 20 and to reduce the stress to bulls from hunting activity during the rut which begins in mid-September.

**LITERATURE CITED**

- Alaska Department of Fish and Game (ADF&G), U.S. Forest Service, and U.S. Fish and Wildlife Service. 2003. Kenai Peninsula Caribou Management Plan. 2003. 35 pp.
- Allen, J.A. 1901. Description of new caribou from Kenai Peninsula, Alaska. Pages 143-148 *in* Bulletin of the American Museum of Natural History. Volume 14, Article 10. <http://hdl.handle.net/2246/732>
- Davis, J. L. and A.W. Franzmann. 1979. Fire-moose-caribou-interrelationships: a review and assessment. Proceedings of the North American Moose Conference and Workshop. 15:80-118
- FSB 1993. Transcripts of Federal Subsistence Board proceedings. April 6, 1993. Office of Subsistence Management, USFWS, Anchorage, AK.
- Herreman, J. K. 2015. Units 7 and 15 caribou. Chapter 1, Pages 1-1 through 1-14 *in* P. Harper and L.A. McCarthy, editors. Caribou management report of survey and inventory activities 1 July 201-30 June 2014. ADF&G, Species Management Report ADF&G/DWC/SMR-2015-4, Juneau, AK.
- Herreman, J. 2018. Wildlife Biologist. Personal communication: email. ADF&G. Homer, AK.
- Herreman, J. 2019. Wildlife Biologist. Personal communication: email. ADF&G. Homer, AK.
- Leopold, A.S. and F.F. Darling. 1953. Effects of land use on moose and caribou in Alaska. Transactions of North American Wildlife Conference. 553-562.
- McDonough, T. 2007. Units 7 and 15 caribou. Pages 1-13 *in* P. Harper, editor. Caribou management report of survey activities 1 July 2004-30 June 2006. ADF&G, Juneau, AK.
- McDonough, T. 2011. Units 7 and 15 caribou management report. Pages 1-10 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008-30 June 2010. ADF&G, Juneau, AK.
- OSM. 1993. Staff analysis P96-037. Pages 299-308 *in* Federal Subsistence Board Meeting Materials April 5–8, 1993. Office of Subsistence Management, FWS. Anchorage, AK. 622 pp.
- Palmer, L.J. 1938. Management of moose herd on the Kenai Peninsula. Research project Report March, April and May 1938. Unpublished manuscript. Kenai National Wildlife Refuge file, Soldotna, AK 40 pp.
- Paul, Thomas W. 2009. Game transplants in Alaska. Technical Bulletin No. 4, second edition. ADF&G, Juneau, AK. 250 pp.
- Selinger, J. 2005. Units 7 and 15 caribou. Pages 1-19 *in* Brown editor. Caribou management report of survey and inventory activities 1 July 2002-30 June 2004. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 3.0, Juneau, AK.
- Selinger, J. 2013. Units 7 and 15 caribou. Pages 1-12 *in* P. Harper, editor. Caribou management report of survey activities 1 July 2010-30 June 2012. ADF&G, Species Management Report ADF&G/DWC/SMR-2013-3, Juneau, AK.

Sherwood, M. 1974. The Cook Inlet collection: Two hundred years of selected Alaskan history. Alaska Northwest Publishing Co., Anchorage, AK.

Spencer, D.L. and J.B. Hakala. 1964. Moose and fire on the Kenai. Proceedings of Tall Timbers Fire Ecology Conference. 3:11-33.

USFWS. 2019. Harvest database. Office of Subsistence Management, USFWS, Anchorage, AK.

WinfoNet. 2019. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION

### Southcentral Alaska Regional Advisory Council

**Support** WP20-22b. The Council stated that there needs to be opportunity for harvest by Federally qualified subsistence users and to date, the majority of harvest has been by non-Federally qualified users. The Council noted that caribou populations move around and that they didn't want restrictions as to where Federally qualified subsistence users could hunt. In addition, the Council noted that evidence supporting the recommendation would be beneficial to subsistence users without necessarily placing restricting other users.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee (ISC) agrees that creating this Federal hunt will provide a new meaningful preference for Federally Qualified Users by ensuring an allocation of caribou permits to qualified rural users. The ISC agrees with OSM's modification for WP20-22b. The three primary Kenai caribou herds in Unit 15 are small, vulnerable to overharvest, and slow growing. Consequentially, they require conservative and careful management. The modification by OSM to align Federal season dates and hunt management boundaries with the State framework is appropriate to reduce regulatory confusion and ensure successful administration of a hunt with limited permits that will be co-administered by Federal and State offices. To avoid overharvest, proactive, frequent and timely coordination between Federal and State agencies will be crucial, along with timely harvest reporting from permitted hunters. To increase the season length beyond September 20, as requested by the Southcentral Subsistence Regional Advisory Council, could further stress these small populations by disturbing bulls during the critical rut period, which initiates in mid-September. Creation of Federal hunt areas that align with State boundaries is imperative to reduce regulatory confusion and to ensure that caribou are harvested from only those populations that have a harvestable surplus. The ISC concurs with OSM that only the Killey River herd has a population that can currently sustain harvest. Harvest from the Kenai Lowlands and Fox River herds should remain closed until minimum population objectives are met.

The Federal Manager will have authority to modify seasons, quotas, etc., via special action if necessary to improve hunting opportunities or restrict harvest when quotas are met. The recent Kenai fires may have caused negative impacts to caribou habitat and create yet another factor that managers need to consider in setting future harvest quotas.

If proposals WP20-23b and WP 20-24b are passed by the Board, there will be three new federal hunts established that will all require significant time and coordination commitments by the Kenai NWR staff to administer. Reducing regulatory complexity between Federal and State Hunts, to ensure successful implementation, may be important to consider when evaluating this proposal.

## ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-22a\_b:** This proposal, submitted by the Niniilchik Traditional Council (NTC), would establish a federal caribou season in Units 15B and 15C with season dates of August 10 – October 10.

**Introduction:** Caribou were absent from the Kenai Peninsula between the early 1900s until their reintroduction in 1965-66 and 1985-86. All reintroduced caribou originated from the Nelchina Caribou Herd. Currently, three separate caribou herds utilize portions of Units 15B and 15C. A portion of the Kenai Lowlands Herd (KLH) spend time in the western lowlands of 15B, the Killey River Herd (KRH) spends most of their time in the alpine or mountainous portions of western 15B and the Fox River Herd (FRH) occupies a small area in the northeastern portion of Unit 15C. There are no hunting opportunities for the KLH and there are limited drawing permits available for both the KRH and FRH. The author of the proposal mentions the significant decline in subsistence opportunity that is demonstrated in terms of use and identifies a decline in the percentage of residents who use caribou from 1994 to more recent times. The decline mentioned is most likely due to changes in opportunity to harvest caribou in areas outside of Units 7 and 15 since caribou harvest in these Units (7 and 15) have been relatively low and restricted to limited drawing permit hunts since 1994.

This proposal also asks for season dates of August 10 – October 10. The current state season dates are August 10 – September 20. The reason the state season ends September 20 is because after that time bull caribou begin to enter the “rut” and during that time period bull caribou are often considered unpalatable by some hunters.

**Impact on Subsistence Users:** If passed, this proposal would provide additional opportunities for federally qualified users.

**Impact on Other Users:** If passed this proposal would likely result in substantially fewer opportunities to harvest caribou under state regulations.

### **Opportunity Provided by State:**

**State customary and traditional use findings:** The three Kenai Peninsula caribou herds are in the state nonsubsistence area; therefore, the Alaska Board of Game can make no customary and traditional use findings for caribou in Unit 15. There are no caribou available outside the state nonsubsistence area (which is that portion of Unit 15C near Seldovia, Port Graham, and Nanwalek, and Kalgin Island in Unit 15B).

### **Amounts Reasonably Necessary for Subsistence (ANS):**

Because there cannot be customary and traditional use findings inside a state nonsubsistence area, there is no ANS for caribou in Unit 15. The season and bag limit for Unit 15 is:



<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
15B within the Kenai National Wildlife Refuge Wilderness Area	One caribou	August 10 – September 20 (Drawing Permit)	August 10 – September 20 (Drawing Permit)
15C north of the Fox River and east of Windy Lake	One caribou	August 10 – September 20 (Drawing Permit)	August 10 – September 20 (Drawing Permit)

<sup>a</sup> General hunts only.

Special instructions: *None.*

**Conservation Issues:** There is no conservation concern. While these caribou populations are small, there are harvest opportunities available. The use of drawing permits does not imply a conservation concern. The use of drawing permits provides opportunity consistent with the population size.

**Enforcement Issues:** If the season dates align with the current state season dates: none. Otherwise, different regulations will create confusion.

**Recommendation:** While the ADF&G is **NEUTRAL** on eligibility requirements for the federal subsistence program, the department is **OPPOSED** to adding a federal subsistence hunt for caribou in Units 15B and 15C.

ADF&G recommends that the USFWS Office of Subsistence Management analysis of customary and traditional uses be revised so it systematically examines each of the 8 criteria used to determine a C&T finding. Furthermore, on page 9 of the C&T analysis, a decline in caribou use by Tribal members and other Native residents of Ninilchik is cited; however the data from the cited studies (1994, 1999 and 2014) cannot be compared due to the variation in research methods and sample selection between studies.

If a federal season is adopted, ADF&G recommends the modifications that the hunt should be limited to the boundaries of the Killey River and Fox River herds since these are the only animals available for harvest under state regulations and the season dates should align with the current state season dates of August 10 – September 20.

Appendix 1



FISH and WILDLIFE SERVICE  
BUREAU of LAND MANAGEMENT  
NATIONAL PARK SERVICE  
BUREAU of INDIAN AFFAIRS

## Federal Subsistence Board

1011 East Tudor Road, MS121  
Anchorage, Alaska 99503



FOREST SERVICE

FWS/OSM XXXX.XX

Refuge Manager  
Kenai National Wildlife Refuge  
P.O. Box 2139  
Soldotna, Alaska 99669-2139

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the Kenai National Wildlife Refuge Manager to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of the population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within the Kenai National Wildlife Refuge for the management of caribou on these lands.

It is the intent of the Board that actions related to management of caribou by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council

Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

## **DELEGATION OF AUTHORITY**

**1. Delegation:** The manager of the Kenai National Wildlife Refuge is hereby delegated authority to issue emergency or temporary special actions affecting caribou on Federal lands as outlined under the **Scope of Delegation** below. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

To close the season, set harvest quotas, and set any needed permit conditions for caribou.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve caribou populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the population. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within the Kenai National Wildlife Refuge.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine: (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provide a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council representatives. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal Managers, and the local Council representatives at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Subsistence Regional Advisory Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair, Federal Subsistence Board

cc: Federal Subsistence Board  
Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management  
Wildlife Division Supervisor, Office of Subsistence Management  
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Southcentral Alaska Subsistence Regional Advisory Council

Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record

<b>WP20–23b Executive Summary</b>	
<b>General Description</b>	<p>Proposal WP20-23b requests that a Aug. 10 – Nov. 14 goat season be established in Unit 15, with a harvest limit of one goat by Federal registration permit. The proponent also requests that the Kenai National Wildlife Refuge Manager be given authority to open and close the season in consultation with the Alaska Department of Fish and Game (ADF&amp;G) and the Chair of the Southcentral Alaska Subsistence Regional Advisory Council (Council). <i>Submitted by: Ninilchik Traditional Council.</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 15 – Goat</b></p> <p><i>1 goat by Federal registration permit.      <del>No Federal open-season</del></i>  <i>The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&amp;G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.      Aug. 10 – Nov. 14</i></p>
<b>OSM Conclusion</b>	<p><b>Support</b> Proposal WP20-23b <b>with modification</b> to establish a Federal drawing permit for goat in Unit 15 and delegate authority to the Kenai National Wildlife Manager to close the season, set the harvest quota, set any needed sex restrictions, and set any needed permit conditions via delegation of authority letter only.</p> <p>The modified regulation should read:</p> <p><b>Unit 15—Goat</b></p> <p><i>1 goat by Federal drawing permit.      <del>No Federal open-season</del></i>  <i>Aug. 10 – Nov. 14</i></p>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<p><b>Support</b> WP20-23b <b>with modification</b> to prohibit the take of nannies with kids and the take of kids, and to make a hunter ineligible to get a permit for 3 years if a billy is harvested and for 5 years if a nanny is harvested and have this restriction in regulation.</p> <p>The modified regulation should read:</p>

WP20–23b Executive Summary	
	<p><b>Unit 15—Goat</b></p> <p><i>1 goat by Federal registration permit. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&amp;G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.</i></p> <p><i>Kids and Nannies accompanied by kids may not be taken. If a billy is taken, the hunter will be eligible for a permit again in 3 years. If a nanny is taken, the hunter will be eligible for permit again in 5 years.</i></p> <p style="text-align: right;"><del>No Federal open season</del> <b>Aug. 10 – Nov. 14</b></p>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee (ISC) supports establishing a Federal goat season in Unit 15 to provide a new priority opportunity for Federally qualified subsistence users to harvest goats on Federal public lands.</p> <p>Goat populations in Unit 15 are small, unstable, and vulnerable, and even at optimal population levels, the harvest of even a few extra goats could result in a conservation concern. The State harvest framework and permit regulations are subsequently complex and conservative to ensure the risk of over harvest is minimized. Only a few animals may be harvested from each subpopulation without causing a decline. The number of permits allocated per hunt, and the harvest quotas for each unit, are dynamic and based on the survey counts and the previous year’s harvest.</p> <p>Providing a delegation of authority letter to the Kenai National Wildlife manager to set the season, harvest quota, sex restrictions and any needed permit conditions is appropriate, given the need for close coordination with the State to ensure goat populations in various hunt sub-units are not over harvested.</p> <p>Successful implementation of the Federal hunt will require the in season manager to follow the same hunt framework established by the State. As stressed in the OSM analysis, and by the Southcentral Subsistence Regional Advisory Council, the Federal drawing hunts should not be issued for any goat in the population, but be specific to</p>



**WP20–23b Executive Summary**

local populations, as is done by the State. The Board may consider adding this adherence to the State hunt framework to the Federal regulation or delegation of authority letter to ensure this important characteristic of the hunt is followed.

The State currently has two potential harvest seasons, Aug. 10 – Oct. 15 and Nov. 1 – 14. The gap between seasons allows the State to determine if the harvest quotas have been met or if additional opportunity may be afforded to certain hunt units via registration hunts. Adding this requirement to Federal regulation or the delegation of authority letter, to align with State season dates, may be appropriate to reduce regulatory confusion and ensure this critical coordination aspect is not overlooked.

The ISC asked for legal counsel clarification related to the Southcentral Council’s request to limit eligibility following a successful hunt. The Southcentral Council’s recommendation specifies that a hunter be ineligible for a permit until three years after harvesting a billy goat, and five years after harvesting a nanny. Legal counsel responded as follows:

Per ANILCA Section 804, subsistence uses can be restricted only when “it is *necessary* to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses.” [Emphasis added.] Even where this threshold is met, any restrictions on subsistence uses must apply the following priority criteria:

customary and direct dependence upon the population as the mainstay of livelihood; local residency; and the availability of alternative resources.

Since past permit drawing and/or hunting success is not a relevant criteria for implementing a priority, a rule that attempted to restrict subsistence uses on that basis would violate Section 804.

The ISC concluded that this component of the proposal that restricts subsistence use is not permitted under ANILCA Section 804.

<b>WP20–23b Executive Summary</b>	
	<p>If this proposal, and proposals WP20-22b and WP 20-24b are passed by the Board, there will be three new federal hunts established in Unit 15. Each hunt will require significant time and coordination commitments by the Kenai NWR staff to administer. Reducing regulatory complexity between Federal and State hunts, to ensure successful implementation, may be important to consider when evaluating this proposal.</p>
<b>ADF&amp;G Comments</b>	<b>Oppose</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS  
WP20-23b**

**ISSUES**

Wildlife Proposal WP20-23b, submitted by the Ninilchik Traditional Council (NTC), requests that a Aug. 10 – Nov. 14 goat season be established in Unit 15, with a harvest limit of one goat by Federal registration permit. The proponent also requests that the Kenai National Wildlife Refuge Manager be given authority to open and close the season in consultation with the Alaska Department of Fish and Game (ADF&G) and the Chair of the Southcentral Alaska Subsistence Regional Advisory Council (Council).

**DISCUSSION**

The proponent states that these changes are needed to provide for subsistence opportunity and a meaningful preference for rural residents to harvest goats in Unit 15, referencing a significant decline by Ninilchik residents between 1994 and the present. The proponent further states that the requested changes would provide opportunity for rural residents of Unit 15 to engage in subsistence goat hunting and provide for a meaningful subsistence preference.

Note: Proposal WP20-23a requests that the customary and traditional use determination (C&T) for goats in Unit 15. Upon clarification with the proponent, this request was not intended to exclude other rural residents of Unit 15; however, Ninilchik Traditional Council’s request is specific to Ninilchik.

**Existing Federal Regulations**

**Unit 15 – Goat**

*No Federal open season*

**Proposed Federal Regulations**

**Unit 15 – Goat**

*1 goat by Federal registration permit. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.*

~~*No Federal open season*~~  
*Aug. 10 – Nov. 14*

## Existing State Regulations

### Unit 15 – Goat

<i>15C, south of the divide from Jakolof Bay to Rocky Bay and north of the divide from Port Graham Bay to Windy Bay</i>	<i>Residents: One goat by permit available in Seldovia beginning July 1. Limited number of permits available.</i>	<i>RG364</i>	<i>Aug. 10–Oct. 15</i>
<i>15C, south of the divide from Port Graham Bay to Windy Bay</i>	<i>Residents: One goat by permit available in Anchorage, Palmer, Homer, and Soldotna or online at <a href="http://hunt.alaska.gov">http://hunt.alaska.gov</a> beginning Oct. 23 (hunt may not be held)</i>	<i>RG364</i>	<i>Nov. 1–Nov. 14</i>
<i>15C, south of the divide from Port Graham Bay to Windy Bay</i>	<i>Residents and Nonresidents: One goat by permit available in Nanwalek and Port Graham beginning July 11. Limited number of permits available.</i>	<i>RG365</i>	<i>Aug. 10–Oct. 15</i>
	<i>Residents: One goat by permit available in Anchorage, palmer, Homer, and Soldotna or online at <a href="http://hunt.alaska.gov">http://hunt.alaska.gov</a> beginning Oct. 23 (hunt may not be held)</i>	<i>RG365</i>	<i>Nov. 1–Nov. 14</i>
<i>15 remainder</i>	<i>Residents and Nonresidents: One goat by permit</i>	<i>DG352-DG363</i>	<i>Aug. 10–Oct. 15</i>
	<i>Or</i>		
	<i>One goat by permit available in Anchorage, Palmer, Homer, and Soldotna or online at <a href="http://hunt.alaska.gov">http://hunt.alaska.gov</a> beginning Oct. 23 (only select areas open)</i>	<i>RG352-RG353</i>	<i>Nov. 1–Nov. 14</i>

## Extent of Federal Public Lands

Unit 15 is comprised of approximately 47% Federal public lands and consist of 46% U.S. Fish and Wildlife Service (USFWS) managed lands, 1.1% Bureau of Land Management (BLM) managed lands, 0.4% USDA Forest Service (USFS) managed lands, and 0.1% National Park Service (NPS) managed

lands. Unit 15A is comprised of approximately 58% Federal public lands and consist of 57% USFWS managed lands and 1% USFS managed lands. Unit 15B is comprised of approximately 77% Federal public lands and consist of 71% USFWS managed lands, 4.7% BLM managed lands, and 0.6% USFS managed lands. Unit 15C is comprised of approximately 28% Federal public lands and consist of 28% USFWS managed lands and 0.3% NPS managed lands. NPS managed lands in Unit 15 are within Kenai Fjords National Park and are closed to subsistence.

### **Customary and Traditional Use Determinations**

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for goat in Unit 15. Therefore, all Federally qualified subsistence users are eligible to harvest this species in this unit.

### **Regulatory History**

ADF&G has managed the hunt for goats in Unit 15 since the 1990s through a combination of drawing and registrations hunts. The harvest limit has been for one goat per season since 1974. Since 2001 the drawing permit season has been Aug. 10 - Oct. 15. Since 2001 the length of the registration hunt has varied. The registration hunt season period set in regulation is Nov. 1-Nov. 30, but the season length has been managed by emergency closure or permit conditions. In 2016/17 the registration hunt season was shortened to Nov. 1-Nov. 7. Since 2017/18 the registration hunt season has been Nov. 1-Nov. 14 and is not currently managed by emergency closure.

In 1996, Wildlife Proposal P96-22, submitted by the Kenai Peninsula Outdoor Coalition, requested that the C&T for goat in Unit 15C be revised to include only residents of Port Graham and English Bay, and exclude residents of Seldovia. The Board rejected Proposal P96-22 because of the demonstrated long-term pattern of use of goats by residents from Seldovia (OSM 1996).

To encourage the take of males in the mid-1990s, ADF&G managers on the Kenai recorded each nannie as two “goat units” so a quota of 4 males would be equal to two females on the Kenai. Thus the effective quota for each hunt area was reduced if a nanny was taken (McDonough and Selinger 2008).

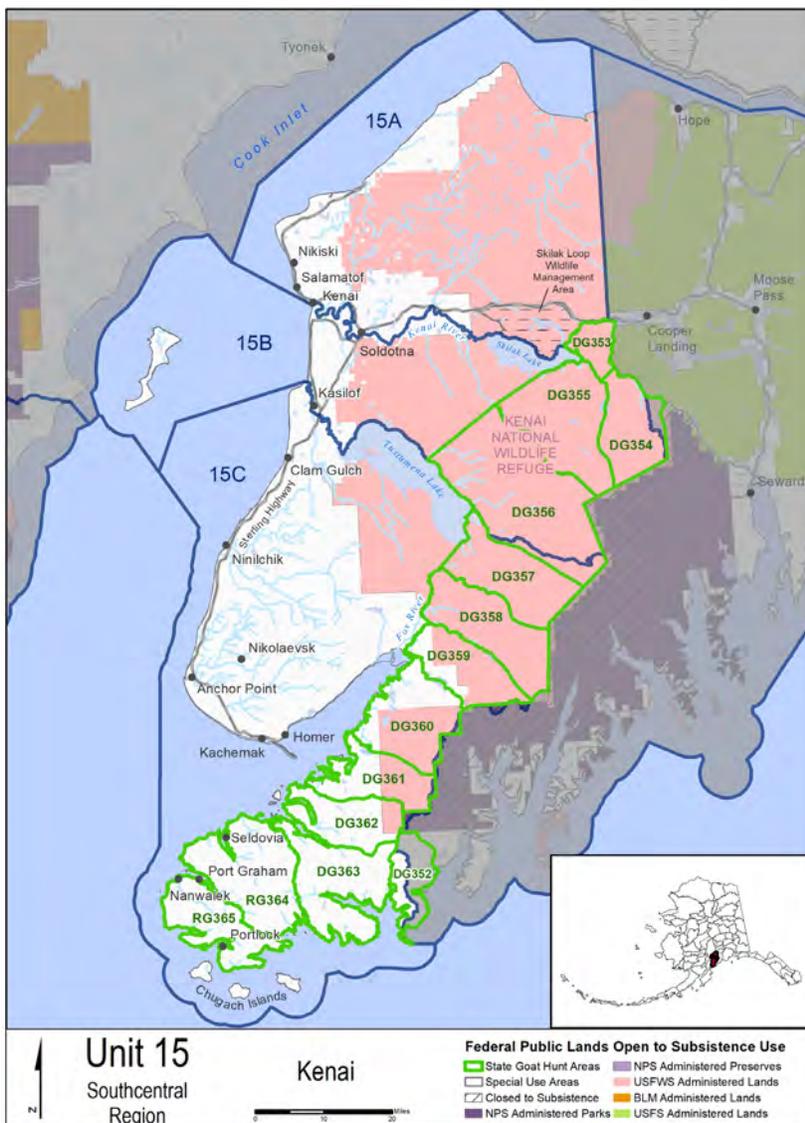
Nannies with kids were not protected until 2001. In 2009, the Alaska Board of Game changed restrictions on the goat hunt in Units 7 and 15 to reduce the negative impact of nanny harvests. These restrictions prohibited any hunter who harvested a nanny in Units 7 and 15 from hunting any goats in those units for five regulatory years.

### **Biological Background**

Goats occur naturally throughout the eastern Kenai Mountains (Sherwood 1974), which extend the length of the eastern Kenai Peninsula. They can be found from sea level to 6,000 feet, and are most abundant in the coastal mountains and least abundant in the drier interior portions, where they coexist with Dall sheep and caribou. Over 90% of goat habitat on the Kenai Peninsula (4,633 mi<sup>2</sup>) occurs

within the high mountain areas of Kenai Fjords National Park (KFNP), Kenai National Wildlife Refuge, Chugach National Forest, and Kachemak Bay State Park (**Map 1**) (McDonough and Selinger 2008).

Goats in Alaska inhabit alpine areas adjacent to steep cliffs or rocky terrain that provide escape from predators. During the summer they usually graze on grasses, herbs, and low-growing shrubs in high alpine meadows. As winter approaches, most goats migrate downhill and spend the winter months below tree line or on south-facing cliffs, where they feed on hemlock, grasses, and shrubs. Others may remain on the wind swept ridges feeding on mosses and lichens. Forested habitat near alpine ridges may provide critical winter range especially during periods of heavy snow accumulation (Shafer et al. 2012).



**Map 1.** Dall sheep and goat survey units for the Kenai Peninsula, Units 7 and 15, Southcentral Alaska.

Goats typically occur in small isolated populations and have little interchange with other populations. Genetics has shown that goats maintain a strong fidelity to discrete ridge systems, indicating very little movement across high elevation habitats (Shafer et al. 2012). Goats breed in November and December and except during the rut, adult males remain segregated from the females and young animals. The age of first reproduction of goats is more comparable to brown bears than other northern ungulates (Cote et al. 2001). Although there is regional variation, the age of first reproduction for goats is 4.6 years (Cote et al. 2001) compared to 4-5 years in brown bears (Schwartz et al. 2003), 3.0 years in caribou (Adams and Dale 1998), and 2-3 years in moose (Boertje et al. 2007). Females with kids are generally found in small groups, although larger nursery bands may form during early and mid-summer. Due to extreme climatic conditions (total snowfall) often encountered in the high alpine habitat close to cliffs, goat populations often suffer high mortality during severe winters (Hjeljord 1973, Cote and Festa-Bianchet 2003). Males have lower survival than females, and older animals have lower survival than young prime-aged goats. During winter, goats are in a negative energy balance and must rely on fat and protein reserves built up during the summer. In addition, summer range conditions may affect goat survival because they are subject to heat stress and may shift to sub-optimal foraging habitats on warm summer days. Previous studies have also shown that high alpine plants are less nutritious when growing in warmer temperatures (White et al. 2011a).

Predation by wolves can have a significant impact on goats especially when they are forced into smaller winter ranges due to logging or development. The harvest of even a few females can be unsustainable (Hamel et al. 2006) and hunting mortality can depress populations for a number of years. In addition, they are susceptible to overharvest in local areas because groups do not move much, because of their low reproductive rate, and because of the difficulty of hunters in distinguishing between males and females.

Goats are also particularly susceptible to disturbance by helicopter overflights that occur during industrial and recreational activities during the summer and winter (Goldstein et al 2005, Cote et al. 2013). Increased recreational activities (helicopter skiing, snowmobiling) (Cote et al. 2013) have been shown to increase stress in the winter, which is already the most difficult period for goats (White et al. 2011b). Limiting disturbance during winter, and maintaining a 2,000 m buffer between goats and helicopter activities was recommended by Cote (2013) to minimize adverse impacts. Helicopter overflights during summer (e.g. ecotourism, transportation flights, biological surveys, development activities), all-terrain vehicles, road construction and blasting associated with industrial activities, may also be a contributing factor to population declines in some goat populations (White et al. 2011b, Cote et al. 2013, St-Louis et al. 2013). More accurate seasonal movement data could be used to help minimize disturbance in critical winter and summer habitats (White et al. 2011b, Herreman 2014).

ADF&G has monitored goat populations through aerial surveys since the 1970s. The Kenai Peninsula goat range, excluding the KFNP, which was closed to goat hunting when the park was established in 1980, is divided up into 15 active count/hunt areas in Unit 15. Three areas are closed and one area, 352, is divided between Units 15 and 7 (**Map 1, Table 1**).

**Table 1.** Goat population trends and harvest from 2009-2013 and 2014-2018 by hunt areas in Unit 15 (Herreman 2019, pers. comm.; ADF&G 2019).

Count Area	Unit	Area Description	Population Trend	Most Recent Count			Harvest 2009-2013	Harvest 2014-2018
				Total	Percent Kids	Survey Year		
348	15C	Aialik Peninsula	Unknown closed	-	-		-	-
349	15C	Holgate Glacier	Unknown Closed	-	-		-	-
350	15C	Harris Bay	Unknown closed	-	-		-	-
351	15C	Petrof Lake	increasing	75	24	2017	0	1
352	7,15C	Brown Mtn.	increasing	174	18	2017	17	19
353	15B	Surprise Creek	stable	2	0	2016	0	0
354	15B	Skilak Lake	stable	69	13	2018	0	0
355	15B	Twin Lakes	stable	24	13	2018	0	0
356	15B	Indian Creek	stable	99	20	2018	0	15
357	15C	Tustumena Glacier	stable	62	11	2018	1	5
358	15C	Fox River	stable	78	19	2018	2	10
359	15C	Bradley Lake	stable	88	25	2018	4	9
360	15C	Dixon Glacier	stable	252	17	2018	33	42
361	15C	Halibut Cove	stable	127	23	2016	15	16
362	15C	Sadie Cove	increasing	185	14	2016	22	33
363	15C	Port Dick	decreasing	189	16	2018	20	32
364	15C	Seldovia	increasing	151	21	2016	13	15
365	15C	Nanwalek (English Bay)	decreasing	256	21	2016	47	59
<b>Total</b>							174	256

Surveys are conducted when weather conditions allow; meaning the flight and visibility ceiling are high enough to survey the entire area and turbulence and temperatures are low. All these variable are figured into the “count conditions” which are rated by the observer on a scale of 1-3, where 1 = excellent (goats up high, light is great, and temperature and turbulence is low), 2 = good to fair conditions, and 3 = poor (results are likely to be significantly biased by the conditions).

Surveys are flown following the topography of the landscape. Transects are flown parallel to the mountain starting at the tree/shrub line and working up the mountain. Each face receives 2-3 passes



depending on mountain height and visibility. When goats are observed, pilots circle the location so that the observer can note the number and classifications of the animals in each group, as well as habitat conditions and relative GPS (Global Positioning System) location. Animals are classified as adults (subadults and adults) and kids. Often, additional goats are encountered while circling, which are noted so that they are not recounted on consecutive passes. By starting transects at lower elevations, animals higher on the ridge are less likely to move down below the tree/alder line where they can disappear. Survey length depends on count conditions, area covered, and number of animals seen. The aerial surveys within the sampling units are conducted following the contours of the mountains during the early morning (within three hours of sunrise) or in the evening (within three hours of sunset) when there is the greatest goat activity and the best visibility. ADF&G attempts to survey each sampling area every three years.

State management objectives for goats in Units 7 and 15 are to monitor population trends, minimize the take of nannies in the harvest, and issue hunting permits based on conservative population estimates and trends (Herreman 2014). Overall, goat populations decreased by 30-50% from the 1990s to 2006 based on fall trend counts (McDonough and Selinger 2008). Since 2006, the overall goat population has increased to numbers not seen since the 1990s. However, some populations have stabilized at low numbers and a few populations continue to decline (**Table 1**) (Herreman 2014). Three hunt areas, 348, 349, and 350 have been closed since their establishment due to access issues (Herreman 2014). Area 351 recently opened back up (Herreman 2019, pers. comm.). Three other hunt areas, 353-355, decreased to levels that resulted in closure or a reduction in the number of permits issued. Hunting has resumed in Unit 15B in hunt area 356 due to an increase goats since 2014

### **Harvest History**

During the 1920s and 1930s, some small populations of goats went extirpated because of the combination of long seasons, typically from August through December, no restrictions on hunter distribution, and the lack of a permit requirement (Klein 1953). During this time, less than 100 goats were reported harvested annually, although reporting was likely low (Klein 1953). The harvest limit for goats on the Kenai Peninsula decreased from three in the 1920s to two from the 1930s through the 1960s, and then one for a portion of Unit 7 in 1971. During the unregulated period in the 1960s, the local goat population on Cecil Rhode Mountain near Cooper Landing was nearly extirpated due to over hunting (Smith and Nichols 1984). The reduction in the harvest limit in 1971 was due in part to the lack of harvest permits to keep track of the harvest, unrestricted hunting and unsustainable harvest rates.

During the 1970s, hunting demand was high, with over 1000 registration permits being issued one year for a Kenai goat population of less than 2000 (McDonough and Selinger 2008). The harvest of nannies peaked between 1972 and 1975 when the average annual harvest was 166-203 with an overall average of 200 (Herreman 2019, pers. comm.; Winfonet 2019).

Prior to 1976, no permit was required to hunt goats on the Kenai, and Alaskans could hunt nearly everywhere (McDonough and Selinger 2008). Unlimited registration permits were issued from 1976

until 1980 when draw permits were first established. Even after the establishment of the draw season, liberal late season registration hunts were opened in 1982. In 1985, 20 areas were switched to a liberal registration hunt only. The current State harvest strategy was not implemented until 2008 (Herreman 2019).

Harvest rates in the early 1970s were well over 10% and in some areas 15-40% (McDonough and Selinger 2008). Small populations may only be able to sustain harvest rates of  $\leq 2\%$  assuming that only males are harvested (Hamel et al. 2006). Since 1974, the harvest limit has been one goat per season and hunters are encouraged to harvest only males. Starting in 1976, successful hunters have been required to bring in the horns for sex determination, aging, and measurements (McDonough et al. 2006). Despite encouragement to hunt only billies, nannies were still being harvested. To limit the decline of goat populations and to maintain sustainable harvest levels, ADF&G implemented a restriction in 2009, prohibiting a hunter from hunting any goats in Units 7 and 15 for five years if a nanny was taken. A conservative maximum allowable harvest for each year is established for each hunt area, based on the number of goats seen during the last survey. This has ranged between 2%-7%, based upon the population trend, estimated mortality, and timing of the last survey for each individual hunt area. The maximum allowable harvest for easily accessible areas is 4% and 5% for areas with more limited access. The number of drawing permits issued each year is determined using a formula that takes into account the most recent minimum count, the age of the survey data, area access, recent harvest levels, and the population trend (McDonough and Selinger 2008, Burch 2019, pers. comm.).

There has never been a Federal subsistence season for goat in Unit 15. Federally qualified subsistence users have hunted under State regulations since Statehood in 1959. Federally qualified subsistence users could only hunt for goats in Unit 15 if they were successful in obtaining one of a limited number of State drawing or registration permits. Since 2001, ADF&G has managed goat hunting on the Kenai Peninsula through a combination of drawing and registration hunts, which are generally limited to a specific population. This allows control of each subpopulation within an area. Only a few animals may be harvested from each subpopulation without causing a decline. The number of permits allocated per hunt and harvest quotas for each unit are dynamic and based on the survey counts and the previous year's harvest. After the drawing hunt ends and is reported to the State, hunt areas which have unharvested animals are open for registration hunts until the harvest quota is met. The registration hunt is open to all hunters, including rurally designated hunters, at a time when goats are often at lower elevations on the mountain.

Since 2001, the State drawing hunt (Aug. 10 - Oct. 15) has been followed by a registration hunt (Nov. 1 – Nov. 14), if the area can sustain additional harvest. The timing of the late registration hunt varies between Nov. 1 and Nov. 14. The number of goats that can be taken during the late season registration hunt can be limited, depending on hunter success during the earlier drawing permit season. Registration permits are limited to a few specific areas and not available every year. In addition the harvest of females during the drawing season can prevent ADF&G from being able to provide for a registration season. Goat populations must have a population of at least a 100 to be opened to a registration hunt (Herreman 2019, pers. comm.). In most years, registration permits are still available in at least one of the hunt areas at the close of the season (Burch 2019, pers. comm.). Past harvest

rates, sex and age structure of the harvest, population size and trends, age of the survey data, ease of access, ecotype, weather severity are some of the factors used to determine the number of annual permits issued each year (McDonough and Selinger 2008, Herreman 2014). The number of goats harvested was greatest in eight hunt areas, 352, 356 and 360-365 (**Table 1**). From 2009-2018, approximately 62% of the goats were taken during the early season using drawing permits and 38% were taken during the later season using registration permits. The proportion taken during the early season using drawing permits and late season using registration permits between the two time periods (2009 -2013, 2014-2018) were similar, even though the total number of goats harvested from 2014-2018 increased by 83 from 2009-2013.

A majority of the goats harvested in Unit 15 from 2009 to 2018 were taken from Unit 15C (**Table 1**). From 2009 to 2013, approximately 170 goats were harvested, and the average annual harvest was 35. The annual average harvest from 2009 to 2013 was 21 during the drawing season and 13 during the registration season (**Table 2**). From 2014 to 2018, approximately 250 goats were harvested and the annual harvest was 51. The average annual harvest from 2014-2018 was 32 during the drawing season and 19 during the registration season (**Table 3**). Although harvest occurs in all months, September is typically the month with the greatest harvest.

From 2009 to 2013, residents from non-rural areas in Unit 15 took a majority of the goats (54%) followed by Alaska residents not living in Unit 15 (26%), non-residents (16%), and rural residents from Unit 15 (4%) (**Table 4**). From 2014 to 2018, the harvest distribution was similar to the previous 5-year period. Residents from non-rural areas in Unit 15 took a majority of the goats (50%) followed by Alaska residents not living in Unit 15 (20%), non-residents (24%), and rural residents from Unit 15 (6%) (**Table 4**) (ADF&G 2019).

Overall, goat harvest increased as the population increased (**Table 1**). During the ten year period from 2009 to 2018, approximately 52% of the goats were harvested by nonrural residents living in Unit 15 (**Table 4**). Residents of Seldovia harvested the greatest number of goats annually among the rural communities and Homer, Soldotna, and Kenai were the primary nonrural communities harvesting goats in Unit 15. It should be noted that the number of rural residents is based on mailing addresses in the State harvest database, which may not be the same as the communities in which they live. To the extent that hunters receive mail in nearby larger community, it may under-represent some smaller community harvests and over-represent harvests in larger communities with post offices. Thus information on rural residents are estimates which are used to represent general harvest patterns.

**Table 2.** Number of permits issued and goat harvest in Unit 15, 2009-2013 (Herreman 2019, pers. comm.; ADF&G 2019).

Permit Type	Year	Permits Issued	Hunted	Harvest			% Success
				Males	Females	Total	
Drawing	2009	132	61	14	9	23	38
	2010	122	50	10	7	17	34
	2011	114	52	20	7	27	52
	2012	126	42	12	3	15	36
	2013	126	57	16	8	24	42
	<b>Total</b>	<b>620</b>	<b>262</b>	<b>72</b>	<b>34</b>	<b>106</b>	
Registration	2009	99	37	13	1	14	38
	2010	39	28	6	2	8	29
	2011	58	31	7	3	10	32
	2012	94	73	13	5	18	25
	2013	54	36	17	0	17	47
	<b>Total</b>	<b>344</b>	<b>205</b>	<b>56</b>	<b>10</b>	<b>67</b>	

**Table 3.** Number of permits issued and goat harvest in Unit 15, 2014-2018 (Herreman 2019, pers. comm.; ADF&G 2019).

Permit Type	Year	Permits Issued	Hunted	Harvest			% Success
				Males	Females	Total	
Drawing	2014	137	48	12	5	17	35
	2015	137	63	25	4	32 <sup>a</sup>	51
	2016	166	64	21	6	27	42
	2017	199	84	32	6	39 <sup>a</sup>	47
	2018	224	99	37	10	47	47
	<b>Total</b>	<b>863</b>	<b>358</b>	<b>126</b>	<b>31</b>	<b>162</b>	
Registration	2014	76	43	14	2	16	38
	2015	73	42	14	1	15	36
	2016	106	45	20	2	22	48
	2017	95	49	13	4	17	40
	2018	103	37	21	0	22 <sup>a</sup>	47
	<b>Total</b>	<b>453</b>	<b>216</b>	<b>82</b>	<b>9</b>	<b>92</b>	

<sup>a</sup> Totals include goats where the sex was unspecified.

**Table 4.** Resident status of successful hunters that harvested goats in Unit 15 from 2009-2013 and 2014-2018 (WinfoNet 2019).

<b>Harvest Period</b>	<b>Rural Resident in Unit 15<sup>a</sup></b>	<b>Nonrural Resident in Unit 15</b>	<b>Alaska Resident not in Unit 15</b>	<b>Nonresident</b>
<b>2009-2013</b>	7 (4%)	91 (54%)	45 (26%)	27 (16%)
<b>2014-2018</b>	16 (6%)	124 (50%)	50 (20%)	59 (24%)

<sup>a</sup> Hunters were classified as Federally qualified subsistence users by the reported residency in ADF&G’s harvest database. As reported, residency may not reflect the location of one’s permanent residence, these data should be considered estimates.

**Effects of the Proposal**

Establishing a Federal subsistence season for goat in Units 15A, 15B and 15C would provide additional hunting opportunity for Federally qualified subsistence users to harvest goats on Federal public lands since no hunt currently exists under Federal regulations. Goat populations in Unit 15 are small and vulnerable, and even at optimal population levels, the harvest of even a few extra goats could result in a conservation concern. ADF&G has been managing the goat populations on the Kenai Peninsula through the use of registration and drawing permits based on the status and composition of the goat populations. Because of the small and relatively unstable or fluctuating local populations, variable permit numbers, and the risk of overharvest, any Federal permits issued should still fall within the same general framework established by the State for those hunts. Thus Federal drawing hunts should not be issued for any goat in the population, but be specific to the local population as is done by the State. Appropriate coordination must be made to determine how many State and Federal permits are issued to limit the potential for overharvest.

Non-rural residents of Unit 15 have been the primary harvesters of goats on both State and Federal lands in Unit 15, since 2009. If this proposal is adopted, the Federal manager would be able to closely manage this hunt through the proposed delegated authority, while working closely with the State.

**OSM CONCLUSION**

**Support** Proposal WP20-23b **with modification** to establish a Federal drawing permit for goat in Unit 15 and delegate authority to the Kenai National Wildlife Manager to close the season, set the harvest quota, set any needed sex restrictions, and set any needed permit conditions via delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

**Unit 15—Goat**

***1 goat by Federal drawing permit.****No Federal open season  
Aug. 10 – Nov. 14***Justification**

Establishing a Federal goat season in Unit 15 would provide additional opportunity for Federally qualified subsistence users. Currently, there is no Federal subsistence season for goat in Unit 15, and Federally qualified subsistence users have had to rely on State registration and drawing permits in order to harvest goat in the unit. Providing this opportunity for subsistence harvest of goats is consistent with Section 804 of the Alaska National Interest Lands Conservation Act (ANILCA), which calls for priority consumptive use of fish and wildlife populations by rural Alaska residents. The demand for goats in Unit 15 from all eligible hunters is greater than the harvestable surplus as shown by the harvest history, population data and applicant data. Due to the small size of the goat populations, habitat limitations, and susceptibility to over hunting, these populations are highly regulated by the State.

Since the demand for goat is greater than the harvestable surplus, a drawing permit hunt is recommended, so that harvest is limited by restricting the number of permits issued and thus minimizing the threat of overharvest. Establishing a Federal drawing permit hunt would allow for better harvest monitoring, while delegating authority to the Kenai National Wildlife Refuge Manager will allow for hunt management flexibility through in-season adjustments, and a more timely response to changes in population status, hunting conditions, or hunter access while maximizing harvest opportunities for Federally qualified subsistence users. Setting sex restrictions may be necessary to prohibit or limit the take of nannies which are the most important cohort in the population. Setting permit conditions, such as reporting requirements, will assist the Kenai National Wildlife Refuge Manager in closing the season early if needed. The Federal manager will need to work closely with the State to monitor harvest under both State and Federal hunts if this proposal is adopted by the Board.

**LITERATURE CITED**

Adams, L. G. and B.W. Dale. 1998. Reproductive performance of female Alaskan Caribou. *Journal of Wildlife Management* 65:1184-1195.

ADF&G. 2019. Harvest General Reports database.

<https://secure.wildlife.alaska.gov/index.cfm?adfg=harvest.main& ga=1.109733509.1089519111.1465854136>, accessed March 4, 2019. Anchorage, AK.

Boertje, R. D., K.A. Kellie, C.T. Seaton, M.A. Keech, D.D. Young, B.D. Dale, L.G. Adams, and A.R. Alderman. 2007. Ranking Alaska moose nutrition: signals to begin liberal antlerless harvests. *Journal of Wildlife Management* 71:1494-1506.

Burch, M. 2019. Special Projects Coordinator. Personal communication: email. ADF&G. Palmer, AK.

- Cote, S.D. and M. Festa-Bianchet. 2003. Goat. Pages 1061-1075 *in* G.A. Feldhamer, B.C. Thompson, and J.A. Chapman, eds. *Wild Mammals of North America: biology, management, and conservation*. Second edition. John Hopkins University Press, London.
- Cote, S.D., S. Hamel, A. St-Louis, and J. Mainguy. 2013. Do goats habituate to helicopter disturbance? *Journal of Wildlife Management*, 77:1244-1248.
- Cote, S.D., M. Festa-Bianchet, and K.G. Smith. 2001. Compensatory reproduction in harvested goat populations: a word of caution. *Wildlife Society Bulletin* 29:726-730.
- Esklin, T. 2019. *Wildlife Biologist*. Personal communication: email, phone Kenai, AK.
- Goldstein, M.I., A.J. Poe, E. Cooper, D. Youkey, B.A. Brown, and T.L. McDonald. 2005. Goat response to helicopter overflights in Alaska. *Wildlife Society Bulletin*, 33(2):688-699.
- Hamel, S., S.D. Cote, K.G. Smith, and M. Festa-Bianchet. 2006. Population dynamics and harvest potential of goat herds in Alberta. *Journal of Wildlife Management*, 70:1044-1053.
- Herreman, J. 2014. Units 7 and 15 Goat management report. Pages 106-121 *in* P.I Harper, editor. Goat management report of survey and inventory activities 1 July 2011- 30June 2013, ADF&G. Species Management Report ADF7G/DWC/SMR 2014-3, Juneau, AK.
- Herreman, J. 2019. *Wildlife Biologist*. Personal communication: email. ADF&G. Homer, AK.
- Hjeljord, O. 1973. Goat forage and habitat preference in Alaska. *Journal of Wildlife Management*, 37(3):353-362.
- Klein, D.R. 1953. A reconnaissance study of the goat in Alaska. Thesis, University of Alaska, Fairbanks, AK.
- McDonough, T, J. and J. Selinger. 2008. Goat management on the Kenai Peninsula Alaska: a new direction. *Proceedings of the biennial Symposium of the Northern Wild Sheep and Goat Council* 16:50-67.
- McDonough, T.J. J.R. Crye, and G.G. Del Frate. 2006. Can horn length of goats be used as a measure of habitat quality? *Proceedings of the Biennial Symposium of the Northern Wild Sheep and Goat Council* 15:158-166.
- OSM. 1996. Staff analysis P96-22. Pages Southcentral-83 to Southcentral-114 *in* Federal Subsistence Board Meeting Materials April 29–May 3, 1996. Office of Subsistence Management, FWS. Anchorage, AK. 784 pp.
- Schwartz, C.C., K.A. Keating, H.V. Reynolds, V.G. Barnes, R.A. Sellers, J.E. Swenson, S.D. Miller, B.N. McLellan, J. Keay, R. McCann, M. Gibeau, W.F. Wakkinen, R.D. Mace, W. Kasworm, R. Smith, and S. Herrero. 2003. Reproductive maturation and senescence in the female brown bear. *Ursus* 14:109-119.
- Shafer, A.B.A., J.M. Northrup, K.S. White, M.S. Boyce, S.D. Cote, and D.W. Coltman. 2012. Habitat selection predicts genetic relatedness in an alpine ungulate. *Ecology*, 93:1317-1329.
- Sherwood, M. 1974. *The Cook Inlet Collection, Two hundred Years of Selected Alaskan History*. Alaska Northwest Publishing Company, Anchorage, AK.

Smith, C.A. and L. Nichols, Jr. 1984. Goat transplants in Alaska: restocking depleted herds and mitigating mining impacts. Proceedings of the Biennial Symposium of the Northern Wild Sheep and Goat Council 4:467-480.

St-Louis, A, S. Hamel, J. Mainguy, and S.D. Cote. 2013. Factors influencing the reaction of goats towards all-terrain vehicles. Journal of Wildlife Management 77(3):599-605.

USFWS. 2019. Harvest database. Office of Subsistence Management, FWS, Anchorage, AK.

White, K.S., A. Crupi, R. Scott, and B. Seppi. 2011a. Goat movement patterns and population monitoring in the Haines-Skagway area. ADF&G, Wildlife Research Annual Progress Report, Juneau, AK.

White, K.S., G.W. Pendelton, D. Crowley, H. Griese, K.J. Hundertmark, T. McDonough, L. Nichols, M. Robus, C.A. Smith, and J.W. Schoen. 2011b. Goat survival in coastal Alaska: effects of age, sex and climate. Journal of Wildlife Management, 75:1731-1744.

WinfoNet. 2019. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.



## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION

### Southcentral Alaska Regional Advisory Council

**Support WP20-23b with modification** to prohibit the take of nannies with kids and the take of kids, and to make a hunter ineligible to get a permit for 3 years if a billy is harvested and for 5 years if a nanny is harvested and have this restriction in regulation. The Council stated that a drawing permit was too restrictive and wanted to ensure that Federally qualified users would have an opportunity to harvest this limited resource.

The modified regulation should read:

#### Unit 15 – Goat

*1 goat by Federal registration permit. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.*

*~~No Federal open season~~  
Aug. 10 – Nov. 14*

*Kids and Nannies accompanied by kids may not be taken. If a billy is taken, the hunter will be eligible for a permit again in 3 years. If a nanny is taken, the hunter will be eligible for permit again in 5 years.*

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee (ISC) supports establishing a Federal goat season in Unit 15 to provide a new priority opportunity for Federally qualified subsistence users to harvest goats on Federal public lands.

Goat populations in Unit 15 are small, unstable, and vulnerable, and even at optimal population levels, the harvest of even a few extra goats could result in a conservation concern. The State harvest framework and permit regulations are subsequently complex and conservative to ensure the risk of over harvest is minimized. Only a few animals may be harvested from each subpopulation without causing a decline. The number of permits allocated per hunt, and the harvest quotas for each unit, are dynamic and based on the survey counts and the previous year's harvest.

Providing a delegation of authority letter to the Kenai National Wildlife manager to set the season, harvest quota, sex restrictions and any needed permit conditions is appropriate, given the need for close coordination with the State to ensure goat populations in various hunt sub-units are not over harvested.

Successful implementation of the Federal hunt will require the in season manager to follow the same hunt framework established by the State. As stressed in the OSM analysis, and by the Southcentral

Subsistence Regional Advisory Council, the Federal drawing hunts should not be issued for any goat in the population, but be specific to local populations, as is done by the State. The Board may consider adding this adherence to the State hunt framework to the Federal regulation or delegation of authority letter to ensure this important characteristic of the hunt is followed.

The State currently has two potential harvest seasons, Aug. 10 – Oct. 15 and Nov. 1 – 14. The gap between seasons allows the State to determine if the harvest quotas have been met or if additional opportunity may be afforded to certain hunt units via registration hunts. Adding this requirement to Federal regulation or the delegation of authority letter, to align with State season dates, may be appropriate to reduce regulatory confusion and ensure this critical coordination aspect is not overlooked.

The ISC asked for legal counsel clarification related to the Southcentral Council's request to limit eligibility following a successful hunt. The Southcentral Council's recommendation specifies that a hunter be ineligible for a permit until three years after harvesting a billy goat, and five years after harvesting a nanny. Legal counsel responded as follows:

Per ANILCA Section 804, subsistence uses can be restricted only when "it is *necessary* to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses." [Emphasis added.] Even where this threshold is met, any restrictions on subsistence uses must apply the following priority criteria:

customary and direct dependence upon the population as the mainstay of livelihood;  
local residency; and the availability of alternative resources.

Since past permit drawing and/or hunting success is not a relevant criteria for implementing a priority, a rule that attempted to restrict subsistence uses on that basis would violate Section 804.

The ISC concluded that this component of the proposal that restricts subsistence use is not permitted under ANILCA Section 804.

If this proposal, and proposals WP20-22b and WP 20-24b are passed by the Board, there will be three new federal hunts established in Unit 15. Each hunt will require significant time and coordination commitments by the Kenai NWR staff to administer. Reducing regulatory complexity between Federal and State hunts, to ensure successful implementation, may be important to consider when evaluating this proposal.

#### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-23:** This proposal, submitted by Ivan Encelewski of the Ninilchik Traditional Council, would modify the pool of federally-qualified users eligible to participate in subsistence mountain goat hunting opportunities on the federal public lands of Unit 15 from all rural residents to only residents of Ninilchik, and then establish a new federal subsistence registration

mountain goat hunting season in Unit 15 for residents of Ninilchik with season dates of August 10–November 14. The season would be closed by announcement from the Kenai National Wildlife Refuge manager in consultation with ADF&G and the chair of the Southcentral Alaska Subsistence Regional Advisory Council.

**Introduction:** Mountain goats are unique compared to other ungulate species due to the habitat they utilize and their reproductive capacity. Mountain goats inhabit alpine and coastal habitats that are adjacent to steep cliffs and rocky terrain that can be used as escape terrain from predators. They typically occur in small isolated populations and have little interchange between these groups. Telemetry and genetic studies have shown that mountain goats maintain a strong fidelity to discrete homeranges (White 2006, Shafer et al. 2012). Mountain goats breed in November and December and adult males typically remain segregated from females and young animals during a large portion of the year. The age of first reproduction of mountain goats is typically 4.5 years old (Festa-Bianchet and Cote 2008, White et al 2006).

Mountain goats in Unit 15 are currently managed under a limited permit system in small discreet hunt areas. Unit 15 currently contains 14 different hunt areas. Due to low population numbers, as determined by minimum counts, 2 of these areas were closed to harvest in 2019. Early season hunts (with the exceptions of RG364 and RG365) are managed under the state draw system and late season hunts are managed under a registration permit system. The number of available permits is calculated based on a system described in McDonough and Selinger (2008).

ADF&G uses five criteria to sustainably manage the Unit 15 goat populations. The criteria are used as general guidelines to determine the number of permits to be issued for hunt areas: other factors may enter the final calculation for permit numbers. First, for a drawing hunt to open the population must contain more than 50 goats. The second criteria considered is whether the quota was exceeded in previous years. For small populations, no hunt is held if the quota was exceeded in the 2 previous seasons. In larger populations, the number of permits is reduced if the quota was exceeded. The third criteria considered is the age of the survey data. If the survey data are greater than 3 years old and the population less than 75 goats, no permits are issued. For areas with greater than 75 goats and data older than 2 years, permit numbers are reduced. The fourth criteria considered is the population trend. If populations are declining, permits are reduced. The fifth criteria considered is access to the area. A greater number of permits are made available for areas with difficult access. The number of animals available for harvest (i.e., goat points, with nannies equaling two) is the final factor that affects the number of permits issued. Goat points are calculated at a rate of 4% of the most recent minimum count for areas with easy access and 5% for areas with difficult access.

Early season RG364 and RG365 hunts are managed similar to the drawing hunts in other hunt areas. Permits are calculated using the same formula, but tags are distributed by registration permits available in the communities of Seldovia, Port Graham, and Nanwalek. In recent years, ample permits have been available for both RG364 and RG365 well after the initial distribution date. In some years, permits have been left over at the end of the early season for RG365.

Late season registration hunts are only opened if an area contains more than 100 goats. If the population is not stable or increasing a hunt is not held. If the survey data are greater than 2 years old a hunt is not held. If the previous year's quota was exceeded a hunt is not held. Lastly, if there are fewer than 4 goat units available in an area after the draw season harvest is accounted for no hunt is held. Registration hunts have been open every year on the Kenai Peninsula since the establishment of this system.

**Impact on Subsistence Users:** If this hunt was established, it would initially provide additional opportunity, but only to residents of the community of Ninilchik. It could, however, reduce the opportunity for other subsistence users on the Kenai Peninsula because if goats are harvested in areas with limited population numbers, or nannies are harvested, it will decrease future hunting opportunity for all subsistence users.

**Impact on Other Users:** If the proposed hunt is adopted in the suggested format (all areas of Unit 15), it could disrupt the current state management system, especially in areas in Unit 15 that the state believes should not be open for harvest due to conservation concerns. Opening all of Unit 15 could negatively affect other hunters because managers would likely take a more cautious management approach, including limiting permits issued in Unit 15. If goats were harvested in areas with low numbers, it could decrease future hunting opportunities for other users and potentially impact nonconsumptive uses.

#### **Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for mountain goats in units 7 and 15C outside the Anchorage-Matsu-Kenai Nonsubsistence Area. Only the portion of Unit 15C that is near the communities of Seldovia, Port Graham, and Nanwalek is outside the nonsubsistence area.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for mountain goats in units 7 and 15C outside the Anchorage-Matsu-Kenai Nonsubsistence area is 7–10 animals.

The season and bag limit for Unit 7 is:

		<u>Open Season (DG 352-363 &amp; RG 352-375)</u>	
<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
15 (DG352-DG363)	1 goat	Aug.10–Oct. 15 (Draw Permit)	Aug.10–Oct. 15 (Draw Permit)
15 (RG364)		Registration Permit	No Open Season
15 (RG365)		Registration Permit	Registration Permit
15(RG352-RG363, RG375)		Registration Permit	Registration Permit
15(RG374)		Registration Permit	No Open Season
	1 goat	Nov.1–Nov. 14 (Registration Permit)	Nov.1–Nov. 14 (Registration Permit)

<sup>a</sup> Subsistence and General Hunts.

Special instructions: Taking of nannies with kids is prohibited. If a nanny is taken the hunter is prohibited from hunting any goats in units 7 and 15 for 5 regulatory years.

**Conservation Issues:** Mountain goats are a slowly reproducing species with distinct home ranges. The average age of first reproduction is 4.5 years (Festa-Bianchet and Cote 2008) and studies of Alaska populations show only a 68% parturition rate (White et al. 2013). Due to these factors, small populations of goats are easily extirpated from distinct areas. If reproductive age nannies are harvested from a small herd it is possible to completely curtail reproduction in that herd. As such, mountain goats should not be managed on a unitwide basis and adding additional harvest on top of current state harvest could negatively impact herds. Hunts must be established to reflect local home ranges and population levels.

In some hunt areas in Unit 15 goats are easily accessible from the water and are valued for viewing purposes. Easy access to some hunt areas, such as Cecil Rhode Mountain (DG341), has led to the near extirpation of discreet populations in the past (Paul 2008). The current state hunt structure helps to prevent this from happening in the future.

**Enforcement Issues:** None

**Recommendation:** ADF&G is **NEUTRAL** on the eligibility requirements for the federal subsistence program. However, the Office of Subsistence Management’s analysis of customary and traditional uses does not systematically examine each of the 8 criteria used to determine a C&T finding. ADF&G recommends a full and complete analysis be presented to the Councils and Federal Subsistence Board.

Furthermore, page 7 of the OSM analysis cites a decline in goat use by tribal members and other Native residents of Ninilchik; however, the data from the cited studies (1994, 1999 and 2014) cannot be compared to other data due to variation in research methods and sample selection between studies.

ADF&G is **OPPOSED** to opening a unit-wide hunt for mountain goats in Unit 15 due to conservation concerns. ADF&G would support the portion of the proposal that seeks to establish seasons and harvest limits with modification to establish a drawing hunt, instead of a registration hunt, in Unit 15. The proposed bag limit of one goat should not be modified. Furthermore, due to conservation concerns, ADF&G supports modifying the proposal to clarify all of the following: 1) that there would be a quota of two goats; 2) it would be prohibited to take a nanny with kids; 3) if a nanny is taken, the hunter is prohibited from hunting any goats in Unit 15 for 5 regulatory years; 4) if a billy is taken, the hunter is prohibited from hunting any goats in Unit 15 for 3 regulatory years; 5) permits allocated within the current state hunt areas; and 6) the areas in which tags will be issued each year should be determined in consultation with ADF&G in September/October previous to the permit year.

### **Citations**

Fiesta-Bianchet, M. and S. D. Cote. 2008. Mountain Goats (Ecology, Behavior, and Conservation of an Alpine Ungulate). Island Press, Washington D. C.

McDonough, T. J. and J. Selinger. 2008. Mountain goat management on the Kenai Peninsula Alaska: a new direction. Proceedings of the biennial Symposium of the Northern Wild Sheep and Goat Council 16:50-67.

Paul, T. W. 2009. Game transplants in Alaska. Technical Bulletin No. 4, second edition. Alaska Department of Fish and Game, Wildlife Conservation. Juneau, AK. 150pp.

White, K. S. 2006. Seasonal and Sex-specific variation in terrain use and movement patterns of mountain goats in southeastern Alaska. Biennial Symposium of Northern Wild Sheep and Goat Council 15: 183-193.

White, K. S., G. W. Pendleton, D. Crowley, H J. Griese, K. J. Hundertmark, T. McDonough, L. Nichols, M. Robus, C. A. Smith, J. W. Schoen. 2011 Mountain Goat Survival in Coastal Alaska: Effects of age, sex, and climate. *Journal of Wildlife Management* 75: 1731-1744.

White, K. S., P. Mooney, K. Bovee 2013. Mountain goat movement patterns and population monitoring on Baranof Island. Wildlife Research Annual Progress Report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Douglas, AK.

## Appendix 1



FISH and WILDLIFE SERVICE  
BUREAU of LAND MANAGEMENT  
NATIONAL PARK SERVICE  
BUREAU of INDIAN AFFAIRS

## Federal Subsistence Board

1011 East Tudor Road, MS121  
Anchorage, Alaska 99503



FOREST SERVICE

FWS/OSM XXXX.XX

Refuge Manager  
Kenai National Wildlife Refuge  
P.O. Box 2139  
Soldotna, Alaska 99669-2139

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the Kenai National Wildlife Refuge Manager to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of the population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within the Kenai National Wildlife Refuge for the management of goat on these lands.

It is the intent of the Board that actions related to management of goat by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council

Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

## DELEGATION OF AUTHORITY

**1. Delegation:** The manager of the Kenai National Wildlife Refuge is hereby delegated authority to issue emergency or temporary special actions affecting goat on Federal lands as outlined under the **Scope of Delegation** below. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

To close the season, set harvest quotas, set sex restrictions, and set any needed permit conditions for goat.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within the Kenai National Wildlife Refuge.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information.



You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine: (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provide a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers,

law enforcement personnel, and Council representatives. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal Managers, and the local Council representatives at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Subsistence Regional Advisory Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair, Federal Subsistence Board

cc: Federal Subsistence Board  
Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management  
Wildlife Division Supervisor, Office of Subsistence Management  
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Southcentral Alaska Subsistence Regional Advisory Council  
Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record

<b>WP20–24b Executive Summary</b>	
<b>General Description</b>	<p>Proposal WP20-24b requests that a sheep season of Aug. 10 – Nov. 14 be established in Unit 15, with a harvest limit of one sheep. The proponent also requests that the Kenai National Wildlife Refuge Manager be given authority to open and close the season in consultation with the Alaska Department of Fish and Game (ADF&amp;G) and the Chair of the Southcentral Alaska Subsistence Regional Advisory Council. <i>Submitted by: Ninilchik Traditional Council (NTC).</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 15—Sheep</b></p> <p><i>1 sheep by Federal registration permit. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&amp;G and the chair of the Southcentral Regional Advisory Council.</i></p> <p style="text-align: right;"><del>No Federal open season</del> <b>Aug. 10 – Nov. 14</b></p>
<b>OSM Conclusion</b>	<p><b>Support</b> Proposal WP20-24b <b>with modification</b> to establish a Federal drawing permit hunt for sheep in Unit 15 with a harvest limit of one sheep, and delegate authority to the Kenai National Wildlife Refuge Manager to close the season, set the harvest quota, set sex restrictions, and set any needed permit conditions via delegation of authority letter only.</p> <p><b>Unit 15 - Sheep</b></p> <p><i>1 sheep by Federal drawing permit.</i></p> <p style="text-align: right;"><del>No Federal open season</del> <b>Aug. 10–Nov. 14</b></p>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<p><b>Support</b> WP20-24b as modified by OSM.</p>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee supports establishing a Federal sheep season in Unit 15 to provide a priority opportunity for Federally qualified subsistence users to harvest sheep on Federal public lands. To implement this proposal and avoid overharvest, proactive, frequent and timely coordination between Federal and State agencies will be crucial, along with timely harvest reporting from permitted hunters.</p>

## WP20–24b Executive Summary

Subsequently, aligning with the State hunt framework (full curl rams only) and seasons (Aug. 10 – Sep. 20) may be important for the Board to consider.

Almost all of Unit 15 is currently open to sheep hunting for 40 days with a free State harvest ticket available to all user groups. Annual harvest from 2010 – 2018 has ranged from 1 to 8 full curl rams (page 12, OSM analysis). Only the small area in Unit 15A is a State draw hunt (DS150 hunt of round mountain) and it has not produced a legal ram in 8 years. Allowing an “any sheep hunt” that could extend to November 14 would create an additional harvest opportunity afforded only to Federally Qualified users. However, allowing the take of sheep that are not full curl may have negative impacts to these vulnerable populations. Over harvest could occur with an “any sheep” harvest, even with an established quota, tight reporting requirements and the in-season manager’s ability to close the season. Management of small and vulnerable populations often focus on full curl management to maximize conservation measures while allowing limited take.

The Unit 15 sheep populations are vulnerable due to several factors: 1) populations are small and declining; 2) habitat limitations due to climate change are impacting their limited range; 3) recent 2019 fire impacts are unknown; and 4) populations are susceptible to over hunting. The vulnerability and uncertainty of the Kenai sheep populations warrants conservative and careful harvest management, especially with dual administration of harvest from Federal and State agencies.

Adopting the State framework to initiate this Federal hunt would reduce regulatory confusion and allow nuances surrounding the administration of the hunt by Federal and State entities to be resolved. Future proposals or in season special actions to increase season lengths or permit any sheep harvest limits could be implemented over time if sheep populations improve. The current 40-day season provides a reasonable harvest time, and most hunters do not want to hunt near the rut period (November) as meat is undesirable.

If this proposal, and proposals WP20-22b and WP 20-23b are passed by the Board, there will be three new federal hunts established in Unit

<b>WP20–24b Executive Summary</b>	
	15. Each hunt will require significant time and coordination commitments by the Kenai NWR staff to administer. Reducing regulatory complexity between Federal and State Hunts, to ensure successful implementation, may be important to consider when evaluating this proposal.
<b>ADF&amp;G Comments</b>	<b>Oppose</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS  
WP20-24b**

**ISSUES**

Proposal WP20-24b, submitted by the Ninilchik Traditional Council (NTC), requests that a sheep season of Aug. 10 – Nov. 14 be established in Unit 15, with a harvest limit of one sheep. The proponent also requests that the Kenai National Wildlife Refuge Manager be given authority to open and close the season in consultation with the Alaska Department of Fish and Game (ADF&G) and the Chair of the Southcentral Alaska Subsistence Regional Advisory Council.

**DISCUSSION**

The proponent states these changes are needed to provide subsistence opportunity to harvest sheep in Unit 15. The proponent states that the subsistence harvest of sheep by Ninilchik residents, based on the Ninilchik 2010 Census Designed Place, from Units 7, 14 and 15 has declined from 24% to 0% since 1994 (Williams 2014). The proponent further states that the requested changes would provide opportunity for rural residents of Ninilchik to engage in subsistence sheep hunting and provide a meaningful subsistence preference.

Note: Proposal WP20-22a requests that the customary and traditional use determination (C&T) for sheep in Unit 15 be revised. Upon clarification with the proponent, this request was not intended to exclude other rural residents of Unit 15; however, Ninilchik Traditional Council’s request is specific to Ninilchik.

**Existing Federal Regulations**

**Unit 15—Sheep**

*No Federal open season*

**Proposed Federal Regulations**

**Unit 15—Sheep**

*1 sheep by Federal registration permit. The season may be opened or closed by announcement of the Kenai Wildlife Refuge manager in consultation with ADF&G and the chair of the Southcentral Regional Advisory Council.*

*No Federal open season  
Aug. 10 – Nov. 14*

## Existing State Regulations

### Unit 15—Sheep

<i>15A, east of Fuller lake trail, south of Dike Creek and a straight line from the source of Dike Creek, east through the divide south of Trout Lake to Juneau Creek, west of Juneau Creek and north of the Sterling Hwy.</i>	<i>Residents: One ram with full-curl horn or larger by permit</i>	<i>DS150</i>	<i>Aug. 10–Sept. 20</i>
	<i>Nonresidents: One ram with full-curl horn or larger every four regulatory years by permit</i>	<i>DS150</i>	<i>Aug. 10–Sept. 20</i>
<i>15 remainder</i>	<i>Residents: One ram with full-curl horn or larger. <b>Youth hunt only</b></i>	<i>HT</i>	<i>Aug. 1-Aug. 5</i>
	<i>Nonresidents: One ram with full-curl horn or larger every four regulatory years. <b>Youth hunt only</b></i>	<i>HT</i>	<i>Aug. 1-Aug. 5</i>
	<i>Residents: One ram with full-curl horn or larger.</i>	<i>HT</i>	<i>Aug. 10-Sept. 20</i>
	<i>Nonresidents: One ram with full-curl horn or larger every four regulatory years.</i>	<i>HT</i>	<i>Aug. 10-Sept.20</i>

## Extent of Federal Public Lands

Unit 15 is comprised of approximately 47% Federal public lands and consist of 46% U.S. Fish and Wildlife Service (USFWS) managed lands, 1.1% Bureau of Land Management (BLM) managed lands, 0.4% USDA Forest Service (USFS) managed lands, and 0.1% National Park Service (NPS) managed lands. Unit 15A is comprised of approximately 58% Federal public lands and consist of 57% USFWS managed lands and 1% USFS managed lands. Unit 15B is comprised of approximately 77% Federal public lands and consist of 71% USFWS managed lands, 4.7% BLM managed lands, and 0.6% USFS managed lands. Unit 15C is comprised of approximately 28% Federal public lands and consist of

28% USFWS managed lands and 0.3% NPS managed lands. NPS managed lands in Unit 15 are within Kenai Fjords National Park and are closed to subsistence.

### **Customary and Traditional Use Determinations**

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for sheep in Unit 15. Therefore, all Federally qualified subsistence users are eligible to harvest sheep in Unit 15.

### **Regulatory History**

Sheep hunting was closed on the Kenai Peninsula by Federal managers in 1942 due to a low population estimate of 350 sheep for the entire peninsula (Scott et al 1950). In 1953, the Cooper Landing Closed Area was established, which was also closed to all sheep and mountain goat hunting. Sheep hunting remained closed on the Kenai Peninsula until Federal managers opened it again in 1957.

In 1959, with the passage of statehood, the State of Alaska took over management and established a sheep season for one ram with a  $\frac{3}{4}$  curl or larger from Aug. 10 – Aug. 31. In 1964, the sheep season was extended to September 20 and the harvest limit changed to one ram with  $\frac{7}{8}$  curl. Although the harvest season remained unchanged, the harvest limit was changed to a full curl in 1989.

ADF&G has managed the hunt for sheep in Unit 15 since the 1990s through a combination of drawing and general season hunts. Drawing permits for ewes were only available in Unit 15 from 1993/1994 to 2003/2004. Drawing permits for rams in Unit 15 began in 2003/2004.

In 2015, the Alaska Board of Game passed a regulation restricting the use of aircraft for sheep hunting be limited only to placing and removing hunters from camps, maintain existing camps, and salvaging harvested sheep from Aug. 10 – Sept. 20. An aircraft may not be used to locate sheep for hunting or to direct hunters to sheep during the hunting season.

### **Biological Background**

Sheep occur naturally throughout the Kenai Mountains, which extend the length of the eastern Kenai Peninsula. Sheep are most abundant in the drier interior portions, where they coexist with mountain goats, and are least abundant in the coastal mountains. Sheep seldom stray far from alpine tundra habitat, river benches, and river valleys adjacent to steep cliffs or rocky terrain used to escape predators (Krausman and Boyer 2003). Sheep use the ridges, meadows, and steep slopes for feeding and resting. Ewes seek rugged cliffs that provide solitude and protection from predation to give birth to a single lamb. The lamb stays with the ewe until they are strong enough to travel, and begin feeding on vegetation usually within two weeks after birth and are weaned by October. Ewes normally give birth the first time at age 3 whereas adult rams often don't breed successfully until they are 7-8 years old when they have large horns and are dominant. Mating usually occurs during the rut in late November and early December and takes place in the home range of females. Except during the rut, adult female-juvenile groups remain largely separate from the adult male groups. Sheep populations



usually increase during periods of mild weather and decrease during severe winters and/or when predation is high.

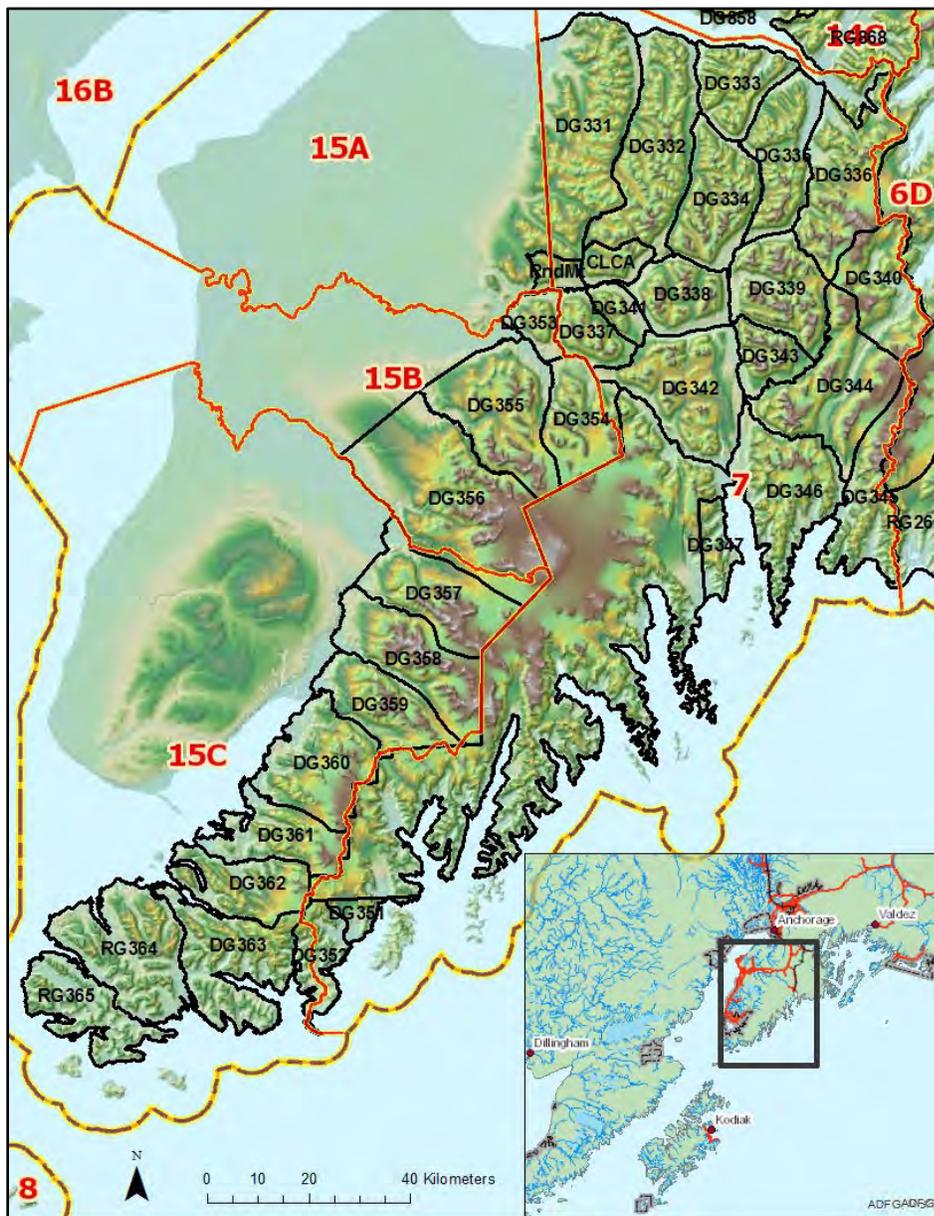
Almost all sheep in Unit 15 are found within the Kenai National Wildlife Refuge (KNWR) (Herreman 2014). They are found in the eastern edge of Unit 15A, north to Skilak Glacier and Russian Mountain in Unit 15B, and north of Ship Creek southeast of Tustumena Lake in Unit 15C. The Kenai Mountains, which are divided into 32 sheep and mountain goat management/survey areas (CA), are at the southern limit of sheep range in Alaska (Herreman 2018). Sheep are found consistently in five management areas within Unit 15 (353, 355-358). The current identified subpopulations include Resurrection Trail (CA - 331, 332), Kenai National Wildlife Refuge (KNWR) (CA – 355-359), Grant Lake (CA – 339, 343, 344), Cooper Mountain (CA – 337,341,353, and Crescent Lake (CA – 338) (**Map 1**) (Herreman 2019, pers. comm.). Only a small portion of Unit 15A occurs in the Round Mountain Area (DS150) (**Map 2**). A majority of sheep are not found in the drawing area DS150 (**Map 2**).

Surveys are conducted when weather conditions allow; meaning the flight and visibility ceiling are high enough to survey the entire area and turbulence and temperatures are low. All of these variables are figured into the “count conditions” which are rated by the observer on a scale of 1-3, where 1 = excellent (sheep are up high, light is great, and temperature and turbulence is low), 2 = good to fair conditions, 3 = poor (results are likely to be significantly biased by the conditions).

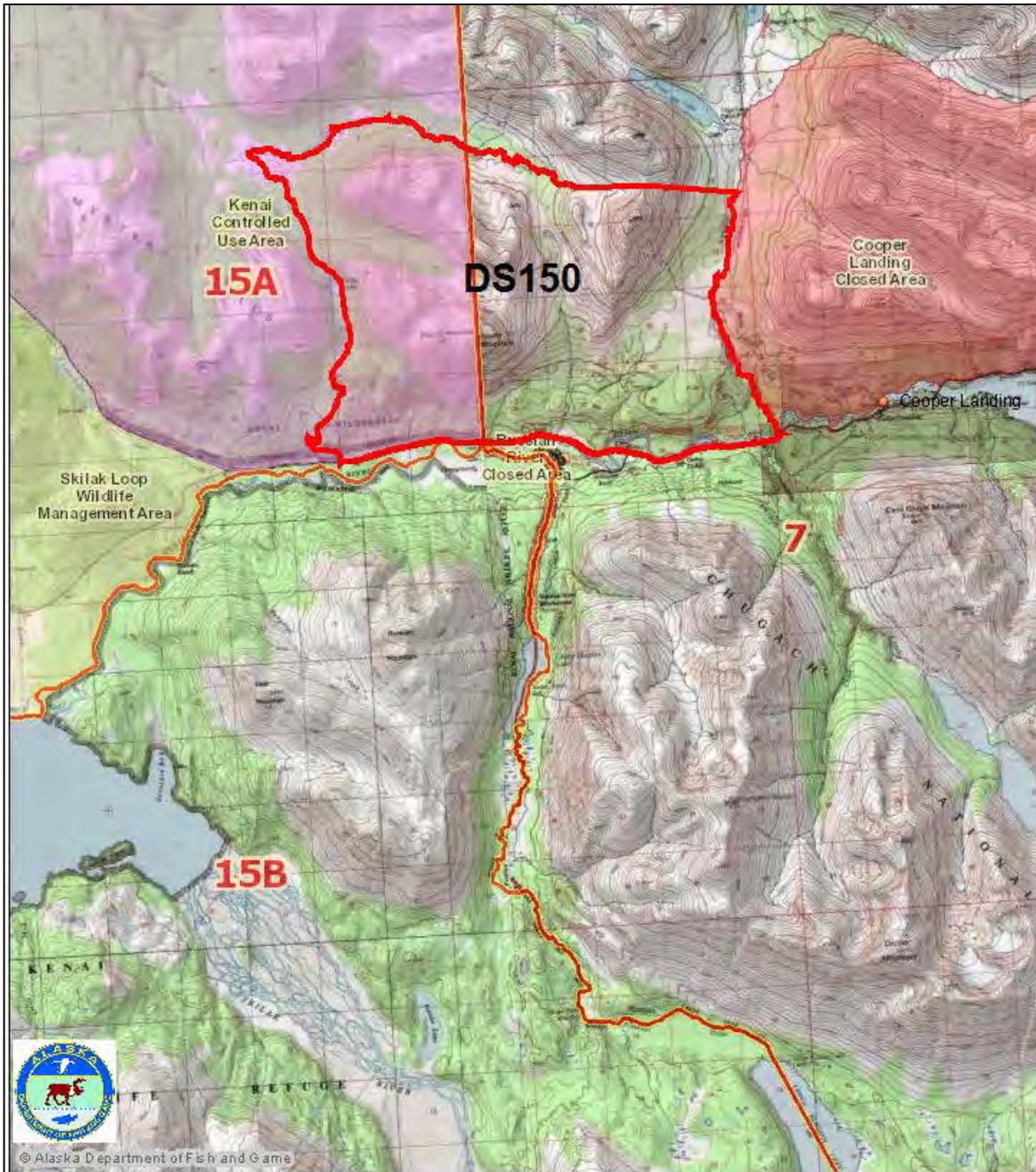
Surveys are flown following the topography of the landscape. Transects are flown parallel to the mountain starting at the tree/shrub line and working up the mountain. Each face receives 2-3 passes depending on mountain height and visibility. When sheep are observed, pilots circle the location so that the observer can note the number and classifications of the animals in each group, as well as habitat conditions and relative GPS (Global Positioning System) location. Animals are classified as adults (subadults and adults) and lambs. Often, additional sheep are encountered while circling, which are noted so that they are not recounted on consecutive passes. By starting transects at lower elevations, animals higher on the ridge are less likely to move down below the tree/alder line where they can disappear. Survey length depends on count conditions, area covered, and number of animals seen. The aerial surveys within the sampling units are conducted following the contours of the mountains during the early morning (within three hours of sunrise) or in the evening (within three hours of sunset) when there is the greatest sheep activity and the best visibility. ADF&G attempts to survey each sampling area every three years. State management objectives for sheep in Units 7 and 15 are to complete minimum count surveys in all management areas outside Kenai Fjords National Park at least once every three years, and maintain viable subpopulations of at least 50 or more sheep. If a sheep population falls below 50 animals, harvest would be suspended. Only two range-wide surveys have been conducted for sheep on the Kenai Peninsula, one in 1968 and the other in 1992 (Herreman 2014).

During the early 1900s, many sheep were killed on the Kenai Peninsula during mining activities centered around the towns of Hope and Sunrise. The sheep population increased from 350 in 1942 to 2,190 in 1968 and then declined to 1,600 in 1992. Annual sheep surveys conducted from 1968 to the

late 1990s indicate that the sheep population fluctuated between 1,000 to 2,000 animals. Starting in 1992, minimum counts have been conducted by ADF&G for sheep in 14 count areas on the Kenai Peninsula (Map 1). Sheep population trends based on the most recent survey data for all management areas (Unit 15 and Unit 7) showed a significant decline from 1997 (1,545) to 2008 (658). From 2011 to 2015 the population trend for Units 7 and 15 ranged from 495 to 644 sheep (Herreman 2018). Overall, there has been an 80% decline since the 1960s (2,200-2,500) and currently only about 500 sheep remain on the Kenai Peninsula based on minimum count data (Herreman 2018, ADF&G 2019a). From 2011-2015, four of the five subpopulations declined (Table 1) and two are close to the minimum population threshold of 50 sheep for a viable population (Herreman 2018).



**Map 1.** Dall sheep and mountain goat survey units for the Kenai Peninsula, Units 7 and 15, Southcentral Alaska.



**Notice:**

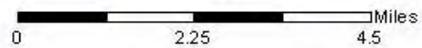
This map is intended for hunt planning use, not for determining legal property or regulatory boundaries. Content is compiled from various sources and is subject to change without notice. See the current hunting regulations for written descriptions of boundaries.

Hunters are responsible for knowing the land ownership and regulations of the areas they intend to hunt.

**Legend**

- Hunt Boundary
- Closed Areas (Hunting)
- Closed to Trapping
- Controlled Use Areas
- Management Areas
- State Legislative Designated Areas

1:125,000



Data: ADF&G,ESRI,GINA,USGS,DNR

[www.adfg.alaska.gov](http://www.adfg.alaska.gov)

June 10, 2019

**Map 2.** Round Mountain Hunt Area DS150.

**Table 1.** Population trends and percent lambs by sheep subpopulations in Units 7 and 15, on the Kenai Peninsula, 2011-2015. Total sheep trend is an interpolation of the most recent minimum count for each area. Percent lambs by year are calculated only from the portion of the area surveyed each year (Herreman 2018).

Regulatory Year	Resurrection Trail		KNWR		Grant Lake		Cooper Mountain		Crescent Lake	
	Total Sheep Trend	Percent Lambs	Total Sheep Trend	Percent Lambs	Total Sheep Trend	Percent Lambs	Total Sheep Trend	Percent Lambs	Total Sheep Trend	Percent Lambs
2011-2012	170	17	233		93		51	14	97	
2012-2013	161		225		74		51		92	11
2013-2014	104	17	217	19	55	15	51		80	
2014-2015	104	2	161	13	66		51	12	68	
2015-2016	165	29	163	22	77	18	52	8	56	20

The Kenai National Wildlife Refuge subpopulation (management areas 354-359, Unit 15), has the largest number of sheep on the Kenai. In 2015, the estimated Kenai National Wildlife Refuge (Unit 15) sheep population was 163 animals, which is a decline from 233 in 2011 (Herreman 2018). From 2008 to 2016, sheep populations for the southernmost management areas on the Kenai Peninsula declined: management area 357 declined from 41 in 1997 to 12 in 2011; management area 358 declined from 70 sheep in 2000 to 5 in 2013; and no sheep were found in recent surveys of management area 359 in 2013 (**Map 1**) (Herreman 2018). It does not appear that harvest under the current regulations of a full-curl ram are responsible for the long-term decline of sheep populations on the Kenai Peninsula. Population trends in the southern management areas (357-360) and information from locals suggest that the sheep range may be moving north. Pederson (1944) reported that homestead families harvested sheep as far south in Mallard Bay in management area 360. One hypothesis is that climate change is causing more frequent icing events which have been shown to cause sheep declines (Nichols 1975). In addition, climate change may also be changing the snow conditions with more frequent, heavier, and wetter snows (Nichols 1971). Dial (2007) and Dial et al. (2016) noted that alpine tundra habitat in the Kenai Mountains has been declining at a rate of approximately 17.4% per decade, tree and shrub line elevation has been increasing, and the overall quality sheep habitat has been declining due to climate change. Following the reintroduction of caribou in 1965/66 (CA – 331, 332) and 1985/86 (KNWR) (Paul 2009), sheep have had to compete with caribou.

## Habitat

Sheep in Alaska inhabit alpine areas adjacent to steep cliffs or rocky terrain that provide escape from predators. Most sheep populations in Alaska are migratory, occupying different ranges during the summer and winter. Sheep populations exhibit a high degree of fidelity to their seasonal ranges (Rachlow and Boyer 1998). The smallest ranges typically occur in midwinter (Geist 1971) when they select wind-swept areas with suitable forage and rugged escape terrain. Sheep in Kluane National Park, Yukon, Canada, spent 70% of their time foraging in areas with snow depth <5 cm and in areas with high primary productivity of plants on their winter range (Hoefs and Cowan 1979, Hoefs and Bayer 1983, Hoefs 1984). Overcrowding on the wind-swept ridges during winter can put sheep in a negative energy balance and force sheep to depend heavily on their fat and protein reserves built up during the summer. Lambs and yearlings are particularly susceptible to die offs during periods of food shortages in winter. Limiting disturbance during the late winter/early spring can be critical to maintaining local sheep populations, especially following severe winters with heavy snowfall or icing events. In the spring, sheep move down near tree line to feed on the first patches of emergent green plants. During the summer, ewes and lambs from interior Alaska select high alpine meadows intermixed with steep rugged escape terrain to graze on grasses and herbs, particularly *Dryas* spp., and shrubs (willow leaves and shoots). As winter approaches their diet shifts to lichens, grasses, sedge stems, and mosses (Rachlow and Boyer 1998).

## **Harvest History**

There has never been a Federal subsistence open season for sheep in Unit 15 since statehood. Except for the Round Mountain Area, Federally qualified subsistence users have been able to hunt sheep in Unit 15 remainder within the KNWR under a general harvest ticket under the State regulations. There is a limited drawing hunt in the Round Mountain Area where Federally qualified hunters have to compete for a limited number of State drawing permits (three within Unit 15 of DS150). In addition, only a very small portion of KNWR fall within drawing hunt area DS150 (Round Mountain). The entire remainder of the KNWR is open sheep including by harvest ticket by Federally qualified users. Since 2004, only four legal rams have been harvested in DS150, one in 2006, one in 2010, one in 2011 and one in 2017 (**Table 2**). Sheep are susceptible to overharvest by sport and subsistence hunters in local areas and thus there is need to closely manage harvests for those populations that are easily accessible. Harvesting mature rams is often the most conservative strategy, especially after population declines. Full curl management for a majority of Unit 15 has been in place for the general season and drawing permit hunts since 1989. The Round Mountain drawing permit for full-curl rams was established in 2004. The State issues three draw permits per year for Round Mountain. Under the current management system, the State issues seven draw permits per year for all of DS150 which includes Unit 7 and 15. Only three sheep have been taken in Unit 15 under the drawing permit DS150 since 2006 (**Table 2**). The average annual total sheep harvest in Unit 15 from 1992 to 2007 (n=16 yrs.) was 14 animals which was higher than the most recent period from 2008-2018 (n=11 yrs.) where the average annual sheep harvest was four animals (**Table 2**). The long-term decline of sheep populations has reduced the harvest of legal rams (**Table 2**). On average, only two sheep have been harvested annually since 2013 in Unit 15, and only one ram was taken in Unit 15 in 2018 (**Table 2**).

The majority of the sheep harvest occurs during the first week of the hunt from Aug. 10-16 (Herreman 2018).

From 1992 to 2018, residents from non-rural areas in Unit 15 took a majority of the sheep (66%) followed by residents from Alaska outside of Unit 15 (23%), non-residents (9%), and rural residents from Unit 15 (2%) (**Table 3**). Anchorage was the primary residence for non-local hunters who harvested sheep within Unit 15. Few rural residents harvested sheep since 1992. It should be noted that the number of rural residents is based on mailing addresses in the State harvest database, which may not be the same as the communities in which they live. To the extent that hunters receive mail in nearby larger community, it may under-represent some smaller community harvests and over-represent harvests in larger communities with post offices. Thus information on rural residents are estimates which are used to represent general harvest patterns. The harvest distribution between 1992-2000, 2001-2010 and 2011-2018 was consistent for nonrural residents of Unit 15, which averaged 66% (**Table 3**). Soldotna, Kenai, and Homer were the primary local nonrural communities that harvested sheep in Unit 15. The number of permits issued annually from 2008-2012 averaged three rams for Round Mountain (DS150, Unit 15); ten ewes in 2008 (DS154), no ewe permits from 2009-2012 for Crescent Lake (DS154, Unit 15); and six rams from 2008-2012 for Crescent Lake (DS156, Unit 15) (Herreman 2018).

**Table 2.** State sheep harvest in Unit 15, 1992-2018. Drawing hunts DS152, for ewes, occurred from 1994-2003 and DS150, for full-curl rams, started in 2004 (Herreman 2019, pers. comm.; ADF&G 2019b).

Year	State General Harvest	15A	15B	15C	DS150	DS152	Total Harvest
1992	28	4	22	2	-.a	-	28
1993	26	3	18	5	-	8	34
1994	28	5	20	3	-	5	33
1995	31	2	26	3	-	8	39
1996	24	1	19	4	-	7	31
1997	16	3	10	3	-	5	21
1998	18	2	16	0	-	11	29
1999	7	2	4	1	-	8	15
2000	12	0	11	1	-	6	18
2001	14	3	10	1	-	2	16
2002	12	1	8	3	-	5	17
2003	14	7	11	3	-	7	21
2004	16	1	13	2	0	-	16
2005	12	1	9	2	0	-	12
2006	9	1	7	1	1	-	10
2007	14	11	1	0	0	-	14
2008	4	0	4	0	0	-	4
2009	3	0	2	1	0	-	3
2010	7	1	7	0	1	-	8

Year	State General Harvest	15A	15B	15C	DS150	DS152	Total Harvest
2011	8	1	6	2	1	-	9
2012	7	0	7	0	0	-	7
2013	2	0	1	1	0	-	2
2014	5	0	4	1	0	-	5
2015	1	0	1	0	0	-	1
2016	1	0	1	0	0	-	1
2017	3	0	1	2	1	-	4
2018	1	1	0	0	0	-	1
<b>Total</b>	323	51	239	41	4	72	399

<sup>a</sup> Drawing permits not available

**Table 3.** Resident status of successful hunters that harvested sheep in Unit 15 from 1992-2000, 2001-2010 and 2011-2018 (WinfoNet 2019).

Harvest Period	Rural Resident in Unit 15 <sup>a</sup>	Nonrural Resident in Unit 15	Alaska Resident not in Unit 15	Nonresident
<b>1992-2000</b>	4 (2%)	167 (68%)	61 (25%)	13 (5%)
<b>2001-2010</b>	4 (3%)	81 (63%)	23 (18%)	21 (16%)
<b>2011-2018</b>	0 (0%)	24 (61%)	11 (28%)	4 (10%)
<b>Total</b>	8 (2%)	272 (66%)	95 (23%)	38 (9%)

<sup>a</sup> Hunters were classified as Federally qualified subsistence users by the reported residency in ADF&G's harvest database. As reported, residency may not reflect the location of one's permanent residence, these data should be considered estimates.

### Other Alternatives Considered

One alternative considered was one ram by Federal drawing permit for Federally qualified users hunting on Federal public lands. This would have provided for more opportunity for Federally qualified users while also protecting adult females which are the most important age class in the population. The harvest of ewes is not advised in areas with low or declining sheep populations. However, this was considered too restrictive for Federally qualified subsistence users given the small sheep populations. To alleviate concern for overharvest or too many ewes being taken, the Federal land manager would be able to limit the harvest, close the season, set sex restrictions, and permit conditions via delegated authority.

### Effects of the Proposal

Establishing a Federal season for sheep in Unit 15 would provide additional opportunity for Federally qualified subsistence users to harvest sheep on Federal public lands. Currently, there is no Federal

subsistence season for sheep in Unit 15. However, given the current status of the sheep populations in Unit 15 and that only one adult ram was taken in 2018 the chances of harvesting a an adult ram by Federally qualified users is small. Even if the Round Mountain drawing area was open to Federally qualified users only, it would not provide a meaningful opportunity for subsistence harvest. Only one adult full curl ram was harvested under the general hunt in 2018.

The small sheep populations on the Kenai Peninsula are subject to overharvest if not managed carefully. The largest sheep population in Unit 15 still has only about 150 animals. Severe winters could reduce some of these populations below the minimal viable population threshold of 50 animals and the take of even a few additional sheep could result in overharvest. To prevent unnecessary disturbance on struggling sheep populations during the rut the KNWR Manager could close the seasons before the rut. Most hunters do not harvest sheep during the rut because the meat is undesirable. Aligning season dates with the State would reduce regulatory confusion and provide the best opportunity for collaborative harvest management and enforcement. ADF&G has been managing the sheep populations on the Kenai Peninsula through the use of drawing permits for the Round Mountain area and a general hunt (harvest ticket) for the remainder of Unit 15. Because of the small and relatively unstable or fluctuating herd sizes, fluctuating permit numbers, and the risk of overharvest, any Federal permits issued should still fall within the same general framework established by the State for those hunts. Thus Federal drawing hunts should not be issued for any sheep in the population, but be specific to local populations as is done by the State. Appropriate allocation coordination must be made to determine how many State and Federal permits are issued to limit the potential for overharvest.

Non-Federally qualified residents of Unit 15C have been the primary harvesters of sheep in Unit 15C since 1990 (**Table 3**). If this proposal is adopted, the Kenai National Wildlife Refuge Manager through delegated authority could close the sheep season on Federal public lands when the harvest quotas have been met.

**OSM CONCLUSION**

**Support** Proposal WP20-24b **with modification** to establish a Federal drawing permit hunt for sheep in Unit 15 with a harvest limit of one sheep, and delegate authority to the Kenai National Wildlife Refuge Manager to close the season, set the harvest quota, set sex restrictions, and set any needed permit conditions via delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

**Unit 15 - Sheep**

*1 sheep by Federal drawing permit.*

~~*No Federal open season  
Aug. 10–Nov. 14*~~



## Justification

Establishing a Federal sheep season in Unit 15 would provide additional opportunity for Federally qualified subsistence users to harvest sheep on Federal public lands. Currently, there is no Federal subsistence season for sheep in Unit 15 and Federally qualified subsistence users have to rely on the limited number of State drawing permits in Unit 15A or use a harvest ticket in Unit 15 remainder in order to harvest sheep in the unit. It should be noted if the Round Mountain drawing area was open to Federally qualified users only, it would not provide a meaningful opportunity for subsistence harvest and given the current status of the sheep populations in Unit 15, the chances of harvesting a sheep by Federally qualified users is small. Providing this opportunity for subsistence harvest of sheep is consistent with Section 804 of the Alaska National Interest Lands Conservation Act, which calls for priority consumptive use of fish and wildlife populations by rural Alaska residents. The demand for sheep in Unit 15 from all hunters under State regulations is greater than the harvestable surplus as shown by the harvest history, and population data. Due to the small size of the sheep populations, habitat limitations, and susceptibility to over hunting, these populations are highly regulated by the State. The continued decline of sheep populations on the Kenai Peninsula requires adaptive management practices to ensure conservation of the resource.

Since the demand for sheep is greater than the harvestable surplus a drawing permit is recommended so that harvest is limited by restricting the number of permits issued and thus minimizing the threat of overharvest. Establishing a drawing permit hunt would allow for better harvest monitoring, while delegating authority to the Kenai National Wildlife Refuge Manager will allow for greater hunt management flexibility through in-season adjustments and a more timely response to changes in population status, hunting conditions, or hunter access while maximizing harvest opportunities for subsistence users. Harvesting mature rams is often the most conservative strategy, especially after population declines. Full curl management for a majority of Unit 15 has been in place for the general season and drawing permit hunts since 1989. The Kenai National Wildlife Refuge Manager will have the ability to close the season before the rut to reduce unnecessary stress on the struggling sheep populations when they are most vulnerable. In addition, most hunters do not hunt during the rut because the meat is undesirable. Setting permit conditions, such as reporting requirements, will assist the Kenai National Wildlife Refuge Manager in closing the season early if needed. The Federal manager will need to work closely with the State to monitor harvest under both State and Federal hunts if this proposal is adopted by the Board.

The long-term decline of sheep populations, especially in the southern portion of their range in Unit 15 has reduced the harvest of legal rams. In 2018, only one legal ram was harvested in Unit 15. Harvesting mature rams is often the most conservative strategy, especially after population declines. Careful monitoring of harvest through a Federal drawing permit, along with a harvest quota, will provide the necessary protection for each sheep subpopulation in Unit 15.

## LITERATURE CITED

Alaska Department of Fish and Game (ADF&G) 2019a. Kenai Peninsula Overview. Presentation at the Alaska Board of Game, Southcentral Region: March 14-19, 2019.

ADF&G. 2019b. Harvest General Reports database. <https://secure.wildlife.alaska.gov/index.cfm?adfg=harvest.main&ga=1.109733509.1089519111.1465854136>, accessed April 16, 2019. Anchorage, AK.

Dial, R.J., E. E. Berg, K. Timm, A. McMahon, and J. Geck. 2007. Changes in the alpine forest-tundra ecotone commensurate with recent warming in southcentral Alaska: Evidence from orthophotos and field plots. *Journal of Geophysical Research* 112, G04015:1-15.

Dial, R.J., S.T. Smeltz, P.F. Sullivan, C.L. Rubasm K. Timm, J.E. Geck, T.S. Carl, T.S. Golden, and E.C. Berg. 2016. Shrubline but not treeline advance matches climate velocity in montane ecosystems of south-central Alaska. *Global Change Biology* 22(5):18411856.

Geist, V. 1971. *Mountain sheep: A study in behavior and evolution*. University of Chicago Press, Chicago.

Herreman, J. 2014. Units 7 and 15 Dall Sheep management report. Chapter 1, Pages 1-1 through 1-7 in P. Harper, editor. Dall sheep management report of survey and inventory activities 1 July 2010- 30 June 2013, ADF&G. Species Management Report ADF7G/DWC/SMR 2014-4, Juneau.

Herreman, J.K. 2018. Dall sheep management report and plan, Game Management Units 7 and 15. Report period 1 July 2011-30 June 2016, and plan period 1 July 2016-30 June 2021. ADF&G, Species Management Report and Plan ADF&G/DWCSMR&P-2018-34, Juneau.

Herreman, J. 2019. Wildlife Biologist. Personal communication: email. ADF&G. Homer, AK.

Hoefs, M. 1984. Productivity and carrying capacity of a subarctic sheep winter range. *Arctic* 37:141-147.

Hoefs, M. and I.M. Cowan. 1979. Ecological investigation of a population of Dall sheep (*Ovis dalli dalli* Nelson), *Syesis* 12(Supplement 1):1-81.

Hoefs, M. and m. Bayer. 1983. Demographic characteristics of an un hunted Dall sheep, *Ovis dalli dalli*. *Canadian Journal of Zoology* 61:1346-1357.

Krausman, P.R. and R.T. Bowyer. 2003. Mountain Sheep. Pages 1095-1115 in G.A. Feldhamer, B.C. Thompson, and J.A. Chapman, eds. *Wild Mammals of North America: biology, management, and conservation*. Second edition. John Hopkins University Press, London.

Nichols, L. 1971. The Dall sheep and its management in Alaska. Pages 2-8 in E. Decker, editor. *Transactions of the 1<sup>st</sup> North American Wild Sheep Conference*, 14-15 April 1971. Fort Collins, Colorado. Colorado State University, Department of Fishery and Wildlife Biology, Fort Collins, Colorado.

Nichols, L. 1975. Report and recommendations of the Dall and Stone Sheep Workshop Group. Pages 208-266 in J.B. Trefethen, editor. *The wild sheep in modern North America: Proceedings of the workshop on the management biology of North American wild sheep*, 18-20 June 1974, Missoula, Montana.

- McDonough, T. J. and J. Selinger. 2008. Mountain goat management on the Kenai Peninsula Alaska: a new direction. Proceedings of the biennial Symposium of the Northern Wild Sheep and Goat Council 16:50-67.
- Paul, Thomas W. 2009. Game transplants in Alaska. Technical Bulletin No. 4, second edition. ADF&G, Juneau, AK. 250 pp.
- Pedersen, E. 1944. Kachemak Bay Story. Friends of the Homer Public Library. Homer, AK.
- Rachlow, J.L. and R.T. Bowyer. 1998. Habitat selection by Dall's sheep (*Ovis dalli*): Maternal trade-offs. Journal of Zoology, London 245:465-475.
- Scott, D. R., E.F. Chatelain, and W.A. Elkins. 1950. The status of the Dall sheep and caribou in Alaska. North American Wildlife Conference Transcripts 15:612-626.
- USFWS. 2019. Harvest database. Office of Subsistence Management, USFWS, Anchorage, AK.
- Williams, D. 2014. Ninilchik Subsistence Survey. Ninilchik Traditional Council. 67 pp.
- WinfoNet. 2019. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION**

### **Southcentral Alaska Regional Advisory Council**

**Support WP20-24b as modified by OSM.** The Council stated that a Federal priority needs to be established, providing an opportunity for Federally qualified users to harvest a sheep that does not exist at this time. With the declining population, it is important to set aside this priority before restrictions in harvest occur. Delegated authority will allow flexibility in how the hunt is managed and give the land manager the ability to close the hunt if needed for conservation or other reasons.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee supports establishing a Federal sheep season in Unit 15 to provide a priority opportunity for Federally qualified subsistence users to harvest sheep on Federal public lands. To implement this proposal and avoid overharvest, proactive, frequent and timely coordination between Federal and State agencies will be crucial, along with timely harvest reporting from permitted hunters. Subsequently, aligning with the State hunt framework (full curl rams only) and seasons (Aug. 10 – Sep. 20) may be important for the Board to consider.

Almost all of Unit 15 is currently open to sheep hunting for 40 days with a free State harvest ticket available to all user groups. Annual harvest from 2010 – 2018 has ranged from 1 to 8 full curl rams (page 12, OSM analysis). Only the small area in Unit 15A is a State draw hunt (DS150 hunt of round mountain) and it has not produced a legal ram in 8 years. Allowing an “any sheep hunt” that could extend to November 14 would create an additional harvest opportunity afforded only to Federally Qualified users. However, allowing the take of sheep that are not full curl may have negative impacts to these vulnerable populations. Over harvest could occur with an “any sheep” harvest, even with an established quota, tight reporting requirements and the in-season manager’s ability to close the season. Management of small and vulnerable populations often focus on full curl management to maximize conservation measures while allowing limited take.

The Unit 15 sheep populations are vulnerable due to several factors: 1) populations are small and declining; 2) habitat limitations due to climate change are impacting their limited range; 3) recent 2019 fire impacts are unknown; and 4) populations are susceptible to over hunting. The vulnerability and uncertainty of the Kenai sheep populations warrants conservative and careful harvest management, especially with dual administration of harvest from Federal and State agencies.

Adopting the State framework to initiate this Federal hunt would reduce regulatory confusion and allow nuances surrounding the administration of the hunt by Federal and State entities to be resolved. Future proposals or in season special actions to increase season lengths or permit any sheep harvest limits could be implemented over time if sheep populations improve. The current 40-day season provides a reasonable harvest time, and most hunters do not want to hunt near the rut period (November) as meat is undesirable.

If this proposal, and proposals WP20-22b and WP 20-23b are passed by the Board, there will be three new federal hunts established in Unit 15. Each hunt will require significant time and coordination commitments by the Kenai NWR staff to administer. Reducing regulatory complexity between Federal and State Hunts, to ensure successful implementation, may be important to consider when evaluating this proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-24A/B:** This proposal, submitted by the Ninilchik Traditional Council, would revise the federal customary and traditional use determination for sheep in Unit 15 from no federal subsistence priority to residents of Ninilchik only. This proposal would also establish a subsistence sheep season of August 10 to November 14 in Unit 15 with a bag limit of 1 sheep.

**Introduction:** Unit 15 encompasses more than 4800 mi<sup>2</sup>. The majority of Unit 15 is within the state's Anchorage-Matsu-Kenai Peninsula Nonsubsistence Area. Sheep are not found in those portions of Unit 15 that are outside the nonsubsistence area (Kalgin Island in Unit 15B, and lands around Seldovia, Port Graham, and Nanwalek in Unit 15C).

Excluding approximately 10 mi<sup>2</sup> in Unit 15A (which is less than 0.5% of the total area in Unit 15), the entire Unit is open to sheep hunting using a general season harvest ticket available to all Alaska residents and nonresidents. The Alaska resident bag limit for Dall sheep throughout Unit 15 under general season regulations is 1 full curl ram per regulatory year.

Harvests of Dall Sheep throughout Unit 15 have been low in recent years (average annual harvest from 2014-2018 was 2.4 sheep/ regulatory year compared to 33 sheep/regulatory year from 1992-1996) and we have experienced a noticeable decline in sheep numbers (average annual count from 1992-1996 was 829 sheep compared to 227 for 2014-2018). With the continuing decline of sheep in the Unit 15, additional harvest is not warranted at this time.

**Impact on Subsistence Users:** If the proposal is passed it would provide some additional harvest opportunity for federally qualified subsistence users.

**Impact on Other Users:** Should the sheep harvest increase, along with declining populations, , nonfederally qualified users may have reduced opportunity to harvest a sheep.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made no customary and traditional use findings for Dall sheep in those portions of Unit 15 outside the nonsubsistence area because sheep are not found in those areas.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably

necessary for customary and traditional uses. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

Because there is no C&T finding, there is no ANS for Dall sheep in Unit 15. The season and bag limit for Unit 15 is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
<i>15A east of Fuller Lake trail, South of Dike Creek and straight Line From the source of Dike Creek, east through the divide south Of Trout Lake to Juneau Creek, west of Juneau Creek and north of the Sterling Highway</i>	<i>One Ram with full curl</i>	<i>August 10-September 20 (Drawing)</i>	<i>August 10-September 20 (Drawing)</i>
<i>15 remainder</i>	<i>One Ram with full curl</i>	<i>Youth August 1-August 5 (HT)</i>	<i>Youth August 1-August 5 (HT)</i>
<i>15 remainder</i>	<i>One Ram with full curl</i>	<i>August 10-September 20 (HT)</i>	<i>August 10-September 20 (HT)</i>

<sup>a</sup> General Hunts Only.

Special instructions:

Ram horns must be sealed within 30 days of kill and must accompany meat from the field.

**Conservation Issues:** The current sheep hunting opportunity is managed through drawing permits and a general season harvest ticket. Sheep numbers are low at this time and thus a drawing permit is used to provide some hunting opportunity in a portion of Unit 15A where access is better; the remainder is open to all hunters. All Alaska hunters have some opportunity to hunt sheep in Unit 15 and additional harvest may impact the long-term abundance of sheep in Unit 15. It is not advisable to have an any additional sheep harvest opportunity when you have a decreasing sheep population

**Enforcement Issues:** Having different bag limits for federal subsistence sheep hunts and state regulated sheep hunts may make enforcement difficult.

**Recommendation:** ADF&G is **NEUTRAL** on eligibility requirements for the federal subsistence program. However, ADF&G recommends that the USFWS Office of Subsistence Management analysis of customary and traditional uses be revised so it systematically examines each of the 8 criteria used to determine a C&T finding. Furthermore, on page 7 of the C&T analysis, a decline in sheep use by Tribal members and other Native residents of Ninilchik is cited; however the data from the cited studies (1994, 1999 and 2014) cannot be compared due to the variation in research methods and sample selection between studies.

Furthermore, the Department of Fish and Game **OPPOSES** the portion of the proposal that seeks to open an any sheep hunt. The majority of Unit 15 is open to all Alaska hunters under general season management. This provides the appropriate level of opportunity for a sheep population that is declining. If the proposal is adopted, ADF&G would support a modification to restrict the bag limit to 1 full curl ram with season dates of August 10 – September 20.

Appendix 1



FISH and WILDLIFE SERVICE  
BUREAU of LAND MANAGEMENT  
NATIONAL PARK SERVICE  
BUREAU of INDIAN AFFAIRS

## Federal Subsistence Board

1011 East Tudor Road, MS121  
Anchorage, Alaska 99503



FOREST SERVICE

FWS/OSM XXXX.XX

Refuge Manager  
Kenai National Wildlife Refuge  
P.O. Box 2139  
Soldotna, Alaska 99669-2139

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the Kenai National Wildlife Refuge Manager to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of the population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within the Kenai National Wildlife Refuge for the management of sheep on these lands.

It is the intent of the Board that actions related to management of sheep by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers



are expected to work with State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

## **DELEGATION OF AUTHORITY**

**1. Delegation:** The manager of the Kenai National Wildlife Refuge is hereby delegated authority to issue emergency or temporary special actions affecting sheep on Federal lands as outlined under the **Scope of Delegation** below. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

To close the season, set the harvest quota, set sex restrictions and set any needed permit conditions for sheep.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve sheep populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the population. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within the Kenai National Wildlife Refuge.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine: (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action

differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council representatives. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal Managers, and the local Council representatives at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Subsistence Regional Advisory Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair, Federal Subsistence Board

cc: Federal Subsistence Board  
Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management

Wildlife Division Supervisor, Office of Subsistence Management  
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Southcentral Alaska Subsistence Regional Advisory Council  
Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record

<b>WCR20-03 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-03 reviews the closure to moose hunting in Unit 7, draining into Kings Bay, except by residents of Chenega Bay and Tatitlek.
<b>Current Regulation</b>	<p><b>Unit 7–Moose</b></p> <p><i>Unit 7—that portion draining into Kings Bay— No open Federal public lands are closed to the taking of Federal season moose except by residents of Chenega Bay and Tatitlek.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW  
WCR20-03**

**Closure Location:** Unit 7—Moose

**Current Federal Regulation**

**Unit 7—Moose**

*Unit 7—that portion draining into Kings Bay—Federal public lands are closed to the taking of moose except by residents of Chenega Bay and Tatitlek. No open Federal season*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 7 remainder—Moose**

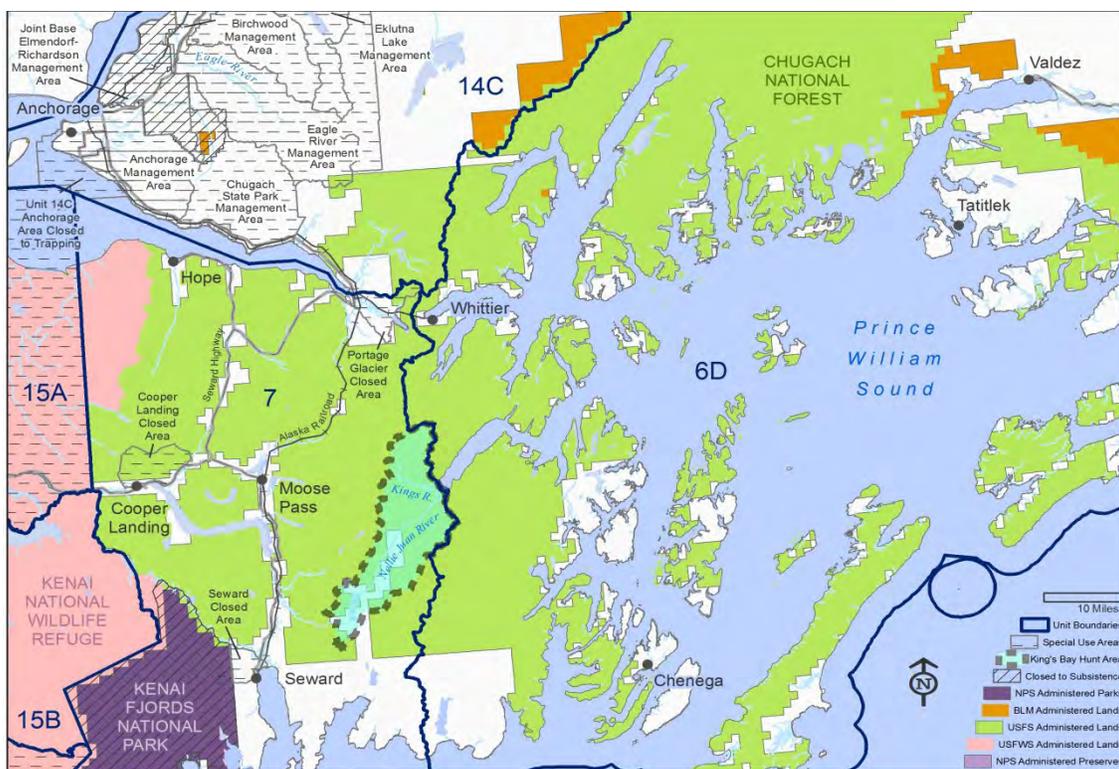
*Residents and Nonresidents: One bull with a spike on at least one side or 50-inch antlers or antlers with 4 or more brow tines on at least one side. HT Sep. 1-Sep. 25*

**Regulatory Year Initiated:** 1997 – original closure was to non- Federally qualified users. 2006 – The closure was expanded to include all users.

**Regulatory History**

At its April 1997 meeting, the Federal Subsistence Board (Board) adopted a customary and traditional use determination (P97-018b) for moose in the Kings Bay drainage portion of Unit 7 to include the residents of Chenega Bay and Tatitlek (**Map 1**) (OSM 1997a). At the same meeting, the Board adopted proposal P97-021 with modification to create a season for one bull with spike-fork or 50 inch antlers or 3 or more brow tines on either antler from Aug. 10 – Sep. 20 with a harvest limit of 2 moose per community for residents of Chenega Bay and Tatitlek, and closed Federal public lands to all other users (OSM 1997b).

In 2001, Special Action WSA01-02, submitted by the Chugach National Forest, U.S. Forest Service, requested that the Aug. 10 – Sep. 20 moose season in the Kings Bay drainage of Unit 7 be closed to all users (OSM 2001). This Special Action was approved by the Board. The Board determined that the moose population was too small to support a harvest. The Special Action lasted for one regulatory year without a proposal to continue the closure. Therefore, the original Aug.10 – Sep. 20 season was re-opened starting with the 2002 season.



**Map 1.** Location of Kings Bay drainage area.

Wildlife Closure Review WCR05-03 found the moose population to be at a low density and no indication that there were any increases in the population to justify harvest except by Federally qualified subsistence users (OSM 2005).

In 2006, Proposal WP06-16/17 requested a season extension from Aug. 10 – Sep. 20 to Aug.10 – Feb. 28 and that harvest antler restrictions be changed from one bull with spike-fork or 50–inch antlers or 3 or more brow tines on either antler to a moose of either sex (OSM 2006). At the March 14-16, 2006 Southcentral Alaska Subsistence Regional Advisory Council (Council) meeting, the Council discussed changing the Kings Bay drainage moose harvest limit, harvest season, and removing the Federal closure. The Council voted to support WP06-16 with modification to: remove the antler restrictions and retain only the bull harvest, add a permit with a 7-day reporting requirement, change the harvest dates to Sep. 1–Dec. 31, and retain the closure of Federal public lands to non-Federally qualified users. The proponent from Chenega Bay stated they had never been restricted during the Aug. 10-Sep. 20 season, primarily because that time of year (in the early season) the moose are rarely (if at all) harvestable as the snow has not yet pushed them down from higher elevations that they normally occupy in the early fall. The proponent stated the historical moose harvest by Prince William Sound rural residents did not take place until later into the winter months. The Council suggested the season change to accommodate a winter harvest, but added a restriction of one bull harvest and recommended the Federal closure because the Council was concerned about the small population of moose in the area. Subsequently, the Board closed Federal public lands in this portion of Unit 7 to the hunting of moose by all users due to conservation concerns at its May 2006 meeting.

In 2010, the Council voted to maintain the status quo and continue the closure to all users for the conservation of a healthy population. Wildlife Closure Review WCR10-03 found the moose population was at a low density and there were no indications of any population increases to justify subsistence or non-subsistence harvest (OSM 2010).

In 2012, the Board rejected Proposal WP12-29, which requested a moose season be established in Unit 7 for that portion draining into Kings Bay, due to conservation concerns (OSM 2012).

At its meeting on November 5, 6, and 7, 2013, the Council recommended a harvest quota of only one bull moose every four years for WP14-11 (SCRAC 2013:237). Additionally, the Council recommended that eligibility be determined through an ANILCA Section 804 prioritization analysis because of the small harvestable surplus of animals that was likely to exist in the hunt area relative to the large number of subsistence users with a customary and traditional use determination (SCRAC 2013:238).

In 2014 the Board adopted Proposal WP14-11 with modification to include only residents of Chenega Bay and Tatitlek in the Customary and Traditional Use Determination for moose from this hunt area (OSM 2014). The Board also voted to continue the closure based on the results of the 2014 moose survey.

Federal public lands comprise approximately 80% of Unit 7 and consist of 53% U.S. Forest Service (USFS) managed lands, 23% National Park Service managed lands and 2% U.S. Fish and Wildlife managed lands (**Map 1**). Federal public lands of the Kings Bay drainage portion of Unit 7 consist of only U.S. Forest Service managed lands within the Chugach National Forest.

**Closure Last Reviewed:** 2014 – WP14-11

### **Justification for Original Closure (ANILCA Section 815 (3) criteria)**

Section §815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The Board adopted Proposal P97-21 to protect this small moose population and to provide residents of Chenega Bay and Tatitlek the opportunity to harvest moose (OSM 1997b). Under Section 815(3), authorizing restriction on the taking of fish and wildlife for non-subsistence uses on Federal public lands is allowable when necessary for the conservation of healthy populations and to continue subsistence uses.



### **Council Recommendation for Original Closure**

The Council supported Proposal P97-21 with modification to establish an Aug. 20-Sep. 30 season over a Sep. 1-Dec. 31 season, implement antler restrictions, and limit harvest to 1 bull each for the communities of Chenega Bay and Tatitlek. The Council also recommended that the Board limit the Federal closure to the 1997-98 regulatory year with reauthorization to occur on an annual basis (FSB 1997). The Board adopted the proposal with modification, changing the dates of the season from Sep. 1-Dec. 31 to Aug 10-Sep 20 to avoid adverse impacts from the season extending into the rut.

### **State Recommendation for Original Closure**

The State did not support the original closure. The State supported a 1996 special action that created a temporary closure in the affected area, but did not support adopting a permanent Federal closure beyond the 1997-98 regulatory year. The State stated that a permanent closure of this area or the entire area to all but Federally qualified subsistence users was not necessary.

The State supported a limited fall subsistence hunt as proposed on public lands in the Kings River and lower three miles of the Nellie Juan River but did not support the area description for the hunt because it applied to the entire Kings and Nellie Juan river system draining into Kings Bay. The State was concerned that Alaska residents who fly into Nellie Juan lake in the fall to fish for grayling and hunt for moose and black bear would not be able to hunt under Proposal P97-21 (OSM 1997b). The State preferred to see a modification of the closure area to be limited to the lower three miles of the Nellie Juan River and the public lands of Kings River draining into Kings Bay (FSB 1997).

### **Biological Background**

A comprehensive moose survey has never been conducted in Unit 7 (Herreman 2012, 2018). The amount of moose habitat in the Kings Bay area is small, and consists of narrow riparian areas along the Kings River and Nellie Juan River. The U.S. Forest Service (USFS) evaluated the moose habitat in Kings Bay in September 2019 and as expected found that the moose habitat was limited. Browse species were mostly confined to the forest/tideland interface of the Nellie Juan and King's River delta, as well as inactive stream channels, gravel bars, and the backs of active stream channels. The most concentrated moose sign, consisting of moose droppings, beds, and evidence of browsing, was seen in a boggy meadow (USFS 2019). Severe winters with deep snow are common in this area and probably contribute to a high mortality rate and the relatively low moose densities (McDonough 2010). Aerial surveys in the vicinity of Kings Bay in Unit 7 were conducted during 1996/1997, 1997/1998, 1999/2000, 2001/2002, 2005/2006, and 2014/2015 (**Table 1**). An aerial survey conducted by the Alaska Department of Fish and Game (ADF&G) on January 8, 1997, revealed a minimum of 20 moose in the area. The herd consisted of 8 bulls, 10 cows, and 2 calves. Counting conditions were good, with heavy snow cover and excellent visibility. On August 9, 2019 the USFS biologists visited Kings Bay to deploy trail cameras. On September 27, they revisited the site to check the trail cameras. During 260 "camera days" no moose were seen although fresh tracks of cow or young bull were observed in a creek channel. During the 49 day period cameras "captured" four black bears, four brown bears, 12 coyotes, and two wolves (USFS 2019).

The entire drainages of the Nellie Juan and Kings Rivers were flown in March 2001 by the ADF&G, from Nellie Juan Lake downstream to the head of Kings Bay and up the Kings River to the glacial headwaters. Nine moose were counted during the survey in conditions characterized as being excellent for aerial surveying (Spraker 2001, OSM 2005). The small area of moose habitat at Kings Bay is isolated with only one accessible route for moose to enter the area across the mountains from Paradise Lakes or Nellie Juan Lake areas and then down the Nellie Juan River—a distance of 15 to 20 miles over difficult terrain. Interchange of moose with other areas is therefore likely minimal. The fact that only 9 moose were observed is significant. Black bear occur in high densities in western Prince William Sound (Crowley 2002), and brown bears are regularly present in the Kings Bay area as well. These two predators may elevate the importance of safe calving habitat, which appears to be limited. Productivity and viability of this small group of moose, therefore, is marginal. The restricted area used by moose in the Kings Bay area makes them vulnerable to hunters who walk up the river valley or use authorized motorized access.

**Table 1.** Population data from moose surveys conducted in Unit 7 in the vicinity of Nellie Juan River and Kings River which drain into Kings Bay from 1996 to 2005 (Herreman 2013, 2018).

Year	Number of Bulls	Number of Cows	Number of Calves	Total Moose	Bulls:100 Cows	Calves:100 Cows	% Calves
1996/1997	8	10	2	20	80	20	10
1997/1998	0	1	1	15 <sup>a</sup>	-	100	6.7
1999/2000	-	-	-	7 <sup>b</sup>	-	-	-
2000/2001	3	3	3	9	100	100	33.3
2001/2002	4	7	1	12	57	14	8.3
2005/2006	1	-	0	5 <sup>c</sup>	20 <sup>d</sup>	-	-
2014/2015	0	0	0	0	0	0	0
Mean	2.7	4.2	1.2	9.7			

<sup>a</sup> Age and sex data not recorded for 14 adult moose

<sup>b</sup> Age and sex not recorded during survey

<sup>c</sup> Age and sex not recorded for 4 moose

<sup>d</sup> Minimum count

A moose index survey was flown on March 27, 2006, funded by the U.S. Forest Service and conducted by ADF&G personnel, using the standard ADF&G moose survey protocol. The conditions were generally good for counting. Extra time was spent following moose tracks to try to obtain a better observation of the total moose numbers (Zemke 2006, pers. comm.; OSM 2018). A total of 5 moose were observed in 2005/06. Two were seen south of the Nellie Juan River confluence with Kings Bay and two were seen in the area between the Nellie Juan River and Kings River (Zemke 2006, pers. comm.). One bull moose was observed upstream in the Kings River watershed (Zemke 2006 pers. comm., OSM 2018). No calves were observed in the area. A majority of the moose tracks were observed within a half mile of the shoreline. The surveyors stated that, although additional moose could be present in this heavily timbered steep country, they were relatively certain there were a very limited number of moose in the area during the survey period. The number of moose in this area

during the fall would be hard to predict from this late spring survey as some moose may have migrated out of the area before heavy winter snowfall. No moose were observed in the Kings Bay drainage portion of Unit 7 during the 2014 survey conducted by the U.S. Forest Service and ADF&G (Burcham 2018).

### **Harvest History**

Harvest data indicate that no moose were harvested from this area from 1997–2000 (OSM 2012). As of 2001, it was known that some hunting had occurred from the village of Tatitlek with no success (Vlasoff 2001, OSM 2005). The hunters of Chenega Bay informally discussed this hunt on May 5, 2001, concluding that they knew of no one from Chenega Bay that had hunted the Kings Bay herd in recent years (Robertson 2001, pers. comm.; OSM 2005).

According to the recollections of several hunters from Chenega Bay and Tatitlek, Kings Bay has been used for moose hunting by residents of these two villages since at least the 1960s. Moose harvests have taken place incidental to commercial fishing, seal hunting, or goat hunting. Studies of the old village of Chenega in the 1960s, the re-established village of Chenega Bay in the 1980s (Stratton and Chisum 1986), and Tatitlek in the 1980s (Stratton 1990) by the ADF&G Subsistence Division noted that while moose harvests were not common, Kings Bay was a moose hunting location commonly used by these villages.

The general hunt under State regulations was closed by the Alaska Board of Game on Federal public lands in the Kings Bay drainage in 1997. The State's general hunt regulations apply to non-Federal public lands in the vicinity of Nellie Juan Lake, with a harvest limit of one bull with a spike at least on one side, 50-inch antlers or antlers with four or more brow tines on at least one side. The landowner (Chugach Corporation), however, has restricted access to the area. According to the corporation's permit specialist, no trespass permits for hunting have been issued by the corporation since 1997.

From 2000–2008, between 0 and 2 moose were reported harvested each year under State regulations within the Nellie Juan River drainage area (part of Unit 7 remainder in State regulations), which is near the Kings River drainage for a total of five moose. The 2000–2008 moose harvest was by non-Federally qualified users and the affected area is typically accessed by aircraft. No moose have been harvested in the Nellie Juan drainage from 2010-2017 (Winfonet 2018, OSM 2018).

### **OSM Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

### **Justification**

There is little information on the current status of the affected moose population in this area. Based on the 1996-1997, 2001-2002, 2005-2006, 2014-2015 survey results, the moose population has been at a low density and there are no indications that there have been any increases in the moose population to justify rescinding the current closure. Interchange of moose with other areas is likely minimal due to the difficult terrain. No moose were observed in the Kings Bay drainage portion of Unit 7 during a

winter 2014 moose survey conducted by ADF&G. The Council supported maintaining the closed hunting season. Therefore the continuation of the current closure to moose hunting is necessary for the conservation of the wildlife resource.

## LITERATURE CITED

Burcham, M. 2018. Wildlife Biologist. Personal communication: phone, email. Subsistence Program. U.S. Forest Service. Cordova, AK.

Crowley, D. 2002. Black bear management report. Game Management Unit 6. Pages 123-140 *in* Carol Healy, ed. Black bear management report of survey-inventory activities, 1 July 1998–30 June 2001. ADF&G Division of Wildlife Conservation, Juneau, AK.

FSB. 1997. Transcripts of the Federal Subsistence Board proceedings, April 7, 1997. Anchorage, AK.

Herreman, J. 2012. Unit 7 moose management report. Chapter 8, pages 8-1 through 8-6 *in* P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011-3 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.

Herreman, J. 2018. Moose management report and plan, Game Management Unit 7: Report period 1 July 2010-30 June 2015 and plan period 1 July 2015 – 30 June 2020. Alaska Department of the Fish and Game, Species Management Report and Plan ADF&G/DW/SMR&P-2018-11, Juneau, AK.

McDonough, T. 2010. Unit 7 moose management report. Pages 110–115 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. Alaska Department of Fish and Game. Project 1.0., Juneau. AK.

OSM. 1997a. Staff analysis P97-018B. Pages 161–171 *in* Federal Subsistence Board Meeting Materials April 7–11, 1997. Office of Subsistence Management, FWS. Anchorage, AK. 1034 pp.

OSM. 1997b. Staff analysis P97-021. Pages 441–446 *in* Federal Subsistence Board Meeting Materials April 7–11, 1997. Office of Subsistence Management, FWS. Anchorage, AK. 1034 pp.

OSM. 2001. Staff analysis WSA01-02. Office of Subsistence Management, FWS. Anchorage, AK. 3 pp

OSM. 2005. Staff Analysis WCR05-03. Office of the Subsistence Management, FWS. Anchorage, AK. 4 pp.

OSM. 2006. Staff analysis WP06-16/17. Pages 189–196 *in* Federal Subsistence Board Meeting Materials May 16–18, 2006. Office of Subsistence Management, FWS. Anchorage, AK. 579 pp.

OSM. 2010. Staff Analysis WCR10-03. Office of the Subsistence Management, FWS. Anchorage, AK. 3 pp.

OSM. 2012. Staff analysis WP12-29. Pages 616–623 *in* Federal Subsistence Board Meeting Materials January 17–20, 2012. Office of Subsistence Management, FWS. Anchorage, AK. 1021 pp.

OSM. 2014. Staff analysis WP14-11. Pages 58–79 *in* Federal Subsistence Board Meeting Materials April 15–17, 2014. Office of Subsistence Management, FWS. Anchorage, AK. 680 pp.

OSM. 2018. Harvest database. Office of Subsistence Management, FWS. Anchorage, AK.

Robertson, C., 2001. Personal Communication: phone FWS. Chenega Bay, AK.

SCRAC. 2013. Transcripts of the North Slope Subsistence Regional Advisory Council proceedings. November 6, 2013. Barrow, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

Spraker, T., 2001. Wildlife Biologist. ADF&G, Soldotna, AK. Wildlife Closure Review 05-03.

Stratton, L. 1990. Resource harvest and use in Tatitlek, Alaska. ADF&G Div. of Subsistence Tech. Paper No. 181. Juneau, AK. <<http://www.adfg.alaska.gov/sf/publications/index.cfm/ADFG=addLine.home>>

Stratton, L. and E.B. Chisum. 1986. Resource use patterns in Chenega, western Prince William Sound: Chenega in the 1960s and Chenega Bay 1984–1986. ADF&G Div. of Subsistence Tech. Paper No. 139. Juneau, AK. <<http://www.adfg.alaska.gov/sf/publications/index.cfm/ADFG=addLine.home>>

USFS. 2019. Chugach National Forest update to the Southcentral Regional Advisory Council, October 11-12, 2019. US Forest Service, Cordova Ranger District, Cordova, AK. 4 pp.

Vlasoff, K., 2001. Southcentral Regional Advisory Council. Personal communication. Tatitlek, AK.

WinfoNet. 2018. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.

Zemke, S., 2006. CNF EVOS Liaison/Subsistence Coordinator. Personal communication. USDA Forest Service, Girdwood, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Southcentral Alaska Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-03. The Council voted unanimously to maintain the closure (status quo) until another survey can be done by the U.S. Forest Service. The last survey was completed in 2014 by ADF&G and the U.S. Forest Service. Conducting a survey is a priority of the U.S. Forest Service but not ADF&G.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

## WCR20-41 Executive Summary

<b>General Description</b>	Closure Review WCR20-41 reviews the closure to moose hunting in Unit 6C from Nov. 1-Dec. 31, except by Federally qualified subsistence users.
<b>Current Regulation</b>	<p><b>Unit 6C–Moose</b></p> <p><i>1 antlerless moose by Federal drawing permit only. Sep. 1 – Oct. 31</i></p> <p><i>Permits for the portion of the antlerless moose quota not harvested in the Sep. 1-Oct. 31 hunt may be available for redistribution for a Nov. 1-Dec. 31 hunt.</i></p> <p><i>1 bull by Federal drawing permit only. Sep. 1 – Dec. 31</i></p> <p><i>In Unit 6C, only one moose permit may be issued per household. A household receiving a State permit for Unit 6C moose permit may not receive a Federal permit. The annual harvest quota will be announced by the U.S. Forest Service, Cordova Office, in consultation with ADF&amp;G. The Federal harvest allocation will be 100% of the antlerless moose permits and 75% of the bull permits. Federal public lands are closed to the harvest of moose except by Federally qualified users with a Federal permit for Unit 6C moose, Nov. 1-Dec.31.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>

<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>



**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-41**

**Closure Location:** Unit 6C—Moose

**Current Federal Regulation**

**Unit 6C—Moose**

*1 antlerless moose by Federal drawing permit only.*

*Sep. 1 – Oct. 31*

*Permits for the portion of the antlerless moose quota not harvested in the Sep. 1-Oct. 31 hunt may be available for redistribution for a Nov. 1-Dec. 31 hunt.*

*1 bull by Federal drawing permit only.*

*Sep. 1 – Dec. 31*

*In Unit 6C, only one moose permit may be issued per household. A household receiving a State permit for Unit 6C moose permit may not receive a Federal permit. The annual harvest quota will be announced by the U.S. Forest Service, Cordova Office, in consultation with ADF&G. The Federal harvest allocation will be 100% of the antlerless moose permits and 75% of the bull permits. Federal public lands are closed to the harvest of moose except by Federally qualified users with a Federal permit for Unit 6C moose, Nov. 1-Dec.31.*

**Closure Dates:** Nov. 1-Dec. 31

**Current State Regulation**

**Unit 6C—Moose**

*One bull by permit*

*DM 167*

*Sep. 1 – Oct. 31*

**Regulatory Year Initiated:** 2014

**Regulatory History**

Prior to 2000, State residents could take one moose by drawing permit in Unit 6C Sep. 1-Oct. 31. In 2000, the Native Village of Eyak submitted Proposal P00-17 to establish a Federal subsistence hunt for moose in Units 6B and 6C. The Federal Subsistence Board (Board) adopted the proposal with modification, allowing drawing permits to be issued for 5 cow moose in Unit 6C (the total allowable cow moose harvest at that time), but left the rest of the State-managed moose harvest in place (OSM 2000).

In 2002, the Board adopted Proposal WP02-48, submitted by Mr. George Covell of Cordova, requesting that 100% of the bull moose harvest in Unit 6C come from Federal subsistence drawing permits and a change in the season start date from August 15 to September 1. The Board adopted the proposal with modification, allocating 75% of the allowable bull moose harvest for Unit 6C, and 100% of the allowable cow moose harvest for Unit 6C, to Federally qualified subsistence users.

Additionally, the cow moose season closing date was changed from December 31 to October 31. The Board's decision to split the bull moose harvest allocation in Unit 6C with the State (75% and 25% of allowable harvest in Federal and State management programs, respectively) was, in part, in recognition of the presence of non-Federal lands within the unit (OSM 2002).

In 2007, the Board adopted Proposal WP07-19, which requested the harvest limit for the Unit 6C Federal draw permit hunt be changed from 1 cow moose to 1 antlerless moose. The Cordova Ranger District submitted the proposal in order to allow Federally qualified subsistence users to continue to target cow moose without the possibility of unintentional violation should an antlerless bull be harvested (OSM 2007).

At its Southcentral Regional meeting in Kenai, March 15-19, 2013, the Alaska Board of Game (BOG) adopted amended Proposal 129 to authorize a State registration hunt for moose in Unit 6C (RM169), with a harvest limit of 1 moose, Nov. 1 – Dec. 31. The State's proposal was intended to allow for the harvest of moose allocated to the Federal quota that may not have been taken during the Federal subsistence hunt.

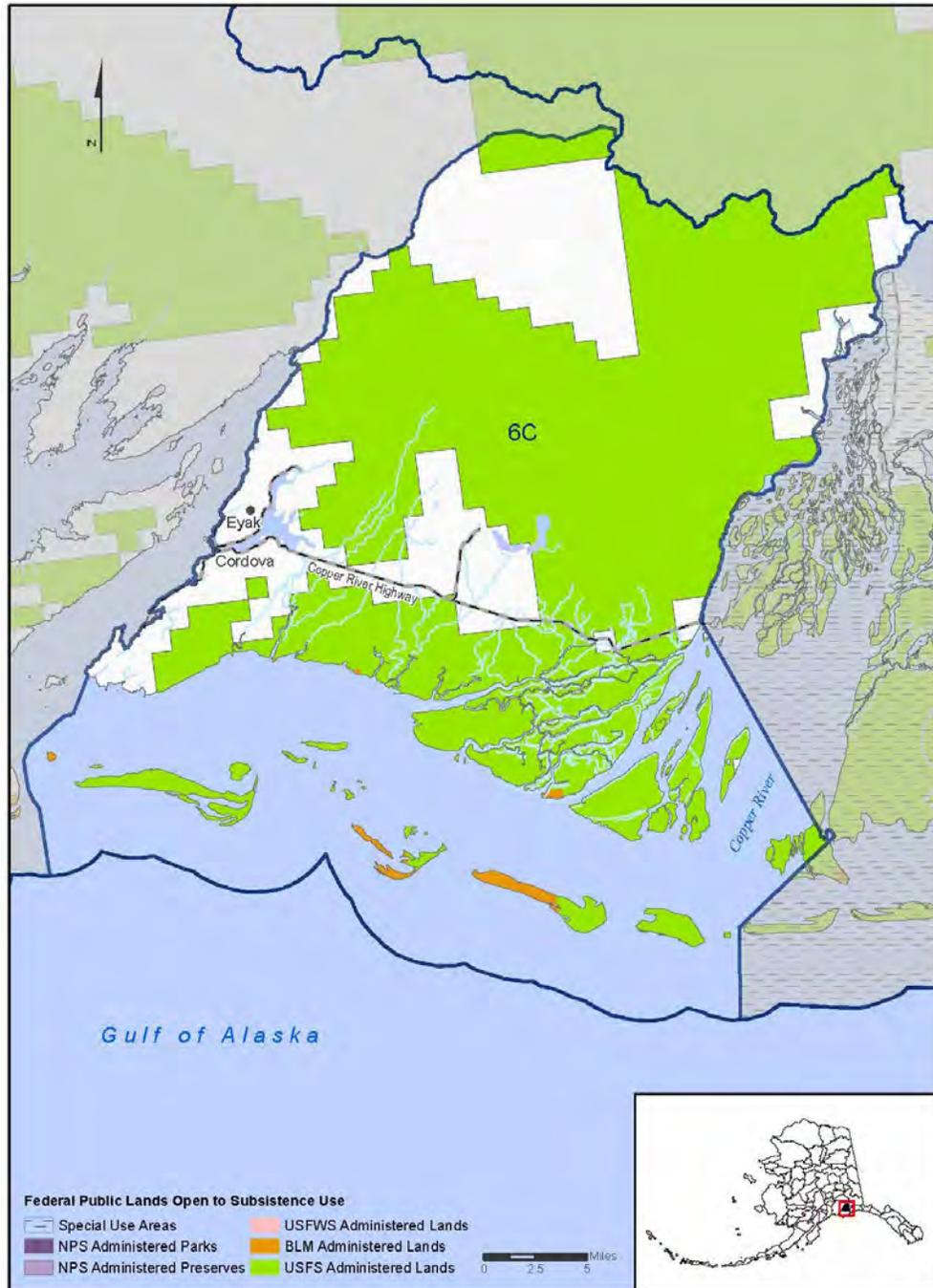
In 2014, the Board adopted WP14-18, which closed Federal public lands in Unit 6C to the harvest of moose except by Federally qualified subsistence users with a Federal permit (Nov. 1 – Dec. 31). Additionally it allowed Federally qualified subsistence users an opportunity to harvest antlerless moose that were not harvested during the early season (Sep. 1 – Oct. 31), if needed to control the population (**Map 1**) (OSM 2014).

At the Interior/Northeast Arctic Regional meeting in Fairbanks, February 17 – 25, 2017, the Alaska Board of Game adopted Proposal 145 to allow the State to reauthorize the antlerless moose season in Unit 6C.

In 2018, the Board rejected Proposal WP18-15, submitted by Tom Carpenter of Cordova, requesting that residents receiving a State or Federal Unit 6C permit be ineligible to receive a Federal 6C permit the following year, because there was no conservation concern and thus no need to restrict local users (OSM 2018).

In Unit 6C, Federally qualified subsistence hunters currently have the opportunity to harvest moose on Federal public lands under either the State or Federal seasons and on private and other non-Federal ownership under the State season.

Federal public lands comprise approximately 72% of Unit 6C and consists of 71.87% U.S. Forest Service (USFS) managed lands and 0.56% Bureau of Land Management (BLM) managed lands (**Map1**).



**Map 1.** Federal public lands in Unit 6C.

**Closure Last Reviewed:** 2014—WP14-18

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

Proposal WP14-18 aligned with the intentions of existing Federal regulations, which allocated 100% of the harvest quota for antlerless moose in Unit 6C to Federally qualified subsistence users. Providing the opportunity for additional harvest of antlerless moose and closing Federal public lands to moose hunters without a valid Federal permit for Unit 6C moose from November 1 to December 31, would maintain the Federal subsistence priority and continue subsistence uses on the Federal public land. As a result of the BOG adopting Proposal 129 in 2013, which opened some of the antlerless moose harvest to all State residents through and State registration hunt, Federally qualified subsistence users could have seen a reduced opportunity to harvest antlerless moose in Unit 6C due to competition with non-Federally qualified users. Proposal 14-18 would allow additional antlerless moose harvest by Federally qualified subsistence users, should the need exist to harvest additional moose after the regular season ends on October 31. It would also limit the effect of the new State regulation, by restricting those without a valid Federal permit for Unit 6C moose to hunt on private and State lands within Unit 6C (OSM 2014).

As directed by the Board's closure policy, use by non-Federally qualified subsistence users may be reduced or prohibited for the conservation of healthy populations of fish and wildlife or when a fish or wildlife population is not sufficient to provide for both Federally qualified subsistence users and other users (FSB 2007). Providing the opportunity for additional harvest of antlerless moose and closing Federal public lands to moose hunters without a valid Federal permit for Unit 6C moose from November 1 to December 31, would maintain the Federal subsistence priority and continue subsistence uses on the Federal public land (OSM 2014).

**Council Recommendation for Original Closure:**

The Council supported the closure to provide additional subsistence opportunities even though there were no conservation concerns. Section 815(3) of ANILCA allows for restrictions on the taking of fish and wildlife for non-subsistence uses public lands only if necessary for the conservation of healthy fish and wildlife populations, to continue subsistence uses of such populations, or pursuant to other applicable law. Federal registration permits would allow for control and monitoring of the harvest.

**State Recommendation for Original Closure:**

The State opposed the proposal. It was stated that the latest population estimate was 535-665 (90% CI) with a midpoint of 600 moose and that this translated to an overall density of 3 moose/mi<sup>2</sup>, and a core winter range at 6-9 moose /mi<sup>2</sup>. The State claimed that this population was subject to relatively low

predation and must be harvested accordingly to keep it from increasing and to protect winter range from over-browsing.

During the 2012 State and Federal moose hunt in Unit 6C, the Alaska Department of Fish and Game (ADF&G) found that a harvestable surplus of moose remained at the end of the regular hunting season. This was because ADF&G staff must estimate the available harvest a year in advance of the hunt, and due to better than anticipated survival during the winter of 2011/2012, there were a number of unfilled tags, 77% for bulls (17 of 22 taken) and 85% success for cows (33 of 39 taken) (Burcham 2018, pers. comm.). ADF&G considered a late season emergency opening for antlerless moose, but did not have support of the Copper River Prince William Sound Advisory Committee and therefore did not pursue it. ADF&G felt that more flexibility for administration of this hunt would be helpful if this situation occurred again, therefore Proposal 129 was submitted to the Alaska Board of Game in March 2013.

### **Biological Background**

The moose population in Unit 6 originated from 24 moose calves that were transplanted to the west Copper River Delta from the Kenai Peninsula, Anchorage, and the Matanuska-Susitna area between 1949 and 1958 (Paul 2009). This action was a cooperative effort of the Cordova Chapter of the Isaac Walton League, other local citizens, and the U.S. Fish and Wildlife Service (Nowlin 1998). This introduced population rapidly expanded eastward, reaching a high of 1,600 moose in 1988 (Griese 1990). In addition, there has probably been immigration of moose from surrounding areas as habitat has become more suitable following the 1964 earthquake. The only moose endemic to Unit 6 is a small population of approximately 40 animals in the Lowe River drainage of Unit 6D. The first moose hunt was held in 1960 and hunts have occurred annually since 1962. The Unit 6C moose hunt became a State drawing permit hunt in 1984 (Stratton 1989).

During the 1990s, the Copper River-Prince William Sound Fish and Game Advisory Committee, local residents, and ADF&G developed a cooperative moose management plan. The resulting plan encompassed the long-term needs of the community (Cordova), population biology, maximizing hunting opportunity, and the variable access in Unit 6. The current management strategies in Unit 6 are a direct result of this moose management plan (Westing 2018a). Current cooperative moose management objectives in Unit 6C are to maintain a post-hunting population of 600-800 moose with a minimum bull:cow ratio of 25:100 (Westing 2017, 2018a).

Population surveys, which are dependent on snow cover and weather conditions for flying, are usually conducted between mid-January and mid-March. From 1991 to 2012 the study design was based on stratified random sampling using the Gasaway technique. Since 2013 the sampling design has used the Geospatial Population Estimate (GSPE). Moose population estimates have ranged between 296 and 609 moose from 2005 to 2013 (**Table 1**). In 2011, 2013, and 2017 the moose population in Unit 6C was above the new and revised Unit 6 moose management objective of 600-800 moose (Smythe 2015, Westing 2018b). There is little or no indication of nutritional stress due to habitat loss despite a relatively high moose density of 1,250 to 1,900/1,000 km<sup>2</sup> since 2005 (Westing 2014).

Composition surveys to determine the potential effects of selective hunting pressure are conducted during the fall. Similar to the population estimates survey methods, the composition surveys are dependent on adequate snow cover and weather conditions for flying. The survey method used prior to 2013 focused on maximizing the number of moose observations but was not standardized (Crowley 2010, Westing 2014). The GPSE survey protocol, which uses a random sample of units is less biased but can also be less efficient (Westing 2014). From 2006 to 2008, the number of bulls, including large bulls, declined due to heavy harvest (Crowley 2012). Harvest adjustments implemented in 2009 have resulted in an increase in adult bulls and the number of large bulls in the population. The bull:cow ratio, calf:cow ratio, and % of calves observed increased in 2013 with the increasing moose population (**Table 2**). The percentage of cows with twins during the fall composition surveys increased to 19% in 2014, compared to 12% in 2009 and 6% in 2010 (Westing 2014). The high bull:cow and calf:cow ratios in 2103/2014 was most likely due to the high cow harvest during 2103/2014 (Westing 2014). The twinning rates from 2007-2015 ranged from 41 to 76% (Westing 2018a).

**Table 1.** Moose population estimates in Unit 6C 2005-2013 (Crowley 2006, 2010, 2012; Westing 2014, 2018a, b).

Year	Calves (%)	Adult Estimate	Moose Observed	Population Estimate	90% CI
2005/06	10	438	361	488	423-553
2006/07	20	447	409	560	453-667
2007/08	15	367	347	430	389-471
2008/09	19	314	269	388	334-443
2009/10	17	245	183	296	164-426
2010/11	17	331	296	398	324-471
2011/12	21	472	535	601	536-666
2012/13 <sup>a</sup>	-	-	-	-	-
2013/14	20	487	291	609	483-734
2017/18	32	464	509	677	468-888

<sup>a</sup> Population data not collected

**Table 2.** Moose composition estimates in Unit 6C 2005-2013 (Crowley 2006, 2010, 2012; Westing 2014, 2018a).

Year	Bulls	Cows	Calves	Total Moose	Bulls:100 Cows	Calves: 100 Cows	Calves (%)
2005/06	45	151	44	240	30	29	18
2006/07	-	-	-	-	-	-	-
2007/08	32	83	14	129	36	17	11
2008/09 <sup>a</sup>	-	-	-	-	-	-	-
2009/10	34	230	34	298	14	15	11
2010/11	40	183	35	258	22	19	14

Year	Bulls	Cows	Calves	Total Moose	Bulls:100 Cows	Calves: 100 Cows	Calves (%)
2011/12 <sup>a</sup>	-	-	-	-	-	-	-
2012/13 <sup>a</sup>	-	-	-	-	-	-	-
2013/14	63	129	63	255	49	49	25

<sup>a</sup> Composition data not collected

### Harvest History

Because of relatively easy access to Unit 6C, especially by road and airboat, hunter success often approaches 100% for moose permit holders. Between 25 and 122 moose permits were issued each season between 2001 and 2017, depending on the relationship of the estimated moose population to the management objective. Beginning in 2006, the number of harvest permits was increased to account for the concern that the moose population was exceeding carrying capacity. However, this appears to have resulted in overharvest of the population by 2010, especially the bull moose component (**Table 3**). Reduced permit numbers beginning in 2008 have allowed the population to grow to current levels (**Tables 1 and 3**). Over 90% of the moose taken in Unit 6C are by residents of Cordova (Crowley 2012). Harvest in 2017 was 74 moose, which has been the average since 2013 and above the 10 year average of 52 moose per year from 2002-2012.

**Table 3.** State and Federal moose harvest in Unit 6C, 2001-2012 (Crowley 2006, 2008, 2010, 2012; Westing 2014, 2017, 2018a, b; FWS 2018; WinfoNet 2018).

Regulatory Year	Permits Issued				Harvest <sup>a</sup>			
	Bull		Antlerless		Bull		Antlerless	
	Federal	State	Federal	State	Federal	State	Federal	State
2001	0	20	5	0	0	19	5	0
2002	16	5	5	0	16	5	45	0
2003	16	5	5	0	16	5	5	0
2004	26	9	5	0	26	8	5	0
2005	26	9	5	0	25	9	4	0
2006	28	9	40	0	26	9	40	0
2007	55	18	50	0	53	13	45	0
2008	39	13	25	0	36	12	22	0
2009	41	13	10	0	32	11	10	0
2010	19	6	15	0	14	4	13	0
2011	16	13	10	0	10	6	10	0
2012	22	7	39	0	17	6	33	0
2013	24	7	50	0	23	7	45	0
2014	37	12	35	0	35	10	36	0

Regulatory Year	Permits Issued				Harvest <sup>a</sup>			
	Bull		Antlerless		Bull		Antlerless	
	Federal	State	Federal	State	Federal	State	Federal	State
2015	37	12	35	0	34	11	31	0
2016	37	12	35	0	31	10	32	0
2017	46	15	35	0	41	14	33	0

<sup>a</sup> Unreported, illegal, or accidental kills combined are probably less than 5 animals each year.

### OSM Conclusion:

- maintain status quo  
 modify or eliminate the closure

### Justification

Since 2011, the moose population in Unit 6C has been above 600 animals and appears to be stable and meets the new management objectives of the cooperative moose management plan to maintain a post-hunting population of 600-800 moose with a minimum bull:cow ratio of 25:100. There is no conservation concern to justify the closure to hunting moose on Federal public lands to non-Federally qualified users from Nov 1 – Dec. 31. However, opening Federal public lands to non-Federally qualified users would likely reduce the opportunity for Federally qualified subsistence users to harvest moose in Unit 6C.

However, Section 815(3) of ANILCA also allows for restrictions on the taking of fish and wildlife on Federal public lands to allow for the continuation of subsistence uses of such populations (FSB 2007). The dual management system, between the U.S. Forest Service, Cordova Ranger District, and ADF&G for moose in Unit 6C, allocates 100% of the antlerless moose permits and 75% of the bull permits in Unit 6C. This management system is currently meeting the long-term needs of local users in Cordova, maximizes hunting opportunity, and encompasses the population biology and variable access in Unit 6. The current management strategies in Unit 6C are a direct result of the cooperative moose management plan developed by the Prince William Sound/Copper River Delta Advisory Committee, ADF&G, and local residents. Retaining the closure of Federal public lands to moose hunters without a valid Federal permit for Unit 6C moose would maintain the Federal subsistence priority and continue subsistence uses on Federal public land.

### LITERATURE CITED

- Burcham, M. 2018. Wildlife Biologist. Personal Communication, email. U.S. Forest Service. Cordova, AK.
- Crowley, D. 2006. Unit 6 moose management report. Pages 85-100 in P. Harper editor. Moose management report of survey and inventory activities 1 July 2003 – 30 June 2005. ADF&G. Project 1.0. Juneau, AK.



- Crowley, D. 2008. Unit 6 moose management report. Pages 93-109 in P. Harper editor. Moose management report of survey and inventory activities 1 July 2005 – 30 June 2007. ADF&G. Project 1.0. Juneau, AK.
- Crowley, D. 2010. Unit 6 moose management report. Pages 93-109 in P. Harper editor. Moose management report of survey and inventory activities 1 July 2007 – 30 June 2009. ADF&G. Project 1.0. Juneau, AK.
- Crowley, D. 2012. Unit 6 moose management report. Pages 87-101 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009-30 June 2011. ADF&G, Species Management Report ADF&G/DWC/SMR-2012-5, Juneau, AK.
- FSB. 2007. Policy on closures to hunting, trapping, and fishing on Federal public lands and waters in Alaska; Federal Subsistence Board, Adopted August 29, 2007. Office of Subsistence Management, FWS. Anchorage, AK.
- FWS. 2018. Harvest database. Office of Subsistence Management, FWS, Anchorage, AK.
- Griese, H.J. 1990. Unit 6 moose survey-inventory activities. Pages 46-63 in S.O. Morgan, ed. Management report of survey-inventory activities, 1 July 1987-30 June 1989. ADF&G, Federal Aid in Wildlife Restoration Program Report, Project W-23-2, Study 1.0, Juneau, AK. 428 pp.
- Nowlin, R.A. 1998. Unit 6 moose survey-inventory activities. Page 8 in M.V. Hicks, ed. Annual performance report of survey-inventory activities, 1 July 1997-30 June 1998. ADF&G, Federal Aide in Wildlife Restoration Program Report, Project W-27-1, Study 1.0, Juneau, AK. 43 pp.
- OSM. 2000. Staff analysis P00-17. Pages 84-91 in Federal Subsistence Board Meeting Materials May2-4, 2000. Office of Subsistence Management. FWS. Anchorage, AK. 661 pp.
- OSM. 2002. Staff analysis WP02-48. Pages 56-65 in Federal Subsistence Board Meeting Materials May 13-15,2002. Office of Subsistence Management. FWS. Anchorage, AK. 676 pp.
- OSM. 2007. Staff analysis WP07-19. Pages 230-236 in Federal Subsistence Board Meeting Materials April 30 – May 2, 2007. Office of Subsistence Management. FWS. Anchorage, AK. 643 pp.
- OSM. 2014. Staff analysis WP14-18. Pages 128-137 in Federal Subsistence Board Meeting Materials April 15-17, 2014. Office of Subsistence Management. FWS. Anchorage, AK. 680 pp.
- OSM. 2018. Staff analysis WP18-15. Pages 192-206 in Federal Subsistence Board Meeting Materials April 10-13, 2018. Office of Subsistence Management. FWS. Anchorage, AK. 1488 pp.
- Paul, T. W. 2009. Game transplants in Alaska. Technical Bulletin #4, second edition. ADF&G, Juneau, AK. 150 pp.
- Smythe, S.E. 2105. Evaluating tools used to estimate and manage browse available to wintering moose in the Copper River Delta, Alaska. Master Thesis, Oregon State University, Corvallis, OR. 105 pp.
- Stratton, L. 1989. Resource uses in Cordova, a coastal community of Southcentral Alaska. ADF&G, Division of Subsistence, Technical Paper No. 153. 172 pp.

Westing, C. 2014. Unit 6 moose management report. Chapter 7, Pages 7-1 through 7-21 in P. Harper and Laura A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011-30 June 2013. ADF&G, Species Management Report ADF7G/DWC/SMR-2014-6, Juneau, AK.

Westing, C. 2017. Wildlife Biologist. Personal Communication, email. ADF&G, Cordova, AK.

Westing, C. 2018a. Moose management report and plan, Game Management Unit 6: Report period 1 July 2010-30 June 2015, and plan period 1 July 2015-30 June 2020. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&RP-2018-15, Juneau, AK. 70 pp.

Westing, C. 2018b. Moose population survey report for Unit 6C, west Copper River, and Unit 6B, east of the Copper River including the Martin River drainages. Memorandum to Cynthia Wardlow, July 10, 2018. ADF&G, Cordova, AK 10 pp.

WinfoNet. 2018. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.

**SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

**Southcentral Alaska Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-41. The Council voted to maintain the status quo as this hunt continues to provide an important opportunity for Federally qualified subsistence users in Cordova.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

WP20–25 Executive Summary	
<b>General Description</b>	Proposal WP20-25 requests that Federal public lands in Unit 10, Unimak Island only, be opened for a limited bull caribou hunt by Federal registration permit from Aug. 15-Oct. 15 for the residents of False Pass only, and that the Izembek National Wildlife Refuge Manager be allowed to determine the annual harvest quota. <i>Submitted by: Kodiak/Aleutians Subsistence Regional Advisory Council.</i>
<b>Proposed Regulation</b>	<p style="text-align: center;"><b>Unit 10—Caribou</b></p> <p><i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i>      <i>Unit 10-Unimak Island only -1 bull by Federal registration permit. Annual harvest quotas to be determined by the Izembek National Wildlife Refuge Manager.</i>      <i>No Federal open season Aug. 15-Oct. 15</i></p> <p style="text-align: center;"><i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i></p>
<b>OSM Preliminary Conclusion</b>	<p><b>Support</b> Proposal WP20-25 <b>with modification</b> to delegate authority to the Izembek NWR Manager to set the harvest quota, and any needed sex restrictions, close the season, and set any needed permit conditions via a delegation of authority letter only (<b>Appendix 1</b>).</p> <p>The modified regulation should read:</p> <p style="text-align: center;"><b>Unit 10—Caribou</b></p> <p><i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i>      <i>Unit 10-Unimak Island only -1 bull by Federal registration permit.</i>      <i>No Federal open season Aug. 15-Oct. 15</i></p> <p style="text-align: center;"><i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i></p>
<b>OSM Conclusion</b>	<b>Support</b> Proposal WP20-25 <b>with modification</b> to change season dates and to delegate authority to the Izembek NWR Manager to set the harvest quota, and any needed sex restrictions, close the season, and set any needed permit conditions via a delegation of authority letter only ( <b>Appendix 1</b> ).

<b>WP20–25 Executive Summary</b>							
	<p>The modified regulation should read:</p> <p style="text-align: center;"><b>Unit 10—Caribou</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"><i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i></td> <td style="width: 33%; vertical-align: top;"><i>Unit 10-Unimak Island only -1 bull by Federal registration permit.</i></td> <td style="width: 33%; vertical-align: top;"><i>No Federal open season Aug. 1-Sep. 30</i></td> </tr> <tr> <td colspan="3" style="text-align: center;"><i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i></td> </tr> </table>	<i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i>	<i>Unit 10-Unimak Island only -1 bull by Federal registration permit.</i>	<i>No Federal open season Aug. 1-Sep. 30</i>	<i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i>		
<i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i>	<i>Unit 10-Unimak Island only -1 bull by Federal registration permit.</i>	<i>No Federal open season Aug. 1-Sep. 30</i>					
<i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i>							
<b>Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation</b>	<p><b>Support WP20-25 with modification</b> to change the season from Aug. 15 – Oct. 15 to Aug. 1 – Sept. 30.</p> <p>The modified regulation should read:</p> <p style="text-align: center;"><b>Unit 10—Caribou</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"><i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i></td> <td style="width: 33%; vertical-align: top;"><i>Unit 10-Unimak Island only -1 bull by Federal registration permit. Annual harvest quotas to be determined by the Izembek National Wildlife Refuge Manager.</i></td> <td style="width: 33%; vertical-align: top;"><i>No Federal open season Aug. 1-Sep. 30</i></td> </tr> <tr> <td colspan="3" style="text-align: center;"><i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i></td> </tr> </table>	<i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i>	<i>Unit 10-Unimak Island only -1 bull by Federal registration permit. Annual harvest quotas to be determined by the Izembek National Wildlife Refuge Manager.</i>	<i>No Federal open season Aug. 1-Sep. 30</i>	<i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i>		
<i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i>	<i>Unit 10-Unimak Island only -1 bull by Federal registration permit. Annual harvest quotas to be determined by the Izembek National Wildlife Refuge Manager.</i>	<i>No Federal open season Aug. 1-Sep. 30</i>					
<i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i>							
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.						
<b>ADF&amp;G Comments</b>	<b>Neutral</b>						
<b>Written Public Comments</b>	<b>None</b>						

**STAFF ANALYSIS  
WP20-25**

**ISSUES**

Wildlife Proposal WP20-25, submitted by the Kodiak/Aleutians Subsistence Regional Advisory Council (Council), requests that Federal public lands in Unit 10, Unimak Island only, be opened for a limited bull caribou hunt by Federal registration permit from Aug. 15-Oct. 15 for the residents of False Pass only, and that the Izembek National Wildlife Refuge Manager be allowed to determine the annual harvest quota.

**DISCUSSION**

The proponent would like to provide opportunity for False Pass residents, who have limited or no access to harvest caribou from the Southern Alaska Peninsula Caribou Herd (SAPCH), to harvest caribou from the Unimak Caribou Herd (UCH). In 2018, Unimak Island was opened to caribou hunting for residents of False Pass by Federal Temporary Special Action for the first time since 2009. Annual quotas may be determined for the UCH based on the health and status of the population.

**Existing Federal Regulation**

**Unit 10—Caribou**

*Unit 10 Unimak Island—  
Residents of Akutan, False  
Pass, King Cove, and Sand  
Point*

*Unit 10-Unimak Island only*

*No Federal open  
season*

**Proposed Federal Regulation**

**Unit 10—Caribou**

*Unit 10 Unimak Island—  
Residents of Akutan, False  
Pass, King Cove, and Sand  
Point*

*Unit 10-Unimak Island only -1 bull by  
Federal registration permit. Annual  
harvest quotas to be determined by the  
Izembek National Wildlife Refuge  
Manager.*

*No Federal open  
season  
Aug. 15-Oct. 15*

*Federal public lands are closed to the  
taking of caribou except by residents of  
False Pass*

**Existing State Regulation**

**Unit 10–Caribou**

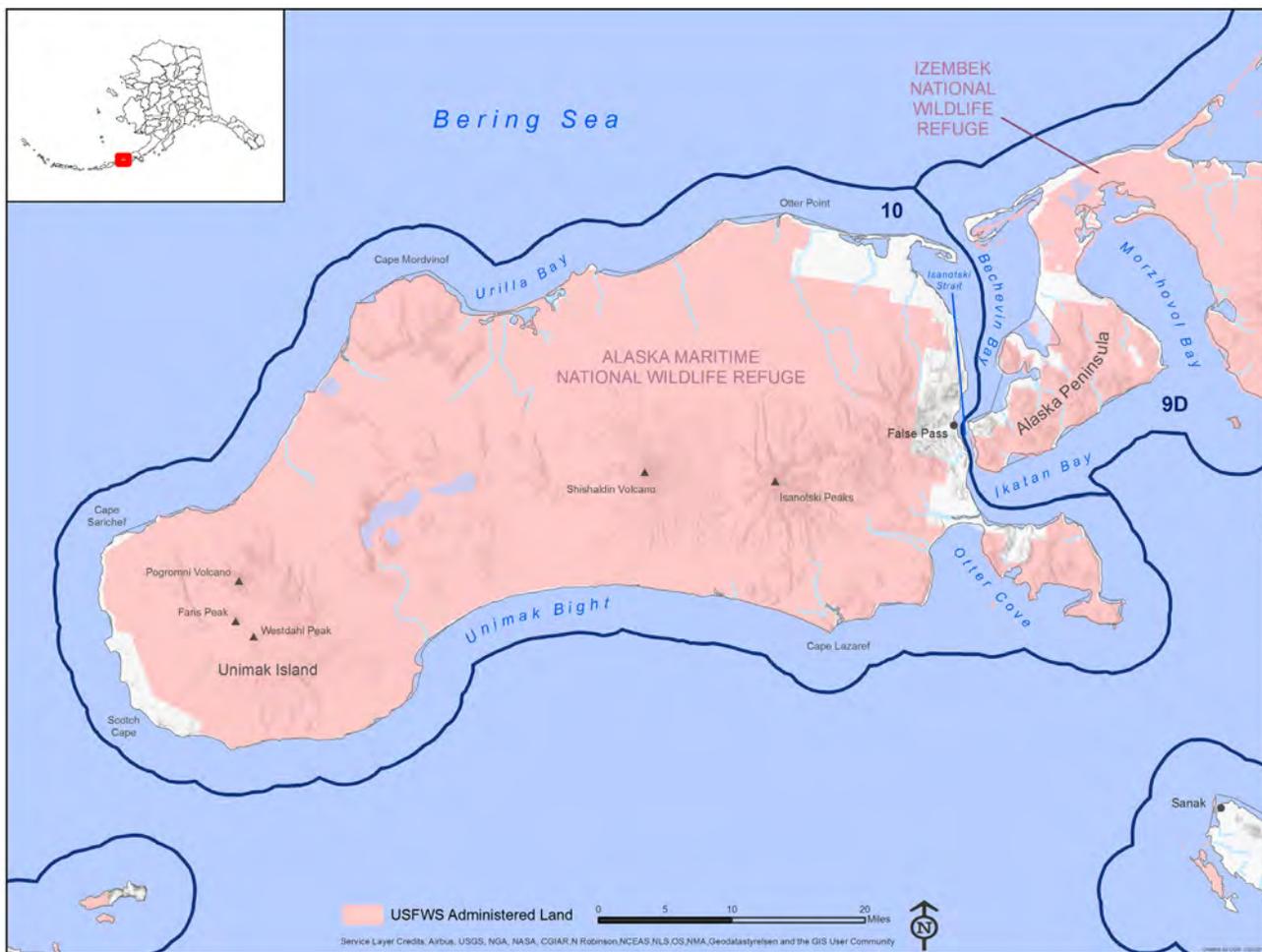
*Umnak and Unimak islands*

*Residents and Nonresidents*

*No open season*

**Extent of Federal Public Lands/Waters**

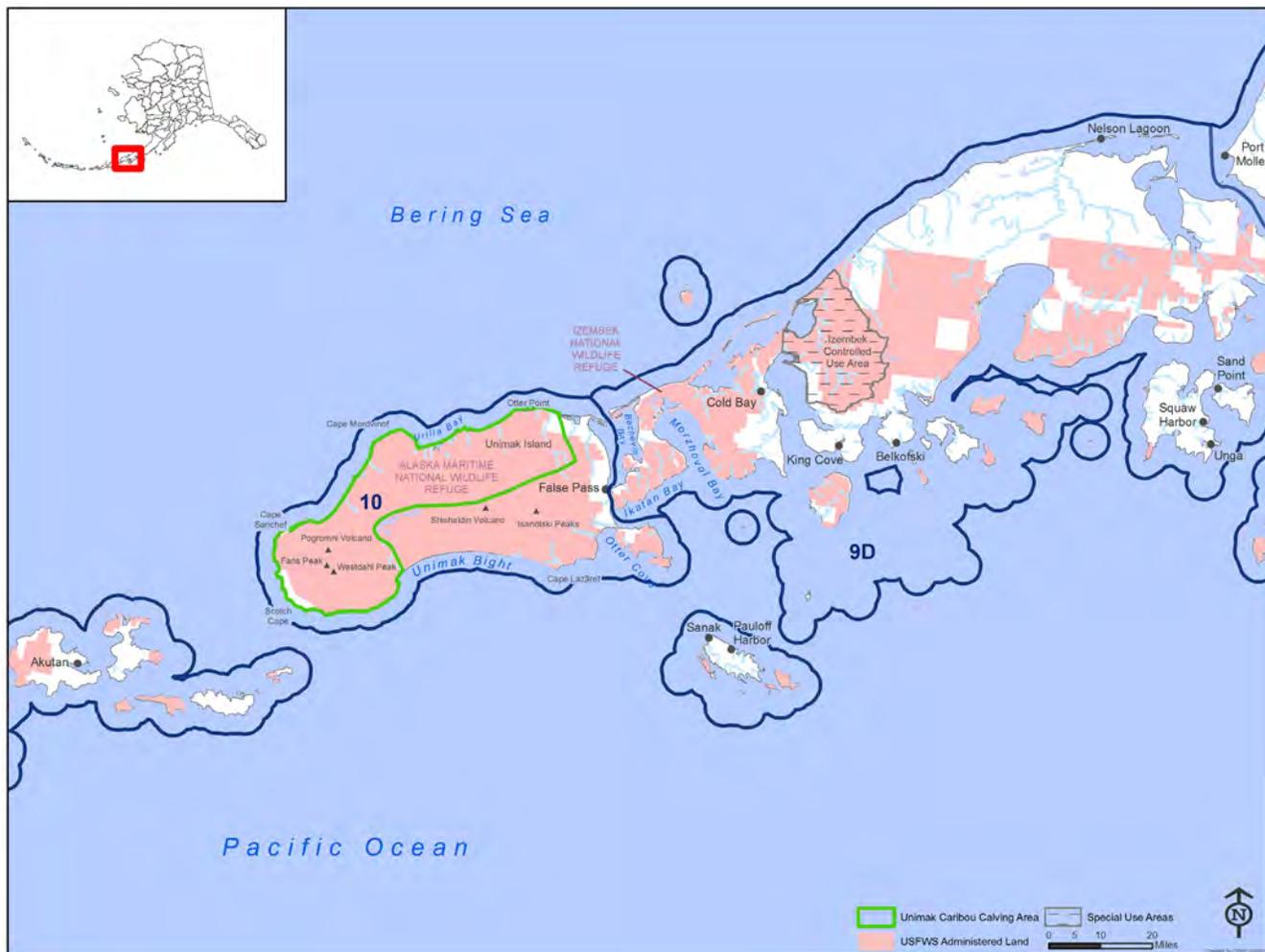
Federal public lands comprise approximately 90% of Unit 10 (Unimak Island) and consist of 100% U.S. Fish and Wildlife Service (USFWS) managed lands (**Map 1**). Although Unimak Island is within the Alaska Maritime National Wildlife Refuge, it is managed by Izembek National Wildlife Refuge (Izembek NWR).



**Map 1.** Unimak Island

## Customary and Traditional Use Determinations

Residents of Akutan, False Pass, King Cove, and Sand Point have a customary and traditional use determination for caribou in Unit 10 (**Map 2**).



**Map 2.** Unimak Island including the communities with Customary and Traditional Use for caribou - Akutan, False Pass, King Cove, and Sand Point.

### Regulatory History

The UCH showed a precipitous decline in the early 1980s and by the early 1990s required a Federal management response. In response to this decline, caribou harvest in Unit 10 (Unimak Island) was closed to non-Federally qualified subsistence users in 1991 (P91-01) (OSM 1991). In 1993, the Alaska Department of Fish and Game (ADF&G) closed the State harvest by Emergency Order when the combined UCH and SAP herds declined below 2,500 caribou; the Federal Subsistence Board (Board) approved Temporary Special Action S93-01 to close Units 9D and 10 (Unimak Island) to all caribou harvest (OSM 1993).



In 1994, the Board adopted Proposal P94-28 to continue the closure for another three to five years to allow post-1990 calves to reach reproductive age and successfully reproduce (OSM 1994).

In 1997, the Board approved Temporary Special Action S97-01 to open a caribou season in Units 9D and 10 from Aug. 10-Mar. 31 after caribou surveys indicated there was a sufficient increase in bulls to allow for a subsistence harvest on Federal public lands (OSM 1997). Temporary Special Action S98-05 established a subsistence hunt via Federal registration permit (OSM 1998), while Temporary Special Action S99-04 authorized a caribou harvest of one caribou from Sep. 1-Mar. 31, 1999 (OSM 1999). In 2000, when the UCH reached 1,000 caribou, the Board adopted Proposal P00-029, establishing a two caribou harvest limit by Federal registration permit in Unit 10 during the fall season of Aug. 1-Sep. 30 and the winter season from Nov. 15- Mar. 31 (OSM 2000). The State general season was reopened in 2001 to allow residents to harvest one caribou from Aug. 10-Sep. 30 or Nov. 15-Mar. 31 and allowed nonresidents one caribou from Sep. 1-Sep. 30 (Butler 2005).

In 2003, the Board approved Temporary Special Action WSA03-08, which increased the harvest limit from two to four caribou for Unit 10 (Unimak Island) during the fall season of Aug. 1-Sep. 30, 2003 (OSM 2003a). Temporary Special Action WSA03-10 was approved by the Board and extended the increased harvest limit of four caribou into the winter season from Nov. 15, 2003-Mar. 31, 2004 (OSM 2003b). In 2004, the Board adopted Wildlife Proposal WP04-40, increasing the harvest limit from two caribou to four caribou for Unit 10 (Unimak Island) (OSM 2004).

In 2008, the Board adopted Proposal WP08-25 (OSM 2008a), decreasing the harvest number from four to two caribou for Unit 10 (Unimak Island) in response to a decrease in the UCH. In addition, in response to declining population numbers of the SAPCH, the Board also closed the Federal caribou season in Unit 9D in 2008 (WP08-26) (OSM 2008b).

The Alaska Board of Game (BOG) closed all hunting for caribou on Unimak Island (Unit 10) at its February 27 – March 9, 2009 meeting (State Proposal 54). The Board approved Emergency Special Action WSA09-06 on July 1, 2009, closing the fall caribou season from Aug. 1 through Sep. 29 (OSM 2009a) and authorized Temporary Special Action WSA09-07 on November 10, 2009 to close the winter seasons (OSM 2009b). In 2010, concern that the caribou population could be extirpated from Unimak Island due to the small population size, the BOG and the Board suspended all caribou hunting on Unimak Island, including subsistence hunting, for conservation reasons (WP10-42) (OSM 2010). From 2009-2017, there were no State or Federal caribou hunts on Unimak Island (Crowley 2015, Peterson 2018, pers. comm.).

In 2018, the Board approved Temporary Special Action WSA18-01, to open a limited fall caribou hunt for residents of False Pass only (OSM 2018). Three bull caribou were harvested under WSA18-01.

In 2019, the Council submitted another Temporary Special Action WSA19-05, requesting that Federal public lands in Unit 10, Unimak Island only, be opened for a limited bull caribou hunt from Aug. 15-Oct. 15, 2019 for the residents of False Pass only. The Board approved the request in July 2019. Izembek NWR issued 10 permits but had not received any harvest reports as of January 2020 (Fitzmorris 2020, pers. comm.).

## Biological Background

Caribou on Unimak Island (Unit 10) and the SAPCH (Unit 9D) were originally managed as a single population. However, subsequent genetic sampling of the UCH and SAPCH has shown enough distinction to classify them as two different herds (Zittlau 2004). Although caribou have been documented to cross Isanotksi Strait, a half-mile passage that has strong tidal currents located between Unimak Island and the Alaska Peninsula (**Map 2**) (Skoog 1968, Sellers 1999, Valkenburg et al. 2003), no significant dispersal, based on collared cows, between the UCH and the SAPCH was documented from 2000-2011 (Butler 2009, Peterson 2013). In 2012, one collared cow swam across Isanotksy Strait from Unimak Island to the mainland and was seen in the vicinity of 5-30 other caribou. Given that the nearest collared cow from the SAPCH was 40 miles away, it is possible that this cow was accompanied by 5-30 other caribou when she crossed from Unimak Island (Crowley 2015). In a genetic study on North American caribou herds, Zittlau (2004) found the UCH to be closely related to the Southern and Northern Peninsula caribou herds on the Alaska Peninsula, but quite distinct from all other herds. Zittlau's (2004) findings are consistent with the hypothesis that Unimak caribou derived from the SAPCH, but were subsequently isolated (Talbot 2018, pers. comm.) and thus emigration and immigration has not been a routine component of UCH population dynamics (USFWS 2010).

The UCH has undergone considerable changes in abundance from 3,334 caribou in 1975 to 192 in 2013 (Valkenburg et al. 2003, Colson et al. 2014, Crowley 2015). Population estimates, based on ground observations, expert opinion, and reports by Unimak residents, Murie (1959) and Beals and Longworth (1941) estimated that there were 7,000 caribou in 1925 and 3,000 to 8,000 caribou in 1941, respectively. Although Skoog (1968) reported no caribou following aerial surveys in 1949 and 1953, it is unknown if these results represent total absence, very low density, and/or incomplete coverage of the island, due to a lack of information on the sightability conditions and extent of the surveys. Skoog (1968) subsequently reported 1,000 caribou in 1960, so assuming the survey methods were comparable, his observations would indicate that UCH underwent large fluctuations in seven years. The UCH reached a peak in 1975 with an estimated population of 3,334 animals (Irvine 1976) and then decreased to 300 animals by the early 1980s. The severe winter of 1975-1976 likely contributed to the declines in the early 1980s (Crowley 2015).

Since 1996/97, Izembek NWR has conducted seven aerial surveys on systematic transects across Unimak Island in the winter when snow on the ground facilitated observation. Although these flights follow systematic transects across the entire island, some caribou may be missed or counted twice, especially when surveys span several days. However, these counts do provide estimates of minimum population counts. Following the decline in the early 1980s, the UCH increased to approximately 600 animals in 1997 and 1,262 by 2002. The UCH population remained relatively stable at around 1,000 animals until 2005 and then declined to 192 in 2013. In 2016, the UCH increased to approximately 330 animals (KARAC 2017, 2018, Crowley 2016). Biologists had a minimum count of 181, 190 and 287 caribou during parturition surveys in 2016, 2017 and 2018, respectively (ADF&G 2017, 2019; Fitzmorris, 2019). The 413 caribou observed in 2018 during the composition surveys is thought to be representative of a herd between 400-500 animals (Fitzmorris 2019, ADF&G 2019, KARAC 2019).

Since 2000, ADF&G has conducted yearly composition counts during autumn (early to mid-October). From 2000-2005 bull:cow ratios were above the management objectives (35 bulls: 100 cows) set for most caribou herds in Alaska (Peterson 2013). In 2005, caribou population composition surveys (**Table 1**) estimated 730 caribou with ratio of 45 bulls: 100 cows, with large bulls making up 39% of all bulls. The 2008 estimate of 9 bulls: 100 cows was a significant decrease from the 2007 estimate of 31 bulls: 100 cows (Butler 2008) and represented a 71% decrease in the bull:cow sex ratio. The bull:cow ratio continued to decline to 5 bulls: 100 cows in 2009 (Riley 2011). In 2016, the bull:cow ratio increased significantly to 33 bulls: 100 cows, which is close to the recommended fall bull:cow ratio of 35 bulls: 100 cows (Crowley 2016). Caribou have a polygynous mating system in which a single male is capable of inseminating many females, however research has shown that there is a sex-ratio threshold for caribou (sex ratio  $\leq 0.08$ ; males  $\leq 8\%$  of the population), as well as other ungulates, below which fecundity may collapse (Bergerud 1974). The mean annual bull:cow ratio from 2008-2018 was 12 bulls: 100 cows (**Table 1**).

The low bull numbers can be explained, in part, by an aging population structure as a result of reduced recruitment. After several years with poor recruitment into the caribou population, the remaining animals become older, on average, and the number of males usually declines before the females due to higher annual mortality rates, especially after 5-6 years of age (Bergerud 1980). Thus, as the population declines, older individuals and cows make up a larger proportion of the population which may explain the continued decline of bull:cow ratios in the UCH. The low number of bulls may also result in some cows going unmated, which would further depress pregnancy rates. For example, pregnancy rates for cows two years or older decreased from 85% in 2008 (n=113) (Butler 2009) to 68% in 2009 (n=40) and 69% in 2018 (Riley 2011, ADF&G 2019).

In addition to the effects of the aging population structure and emigration, predation and hunting mortality may have contributed to the decline in the bull:cow ratio from 2006 to 2014. Bull only seasons have the potential to increase bull mortality from caribou populations (Bergerud 1974). In the presence of natural wolf and bear populations the generalized maximum sustainable harvest mortality is three percent annually (Bergerud 1980). Conservative caribou management guidelines for small populations or populations in decline are to have no bull harvest or a small bull harvest of 1% of the total population (Environment Yukon 2016). Previous Federal and State hunting seasons ended on September 30 to protect the bulls during the rut and were closed from 1993-1996 and from 2009 to 2017. The UCH population continued to decline from 2006-2014, even though the reported harvest remained below the 3% guideline from 2001-2008 and with no legal harvest from 2009-2014.

In 2016, the ratio of 40 calves: 100 cows was significantly greater than in previous surveys from 2005-2012 when the average was 6 calves: 100 cows (**Table 1**). Stable population growth generally requires an average fall recruitment ratio of 20-25 calves: 100 cows. Fall calf:cow ratios are typically a good indicator of the number of calves entering the herd as adults as most mortality occurs within the first few months of life. Calf recruitment from 2005-2012 was not sufficient to offset adult mortality and helps to explain the overall decreasing population trend for the UCH during this time. Limited movements of caribou to and from the Southern Alaska Peninsula and the high fidelity of the UCH to calving grounds suggests that the decline was not due to caribou from the UCH migrating to the

mainland. In addition, immigration from the SAPCH was less likely from 2002-2008 because the annual SAPCH calf recruitment was also at its lowest levels (6 calves: 100 cows) during this time (Butler 2007).

**Table1.** Unimak Caribou Herd winter minimum population counts and fall composition counts in Unit 10 from 1996–2016 (Butler 2005, 2007, Crowley 2015, 2016; USFWS 2018a, 2018b, ADF&G 2019, Crowley 2019,pers. comm.).

Regulatory Year	Total bulls: 100 cows	Calves: 100 cows	Total Calves	Total Cows	Total bulls	Composition Sample size <sup>a</sup>	Estimate of herd size
1996-1997							603 <sup>b</sup>
1997-1998							
1998-1999							
1999-2000		46				126	
2000-2001	40	21	13	62	25	406	983 <sup>c</sup>
2001-2002							
2002-2003	54	31	17	54	29	392	1,262 <sup>b</sup>
2003-2004							
2004-2005							1,006 <sup>b</sup>
2005-2006	45	7	5	66	29	730	1,009 <sup>b</sup>
2006-2007							806 <sup>b</sup>
2007-2008	31	6	4	73	23	433	
2008-2009	9	6	5	86	9	260	
2009-2010	5	3	3	92	5	221	400 <sup>b</sup>
2010-2011	8	8	7	86	7	284	
2011-2012	6	7	6	89	8	117	224 <sup>d</sup>
2012-2013	10	3	2	89	8	85	
2013-2014	10	19	15	78	8	67	192 <sup>e</sup>
2014-2015	15	22				127	230 <sup>b</sup>
2015-2016							334 <sup>b</sup>
2016-2017	33	40	60	149	49	258	
2017-2018	80	44				287 <sup>d</sup>	413 <sup>f</sup>

<sup>a</sup> Estimates based on October composition surveys  
<sup>b</sup> Estimates based on winter (January and April) counts by Izembek NWR staff.  
<sup>c</sup> Estimates based on July post calving counts and the proportion of the radio collared caribou encountered  
<sup>d</sup> May parturition survey by ADF&G  
<sup>e</sup> October census of entire island by Izembek NWR staff  
<sup>f</sup> Minimum count conducted by ADF&G

Other specific limiting factors, such as poor nutrition, predation, weather events, disease, and parasites, that may have contributed to the low calf recruitment from 2003-2013 and subsequent population decline are not known (Keech and Valkenburg 2007). Valkenburg et al. (2003) stated that, typically, predation is a limiting factor to caribou populations, particularly in small isolated herds. In 1999, Sellers et al. (2003) conducted a study on the SAPCH and found that wolves and bears were responsible for most of the calf mortality that occurred during the summer after the neonate stage. Sellers et al. (2003) noted that predation by brown bears was well below levels found in interior Alaska despite the high density of brown bears in the SAPCH area. This was different from the results of a study in Denali National Park, where brown bears were opportunistic predators of caribou, particularly

neonate calves (Adams et al. 1995). Only one wolf was sighted during the 2016 surveys on Unimak Island (KARAC 2017, 2018).

Data is not available on potential weather patterns, for example severe winter storms or icing events that may have contributed to the population declines in the UCH. Valkenburg et al. (2003) noted that in 1998, many of the calves handled in the range of the SAPCH had incisors worn to the gum line which may have been due to volcanic ash. Despite this these calves were in relatively good condition. It is unlikely that the high rate of calf mortality in the UCH since 2005 was due primarily to stochastic events such as icing and volcanic eruptions, although these events may have contributed.

In summary, indirect evidence suggests that multiple factors may have contributed to the decline of the UCH. From 2002 to 2013, the UCH population declined by approximately 85% and bulls declined by about 97% (**Table 1**). Limited calf recruitment is thought to be the primary cause of the decline in the UCH population. As of 2018 the UCH population is growing slowly and the current bull:cow and calf:cow ratios are above the State management objectives.

In 2007, ADF&G revised the Draft Southern Alaska Peninsula Caribou Herd Operational Plan to reflect the separation of the SAPCH and the UCH (ADF&G and USFWS 2007). To date, no formal management objectives have been defined by ADF&G for the UCH due to the difficult logistics in accessing the island. General ADF&G management objectives are to keep the Unimak Herd at 1,000 to 1,500 animals due to limited habitat on the island. In lieu of a formal management plan for the UCH, management objectives for the SAPCH, as outlined in the 2007 Southern Alaska Peninsula Caribou Herd Operational Draft Plan, provide a framework for the population management objectives of the UCH. The SAPCH draft management plan is to sustain a total population of 3,000-3,500 animals, maintain a fall bull:cow ratio of 20-40:100, and discontinue harvest when the SAPCH is below 875 and has been in a period of decline for three years (ADF&G and USFWS 2007).

### Habitat

Unimak Island is the easternmost volcanic island in the Aleutian Islands, located 700 miles southwest of Anchorage just off the tip of the Alaska Peninsula (**Map 2**). It is the only Aleutian Island with natural populations of caribou, brown bear, and wolf. Ninety-eight percent of Unimak Island is designated as a wilderness. The village of False Pass, located across the mainland on Isonotski Strait, is the only permanent community on Unimak Island and has a population of 35 people (U.S. Census Bureau 2010). Expansion of seafood processing plants in False Pass may result in future increases of Federally qualified subsistence users in False Pass.

Four volcanos are located on the island including Shishaldin (elevation 9,372 ft.), which is one of the 10 most active volcanos in the world (USFWS 2010). The Bering Sea lowland consists of a gently sloping plain on the north side of the island and is characterized by dense vegetation and numerous lakes, streams, marshes and hills (Sekora 1971). The mean annual temperature is 38°F (range -10°F to 70.0°F) and temperatures below zero are rare. Winter lasts 6-9 months and snowfall averages 40-45 inches which can accumulate into deep drifts. Rainfall, which averages 30-35 inches per year, is

evenly distributed throughout the year. Winds average about 20 mph but maximum speeds of up to 100 mph have been recorded at Cape Sarichef.

Unimak Island is classified as a marine tundra environment and is characterized by the absence of trees, large areas of barren ground from high winds and recent volcanic activity. Dominant vegetation community types include dwarf-shrub cowberry tundra heath, sedge meadows, tall-shrub alder and low-shrub willow (Talbot et al. 2006). Skoog (1968) considered the caribou habitat on the Alaska Peninsula as marginal due to severe icing conditions and ash fall from frequent volcanic eruptions.

Valkenburg et al. (2003) noted that lichen biomass is low on the Alaska Peninsula due to historically sustained grazing by caribou, which is consistent with the finding that the diet of the UCH had higher proportions of forbs than other caribou herds (Legner 2014). Legner (2014) found that during the spring, summer, and fall the nutritional quality of the habitat seemed to be sufficient. In addition, the body condition of cows and calves from 2009 (USFWS 2010) to 2014 (Peterson 2013, Crowley 2015) indicate that nutrition was not limiting UCH population growth and survival. The pregnancy rate for Unimak caribou from 2006-2008 also indicated that the herd was in good nutritional condition even though calf recruitment remained low (Butler 2009). However, it is often the forage availability and quality during the winter that limits the productivity of caribou herds. Lichen species, mainly consisting of the lichens in the genus *Cladonia*, are typically the major component of caribou winter diet. However, the lichen species found mainly on Unimak Island are the foliose lichen group belonging to the *Peltigera* genus, a non-forage species for caribou. In addition, Unimak Island had a low occurrence of lichen in all vegetative community types (Legner 2014). Evidence suggests that forage quality and quantity on the winter range, versus summer range, may be a limiting factor for the UCH (Legner 2014).

### **Harvest History**

In 1997 the Board opened a subsistence hunt on Federal lands and the State opened a general hunt in 2001 (**Table 2**). A study on subsistence activity by Fall et al. (1990, 1996) reported that residents from False Pass hunted primarily on the Alaska Peninsula rather than Unimak Island. Although some unreported local harvest may occur, limited access is believed to constrain the UCH subsistence harvest (Bruce Dale, pers. comm. in USFWS 2010). The majority of the caribou harvest from 1997-2008, which averaged 12 annually, were taken by non-local residents. In 2018, 10 permits were allocated, four were issued, and three caribou were harvested on Unimak Island by False Pass residents (Fitzmorris 2019).

**Table 2.** Unit 10 Reported Caribou Harvest 1997-2008 for the Unimak Island Caribou Herd (USFWS 2010, Crowley 2015, USFWS 2018a, 2018b, ADF&G 2019a, Fitzmorris 2019).

Year	Federal Registration Permits			State Harvest Tickets			Total Reported Harvest <sup>a</sup>
	Permits Issued	Bulls Harvested	Cows Harvested	Permits issued	Bulls Harvested	Cows Harvested	
1997	11	6	0	HT	0	0	6
1998	10	4	0	HT	0	0	4
1999	0	0	0	0	0	0	0
2000	8	5	0	0	0	0	5
2001	0	0	0	HT	19	0	19
2002	4	0	0	HT	11	1	12
2003	0	0	0	HT	10	0	10
2004	0	0	0	HT	15	0	15
2005	0	0	0	HT	15	0	15
2006	1	1	0	HT	12	1	14
2007	12	2	0	HT	13	0	15
2008	0	0	0	HT	9	0	9
2018	4	3	0	0	0	0	3

<sup>a</sup> Doesn't include illegal or unreported harvest

### Section 804 Subsistence User Prioritization Analysis

Section 804 of ANILCA, 36 CFR 242.17, and 50 CFR 100.17 of Federal regulations mandate that the taking on Federal public lands of fish and wildlife for non-wasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Section 804 of ANILCA and Federal regulation at 36 CFR 242.17 and 50 CFR 100.17 further require that whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations or to continue subsistence uses, such a priority shall be implemented through appropriate limitations based on the application of the following three criteria: (1) customary and direct dependence upon the populations as the mainstay of livelihood, (2) local residency, and (3) the availability of alternative resources. The following sections address these criteria as they relate to each of the communities included in the customary and traditional use determination for caribou in Unit 10 Unimak Island.

The customary and traditional use determinations for Unit 10 Unimak Island caribou include False Pass (the only community on Unimak Island), Akutan, and two communities of Unit 9D (King Cove and Sand Point). Cold Bay and Nelson Lagoon are also within Unit 9D, but do not have a customary and traditional use determination for caribou on Unimak Island. Unit 10 consists of the Aleutian Islands, Unimak Island, and the Pribilof Islands. Unit 9D consists of all Alaska Peninsula drainages west from Port Moller to the shared boundaries of Unit 10, and includes the Shumagin and Sanak Islands. The two units are contiguous (**Map 2**). **Table 3** describes the population of each community as represented through the US Census in 1990, 2000, and 2010 (U.S. Census Bureau, 1990, 2000, 2010). It should be noted that for Akutan the vast majority of persons counted in the census were seasonal cannery workers and are not considered Federally qualified subsistence users for the purpose of this analysis.

**Table 3.** US Census data for analysis communities (U.S. Census Bureau 1990, 2000, 2010).

Community & GMU	US Census			
	1990	2000	2010	
	Population			Occupied Households
<b>Akutan *(Unit 10)</b>	589 (88)	713 (75)	1027 (90)	40
<b>False Pass (Unit 10)</b>	148	64	35	15
<b>King Cove (Unit 9D)</b>	677	792	938	181
<b>Sand Point (Unit 9D)</b>	878	952	976	246
* The number within the brackets ( ) are those persons living within a household, not in cannery group quarters.				

The sections below describe the customary and traditional harvest and use of Unimak Island caribou by local communities, the degree of local residency of subsistence users, and the availability of subsistence resources as an alternative to Unimak Island caribou.

**1. Customary and Direct Dependence upon the Populations as a Mainstay of Livelihood**

This section analyzes caribou harvests by each community with a customary and traditional use determination for caribou in Unit 10 Unimak Island. The section reviews the information in order to analyze each community’s customary and direct dependence on caribou in general and caribou on Unimak Island specifically. Direct dependence can be assessed through current and past harvest data, customary dependence can be assessed through ethnographic research and public testimony.

The ADF&G, Division of Subsistence, conducted comprehensive subsistence surveys in all four communities over different study years; 1988 for False Pass, 1992 for King Cove and Sand Point, and 2008 for Akutan (Fall et al 1996, Fall et al. 1992a, Fall et al. 1992b, Fall et al. 2012). The Division of Subsistence conducted other harvest surveys in all four communities over subsequent years; however, they were not comprehensive and did not include data on large land mammals. In addition to research conducted by ADF&G, Reedy conducted comprehensive subsistence surveys in two of the four communities more recently (Reedy 2016a). Surveys were administered in 2010 for the 2009 study



year in Akutan and False Pass (Reedy-Maschner and Maschner 2012). Currently Reedy is conducting surveys in King Cove, Sand Point, and Cold Bay. However, these most recent data will not be completed in time for this analysis.

*Akutan* – During the 2008 study year, Akutan harvested a total of 26,909 lbs. of wild foods or 327 lbs. per capita. Of the total community harvest approximately 4% was comprised of large land mammals, none of which was caribou. However, caribou was used in approximately 8% of the community households indicating that the resource was shared with some households, potentially from outside the community.

In 2009, Reedy reported a total estimated community subsistence harvest of 24,309 lbs. or about 276 lbs. per person. Reedy reported no harvest or use of caribou in Akutan for the 2009 study year (Reedy-Maschner and Maschner 2012). Reedy-Maschner and Maschner do not describe the use of resources that may have been shared with and other households that did not report harvest.

*False Pass* – During the 1988 study year, False Pass harvested a total of 28,586 lbs. of wild foods or 413 lbs. per capita. Of the total community harvest about 19% was comprised of large land mammals or 79 lbs. per person, most of which was caribou at 74 lbs. per person. Caribou was reported as harvested by 35% of the households in False Pass, however 90% of the households reported using caribou and 85% reported receiving caribou during the study year denoting the significance of sharing for this community.

In 2009, Reedy reported a total estimated community harvest of 23,525 lbs. or approximately 689 lbs. per person (Reedy assessed the population at 35 for the study year, as opposed to a population of 69 in 1988). Reedy reported no harvest of caribou for the study year, and when asked whether people used less, same or more of a resource in 2009, than in the past, caribou was the only resource for which all households reported using less (Reedy-Maschner & Maschner 2012). Additionally, in summarizing the False Pass chapter, Reedy writes that residents expressed concern about the Unimak Island caribou closure. They cited the lack of opportunity for caribou harvest as one of the factors contributing to people leaving the island. They also noted that caribou harvest played a key role in their seasonal round of subsistence harvest and sharing activities.

*King Cove* – During the 1992 study year, King Cove harvested a total of 142,496 lbs. of wild foods or 256 lbs. per capita. Of the total community harvest 15% was made up of large land mammals (39 lbs. per person) about half of which was caribou (19 lbs. per person). Caribou was used in 64% of community households and harvested by approximately 25% of those households. About 45% of households in the community reported receiving caribou.

*Sand Point* – During the 1992 study year, Sand Point harvested a total of 155,002 lbs. of wild foods or 256 lbs. per capita. Of the total community harvest 11% was made up of large land mammals (about 28 lbs. per person) about a third of which was caribou (10 lbs. per person). Caribou was used in 51% of community households and harvested by approximately 12% of those households. About 43% of the households reported receiving caribou.

*Community Specific harvest data from permits issued* - ADF&G and USFWS maintain a harvest reporting database (USFWS 2018b); however, complete records were not kept until the mid-1980s and ADF&G data have not been added to USFWS data since 2010. Regardless, some indication of harvest patterns can be discerned. **Table 4** demonstrates the cumulative harvest of caribou in Unit 10 by Federally qualified subsistence users from 1983 to 2010. While permits were issued in each community, False Pass was issued the highest number of permits (29), resulting in the highest harvest of caribou from Unit 10.

**Table 4.** Reported harvest of caribou in Unit 10 from 1983 to 2010 (USFWS 2018b).

Res Comm	Unit	Issued	Hunted	Kill
KING COVE	9	13	3	2
SAND POINT	9	4	0	0
AKUTAN	10	1	1	1
FALSE PASS	10	29	16	15

Harvest reporting data from ADF&G can be further refined to assess area specific hunting effort and harvest. According to data available for the 1997-2007 hunting seasons, a total of 224 individual harvest reports indicated successful harvest of caribou on Unimak Island during this time period (ADF&G 2019a). Of the 224 reports, only 20 of these originated with Federally qualified subsistence users; 14 were from False Pass and six were from King Cove, representing four households and two households, respectively.

Use of a resource may not necessarily be represented by successful harvest. Between 1997 and 2007, 26 Federal harvest reports were returned indicating that the hunters sought caribou on Unimak Island, but were unsuccessful at harvesting caribou (USFWS 2018b). Of these, only two reports originated with Federally qualified subsistence users and they were from a single household in King Cove.

## 2. Local Residency

As mentioned previously, of the 4 communities with a customary and traditional use determination for Unimak Island caribou in Unit 10, only False Pass is actually situated on the Island within Unit 10. Akutan is also within Unit 10 and is situated on Akutan Island to the southwest of Unimak Island. King Cove and Sand Point are northeast of Unimak Island on the Alaska Peninsula within Unit 9D. There are no roads connecting the communities to each other or to provide access to the caribou resource. The two communities within closest proximity to the caribou range on Unimak Island are False Pass and Akutan. False Pass residents also use Off Road Vehicle (ORVs) to access caribou on the island. Both communities require a boat to access the herd but False Pass may be closest to the resource depending on the location of the herd. Farthest from the Unimak Island caribou herd are King Cove and Sand Point respectively. It should be noted that while Akutan has a US Census population of 1,027 people, most live in the group quarters of the Trident Seafood cannery complex and do not hold Alaska state residency (see **Table 3**). During the 2010 US Census, of the 1,027 documented as living in Akutan, only 90 were noted as living in occupied households of Akutan Village.

### 3. Availability of Alternative Resources to Federally Qualified Subsistence Users of Caribou in Unit 9C remainder or Unit 9E

The communities of Akutan, False Pass, King Cove and Sand Point are all highly dependent upon the subsistence way of life as a critical component to the local economy, and as demonstrated earlier in the analysis, the per capita harvest of wild foods is high. As Alaskan Peninsula and Aleutian Island communities they are bounded by the sea, and marine resources including salmon (i.e., coho, Sockeye, Chum) marine mammals (primarily seal), invertebrates (clam, crab, octopus), and other marine nonsalmon fish (Halibut, Pacific Cod) make up the majority of the harvest in all four communities. Also harvested were large land mammals (caribou, feral cattle, bison, deer), migratory waterfowl (ducks, geese), other birds (ptarmigan, grouse), furbearers, berries, greens, and wood (Fall et al 1996, Fall et al. 1992a, Fall et al. 1992b, Fall et al. 2012).

This diversity of available and used resources can be represented by describing the range of resources used in a year by households surveyed. For example, in False Pass during the 1987-88 survey year, each community household used an average of about 23 different specific resources. The smallest number of different resources reported used by a household was 9, while the maximum number reported used in a household was 42. For all four communities considered in this analysis, the maximum number of different wild foods reported used in a household ranged from 42 resources in False Pass and Akutan, to 57 different kinds of wild harvested foods in Sand Point (Fall et al 1996, Fall et al. 1992a, Fall et al. 1992b, Fall et al. 2012).

Residents of these communities harvest caribou depending on accessibility and availability. Unimak Island caribou were available for harvest up until 1993 and between the years of 1997 and 2008. The SAPCH, which extends from Port Moller to False Pass in Unit 9D, is also available for harvest although it too has a population that fluctuates. The herd hit its peak population in 1983 with more than 10,000 caribou. By 1993, there were less than 2,300 caribou and hunting for caribou was closed in this area. During the mid-1990s the population increased some, only to decline again by the late 1990s. The current population of the SAPCH exceeds the minimum management objective and the harvest limit is currently two caribou for residents and two bulls for nonresidents (Crowley 2015). Residents of Unit 9D (which includes King Cove and Sand Point), as well as residents of Akutan and False Pass, have customary and traditional use determinations for caribou in Unit 9D, the southernmost extent of the SAPCH.

Unique resources available locally to Akutan, False Pass, King Cove, and Sand Point are feral cattle and introduced bison. In 2016, feral cattle populations were known to exist on Akun, Popof, Sanak, Unga, and Wosnesenki islands, and Bison were available on Popof Island, within close proximity to the analysis communities (Reedy 2016b). **Table 5** describes the household harvest and use of large land mammals in all four communities over each study year by ADF&G. The first three columns describe the percentage of households within a community that 1) used the resource, that 2) attempted to harvest a resource, and the percentage of households that 3) were successful in their harvest. The following three columns describe 4) the total number of animals harvested within the community, 5) the total community harvest by estimated pounds, and 6) the average pounds harvested per person.

While a wide range of animals were harvested or used in each community, feral cattle was the only large land mammal actually harvested by all four. King Cove harvested the most feral cattle at approximately 20 lbs. per capita, Akutan harvested about 14 lbs. per capita, False Pass harvested around 6 lbs. per capita, and Sand Point harvested approximately 5 lbs. per capita (Fall et al 1996, Fall et al. 1992a, Fall et al. 1992b, Fall et al. 2012). In 2009, the year the closure was reinstated, Reedy-Maschner and Maschner documented feral cattle harvest of approximately 142 lbs. per person in False Pass, and 26 lbs. per person in Akutan (Reedy-Maschner and Maschner 2012).

#### Summary of Section 804 Subsistence User Prioritization Analysis—Unit 10 Unimak Island Caribou

Based on harvest records and comprehensive subsistence surveys, residents of False Pass demonstrate a higher level of customary and direct dependence upon Unimak Island caribou. All four communities have exhibited harvest patterns for this resource when hunting has been permitted. Though the UCH can be difficult to access, residents of False Pass, King Cove, and Akutan have sought Unimak Island caribou when available. False Pass represented the most frequent harvest and use of the resource between 1997 and 2009. During this twelve year period, only 20 caribou were harvested by False Pass residents, suggesting that the likelihood that “up to ten caribou” would be harvested in a single year is low. Residents of False Pass are the closest to the resource considering the community is the only one with customary and traditional use determination for caribou on Unimak Island that is actually situated on the island. For Akutan, Unimak Island is the closest caribou herd for which they have a customary and traditional use determination, however they also rely heavily upon feral cattle, which are available in closer proximity on Akun Island. Both communities of King Cove and Sand Point are in closer proximity to the SAPCH in Unit 9D as opportunity allows. All four communities have a diversity of alternative resources available including feral cattle and in some instances bison. Only False Pass has credited some of the community population decline to the loss of opportunity for caribou harvest and expressed the value of caribou harvest for their customary practice of sharing and receiving.

#### **Other Alternative(s) Considered**

Another alternative considered was keep the Federal season closed until the UCH population was closer to the minimum population objective of 1000 caribou for the island and a bull:cow ratio of 35 bulls: 100 cows for three consecutive years as recommended by the USFWS and the State (USFWS 2010). The State recommendation on WSA19-05 was that the hunt should remain closed until there are at least 500 caribou observed during the fall composition surveys and the bull:cow ratio remains above 35 bulls: 100 cows for three consecutive years (ADF&G 2019b). This alternative was not chosen because the proposed limited harvest is unlikely to result in a conservation concern, and because the UCH population is on a positive trend. USFWS and ADF&G are actively monitoring the population, and the ability of the Izembek NWR Manager to set the harvest quota, close the season, and set any needed permit conditions will allow for effective management of this herd during this limited hunt.

**Table 5.** Large land mammal harvest and use by households within each community (ADF&G 2018).

<b>Species</b>						
<b>Bison</b>	0	0	0	0	0	0
<b>Brown Bear</b>	0	0	0	0	0	0
<b>Caribou</b>	8.3	0	0	0	0	0
<b>Deer</b>	2.8	2.8	2.8	1	43.2	0.6
<b>Feral Cattle</b>	52.8	2.8	2.8	3	1050	14.2
<b>Moose</b>	13.9	0	0	0	0	0
<b>Bison</b>	0	0	0	0	0	0
<b>Brown Bear</b>	0	0	0	0	0	0
<b>Caribou</b>	90	50	35	31	4650	73.8
<b>Deer</b>	0	0	0	0	0	0
<b>Feral Cattle</b>	15	5	5	1	350	5.6
<b>Moose</b>	10	5	0	0	0	0
<b>Bison</b>	4	0	0	0	0	0
<b>Brown Bear</b>	1.3	1.3	1.3	1	0	0
<b>Caribou</b>	64	29.3	25.3	34	5100	19.7
<b>Deer</b>	16	0	0	0	0	0
<b>Feral Cattle</b>	25.3	13.3	13.3	15	5250	19.7
<b>Moose</b>	0	0	0	0	0	0
<b>Bison</b>	54.8	8.7	7.7	8	3600	11.7
<b>Brown Bear</b>	1	0	0	0	0	0
<b>Caribou</b>	51	15.4	11.5	20	3000	9.7
<b>Deer</b>	1	0	0	0	0	0
<b>Feral Cattle</b>	15.4	3.8	3.8	4	1400	4.5
<b>Moose</b>	23.1	2.9	1	1	540	1.8

Species	% used	% attempt	% harvest	# animals	Total lbs	Lbs per capita
<b>Akutan, 2008 (pop. 82, hh 40)</b>						
<b>Bison</b>	0	0	0	0	0	0
<b>Brown Bear</b>	0	0	0	0	0	0
<b>Caribou</b>	8.3	0	0	0	0	0
<b>Deer</b>	2.8	2.8	2.8	1	43.2	0.6
<b>Feral Cattle</b>	52.8	2.8	2.8	3	1050	14.2
<b>Moose</b>	13.9	0	0	0	0	0
<b>False Pass, 1988 (pop. 69 hh 22)</b>						
<b>Bison</b>	0	0	0	0	0	0
<b>Brown Bear</b>	0	0	0	0	0	0
<b>Caribou</b>	90	50	35	31	4650	73.8
<b>Deer</b>	0	0	0	0	0	0
<b>Feral Cattle</b>	15	5	5	1	350	5.6
<b>Moose</b>	10	5	0	0	0	0
<b>King Cove, 1992 (pop. 560 hh 158)</b>						
<b>Bison</b>	4	0	0	0	0	0
<b>Brown Bear</b>	1.3	1.3	1.3	1	0	0
<b>Caribou</b>	64	29.3	25.3	34	5100	19.7
<b>Deer</b>	16	0	0	0	0	0
<b>Feral Cattle</b>	25.3	13.3	13.3	15	5250	19.7
<b>Moose</b>	0	0	0	0	0	0
<b>Sand Point, 1992 (pop.606 hh 204)</b>						
<b>Bison</b>	54.8	8.7	7.7	8	3600	11.7
<b>Brown Bear</b>	1	0	0	0	0	0
<b>Caribou</b>	51	15.4	11.5	20	3000	9.7
<b>Deer</b>	1	0	0	0	0	0
<b>Feral Cattle</b>	15.4	3.8	3.8	4	1400	4.5
<b>Moose</b>	23.1	2.9	1	1	540	1.8

### Effects of the Proposal

If this proposal is adopted, it would establish a limited bull caribou harvest for the residents of False Pass only. This would be significant by providing nutrition and a meaningful experience that allows for the transfer of knowledge between generations. The Izembek NWR Manager would have regulatory flexibility to set the quota and issue permits based on health of the UCH. The most recent minimum count in 2018 suggests that the UCH population is increasing slowly and for the first time in many years, the bull:cow and calf:cow ratios are close to being within the normal range for stable or increasing caribou populations of 30-40 bulls: 100 cows and 20-25 calves: 100 cows. The proposed season would extend through the rut when bulls are not palatable. However the tendency for the UCH to undergo wide fluctuations, the uneven age structure of the population, and a population level that is

approximately 40% of the lower threshold of 1,000 animals recommended by the State based on the limited habitat on Unimak Island, suggests caution.

Although this proposal limits the hunt on Unimak Island to False Pass residents only, the communities of Akutan, King Cove, and Sand Point still have Customary and Traditional use for Unit 10 caribou.

**OSM PRELIMINARY CONCLUSION**

**Support** Proposal WP20-25 **with modification** to delegate authority to the Izembek NWR Manager set the harvest quota, and any needed sex restrictions, close the season, and set any needed permit conditions via a delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

**Unit 10—Caribou**

<p><i>Unit 10 Unimak Island— Residents of Akutan, False Pass, King Cove, and Sand Point</i></p>	<p><i>Unit 10-Unimak Island only -1 bull by <b>Federal registration permit.</b></i></p> <p><i><b>Federal public lands are closed to the taking of caribou except by residents of False Pass</b></i></p>	<p><del><i>No Federal open- season</i></del></p> <p><i><b>Aug. 15-Oct. 15</b></i></p>
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**Justification**

Recognizing the importance of the continuation of subsistence uses of the UCH by False Pass residents, a small but limited hunt would give this community an opportunity for continuation of customary and traditional practices and to pass cultural knowledge on to the younger generation. False Pass residents harvested three caribou in 2018 and appreciated this opportunity. Only residents of False Pass, as determined through the Section 804 analysis, would be eligible for this hunt. Harvest data from the period in which the UCH was open to harvest (1997-2009) shows that harvest by False Pass residents was less than two animals per regulatory year. False Pass residents harvested three caribou in the fall of 2018. Given the difficulty of accessing the area frequented by the herd, harvest is anticipated to remain low.

In 2018, the UCH population estimate was approximately 413 animals, which is about 40% of the lower threshold of 1,000 animals recommended by the State for this island population. The slight increase in the number of caribou counted during the parturition surveys and the minimum count of 413 animals in 2018 indicate the population is between 400-500 caribou. The UCH population appears to have stabilized and increasing slightly. Given that the UCH has experienced wide population fluctuations in the past and given their susceptibility to extirpation by stochastic events, such as volcanic eruptions, climate change, and wolf predation, the harvest quota should remain at approximately 1% of the population. Delegating authority to the Izembek Refuge Manager to set harvest quotas and any needed sex restrictions, close the season, and set permit conditions should allow for regulatory flexibility through in-season adjustments, and a more timely response to changes in

population status, hunting conditions, or hunter access, while maximizing harvest opportunities for Federally qualified subsistence users.

## ANALYSIS ADDENDUM

### OSM CONCLUSION

**Support** Proposal WP20-25 **with modification** to change the season dates and to delegate authority to the Izembek NWR Manager set the harvest quota, and any needed sex restrictions, close the season, and set any needed permit conditions via a delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

#### **Unit 10—Caribou**

*Unit 10 Unimak Island—  
Residents of Akutan, False  
Pass, King Cove, and Sand  
Point*

*Unit 10-Unimak Island only -1 bull by  
Federal registration permit.*

*No Federal open-  
season  
Aug. 1-Sep. 30*

*Federal public lands are closed to the  
taking of caribou except by residents of  
False Pass*

### **Justification**

At its fall 2019 meeting, the Council voted unanimously to change the season dates from Aug. 15-Oct. 15 to Aug. 1-Sep. 30. The earlier season provides more opportunity for Federally qualified subsistence users at the beginning of the season and reduces the potential of disturbance during the rut in October. In addition, the caribou season in Unit 10, Unimak Island under Federal regulations would align with the State caribou season for the Southern Alaska Caribou herd in Unit 9D.

### **LITERATURE CITED**

Adams, L.G., F.G. Singer, and B.W. Dale. 1995. Caribou calf mortality in Denali National Park. *Alaska Journal of Wildlife Management* 59:584-594.

ADF&G and USFWS 2007. Southern Alaska Peninsula Caribou Herd Operational Plan (Draft) 7 pages.

ADF&G. 2017. Wildlife Special Action WP20-25: Temporary Special Action Request. Memorandum May 2, 2018. ADF&G, Juneau, AK. 2 pp.

ADF&G. 2018. Harvest ticket database. Microcomputer database, updated May 8, 2009.

ADF&G. 2019a. Harvest General Reports database.

[https://secure.wildlife.alaska.gov/index.cfm?adfg=harvest.main&\\_ga=1.109733509.1089519111.1465854136](https://secure.wildlife.alaska.gov/index.cfm?adfg=harvest.main&_ga=1.109733509.1089519111.1465854136), accessed March 4, 2019. Anchorage, AK.



- ADF&G. 2019b. Comments on Wildlife Special Action Request WP20-25. Memorandum May 31, 2019. ADF&G, Juneau, AK. 4 pp.
- Bergerud, A.T. 1974. Rutting behaviour of the Newfoundland caribou. Pages 395-435 *in* V. Geist and F. Walther, eds. The behaviour of ungulates and its relation to management. World Conservation Union, Morges, Switzerland.
- Bergerud, A.T. 1980. A review of the population dynamics of caribou and wild reindeer in North America. Pages 556-581 *in* S. Demarias and P.R. Krausman, editors, proceeding of the Second International Reindeer/Caribou Symposium, Direktoratet for vild og frskvannsfisk, Trondheim, Norway.
- Beals, F.E., and J.E. Longworth. 1941. Pages 11-25 (unnumbered) *in* Wildlife observations from Unimak Island between Jan. and June 1941. Unpublished USFWS “sea otter” report. Smithsonian Institution Archives, Record Unit 7176, Box 5, Folder 4. (Copy in files at the Alaska Maritime National Wildlife Refuge).
- Butler, L. 2005. Unit 10 caribou management report. Pages 57-60 *in* C. Brown, ed. Caribou management report of survey and inventory activities 1 July 2002-30 June 2004. ADF&G. Juneau, AK.
- Butler, L. 2007. Unit 10 caribou management report. Pages 51-55 *in* P. Harper, ed. Caribou management report of survey and inventory activities 1 July 2004-30 June 2006. ADF&G. Juneau, AK.
- Butler, L. 2008. Memorandum: Unimak Caribou Herd composition survey, October 21, 2008. ADF&G. King Salmon, AK. 3 pages.
- Butler, L. 2009. AK. Unit 10 caribou management report. Pages 52-57 *in* P. Harper, ed. Caribou management report of survey and inventory activities 1 July 2006-30 June 2008. ADF&G. Juneau, AK.
- Colson, K.E., K.H. Mager, and K.J. Hundertmark. 2014. Reindeer introgression and the population genetics of caribou in southwestern Alaska. *Journal of Heredity* 105(5):585-596.
- Crowley, D.W. 2015. Unit 10 Unimak caribou. Chapter 6, Pages 6-1 through 6-10 *in* P. Harper and L.A. McCarthy, editors. Caribou management report of survey and inventory activities 1 July 2012-30 June 2104. ADF&G, Species Management Report ADF&G/DWC/SMR-2015-4, Juneau, AK.
- Crowley, D. 2016. Memorandum: Units 9 and 10 caribou composition surveys. ADF&G. King Salmon, AK. 5
- Crowley, D. 2018. Wildlife Biologist. Personal communication: e-mail: ADF&G. King Salmon, AK.
- Environment Yukon. 2016. Science-based guidelines for management of Northern Mountain caribou in Yukon. Yukon Fish and Wildlife Branch Report MR-16-01. Whitehorse, Yukon, Canada.
- Fall, J.A., R. Walker, and R.T. Stanek. 1990. Subsistence use of the Southern Alaska Peninsula caribou herd. Technical Paper 191. ADF&G, Division of Subsistence. Juneau, AK.
- Fall, J.A., D.B. Andersen, L. Brown, M. Coffing, G. Jennings, C. Mishler, A. Page, C.J. Utermohle, and V. Vanek. 1992a. Noncommercial harvest and uses of wild resources in Sand Point, Alaska. Technical Paper 226, ADF&G, Division of Subsistence, Juneau, AK. 147 pp.

- Fall, J.A., R. Mason, T. Haynes, V. Vanek, L. Brown, G. Jennings, C. Mishler, and C. Utermohle. 1992b. Noncommercial harvest and uses of wild resources in King Cove, Alaska. Technical Paper 226, ADF&G, Division of Subsistence, Juneau, AK. 144 pp.
- Fall, J.A., R.T. Stanek, L. Brown, and C. Utermohle. 1996. The harvest and use of plant, wildlife, and fish resources in False Pass, Unimak Island, Alaska. Technical paper No 183. ADF&G, Division of Subsistence. Juneau, AK: 103 pp.
- Fall, J.A., C.L. Brown, N.M. Braem, L. Hutchinson-Scarborough, D.S. Koster, T.M. Krieg, and A.R. Brenner. 2012. Subsistence harvests and uses in three Bering Sea communities, 2008: Akutan, Emmonak, and Togiak. ADF&G, Division of Subsistence. Technical Paper no. 371, Anchorage, AK. 304 pp.
- Fitzmorris, P. 2019. Izembek National Wildlife Refuge Report for the Kodiak/Aleutians Subsistence Regional Advisory Council, April 22-23, 2019. 10 pp.
- Fitzmorris, P. 2020. Wildlife Biologist. Izembek National Wildlife Refuge. Personal communication: e-mail.
- Irvine, C. 1976. Population size of the Alaska Peninsula caribou herd. Alaska Department of the Fish and Game. Federal Aid in Wildlife Restoration. Research Final Report. Grants W-17-7 and W-17-8. Study 3.17R. ADF&G. Juneau, AK. 10 pp.
- Keech, M. and P. Valkenburg. 2007. Population dynamics of Interior and Southwest caribou herds. Research Final Performance Report, 1 July 2001-30 June 2007, Federal Aid in Wildlife Restoration Grants W-27-5, W33-1, W-33-2, W33-3, W33-4, W33-5. Project 3.45 ADF&G. Juneau, AK
- KARAC. 2017. Transcripts of the Kodiak/Aleutians Subsistence Regional Advisory Council proceedings. February 22, 2017. Kodiak, AK. Office of Subsistence Management. USFWS. Anchorage, AK.
- KARAC. 2018. Transcripts of the Kodiak/Aleutians Subsistence Regional Advisory Council proceedings. September 27, 2018. Cold Bay, AK. Office of Subsistence Management. USFWS. Anchorage, AK.
- KARAC. 2019. Transcripts of the Kodiak/Aleutians Subsistence Regional Advisory Council proceedings. April 22-23, 2019. Kodiak, AK. Office of Subsistence Management. USFWS. Anchorage, AK
- Legner, K.A. 2014. Seasonal movements, diet composition, and diet nutritional quality of Unimak Island caribou. M.S. Thesis. University of Alaska Anchorage, Anchorage, AK. 181 pp.
- Murie, O.J. 1959. Fauna of the Aleutian Islands and Alaska Peninsula. *North American Fauna* 61:1-406.
- OSM. 1991. Staff analysis P91-101. Pages 29-30 *in* Federal Subsistence Board Meeting Materials May 4-May 8, 2010. Office of Subsistence Management, USFWS. Anchorage, AK. 240 pp.
- OSM. 1993. Staff analysis S93-01. Office of Subsistence Management, USFWS. Anchorage, AK. 1 pp
- OSM. 1994. Staff analysis P94-28. Pages 229-236 *in* Federal Subsistence Board Meeting Materials May 18-May 21, 1994. Office of Subsistence Management, USFWS. Anchorage, AK. 1083 pp.
- OSM. 1997. Staff analysis S97-01. Office of Subsistence Management, USFWS. Anchorage, AK. 1 pp

- OSM. 1998. Staff analysis S98-05. Office of Subsistence Management, USFWS. Anchorage, AK. 1 pp
- OSM. 1999. Staff analysis S99-04. Office of Subsistence Management, USFWS. Anchorage, AK. 1 pp
- OSM. 2000. Staff analysis P00–029. Pages 302–311 *in* Federal Subsistence Board Meeting Materials May 2–May 4, 2010. Office of Subsistence Management, USFWS. Anchorage, AK. 661 pp.
- OSM. 2003a. Staff analysis WSA03-08. Office of Subsistence Management, USFWS. Anchorage, AK. 6 pp
- OSM. 2003b. Staff analysis WSA03-10. Office of Subsistence Management, USFWS. Anchorage, AK. 7 pp
- OSM. 2004. Staff analysis WP04–40. Pages 1126–1138 *in* Federal Subsistence Board Meeting Materials May 18–May 21, 2004. Office of Subsistence Management, USFWS. Anchorage, AK. 1041 pp.
- OSM. 2008a. Staff analysis WP08–25. Pages 115–122 *in* Federal Subsistence Board Meeting Materials April 29–May 1, 2008. Office of Subsistence Management, USFWS. Anchorage, AK. 599 pp.
- OSM. 2008b. Staff analysis WP08–26. Pages 123–134 *in* Federal Subsistence Board Meeting Materials April 29–May 1, 2008. Office of Subsistence Management, USFWS. Anchorage, AK. 599 pp.
- OSM. 2009a. Staff analysis WSA09-06. Office of Subsistence Management, USFWS. Anchorage, AK. 11 pp
- OSM. 2009b. Staff analysis WSA09-07. Office of Subsistence Management, USFWS. Anchorage, AK. 12 pp
- OSM. 2010. Staff analysis WP10–42. Pages 462–472 *in* Federal Subsistence Board Meeting Materials May 18–May 21, 2010. Office of Subsistence Management, USFWS. Anchorage, AK. 1083 pp.
- OSM. 2018. Staff analysis WSA18-01. Office of Subsistence Management, USFWS. Anchorage, AK. 26 pp
- Peterson, C. 2013. Unit 10 caribou management report. Pages 68-75 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2101-30 June 2012. ADF&G, Species Management Report ADF&G/DWC/SMR-2013-3. Juneau, AK.
- Peterson, C. 2018. Wildlife biologist. Personal communication: e-mail: ADF&G. King Salmon, AK.
- Reedy, K. 2016a. Island Networks: Aleutian Island salmon and other subsistence harvests. Fisheries Resource Monitoring program, 12-450. USFWS, Office of Subsistence Management, Alaska Region, Anchorage, AK. 140 pp.
- Reedy, K. 2016b. Kelp-fed Beef, swimming caribou, feral reindeer, and their hunters: Island mammals in a marine economy. *Sustainability* 8 (113): 1-25. doi:10.3390/su8020113.
- Reedy-Maschner, K.L., and H.D.G. Maschner. 2012. Subsistence study for the North Aleutian Basin. U.S. Department of the Interior, Bureau of Ocean Energy Management, Alaska Region. OCS Study BOEM 2012-109. Anchorage, AK. 428 pp.
- Riley, M.D., 2011. Unit 10 caribou management report. Pages 53-59 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008-30 June 2010. ADF&G. Juneau, AK.

Sekora, P. 1971. Unimak Island Wilderness Study, Aleutian Islands National Wildlife Refuge, Third Judicial District, Alaska: Wilderness Study Report, U.S. Department of the Interior, U. S. Fish and Wildlife Service, Bureau of the Fisheries and Wildlife.

Sellers, R.A. 1999. Southern Alaska Peninsula. Pages 47-54 in M.V. Hicks, ed. Caribou herd management progress report of survey and inventory activities 1 July 1998-30 June 2000. Juneau, AK.

Sellers, R.A., P. Valkenburg, R.C. Squibb, B. Dale, and R.L. Zarnke. 2003 Natality and calf mortality of the Northern Alaska Peninsula and the Southern Alaska Peninsula caribou herds. *Rangifer*, Special Issue 14:161-166.

Skoog, R.O. 1968. Ecology of caribou (*Rangifer tarandus granti*) in Alaska. Ph.D. Dissertation, University of Alaska Fairbanks, Fairbanks, AK. 699 pp.

Talbot, S.S., S.L. Talbot, W.B. Schofield. 2006. Vascular flora of Izembek National Wildlife Refuge, Westernmost Alaska Peninsula, Alaska. *Rhodora*. 108(935):249-253.

Talbot, S.L. 2018. Wildlife geneticist. Personal communication: email. U.S. Geological Service, Alaska Science Division, Anchorage, AK.

U.S. Census Bureau, 1990. Census of Population and Housing Unit Counts, CPH-2-3, Alaska. U.S. Government Printing Office, Washington, D.C., 2012. 101 pp. <https://www.census.gov/prod/cen1990/cph2/cph-2-3.pdf>

U.S. Census Bureau, 2000. Census of Population and Housing Unit Counts, PHC-3-3, Alaska. U.S. Government Printing Office, Washington, D.C., 2012. 67 pp. <https://www.census.gov/prod/cen2000/phc-3-3.pdf>

U.S. Census Bureau, 2010. Census of Population and Housing Unit Counts, CPH-2-3, Alaska. U.S. Government Printing Office, Washington, D.C., 2012. 76 pp. <https://www.census.gov/prod/cen2010/cph-2-3.pdf>

U.S. Fish and Wildlife Service (USFWS). 2010. Management Alternatives for the Unimak Island Caribou Herd: Environmental Assessment. USFWS. Anchorage, AK. 94 pp.

U.S. Fish and Wildlife Service (USFWS). 2018a. Izembek National Wildlife Refuge Report for the Kodiak/Aleutians Federal Subsistence Regional Advisory Council. Fall Meeting – September 2018. Izembek National Wildlife Refuge, Cold Bay, AK. 24 pp.

U.S. Fish and Wildlife Service (USFWS). 2018b. OSM database. Office of Subsistence Management. USFWS, Anchorage, AK.

Valkenburg, P., Sellers, R.A., Squibb, R.C., Woolington, J.D., Aderman, A.R., and Dale, B., 2003. Population dynamics of caribou herds in southwestern Alaska. *Rangifer*, Special Issue No. 14:131-142.

WinfoNet. 2018. Wildlife Information Network (WinfoNet). Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>.

Zittlau, K. 2004. Population genetic analyses of North American caribou (*Rangifer tarandus*) Ph.D. Dissertation. University of Alberta, Edmonton, Canada.

**SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION**

**Kodiak/Aleutians Subsistence Regional Advisory Council**

**Support WP20-25 with modification.** The Council amended the OSM Preliminary Conclusion season to change the season from Aug. 15 - Oct. 15 to Aug. 1 - Sept. 30. The earlier season provides more opportunity for Federally qualified subsistence users at the beginning of the season and reduces the potential of disturbance during the rut during October. In addition, the caribou season in Unit 10, Unimak Island under Federal regulations would align with the State caribou season for the Southern Alaska Caribou herd in Unit 9D. Unimak caribou is an important resource for rural residents of False Pass. A limited hunt would provide the community an opportunity for continuation of customary and traditional practices and to pass cultural knowledge on to the younger generation.

The modified regulation should read:

**Unit 10—Caribou**

<p><i>Unit 10 Unimak Island—Residents of Akutan, False Pass, King Cove, and Sand Point</i></p>	<p><i>Unit 10-Unimak Island only -1 bull by Federal registration permit. Annual harvest quotas to be determined by the Izembek National Wildlife Refuge Manager.</i></p> <p><i>Federal public lands are closed to the taking of caribou except by residents of False Pass</i></p>	<p><del><i>No Federal open season</i></del> <i>Aug. 1-Sep. 30</i></p>
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**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-25:** Wildlife Proposal WP20-25, submitted by the Kodiak/Aleutians Subsistence Regional Advisory Council (Council), requests that Federal public lands in Unit 10, Unimak Island only, be opened for a limited bull caribou hunt by Federal registration permit from Aug. 15–Oct. 15 for the residents of False Pass only, and that the Izembek National Wildlife Refuge Manager be allowed to determine the annual harvest quota.

**Introduction:** The proponent (Council) seeks to provide opportunity for False Pass residents to harvest caribou from the Unimak Caribou Herd (UCH). In 2018, Unimak Island was

opened to caribou hunting for the first time since 2009 for federal subsistence hunting. ADF&G was opposed to the hunt because the population parameters had been below management objectives of sustaining a population of 1,000 caribou with ratios of 35 bulls and 20 calves to 100 cows agreed upon by the state and USFWS.

Recent surveys indicate composition objectives have been achieved for bulls per 100 cows and calves per 100 cows. Pregnancy rate was again low (68%) in 2019. The population size remains below management objective (Table 1).

**Table 1.** Unimak Island caribou herd October composition surveys and population estimates, 2008–2018.

Regulatory Year	Bulls: 100 cows	Calves:		% Cows	% Bulls	Small	Medium	Large	Sample size	Population size (approx.)
		100 cows	% Calves			bulls	bulls	bulls		
2008	9	6	5	86	9	33	33	33	260	
2009	5	3	3	92	5	30	30	40	221	400 <sup>a</sup>
2010	8	8	7	86	7	21	42	37	284	
2011	6	7	6	89	5	50	33	17	117	224 <sup>b</sup>
2012	10	3	2	89	8	14	71	14	83	164 <sup>c</sup>
2013	10	19	15	78	8	20	40	40	67	192 <sup>d</sup>
2014	15	22	16	73	11	21	50	29	127	230 <sup>a</sup>
2015	No survey									334 <sup>a</sup>
2016	33	40	23	58	19	29	63	8	258	
2017	No survey									
2018	80	44	20	45	36	56	27	17	413	430

<sup>a</sup> Winter survey by Izembek National Wildlife Refuge (INWR) staff.

<sup>b</sup> Spring survey by INWR and Alaska Department of Fish & Game (ADFG) staff.

<sup>c</sup> Summer survey by ADFG.

<sup>d</sup> October survey by INWR staff

Since 1990 at least 85% of False Pass residents who reported harvesting caribou from either the UCH or the Southern Alaska Peninsula Herd (SAP) have used boats for transportation. Caribou do not normally occur in the drainage surrounding False Pass, nor is the drainage within federal lands potentially open to hunting. A boat is required to access other parts of the island where caribou are routinely found on federal lands. If the proposal passes, state and private lands would remain closed to caribou hunting, including the False Pass drainage, and the closest caribou hunting would remain the SAP, across Isanotski Strait, where the bag limit is 2 caribou (Figure 1). Much of this area of the SAP is within the Izembek National Wildlife Refuge and is therefore eligible for federal subsistence harvest and designated hunter status. However, the refuge issues a very limited number of permits to False

Pass residents. Opportunity is available under state regulations to harvest caribou from the SAP on native and state owned land in addition to the opportunity provided on federal lands.

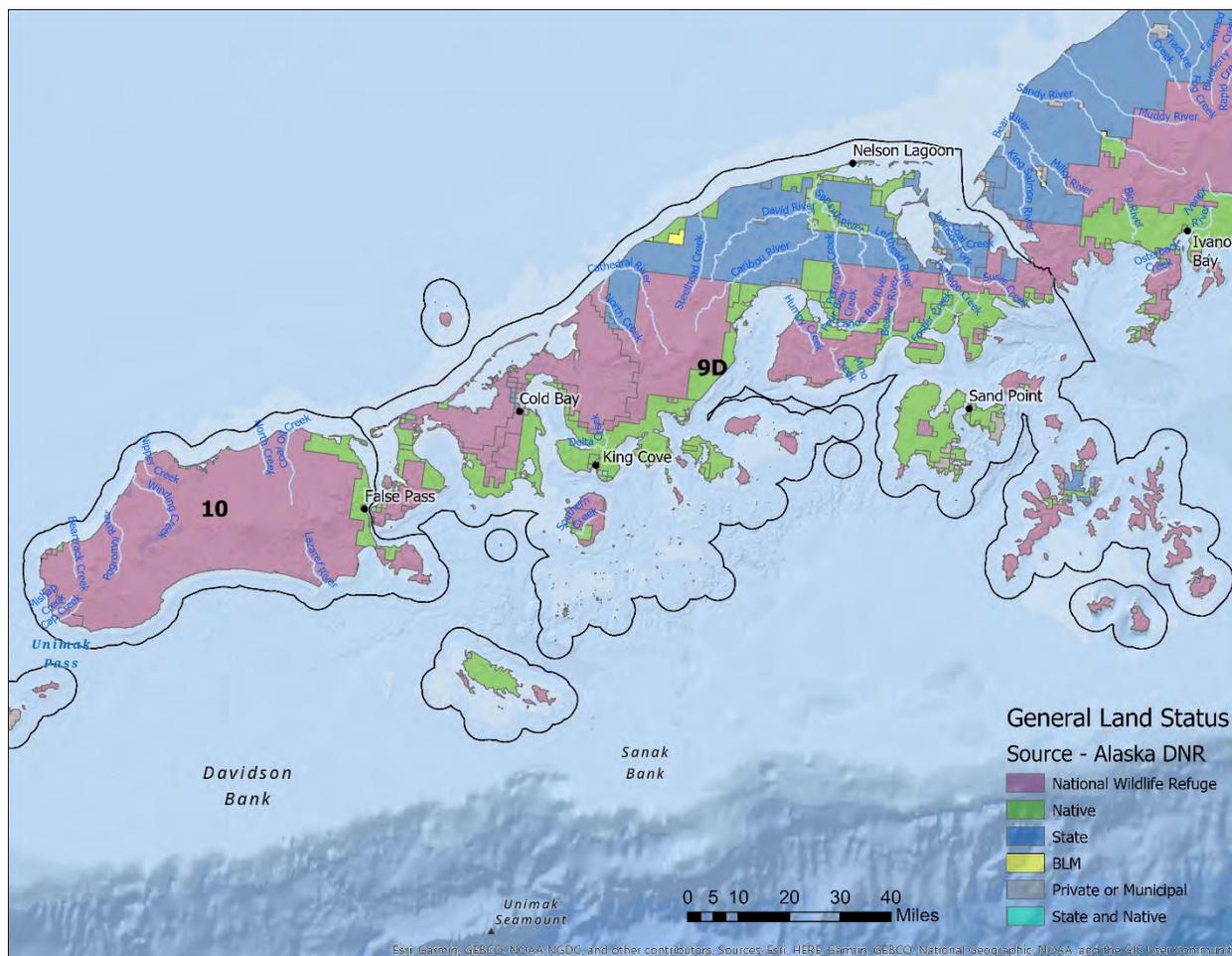


Figure 1. Unimak Island and the southern Alaska Peninsula General Land Status

**Impact on Subsistence Users:** It is a shorter boat trip to access the currently-open SAP than it is to access the federal lands on Unimak Island. Hunters would likely continue hunting the SAP, which has more liberal seasons and bag limits.

**Impact on Other Users:** None.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for SAP caribou in Units 9D and 10 Unimak Island.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably

necessary for customary and traditional uses. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for SAP caribou in Unit 9D and Unit 10 Unimak Island is 100–150 animals. The hunting seasons and bag limits in Units 9D and 10 (Unimak) are:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season CARIBOU</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
9D	2 caribou	Aug 1–Sep 30 Nov 15–Mar 30	Aug 1–Sep 30 (bag limit 2 bulls)
10 (Unimak)	Closed	Closed	Closed

<sup>a</sup> Subsistence and General Hunts.

Special instructions: None

**Conservation Issues:** The UCH was closed to caribou hunting in 2009 after the population had declined to a very low level. The state sought to remove wolves from the UCH range to reduce predation on the herd, allowing for herd growth. The USFWS is opposed to this necessary management action even though the herd has shown little growth despite the closure.

With recent increases in the bull:cow ratio, harvest of a few bulls would not be expected to have a great effect, but this improvement does highlight the benefit of conservative management. The population of 400 caribou is still vulnerable to stochastic events such as widespread icing or ash fall from volcanic activity.

**Enforcement Issues:** None

**Recommendation:** ADF&G is **NEUTRAL** on opening a caribou hunt on Unimak Island because the population has been slow to recover. ADF&G supports issuing unlimited federal subsistence permits to False Pass residents for hunting the SAP on those federal public lands of the unit where no conservation concern exists and allowing designated hunter status. If this proposal is adopted, ADFG will consult with the Refuge Manager to determine the harvest quota.



## Appendix 1



FISH and WILDLIFE SERVICE  
BUREAU of LAND MANAGEMENT  
NATIONAL PARK SERVICE  
BUREAU of INDIAN AFFAIRS

## Federal Subsistence Board

1011 East Tudor Road, MS121  
Anchorage, Alaska 99503-6199



FOREST SERVICE

OSM 180051.CM

Refuge Manager  
Izembek National Wildlife Refuge  
P.O. Box 127 MS 515  
Cold Bay, Alaska 99571-0127

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the Izembek National Wildlife Refuge Manager to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of the population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within Unit 10, Unimak Island, for the management of caribou on these lands.

It is the intent of the Board that actions related to management of caribou by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

### DELEGATION OF AUTHORITY

**1. Delegation:** The Izembek National Wildlife Refuge Manager is hereby delegated authority to issue emergency or temporary special actions affecting caribou on Federal lands as outlined under the **Scope of Delegation**. Any action greater than 60 days in length

(temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- To set the harvest quota and any needed sex restrictions, close the season, and set any needed permit conditions for caribou on Federal public lands in Unit 10, Unimak Island.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve caribou populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Unit 10, Unimak Island.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action

requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government to Government Tribal Consultation Policy (Federal Subsistence Board Government to Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair

Enclosures

cc: Federal Subsistence Board

Assistant Regional Director, Office of Subsistence Management

Deputy Assistant Regional Director, Office of Subsistence Management

Subsistence Policy Coordinator, Office of Subsistence Management

Wildlife Division Supervisor, Office of Subsistence Management

Subsistence Council Coordinator, Office of Subsistence Management

Chair, Kodiak/Aleutians Subsistence Regional Advisory Council

Commissioner, Alaska Department of Fish and Game

Special Assistant to the Commissioner, Alaska Department of Fish and Game

Interagency Staff Committee

Administrative Record

<b>WP20–26 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-26 requests that Federally qualified subsistence users be allowed to use a snowmachine to position wolves, and wolverines for harvest on Bureau of Land Management (BLM) lands in Units 9B, 9C, 17B, and 17C, provided the animals are not shot from a moving snowmachine. <i>Submitted by: Bristol Bay Subsistence Regional Advisory Council.</i>
<b>Proposed Regulation</b>	<p>§ _____.26(n)(17)(iii) Unit 17—Unit-specific regulations</p> <p>...</p> <p><i>(D) In Units 17B and 17C, on BLM-managed lands only, a snowmachine may be used to position a wolf or wolverine for harvest, provided that the animal is not shot from a moving snowmachine.</i></p>
<b>OSM Conclusion</b>	<b>Support</b>
<b>Bristol Bay Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>
<b>Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>
<b>Western Interior Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee (ISC) has identified several points for the Board to consider in their deliberation of proposal WP20-26.</p> <p>Testimony from members of the Bristol Bay Subsistence Regional Advisory Council and local subsistence users supported the clarification of how snow machines can be used while harvesting wolves and wolverines in these units. Such equipment has long been used for these purposes, and the proposed regulations will help subsistence users continue these traditions, while reducing the concerns about potential enforcement actions.</p>

<b>WP20–26 Executive Summary</b>	
	<p>Little is known about wolf or wolverine populations and harvest levels in these units. Wolverines, in particular, occur at low densities and are vulnerable to hunters on snowmachines. Using snowmachines to position and shoot wolverines may present conservation concerns if it results in increased harvest. However, the ISC also noted that harvest of wolves and/or wolverines by rural residents while snow machining is typically opportunistic, which may limit negative impacts to either species.</p> <p>This regulation would apply only on BLM managed land, and would result in regulatory complexity across lands of differing Federal status. In addition, BLM managed lands comprise only 4% of Units 9 and 17, so this regulation would apply to only a fraction of the total land area. Regulatory complexity between State and Federal regulations would also increase, given that State regulations allow a snowmachine to be used to position a hunter to select an individual wolf for harvest, provided the machine is stationary when shooting, but does not allow the same for wolverines.</p> <p>It is notable that the Board has previously approved regulations specifying how snow machines can be used for wolf and wolverine hunting in Unit 23, and that these regulations have been implemented to address both subsistence needs and enforcement concerns. The Board may also want to consider a more universal approach to identifying the appropriate use of snow machines for harvest of animals by federally qualified subsistence users. Creation of regulations that are enforceable, are compatible with existing Federal and State regulations, and allow efficient harvest, may be worth further discussion and evaluation.</p>
<b>ADF&amp;G Comments</b>	<b>Neutral on wolves, Opposed to wolverine</b>
<b>Written Public Comments</b>	<b>1 Oppose</b>

**STAFF ANALYSIS**  
**WP20-26**

**ISSUES**

Proposal WP20-26, submitted by the Bristol Bay Subsistence Regional Advisory Council requests that Federally qualified subsistence users be allowed to use a snowmachine to position wolves, and wolverines for harvest on Bureau of Land Management (BLM) lands in Units 9B, 9C, 17B, and 17C, provided the animals are not shot from a moving snowmachine.

**DISCUSSION**

The proponent states that the use of snowmachines to position wolves and wolverines is a traditional practice in rural areas, and the proposed regulation will mirror Federal regulations in Unit 23.

**Existing Federal Regulation**

§ \_\_\_\_ .26 Subsistence taking of wildlife

...

*(b) Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:*

...

*(4) Taking wildlife from a motorized land or air vehicle when that vehicle is in motion, or from a motor-driven boat when the boat's progress from the motor's power has not ceased.*

*(5) Using a motorized vehicle to drive, herd, or molest wildlife.*

**Proposed Federal Regulation**

§ \_\_\_\_ .26 Subsistence taking of wildlife

...

*(b) Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:*

...

*(4) Taking wildlife from a motorized land or air vehicle when that vehicle is in motion, or from a motor-driven boat when the boat's progress from the motor's power has not ceased.*

*(5) Using a motorized vehicle to drive, herd, or molest wildlife.*

§ \_\_\_\_\_.26(n)(9)(iii) Unit 9—Unit-specific regulations

...

*(I) In Units 9B and 9C, on BLM-managed lands only, a snowmachine may be used to position a wolf or wolverine for harvest, provided that the animal is not shot from a moving snowmachine.*

...

§ \_\_\_\_\_.26(n)(17)(iii) Unit 17—Unit-specific regulations

...

*(D) In Units 17B and 17C, on BLM-managed lands only, a snowmachine may be used to position a wolf or wolverine for harvest, provided that the animal is not shot from a moving snowmachine.*

**Existing State Regulations**

**AS 16.05.940. Definitions.**

...

(34) “take” means taking, pursuing, hunting, fishing, trapping, or in any manner disturbing, capturing, or killing or attempting to take, pursue, hunt, fish, trap, or in any manner capture or kill fish or game.

**5 AAC 92.080. Unlawful methods of taking game; exceptions**

*The following methods of taking game are prohibited:*

...

*(4) unless otherwise provided in this chapter, from a motor-driven boat or a motorized land vehicle, unless the motor has been completely shut off and the progress from the motor’s power has ceased, except that a*

...

*(B) motorized land vehicle may be used as follows:*

*(iii) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 18, 19, 21, 22, 24, 25(C) and 25(D), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, a snowmachine may be used to position a hunter*



*to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;*

...

*(5) except as otherwise specified, with the use of a motorized vehicle to harass game or for the purpose of driving, herding, or molesting game.*

#### **5 AAC 92.990. Definitions**

*(a) In addition to the definitions in AS 16.05.940 , in 5 AAC 84 – 5 AAC 92, unless the context requires otherwise,*

...

*(70) “harass” means to repeatedly approach an animal in a manner which results in the animal altering its behavior;*

**NOTE:** The complete text for 5 AAC 92.080(4)(B) is in **Appendix 1.**

### **Relevant Federal Regulations**

#### **50 CFR 100.4 and 36 CFR 242.4 Definitions**

*Take or taking as used with respect to fish or wildlife, means to pursue, hunt, shoot, trap, net, capture, collect, kill, harm, or attempt to engage in any such conduct.*

#### **§\_\_\_\_.26(n)(23)(iv) Unit 23—Unit-specific regulations**

...

*(E) A snowmachine may be used to position a hunter to select individual caribou for harvest provided that the animals are not shot from a moving snowmachine. On BLM-managed lands only, a snowmachine may be used to position a caribou, wolf, or wolverine for harvest provided that the animals are not shot from a moving snowmachine.*

#### **43 CFR 8341.1 (Bureau of Land Management)**

*(f.) No person shall operate an off-road vehicle on public lands: ... (4) In a manner causing or likely to cause significant, undue damage to or disturbance of ... wildlife*

### **Extent of Federal Public Lands**

Unit 9 is comprised of approximately 53% Federal public lands and consist of 28% National Park Service, 22% U.S. Fish and Wildlife Service, and 3% Bureau of Land Management managed lands. Bureau of Land Management lands comprise 8% of Unit 9B and 4% of Unit 9C.

Unit 17 is comprised of approximately 28% Federal public lands and consist of 21% U.S. Fish and Wildlife Service, 4% Bureau of Land Management, and 3% National Park Service managed lands. Bureau of Land Management lands comprise 1% Unit 17B and 10% of Unit 17C.

### **Customary and Traditional Use Determination**

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for wolverines in Unit 9 or Unit 17. Therefore, all Federally qualified subsistence users may harvest wolverines.

Residents of Units 6, 9, 10 (Unimak Island only), 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, and Chickaloon have a customary and traditional use determination for wolves in Units 9 and 17.

### **Regulatory History**

In 1995, Proposal P95-52 requested that snowmachines and motor-driven boats be allowed in the taking of caribou and moose in Unit 25 during established seasons, except shooting from a snowmachine in motion was prohibited. There was no existing regulation on the use of motorized vehicles in Unit 25 prior to this. The Federal Subsistence Board (Board) adopted the recommendation of the Eastern Interior Alaska and Southcentral Alaska Subsistence Regional Advisory Councils who supported the proposal in recognition that methods change over time and because it supported subsistence uses.

In 2000, the Board adopted Proposal P00-53 with modification allowing the use of snowmachines to position a hunter and select individual caribou for harvest in Units 22 and 23. The Board did this to recognize a longstanding customary and traditional practice in the region (FWS 2000). However, the proponent had asked to position a caribou, not a hunter. The Interagency Staff Committee provided a rationale for the modification:

Following the Regional Council winter meetings, the Deputy Regional Director of the U.S. Fish and Wildlife Service (FWS), Alaska Region, met with the Assistant Regional Director for Law Enforcement, the Staff Committee member for FWS, the Refuge Supervisor for Northern Refuges, and the Native Liaison and, after lengthy discussion, agreed to recommend substituting “a hunter” for “caribou” in the proposal language. They agreed that this is consistent with conservation principles and existing agency regulations as long as herding does not occur and shooting from a moving snowmachine is prohibited (FWS 2000:13).

In 2012, Proposal WP12-53 was submitted by the Yukon Delta National Wildlife Refuge, and requested unit specific regulation prohibiting a hunter in Unit 18 from pursuing with a motorized vehicle an ungulate that is “fleeing.” The Board adopted the proposal with modification and prohibited the pursuit with a motorized vehicle of an ungulate that was “at or near a full gallop” in Unit 18, providing greater clarity of allowable methods of harvest (FWS 2012).

At its March 2014 meeting, the Alaska Board of Game adopted Proposal 177, which allows a hunter to use a snowmachine in Units 22, 23 and 26A to position a caribou, wolf, or wolverine for harvest, as long as these animals were shot from a stationary snowmachine (see 5 AAC 92.080(4)(B)(i) at **Appendix 1**). The purpose of the proposal was to allow the use of snowmachines to track these animals.

In 2016, Proposal WP16-48, submitted by the Native Village of Kotzebue, requested that Federally qualified subsistence users be allowed to use snowmachines to position a caribou, wolf, or wolverine for harvest in Unit 23. The Board adopted the proposal with modification to allow this method of harvest only on those lands managed by the Bureau of Land Management. The Board recognized uses of snowmachines to position animals as customary and traditional practice. However, positioning animals by snowmachine is prohibited on National Park Service and U.S. Fish and Wildlife Service lands under agency-specific regulations. Bureau of Land Management regulatory language does not specifically prohibit the use of snowmachines to position animals for hunting and this harvest method is allowed on some State managed lands.

In the spring of 2017, Kenneth Nukwak of Manokotak submitted Proposal WP18-24 requesting that Federally qualified subsistence users be allowed to use a snowmachine to position caribou, wolves, and wolverines for harvest in Unit 17, provided the animals would not shot from a moving vehicle. During the fall 2017 meeting cycle, the Bristol Bay Subsistence Regional Advisory Council voted to oppose Proposal WP18-24, noting a lack of clear definitions for positioning and chasing of an animal.

At its February 2018 meeting in Dillingham, the Alaska Board of Game adopted Proposal 148, also submitted by Kenneth Nukwak of Manokotak, with modification. The original proposal requested that Federally qualified subsistence users be allowed to use a snowmachine to position caribou, wolves, and wolverines for harvest in Unit 17, provided the animals would not be shot from a moving vehicle. The modified regulation was limited to caribou and stated that a snowmachine may be used in Unit 17 to assist in the taking of a caribou, and caribou may be shot from a stationary snowmachine, with further clarification describing exactly how the snowmachine may be used for assistance (see 5 AAC 92.080(4)(B)(viii) at **Appendix 1**).

At its winter meeting in March of 2018, the Bristol Bay Subsistence Regional Advisory Council voted to request Proposal WP18-24 be removed from the consensus agenda at the next Board meeting. Reasoning for this included providing an opportunity for the Board to deliberate the proposal on record, in light of Board of Game deliberation, modification, and adoption of the same proposal on State lands in Unit 17. During the April 2018 Board meeting, Proposal WP18-24 was taken off the

consensus agenda. Some public testimony was received in support of the proposal. The Board deliberated the proposal on record and rejected it.

### **Biological Background**

Wolves and wolverines are present throughout Units 9 and 17. As with other furbearers in Alaska, there is scant objective data on abundance of these animals. Rather, relative abundance has typically been estimated using the results of trapper questionnaires, as well as incidental observation by biologists, hunters, trappers, guides and others.

#### Wolves

Historically, wolf density has varied in response to harvest pressure, prey availability, and disease. In Unit 9, wolf densities were low in the early 1980s following the end of the Federal wolf control program. Abundance appears to have increased during the 1990s. Currently, the population is believed to be relatively stable, and monitoring efforts in Units 9C and 9E indicate that the population is 250 – 550 wolves, or 16-18 wolves/1,000 mi<sup>2</sup> (Crowley and Peterson 2018). Wolf dynamics in Unit 17 have been similar to those in Unit 9, with abundance increasing during the mid-1980s and early 1990s (Barten 2018) and recent observations suggesting that the population is relatively stable (Spivey 2019).

#### Wolverines

Compared to other furbearers, wolverines occur at low densities (Copeland and Whitman 2003). Though wolverine abundance remains unquantified due to the impracticality of formal assessment (Crowley 2013), low densities appear to be confirmed by local trappers, who report that wolverines in Units 9 and 17 are scarce but stable (Spivey 2019).

### **Cultural Knowledge and Traditional Practices**

During his study years of 1964 and 1965, VanStone (1967:134) documented winter travel along the Nushagak River as occurring almost exclusively by dog team. During the winter months dog teams were used to harvest caribou, access trap lines, and provide for the transportation of supplies and people throughout the region. Hunters used traditional methods to harvest wildlife. These methods included a hunter moving animals towards another hunter's position (Nelson 1983 [1899] and Oswalt 1990). At the time of his study, VanStone was only aware of a few Bristol Bay residents that possessed snowmachines. Approximately 10 years later, when the Alaska Department of Fish and Game (ADF&G) first began conducting research on subsistence harvest activities, dog teams were barely mentioned. Instead, reports noted that the communities of Nushagak Bay had mostly transitioned to the use of boats, aircrafts, and snowmachines as a preferred means of travel and for accessing animals for harvest (Coiley-Kenner et al. 2003; Evans et al. 2013; Fall et al. 1986; Holen et al. 2012; Holen et al. 2005; Kreig et al. 2009; Schinchnes and Chythlook 1988; Seitz 1996; Wolfe et al. 1984; Wright et al. 1985).

In the past, prior to the use of snowmachines, people in the region were more nomadic. Residents of Southwest Alaska practiced an annual round of harvest activities that allowed them to effectively position themselves in proximity to important resources that supported their families through extended travel to seasonal subsistence camps. In La Vine and Lisac (2003), elders describe a harvest year that began at fish camp in the early summer, moved up the river to hunting and trapping camps for the fall and winter, traveled through mountain passes and down rivers to bays and estuaries for the spring harvest of migratory waterfowl and eggs, finally returning to fish camp once again in early summer (La Vine and Lisac 2003). A trip such as this required travel by boat, sled, and foot and took the family hundreds of miles and 12 months to complete. As village life solidified around schools and economic opportunities, technological advances like boats with outboard motors and snowmachines allowed people to travel further over shorter periods of time in order to access resources they once had to follow over seasons instead of hours.

### Wolves and Wolverine

Across Alaska, both wolves and wolverines are highly prized for their fur, which is used to trim locally made parkas and other items of clothing or handicrafts. While not as prominent an activity as in the past, rural residents still participate in trapping as a source of income in the Bristol Bay region, particularly for wolverine, which continues to fetch a high price for quality fur (Woolington 2013). Snowmachines were the primary means of transportation used by hunters and trappers for taking wolves and furbearers in Unit 17 from 2008 through 2012 (Woolington 2012 and 2013). Most wolves were harvested by firearm between the regulatory years of 1992 and 2010, while wolverines were more frequently taken by trap or snare.

The Division of Subsistence at ADF&G conducts household subsistence harvest surveys periodically throughout Alaska. Though this survey data is only available for some communities in some years, it is an additional source for documenting patterns of use in rural Alaska. The most recent surveys conducted in the Bristol Bay region describe the harvest and use of wolves and wolverines as varied between communities and study years (Evans et al. 2013; Holen et al. 2012; Holen et al. 2011; Holen et al. 2005; Kreig et al. 2009). A common pattern described by most reports is that a smaller percentage of households in each community report harvest or attempted harvest and use of furbearers than those reporting harvest and use of salmon or large land mammals like moose and caribou. In most cases only a few households are responsible for the majority of the harvest and use of furbearers, likely in association with keeping a trap line.

## **Harvest History**

### Wolves

Harvest of wolves is influenced by weather and travel conditions, which can result in variable harvest from year to year. Alaska Department of Fish and Game sealing records indicate that from 2010 to 2014, the most recent five-year period for which unit-specific sealing data is available, reported harvest ranged from 44 to 142 wolves in Unit 9. On average 64 wolves were harvested annually (Crowley and Peterson 2018).

Reported harvest was also variable in Unit 17, where between 6 and 105 wolves were harvest annually from 2010 to 2014. During that period, annual harvest averaged 47 wolves. In Unit 17, 70% of harvested wolves were shot, 18% were trapped or snared, and 69% of hunters and trappers used snowmachines to harvest wolves (Barten 2018).

### Wolverines

Like wolf harvest, wolverine harvest can vary from year to year, reflecting trapper effort that varies with travel conditions. For 2007 – 2016, the most recent ten-year period for which unit-specific sealing data is available, reported harvest ranged from 9 to 36 wolverines in Unit 9. On average, annual reported harvest was 25 wolverines, 89% of which were trapped or snared, and 10% of which were shot. Snowmachines were used in 28% of wolverine harvest during this period. (Crowley 2013; Rinaldi 2019, pers. comm.).

In Unit 17, sealing records indicate that reported harvest ranged from 8 to 63 wolverines annually during 2007 – 2016, averaging 37 wolverines annually. During this time period, 79% of wolverines were trapped or snared and 17% were shot. Snowmachines were used 46% of the time (Woolington 2013; Rinaldi 2019, pers. comm.).

### **Other Relevant Proposals**

Proposal WP20-27 was also submitted by the Bristol Bay Regional Advisory Council, and it requests a unit-specific regulation for Unit 17 allowing use of a snowmachine to assist in the taking of a caribou and allowing caribou to be shot from a stationary snowmachine, using the regulatory language adopted by the Alaska Board of Game in February 2018.

### **Effects of the Proposal**

If adopted, Proposal WP20-26 would allow hunters to use a snowmachine to position wolves and wolverines for selection and harvest, as long as they were not shot from a moving snowmachine. The most recent available reports suggest that, in the Bristol Bay region, the majority of wolves are harvested by firearm, while the majority of wolverine are harvested by trapping. The proposed regulation may not result in an increase in harvest of wolves and wolverines by trap or snare. However, such regulatory changes could increase the take of wolves and wolverines by firearm, and may result in more opportunistic harvest. Currently the wolf population is believed to be stable. Less is known about the resident wolverine population and this change in regulation could result in increased biological vulnerability.

Bureau of Land Management lands in Units 9B, 9C, 17B, and 17C flank portions of the Nushagak and Kvichak rivers, and if the proposal is adopted, then it may provide most benefit to those communities situated nearest including Koliginek, New Stuyahok, Ekwok, Igiugig, Levelock, King Salmon, Naknek, and South Naknek. Regulations for the use of snowmachines when harvesting wolves or wolverines would be different on State managed lands, however this is already the case and should the proposal be adopted, it does not add regulatory complexity that does not already exist. Specifically, in

State regulations, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine; in Federal regulations, a snowmachine could be used to position a wolf or wolverine for harvest, and either could be shot from a stationary snowmachine.

## **OSM CONCLUSION**

**Support** Proposal WP20-26.

### **Justification**

Hunters using snowmachines to position wolves and wolverines for harvest is a traditional practice in the Bristol Bay area. While methods and means for taking wildlife in ethnographic literature describe hunters employing traditional strategies that might affect game behavior, until the 1960s hunters were largely on sled and foot (Nelson 1983 [1899]; Oswalt 1990; VanStone 1967). As means for travel, access, and harvest continue to change over time, hunters persist in using traditional methods purposefully meant to alter the behavior of wildlife in order to position them for harvest because these methods are efficient. Additionally, the Board has adopted a similar regulation in Unit 23, in recognition of the snowmachine as a customary and traditional harvest method. The proposed regulation change might increase opportunity through an enhanced method for the harvest of wolverines and could result in more harvest. Impacts to wolverine populations are unknown at this time and are difficult to track.

## **LITERATURE CITED**

Barten, N.L. 2018. Wolf management report and plan, Game Management Unit 17: Report period 1 July 2010 – 30 June 2015, and plan period 1 July 2015 – 30 June 2020. ADF&G. Juneau, AK.

Coiley-Kenner, P., T.M. Krieg, M.B. Chythlook, and G. Jennings. 2003. Wild Resource Harvests and Use by Residents of Manokotak, Togiak, and Twin Hills, 1999/2000. Alaska Department of Fish and Game Division of Subsistence Technical Paper No. 275, Anchorage, AK

Copeland, J.P. and J.S Whitman. 2003. Wolverine. Pages 672 – 682 in G.A Feldhamer, B.C. Thompson and J.A. Chapman, eds. Wild mammals of North America: Biology Management and Conservation. The Johns Hopkins University Press. Baltimore, MD. 1216 pp.

Crowley, D.W. 2013. Unit 9 and 10 furbearer management report. Pages 129 – 137 in P. Harper and Laura A. McCarthy, eds. Furbearer management report of survey and inventory activities 1 July 2009– 30 June 2012. ADF&G. Juneau, AK.

Crowley D.W. and C. Peterson. 2018. Wolf management report and plan, Game Management Units 9 and 10: Report period 1 July 2010 – 30 June 2015, and plan period 1 July 2015 – 30 June 2020. ADF&G. Juneau, AK

Evans, S., M. Kullonen, D. Holen, and D.S. Koster. 2013. The Harvest and Use of Wild Resources in Dillingham, Alaska, 2010. Alaska Department of Fish and Game Division of Subsistence. Technical Paper No. 375, Anchorage, AK.

Fall, J. A., J.C. Schichnes, M. Chythlook, and R.J. Walker. 1986. Patterns of Wild Resource Use in Dillingham: Hunting and Fishing in an Alaskan Regional Center. Alaska Department of Fish and Game Division of Subsistence. Technical Paper No. 135, Anchorage, AK.

FWS. 2000. Staff analysis Proposal 00–053. Office of Subsistence Management, FWS. Anchorage, AK.

Holen, D., J. Stariwat, T. M. Krieg, and T. Lemons. 2012. Subsistence Harvests and Uses of Wild Resources in Aleknagik, Clark’s Point, and Manokotak, Alaska, 2008. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 368, Anchorage, AK.

Holen, D., J., T. M. Krieg, and T. Lemons. 2011. Subsistence Harvests and Uses of Wild Resources in King Salmon, Naknek, and South Naknek, Alaska, 2007. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 360, Anchorage, AK.

Holen, D., T. M. Krieg, R. Walker, and H. Nicholson. 2005. Harvests and Uses of Caribou, Moose, Bears, and Dall Sheep by Communities of Game Management Units 9B and 17, Western Bristol Bay, Alaska 2001-2002. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 283, Anchorage, AK.

Krieg, T. M., D. Holen, and D Koster. 2009. Subsistence Harvests and Uses of Wild Resources in Igiugig, Kokhanok, Koliganek, Levelock, and New Stuyahok, Alaska, 2005. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 322, Anchorage, AK.

La Vine, R. and M.J. Lisac. 2003. Oral history and traditional ecological knowledge gathering within Togiak National Wildlife Refuge: Progress Report. Togiak National Wildlife Refuge, Dillingham, AK.

Nelson, E.W. 1983 [1899]. The Eskimo about Bering Strait. Smithsonian Institution Press. Washington DC.

Oswalt, W.H. 1990. Bashful no longer: An Alaskan Eskimo ethnohistory, 1778–1988. University of Oklahoma Press. Norman and London.

Rinaldi, T. 2019. Fish and game coordinator. Personal communication: email. ADF&G. Palmer, AK.

Schinchnes, J. and M. Chythlook. 1988. Use of Fish and Wildlife in Manokotak, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 152, Anchorage, AK.

Seitz, J. 1996. The Use of Fish and Wildlife in Clarks Point, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 186, Anchorage, AK.

Spivey, T.J. 2019. 2017 Alaska trapper reports: 1 July 2107 – 30 June 2018. ADF&G. Juneau, AK.

VanStone, J. 1967. Eskimos of the Nushagak River. University of Washington Press. Seattle, WA.

Wolfe, R.J., J. J. Gross, S. J. Langdon, J. M. Wright, G. K. Sherrod, L. J. Ellana, V. Sumida, and P. J. Usher. 1984. Subsistence-Based Economies in Coastal Communities of Southwest Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 89. Juneau, AK.

Woolington, J. D. 2012. Unit 17 wolf management report. Pages 221–226 [In] P. Harper, editor. Wolf management report of survey and inventory activities 1 July 2008– 30 June 2011. ADF&G, Species Management Report ADF&G/DWC/SMR-2012-4, Juneau, AK.



Woolington, J. D. 2013. Unit 17 furbearer management reports. Pages 222 – 242 in P. Harper and Laura A. McCarthy, eds. Furbearer management report of survey and inventory activities 1 July 2009– 30 June 2012. ADF&G. Juneau, AK.

Wright, John M., Judith Morris, and Robert Schroeder. 1985. Bristol Bay Regional Subsistence Profile. ADF&G, Division of Subsistence, Technical Paper No. 114.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Bristol Bay Subsistence Regional Advisory Council**

**Support** WP20-26. The use of snowmachines to position wolves and wolverines for harvest is a traditional and common practice in the Bristol Bay area. No conservation concerns exist for wolf and wolverines. The proposed regulation clarifies what is allowed. The local users support the use of snowmachine to position wolves and wolverines for harvest on BLM lands. The Federal Subsistence Board adopted a similar regulation in Unit 23 recognizing snowmachine as a customary and traditional harvest method.

### **Yukon Kuskokwim Delta Subsistence Regional Advisory Council**

**Support** WP20-26. The Council supports this proposal because it would increase the opportunity for subsistence hunters to harvest a wolf or wolverine. Additionally, the Council expressed that with the decline of the Mulchatna Caribou, any increased subsistence harvest from the ample wolf and wolverine population in the area may help to reduce predation pressure on the caribou herd. Snow machine is a means of transportation for hunters and fishers, and this proposal would allow additional opportunity to harvest wolf or wolverine for furs when encountering them during the few months of winter travel.

### **Western Interior Subsistence Regional Advisory Council**

**Support** WP20-26. The Council unanimously supported WP20-26. Subsistence hunters have customary and traditional use of the resources in Units 9B, 9C, 17B, and 17C. Although travel conditions are becoming more difficult due to climate change, using snowmachines allows users to access resources in an economically viable way. This proposal would only affect a very small portion of Bureau of Land Management lands.

## **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee (ISC) has identified several points for the Board to consider in their deliberation of proposal WP20-26.

Testimony from members of the Bristol Bay Subsistence Regional Advisory Council and local subsistence users supported the clarification of how snow machines can be used while harvesting wolves and wolverines in these units. Such equipment has long been used for these purposes, and the proposed regulations will help subsistence users continue these traditions, while reducing the concerns about potential enforcement actions.

Little is known about wolf or wolverine populations and harvest levels in these units. Wolverines, in particular, occur at low densities and are vulnerable to hunters on snowmachines. Using snowmachines to position and shoot wolverines may present conservation concerns if it results in increased harvest.

However, the ISC also noted that harvest of wolves and/or wolverines by rural residents while snow machining is typically opportunistic, which may limit negative impacts to either species.

This regulation would apply only on BLM managed land, and would result in regulatory complexity across lands of differing Federal status. In addition, BLM managed lands comprise only 4% of Units 9 and 17, so this regulation would apply to only a fraction of the total land area. Regulatory complexity between State and Federal regulations would also increase, given that State regulations allow a snowmachine to be used to position a hunter to select an individual wolf for harvest, provided the machine is stationary when shooting, but does not allow the same for wolverines.

It is notable that the Board has previously approved regulations specifying how snow machines can be used for wolf and wolverine hunting in Unit 23, and that these regulations have been implemented to address both subsistence needs and enforcement concerns. The Board may also want to consider a more universal approach to identifying the appropriate use of snow machines for harvest of animals by federally qualified subsistence users. Creation of regulations that are enforceable, are compatible with existing Federal and State regulations, and allow efficient harvest, may be worth further discussion and evaluation.

#### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP2026:** This proposal submitted by the Bristol Bay Regional Advisory Council would allow Federally qualified subsistence users to use a snowmachine to position wolves and wolverines for harvest on Bureau of Land Management (BLM) lands only in Units 9B, 9C, 17B, and 17C, provided the animals are not shot from a moving snowmachine.

**Introduction:** The proponent states that the use of snowmachines to position wolves and wolverines has been a traditional practice in rural areas and should be provided under ANILCA.

**Impact on Subsistence Users:** Low: there are limited opportunities to take wolves and wolverines from snowmachine in Southwest Alaska. Wolverines are scarce in Units 9 and 17. Trappers generally have more success than motorized hunters.

**Impact on Other Users:** If adopted, the impact on other users would be minimal because the number of trappers is low relative to the land base.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for wolves and wolverines in Units 9 and 17.

**Amounts Reasonably Necessary for Subsistence:**

Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary subsistence uses (ANS). The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below the ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

An ANS of 10–28 wolves has been established in Unit 9. The hunting season runs from August 10–June 30 and bag limit is 10 wolves/day. The trapping season runs from August 10–June 30 and there is no bag limit.

The ANS for wolves in Unit 17 is 90% of the harvestable portion. The hunting season runs from August 10–April 30 and bag limit is 10 wolves/day. The trapping season runs from November 10–March 31 and there is no bag limit.

The ANSs for wolverines in both Unit 9 and Unit 17 is 90% of the harvestable portion. The hunting season in both units runs from September 1–March 31 and bag limit is 1 wolverine. The trapping season in Units 9B and 17 runs from November 10–March 31 and runs from November 10–March 31 in Unit 9C. There is no bag limit for wolverines under trapping regulations in Units 9 or 17.

Special instructions: None

**Conservation Issues:** ADF&G has consistently implemented survey, inventory, and research activities for wolf management over the last decade and retains long-term harvest datasets. Wolves are common throughout the units, population numbers appear to be stable, and the species has the capacity to recover quickly from harvest as long as there is suitable habitat for their prey.

Although we believe there are significant wolverine refugia in these units, as the proposal acknowledges, any regulation change that could increase harvest of this species could have negative effects on the health and stability of this population. Wolverines range widely, naturally occur at low densities, and have complex life-histories that make them vulnerable to increased harvest (e.g., low reproductive rates, kits remain with their mother for  $\geq 2$  years, etc.) This susceptibility increases in February–March during the denning period.

**Enforcement Issues:** Given the vastness of the landscape and sparseness of hunters, if this proposal is adopted, it will be very difficult to enforce, or to determine if hunters have violated the regulation. Hunters will need to be able to differentiate between state-, BLM-, and USFWS-administered land.

**Recommendation:** ADF&G is **NEUTRAL** on the use of snowmachines for positioning wolves given intensive management efforts in the area. Allowing hunters to position the animals for harvest would enhance hunter success, and aid in the department's efforts to increase moose and caribou survival in these units. However, we **OPPOSE** allowing the use of snowmachines to position a wolverine because the State does not seek additional harvest on current populations. Current harvest levels appear to be sustainable and low-density wolverine populations are likely to be more susceptible to increased harvest levels.

**APPENDIX 1**

**5 AAC 92.080. Unlawful methods of taking game; exceptions**

*The following methods of taking game are prohibited:*

...

*(4) unless otherwise provided in this chapter, from a motor-driven boat or a motorized land vehicle, unless the motor has been completely shut off and the progress from the motor's power has ceased, except that a*

...

*(B) motorized land vehicle may be used as follows:*

*i) In Units 22, 23, and 26(A), a snowmachine may be used to position a caribou, wolf, or wolverine, for harvest, and caribou, wolves and wolverines may be shot from a stationary snowmachine.*

*(ii) notwithstanding any other provision in this section, in the wolf control implementation areas specified in 5 AAC 92.111 - 5 AAC 92.113, 5 AAC 92.118, and 5 AAC 92.121 - 5 AAC 92.124, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;*

*(iii) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 18, 19, 21, 22, 24, 25(C) and 25(D), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;*

*(iv) notwithstanding any other provision in this section, in the bear control implementation areas specified in 5 AAC 92.111 - 5 AAC 92.113, 5 AAC 92.118, and 5 AAC 92.121 - 5 AAC 92.124, a snowmachine may be used to position a hunter to select an individual bear for harvest, and bears may be shot from a stationary snowmachine;*

*(v) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 22 and 25(C), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, an ATV may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary ATV;*

*(vi) under authority of a permit issued by the department;*

*(vii) in Unit 18, a snowmachine may be used to position a wolf or wolverine for harvest, and wolves or wolverines may be shot from a stationary snowmachine;*

*(viii) in Unit 17, a snowmachine may be used to assist in the taking of a caribou and caribou may be shot from a stationary snowmachine. "Assist in the taking of a caribou" means a snowmachine may be used to approach within 300 yards of a caribou at speeds under 15 miles per hour, in a manner that does not involve repeated approaches or that causes a caribou to run. A snowmachine may not be used to contact an animal or to pursue a fleeing caribou.*

*(5) except as otherwise specified, with the use of a motorized vehicle to harass game or for the purpose of driving, herding, or molesting game;*

*(6) with the use or aid of a machine gun, set gun, or a shotgun larger than 10 gauge;*

*(7) with the aid of*

*(A) a pit;*

*(B) a fire;*

*(C) artificial light, except that artificial light may be used.*

**WRITTEN PUBLIC COMMENTS**

June 25, 2019

TO: Federal Board of Subsistence Management, (Att:  
Theo Mutskowitz)

FROM: Alaskans FOR Wildlife and any Cooperating  
Entities

RE: Comments on Subsistence Proposals

Please consider these comments on numbered proposals. Comments are offered from a public perspective that reflects several major considerations which we earnestly wish you and the board to keep clearly in mind as you make decisions on these and all proposals offered, namely,

- 1) The lands in question are publically owned lands belonging to all US citizens who in theory and in law all have interest in how wildlife on these lands are managed, and
- 2) Article 8 of our Alaska Constitution clearly sets forth that ALL (emphasis) Alaskans are stakeholders, all essentially owners, with respect to its natural resources and how they are managed .

WP-20 Wolf Trapping lifting harvest restrictions and extending sealing time.

OPPOSE



-2-

This proposal leads to spreading unrestricted wolf take everywhere. Given especially the substantial science on the value of apex predators plus the high interest in sustaining wolf populations on American public lands including here in Alaska as essential to maintenance of ecosystem biodiversity, we maintain that enactment of this proposal would result in another chapter in the unscientific overall continued war on wolves. This proposal to lift harvest limits and to extend sealing limits also already excessive in length are not scientifically justified nor justified as a public matter given the overall value of wolves to maintenance of biodiversity. It must not pass.

WP20-17 – Removing harvest quotas and sealing requirements for hunting wolves, OPPOSE.

We oppose this proposal for the same reasons offered to oppose the previous proposal, WP20-16.

The values of wolves as apex predator and its place in American culture must have bearing upon this consideration. No science and no national or even Alaskan public cultural norms can possibly support this permissively reckless proposal to expand wolf take without bounds. It must not pass.

-3-

WP20-26 Permitting the use of snowmachines to “position” wildlife for harvest. OPPOSE

This proposal would expand this practice apparently from other land management units. In essence “positioning” is another term for what in reality will result in chasing, and harassing wildlife to exhaustion, prohibitions in the regulation notwithstanding, due to impossible enforcement limitations. As an example, when asked to explain existing regulations for snowmachine use in trapping and hunting, an Alaska wildlife trooper explained he does not even understand the regulation.

Expanded snowmachine use, “positioning,” will amount to a continued enforcement challenge. Widespread abuse will surely result and will continue to give subsistence the reputation of abuse when it really needs public support: we feel that as we now face mass extinctions of wildlife species; there is new public and growing focus on the crisis. This is an extremely unwise plunge to the bottom and we caution a futuristic consideration.

WP20-08 Proposal to require traps and snares to be marked with name and state identification number.

-4-

SUPPORT This proposal is topical, even in urban municipalities of Alaska as conflicts in public use areas resulting in injuries to hikers, pets and other outdoor public land users rise .

Keeping in mind even the use of more remote public lands grows as outdoor users of their lands increase, the potential for conflicts including serious injuries resulting from hidden owner-unidentified traps will increase. Organized trappers have strongly opposed such requirements as proposed here in past requests for change considered by the Alaska Board of Game. We witness the public land users (including of federal lands) would most certainly strongly favor this accountability. We strongly favor this proposal.

In closing, please carefully consider these comments as you go forward with the process over the next year or so. WE thank you for your consideration of these comments.

Sincerely,  
Jim Kowalsky,  
Chair, Alaskans FOR Wildlife  
PO Box 81957  
Fairbanks, Alaska 99708

<b>WP20–27 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-27 requests a unit-specific regulation for Unit 17 allowing use of a snowmachine to assist in the taking of a caribou and allowing caribou to be shot from a stationary snowmachine, using the regulatory language adopted by the Alaska Board of Game in February 2018. <i>Submitted by: Bristol Bay Subsistence Regional Advisory Council.</i>
<b>Proposed Regulation</b>	<p>§____.26(n)(17)(iii) Unit 17—Unit-specific regulations</p> <p>...</p> <p><b>(D) In Unit 17, a snowmachine may be used to assist in the taking of a caribou and caribou may be shot from a stationary snowmachine. "Assist in the taking of a caribou" means a snowmachine may be used to approach within 300 yards of a caribou at speeds under 15 miles per hour, in a manner that does not involve repeated approaches or that causes a caribou to run. A snowmachine may not be used to contact an animal or to pursue a fleeing caribou.</b></p>
<b>OSM Conclusion</b>	<b>Support</b>
<b>Bristol Bay Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>
<b>Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Western Interior Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee agrees with the Bristol Bay Subsistence Regional Advisory Council’s recommendation to adopt this proposal, which provides specific guidance about how snow machines can be used to harvest caribou and reduces uncertainty for users. Testimony from local subsistence users and members of the Bristol Bay Council supported the clarification of how snow machines can be used to position hunters while harvesting caribou in

## WP20–27 Executive Summary

	<p>these regions. Such equipment has long been used for these purposes, and more specific regulations will help them continue these traditions, while reducing the concerns about potential enforcement actions.</p> <p>Though the Yukon Kuskokwim Delta Subsistence Regional Advisory Council opposed the adoption of this proposal due to their concerns about the conservation status of the Mulchatna Caribou Herd, it is important to note that the proposed regulation does not allow any practices not currently allowed under Federal regulation. Rather, it provides specific guidelines that may be useful to subsistence users as they judge whether their hunting practices are lawful.</p> <p>The proposed regulation is consistent with existing State regulations addressing the use of snowmachines to harvest caribou in Unit 17. Adoption of this proposal will reduce regulatory complexity across State and Federal jurisdictions, which will benefit both subsistence users and law enforcement officials. In addition, the proposed regulation is consistent with the existing Statewide Federal regulation, which prohibits the use of a motorized vehicle to drive, herd, or molest wildlife. Adopting this proposal would support the intent of that regulation, as well as other Federal agency-specific regulations that have similar language and intent.</p> <p>It is notable that the Board has previously approved regulations specifying how snow machines can be used for caribou hunting in other units, and that these have been implemented to address both subsistence needs and enforcement concerns. The Board may also want to consider a more universal approach to identifying the appropriate use of snow machines for harvest of animals by federally qualified subsistence users. Creation of regulations that are enforceable, are compatible with existing Federal and State regulations, and allow efficient harvest, may be worth further discussion and evaluation.</p>
<b>ADF&amp;G Comments</b>	<b>Neutral</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS**  
**WP20-27**

**ISSUES**

Wildlife Proposal WP20-27, submitted by the Bristol Bay Subsistence Regional Advisory Council, requests a unit-specific regulation for Unit 17 allowing use of a snowmachine to assist in the taking of a caribou and allowing caribou to be shot from a stationary snowmachine, using the regulatory language adopted by the Alaska Board of Game in February 2018.

**DISCUSSION**

The proponent states that it submitted the proposal using the State’s regulatory language (see 5 AAC 92.080(4)(B)(viii), below) at the recommendation of a working group convened for this purpose. There was consensus among working group members that existing language found in State regulations was a good starting point. The working group consisted of representatives from the public, the Bristol Bay Regional Advisory Council, the Bristol Bay Native Association, the Togiak National Wildlife Refuge, the Alaska Department of Fish and Game, the Office of Subsistence Management, and State and Federal law enforcement offices. The proponent states that keeping State and Federal hunting regulations aligned and simple will be more understandable for all users.

**Existing Federal Regulation**

§ \_\_\_\_ .4 *Definitions*

*Take or taking as used with respect to fish or wildlife, means to pursue, hunt, shoot, trap, net, capture, collect, kill, harm, or attempt to engage in any such conduct.*

...

§ \_\_\_\_ .26 *Subsistence taking of wildlife*

...

*(b) Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:*

...

*(4) Taking wildlife from a motorized land or air vehicle when that vehicle is in motion, or from a motor-driven boat when the boat's progress from the motor's power has not ceased.*

*(5) Using a motorized vehicle to drive, herd, or molest wildlife.*

## Proposed Federal Regulation

§\_\_\_\_.26 *Subsistence taking of wildlife*

...

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*(5) Using a motorized vehicle to drive, herd, or molest wildlife.*

§\_\_\_\_.26(n)(17)(iii) *Unit 17—Unit-specific regulations*

...

***(D) In Unit 17, a snowmachine may be used to assist in the taking of a caribou and caribou may be shot from a stationary snowmachine. "Assist in the taking of a caribou" means a snowmachine may be used to approach within 300 yards of a caribou at speeds under 15 miles per hour, in a manner that does not involve repeated approaches or that causes a caribou to run. A snowmachine may not be used to contact an animal or to pursue a fleeing caribou.***

## Existing State Regulations

**AS 16.05.940. Definitions.**

...

*(34) "take" means taking, pursuing, hunting, fishing, trapping, or in any manner disturbing, capturing, or killing or attempting to take, pursue, hunt, fish, trap, or in any manner capture or kill fish or game.*

**5 AAC 92.080. Unlawful methods of taking game; exceptions**

*The following methods of taking game are prohibited:*

...

*(4) unless otherwise provided in this chapter, from a motor-driven boat or a motorized land vehicle, unless the motor has been completely shut off and the progress from the motor's power has ceased, except that a*

...

*(B) motorized land vehicle may be used as follows:*

...

*(viii) in Unit 17, a snowmachine may be used to assist in the taking of a caribou and caribou may be shot from a stationary snowmachine. "Assist in the taking of a caribou" means a snowmachine may be used to approach within 300 yards of a caribou at speeds under 15 miles per hour, in a manner that does not involve repeated approaches or that causes a caribou to run. A snowmachine may not be used to contact an animal or to pursue a fleeing caribou.*

*(5) except as otherwise specified, with the use of a motorized vehicle to harass game or for the purpose of driving, herding, or molesting game.*

### **5 AAC 92.990. Definitions**

*(a) In addition to the definitions in AS 16.05.940 , in 5 AAC 84 – 5 AAC 92, unless the context requires otherwise,*

...

*(70) "harass" means to repeatedly approach an animal in a manner which results in the animal altering its behaviour;*

**NOTE:** The complete text of 5 AAC 92.080(4)(B) is in **Appendix 1**.

### **Extent of Federal Public Lands**

Unit 17 is comprised of approximately 28% Federal public lands and consists of 21% U.S. Fish and Wildlife Service, 4% Bureau of Land Management, and 3% National Park Service managed lands (see **Unit 17 Map**). U.S. Fish and Wildlife Service managed lands are within Togiak National Wildlife Refuge, and National Park Service managed lands are within Lake Clark National Park and Preserve.

### **Customary and Traditional Use Determination**

The customary and traditional use determinations for caribou in Unit 17 are the following:

Residents of Units 9B, 17, Eek, Goodnews Bay, Napakiak, Lime Village, Platinum, Quinhagak, Stony River, and Tuntutuliak have a customary and traditional use determination for caribou in Unit 17A, that portion west of the Izavieknik River, Upper Togiak Lake, Togiak Lake, and the main course of the Togiak River.



Residents of Units 9B, 17, Akiachak, Akiak, Lime Village, Stony River, and Tuluksak have a customary and traditional use determination for caribou in Unit 17A, that portion north of Togiak Lake that includes Izavieknik River drainages.

Residents of Units 9B, 17, Kwethluk, Lime Village and Stony River have a customary and traditional use determination for caribou in Units 17A and 17B, those portions north and west of a line beginning from the Unit 18 boundary at the northwest end of Nenevok Lake, to the southern point of upper Togiak Lake, and northeast to the northern point of Nuyakuk Lake, northeast to the point where the Unit 17 boundary intersects the Shotgun Hills.

Residents of Units 9B, 17, Akiachak, Akiak, Bethel, Eek, Goodnews Bay, Napakiak, Platinum, Quinhagak, Lime Village, Stony River, Tuluksak, and Tuntutuliak have a customary and traditional use determination for caribou in Unit 17B, that portion of Togiak National Wildlife Refuge within Unit 17B.

Residents of Units 9B, 9C, 9E, 17, Lime Village, and Stony River have a customary and traditional use determination for caribou in Unit 17 remainder.

### **Regulatory History**

In 1995, Proposal P95-52 requested that snowmachines and motor-driven boats be allowed for the taking of caribou and moose in Unit 25 during established seasons, except shooting from a snowmachine in motion was prohibited. There was no existing regulation on the use of motorized vehicles in Unit 25 prior to this. The Federal Subsistence Board (Board) adopted the recommendation of the Eastern Interior and Southcentral Alaska Councils who supported the proposal in recognition that methods change over time and because it supported subsistence uses.

In 2000, the Board adopted Proposal P00-53 with modification allowing the use of snowmachines to position a hunter and select individual caribou for harvest in Units 22 and 23. The Board did this to recognize a longstanding customary and traditional practice in the region (FWS 2000). However, the proponent had asked to position a caribou, not a hunter. The Interagency Staff Committee provided a rationale for the modification:

Following the Regional Council winter meetings, the Deputy Regional Director of the U.S. Fish and Wildlife Service (FWS), Alaska Region, met with the Assistant Regional Director for Law Enforcement, the Staff Committee member for FWS, the Refuge Supervisor for Northern Refuges, and the Native Liaison and, after lengthy discussion, agreed to recommend substituting “a hunter” for “caribou” in the proposal language. They agreed that this is consistent with conservation principles and existing agency regulations as long as herding does not occur and shooting from a moving snowmachine is prohibited (FWS 2000:13).

In 2012, Proposal WP12-53 was submitted by the Yukon Delta National Wildlife Refuge, and requested a unit specific regulation prohibiting a hunter in Unit 18 from pursuing with a motorized vehicle an ungulate that is “fleeing.” The Board adopted the proposal with modification and prohibited

the pursuit with a motorized vehicle of an ungulate that was “at or near a full gallop” in Unit 18, providing greater clarity of allowable methods of harvest (FWS 2012).

At its March 2014 meeting, the Alaska Board of Game adopted Proposal 177, which allows a hunter to use a snowmachine in Units 22, 23 and 26A to position a caribou, wolf, or wolverine for harvest, as long as these animals were shot from a stationary snowmachine (see 5 AAC 92.080(4)(B)(i) at **Appendix 1**). The purpose of the proposal was to allow the use of snowmachines to track these animals.

In 2016, Proposal WP16-48, submitted by the Native Village of Kotzebue, requested that Federally qualified subsistence users be allowed to use snowmachines to position a caribou, wolf, or wolverine for harvest in Unit 23. The Board adopted the proposal with modification to allow this method of harvest only on those lands managed by the Bureau of Land Management. The Board recognized uses of snowmachines to position animals as customary and traditional practice. However, positioning animals by snowmachine is prohibited on National Park Service and U.S. Fish and Wildlife Service lands under agency-specific regulations. Bureau of Land Management regulatory language does not specifically prohibit the use of snowmachines to position animals for hunting and this harvest method is allowed on some State managed lands.

In the spring of 2017, Kenneth Nukwak of Manokotak submitted Proposal WP18-24 requesting that Federally qualified subsistence users be allowed to use a snowmachine to position caribou, wolves, and wolverines for harvest in Unit 17, provided the animals would not be shot from a moving vehicle. During the fall 2017 meeting cycle, the Bristol Bay Subsistence Regional Advisory Council voted to oppose Proposal WP18-24, noting a lack of clear definitions for positioning and chasing of an animal.

At its February 2018 meeting in Dillingham, the Alaska Board of Game adopted Proposal 148, also submitted by Kenneth Nukwak of Manokotak, with modification. The original proposal requested that Federally qualified subsistence users be allowed to use a snowmachine to position caribou, wolves, and wolverines for harvest in Unit 17, provided the animals would not be shot from a moving vehicle. The modified regulation was limited to caribou and stated that a snowmachine may be used in Unit 17 to assist in the taking of a caribou, and caribou may be shot from a stationary snowmachine, with further clarification describing exactly how the snowmachine may be used for assistance (see 5 AAC 92.080(4)(B)(viii) at **Appendix 1**).

At its winter meeting in March of 2018, the Bristol Bay Council voted to request Proposal WP18-24 be removed from the consensus agenda at the next Board meeting in Anchorage the following month. Reasoning for this included providing an opportunity for the Board to deliberate the proposal on record, in light of Board of Game deliberation, modification, and adoption of the same proposal on State lands in Unit 17. During the April 2018 Board meeting, Proposal WP18-24 was taken off the consensus agenda. Some public testimony was received in support of the proposal. The Board deliberated the proposal on record and rejected it.

## **Biological Background**

Two distinct caribou populations are present in Unit 17. The Nushagak Peninsula Caribou Herd (NPCH) primarily occupies the ~425 mi<sup>2</sup> Nushagak Peninsula, which is the portion of Units 17A and 17C south of the Igushik River, the Tuklung River, and the Tuklung Hills. The Mulchatna Caribou Herd (MCH) ranges across ~60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18, 19A and 19B (Woolington 2013).

### NAPCH

The NPCH has experienced significant fluctuations in size. Following reintroduction in 1988, the population grew at a mean annual rate of 38% for the first 6 years. This unusual growth is attributed to the high proportion of females in the original translocation, high calf production and survival, the presence of previously unexploited habitat, and low predation and harvest rates. The population peaked in the late 1990s at approximately 1,300 caribou. Subsequently, calf recruitment and adult female survival decreased and the population fell below 500 caribou by 2006 (Aderman 2015).

Between 2007 and 2015, the population increased due to improved fall calf recruitment and adult female survival (Aderman 2015), reaching over 1,400 caribou. Since 2015, the minimum population size has declined nearly every year. This decline is due in part to the deliberately high harvest in recent years, particularly in RY2016/17. The most recent population survey occurred in July 2019, when the population was estimated to be 822 caribou, with a minimum count of 710. The population currently approximates the Nushagak Peninsula Caribou Management Plan's population objective, which is to maintain a population of 400–900 caribou and an optimum of 750 caribou (Aderman 2015). The most recent composition surveys were conducted in October 2018. These surveys estimated 25 bulls:100 cows, the lowest bull cow ratio since introduction, and 34 calves:100 cows, among the lowest on record (Aderman 2019, pers. comm.).

### MCH

Like the NPCH, the MCH has experienced dramatic changes in population size, as well as in distribution. In the early 1980s, the population was estimated to include approximately 20,000 caribou. Its winter range included the north and west side of Iliamna Lake north of the Kvichak River, where it intermingled with the Northern Alaska Peninsula Caribou Herd. By the mid-1990s, the herd had grown to its peak size of approximately 200,000 caribou and had begun wintering in southern Unit 18 and southwestern Unit 19B. Subsequently, the herd began a period of decline that persisted until recently (Barten 2015).

In 2013, population estimate for the MCH was 18,308 caribou, the lowest estimate in over 30 years and well below the State's population objective of 30,000 – 80,000 caribou. Estimates over the next three years indicated that the population had grown, approximating the lower bound of this population objective in 2015. However, the most recent estimate, obtained in July 2019, shows that the

population is less than half of the State's minimum population objective, at 13,500 caribou (Barten 2017; ADF&G 2019a).

The MCH experienced a steady increase in the bull:cow ratio between 2010 and 2016. In 2016, the ratio was 39 bulls:100 cows, which is the highest estimate since the late 1990s. In 2017 and 2018, the bull:cow ratio declined to 32 bulls:100 cows, just below the State's management objective of 35 bulls:100 cows. Calf:cow ratios have been variable, which is typical of caribou herds occupying interior and southwest Alaska. In 2018, the calf:cow ratio was 34 calves:100 cows, among the highest on record but within the range of variability for this herd (Barten 2017, ADF&G 2019b).

### **Cultural Knowledge and Traditional Practices**

During his study years of 1964 and 1965, VanStone (1967:134) documented winter travel along the Nushagak River as occurring almost exclusively by dog team. During the winter months dog teams were used to harvest caribou, access trap lines, and provide for the transportation of supplies and people throughout the region. Hunters used traditional methods to harvest wildlife. These methods included a hunter moving animals towards another hunter's position. At the time of his study, VanStone was only aware of a few Bristol Bay residents that possessed snowmachines. Approximately 10 years later, when the Alaska Department of Fish and Game (ADF&G) first began conducting research on subsistence harvest activities, dog teams were barely mentioned. Instead, reports noted that the communities of Nushagak Bay were using mostly boat, aircraft, and snowmachine to access animals for harvest (Coiley-Kenner et al. 2003; Evans et al. 2013; Fall et al. 1986; Holen et al. 2012; Holen et al. 2005; Kreig et al. 2009; Schinchnes and Chythlook 1988; Seitz 1996; Wolfe et al. 1984; Wright et al. 1985).

In the past, prior to the use of snowmachines, people in the region were more nomadic. Residents of Southwest Alaska practiced an annual round of harvest activities that allowed them to effectively position themselves in proximity to important resources that supported their families through extended travel to seasonal subsistence camps. In a 2003 report, elders describe a harvest year that began at fish camp in the early summer, moved up the river to hunting and trapping camps for the fall and winter, traveled through mountain passes and down rivers to bays and estuaries for the spring harvest of migratory waterfowl and eggs, finally returning to fish camp once again in time for the salmon runs of early summer (La Vine and Lisac 2003). A trip such as this required travel by boat, sled, and foot and took the family hundreds of miles and 12 months to complete. As village life solidified around schools and economic opportunities, technological advances like boats with outboard motors and snowmachines allowed people to travel further over shorter periods of time in order to access the resources they once had to follow over seasons instead of hours.

Similarly, in north western Alaska where caribou harvest is an essential part of the subsistence way of life, Alaska Native people have also transitioned from dog team to snowmachine as a necessary continuance of their subsistence practice (Anderson et al. 1998). Some of the practice described in the following provides greater detail on how hunters might position themselves in order to strategically harvest an animal, but it also describes practices that can be identified as positioning an animal. In

winter, there were advantages to using dog teams, and now snowmachines, for hunting caribou. When caribou were not present near a village or hunt camp, hunters needed to be mobile and travel long distances to locate bands of caribou. Sleds and snowmachines are now used together and allow transport of more hunters, gear, meat, and hides.

Discussion from the analysis of Proposal WP16-48 is relevant here, even if it describes characteristics or terms for hunting from more northern communities, as it can be a starting point for potential Council discussions and public testimony on similar practices within Unit 17. In the context of caribou hunting, the Iñupiaq word *inillak* means “the *hunter positions himself* close to where the caribou would pass or cross depending on the way the wind is blowing . . . to the Iñupiat, *inillak* is quite different from herding and it is used specifically in caribou hunting. Herding means to gather animals such as reindeer into an enclosed area” (FWS 2000:19). Iñupiaq hunters position both themselves and caribou during a hunt. During the discussions in 2000, Mike Patkotak from the North Slope Subsistence Regional Advisory Council member said, “When you are *positioning caribou*, you’re out in the open; you’re not putting them into an enclosed corral. . . . You’re not trapping them into an enclosed area.” (FWS 2000:19).

Whether using dog team, snowmachine, or stalking, it is customary for “a hunter to go on one side of the herd and *unu* them towards the hunter waiting on the other side. This is also called *unuraq*, driving the caribou. This gives them a better position to be successful in their harvesting of the caribou that they want” (FWS 2000:22). The Iñupiaq word *unu* means to “cooperatively push or move the caribou. One or more hunters wait on one section of the hunting area and young runners go around behind the herd to make them head in the shooters’ direction” (FWS 2000:19). This remains a common practice in Unit 23, and the current preferred method of positioning both hunters and animals in winter is by snowmachine.

In Proposal WP12-53, contemporary practice of snowmachine use in Unit 18 was defined as follows:

Hunters from some lower Yukon River villages described hunting in the Andreafsky Mountains in the 1980s. It was unclear if the group was hunting caribou or reindeer from the nearby herd at Stebbins. Caribou/reindeer roamed in small groups, difficult to approach by snowmachine. Several hunters attempted to herd a group to locations where shots could be taken, such as up a cul-de-sac or toward a heavy bush line. In this description, the high speed chase was considered “a relatively risky, dare-devil technique” (Wolfe and Pete 1984: 9). Kwethluk hunters in the 1980s hunting with snowmachines reported hunting in upper Kwethluk and Kisaralik River valleys. “The high hills and low mountains scattered throughout the area provided lookouts where hunters can watch for caribou” (Coffing 1991:157) (FWS 2012).

Recent testimony from the Bristol Bay Regional Advisory Council and the Federal Subsistence Board described the significance of snowmachine use for the subsistence way of life in Bristol Bay and across the State. During debate on Proposal WP18-24, Council members and their constituents in the Bristol Bay region described historical practices of hunting caribou by “herding” them on foot or from dogsleds, often working in teams to approach caribou from multiple positions at once. Those testifying

emphasized that it is fundamentally impossible to hunt for caribou in the open, flat terrain that characterizes much of southwestern Alaska without continually moving and herding caribou, which easily sense humans and do not remain stationary. As described by Kenneth Nukwak of Manokotak at the April 12, 2019 Federal Subsistence Board Meeting:

The caribou are always running off as soon as they see a snowmachine, they see us as predators already. . . that's within their intrinsic nature, to run off, as soon as they see you within. . . a mile and a half, they see you on a sunny day, the leaders of the herd of caribou are already looking at your direction. If you look at them with your binoculars they're already looking at you and the first thing they do, never fails, they're running off (FSB 2019:320).

Hunters explained that it is necessary to “nudge” caribou into the right spot so that they can be harvested, but hunters now fear being criminalized for this traditional tactic. Testimony indicated that harvesting caribou has always depended on the most efficient methods available. Use of snowmachines is the most efficient method available to subsistence hunters today and is part of a historical continuum. In the words of one Bristol Bay Council member:

We went from spears and traps to bow and arrows to rifles. . . From walking to now snowmachines. . . . It's still about harvesting in the most efficient way possible. Now that practice of gathering and moving herd that's past practices. It's been well documented and used. Of course a lot of that was when you were on foot or hunting with dogs. That idea, when viewed from the outside, it looks like we're harassing these animals. To us it's not harassment, it's about harvesting in the most efficient way that we can” (BBSRAC 2019:109).

## **Harvest History**

### **NPCH**

Except for regulatory years 2015/16 – 2017/18, caribou hunting on the Nushagak Peninsula has been limited to Federally qualified subsistence users. Typically, annual harvest of the NPCH has increased as the population has grown and harvest limits have increased. Prior to the 2016 regulatory year, annual reported harvest ranged from none taken when the population was small and harvest was heavily regulated, to over 125 when caribou were abundant and regulations were liberalized. Overall, harvest has averaged 62 caribou annually since 1994, the first year harvest was authorized (Aderman 2015, Aderman 2017, pers. comm.).

Historically, most of the reported harvest has occurred in February and March, due to good hunter access to the herd via snowmachine (Aderman and Lowe 2012). In recent years, total reported harvest has varied significantly due to variable winter weather and travel conditions. For instance, in 2015/16, when the population was at its largest but travel conditions were poor, only 64 caribou were reported harvested. The next year, when travel conditions were good, 378 caribou were reported harvested (Aderman 2017, pers. comm.). Only 14 caribou were reported harvested during the 2018/19 season due to early breakup (Aderman 2019, pers. comm.).

**MCH**

Like the NPCH, harvest of the MCH is affected by caribou abundance, environmental conditions, and harvest restrictions. Reported harvest of the MCH has decreased significantly since the early 2000s, when the herd was very large. Total reported caribou harvest declined from over 4,000 caribou in 2000 to less than 200 caribou in 2018. Harvest among all user groups declined during this period, but the decline was especially pronounced among non-local residents and nonresidents, owing to reduction of State harvest limits in 2006 and elimination of the nonresident season in 2009 (ADF&G 2017; Barten 2017, pers. comm.).

Since 2009, harvest has averaged 314 caribou annually, 84% of which were taken by Federally qualified subsistence users. However, underreporting is known to occur and it is likely that reported harvest underestimates total harvest by local users. Among Federally qualified subsistence users, 70% of the total reported harvest was taken Jan. – Mar. and 28% of the total reported harvest was taken in Unit 17 since 2009 (ADF&G 2017, 2019c).

**Other Relevant Proposals**

Proposal WP20-26 was also submitted by the Bristol Bay Council and would allow a hunter on a snowmachine in Unit 17 to position wolves and wolverines for harvest as long as they were not shot from a moving snow machine.

**Effects of the Proposal**

If adopted, Proposal WP20-27 will provide regulatory language describing snowmachine use for the purposes of hunting caribou in Unit 17. It will also align state and Federal regulations on snowmachine use while hunting caribou in Unit 17. The proposed regulation is not expected to result in significant population changes for caribou as snowmachines are already extensively used in Unit 17 to access hunting grounds, and harvest numbers will continue to be managed by seasons and limits within regulation.

Adopting Proposal WP20-27 will not alter current prohibitions for snowmachine use on Federal lands. Currently, Federal regulations prohibit hunters taking caribou from a snowmachine in motion (§\_\_.26 (b)(4), above), and Federal regulations prohibit using a snowmachine to pursue (§\_\_.4, above), or drive, herd, or molest wildlife (§\_\_.26 (b)(5), above). The proposed regulation provides clarification on how the hunter may use a snowmachine to assist in the taking of a caribou while remaining in compliance with existing regulations.

**OSM CONCLUSION**

**Support** Proposal WP20-27.

## Justification

The use of snowmachines for subsistence purposes is a traditional practice in the Bristol Bay area and statewide. Public testimony and discussion at Council and Board meetings affirms the significance of snowmachine use to the subsistence way of life while seeking guidance on issues of compliance. The proposed regulatory language will provide clarity to the hunter on ensuring compliance while using a snowmachine to harvest caribou on Federal lands. Because it mirrors a recent addition to State regulation, it will reduce complexity between Federal and State regulations, and decrease the potential for inadvertent noncompliance by Federally qualified subsistence users. This approach was agreed upon by a diverse group of stakeholders.

## LITERATURE CITED

Aderman, A. R. 2015. Population monitoring and status of the Nushagak Peninsula Caribou Herd, 1988–2014. Unpublished report. Togiak National Wildlife Refuge, USFWS. Dillingham, AK. 30 pages.

Aderman, A. R. 2017. Wildlife biologist. Personal communication: phone, email. Togiak National Wildlife Refuge, USFWS. Dillingham, AK.

Aderman, A. R. 2019. Wildlife biologist. Personal communication: phone, email. Togiak National Wildlife Refuge, USFWS. Dillingham, AK.

Aderman, A.R., and S.J. Lowe. 2012. Population monitoring and status of the Nushagak Peninsula Caribou Herd, 1988–2011. Unpublished report. Togiak National Wildlife Refuge, USFWS. Dillingham, AK. 29 pages. ADF&G. 2017. WinfoNet. <https://winfonet.alaska.gov/>. Retrieved: April 12, 2017.

ADF&G. 2018. Annual report to the Alaska Board of Game on intensive management for caribou with wolf predation control in Game Management Units 9B, 17B & C, and 19A & B, the Mulchatna Caribou Herd. February 2018. ADF&G, Division of Wildlife Conservation. Juneau, AK.

ADF&G. 2019a. Mulchatna caribou hunt bag limit changes to one caribou. August 22, 2019. <http://www.adfg.alaska.gov/static/applications/webintra/wcnews/2019/releases/08-26-2019b.pdf>. Retrieved: August 29, 2019.

ADF&G. 2019b. Annual report to the Alaska Board of Game on intensive management for caribou with wolf predation control in game management units 9B, 17B&C, and 19A&B, the Mulchatna Caribou Herd. [http://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.unit\\_9b\\_17b\\_17c\\_19a\\_19b#anchor](http://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.unit_9b_17b_17c_19a_19b#anchor). Retrieved: September 4, 2019.

ADF&G. 2019c. WinfoNet. <https://winfonet.alaska.gov/>. Retrieved: May 13, 2019.

Anderson, D. B., Anderson, W. W., Bane, R., Nelson, R. K., and Sheldon Towarak, N. 1998. Kuuvaŋmuit subsistence: Traditional Eskimo life in the latter twentieth century. National Park Service, Kotzebue, AK. 329 pp.

Barten, N.L. 2015. Mulchatna herd caribou. Units 9B, 17, 18 south, 19A, and 19B. Pages 3-1 – 3-22 in P. Harper and L.A. McCarthy, eds. Caribou management report of survey-inventory activities 1 July 2012 – 30 June 2014. ADF&G. Juneau, AK.



Barten, N.L. 2017. Fall 2017 Mulchatna caribou herd composition survey. Unpublished report. ADF&G. Dillingham, AK. 8 pp.

Barten, N.L. 2017. Wildlife biologist. Personal communication: phone, email. ADF&G. Dillingham, AK.

BBSRAC. 2019. Transcripts of the Bristol Bay Subsistence Regional Advisory Council proceedings. March 12<sup>th</sup>, 2019. Naknek, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

Coiley-Kenner, P., T.M. Krieg, M.B. Chythlook, and G. Jennings. 2003. Wild Resource Harvests and Use by Residents of Manokotak, Togiak, and Twin Hills, 1999/2000. Alaska Department of Fish and Game Division of Subsistence. Technical Paper No. 275, Anchorage, AK

Coffing, M.W. 1991. Kwethluk subsistence: Contemporary land use patterns, wild resource harvest and use and the subsistence economy of a Lower Kuskokwim River area community. ADF&G Div. of Subsistence Tech. Paper No. 157. Juneau, AK.

Evans, S., M. Kullonen, D. Holen, and D.S. Koster. 2013. The Harvest and Use of Wild Resources in Dillingham, Alaska, 2010. Alaska Department of Fish and Game Division of Subsistence. Technical Paper No. 375, Anchorage, AK.

Fall, J. A., J.C. Schichnes, M. Chythlook, and R.J. Walker. 1986. Patterns of Wild Resource Use in Dillingham: Hunting and Fishing in an Alaskan Regional Center. Alaska Department of Fish and Game Division of Subsistence. Technical Paper No. 135, Anchorage, AK.

Harris, G., Neilson, R. M., Rinaldi, T, and Lohuis, T. 2014. Effects of winter recreation on northern ungulates with focus on moose (*Alces alces*) and snowmobiles. *European Journal of Wildlife Research* 60:45–58.

FSB. 2019. Transcripts of Federal Subsistence Board Proceedings. April 12, 2018. Office of Subsistence Management, USFWS. Anchorage, AK.

FWS. 2000. Staff analysis Proposal 00–053. Office of Subsistence Management, FWS. Anchorage, AK.

FWS. 2012. Staff analysis Proposal WP12-53. Office of Subsistence Management, FWS. Anchorage, AK.

Holen, D., J. Stariwat, T. M. Krieg, and T. Lemons. 2012. Subsistence Harvests and Uses of Wild Resources in Aleknagik, Clark’s Point, and Manokotak, Alaska, 2008. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 368, Anchorage.

Holen, D., T. M. Krieg, R. Walker, and H. Nicholson. 2005. Harvests and Uses of Caribou, Moose, Bears, and Dall Sheep by Communities of Game Management Units 9B and 17, Western Bristol Bay, Alaska 2001-2002. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 283, Anchorage, Alaska.

Krieg, T. M., D. Holen, and D Koster. 2009. Subsistence Harvests and Uses of Wild Resources in Igiugig, Kokhanok, Koliganek, Levelock, and New Stuyahok, Alaska, 2005. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 322, Anchorage, Alaska.

La Vine, R. and M.J. Lisac. 2003. Oral history and traditional ecological knowledge gathering within Togiak National Wildlife Refuge: Progress Report. Togiak National Wildlife Refuge, Dillingham, Alaska.

Schinchnes, J. and M. Chythlook. 1988. Use of Fish and Wildlife in Manokotak, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 152, Anchorage, Alaska.

Seitz, J. 1996. The Use of Fish and Wildlife in Clarks Point, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 186, Anchorage, Alaska.

VanStone, J. 1967. Eskimos of the Nushagak River. University of Washington Press. Seattle, WA.

Wolfe, R.J., and M. Pete. 1984. Use of caribou and reindeer in the Andreafsky Mountains. ADF&G Div. of Subsistence Tech. Paper No. 98. Juneau., AK. 14 pages.

Woolington, J. D. 2013. Units 9B, 17, 18 south, 19A, and 19B Mulchatna caribou. Pages 23–45 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2010–30 June 2012. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2013-3, Juneau.

Wright, John M., Judith Morris, and Robert Schroeder. 1985. Bristol Bay Regional Subsistence Profile. ADF&G, Division of Subsistence, Technical Paper No. 114. Juneau.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Bristol Bay Subsistence Regional Advisory Council**

**Support** WP20-27. Proposal WP20-27 will clarify Federal hunting regulations, align it with the recent State of Alaska hunting regulation, and reduce regulatory complexity between Federal and State regulations. The Council supports the proposal stating that using snowmachine to assist in taking a caribou and allowing caribou to be shot from a stationary snowmachine is a long-standing practice among rural residents of the region and any conservation concerns can be addressed through regulatory changes to protect the caribou herd if necessary.

### **Yukon Kuskokwim Delta Subsistence Regional Advisory Council**

**Oppose** WP20-27. The Council opposes proposal WP20-27 due to overriding concerns about the recent dramatic decline of the Mulchatna Caribou Herd. Council members relayed that the traditional way to hunt is to approach the caribou very slowly and carefully in order to take a clean shot without stressing the animals. However, they recounted that in recent years there have been reports of younger hunters moving fast, causing the herd to run, and causing serious stress to the caribou in the process. The Council relayed they would be willing to revisit this proposal in support of the Bristol Bay region in the future when the caribou population recovers. However, at this time the overriding concern is to support the Mulchatna Caribou recovery and avoid any further harm to the herd that could be caused by stress from being pursued by snowmachine.

### **Western Interior Subsistence Regional Advisory Council**

**Support** WP20-27. The Council unanimously supported WP20-27. One Council member was concerned with additional take of the Mulchatna Caribou Herd, which has declined from a historical high of 200,000 animals to just 13,500 in recent years, including a 50% decline during the past 5 years. Another Council member did not think that this means and methods issue would result in additional take of the herd, but that limiting seasons and harvest would be more effective. All Council members agreed that the use of snowmachines to take caribou is a traditional and customary practice and should be permitted under this proposal.

## **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee agrees with the Bristol Bay Subsistence Regional Advisory Council's recommendation to adopt this proposal, which provides specific guidance about how snow machines can be used to harvest caribou and reduces uncertainty for users. Testimony from local subsistence users and members of the Bristol Bay Council supported the clarification of how snow machines can be used to position hunters while harvesting caribou in these regions. Such equipment has long been used for these purposes, and more specific regulations will help them continue these traditions, while reducing the concerns about potential enforcement actions.

Though the Yukon Kuskokwim Delta Subsistence Regional Advisory Council opposed the adoption of this proposal due to their concerns about the conservation status of the Mulchatna Caribou Herd, it is important to note that the proposed regulation does not allow any practices not currently allowed under Federal regulation. Rather, it provides specific guidelines that may be useful to subsistence users as they judge whether their hunting practices are lawful.

The proposed regulation is consistent with existing State regulations addressing the use of snowmachines to harvest caribou in Unit 17. Adoption of this proposal will reduce regulatory complexity across State and Federal jurisdictions, which will benefit both subsistence users and law enforcement officials. In addition, the proposed regulation is consistent with the existing Statewide Federal regulation, which prohibits the use of a motorized vehicle to drive, herd, or molest wildlife. Adopting this proposal would support the intent of that regulation, as well as other Federal agency-specific regulations that have similar language and intent.

It is notable that the Board has previously approved regulations specifying how snow machines can be used for caribou hunting in other units, and that these have been implemented to address both subsistence needs and enforcement concerns. The Board may also want to consider a more universal approach to identifying the appropriate use of snow machines for harvest of animals by federally qualified subsistence users. Creation of regulations that are enforceable, are compatible with existing Federal and State regulations, and allow efficient harvest, may be worth further discussion and evaluation.

## **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-27:** This proposal, submitted by the Bristol Bay Subsistence Regional Advisory Council, would allow Federally qualified subsistence users to use a snowmachine to assist in the taking of caribou on federal lands in Unit 17 using the regulatory language passed by the Alaska Board of Game in February 2018. The regulation says, “in Unit 17, a snowmachine may be used to assist in the taking of a caribou and caribou may be shot from a stationary snowmachine. ‘Assist in the taking of a caribou’ means a snowmachine may be used to approach within 300 yards of a caribou at speeds under 15 miles per hour, in a manner that does not involve repeated approaches or that causes a caribou to run. A snowmachine may not be used to contact an animal or to pursue a fleeing caribou.

**Introduction:** This proposal was submitted by the Council based on the recommendation of a working group convened for this purpose. The proponent states that keeping both Federal and State hunting regulations aligned will be understandable for all users.

**Impact on Subsistence Users:** Allowing snowmachines to assist in taking caribou may increase harvest success for federally qualified users.

**Impact on Other Users:** If adopted, this change could result in reduced seasons and bag limits for all users if harvest success rates increase appreciably.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for caribou in Unit 17.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary subsistence uses (ANS). The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below the ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for the Mulchatna caribou herd is 2,100–2,400 animals. The season runs from August 1 – March 31, and the bag limit is 2 animals in Unit 17.

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Resident<sup>a</sup></u>	<u>Open Season (Permit/Hunt #)</u>	
			<u>Nonresident</u>	
17	2	RC501, RC503	No season	

<sup>a</sup> Subsistence and General Hunts.

Special instructions: None

**Conservation Issues:** Because caribou often aggregate in groups, adoption of this proposal will likely lead to multiple animals being disturbed in the process of taking any single animal. On the Nushagak Peninsula caribou are confined to a relatively small area that is generally flat and open, with little refugia for caribou to escape detection or pursuit, even under the present regulations. These caribou are subjected to routine disturbance and are very quick to run from the sound of a snowmachine. Using snowmachines to assist in taking caribou would have the potential to repeatedly stress the same individuals if many hunters utilize the technique.

The Mulchatna herd, although much more remote than those on the Nushagak Peninsula, does at times reside within snowmachine distance of Nushagak River communities. Word generally gets out fast when caribou are near, and numerous parties may target the same group(s) of caribou over the period of time when the caribou are accessible. As with the caribou on the Nushagak Peninsula, any given group of caribou near the communities could be approached numerous times over a short period of time. The relatively large number of people interested in pursuing caribou combined with the low numbers of animals or groups of animals that are accessible could lead to multiple disturbance

episodes per day, or at least in a given window of good travel weather. Given that the Mulchatna Caribou Herd has declined to approximately 13,500 animals since the last population estimate and remains far below the population objective of 30,000–80,000 caribou, this disturbance may have a more profound effect on that herd.

**Enforcement Issues:** Given the vastness of the landscape and sparseness of hunters, it will be nearly impossible for law enforcement to confirm if a hunter has chased down or harassed an animal(s) in violation of this regulation.

**Recommendation:** ADF&G is **NEUTRAL** on the adoption of WP20-27. While this proposal does align state and federal regulations, allowing hunters to use a snowmachine to assist in taking caribou in many instances, the department is concerned that this method will likely lead to high levels of disturbance resulting in increased energetic demands at critical periods, especially if the same groups of animals are hunted on a daily basis. This is an increasing concern because the MCH is further below the population objective, which was not known at the time the BOG adopted the regulation.

## APPENDIX 1

### 5 AAC 92.080. Unlawful methods of taking game; exceptions

*The following methods of taking game are prohibited:*

...

*(4) unless otherwise provided in this chapter, from a motor-driven boat or a motorized land vehicle, unless the motor has been completely shut off and the progress from the motor's power has ceased, except that a*

...

*(B) motorized land vehicle may be used as follows:*

*i) In Units 22, 23, and 26(A), a snowmachine may be used to position a caribou, wolf, or wolverine, for harvest, and caribou, wolves and wolverines may be shot from a stationary snowmachine.*

*(ii) notwithstanding any other provision in this section, in the wolf control implementation areas specified in 5 AAC 92.111 - 5 AAC 92.113, 5 AAC 92.118, and 5 AAC 92.121 - 5 AAC 92.124, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;*

*(iii) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 18, 19, 21, 22, 24, 25(C) and 25(D), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, a snowmachine may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary snowmachine;*

*(iv) notwithstanding any other provision in this section, in the bear control implementation areas specified in 5 AAC 92.111 - 5 AAC 92.113, 5 AAC 92.118, and 5 AAC 92.121 - 5 AAC 92.124, a snowmachine may be used to position a hunter to select an individual bear for harvest, and bears may be shot from a stationary snowmachine;*

*(v) notwithstanding any other provision in this section, in Units 9(B), 9(C), 9(E), 17, 22 and 25(C), except on any National Park Service or National Wildlife Refuge lands not approved by the federal agencies, an ATV may be used to position a hunter to select an individual wolf for harvest, and wolves may be shot from a stationary ATV;*

*(vi) under authority of a permit issued by the department;*

*(vii) in Unit 18, a snowmachine may be used to position a wolf or wolverine for harvest, and wolves or wolverines may be shot from a stationary snowmachine;*

*(viii) in Unit 17, a snowmachine may be used to assist in the taking of a caribou and caribou may be shot from a stationary snowmachine. "Assist in the taking of a caribou" means a snowmachine may be used to approach within 300 yards of a caribou at speeds under 15 miles per hour, in a manner that does not involve repeated approaches or that causes a caribou to run. A snowmachine may not be used to contact an animal or to pursue a fleeing caribou.*

*(5) except as otherwise specified, with the use of a motorized vehicle to harass game or for the purpose of driving, herding, or molesting game;*

*(6) with the use or aid of a machine gun, set gun, or a shotgun larger than 10 gauge;*

*(7) with the aid of*

*(A) a pit;*

*(B) a fire;*

*(C) artificial light, except that artificial light may be used.*



<b>WP20–30 Executive Summary</b>	
<b>General Description</b>	<p>Proposal WP20-30 requests that the Alaska hare season in Unit 9 be shortened from a year round season to Nov. 1 – Jan. 31, and that the harvest limit be reduced from no limit to 1 per day and 4 annually.  <i>Submitted by: Alaska Peninsula and Becharof National Wildlife Refuges.</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 9—Hare (Snowshoe and Tundra)</b>  <i>No limit</i> <span style="float: right;"><i>July 1 – June 30</i></span></p> <p><b>Unit 9—Hare (Tundra)</b>  <i>1 per day, 4 total</i> <span style="float: right;"><i>Nov. 1 – Jan. 31</i></span></p>
<b>OSM Conclusion</b>	<p><b>Support</b> WP20-30 <b>with modification</b> to replace the term “tundra hare” with the term “Alaska hare” throughout Federal subsistence regulation to reflect contemporary nomenclature and reduce regulatory complexity between State and Federal regulations. See pages 6-7 for modified regulations.</p>
<b>Bristol Bay Subsistence Regional Advisory Council Recommendation</b>	<p><b>Oppose</b></p>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee agrees with the OSM modification to align Federal and State nomenclature by changing Tundra Hare references in Federal regulations to Alaska Hare, which is used in State regulations. This will reduce regulatory complexity and improve the potential to conserve Alaska Hare populations, which are reported to be well below historic levels.</p> <p>Aligning Federal and State season and harvest limits will further reduce regulatory complexity and improve the ability for populations to recover, while still providing some opportunity for harvest. The Board could consider increasing the season length to provide a subsistence priority. However, usually a solitary animal, during late winter, aggregations of 20 or more have been observed with the start of the mating season. More research is needed to understand the status of this species, but throughout the hare’s southern distribution on the Alaskan Peninsula, high population numbers have not been reported since winter 1953-54 (Schiller and Rausch 1956). Potential limiting factors include habitat loss, harvest, and climate change. A</p>

<b>WP20–30 Executive Summary</b>	
	conservative approach, aligning with the State regulations, may therefore be warranted to ensure continued subsistence use of this species into the future.
<b>ADF&amp;G Comments</b>	<b>Support with modification</b>
<b>Written Public Comments</b>	<b>None</b>

## STAFF ANALYSIS WP20-30

### ISSUES

Wildlife Proposal WP20-30, submitted by the Alaska Peninsula and Becharof National Wildlife Refuges, requests that the Alaska hare season in Unit 9 be shortened from a year round season to Nov. 1 – Jan. 31, and that the harvest limit be reduced from no limit to 1 per day and 4 annually. The requested changes are consistent with recent changes in the State season and harvest limit.

### DISCUSSION

The proponent notes that the Alaska Department of Fish and Game (ADF&G) submitted a similar proposal to the Alaska Board of Game (BOG) for RY 2018/19, in response to low densities and patchy distribution of Alaska hares on the Alaska Peninsula. The proponent states that, although the requested change will reduce subsistence opportunity, it will help ensure the continued viability of Alaska hare populations, and will ultimately provide for continued subsistence use by allowing quicker recovery of the population.

It should be noted that the Alaska hare is sometimes called the tundra hare or the arctic hare (e.g. Anderson 1978; Klein 1995; Murray 2003; ADF&G 2019a). Federal subsistence regulation uses the term tundra hare, but Alaska hare appears to be the dominate term in contemporary usage, including in State regulation. This analysis contains the terms Alaska hare and tundra hare, used synonymously. It should also be noted that the Alaska or tundra hare is a distinct species from the snowshoe hare, despite the inclusion of both species in the same Federal regulation.

#### Existing Federal Regulation

##### Unit 9—Hare (Snowshoe and Tundra)

*No limit*

*July 1 – June 30*

#### Proposed Federal Regulation

##### Unit 9—Hare (Snowshoe and Tundra)

*No limit*

*July 1 – June 30*

**Unit 9—Hare (Tundra)**

*1 per day, 4 total*

*Nov. 1 – Jan. 31*

**Existing State Regulation**

**Unit 9—Snowshoe Hare**

*No limit*

*No closed season*

**Unit 9—Alaska Hare**

*One per day, four total*

*Nov. 1 – Jan. 31*

**Extent of Federal Public Lands/Waters**

Federal public lands comprise approximately 53% of Unit 9 and consist of 28% National Park Service managed lands, 22% U.S. Fish and Wildlife Service managed lands and 3% Bureau of Land Management managed lands. **See Unit Map.**

**Customary and Traditional Use Determinations**

The Federal Subsistence Board (Board) has not made a customary and traditional use determination for hare in Unit 9. Therefore, all Federally qualified subsistence users may harvest this species in this unit.

**Regulatory History**

Federal subsistence regulations for hare in Unit 9 have not been changed since 1990, when the Federal management of subsistence fish and wildlife resources on Federal public lands began. At that time, a year-round season with no harvest limit was adopted from State regulation.

State regulation included a year-round season with no harvest limit for hare in Unit 9 until RY2018/19, when ADF&G submitted Proposal 135 for the BOG's consideration. Noting very low densities and patchy distribution of Alaska hares on the southern Alaska Peninsula, ADF&G originally requested that the season in a portion of Unit 9 be closed entirely. After discussion with locals and staff, they amended their proposal to reduce the season throughout Unit 9 to Nov. 1 – Jan. 31, with a harvest limit of 1 per day and 4 annually, and require that either the hide or the meat be salvaged (RC55). ADF&G

noted that Alaska hares are of interest to residents of Unit 9 and that offering a season, even restricted one, allows for opportunistic harvest of Alaska hares. They also noted that it provides an opportunity for biologists to gather information from hunters about Alaska hare locations and relative abundance. To this end, ADF&G recommended inclusion of language encouraging voluntary reporting of Alaska hare harvest. This proposal had the support of both active Fish and Game Advisory Committees in the region. The BOG adopted the amended version of the proposal and supported inclusion of the voluntary reporting language. The BOG also adopted a positive finding for customary and traditional use of Alaska hare in Units 9, 10 and 17 (BOG 2019).

### **Biological Background**

Taxonomy of the three species of northern hares remains unresolved, which almost certainly contributes to the confusion around common names. Current taxonomic descriptions rely on geographic distributions, rather than morphologic or molecular distinctions, which remain ambiguous. The arctic hare (*Lepus arcticus*) is widely distributed across tundra habitats of Greenland and northern Canada. The mountain hare (*L. timidus*) occurs in northern Eurasia, from eastern Russia to Scandinavia (Cason 2016). Alaska hares (*L. othus*) are limited to coastal western and southwestern Alaska, ranging from the Baldwin and Seward Peninsulas in the north, to the Alaska Peninsula in the south (Merizon and Carroll 2019).

Alaska hares are among the largest of the *Lepus* genus, weighing approximately 8.5 – 10.5 pounds (Murray 2003). They occupy coastal lowlands, wet meadows, and willow and alder thickets (Merizon and Carroll 2019), and feed on willow buds, leaves, and crowberries (Murray 2003). They are typically solitary, except during breeding season. Alaska hares reproduce a single litter each year, breeding between April and June and giving birth approximately 6.5 weeks later. Litters contain 6.3 leverets on average, which are fully weaned within 5 – 9 weeks (Murray 2003).

The Alaska hare is among the most poorly understood game species in Alaska. Hunter questionnaires have been the only source of information about the species and there has been no long-term population monitoring. There is an effort to better understand this species, however. Beginning in 2017, ADF&G began to evaluate capture techniques. They also embarked on a tour of rural communities throughout the range of the Alaska hare to discuss local observations, historical abundance, and harvest patterns. In 2018, a multi-year study was initiated to evaluate movement and mortality, as well as long-term capture techniques. Anecdotal observations suggest that Alaska hare abundance is well below that observed in the 1950s and 1960s, throughout its range. It is unknown whether the population has been in a long-term decline, or whether it experienced a crash and now exists as a low-density but relatively stable population (Merizon and Carroll 2019).

### **Cultural Knowledge and Traditional Practices**

At least four Alaska indigenous groups, Unangan, Alutiiq, Central-Yup'ik, and Dena'ina Athabaskans, historically inhabited and hunted in Unit 9. Sources document traditional hunting of the regions hare populations by the Dena'ina on a periodical basis (Osgood 1976). Clark (1984) suggests that although

land mammals were of less importance than marine mammals for the Alutiiq, almost all available species were snared, trapped, or hunted.

Russian traders and explorers travelled to the Aleutian Islands and up the Alaska coast in the mid-eighteenth century (McCartney 1984; Clark 1984). Russia claimed sovereignty over Alaska and a 126-year period of exploration fueled by economic interest ensued (McCartney 1984; Morseth 2003; Partnow 2001). These activities brought both Russian and later Europeans into contact with Alaska indigenous groups (Morseth 2003; VanStone 1984). Intermarriages between indigenous people, Russians, and Europeans took place as both Russian and Europeans settled into indigenous territories (Partnow 2001). An influx of European exploration and settlement occurred on the Alaska Peninsula after 1867, when Russia sold Alaska to the United States (Morseth 2003). Today, residents of the region are from diverse backgrounds, and Unit 9 is open to statewide hare harvest and use by all federally qualified subsistence users (Fall et al. 1995; Fall et al. 1998; Holen et al. 2011; Krieg et al. 2009).

The most recent comprehensive subsistence surveys conducted for the Alaska Peninsula by ADF&G shows that hare use ranged from no use in some households to 15% in others (ADF&G 2019b; ADF&G 2019c; ADF&G 2019c; ADF&G 2019e; Fall et al. 1987; Fall et al. 1995; Fall et al. 2006; Holen et al. 2011; Krieg et al. 2009). Sand Point harvested the most hares during the study year 1992, with the per capita harvest of approximately 1.3lb/person while other Alaska Peninsula communities only harvested hares opportunistically (ADF&G 2019b; ADF&G 2019c; ADF&G 2019c; ADF&G 2019e; Fall et al. 1987; Fall et al. 1993a; Fall et al. 1993b; Fall et al. 2006; Krieg et al. 2009).

During each study year, communities within Unit 9 harvested or hunted for small land mammals, which includes hares, throughout the region including areas along Bear, Big, Coffee, Graveyard, King Salmon, Kaktuli, Newhalen, Paul's, Pecks, Smelt and Yellow Creeks, the Chulitina River valley, Alagnak, Kvichak, and Naknek Rivers, Kaskanak Flats, Groundhog and Sugarleaf Mountains, portions of Katmai National Preserve, and around the communities of Chignik Bay, Chignik Lagoon, Chignik Lake, Igiugig, Kokhanok, King Salmon, Levelock, Naknek, Newhalen, Perryville (Fall et al. 1995; Fall et al. 2006; Holen et al. 2011; Krieg et al. 2009).

### **Harvest History**

Little is known about the harvest of Alaska hare, which is one of the least accessible small game species. However, it is harvested throughout the communities of western and southwestern Alaska (Merizon and Carroll 2019). Some insights into small game harvest are available in ADF&G's Statewide Small Game Hunter Survey, results for which were compiled for RY2011/12 and RY2013/14.

The most recent results, from RY2013/14, show that half of the hunters responding to the survey reported hunting small game in Units 13, 14 or 20, while only 5% of respondents reported hunting small game in Unit 9. Given that response rates among those surveyed were similar for Unit 9 (24%) and statewide (30%), this indicates that hunting pressure on small game in Unit 9 is relatively low compared to areas located on the road system. Most Alaska resident respondents reported hunting

within the geographic region where they reside, but only 3% of respondents reported participating in Federal subsistence small game hunts. Respondents reported that they hunt small game opportunistically while engaging in other activities, but also target small game specifically. Statewide, ptarmigan and spruce grouse were targeted most frequently. Within Unit 9, respondents reported hunting for Alaska hare for an average of 2.5 days (Merizon et al. 2015).

### **Effects of the Proposal**

If this proposal is adopted, opportunity to harvest Alaska hares under Federal subsistence regulation will be reduced. Given that the State season has already been reduced, this represents an actual reduction of opportunity for Federally qualified subsistence users. This change may result in reduced harvest of Alaska hare, particularly since it includes both a daily and an annual harvest limit. Though neither harvest nor population size are quantified, harvest reduction has the potential to improve the conservation status of the Unit 9 Alaska hare population, which is reported to be well below historical size. Adoption of this proposal will also reduce regulatory complexity by aligning Federal regulation with recently changed State regulation.

### **OSM CONCLUSION**

**Support** Proposal WP20-30 **with modification** to replace the term “tundra hare” with the term “Alaska hare” throughout Federal subsistence regulation to reflect contemporary nomenclature and reduce regulatory complexity between State and Federal regulations.

The modified regulation should read:

§\_\_\_\_.25 *Subsistence taking of fish, wildlife, and shellfish: general regulations.*

*(a) Definitions. The following definitions apply to all regulations contained in this part: Hare or hares collectively refers to all species of hares (commonly called rabbits) in Alaska and includes snowshoe hare and ~~tundra~~ Alaska hare.*

#### **Unit 9—Hare (Snowshoe ~~and Tundra~~)**

*No limit*

*July 1 – June 30*

#### **Unit 9—Hare (Alaska)**

*1 per day, 4 total*

*Nov. 1 – Jan. 31*

**Unit 17—Hare (Snowshoe and ~~Tundra~~ Alaska)**

*No limit*

*July 1 – June 30*

**Unit 18—Hare (Snowshoe and ~~Tundra~~ Alaska)**

*No limit*

*July 1 – June 30*

**Unit 21—Hare (Snowshoe and ~~Tundra~~ Alaska)**

*No limit*

*July 1 – June 30*

**Unit 22—Hare (Snowshoe and ~~Tundra~~ Alaska)**

*No limit*

*Sep. 1 – Apr. 15*

**Unit 23—Hare (Snowshoe and ~~Tundra~~ Alaska)**

*No limit*

*July 1 – June 30*

**Unit 26—Hare (Snowshoe and ~~Tundra~~ Alaska)**

*No limit*

*July 1 – June 30*

**Justification**

Anecdotal information indicates that Alaska hares in Unit 9 are scarcer than they have been in the past. Local managers concur that Alaska hares in this region exist at a low density. Biologically, it is appropriate to restrict harvest in such a situation. Reducing the season from Jul. 10 – Jun. 30 to Nov. 1 – Jan. 31 reduces the season by 75%, yet continues to offer subsistence users the opportunity to harvest Alaska hares during winter when they are engaging in other subsistence or recreational activities. Imposing a harvest limit of 1 per day and 4 annually may have a greater effect on reducing overall harvest and promoting population recovery. Collectively, changes in season and harvest limit offer a balance between imposing conservation measures and allowing for the continuation of subsistence uses in the near term. Any positive effect these changes have on the Alaska hare population will benefit subsistence users in the long term.

Updating the common name from tundra hare to Alaska hare in Federal subsistence regulation will reduce regulatory complexity. If this change is implemented, terminology for Alaska hares will be



consistent under State and Federal regulation, which should reduce misunderstanding and confusion among Federally qualified subsistence users who hunt under both State and Federal regulation.

## LITERATURE CITED

- ADF&G. 2019a. Alaska hare (*Lepus othus*) species profile. Alaska Department of Fish and Game. Juneau, AK. <http://www.adfg.alaska.gov/index.cfm?adfg=alaskahare.main>. Retrieved March 22, 2019.
- Alaska Department of Fish and Game. 2019b. Egegik: 2014. Retrieved from <http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=commInfo.Summary&CommID=122&Year=2014>.
- Alaska Department of Fish and Game. 2019c. Nelson Lagoon: 1987. Retrieved from <http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=commInfo.Summary&CommID=240&Year=1987>.
- Alaska Department of Fish and Game. 2019c. Pilot Point: 2014. Retrieved from <http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.harvest>.
- Alaska Department of Fish and Game. 2019e. Ugashik: 2014. Retrieved from <http://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=harvInfo.harvest>.
- Anderson, H.L. 1974. Range of the tundra hare. *The Murrelet*. 59(2): 72-74.
- BOG. 2019. Audio transcripts of the Alaska Board of Game proceedings. February 23, 2018. Dillingham, AK. ADF&G. Juneau, AK.
- Cason, M.M. 2016. Revised distribution of and Alaskan endemic, the Alaska Hare (*Lepus othus*), with implications for taxonomy, biogeography, and climate change. *Arctic Science*. 2:50 – 66.
- Clark, D.W. 1984. Pacific Eskimo: Historical Ethnography. Pages 185-197 in W. Sturtevant, ed. *Handbook of North American Indians*. Vol. 5, Arctic. Smithsonian Institution, Washington DC.
- Fall, J., & J.M. Morris. 1987. Fish and Wildlife Harvest and Use in Pilot Point, Ugashik, and Port Heiden, 1986-1987. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 158. Juneau, AK.
- Fall, J., D.B. Andersen, L. Brown, M. Coffing, G. Jennings, C. Mishler, A. Paige, C.J. Utermohle, & V. Vanek. 1993a. Noncommercial Harvests and Uses of Wild Resources in Sand Point, Alaska, 1992. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 226. Juneau, AK.
- Fall, J., R. Mason, T. Haynes, V. Vanek, L. Brown, G. Jennings, C. Mishler, & C. Utermohle. 1993b. Noncommercial Harvests and Uses of Wild Resources in King Cove, Alaska, 1992. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 227. Juneau, AK.
- Fall, J., L.B. Hutchinson-Scarborough, & P.A. Coiley. 1995. Fish and Wildlife Harvest and Use in Five Alaska Peninsula Communities, 1989. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 202. Juneau, AK.

Fall, J., A. Paige, V. Vamek, & L. Brown. 1998. Subsistence Harvests and Uses of Birds and Eggs in Four Communities of the Aleutian Islands Area: Akutan, False Pass, Nelson Lagoon, and Nikolski. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 243. Juneau, AK.

Fall, J., D.L. Holen, B. Davis, T. Krieg & D. Koster. 2006. Subsistence Harvests and Uses of Wild Resources in Iliamna, Newhalen, Nondalton, Pedro Bay, and Port Alsworth, Alaska, 2004. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 302. Juneau, AK.

Holen, D., T.M. Krieg, & T. Lemons. 2011. Subsistence Harvests and Uses of Wild Resources in King Salmon, Naknek, and South Naknek, Alaska, 2011. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 360. Anchorage, AK.

Klein, D.R. 1995. Tundra or Arctic hare. Page 259 in E.T. LaRoe, G.S. Farris, C.E. Puckett, P.D. Doran and M.J. Mac, eds. Our living resources: A report to the nation of the distribution, abundance, and health of U.S. plants, animals, and ecosystems. U.S. Department of the Interior. National Biological Service. Washington, D.C. 530 pp.

Krieg, T.M., D.L. Holen, & D. Koster. 2009. Subsistence Harvests and Uses of Wild Resources in Igiugig, Kokhanok, Koliganek, Levelock, and New Stuyahok, Alaska, 2009. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 322. Dillingham, AK.

McCartney, A. 1984. Prehistory of the Aleutian Region. Pages 119-135 in W. Sturtevant, ed. Handbook of North American Indians. Vol. 5, Arctic. Smithsonian Institution. Washington DC.

Merizon, R.A., S.J. Carson and L.S. Honig. 2015. Statewide small game hunter survey, 2014. ADF&G. Juneau, AK.

Merizon, R.A. and C.J. Carroll. 2019. Status of grouse, ptarmigan, and hare in Alaska, 2017 and 2018. ADF&G. Juneau, AK.

Morseth, M. Puyulek Pu'irtuq! The People of the Volcanoes: Aniakchak National Monument and Preserve Ethnographic Overview and Assessment. National Park Service. Anchorage, Alaska. ISBN: 0941555054.

Murray, D.L. 2003. Snowshoe hares and other hares. Pages 147 – 175 in G.A. Feldhamer, B.C. Thompson and J.A. Chapman, eds. Wild mammals of North America: Biology Management and Conservation. The Johns Hopkins University Press. Baltimore, MD. 1216 pp.

Osgood, C. 1976. The Ethnography of the Tanaina. New Haven: Human Relations Area Files Press.

Partnow, P.H. 2001. Making History: Alutiiq/Sugpiaq Life on the Alaska Peninsula. University of Alaska Press. Fairbanks, AK. 207 pp.

VanStone, J.W. 1984. Mainland Southwest Alaska Eskimo. Pages 224-242 in W. Sturtevant, ed. Handbook of North American Indians. Vol. 5, Arctic. Smithsonian Institution. Washington DC.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Bristol Bay Subsistence Regional Advisory Council

**Oppose** WP20-30. The Council opposes the proposal as written voting 1-7. The season end date appears to be too restrictive, and some Council members stated that harvest and population numbers were unknown. Additional information on the species is needed prior to adopting the proposal to set season dates. Traditionally, the winter months are when hares are harvested for winter protein.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee agrees with the OSM modification to align Federal and State nomenclature by changing Tundra Hare references in Federal regulations to Alaska Hare, which is used in State regulations. This will reduce regulatory complexity and improve the potential to conserve Alaska Hare populations, which are reported to be well below historic levels.

Aligning Federal and State season and harvest limits will further reduce regulatory complexity and improve the ability for populations to recover, while still providing some opportunity for harvest. The Board could consider increasing the season length to provide a subsistence priority. However, usually a solitary animal, during late winter, aggregations of 20 or more have been observed with the start of the mating season. More research is needed to understand the status of this species, but throughout the hare's southern distribution on the Alaskan Peninsula, high population numbers have not been reported since winter 1953-54 (Schiller and Rausch 1956). Potential limiting factors include habitat loss, harvest, and climate change. A conservative approach, aligning with the State regulations, may therefore be warranted to ensure continued subsistence use of this species into the future.

### ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-30:** This proposal, submitted by the Alaska Peninsula and Becharof National Wildlife Refuges, would shorten the hunting season duration for Alaska hare from year-round to 1 November–31 January. This proposal would also reduce the bag limit from no limit to 1 per day and 4 annually.

**Introduction:** This proposal seeks to align federal subsistence hunting regulations for Alaska hare with state regulations in Unit 9. In February 2018, the Alaska Board of Game reduced the season duration and annual harvest limit for Alaska hare in Unit 9. Based on observations from local rural residents from western Alaska as well as state and federal biologists, Alaska hare abundance appears to have declined from the 1980s and 1990s and, as a result, a more conservative management approach is warranted.

No consistent abundance or productivity estimates exist for Alaska hare in Unit 9. Inconsistently collected harvest data from the area also make it difficult to gain a comprehensive understanding about hunter effort and harvest. However, regular field observations beginning in 2017 and a concerted effort

to communicate with remote local residents within Unit 9 and throughout Southwest and Western Alaska indicate the population is at low density and has declined from historical levels. These observations are what led ADF&G to submit the proposal that the Board of Game took action on at the February 2018 meeting.

**Impact on Subsistence Users:** Reduction in harvest limits and hunting seasons would not likely have an impact on subsistence users because the abundance of Alaska hare appears to have declined, and with fewer hares available the subsistence harvest is already low. Due to conservation efforts, Alaska hare abundance is expected to improve, thus the impact is also likely to be limited in duration.

**Impact on Other Users:** Because the Board of Game took action to conserve the Alaska hare population through a similar action, if adopted, this proposal would have no effect on other non-federally qualified users except to make the regulations clearer through alignment.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for Alaska hare in Unit 9.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

Although a positive customary and traditional use finding has been made for Alaska hare in Unit 9, the Board of Game has not yet made ANS finding since limited harvest data were available at the time of the meeting. The board may make the ANS finding at a future meeting, pending the outcome of their request to report harvests of Alaska hare. The current state season and bag limit for Unit 9 is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
9	1 per day 4 total	Nov. –Jan. 31	Nov. 1–Jan. 31

<sup>a</sup> Subsistence and General Hunts.

During the February 2018 Board of Game meeting in Dillingham the Board also adopted additional conservation measures for Alaska hares. First, it required salvage of either the hide or meat. Second, it requested that hunters report their harvest to the King Salmon ADF&G office so that the department can gain more insight into overall harvest and locations of abundance.

**Conservation Issues:** Currently there are no abundance or population productivity estimates available for the Unit 9 Alaska hare. However, Federal and ADF&G staff as well as local residents have reported declines in the population throughout the unit. If adopted this proposal would align the federal subsistence regulations with the current state regulations, which would further conserve the population by reducing Alaska hare harvest in Unit 9.

**Enforcement Issues:** If this proposal were adopted, enforcement would be easier, since season and annual limit regulations would be aligned.

**Recommendation:** ADF&G **SUPPORTS** this proposal **with modifications**. We recommend the Board consider adding a salvage requirement for all Alaska hares, as was done by the Alaska Board of Game. The salvage requirement is currently listed as either the hide or meat of the Alaska hare. The state is also requesting that hunters report Alaska hare harvest to the ADF&G King Salmon office so the department can learn more about harvest and locations of greatest abundance for ongoing research efforts.

## WCR20-04/06 Executive Summary

<p><b>General Description</b></p>	<p>Closure Review WCR20-04/06 reviews the closures to caribou hunting in Unit 9C, draining into the Naknek River from the north and Graveyard Creek and Coffee Creek; Unit 9C, remainder; and Unit 9E. The closures in the Unit 9C hunt areas are closed to caribou hunting, except by residents of Unit 9C and Egegik. The closure in Unit 9E is closed to caribou hunting, except by residents of Unit 9E, Nelson Lagoon and Sand Point.</p>
<p><b>Current Regulation</b></p>	<p><b>Unit 9–Caribou</b></p> <p><i>Unit 9C, that portion draining into the Naknek River from the north and Graveyard Creek and Coffee Creek—2 caribou by State registration permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik</i>      <i>Aug. 1 – Mar. 15</i></p> <p><i>Unit 9C, remainder—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik</i>      <i>May be announced</i></p> <p><i>Unit 9E—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9E, Nelson Lagoon, and Sand Point</i>      <i>May be announced</i></p>
<p><b>OSM Conclusion</b></p>	<p><b>Modify the closure</b> to rescind the closure in the portion of Unit 9C draining into the Naknek River from the north and Graveyard Creek and Coffee Creek and to maintain the closures within Units 9C remainder and 9E.</p>
<p><b>Bristol Bay Subsistence Regional Advisory Council Recommendation</b></p>	<p><b>Modify the closure as recommended by OSM.</b></p>

<b>Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation</b>	<b>Took No Action</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee (ISC) agrees with the OSM conclusion and the Bristol Bay Subsistence Regional Advisory Council recommendation to retain the Federal public lands closures in Unit 9C remainder and Unit 9E. The ISC also agrees with rescinding the Federal public lands closure in the portion of Unit 9C draining into the Naknek River from the north and Graveyard Creek and Coffee Creek, on the basis that the original justification for the closure was based on conservation concerns for the NAPCH, which no longer ranges within this area. Still, the Board may consider retaining a closure in this area to support the recovery of the MCH for which there are concurrent conservation concerns. The area comprises only a small portion of the MCH range and therefore a closure here may have only limited benefits to the conservation of the MCH.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-04/06**

**Closure Location:** Unit 9C, that portion draining in the Naknek River from the north and Graveyard Creek and Coffee Creek, Unit 9C remainder (WCR18-04), and Unit 9E (WCR18-06)—Caribou

**Current Federal Regulation**

**Unit 9—Caribou**

*Unit 9C, that portion draining into the Naknek River from the north and Graveyard Creek and Coffee Creek—2 caribou by State registration permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik* Aug. 1 – Mar. 15

*Unit 9C, remainder—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9C and Egegik* May be announced

*Unit 9E—1 bull by Federal registration permit or State permit. Federal public lands are closed to the taking of caribou except by residents of Unit 9E, Nelson Lagoon, and Sand Point* May be announced

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 9—Caribou**

*Unit 9C, that portion north of the north bank of the Naknek River and south of the Alagnak River drainage—two caribou by permit* RC503 Aug. 1 – Mar. 31

*Unit 9C south of the north bank of the Naknek River—one caribou by permit* TC505 Aug. 10 – Oct. 10  
Nov. 1 – Feb. 28

*Unit 9E* TC505 Aug. 10 – Oct. 10  
Nov. 1 – Apr. 30



**Regulatory Year Initiated:** 1999, closed except to residents of 9C and 9E; 2006, closed to all users.

### **Regulatory History**

Prior to 1999, the harvest limit in Unit 9C remainder and Unit 9E remainder (which included most of Unit 9E) was 4 caribou. The season began on August 1 in both hunt areas, and ended on March 31 in Unit 9C remainder and on April 30 in Unit 9E remainder. At that time, there was no Federal season in the southernmost portion of Unit 9E.

The Federal Subsistence Board's (Board) 1999 decision on three proposals resulted in the first iteration of the current closure. Collectively, WP99-32, submitted by the Bristol Bay Subsistence Regional Advisory Council (Council), WP99-33, submitted by Tim Enright of Pilot Point, and WP99-34, submitted by Chignik Lagoon Traditional Council, requested more restrictive harvest limits, more conservative seasons, and closure of some Federal public lands to the harvest of caribou in Units 9C and 9E. In response to a decline in the Northern Alaska Peninsula Caribou Herd (NAPCH), the Board adopted these proposals with modification. In addition to reduction in harvest limits and seasons, this action resulted in the closure of Federal public lands within Unit 9C remainder and all of Unit 9E to caribou harvest except by residents of Unit 9C and 9E. The Alaska Board of Game (BOG) implemented a Tier II hunt for the NAPCH the same year.

In 2000, the Board considered WP00-33, which was submitted by the Bristol Bay Native Association and requested the provision of designated hunter permits for caribou in Unit 9C and 9E. The Board approved this request because it was consistent with customary and traditional hunting practices and was not expected to impact the caribou population.

In 2004, the Board considered WP04-43, a request from the Council to allow same day airborne hunting for caribou throughout Unit 9 and 17, except on National Park Service (NPS) lands. All four Subsistence Regional Advisory Councils that voted on this proposal (Bristol Bay, Yukon-Kuskokwim Delta, Western Interior Alaska, Kodiak/Aleutians) opposed it, and the Board rejected the request.

In 2005, caribou seasons in Units 9C remainder and 9E were the subject of two special actions, both submitted by the Office of Subsistence Management (OSM). The first, Emergency Special Action WSA05-02, requested that caribou hunting on Federal lands be closed in Unit 9C remainder and Unit 9E, following the rapid decline of the Northern Alaska Peninsula Caribou Herd and the State's closure of the Tier II season. As authorized by the Board, this request was approved with the unanimous consent of the Interagency Staff Committee. Subsequently, Temporary Special Action WSA05-11 was submitted, a necessary step to extend the closure beyond the 60-day period approved through WSA05-02. With support of the Council, the Board adopted this proposal, resulting in elimination of the caribou season for the entirety of the 2005-06 regulatory year.

The Federal public lands closures in Units 9C remainder and 9E were reviewed in 2005 (WCR05-04/06). The Council concurred with OSM's recommendation, which was to maintain the status quo given continued population decline and insufficient recruitment. At the same meeting, the Council voted to submit a proposal to close Federal public lands in Units 9C remainder and 9E to the harvest of

caribou by all users, effectively extending the closure that resulted from the Board's actions on WSA05-02 and WSA05-11. This proposal, WP06-22, was adopted by the Board, resulting in elimination of the Federal season for caribou in these units (BBRAC 2005). The State Tier II hunt was closed in 2005 as well.

The Council reviewed the Federal public lands closure again in 2010 (WCR10-04/06) and 2014 (WCR14-04/06). In response to the 2010 review, the Council voted in favor of maintaining the closure (BBRAC 2011). In response to the 2014 review, the Council voted to submit Proposal WP16-21 to modify the conditions of the hunt. Specifically, the Council requested that the closure be modified to allow caribou harvest by residents of 9C and 9E. The Council also requested that a may-be-announced caribou season be established in Units 9C remainder and 9E, noting that the State was considering opening a Tier II drawing hunt. The Council believed that it would be useful for Federal managers to have the flexibility to open a hunt on Federal lands as well, particularly considering the extent of Federal land in Unit 9 (BBRAC 2015). Proposal WP16-21 was considered by the Board at their April 2016 meeting. With the support of the Council, the Board adopted the proposal with modification to reduce the pool of eligible subsistence users on Federal public lands in Unit 9C remainder to residents of Unit 9C and Egegik, and on Federal public lands in Unit 9E to residents of 9E, Nelson Lagoon and Sand Point. The new Federal hunt coincided with 2016 changes in State regulations that opened a Tier II hunt (TC505).

In 2018, State harvest regulations for caribou in Unit 9 were again modified when the BOG acted on Proposals 125 and 127. As a result of the BOG's action on Proposal 125, the Tier II season for the NAPCH was extended throughout the TC505 permit area. In the portion of Unit 9C south of the north bank of the Naknek River, it was extended by 34 days to Aug. 10 – Oct. 10 and Nov. 1 – Feb. 28. In Unit 9E, it was extended by 20 days to Aug. 10 – Oct. 10 and Nov. 1 – Apr. 30. The BOG's action on proposal 127 resulted in the portion of Unit 9C north of the Naknek River and south of the Alagnak River drainage becoming part of the RC503 Mulchatna Caribou Herd (MCH) permit area, with an Aug. 1 – Mar. 31 season, rather than part of the NAPCH TC505 permit area.

The Board considered a similar change in 2018. Proposal WP18-21, submitted by the Council, in part requested that the caribou season in Unit 9C north of the Naknek River be changed from a may-be-announced season to an Aug. 1 – Mar. 15 season with a harvest limit of 2 caribou. This request was consistent with requested Federal regulation changes throughout the range of the MCH and similar to the new State regulations in this hunt area. The Board adopted WP18-21 with modification to create a new hunt area, removing the portion of Unit 9C that drains into the Naknek River from the north and Graveyard Creek and Coffee Creek from Unit 9C remainder. The Board's action effectively shifted the regulatory emphasis within the new hunt area from the NAPCH to the MCH, reflecting current distribution patterns of these two herds. Consequently, the Federal public lands closure within the new hunt area should be considered separately from the closure in Unit 9C remainder and Unit 9E, since they apply to different populations.

In 2019, State and Federal regulations changed in response to evidence that the MCH had declined significantly. ADF&G issued Emergency Order 04-03-19 on August 1<sup>st</sup>, which changed the harvest

limit from two caribou to one caribou range-wide. Subsequently, Wildlife Special Action request WSA19-07 was submitted for consideration by the Togiak and Yukon Delta National Wildlife Refuges. On November 5<sup>th</sup>, the Board adopted WSA19-07 with modification to close Units 18, 19A, 19B (excluding rural Alaska residents of Lime Village) to caribou hunting, except by Federally qualified subsistence users, with a harvest limit of one bull, and reduce the harvest limit in Units 9A, 9B, portions of 9C, 17A (all drainages west of Right Hand point), 17B, 17C (that portion in Unit 17C east of the Wood River and Wood River Lakes) to one caribou. The Board also approved temporary delegation of authority to the Togiak National Wildlife Refuge Manager to take management action, as appropriate, throughout the range of the MCH for the remainder of the season.

Unit 9C is comprised of 85% Federal Public Lands and consists of 78% NPS managed lands, 4% U.S. Fish and Wildlife Service (USFWS) managed lands and 4% Bureau of Land Management (BLM) managed lands. Unit 9E is comprised of 49% Federal public lands and consists of 44% USFWS managed lands and 5% NPS managed lands (**Figure 1**).

**Closure last reviewed:** 2014 – WCR14-04/06

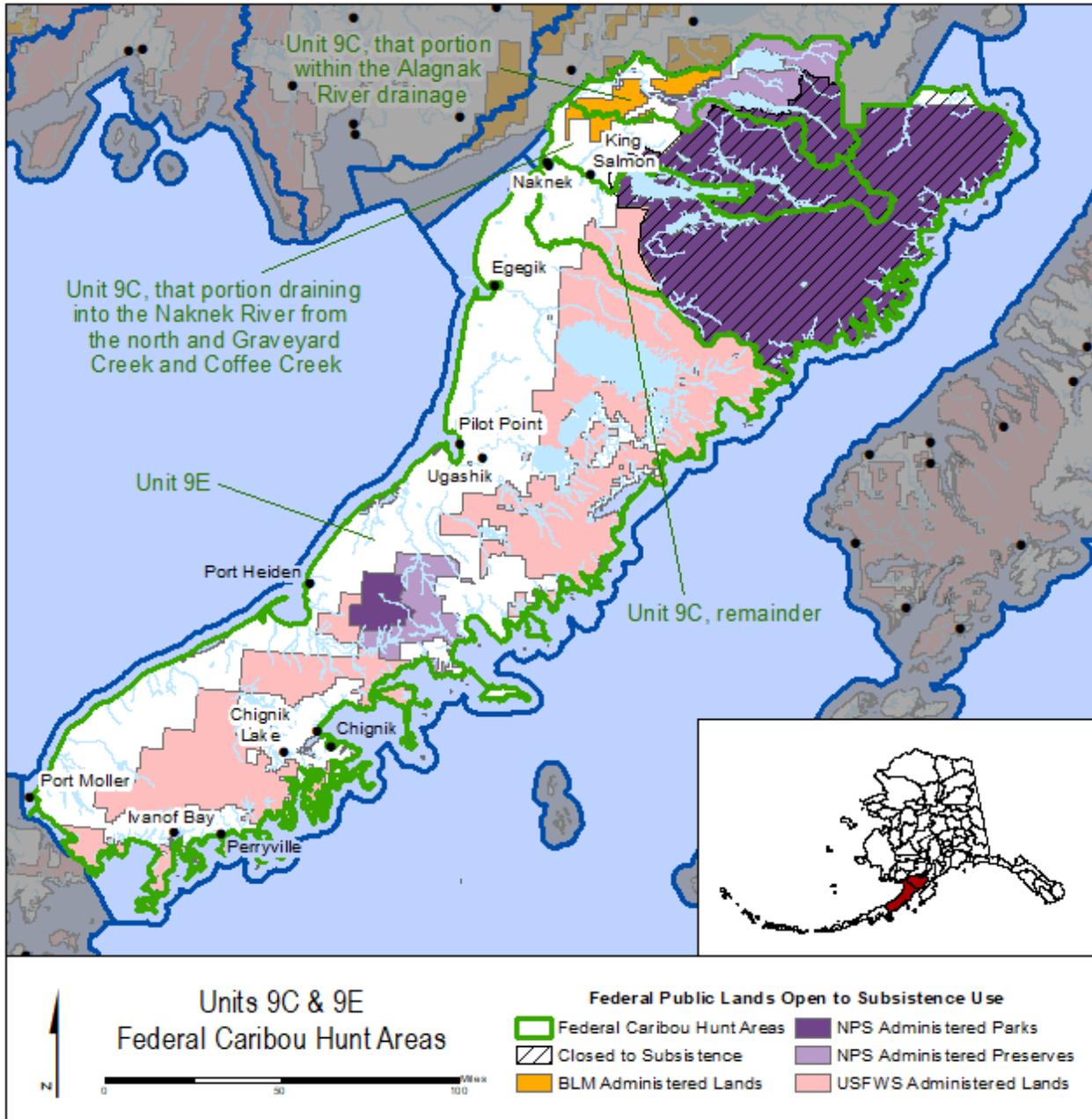
**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The original closure, in 1999, was initiated at a time when the population was declining and there was a need to ensure subsistence opportunity for local users. By 2006, when Federal public lands were closed to all users, the population had declined to a point that any harvest was unsustainable.

**Council Recommendation for Original Closure:**

The Council's actions in 1999 addressed both conservation concerns and the need to provide continued subsistence opportunity for local communities. Specifically, the Council supported more restrictive harvest limits and seasons due to declining population size. They also supported closing Federal public lands in Units 9C remainder and 9E to caribou harvest except by residents of Unit 9C and 9E. The Council believed it was reasonable to limit distribution of Federal permits to these users, considering who has a customary and direct dependence on the resource, who is in closest proximity to the resource, and who has access to alternative resources. In 2006, noting that recruitment was insufficient to offset adult mortality, the Council agreed that closing Federal public lands to all users was an appropriate compliment to the State's decision to close the State Tier II season.



**Figure 1.** Units 9C and 9E Federal caribou hunt areas.

**State Recommendation for Original Closure:**

In 1999, the State supported efforts to improve herd productivity by restricting harvest limits, reducing the season and limiting harvest through the use of quotas. In 2006, acknowledging the serious conservation concern, the State stopped issuing Tier II permits and supported closing the Federal caribou season.

## **Biological Background**

### Northern Alaska Peninsula Caribou Herd

Generally speaking, the NAPCH occupies Units 9C and 9E, from the Naknek River in the north to Port Moller in the south. It has varied considerably in size in the last century, ranging from approximately 2,000 during population lows to approximately 20,000 during population highs. These fluctuations in population size have been accompanied by shifts in distribution and movement patterns, likely due to impacts of population size on habitat quality. Following the most recent population peak in the mid-1980s, the herd began wintering north of the Naknek River. More recently, this northern range has become less important, with few caribou crossing to the north side of the Naknek River by 2000 (Crowley 2015).

The NAPCH experienced a steady multi-decade decline in population size between the mid-1980s and the mid-2010s, approximating historical lows of 2,000 caribou. Nutritional limitations have been implicated in the decline. In recent years, the population has showed a positive growth trend and is currently estimated to be approximately 3,800 caribou (**Table 1**), but remains well below the State's population objective of 12,000 – 15,000 caribou (Crowley 2014, 2015, 2016, 2019, pers. comm.).

Calf-cow ratios have improved markedly from the single digit ratios of the mid-2000s. At last count, in 2018, there were 35 calves:100 cows. Bull:cow ratios have also improved in the last decade. The two most recent surveys have estimated at least 70 bulls:100 cows, an improbably high number of bulls (**Table 1**). Regardless, the bull:cow ratios have shown an increasing trend and local biologists believe that the current bull:cow ratio exceeds the management objective of 35 bulls:100 cows (Crowley 2014, 2016, 2018 pers. comm.).

### Mulchatna Caribou Herd

Currently, the MCH range covers ~60,000 square miles, primarily within Units 9B, 9C, 17A, 17B, 17C, 18, 19A and 19B. This population has experienced dramatic changes in population size and distribution in the past 40 years. In the early 1980s, the population was estimated to include approximately 20,000 caribou. Its winter range included the north and west side of Iliamna Lake north of the Kvichak River, where it intermingled with the NAPCH. By the mid-1990s, the herd had grown to its peak size of approximately 200,000 caribou and had begun wintering in southern Unit 18 and southwestern Unit 19B. Subsequently, the herd began a period of decline that persisted until recently (Barten 2015).

In 2013, population estimate for the MCH was 18,308 caribou, the lowest estimate in over 30 years and well below the State's population objective of 30,000 – 80,000 caribou (**Table 2**). Estimates over the next three years indicated that the population had grown, approximating the lower bound of this population objective in 2015. However, the most recent estimate, obtained in July 2019, shows that the population is less than half of the State's minimum population objective, at 13,500 caribou (Barten 2017; ADF&G 2019a).

The MCH experienced a steady increase in the bull:cow ratio between 2010 and 2016. In 2016, the ratio was 39 bulls:100 cows, which is the highest estimate since the late 1990s (**Table 2**). The proportion of bulls classified as large in 2016 was 28%, which is among the highest estimates on record and is well above the long-term average of 19%. In 2017 and 2018, the bull:cow ratio declined to 32 bulls:100 cows, just below the State's management objective of 35 bulls:100 cows. Calf:cow ratios have been variable, which is typical of caribou herds occupying interior and southwest Alaska. In 2018, the calf:cow ratio was 34 calves:100 cows, among the highest on record but within the range of variability for this herd (Barten 2017, ADF&G 2019b).

**Table 1.** Northern Alaska Peninsula Caribou Herd composition counts and population estimates, 1984 – 2016 (Crowley 2014, 2016, 2019, pers. comm.).

Year	Bulls: 100 cows	Calves: 100 cows	% of Total bulls			Composition sample size	Population Estimate
			Small bulls	Medium bulls	Large bulls		
1984	39	39	67	16	17	1,087	20,000
1990	41	29	-	-	-	1,484	17,000
1991	42	47	54	34	12	1,639	17,000
1992	40	44	44	38	19	2,766	17,500
1993	44	39	52	29	19	3,021	16,000
1994	34	34	58	28	14	1,857	12,500
1995	41	24	49	29	22	2,907	12,000
1996	48	38	71	19	10	2,572	12,000
1997	47	27	54	31	14	1,064	10,000
1998	31	30	57	28	15	1,342	9,200
1999	40	21	58	30	12	2,567	8,600
2000	38	18	59	24	18	1,083	7,200
2001	49	28	61	24	15	2,392	6,300
2002	46	24	57	19	24	1,007	6,600
2003	36	11	46	30	24	2,776	-
2004	34	7	40	34	25	1,355	-
2005	23	7	37	41	22	1,914	-
2006	26	14	26	43	31	1,725	-
2007	27	7	29	38	33	1,719	-
2008	19	10	33	25	43	1,841	-
2009	19	16	30	35	35	2,126	-
2010	25	18	30	31	39	1,795	2,169 <sup>a</sup>
2011	26	20	26	37	37	2,395	2,321 <sup>a</sup>
2012	28	22	24	37	40	1,352	2,525 <sup>a</sup>
2013	31	21	26	41	33	2,076	2,708 <sup>a</sup>
2014	40	34	23	50	28	2,295	3,101 <sup>a</sup>
2015 <sup>b</sup>	38	29	53	29	18	2,122	3,411 <sup>a</sup>
2016	70 <sup>c</sup>	24	30	47	23	1,556	3,617 <sup>a</sup>
2017	-	-	-	-	-	-	-
2018	72 <sup>c</sup>	35	29	42	29	1,327	3,800 <sup>a</sup>

<sup>a</sup>Estimate based on simulation modeling.

<sup>b</sup>Survey limited to northern portion of NAP range.

<sup>c</sup>Likely biased high due to inability to locate entire herd

**Table 2.** Mulchatna Caribou Herd composition counts and population estimates, 1975 – 2016 (Barten 2017; ADF&G 2019a;2019b).

Year	Bulls: 100 cows	Calves: 100 cows	% of Total bulls			Composition sample size	Population Estimate
			Small bulls	Medium bulls	Large bulls		
1975	55	35	-	-	-	1,846	14,000
1978	50	65	-	-	-	758	7,500
1980	31	57	-	-	-	2,250	-
1981	53	45	-	-	-	1,235	20,600
1986	56	37	-	-	-	2,172	-
1987	68	60	-	-	-	1,858	52,500
1988	66	54	-	-	-	536	-
1993	42	44	-	-	-	5,907	150,000 <sup>a</sup>
1996	42	34	49	29	22	1,727	200,000 <sup>a</sup>
1998	41	34	28	43	29	3,086	-
1999	30	14	60	26	14	4,731	175,000 <sup>b</sup>
2000	38	24	47	33	20	3,894	-
2001	25	20	32	50	18	5,728	-
2002	26	28	57	30	13	5,734	147,000 <sup>b</sup>
2003	17	26	36	45	19	7,821	-
2004	21	20	64	29	7	4,608	85,000 <sup>b</sup>
2005	14	18	55	33	12	5,211	-
2006	15	26	57	34	9	2,971	45,000 <sup>b</sup>
2007	23	16	53	36	11	3,943	-
2008	19	23	47	36	17	3,728	30,000 <sup>b</sup>
2009	19	31	40	44	16	4,595	-
2010	17	20	30	44	26	4,592	-
2011	22	19	32	41	27	5,282	-
2012	23	30	38	38	24	4,853	22,809 <sup>c</sup>
2013	27	19	39	36	25	3,222	18,308 <sup>c</sup>
2014	35	30	44	31	25	4,793	26,275 <sup>c</sup>
2015	35	29	35	43	22	5,414	30,736 <sup>c</sup>
2016	39	22	43	29	28	5,195	27,242 <sup>c</sup>
2017	32	23	44	28	28	5,160	-
2018	32	34	-	-	-	-	-
2019	-	-	-	-	-	-	13,500 <sup>c</sup>

<sup>a</sup>Estimate derived from photo-counts, corrected estimates, subjective estimate of number of caribou in areas not surveyed, and interpolation between years when aerial photo surveys were not conducted.

<sup>b</sup>Estimate of minimum population size based on July photo census.

<sup>c</sup>Estimate based on Rivest et al. (1998) caribou abundance estimator.

## Harvest History

### Northern Alaska Peninsula Caribou Herd

Harvest of the NAPCH has varied considerably since 1990. These changes correspond to population size and harvest restrictions. Between 1990 and 1993, when the herd was large and seasons and

harvest limits were liberal, annual reported harvest approached or exceeded 800 caribou annually. Declining herd size, fluctuating distribution and more restrictive regulations resulted in reported harvests of 400 – 500 caribou between 1994 and 1999 (**Table 3**). Reported harvest during the 1990s was skewed heavily toward hunters residing outside of Units 9C and 9E. However, unreported harvest was high at an estimated 500 – 1,500 caribou annually, particularly among residents of Units 9C and 9E. Accounting for this, residents of Units 9C and 9E likely harvested a greater proportion than harvest data suggests (Sellers 1995, 1999).

**Table 3.** Reported harvest of the Northern Alaska Peninsula Caribou Herd 1990 – 2017, by sex. (Sellers 1995, 1999; ADF&G 2018b, 2019c).

Year	Harvest (number of caribou)			
	Total	Males	Females	Unknown Sex
1990	791	679	110	2
1991	806	688	115	3
1992	921	816	98	7
1993	1,345	1,165	175	5
1994	569	478	91	-
1995	533	486	47	-
1996	481	438	43	-
1997	482	446	36	-
1998	490	453	31	6
1999	155	147	8	-
2000	82	76	6	-
2001	95	87	8	-
2002	82	78	4	-
2003	128	122	6	-
2004	32	30	2	-
2005 <sup>a</sup>	-	-	-	-
2006 <sup>a</sup>	-	-	-	-
2007 <sup>a</sup>	-	-	-	-
2008 <sup>a</sup>	-	-	-	-
2009 <sup>a</sup>	-	-	-	-
2010 <sup>a</sup>	-	-	-	-
2011 <sup>a</sup>	-	-	-	-
2012 <sup>a</sup>	-	-	-	-
2013 <sup>a</sup>	-	-	-	-
2014 <sup>a</sup>	-	-	-	-
2015 <sup>a</sup>	-	-	-	-
2016	82	74	8	-
2017	58	42	16	-
2018	63	55	8	-

<sup>a</sup>No season



In 1999, following implementation of the State Tier II hunt, more restrictive Federal regulations, and implementation of the Federal public lands closure, reported harvest declined dramatically, averaging just 96 caribou per year between 1999 and 2004 (**Table 3**). User demographics shifted as well, with at least 90% of the reported harvest attributable to local users, defined here as those who are currently eligible to harvest caribou on Federal public lands in either Unit 9C remainder or in Unit 9E (residents of Units 9C, 9E, Sand Point and Nelson Lagoon). Legal harvest ceased in 2005, following closure of the State and Federal hunting seasons (ADF&G 2018b).

Federal and State seasons were reestablished in 2016. Since then, harvest has averaged 68 caribou annually (**Table 3**), all of which were taken by local users. On average, harvest was 84% bulls, and 64% of reporting hunters were successful. Nearly two-thirds of the total harvest was taken during the winter hunt, between December and April. September and December were the most popular months, with an average of 19% of the total harvest occurring during each of these months (ADF&G 2018b, 2019c). Local biologists believe that the NAPCH can sustain a 4% harvest rate (150 caribou) and continue to grow (BOG 2018). Local State and Federal managers have the authority to manage for this quota through Emergency Orders and Special Actions. The quota has not been exceeded since seasons were opened in 2016.

#### Mulchatna Caribou Herd

Like the NAPCH, harvest from the MCH has declined significantly as a result of declining population size and more restrictive harvest regulations (**Table 4**). Harvest among all user groups has declined since 2000, but is especially pronounced among non-local residents and nonresidents due to regulatory restrictions. Since 2009, local users, defined as those with a customary and traditional use determination, have harvested 84% of the total reported MCH harvest. Of total reported harvest, 8% has occurred in Unit 9C since 2009.

#### **OSM Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

#### **Justification**

OSM recommends that the Federal public lands closure in the portion of Unit 9C draining into the Naknek River from the north and Graveyard Creek and Coffee Creek be rescinded, while the closures within Units 9C remainder and 9E be retained. This recommendation is consistent with the Board's 2018 decision to adjust the regulatory structure in Unit 9C to reflect current distributions of the NAPCH and the MCH.

Although the NAPCH wintered north of the Naknek River following the population peak of the mid-1980s, movement and distribution patterns have changed and this area is no longer considered important for the NAPCH. Rather, the MCH is currently the predominate occupant of the lands north of the Naknek River. Though the MCH is currently quite small, the majority of harvest from the MCH

occurs outside of Unit 9C. While a Federal public lands closure for the MCH may be warranted in the future, such an action would be most effective if taken range-wide. Administratively, it is cleaner to rescind this vestigial closure and take any additional required action specifically on behalf of the MCH.

The NAPCH remains the population of concern in Unit 9C remainder and Unit 9E. Although this population has also shown improvement in population size and bull:cow and calf:cow ratios in recent years, it remains well below the established population size objective. The current management approach, which includes the State's Tier II hunt, limiting harvest on Federal lands to those with customary and direct dependence on the resource, and a harvest quota managed by Emergency Order/Special Action, appears to be effective in allowing harvest while supporting population growth. Consequently retaining the Federal public lands closure within Units 9C remainder and 9E is appropriate and likely offers the best opportunity for continued recovery of the NAPCH.

**Table 4.** Reported harvest from the Mulchatna Caribou Herd 2000 – 2018, by game management unit (ADF&G 2017, 2019c).

Year	Harvest (number of caribou)												Unknown
	Total	Unit 9A	Unit 9B	Unit 9C	Unit 9E	Unit 17A	Unit 17B	Unit 17C	Unit 18	Unit 19A	Unit 19B	Unit 19C	
2000	4022	3	601	55	0	77	1867	346	134	199	740	0	0
2001	3941	1	653	117	0	114	1617	215	378	108	738	0	0
2002	2693	1	324	26	0	16	1512	197	248	53	316	0	0
2003	3123	6	401	84	0	16	1127	320	672	64	433	0	0
2004	2380	4	325	104	0	36	1002	247	469	24	169	0	0
2005	2135	0	330	117	0	41	629	334	525	38	121	0	0
2006	956	1	178	10	0	22	256	95	315	21	58	0	0
2007	799	1	16	188	0	17	136	6	374	15	46	0	0
2008	546	0	21	152	0	25	76	10	234	3	25	0	0
2009	318	0	12	2	0	5	38	39	217	0	5	0	0
2010	469	0	3	6	0	4	38	32	376	0	10	0	0
2011	474	0	37	208	0	2	40	66	116	0	5	0	0
2012	348	0	29	27	0	3	28	41	218	0	2	0	0
2013	106	0	11	1	0	1	38	6	40	0	2	1	6
2014	182	0	14	2	1	1	40	21	88	1	10	0	4
2015	235	0	15	0	0	4	60	26	119	1	4	0	6
2016	330	0	29	5	0	25	76	55	131	0	6	0	2
2017	440	2	16	1	0	18	74	135	187	1	4	0	1
2018	238	0	8	5	0	0	72	41	52	0	4	0	56

## LITERATURE CITED

- ADF&G. 2017. Winfonet. Retrieved: April 12, 2017.
- ADF&G. 2018a. Annual report to the Alaska Board of Game on intensive management for caribou with wolf predation control in Game Management Units 9B, 17B & C, and 19A & B, the Mulchatna Caribou Herd. February 2018. ADF&G, Division of Wildlife Conservation. Juneau, AK.
- ADF&G. 2018b. Winfonet. Retrieved: July 12, 2018.
- ADF&G. 2019a. Mulchatna caribou hunt bag limit changes to one caribou. August 22, 2019. <http://www.adfg.alaska.gov/static/applications/webintra/wcnews/2019/releases/08-26-2019b.pdf>. Retrieved: August 29, 2019.
- ADF&G. 2019b. Annual report to the Alaska Board of Game on intensive management for caribou with wolf predation control in game management units 9B, 17B&C, and 19A&B, the Mulchatna Caribou Herd. [http://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.unit\\_9b\\_17b\\_17c\\_19a\\_19b#anchor](http://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.unit_9b_17b_17c_19a_19b#anchor). Retrieved: September 4, 2019.
- ADF&G. 2019c. Winfonet. Retrieved: August 27, 2019.
- BBRAC. 2005. Transcripts of the Bristol Bay Subsistence Regional Advisory Council proceedings. October 7, 2005. Dillingham, AK. Office of Subsistence Management, USFWS. Anchorage, AK
- BBRAC. 2011. Transcripts of the Bristol Bay Subsistence Regional Advisory Council proceedings. March 9, 2011. Naknek, AK. Office of Subsistence Management, USFWS. Anchorage, AK
- BBRAC. 2015. Transcripts of the Bristol Bay Subsistence Regional Advisory Council proceedings. February 25, 2015. Naknek, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- BOG. 2018. Audio transcripts of the Alaska Board of Game proceedings. February 16 – 23, 2018. Dillingham, AK. ADF&G. Juneau, AK.
- Barten, N.L. 2015. Mulchatna herd caribou. Units 9B, 17, 18 south, 19A, and 19B. Pages 3-1 – 3-22 in P. Harper and L.A. McCarthy, eds. Caribou management report of survey-inventory activities 1 July 2012 – 30 June 2014. ADF&G. Juneau, AK.
- Barten, N.L. 2017. Fall 2017 Mulchatna caribou herd composition survey. Unpublished memo. ADF&G. Dillingham, AK. 8 pp.
- Crowley, D.W. 2014. Northern Alaska Peninsula caribou herd fall composition and population survey. Unpublished memo. ADF&G. King Salmon, AK. 3 pp.
- Crowley, D.W. 2015. Units 9C and 9E, Northern Alaska Peninsula caribou. Pages 4-1 – 4-12 in P. Harper and L.A. McCarthy, eds. Caribou management report of survey-inventory activities 1 July 2012 – 30 June 2014. ADF&G. Juneau, AK.

Crowley, D.W. 2016. Units 9 and 10 caribou composition survey. Unpublished memo. ADF&G. King Salmon, AK. 5 pp.

Crowley, D.W. 2018. Wildlife Biologist. Personal communication: email. ADF&G. King Salmon, AK.

Crowley, D.W. 2019. Wildlife Biologist. Personal communication: email. ADF&G. King Salmon, AK.

Rivest, L.P., S. Couturier, H. Crépeau. 1998. Statistical methods for estimating caribou abundance using postcalving aggregations detected by radio telemetry. *Biometrics*. 54(3): 865-876.

Sellers, R.A. 1995. Units 9C and 9E, Northern Alaska Peninsula caribou. Pages 38 – 46 *in* M.V. Hicks, eds. Caribou management report of survey-inventory activities 1 July 1992 – 30 June 1994. ADF&G. Juneau, AK.

Sellers, R.A. 1999. Units 9C and 9E, Northern Alaska Peninsula caribou. Pages 35 – 46 *in* M.V. Hicks, eds. Caribou management report of survey-inventory activities 1 July 1996 – 30 June 1998. ADF&G. Juneau, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Bristol Bay Subsistence Regional Advisory Council**

**Modify the closure** for WCR20-04/06. The Council supported the OSM conclusion to rescind the Federal public lands closure in the portion of Unit 9C draining into the Naknek River from the north and Graveyard Creek and Coffee Creek, and to retain the Federal public lands closures in Unit 9C remainder and Unit 9E. The Council noted that residents of the area desire additional opportunities to harvest caribou, but don't believe that the Northern Alaska Peninsula herd is ready for additional harvest pressure. The Council agreed with the OSM conclusion there is no reason to retain the Federal public lands closure north of the Naknek River, the area occupied by the Mulchatna caribou herd.

### **Kodiak/Aleutians Subsistence Regional Advisory Council**

The Kodiak Aleutians Subsistence Regional Advisory Council was briefed on WCR20-04/06 but did not take action.

## **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee (ISC) agrees with the OSM conclusion and the Bristol Bay Subsistence Regional Advisory Council recommendation to retain the Federal public lands closures in Unit 9C remainder and Unit 9E. The ISC also agrees with rescinding the Federal public lands closure in the portion of Unit 9C draining into the Naknek River from the north and Graveyard Creek and Coffee Creek, on the basis that the original justification for the closure was based on conservation concerns for the NAPCH, which no longer ranges within this area. Still, the Board may consider retaining a closure in this area to support the recovery of the MCH for which there are concurrent conservation concerns. The area comprises only a small portion of the MCH range and therefore a closure here may have only limited benefits to the conservation of the MCH.

## **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

## WCR20-38 Executive Summary

<p><b>General Description</b></p>	<p>Closure Review WCR20-38 reviews the closure to moose hunting in a portion of Unit 18, except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag.</p>
<p><b>Current Regulation</b></p>	<p><b>Unit 18—Moose</b></p> <p><i>Unit 18—that portion east of a line running from the mouth of the Ishkowiik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (60°59.41' N. Latitude; 162°22.14' W. Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager</i></p> <p><i>Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag</i></p>
<p><b>OSM Conclusion</b></p>	<p><b>Maintain status quo</b></p>
<p><b>Yukon Kuskokwim Delta Subsistence Regional Advisory Council Recommendation</b></p>	<p><b>Maintain status quo</b></p>

<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-38**

**Closure Location:** Unit 18—Moose

**Current Federal Regulation**

**Unit 18—Moose**

*Unit 18—that portion east of a line running from the mouth of the Ishkowiik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (60°59.41' N. Latitude; 162°22.14' W. Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver to the outlet at Arhymot Lake, then following the south bank east of the Unit 18 border and then north of and including the Eek River drainage—1 antlered bull by State registration permit; quotas will be announced annually by the Yukon Delta National Wildlife Refuge Manager* Sep. 1 – 30

*Federal public lands are closed to the taking of moose except by residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautlauk, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 18—Moose**

*Residents: Unit 18, Kuskokwim area, that portion easterly of a line from the mouth of the Ishkowiik River to the closest point of Dall Lake, then to the east bank of the Johnson River at its entrance into Nunavakanukakslak Lake (60°59.41' N. Latitude; 162°22.14' W. Longitude), continuing upriver along a line 1/2 mile south and east of, and paralleling a line along the southerly bank of the Johnson River to the confluence of the east bank of Crooked Creek, then continuing upriver along the east bank of Crooked Creek, then continuing upriver along the east bank of Crooked Creek to the outlet at Arhymot Lake, then following the south bank of Arhymot Lake easterly to the Unit 18 boundary, and north of and including the Eek River drainage—one antlered bull by permit available in person at ADF&G in Bethel and* RM615 Sep. 1 – 20



*villages within the hunt area from Aug. 1 – Aug. 25. Quota to be announced. Season will be closed by emergency order when quota is reached.*

**Regulatory Year Initiated:** 1991

### **Regulatory History**

Federal public lands in the Kuskokwim area have been closed to non-Federally qualified users since 1991, when the Federal Subsistence Board (Board) acted on Proposal P91-124. Submitted by the Togiak National Wildlife Refuge, P91-124 requested that the moose season in the southern portion of Unit 18, including the Kanektok and Goodnews River drainages, be closed to allow establishment of a harvestable population. The Board adopted this proposal with modification to close Federal public lands throughout Unit 18 to moose harvest, except by Federally qualified subsistence users, given low moose densities throughout Unit 18.

Until 2004, Federal and State moose harvest limits for the lower Kuskokwim River area were one bull or one antlered bull, and the fall seasons were approximately one month. The State winter season varied widely from a continuous fall/winter season (Sep. 1–Dec. 31) to a 10-day December season and a winter “to be announced” season. The Federal winter season has varied from a 10-day season to a “to be announced” season.

Both the Federal and State seasons were closed in the fall of 2004 as part of a coordinated effort to build the Kuskokwim moose population. In 2003, at the request of local residents, the Alaska Board of Game (BOG) established a five-year moratorium on moose hunting under State regulations. The Board adopted Proposal WP04-51 in April 2004 that established a five-year moratorium on Federal public lands. The intent of the moratorium was to promote colonization of underutilized moose habitat. The moratorium was largely instigated by the Lower Kuskokwim Fish and Game Advisory Committee, which worked with the Alaska Department of Fish and Game, USFWS, and area residents to close the moose season for five years or when a population of 1,000 moose was counted in the lower Kuskokwim survey unit. Considerable outreach efforts were made to communicate the impact of the moratorium on the growth potential of the affected moose population to local communities.

In March 2009, the BOG established a registration hunt (RM615), in preparation for ending the moratorium on June 30, 2009. A Sep. 1 – 10 season was established, with a harvest limit of one antlered bull by registration permit. The season was closed when the quota was met. In November 2009, the BOG adopted a proposal that changed the boundary separating the Unit 18 lower Kuskokwim area from the Unit 18 remainder area.

In May 2010, the Board adopted Proposals WP10-58 and WP10-62, with modification to make boundary changes similar to the BOG actions. Adoption of these proposals helped to clarify the boundary for moose hunters and law enforcement. At the same meeting in May 2010, the Board adopted Proposal WP10-54 with modification to reduce the pool of Federally qualified subsistence users eligible to hunt moose on Federal public lands within the lower Kuskokwim. This was necessary

because of the small number of moose available to harvest relative to the large number of subsistence users with a customary and traditional use determination for moose (42 communities including Bethel).

Special action requests were approved to establish Federal moose seasons in the lower Kuskokwim hunt area in 2010 and 2012. In 2010, Emergency Wildlife Special Action WSA10-02 was approved to establish a Sep. 1 –5 moose season. In 2012, Emergency Wildlife Special Action WSA12-06 was approved to establish a Sep. 1 – 30 moose season. The harvest quota was set prior to the start of the season and the harvest limit was one antlered bull via a State registration permit.

In April 2014, the Board adopted WP14-27 with modification, establishing a Federal moose season in the lower Kuskokwim area. The Sep. 1 – 30 season had a harvest limit of one antlered bull by State registration permit. The Yukon Delta National Wildlife Refuge manager was delegated the authority to establish an annual quota and close the season once the quota was met.

In August 2018, the Tuluksak Native Community submitted Emergency Special Action Request WSA18-02, requesting that the Board open the moose season early in the Kuskokwim hunt area to accommodate a food shortage emergency. The Board approved this request with modification to open an Aug. 18 – 31 emergency season only to residents of Tuluksak, with a quota of seven antlered bulls by Federal registration permit.

Unit 18 is comprised of 67% Federal public lands and consists of 64% U.S. Fish and Wildlife Service managed lands and 3% Bureau of Land Management managed lands (**Figure 1**).

**Closure last reviewed:** 2014 – WP14-27

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

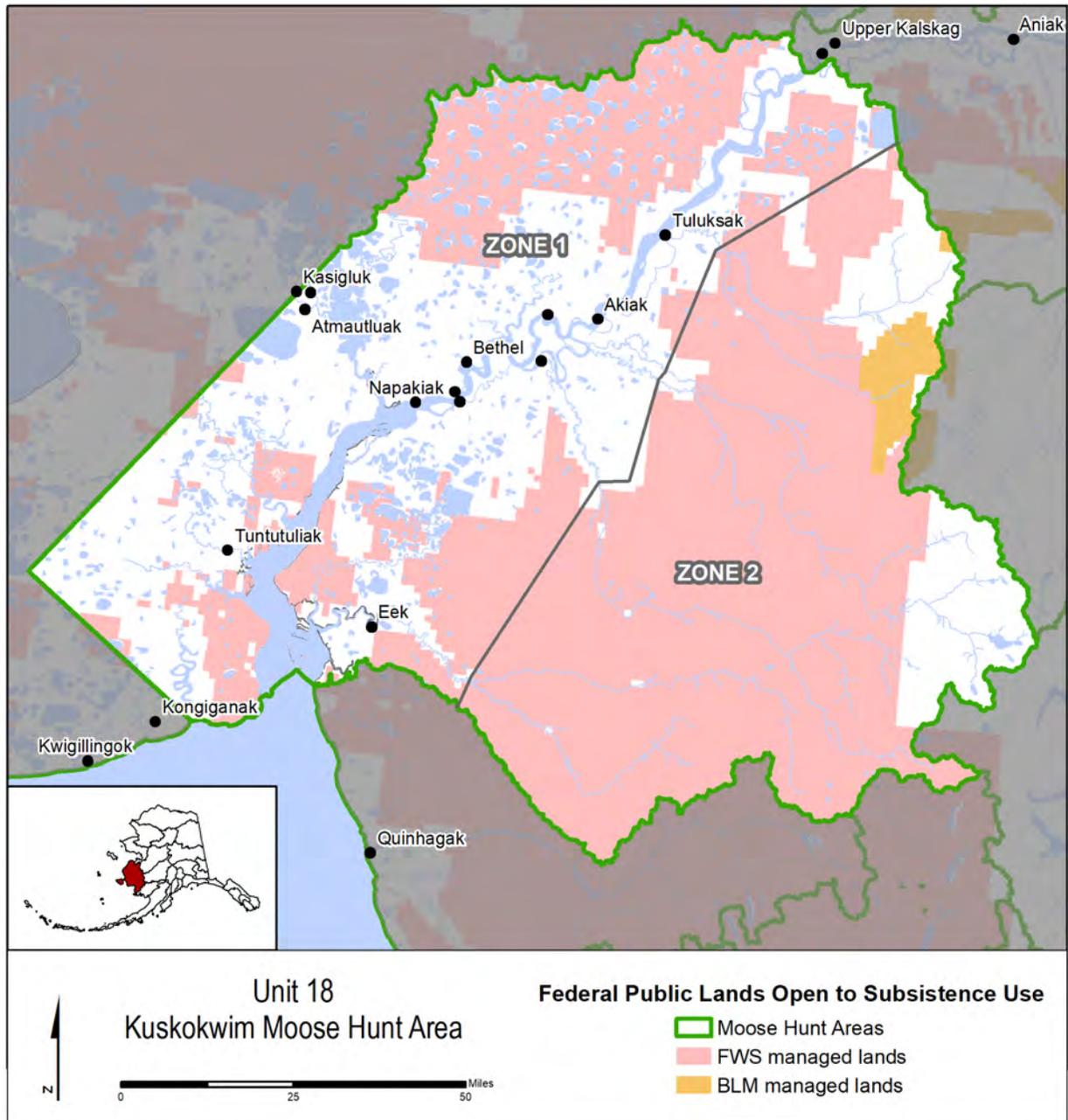
Given low moose densities throughout Unit 18, closure of Federal public lands except to Federally qualified subsistence users provided rural users a subsistence priority.

**Council Recommendation for Original Closure:**

This closure was initiated prior to the formation of the Regional Advisory Councils in 1993.

**State Recommendation for Original Closure:**

Apart from the southernmost drainages, the State did not support closure of Federal public lands in Unit 18 to non-Federally qualified users, arguing that a closure was not warranted in terms of biological information or demands for moose by local users.



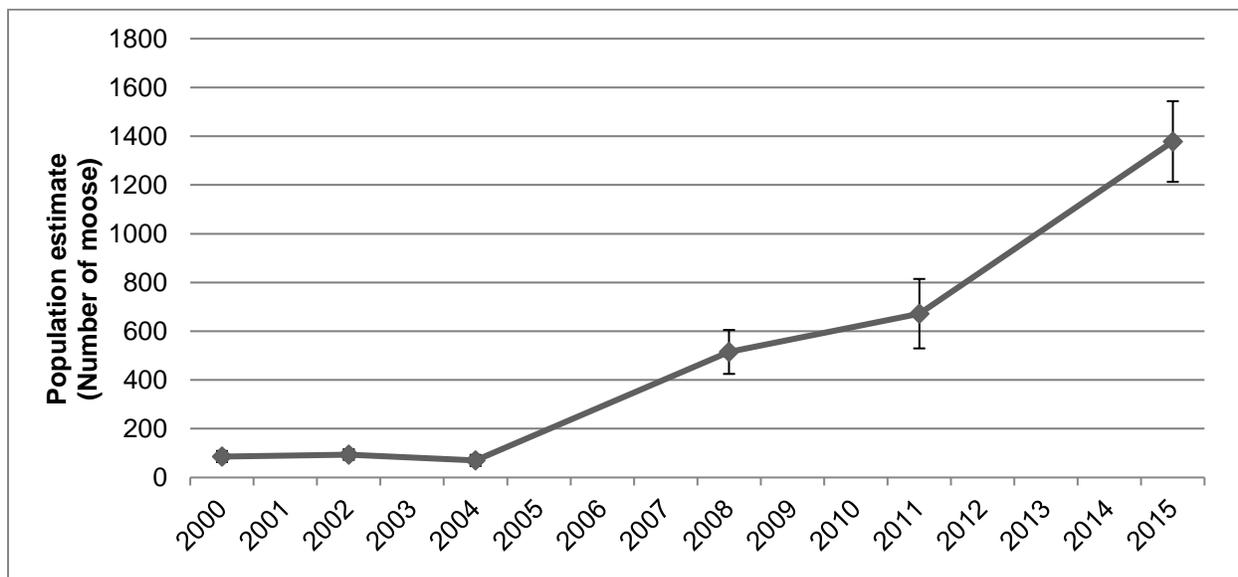
**Figure 1.** Land status and hunting zones in the Unit 18 Kuskokwim moose hunt area.

### Biological Background

Moose are believed to have begun colonizing the Yukon-Kuskokwim Delta in the 1940s (Perry 2014). By the 1990s, when this closure was initiated, moose densities throughout much of Unit 18 were very low. While established populations existed in the far eastern portions of Unit 18, moose were only sparsely distributed throughout much of the unit. Harvested moose were likely to be immigrants from other areas, rather than part of a local breeding population (FSB 1991), and hunting pressure was effective in limiting growth of the moose population along the Kuskokwim corridor (Perry 2014). The 2004 – 2008 hunting moratorium was effective in establishing a harvestable population, and current

indicators suggest that the population along the Kuskokwim main stem and in its tributaries continues to grow.

The most recent population survey of the lower Kuskokwim survey area, which includes the main stem riparian corridor between Kalskag and Kwethluk, occurred in 2015. At that time, the population was estimated to be 1,378 moose, or 1.6 moose/mile<sup>2</sup> (**Figure 2**). This represents an annual growth rate of 20% between 2011 and 2015. At last count, the Kuskokwim moose population remained below the State's population objective of at least 2,000 moose in this area (Perry 2014). Browse surveys indicate that the population is about half of what it could be (YKDRAC 2017a).



**Figure 2.** Estimated moose population size along the main stem of the Kuskokwim River, 2000 – 2015 (Perry 2014; Jones 2018, pers. comm.)

Composition estimates for the main stem were last obtained in 2016, when there were 70 bulls:100 cows and 56 calves:100 cows (Jones 2018, pers. comm.). The bull:cow ratios, which were quite high during the harvest moratorium, declined when harvest resumed in 2009 but have remained consistently above the minimum objective of 30 bulls:100 cows (**Table 1**). Bull:cow ratios in the Kuskokwim tributaries are also reported to be high (Rearden 2018, pers. comm.).

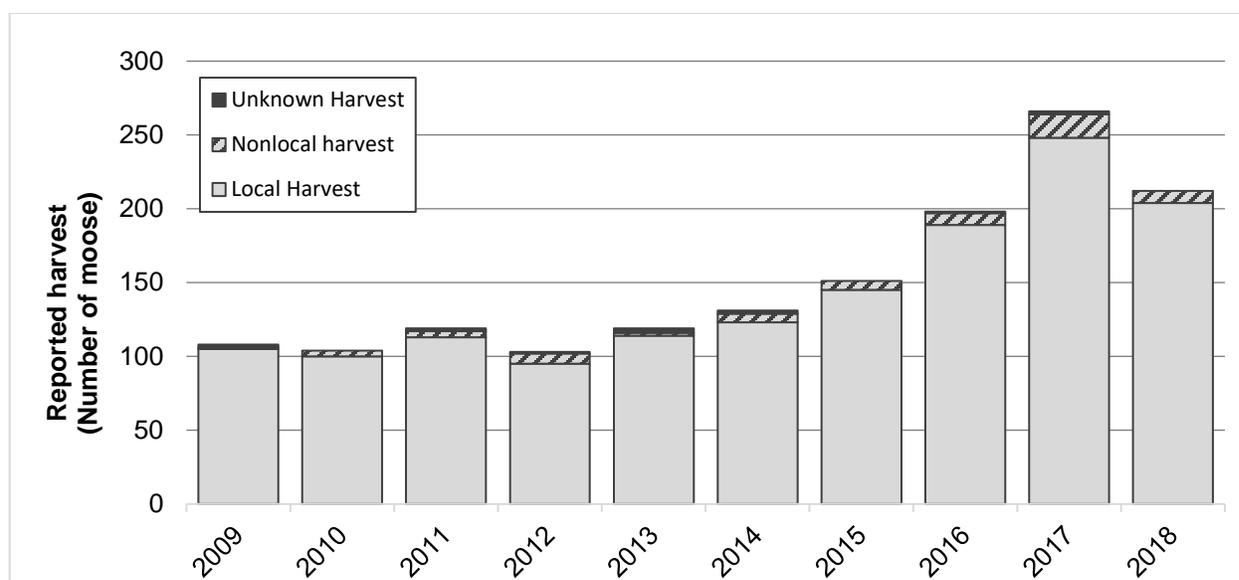
**Table 1.** Composition estimates for moose along the main stem of the Kuskokwim River, 2007 – 2016 (YDNWR 2015, Jones 2018, pers. comm.).

Year	Bulls:100 cows	Calves:100 cows
2007	98	73
2009	52	49
2010	51	49
2013	41	71
2016	70	56

### Harvest History

Following the harvest moratorium, moose harvest on non-Federal lands was allowed under State regulation, beginning in 2009. In 2010, harvest on Federal public lands was opened to a subset of Federally qualified subsistence users, including residents of Tuntutuliak, Eek, Napakiak, Napaskiak, Kasigluk, Nunapitchuk, Atmautluak, Oscarville, Bethel, Kwethluk, Akiachak, Akiak, Tuluksak, Lower Kalskag, and Kalskag. In this analysis, this user group will be referred to as local users.

Since 2009, reported harvest has averaged 151 moose annually (ADF&G 2019a). Notably, reported harvest has increased over the past several years, doubling between 2014 and 2017 (**Figure 3**). Local users have taken 95% of the reported moose harvest in the Kuskokwim hunt area since 2009, with 30% of the harvest attributable to residents of Bethel. However, non-local use is increasing, from 2 harvest reports in 2013 to 16 in 2017 (**Figure 3**). Non-local users that report harvesting moose are primarily Federally qualified subsistence users from coastal communities of Unit 18, but also include a few users from southcentral Alaska (ADF&G 2019a).



**Figure 3.** Reported moose harvest by RM615 in the Kuskokwim hunt area, 2009 – 2018 (ADF&G 2019a).

Despite increases in quotas and harvest, demand still outweighs moose availability. Since 2009, an average of approximately 1,450 hunters have obtained permits to harvest moose in the Kuskokwim hunt area each year, but only 10% of permit holders have successfully harvested moose (ADF&G 2019a). The disparity between demand and the relatively small quotas has routinely resulted in emergency closure of the State season within days of its opening (**Table 2**). This has resulted in some frustration among locals, who note that short unpredictable seasons make planning difficult. Local residents have also commented on the challenges of hunting in early September in recent years, given warm conditions that make proper meat care difficult. To this end, many subsistence users have advocated for a later moose season (YKDRAC 2017b).

**Table 2.** State and Federal moose seasons, 2011 – 2018 (Rearden 2018, pers. comm.; ADF&G 2019b; Jones 2019, pers. comm.).

Year	Scheduled season dates		Actual season dates		Actual season length (number of days)	
	State	Federal	State	Federal	State	Federal
2011	Sep. 1 - 10	Sep. 1 - 5	Sep 1 - 6	Sep 1 - 6	6	6
2012	Sep. 1 - 10	Sep. 1 - 10	Sep. 1 - 8	Sep. 1 - 8	8	8
2013	Sep. 1 - 10	Sep. 1 - 10	Sep. 1 - 6	Sep. 1 - 6	6	6
2014	Sep. 1 - 10	Sep. 1 - 10	Sep. 1 - 4	Sep. 1 - 4	4	4
2015	Sep. 1 - 10	Sep. 1 - 8	Sep. 1 - 4	Sep. 1 - 8	4	8
2016	Sep. 1 - 10	Sep. 1 - 15	Sep. 1 - 5	Sep. 1 - 15	5	15
2017 <sup>a</sup>	Sep. 1 - 10	Sep. 1 - 25	Sep. 1 - 5	Sep. 1 - 25	5	25
2018 <sup>a</sup>	Sep. 1 - 10	Sep. 1 - 30	Sep. 1 - 7	Sep. 1 - 30	7	30

<sup>a</sup> The State season corresponds to Zone 1 and the Federal season corresponds to Zone 2.

In an effort to better serve users in an area of checkerboard land status, State and Federal managers adjusted the structure of the hunt in 2017, introducing a zone-based hunt (**Figure 1**). An important feature of the zones is that, while they correspond roughly to State and Federal lands, they are delineated by easily identifiable geographical features (e.g. river confluences). Each of the two zones is managed with its own harvest quota. Zone 1, which is comprised primarily of State lands, is located along the main stem of the Kuskokwim River. The season and harvest quota for the main stem hunt are managed by ADF&G. Zone 2 is comprised primarily of Federal public lands, including those in the Tuluksak, Kisaralik, Kasigluk and Eek river drainages (“tributaries”). The season and harvest quota in the tributary hunt is managed by the Refuge (Rearden 2018, pers. comm.; YKDRAC 2017a).

There is more demand for moose in Zone 1, along the main stem, compared to Zone 2, in the tributaries. This is evidenced by the rate at which the quota is met within each zone, and the corresponding season length. On average, the main stem hunt has been open fewer than six days annually since 2011, and the quota has been met or exceeded most years. For the hunt in the tributaries, the quota has only been met one time, in 2014, despite increasing season lengths (**Tables 2 and 3**). Local managers report that hunting in the tributaries is difficult, requiring specialized boats,

longer travel times, and more fuel. Heavy vegetation along the banks contributes to the difficulty. It is believed that the unmet quota is a function of these difficulties, rather than lack of need for moose meat (YKDRAC 2017a, YKDRAC 2017b, Rearden 2018, pers. comm.).

**Table 3.** State and Federal moose quotas and harvest, 2011 – 2018 (Rearden 2018, pers. comm.; ADF&G 2019b; Jones 2019, pers. comm.).

Year	Quota (number of moose)			Harvest (number of moose)			
	State	Federal	Total	State	Federal	Unknown	Total
2011	81	19	100	93	11	15	119
2012	81	19	100	82	17	4	103
2013	81	19	100	89	21	9	119
2014	81	19	100	93	15	23	131
2015	110	45	155	105	31	15	151
2016	150	90	240	136	44	14	194
2017 <sup>a</sup>	170	110	280	186	80	0	266
2018 <sup>a</sup>	170	110	280	142	70	0	212

<sup>a</sup> The State season corresponds to Zone 1 and the Federal season corresponds to Zone 2.

#### OSM Conclusion:

- maintain status quo**
- modify or eliminate the closure**

#### Justification

Despite recent increases in population size and harvest quotas, demand for moose still far outweighs the harvestable surplus of the Kuskokwim moose population. The problem of unmet demand is exacerbated by the difficulty of the hunt in the tributaries, as evidenced by unmet Federal quotas over the past three years. Retaining the Federal public lands closure ensures that the fifteen communities who have demonstrated the most dependence on this resource continue to have a subsistence priority on Federal public lands. It also provides an opportunity for the Federal manager to explore options for improving access to moose for Federally qualified subsistence users on Federal public lands.

#### LITERATURE CITED

ADF&G. 2018. Winfonet. Retrieved: July 30, 2018.

FSB. 1991. Transcripts of the Federal Subsistence Board proceedings. March 6, 1991. Office of Subsistence Management, USFWS. Anchorage, AK.

Jones, P. 2018. Wildlife biologist. Personal communication: email. ADF&G. Bethel, AK.

Perry, P. 2014. Unit 18 moose management report. Chapter 20, pages 20-1 – 10-17 in P. Harper and L.A. McCarthy, eds. Moose management report of survey and inventory activities 1 July 2011 – 30 June 2013. ADF&G. Juneau, AK.

Rearden, S. 2018. Wildlife biologist. Personal communication: email. USFWS. Bethel, AK.

YDNWR. 2015. Unpublished survey report. USFWS. Bethel, AK. 5 pp.

YKDRAC. 2017a. Transcripts of the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council proceedings. October 12 – 13, 2017. Bethel, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

YKDRAC. 2017b. Transcripts of the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council proceedings. February 15 – 16, 2017. Bethel, AK. Office of Subsistence Management, USFWS. Anchorage, AK.



**SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION****Yukon Kuskokwim Delta Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-38. The Council had lengthy discussion with staff about this Kuskokwim drainage hunt area of Unit 18 and the effected villages. The Council voted to maintain the closure to all but Federally qualified subsistence users on Federal public lands in this hunt area in support of the communities in this region that have a greater need for moose then they can currently harvest. The Council learned that while the moose population is growing, the current subsistence demand for moose if far greater than the current harvest quota. The Council stressed Federal subsistence priority should be maintained and any additional moose available to harvest should go to local residents of the communities in this hunt area before opening the area to non-federally qualified users.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

<b>WCR20-40 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-40 reviews the closure to moose hunting in Unit 18, south of and including the Kanektok River drainages to the Goodnews River drainage to all users.
<b>Current Regulation</b>	<p style="text-align: center;"><b>Unit 18–Moose</b></p> <p style="text-align: center;"><i>Unit 18—south of and including the Kanektok River drainages to the Goodnews River drainage. Federal public lands are closed to the taking of moose by all users</i>      <i>No open season</i></p>
<b>OSM Preliminary Conclusion</b>	<b>Modify the closure</b>
<b>OSM Conclusion</b>	<b>Take No Action</b>
<b>Yukon Kuskokwim Delta Subsistence Regional Advisory Council Recommendation</b>	<b>Modify the closure</b> to open Unit 18 south of the Kanektok River to only Federally qualified subsistence users.
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-40**

**Closure Location:** Unit 18—Moose

**Current Federal Regulation**

**Unit 18—Moose**

*Unit 18—south of and including the Kanektok River drainages to the Goodnews River drainage. Federal public lands are closed to the taking of moose by all users* *No open season*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 18—Moose**

*Residents: Unit 18—south of the Eek River drainage and north of the Goodnews River drainage—one antlered bull* *HT Sep. 1 – 30*

**Regulatory Year Initiated:** 1991

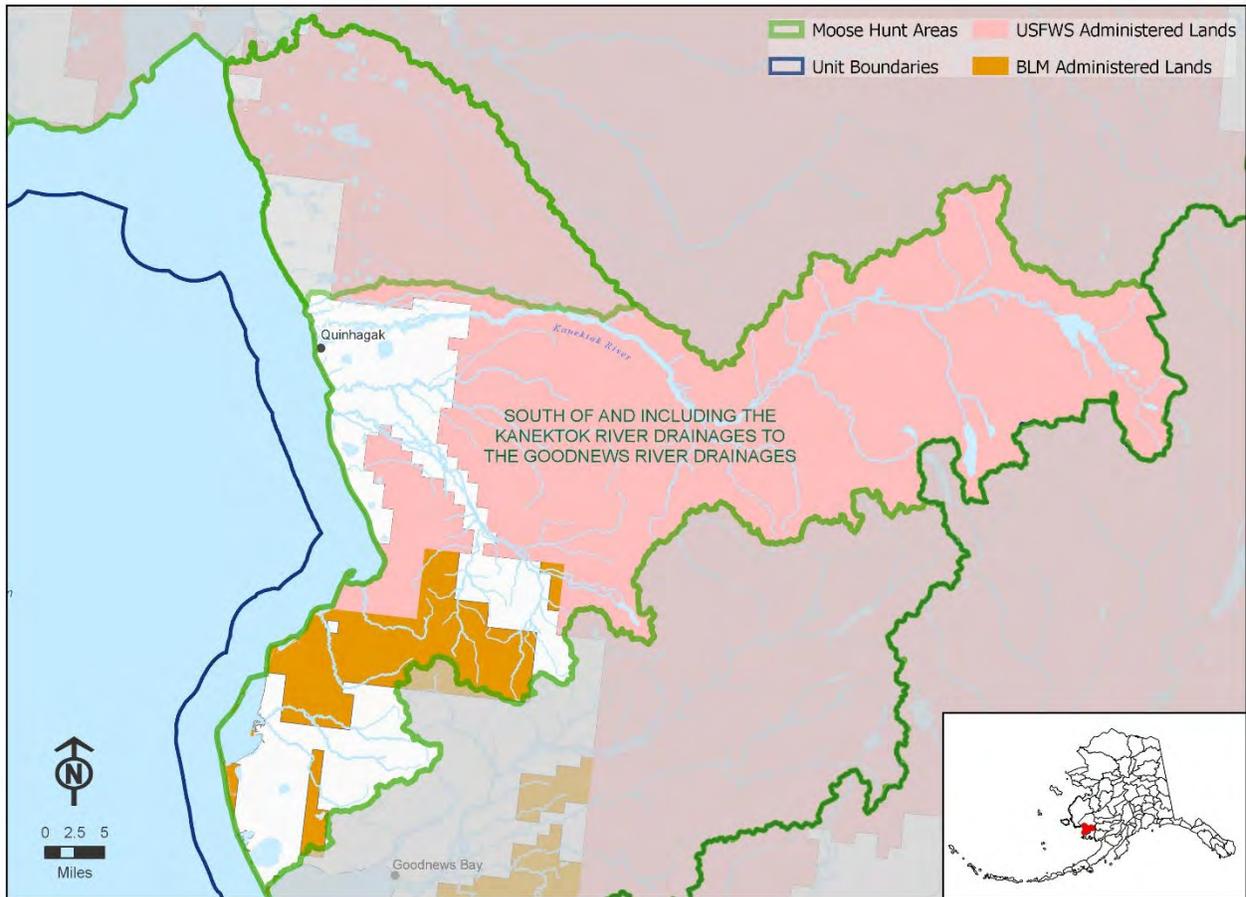
**Regulatory History**

Federal public lands in the Kanektok and Arolik River drainages have been closed to the harvest of moose since 1991. That year, the Federal Subsistence Board (Board) considered Proposal P91-124, submitted by the Togiak National Wildlife Refuge. P91-124 requested that the moose season in the southern portion of Unit 18, including the Kanektok and Goodnews River drainages, be closed to allow for the establishment of a harvestable moose population. The Board adopted this proposal with modification to close Federal public lands to moose harvest throughout Unit 18, resulting in the original Federal public lands closure in this area.

The closure in its current form was established in 2008, following the Board's action on proposal WP08-34. Prior to 2008, the portion of Unit 18 south of and including the Kanektok River drainage was a single hunt area. The Board's action divided the hunt area into two, rescinding the Federal public lands closure in the southernmost portion of Unit 18 south of and including the Goodnews River drainage, and retaining it in the portion of Unit 18 including the Kanektok and Arolik River drainages.

Since then, there have been two attempts to establish a Federal moose season in this area. Proposal WP10-61 and special action request WSA14-01 were both submitted by the Native Village of Quinhagak IRA Council. Each requested the establishment of a Sep. 1 – 30 moose season with a harvest limit of one antlered bull by State registration permit. However, these requests were rejected due to ongoing conservation concerns. If these changes had been adopted, the Federal regulations for this hunt would have mirrored the State regulations, which were initiated in 2005 and have not changed.

Unit 18 is comprised of 67% Federal public lands and consists of 64% U.S. Fish and Wildlife Service managed lands and 3% Bureau of Land Management managed lands (**Figure 1**).



**Figure 1.** Moose hunt area in the portion of Unit 18 south of and including the Kanektok River drainage to the Goodnews River drainage.

**Closure last reviewed:** 2014 – WSA14-01

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife,*

*for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

In 1991, there were few moose in the southern portion of Unit 18. Most moose that were harvested from the area were immigrants from other areas to the north and east. The existing seasons that allowed for the harvest of one bull by subsistence users, other residents and non-residents did not allow for the assurance of a stable and continuing population. It was believed that management should be directed towards rebuilding and establishing a harvestable population, given that the available habitat in this area was capable of supporting more moose than were present.

#### **Council Recommendation for Original Closure:**

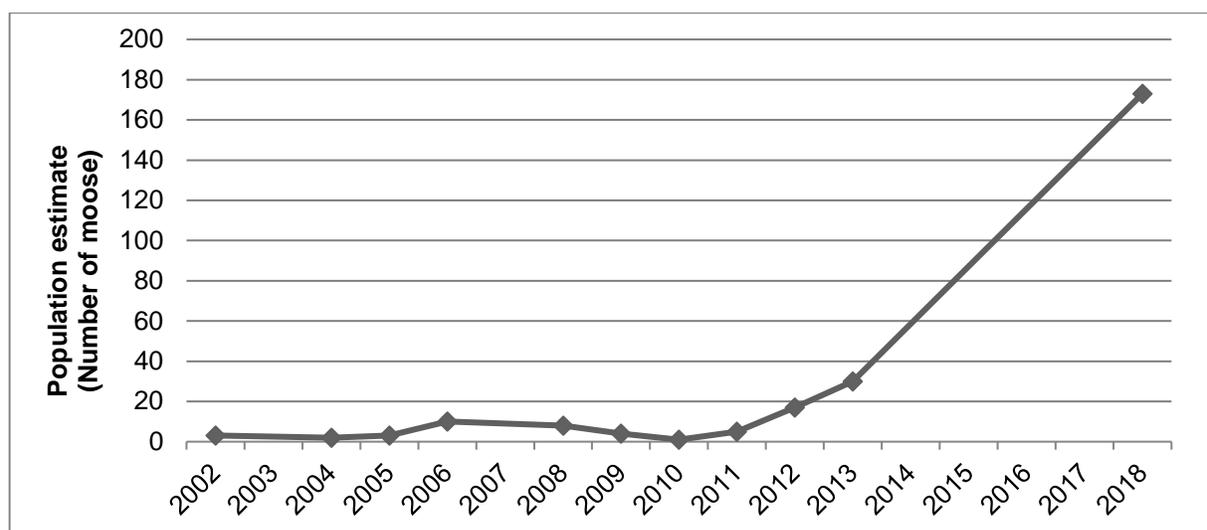
This closure was initiated prior to the formation of the Regional Advisory Councils in 1993.

#### **State Recommendation for Original Closure:**

The State supported closing the moose season in southern Unit 18 in principle, given the desire to establish a resident moose population in the area. However, they were concerned about implementation without local concurrence, and recommended deferring closure decisions until local buy-in was secured.

#### **Biological Background**

Prior to the early 2000s, moose were not commonly observed in southern Unit 18. Early population growth is attributed to emigration from adjacent Unit 17A, with high calf recruitment sustaining growth (Aderman 2014). Minimum population counts, obtained by the Togiak National Wildlife Refuge as part of their Refuge-wide moose monitoring program, show substantial recent growth of the moose population in this area (**Figure 2**). In 2002, only 3 moose were observed in the Kanektok and Arolik drainages, and at last count, in 2018, 173 moose were observed (Aderman 2018, pers. comm.). This represents a 42% annual growth rate between 2013 and 2018.



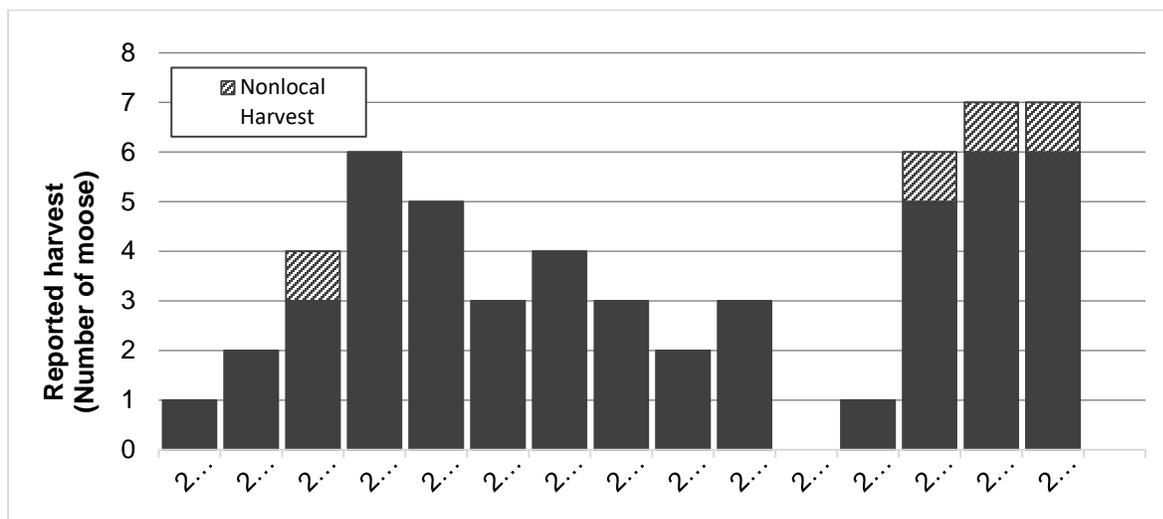
**Figure 2.** Estimated moose population size (minimum count) in the Kanektok and Arolik river drainages, 2002 – 2018 (Aderman 2014, Aderman 2018, pers. comm.).

Recent composition surveys showed that there were 48 bulls:100 cows in 2016 and 43 bulls:100 cows in 2017. These surveys showed 41 calves:100 cows in 2016 and 29 calves:100 cows in 2017. Refuge biologists believe that these estimates are likely biased high for bulls and biased low for calves (Aderman 2019, pers. comm.)

Recent growth of the Kanektok/Arolik moose population is similar to that previously exhibited by the Unit 17A and Goodnews River moose populations. In these areas, early surveys revealed few to no moose. Then, over a period of several years, the population increased rapidly and now supports harvest on both Federal and State lands. The population in the Goodnews hunt area, in particular, may provide context for understanding when it is appropriate to modify the Federal public lands closure in the Kanektok/Arolik hunt area, given similarities in size, location, land status, and human population size. In the Goodnews hunt area, State and Federal seasons were established in 2008, when the population exceeded a threshold of 100 moose. Subsequent population growth was sufficient to establish may-be-announced winter seasons in 2017 and 2018. This appears to validate that the timing for initiating harvest was not premature.

**Harvest History**

Harvest within the Kanektok and Arolik drainages is allowed under State regulation, by harvest ticket. Reported harvest is dominated by local users, defined here as Federally qualified subsistence users (residents of Unit 18, Upper Kalskag and Lower Kalskag). Between 2003 and 2018, reported harvest was 61 moose (Figure 3). Of those, 90% (55 moose) were taken by local users. Residents of Quinhagak, the only community located within the hunt area, harvested 70% (43 moose) of the total reported harvest during this time period. Only 2 moose were reported harvested by residents of Eek, the nearest community to the proposed Federal addition (ADF&G 2019b). While reported harvest is low, averaging just four moose per year, observations by local biologists in the past decade indicate that at least some illegal harvest occurs (Aderman 2014). The magnitude of noncompliance is unknown.



**Figure 3.** Reported harvest in the Kanektok and Arolik river drainages, 2003 – 2017 (ADF&G 2017, Jones 2018, pers. comm.).

**OSM Preliminary Conclusion:**

- maintain status quo
- modify or eliminate the closure

**Justification**

The moose population in the Goodnews/Arolik hunt area has increased significantly in recent years. Reported harvest is low, and moose in this hunt area are taken almost exclusively by Federally qualified subsistence users. While unreported harvest is believed to occur and may be significant, it has not outpaced production or prevented population growth.

Given the relative newness of this population, the small area it occupies, and the lack of published population objectives, it can be difficult to find context for assessing future management actions. However, the adjacent Goodnews moose population likely provides an adequate model. Assuming so, establishing a season on Federal lands is appropriate at this time. The first step is modifying or rescinding the Federal public lands closure.

Full rescission of the Federal public lands closure will allow for development of parallel Federal and State regulations, which will ease the burden of compliance for Federally qualified subsistence users. The approach used in all neighboring moose hunts, from the Kuskokwim River drainage to Bristol Bay, is to require a State registration permit in both State and Federal regulation. If administered similar to adjacent hunts, where permits are only available locally, this approach runs little risk of attracting an influx of non-local hunters and thus poses little risk to the moose population. This approach would require concurrence from local State and Federal managers, and would also require changes in the State hunt structure.

An intermediate approach could be considered if there is reluctance to require a State registration permit. In that case, Federal public lands could be opened only to Federally qualified subsistence users, giving them a definitive priority on Federal lands. This approach requires no changes in State regulations, but would increase regulatory complexity in this hunt area.

Neither of the above approaches are likely to result in significant additional harvest, given the current user base and the availability of mechanisms to prevent an influx of non-local users. Either approach could be combined with the use of quotas, which would further guard against overharvest. Finally, both approaches represent an increase in subsistence opportunity and pose little threat to the conservation status of this population.

## ANALYSIS ADDENDUM

### OSM Conclusion

**Take no action** on WCR20-40.

### Justification

Action taken on Wildlife Proposal WP20-32/33, which addresses the Federal public lands closure in the Kanektok/Arolik hunt area, will satisfy the requirements of this closure review. That analysis includes a comprehensive overview of all associated regulatory requests and actions (Wildlife Closure Review WCR20-40, Wildlife Special Action WSA19-01, Wildlife Proposal WP20-32/33), including feedback from the public, tribes, and the Council.

### LITERATURE CITED

Aderman, A.R. 2014. Demographics and Home Ranges of Moose at Togiak National Wildlife Refuge, Southwest Alaska, 1998 – 2013. Unpublished report. USFWS, Togiak National Wildlife Refuge. Dillingham, AK.

Aderman, A.R. 2018. Wildlife biologist. Personal communication: phone & email. Togiak National Wildlife Refuge. Dillingham, AK.

Aderman, A.R. 2019. Wildlife biologist. Personal communication: phone & email. Togiak National Wildlife Refuge. Dillingham, AK.

ADF&G. 2017. Winfonet. Retrieved: June 28, 2017.

Jones, P. 2018. Wildlife biologist. Personal communication: email. Alaska Department of Fish and Game. Bethel, AK.



**SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION****Yukon Kuskokwim Delta Subsistence Regional Advisory Council**

**Modify the closure** for WCR20-40 to open Unit 18 south of the Kanektok River to only Federally qualified subsistence users. The Council discussed that this area has been closed with no moose hunt allowed on Federal public lands. The Council believes that now that the moose population has been growing slowly enough to support a hunt, the subsistence communities in the hunt area should have the first priority to harvest moose and open to only Federally qualified subsistence users at this time. The Council also suggests further consultation with the effected communities in this hunt area: Eek, Quinhagak and Goodnews Bay.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

<b>WP20–36/37 Executive Summary</b>	
<b>General Description</b>	<p>Proposal WP20-36 requests establishing a 15-day March moose season in a portion of Unit 21D, resulting in the creation of a new hunt area, eliminating the March to be announced moose season in Unit 21D remainder, requiring a State registration permit in the Koyukuk Controlled Use Area (Koyukuk CUA), and eliminating the March and April to be announced moose seasons in the Koyukuk CUA. <i>Submitted by: Koyukuk/Nowitna/Innoko National Wildlife Refuge.</i></p> <p>Proposal WP20-37 requests establishing a 15-day to-be-announced moose season between Dec. 1-31 and a 15-day may-be-announced season between Mar. 1-31 in a portion of Unit 21D, resulting in the creation of a new hunt area. The March season would be announced if the harvest quota is not met during the December hunt. <i>Submitted by: Western Interior Alaska Subsistence Regional Advisory Council</i></p>
<b>Proposed Regulation</b>	See pages 944-946 for proposed regulatory language.
<b>OSM Conclusion</b>	<p><b>Support</b> Proposal WP20-36 <b>with modification</b> to clarify regulatory language and to delegate authority to the Koyukuk/Nowitna/Innoko Refuge manager to announce season dates, harvest quotas, and sex restrictions via delegation of authority letter only (<b>Appendix 1</b>) and <b>take no action</b> on WP20-37.</p> <p>See pages 960-961 for modified regulatory language.</p>
<b>Western Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<p><b>Oppose</b> Proposal WP20-36 and <b>Support</b> Proposal WP20-37 <b>with modification</b> to define the December hunt area for a portion of Unit 21D as “that area southeast of Kaiyuh Slough and Nine-Mile Camp to Bonanza Creek Drainage to the Kaiyuh Mountains, and south to the Unit 21D boundary.”</p> <p>See pages 964-965 for modified regulatory language.</p>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>Support</b> Proposal WP20-36 and <b>Oppose</b> Proposal WP20-37

**WP20–36/37 Executive Summary**

<b>Written Public Comments</b>	<b>None</b>
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## STAFF ANALYSIS

### WP20-36/37

#### ISSUES

Wildlife Proposal WP20-36, submitted by Koyukuk/Nowitna/Innoko National Wildlife Refuge (Refuge), requests establishing a 15-day March moose season in a portion of Unit 21D, resulting in the creation of a new hunt area, eliminating the March to be announced moose season in Unit 21D remainder, requiring a State registration permit in the Koyukuk Controlled Use Area (Koyukuk CUA), and eliminating the March and April to be announced moose seasons in the Koyukuk CUA.

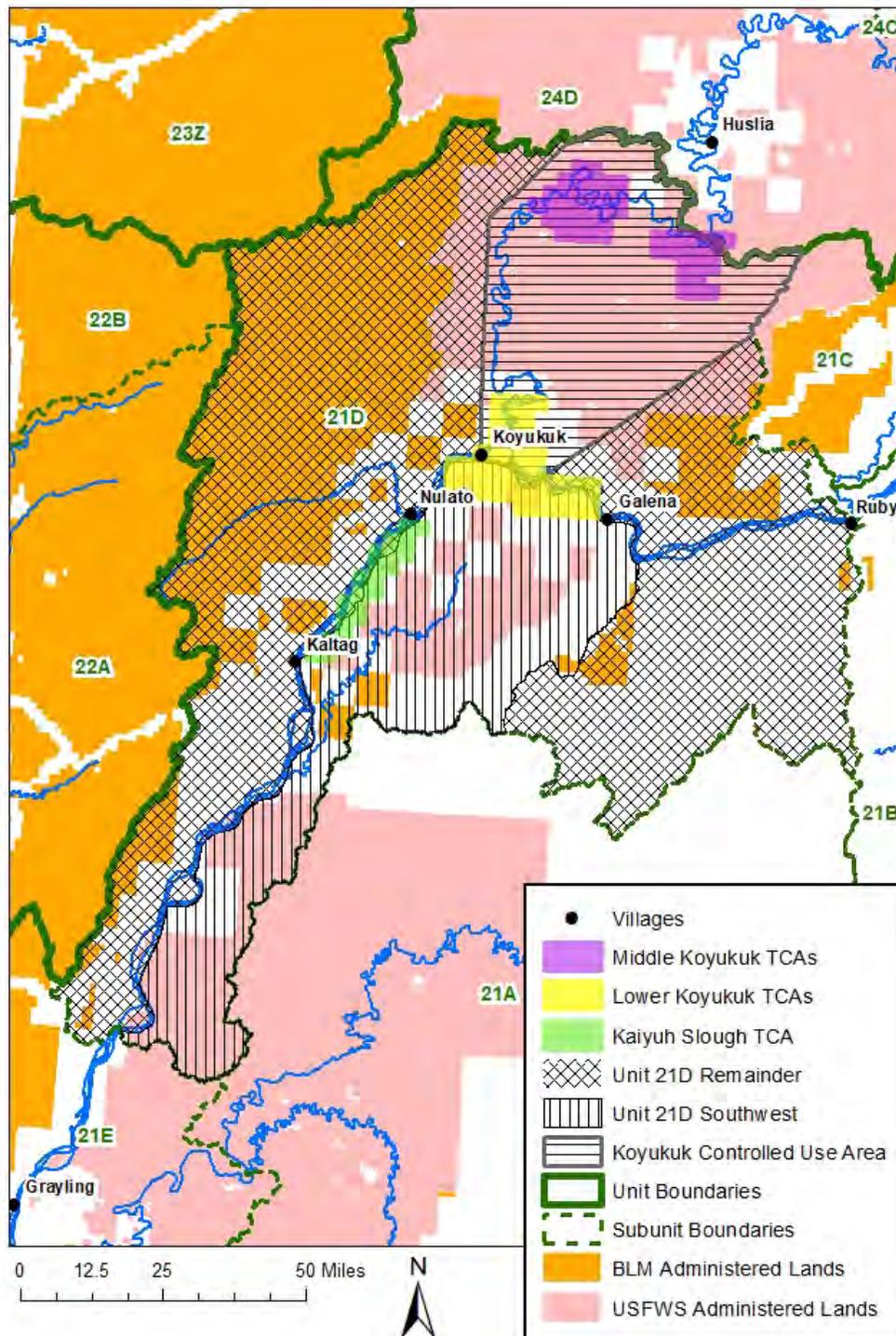
Wildlife Proposal WP20-37, submitted by the Western Interior Alaska Subsistence Regional Advisory Council (Western Interior Council), requests establishing a 15-day to-be-announced moose season between Dec. 1-31 and a 15-day may-be-announced season between Mar. 1-31 in a portion of Unit 21D, resulting in the creation of a new hunt area. The March season would be announced if the harvest quota is not met during the December hunt.

#### DISCUSSION

Overall, the Refuge's intent is to align State and Federal regulations in Unit 21D to mitigate regulatory complexity and reduce user confusion. Unit 21D has a checkerboard pattern of land ownership, making it very difficult for users to know whether or not they are on Federal or non-Federal lands. The Alaska Board of Game (BOG) recently established a 15-day winter moose season in Unit 21D, that portion south of the South Bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek (Unit 21D Southwest) (**Map 1**). The Refuge requests establishing an identical hunt area and to-be-announced winter season to maintain consistency and to provide additional subsistence opportunity under Federal regulations. The Refuge anticipates little competition from non-local residents during this season, as Unit 21D is remote and moose have no trophy value during March. The removal of the to-be-announced seasons in Unit 21D remainder and the Koyukuk CUA is intended to simplify regulations by aligning with the State. These seasons have never been opened since they were established in 2004, because local moose populations have not supported additional harvest opportunities. Similarly, requiring a State registration permit for the Koyukuk CUA simplifies regulations by aligning State and Federal permitting and reporting requirements for harvesting bulls in the fall (a Federal permit would still be required for cow harvest, if authorized by the in-season manager). The Refuge also states that the State registration permit system provides a reliable way for users to obtain permits and report harvests due to the accessibility of village vendors and online resources.

The Western Interior Council states that a 15-day December season in Unit 21D Southwest would provide additional harvest opportunity for Federally qualified subsistence users who did not harvest a moose in the fall. Harvesting a moose in December rather than March would provide valuable meat to families over the winter. The proponent proposes that a harvest quota will be announced annually,

and if any harvest quota remains after the December season ends, another season will be announced in March. The proponent submitted a similar proposal to the Alaska Board of Game (BOG).



**Map 1.** Proposed Federal and current State hunt areas for moose in Unit 21D. Unit 21D Southwest is an abbreviation for Unit 21D, that portion south of the South Bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek. Moose surveys are conducted annually in the trend count areas (TCAs).

**Existing Federal Regulation**

**Unit 21D—Moose**

*Unit 21D—Koyukuk Controlled Use Area—1 bull; 1 antlerless moose by Federal permit if authorized by announcement by the Koyukuk/Nowitna NWR manager. Harvest of cow moose accompanied by calves is prohibited. A harvestable surplus of cows will be determined for a quota* *Sep. 1-25.  
Mar. 1-5  
season to be  
announced.*

*OR*

*1 antlered bull by Federal permit, if there is no Mar. 1-5 season and if authorized by announcement by the Koyukuk/Nowitna NWR manager and BLM Central Yukon field office manager. A harvestable surplus of bulls will be determined for a quota. Announcement for the March and April seasons and harvest quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and Middle Yukon and Koyukuk River Fish and Game Advisory Committee.* *Apr. 10-15  
season to be  
announced.*

*Unit 21D, remainder—1 moose; however, antlerless moose may be taken only during Sep. 21-25 and the Mar. 1-5 season if authorized jointly by the Koyukuk/Nowitna National Wildlife Refuge Manager and the Central Yukon Field Office Manager, Bureau of Land Management. Harvest of cow moose accompanied by calves is prohibited. During the Aug. 22-31 and Sep. 5-25 seasons, a State registration permit is required. During the Mar. 1-5 season, a Federal registration permit is required. Announcement for the antlerless moose seasons and cow quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and the Middle Yukon Fish and Game Advisory Committee* *Aug. 22-31.  
Sep. 5-25.  
Mar. 1-5  
season to be  
announced.*

**Proposed Federal Regulation**

WP20-36

**Unit 21D—Moose**

*Unit 21D—Koyukuk Controlled Use Area—1 bull **by State registration permit**; 1 antlerless moose by Federal permit if authorized by announcement by the* *Sep. 1-25.  
~~Mar. 1-5~~  
~~season to be~~*

*Koyukuk/Nowitna NWR manager. Harvest of cow moose accompanied by calves is prohibited. A harvestable surplus of cows will be determined for a quota* ~~announced.~~

**OR**

~~*1 antlered bull by Federal permit, if there is no Mar. 1-5 season and if authorized by announcement by the Koyukuk/Nowitna NWR manager and BLM Central Yukon field office manager. A harvestable surplus of bulls will be determined for a quota. Announcement for the March and April seasons and harvest quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and Middle Yukon and Koyukuk River Fish and Game Advisory Committee.*~~ ~~Apr. 10-15 season to be announced.~~

***Unit 21D, that portion south of the South Bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek – 1 moose; however, antlerless moose may be taken only during Sep. 21-25 season if authorized jointly by the Koyukuk/Nowitna National Wildlife Refuge Manager and the Central Yukon Field Office Manager, Bureau of Land Management. Antlerless moose may also be harvested during the State, to be announced, 15 day March winter registration hunt. Harvest of cow moose accompanied by calves is prohibited. During the Aug. 22-21 and Sep. 5-25, and March to be announced seasons, a State registration permit is required. Announcement for the antlerless moose seasons and cow quotas for the Sep. 21-25 season, will be made after consultations with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and the Middle Yukon Fish and Game Advisory Committee.*** Aug. 22-31. Sep. 5-25. March to be announced 15 day season

~~*Unit 21D, remainder—1 moose; however, antlerless moose may be taken only during Sep. 21-25 and the Mar. 1-5 season if authorized jointly by the Koyukuk/Nowitna National Wildlife Refuge Manager and the Central Yukon Field Office Manager, Bureau of Land Management. Harvest of cow moose accompanied by calves is prohibited. During the Aug. 22-31 and Sep. 5-25 seasons, a State registration permit is required. During the Mar. 1-5 season, a Federal registration permit is required. Announcement for the antlerless moose seasons and cow quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and the Middle Yukon Fish and Game Advisory Committee*~~ Aug. 22-31. Sep. 5-25. ~~Mar. 1-5 season to be announced.~~

WP20-37

**Unit 21D — Moose**

*Unit 21D—Koyukuk Controlled Use Area—1 bull; 1 antlerless moose by Federal permit if authorized by announcement by the Koyukuk/Nowitna NWR manager. Harvest of cow moose accompanied by calves is prohibited. A harvestable surplus of cows will be determined for a quota*

*Sep. 1-25.  
Mar. 1-5 season to be announced.*

OR

*1 antlered bull by Federal permit, if there is no Mar. 1-5 season and if authorized by announcement by the Koyukuk/Nowitna NWR manager and BLM Central Yukon field office manager. A harvestable surplus of bulls will be determined for a quota. Announcement for the March and April seasons and harvest quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and Middle Yukon and Koyukuk River Fish and Game Advisory Committee.*

*Apr. 10-15 season to be announced.*

***Unit 21D, that portion south of the South bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek – 1 moose by State registration permit. However, antlerless moose may be taken only during Sep. 21-25 and the Dec. and Mar. seasons. Harvest of cow moose accompanied by calves is prohibited. A 15 day season will be announced in Dec. If the harvest quota, which is announced annually is not met, then another 15 day season will be announced in Mar.***

***Aug. 22-31.  
Sep. 5-25.  
Dec. 1 – Dec. 31, season to be announced***

***Mar. 1 – Mar. 31 season may be announced.***

*Unit 21D, remainder—1 moose; however, antlerless moose may be taken only during Sep. 21-25 and the Mar. 1-5 season if authorized jointly by the Koyukuk/Nowitna National Wildlife Refuge Manager and the Central Yukon Field Office Manager, Bureau of Land Management. Harvest of cow moose accompanied by calves is prohibited. During the Aug. 22-31 and Sep. 5-25 seasons, a State registration permit is required. During the Mar. 1-5 season, a Federal registration permit is required. Announcement for the antlerless moose seasons and cow quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and the Middle Yukon Fish and Game Advisory Committee*

*Aug. 22-31.  
Sep. 5-25.  
Mar. 1-5 season to be announced.*



**Existing State Regulation**

**Unit 21D — Moose**

*Unit 21D, that portion within the Koyukuk Controlled Use Area*

*Residents – 1 bull by permit, available at a check station established by the department, Huslia or Hughes beginning Aug. 30. Trophy value must be destroyed.* RM832 Sep. 1-25

*OR*

*Residents – 1 bull by permit* DM828/830 Sep. 5-25

*Nonresidents – 1 bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit* DM823/825 Sep. 5-25  
/827/829

*Unit 21D, that portion south of the South bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek*

*Residents - 1 moose, by permit available online at <http://hunt.alaska.gov> or in person at ADF&G in Galena and Fairbanks. However, a person may not take a cow accompanied by a calf.* RM831 May be announced

*Residents – 1 bull by permit available online at <http://hunt.alaska.gov> or in person at license vendors in Units 21V, 21D, 24, and ADF&G in Fairbanks, beginning Aug. 8. Trophy value must be destroyed.* RM834 Aug. 22-31.  
Sep. 5- 25.

*OR*

*Residents - 1 bull by permit* DM816-818 Sep. 5- 25.

*Nonresidents – 1 bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit* DM816-818 Sep. 5-25

*Unit 21D, remainder*

*Residents – 1 bull by permit available online at <http://hunt.alaska.gov> or in person at license vendors in Units 21V, 21D, 24, and ADF&G in Fairbanks, beginning Aug. 8. Trophy value must be destroyed.* RM834 Aug. 22-31  
Sep. 5-25

*OR*

*Residents - 1 bull by permit* DM814/816 Sep. 5-25  
-818/820

*Nonresidents – 1 bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit* DM815-820 Sep. 5-25

## **Extent of Federal Public Lands/Waters**

Unit 21D is comprised of 56% of Federal public lands and consists of 29% U.S. Fish and Wildlife Service (USFWS) and 26% Bureau of Land Management (BLM) managed lands.

## **Customary and Traditional Use Determinations**

Residents of Unit 21D, Huslia, and Ruby have a customary and traditional use determination for moose in Unit 21D.

## **Regulatory History**

The Koyukuk CUA was established in 1978 and prohibits the use of aircraft for moose hunting, including transportation of any moose hunter or moose part (Stout 2018). From 1981-1996, the resident State fall moose season in Unit 21D was Sept. 5-25 with a harvest limit of one moose, although cows could only be harvested during the last five days. A winter season ran from Feb. 1-10.

Federal regulations for moose in Unit 21D were adopted from State regulations in 1990. The season was Sept. 5-Sept. 25 and Feb. 1-Feb. 5 with a harvest limit of 1 moose, although antlerless moose could only be taken from Sept. 21-Sept. 25 and Feb. 1-Feb. 5. Moose within one-half mile of the Yukon River could not be taken during the February season.

In 1993, the Federal Subsistence Board (Board) adopted Proposals P93-49 and P93-50 to open the fall moose season 5 days earlier (Sept. 1 v. Sept. 5) in the Koyukuk CUA only as moose numbers indicated the population could support additional harvest. The intent was to provide Federally qualified subsistence users with a rural priority by opening the Federal season earlier than the State season, reducing competition from non-Federally qualified users.

In 1994, the Board adopted Proposal P94-56, changing the opening date in the Koyukuk CUA back to Sept. 5 to align with the State season. The reason was because users could not distinguish between State and Federal lands since the mean high water mark was unidentifiable, rendering the extended Federal season a law enforcement concern.

In 1996, the Board adopted Proposal P96-44 with modification to extend the fall season from Sept. 5-25 to Sept. 1-25 and the winter season from Feb. 1-5 to Feb. 1-10 to provide additional subsistence harvest opportunity and align with State seasons, which had recently changed (FSB 1996). Antlerless moose could only be harvested Sept. 21-25 and Feb. 1-10. The Board also closed Federal public lands in portions of the Koyukuk Controlled Use Area (CUA) to everyone except Federally qualified subsistence users to reduce user conflicts and provide better harvest opportunities for Federally qualified subsistence users.

Subsequently, the State of Alaska submitted a request to reconsider the closure adopted by the Board through WP96-44 (FSB 1996). On August 29, 1996, the Board adopted Request for Reconsideration R96-02 to lift the Federal closure in the Koyukuk CUA, to remove the antlerless moose restriction, and to require a State registration permit during the September season.

In 2000, the Board adopted Proposal P00-47 with modification, which specified that antlerless moose could be taken only from Sept. 21-Sept. 25 and during the February season in Unit 21D. The modification included establishing two new hunt areas: the Koyukuk CUA and Unit 21D remainder. The modification also changed the opening date of the fall season in the new Unit 21D remainder from Sept. 1 to Sept. 5. This was done to reduce user confusion by aligning Federal and State regulations (FWS 2000).

Also in 2000, the Board adopted Proposal P00-46 with modification, which changed the winter season from Feb. 1-Feb. 10 to a to-be-announced season. This was done to benefit Federally qualified subsistence users adversely impacted by inclement weather in early February and to align Federal and State regulations (FWS 2000).

In 2001, the Board adopted Proposal WP01-26 with modification, which allowed possession of the head of a harvested moose to meet the proof of sex requirement for Units 19, 21, and 24. This action accommodated customary and traditional practices that include removing external sex organs before transporting carcasses.

In 2004, the Board adopted Proposal WP04-63, which removed the specification that moose could not be taken within one-half mile of the Yukon River during the February season in all of Unit 21D. This was done to provide hunters with additional opportunity, to reduce the burden of determining jurisdictional boundaries on hunters, and to align with State regulations (FWS 2004a).

Also in 2004, the Board adopted Proposal WP04-65 with modification, which established a Dec. 1-Dec. 10 season and modified the to-be-announced winter season to a Mar. 1-Mar. 5 to-be-announced season in all of Unit 21D. Authority to determine whether or not antlerless moose could be taken from Sept. 21-Sept. 25 and Mar. 1-Mar. 5 and to set cow harvest quotas was delegated jointly to the Koyukuk National Wildlife Refuge (NWR) manager and the BLM Central Yukon (formerly Northern) Field Office Manager. A Federal registration permit was required for the Mar. 1-Mar. 5 season and the take of cows with calves was prohibited. This was done based on biological concerns over a declining moose population and to align State and Federal regulations (FWS 2004b).

Also in 2004, the Board adopted Proposal WP04-64 to modify the boundary and description of the Koyukuk CUA to align with State regulations.

In 2006, the Board adopted Proposal WP06-34 with modification, establishing an Aug. 22-Aug. 31 moose season in Unit 21D remainder and eliminating the Dec. 1-Dec. 10 moose season. This was

done to provide additional harvest opportunity to users early in the season and to align Federal and State regulations.

In 2010, the Board adopted Proposals WP10-63 and WP10-68 with modification to shift the fall moose season in the Koyukuk CUA 5 days later to Sept. 1-25 and to establish an April to-be-announced season within the Koyukuk CUA. The fall season changes aligned State and Federal regulations and the April season provided additional subsistence opportunity. (Proposals WP10-63 and WP10-68 were analyzed together and proposed similar changes to Unit 21D moose regulations. The Board adopted both proposals with modification).

In 2013, the Board approved Emergency Special Action WSA13-06 with modification, changing the closing date of the fall moose season in Unit 21D from Sept. 25 to Oct. 1, extending the season by 6 days. The modification included requiring the use of a Federal registration permit and clarification that only bulls could be harvested during the extended season. This was done to provide communities impacted by the extensive flooding of the Yukon River additional harvest opportunity.

In 2019, the BOG adopted Proposal 151 to create a winter any-moose season for residents in Unit 21D Southwest because the local moose population (Kaiyuh Flats) was rapidly growing, increasing the harvestable surplus. This resulted in the creation of the Unit 21D Southwest hunt area (**Map 1**). The winter season will be announced up to 15 days during March and has a harvest quota that will be adjusted annually depending on population estimates (ADF&G 2019).

### **Current Events**

The Western Interior Council submitted Proposal 59 to the BOG requesting that a 15-day any-moose season be announced in December for Unit 21D Southwest. The proposal stipulates that if any quota remains, then another 15-day any-moose season would be announced in March. Proposal 58 requests the establishment of a controlled use area for the Kaiyuh Flats area of Unit 21D that would prohibit the use of aircraft for moose hunting. Proposal 60 requests re-authorizing the winter any-moose hunt during March in Unit 21D Southwest. The BOG will consider these proposals at its Interior/Northeast Arctic Region meeting in March 2020.

### **Biological Background**

Moose first appeared in Unit 21D during the 1930s and slowly increased in abundance throughout the 1940s. Federal wolf control and aerial shooting in the 1950s reduced wolf populations, allowing rapid expansion of the moose population into the 1960s (Stout 2018). The Unit 21D moose population peaked in the 1970s and then stabilized or slightly declined, depending on area, in response to increased hunting pressure and predation (Federal wolf control ended in 1959 and aerial shooting ended in 1972). Unit 21D moose populations in the lower Koyukuk drainage and along the Yukon River generally increased during the 1980s and into the 1990s. In 1993, the Alaska Department of

Fish and Game (ADF&G) estimated the Unit 21D moose population as 9,000-10,000 moose (Stout 2018).

State management objectives for moose in Unit 21D are as follows (Stout 2018):

- Maintain a moose population of 5,200 observable moose in the Kaiyuh Flats and western Galena subareas.
- Maintain 30 bulls:100 cows in the Koyukuk CUA Core-5 TCAs.
- Provide for a harvest of moose not to exceed 700 moose or 7% of the annual moose population estimate each regulatory year.
- Provide for moose hunting opportunity not to exceed 950 hunters per regulatory year.

The USFWS and the ADF&G cooperatively conduct annual aerial moose surveys over Koyukuk and Innoko National Wildlife Refuges (NWRs) to assess population and composition trends. Survey data is collected in late fall (October-December) when at least 12” of snow are on the ground (Stout 2010, Bryant and Scotton 2015). However, in some years, this is not possible due to stochastic weather events (Bryant and Scotton 2015).

The survey areas are called trend count areas (TCAs). Six TCAs are located within Unit 21D in three distinct areas. For the purposes of this analysis, adjacent TCAs are combined, resulting in three separate survey areas within Unit 21D. The Dulbi River Mouth and Three-Day Slough combined TCAs (middle Koyukuk TCAs) are within the Koyukuk CUA (277 mi<sup>2</sup>). (Note: two of the Core-5 TCAs referred to in the State management objectives are in Unit 24D). The Kaiyuh Slough TCA (126 mi<sup>2</sup>) is located along the south side of the Yukon River between Nulato and Kaltag within Unit 21D Southwest (**Map 1**). The Koyukuk River Mouth, Pilot Mountain, and Squirrel Creek combined TCAs (lower Koyukuk TCAs, 307 mi<sup>2</sup>) are located between the villages of Galena and Koyukuk on the south side of the Yukon River with a section on the north side of the Yukon at the mouth of Koyukuk River (Bryant and Scotton 2015). The lower Koyukuk TCAs straddle the Koyukuk CUA, Unit 21D Southwest, and Unit 21D remainder hunt areas (**Map 1**).

In some years, the USFWS and ADF&G conduct geospatial population estimator (GSPE) surveys to estimate the moose population in all or a portion of Unit 21D. The TCAs are contained within the larger GSPE survey areas, and TCA data is used for GSPE surveys (Stout 2015, pers. comm.). In regulatory years 2009/10 and 2011/12, the moose population estimates for all of Unit 21D were 8,103 moose and 8,611 moose, respectively. The moose population estimates for Unit 21D outside of the Koyukuk CUA in 2009/10 and 2011/12 were 4,608 moose and 5,055 moose, respectively (Stout 2010, 2012). The 2018 moose population estimate for all of Unit 21D is 10,478 moose +/- 15%. This estimate is based on population and trend survey data as well as extrapolation to unsurveyed areas (Stout 2019, pers. comm.).

Refuge biologists have periodically conducted GSPE surveys in the Kaiyuh Flats, which comprises most of Unit 21D Southwest. Between 2001 and 2011, the moose population appeared relatively stable, ranging from 1,487-1,897 moose (Bryant and Scotton 2017). Estimates from the next GSPE survey, which was conducted in fall 2017, increased significantly to 4,116 moose or 39-44% of the overall Unit 21D population (Bryant and Scotton 2017, ADF&G 2019). Bryant and Scotton (2017) attribute the substantial population increase to high productivity, relatively mild winters since 2011, improved forage quality and/or quantity from a 2004 fire, and possibly lower predator abundance.

Trends in moose densities within the three TCA areas differ substantially (**Figure 1**). Between 2001 and 2019, the moose density in the middle Koyukuk TCAs averaged 4.4 moose/mi<sup>2</sup>, ranging between 2.9 and 5.9 moose/mi<sup>2</sup>. Overall, moose densities within these TCAs have fluctuated, but remained at average levels over the last five years. Over the same time period, moose densities in the lower Koyukuk TCAs averaged 4.1 moose/mi<sup>2</sup>, ranging from 3.1 to 6.0 moose/mi<sup>2</sup>. Overall, moose densities within the lower Koyukuk TCA have increased, especially since 2015. Over the same time period, moose densities in the Kaiyuh Slough TCA averaged 2.1 moose/mi<sup>2</sup>, ranging from 1.1 to 3.9 moose/mi<sup>2</sup>. Overall, moose densities within the Kaiyuh Slough TCA have increased, and are approaching the moose densities of the other two TCA areas within Unit 21D (**Figure 1**) (Bryant and Scotton 2018, 2019).

Bull:cow ratios help to assess the effects of harvest on a moose population (Stout 2018). High bull numbers generally indicate less hunting pressure, although unreported cow harvest in Unit 21D may inflate bull ratios (Stout 2010). While Franzmann and Schwartz (2007) state that no data clearly indicates a “threshold bull:cow ratio” at which point pregnancy rates of females are significantly decreased, Stout (2010) provided guideline ratios of 15 bulls:100 cows as sufficient for breeding and ratios of 30-40 bulls:100 cows as sufficient for increased harvest opportunity and trophy hunting. Franzmann and Schwartz (2007) additionally state that low density moose populations may require higher bull:cow ratios than high density populations to ensure adequate reproduction. The Koyukuk River Moose Management Plan suggests managing for ratios of 30 bulls:100 cows in high density populations and 30-40 bulls:100 cows in low density populations (ADF&G 2001).

Trends in bull:cow ratios in the middle and lower Koyukuk TCAs are similar, while ratios in the Kaiyuh Slough TCA have been consistently higher (**Figure 2**). However, ratios in all TCA areas decreased from 2016-2018, with slight increases in 2019. Between 2001 and 2019, bull:cow ratios in the middle and lower Koyukuk TCAs have averaged 25 bulls:100 cows, ranging from 17-34 bulls:100 cows (Bryant and Scotton 2018, 2019). Over the same time period, bull:cow ratios in the Kaiyuh Slough TCA averaged 52 bulls:100 cows, ranging between 38-69 bulls:100 cows (**Figure 2**) (Bryant and Scotton 2018, 2019). While bull:cow ratios in the middle and lower Koyukuk TCAs appear sufficient for breeding, they do not support increased harvest opportunity (Stout 2010, ADF&G 2001). Additionally, the 2017 bull:cow ratio in the Pilot Mountain TCA (part of the lower Koyukuk TCAs) was only 10 bulls:100 cows, reflecting heavy harvest pressure due to its accessibility from nearby communities (Bryant and Scotton 2017). Conversely, high bull:cow ratios in the Kaiyuh Slough TCA

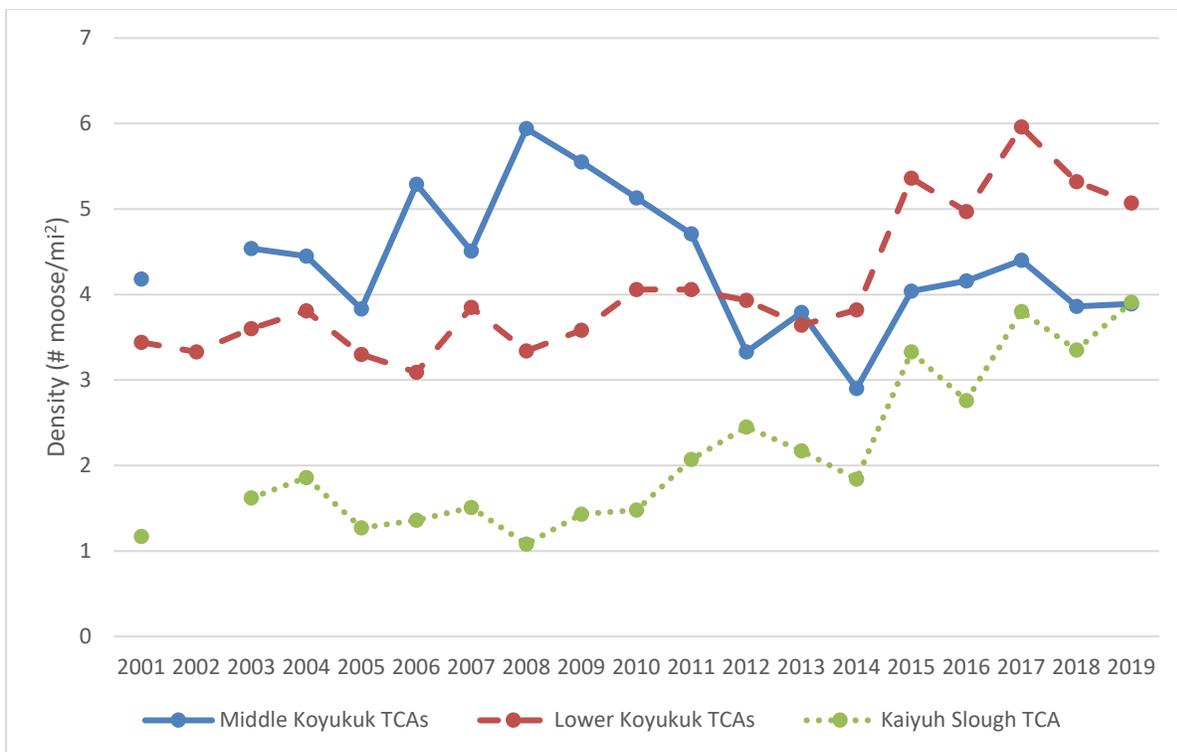
suggest a harvestable surplus of bulls, although the lowest bull:cow ratio was in 2018 (Stout 2010, ADF&G 2001).

Calf:cow ratios help to assess productivity and recruitment (Stout 2018). While calf:cow ratios can vary widely from year to year, fall ratios of < 20 calves:100 cows, 20-40 calves:100 cows, and > 40 calves:100 cows may indicate declining, stable, and growing moose populations, respectively provided overwinter mortality is either consistent or negligible (Stout 2010, ADF&G 2001, Franzmann and Schwartz 2007). Stout (2018) estimated that 68% and 83% of calves die in their first five and 17 months, respectively, suggesting average cohort recruitment is 17%.

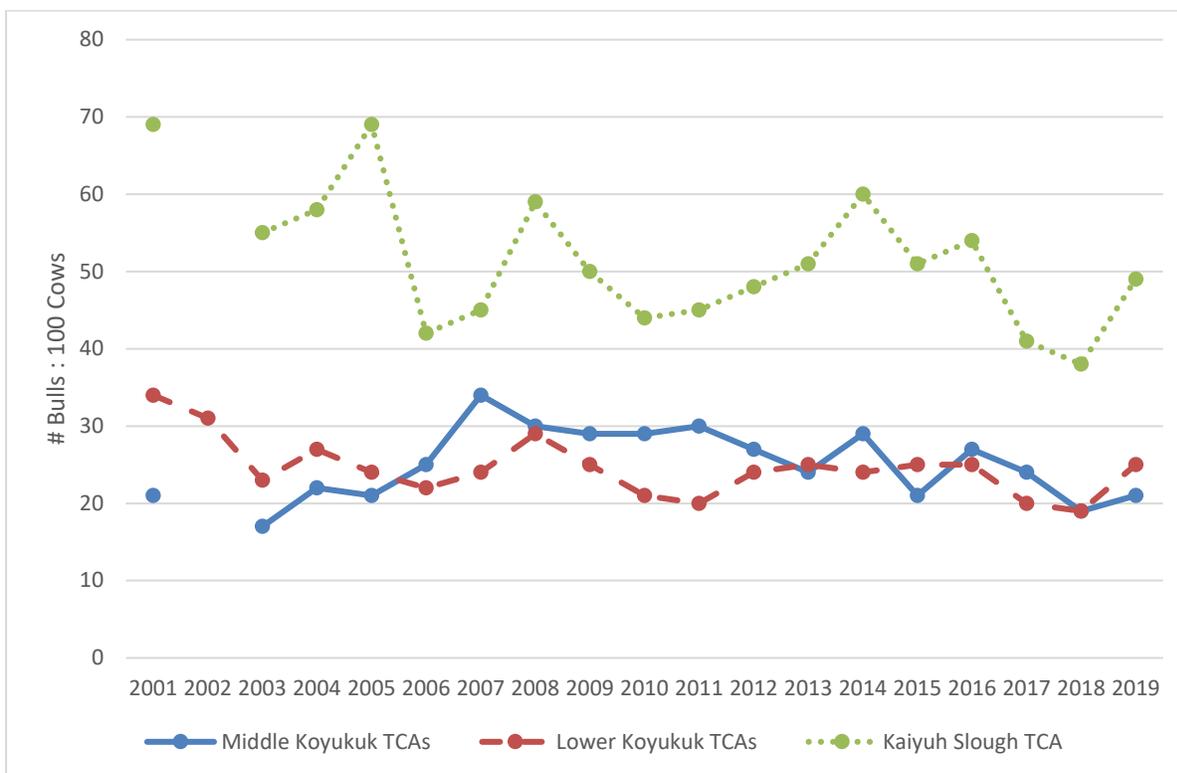
Calf:cow ratios fluctuated widely within all three of the TCAs within Unit 21D, although ratios in the Kaiyuh Slough TCA fluctuated the most (**Figure 3**). Between 2001 and 2019, calf:cow ratios within the middle Koyukuk TCAs averaged 24 calves:100 cows, ranging from 13-40 calves:100 cows. Ratios in this TCA area have consistently been below 40 calves:100 cows, suggesting this moose population is stable or declining. Over the same time period, calf:cow ratios in the lower Koyukuk TCAs averaged 37 calves:100 cows, ranging from 17-52 calves:100 cows. Since 2014, ratios in this TCA area have exceeded 40 calves:100 cows, contributing to the growth of this moose population. Also between 2001 and 2019, calf:cow ratios in the Kaiyuh Slough TCA averaged 40 calves:100 cows, ranging from 10-69 calves:100 cows (**Figure 3**). The lowest calf:cow ratios for all TCAs occurred in 2009, which may be a reflection of the severe 2008/09 winter (Bryant and Scotton 2018, Stout 2010). However, since 2009, calf:cow ratios in the Kaiyuh Slough TCA have exceeded 40 calves:100 cows in all years except 2018 and 2019, contributing to the growth and increasing density of this moose population.

Moose twinning rates are an indicator of nutritional status, body condition, and productivity (Stout 2018, 2012, Boertje et al. 2007). Between 2010 and 2019, twinning rates from survey areas within Unit 21D suggested above average nutritional status and productivity (Stout 2018, Scotton 2019, pers. comm.).

In summary, the status of the moose population in Unit 21D varies by location. Generally, the moose populations in the middle and lower Koyukuk TCAs are higher density with lower bull:cow ratios, whereas the moose population in the Kaiyuh Slough TCA is lower density with higher bull:cow ratios (**Figures 1, 2**). The middle Koyukuk TCAs warrant concern due to low productivity, low bull:cow ratios, and high hunting pressure (Bryant and Scotton 2018). In contrast, the lower Koyukuk and Kaiyuh Slough TCAs have an increasing moose population and excellent calf production and recruitment. The lower Koyukuk TCAs may support a limited winter cow hunt, although additional bull harvest is not advised due to low bull:cow ratios, while the Kaiyuh moose population can support additional harvest (Bryant and Scotton 2018, Scotton 2019, pers. comm.).

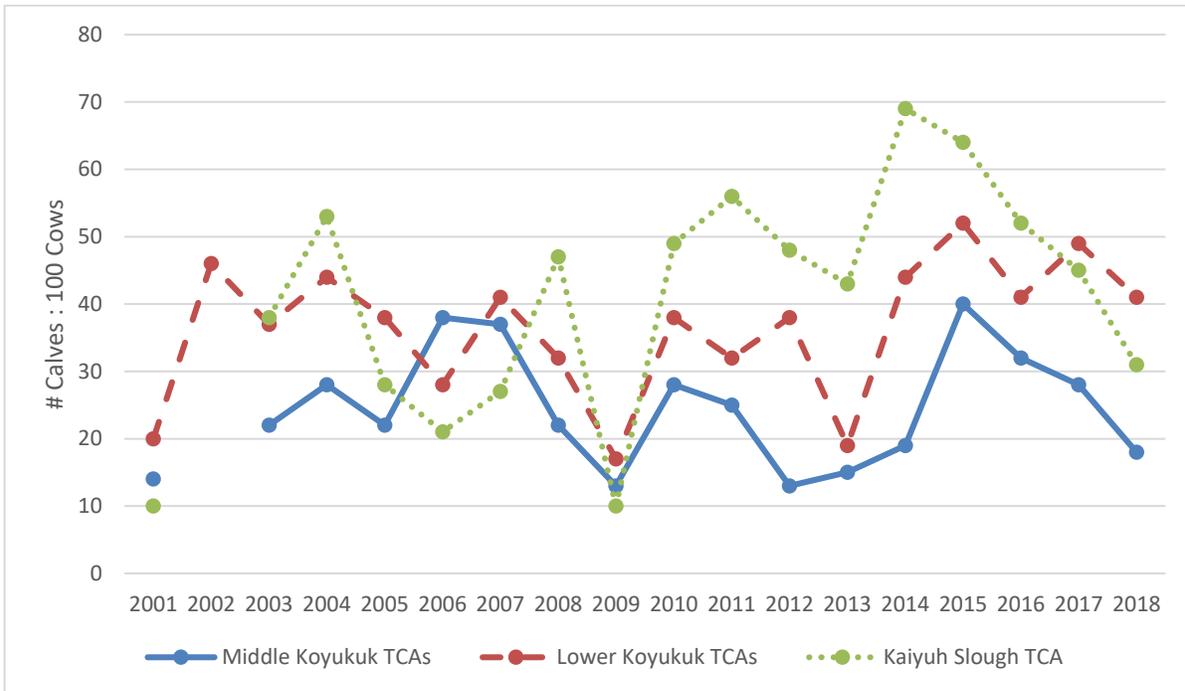


**Figure 1.** Moose densities within trend count areas in Unit 21D (Bryant and Scotton 2018, 2019).



**Figure 2.** Bull:cow ratios within trend count areas in Unit 21D (Bryant and Scotton 2018).





**Figure 3.** Calf:cow ratios in trend count areas within Unit 21D (Bryant and Scotton 2018, 2019).

**Harvest History**

ADF&G manages moose hunting in Unit 21D through subsistence registration hunts that require antler destruction, limited drawing permit hunts, and a recently (2019) established winter registration permit hunt in Unit 21D Southwest. A conservative harvest strategy for moose in Unit 21D is recommended, due to high unreported harvest rates and infrequent population estimates (Stout 2018). ADF&G monitors moose harvest in Unit 21D through registration and drawing permit hunt reports, subsistence household surveys, and a hunter check station on the Koyukuk River.

Since 1990, hunters accessing the Koyukuk CUA must stop at an ADF&G check station on the Koyukuk River, located 15 miles upstream from the village of Koyukuk (Stout 2018). The check station provides information to hunters on land ownership and local regulations, including licensing and reporting requirements. The check station is also used to collect data on harvested moose and number of hunters (Stout 2018).

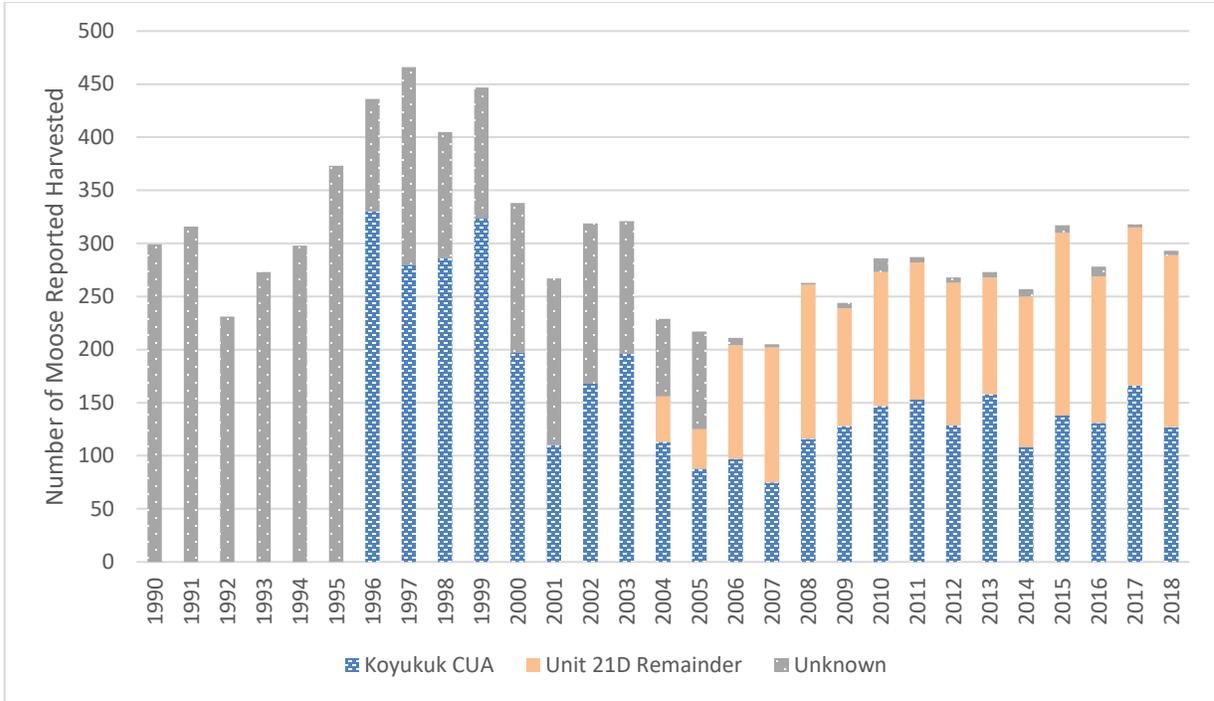
Between 1990 and 2018, reported annual moose harvest in Unit 21D averaged 301 moose. Moose harvest peaked in 1997 at 466 moose and then declined to 205 moose in 2007 (WINFONET 2019). Since 2007, reported moose harvest has remained relatively stable, ranging between 244 and 318 moose (**Figure 4**). Since 2006, reported moose harvest has been evenly split between the Koyukuk CUA and Unit 21D remainder hunt areas as determined by registration permit numbers (**Figure 4**). Over the same time period, hunter numbers in Unit 21D averaged 634 hunters (**Figure 5**) (WINFONET 2019).

In 2019, five cows and three bulls were harvested in Unit 21D Southwest during the recently established winter hunt. ADF&G set the 2019 and 2020 harvest quotas as 25 moose, including no more than 20 cows. This represents a conservative harvest rate of ~0.5% (ADF&G 2020).

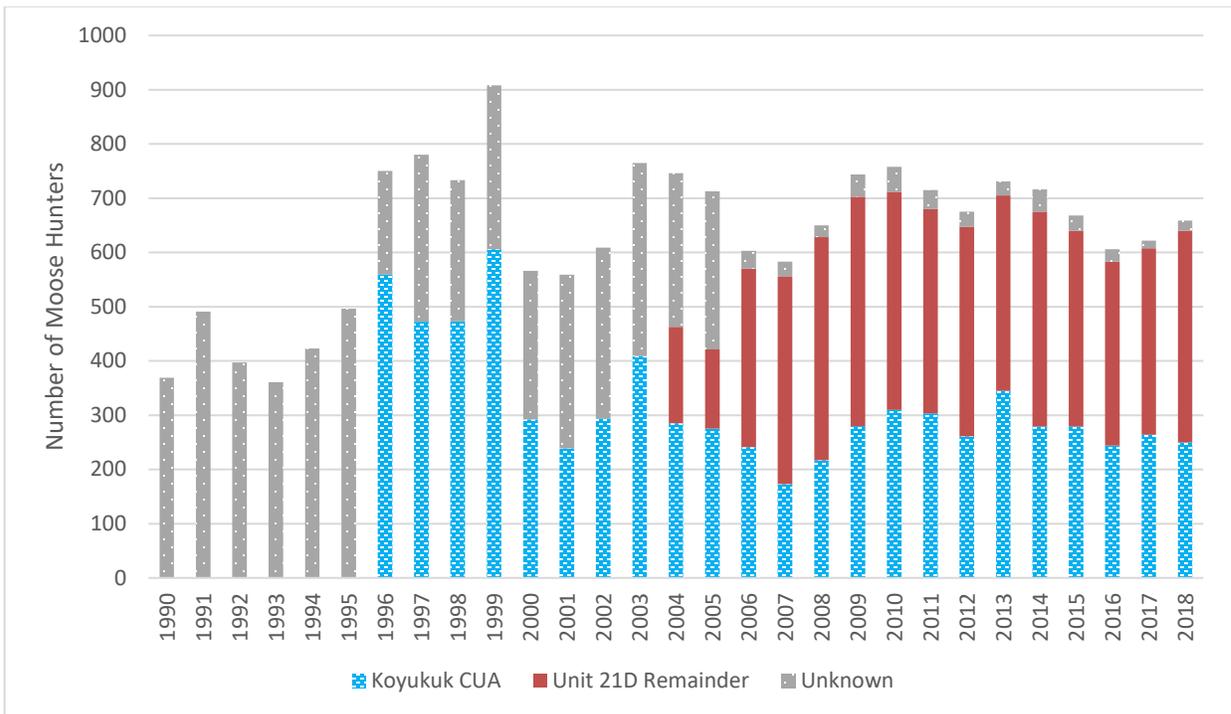
Between 1990 and 2018, the percentage of moose hunters in Unit 21D who were Federally qualified subsistence users averaged 46%, according to harvest reports (**Figure 6**) (WINFONET 2019). The apparent increase in hunter numbers and in the relative number of Federally qualified subsistence users beginning in 1996 is likely due to duplicate permits being issued to individual hunters (Stout 2019, pers. comm.). Between 1990 and 2003, 36% of moose hunters in Unit 21D were Federally qualified subsistence users, whereas 55% of moose hunters were Federally qualified subsistence users between 2004 and 2018 (**Figure 6**). This apparent increase could also reflect improved harvest reporting by Federally qualified subsistence users.

Unreported harvests are estimated from ADF&G-Subsistence Division reports, historical information, and public interviews. Between 1996 and 2002, the estimated unreported harvest rates for Unit 21D residents and other hunters were 56% and 18%, respectively (Stout 2018). Since 2010, ADF&G has estimated the unreported moose harvest for Unit 21D at 125 moose, although any ceremonial or potlatch harvest is subtracted from this estimate (Stout 2018). Most unreported harvest occurs during the winter. Illegal cow harvest, particularly during the winter, is a management concern (Stout 2018).

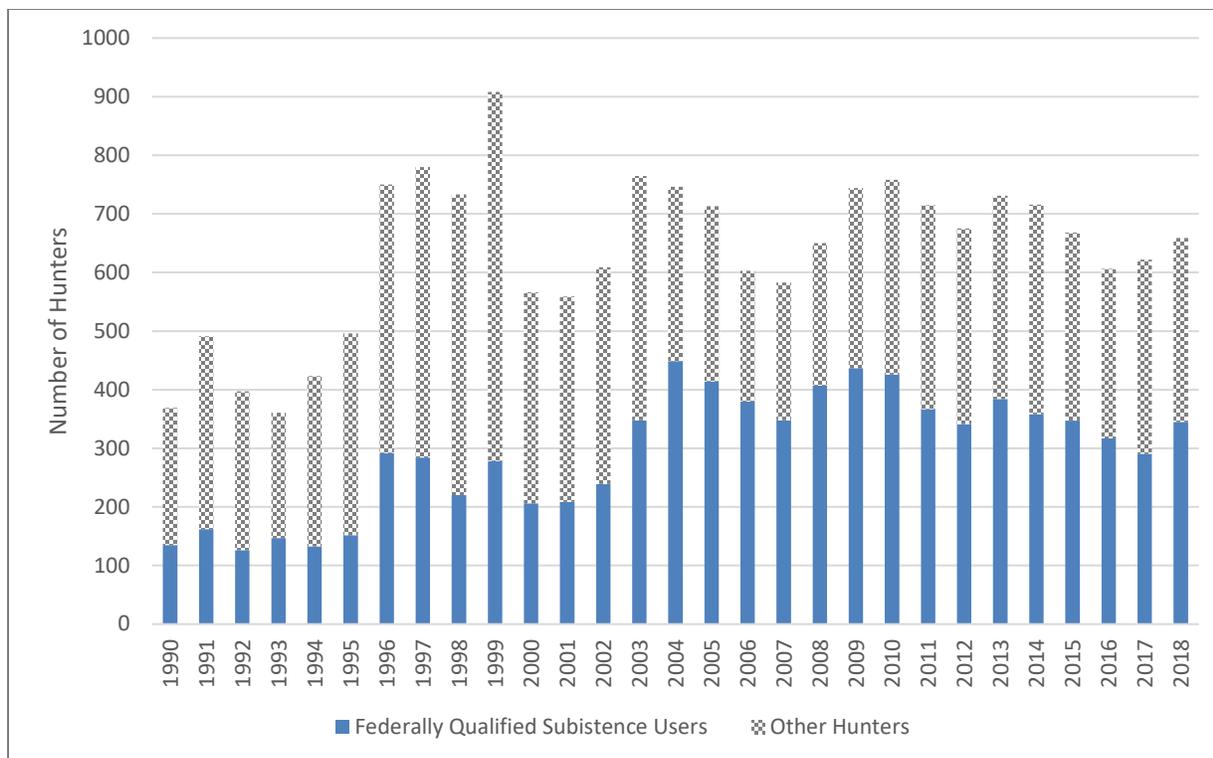
Residents of Kaltag, Nulato, Koyukuk, Galena, and Ruby have traditional moose hunting areas within Unit 21D, often traveling long distances (100 miles) to access them (Stout 2018). However, high fuel prices in recent years have reduced travel. Nonlocal hunters in Unit 21D mostly concentrate their hunting activities within the Koyukuk River between the Kateel River and Dulbi Slough. Nonlocal hunting pressure may be shifting farther up the Koyukuk River as nonlocal hunters learn the logistics of accessing the area (Stout 2018).



**Figure 4.** Reported moose harvest in Unit 21D by regulatory year (WINFONET 2019). Prior to 1996, the State managed Unit 21D as a single hunt area under a general hunt (harvest ticket). In 1996, the State divided Unit 21D into the Koyukuk CUA and Unit 21D remainder hunt areas, establishing a registration permit hunt in the Koyukuk CUA. In 2006, the State instituted a registration permit hunt in Unit 21D remainder. Since 2006, the unknown harvests are mostly moose harvested under a general hunt.



**Figure 5.** Number of moose hunters in Unit 21D (WINFONET 2019).



**Figure 6.** Number of moose hunters in Unit 21D who are Federally qualified subsistence users versus other hunters (WINFONET 2019). Hunters were classified as Federally qualified subsistence users by their reported residency in ADF&G's harvest database. As reported residency may not reflect the location of one's permanent residence, these data should be considered estimates.

**Other Alternatives Considered**

Establishing a cow-only December hunt was one alternative considered. This would accommodate the proponent’s desire for more harvest opportunity as well as address the conservation concerns of harvesting too many bulls in December given the low bull:cow ratio in parts of the hunt area. User confusion over land ownership and misalignment between State and Federal regulations could result from this alternative. Cow quotas would also need to be coordinated with ADF&G. The Council may want to further consider this option.

**Effects of the Proposal**

If the Board adopted Proposal WP20-36, Federal and State regulations for moose in Unit 21D would be aligned. Specifically, a State registration permit (RM832) would be required to harvest bull moose in the Koyukuk CUA, aligning Federal and State reporting requirements. The State registration permit also requires antler destruction, which could burden Federally qualified subsistence users wishing to use antlers for handicrafts. However, a State registration permit (RM834) with identical, trophy-destruction requirements is already required under Federal regulations for Unit 21D remainder.

A Federal registration permit would still be required to harvest cows in the Koyukuk CUA, if authorized by the in-season manager.

Additionally, the winter to-be-announced seasons in the Koyukuk CUA and Unit 21D remainder would be eliminated, while a 15 day to-be-announced March season would be established in Unit 21D Southwest, aligning State and Federal seasons. The Refuge states that, due to conservation concerns, the manager has never announced winter season openings in the Koyukuk CUA or Unit 21D remainder since the hunts were established in 2004. Eliminating those seasons would simplify regulations.

Conversely, additional harvest opportunities are supported in Unit 21D Southwest. The BOG added a 15-day to-be-announced State season for this area in 2019 through approval of Proposal 151. ADF&G announced a season Mar. 1-15, 2019 to provide additional harvest opportunity and slow the growth of the moose population. The Refuge also supported additional harvest in Unit 21D Southwest during March 2019, but did not open a Federal winter season due to the complexity of land ownership issues associated with a Federal hunt and because the State already planned to announce a March season (USFWS 2019). Establishing a 15-day to-be-announced winter season in Unit 21D Southwest would reduce regulatory complexity by aligning State and Federal seasons as well as prevent Federal regulations from being more restrictive than State regulations.

If the Board adopts Proposal WP20-37, a 15-day December to-be-announced season and a 15-day may-be-announced March season would be established for Unit 21D Southwest. The proponent's intention is for the ADF&G area biologist to announce an annual quota for the winter seasons. If the quota is not met during the December season, then a second season opening would be announced in March (WIRAC 2019). ADF&G intends the harvest quota to be 0.9% of the estimated number of cows to slow but not stop population growth. For the 2018/19 season, the harvest quota was 25 moose or no more than 20 cows (ADF&G 2019). The Federal in-season manager would need to announce harvest quotas for the Federal season, but could coordinate with the ADF&G area biologist to ensure Federal and State quotas match. The State also has a two-day reporting requirement, which the Federal in-season manager could also implement.

At their winter 2019 meeting, Western Interior Council members stated a December moose season in Unit 21D Southwest would be more useful to Federally qualified subsistence users than a March season as a moose harvested in December would provide meat over the winter. Council members also stated that a December season would allow time for the Yukon River to freeze, which would provide access to hunting areas across the river (WIRAC 2019).

During the Council's meeting, the ADF&G area biologist explained that Unit 21D had a winter season in March over 15 years ago, so one reason ADF&G proposed a March season to the BOG was simply because that's when a winter season had previously occurred in Unit 21D. Travel conditions also tend to be more reliable in March, as trails have been well established and freeze up has not been occurring until late December in recent years due to warmer falls. The Middle Yukon Fish and Game Advisory Committee (Middle Yukon AC) also unanimously supported a March season. The area biologist also

noted that winter seasons should be to-be-announced as severe weather can prohibit meaningful hunting opportunities (WIRAC 2019).

The Refuge biologist expressed biological concerns for a December hunt. As bulls still have antlers in December, hunters may target bulls rather than cows. Given the low bull:cow ratios in the easily accessible and heavily hunted portion of Unit 21D Southwest between Nulato and Galena, additional bull harvest in this hunt area is not advised as it could further depress bull:cow ratios (Scotton 2019, pers. comm.). The intent of a March season is to slow the population growth of the Kaiyuh Flats moose population by harvesting 0.9% of the cow population. A March, rather than December season, would not discourage cow harvest since bulls and cows are difficult to differentiate during this time.

The Council’s intent is to establish a December season in Unit 21D Southwest under both State and Federal regulations. Alignment of State and Federal regulations in that hunt area is particularly desirable due to its checkerboard pattern of land ownership (WIRAC 2019). If only the Board and not the BOG adopted a December hunt, users may not be able to effectively utilize the Federal season because of confusion over land ownership and law enforcement concerns. The Refuge, which administers Federal hunts in Unit 21D, states that a Federal-only December season would not benefit Federally qualified subsistence users because Federal public lands in the unit are not easily accessible and identifying land status in the field is impractical. Thus, the Refuge is strongly opposed to a Federal-only December moose season in Unit 21D Southwest (Rebarchik 2019, pers. comm.).

Therefore, BOG action on the State proposal (at the Interior/Northeast Arctic Region meeting in March 2020) may affect the outcome of WP20-37. The Council also stated that obtaining input from the Middle Yukon AC was integral to making a decision on WP20-37 (WIRAC 2019). However, if the December moose season is adopted by the Board but not by the BOG, clarification on permit requirements during the December season will be needed (i.e. can Federally qualified subsistence users hunt with a State registration permit in December or will a Federal permit need to be created).

**OSM CONCLUSION**

**Support** Proposal WP20-36 **with modification** to clarify regulatory language and to delegate authority to the Koyukuk/Nowitna/Innoko Refuge manager to announce season dates, harvest quotas, and sex restrictions via delegation of authority letter only (**Appendix 1**) and **take no action** on WP20-37.

The modified regulation would read:

**Unit 21D—Moose**

*Unit 21D—Koyukuk Controlled Use Area—1 bull **by State registration permit**; 1 antlerless moose by Federal permit if authorized by announcement by the Koyukuk/Nowitna/**Innoko** NWR manager.* *Sep. 1-25.  
~~Mar. 1-5~~  
season to be*

*Harvest of cow moose accompanied by calves is prohibited. A harvestable surplus of cows will be determined for a quota* ~~announced.~~

**OR**

~~*1 antlered bull by Federal permit, if there is no Mar. 1-5 season and if authorized by announcement by the Koyukuk/Nowitna NWR manager and BLM Central Yukon field office manager. A harvestable surplus of bulls will be determined for a quota. Announcement for the March and April seasons and harvest quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and Middle Yukon and Koyukuk River Fish and Game Advisory Committee.*~~ ~~*Apr. 10-15 season to be announced.*~~

***Unit 21D, that portion south of the South bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek – 1 moose by State registration permit.*** *Aug. 22-31. Sep. 5-25.*

***Antlerless moose may be taken only during Sep. 21-25 season if authorized jointly by the Koyukuk/Nowitna/Innoko NWR Manager and the Central Yukon Field Office Manager, BLM.*** *Mar. 1 – Mar. 31 season may be announced.*

*Antlerless moose may also be harvested during any winter seasons.*

***Harvest of cow moose accompanied by calves is prohibited.***

*Unit 21D, remainder—1 moose by State registration permit.* *Aug. 22-31. Sep. 5-25.*  
~~*however, Antlerless moose may be taken only during Sep. 21-25 and the Mar. 1-5 season if authorized jointly by the Koyukuk/Nowitna/Innoko NWR National Wildlife Refuge Manager and the Central Yukon Field Office Manager, BLM Bureau of Land Management.*~~ ~~*Mar. 1-5 season to be announced.*~~

~~*Harvest of cow moose accompanied by calves is prohibited. During the Aug. 22-31 and Sep. 5-25 seasons, a State registration permit is required. During the Mar. 1-5 season, a Federal registration permit is required. Announcement for the antlerless moose seasons and cow quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and the Middle Yukon Fish and Game Advisory Committee*~~

**Justification**

Unit 21D Southwest can support increased moose harvest as the population is growing. A March season provides more harvest opportunity for Federally qualified subsistence users and aligns with

State regulations, reducing user confusion. However, due to low bull:cow ratios in portions of Unit 21D Southwest, increased bull harvest is not advised. Delegating authority to the in-season manager allows for management flexibility and better coordination with ADF&G and State seasons. Requiring a State registration permit and eliminating the winter to-be-announced seasons in the Koyukuk CUA and Unit 21D remainder reduce regulatory complexity by aligning State and Federal regulations, which is particularly important in this subunit given its complexity of land ownership.

## LITERATURE CITED

- ADF&G. 2001. Koyukuk river moose management plan, 2000-2005. Unit 24 and the northern portion of Unit 21D. Alaska Department of Fish and Game. Division of Wildlife Conservation. Fairbanks, AK.
- ADF&G. 2015. General Harvest Reports. Alaska Department of Fish and Game. Juneau, AK. <https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>. Retrieved: July 9, 2015.
- ADF&G. 2019. Proposal 151. Alaska Department of Fish and Game. HQ-F18-ACR14. [http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2018-2019/proposals/se\\_additional\\_proposals.pdf](http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2018-2019/proposals/se_additional_proposals.pdf). Accessed May 6, 2019.
- ADF&G. 2020. Alaska Department of Fish and Game. Staff comments. Interior and Eastern Arctic region proposals. Alaska Board of Game meeting. Fairbanks, AK. March 6-14, 2020. <http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=03-06-2020&meeting=fairbanks>. Accessed February 14, 2020.
- Ballenberghe, V.V., and D.G. Miquelle. 1993. Mating in moose: timing, behavior, and male access patterns. *Canadian Journal of Zoology*. 71: 1687-1690.
- Boertje, R.D., K.A. Kellie, C.T. Seaton, M.A. Keech, D.D. Young, B.W. Dale, L.G. Adams, and A.R. Alderman. 2007. Ranking Alaska moose nutrition: signals to begin liberal antlerless harvests. *Journal of Wildlife Management*. 71: 1494-1506.
- Bryant, J., B. Scotton. 2015. Moose trend survey summary 2014. Koyukuk/Nowitna/Innoko NWR Complex (Game Management Units 21A, 21B, 21D, and 24D). Unpublished report.
- Bryant, J., B. Scotton. 2017. Kaiyuh moose population estimate 2017. Koyukuk/Nowitna/Innoko NWR Complex Unpublished report.
- Bryant, J., B. Scotton. 2019. Moose trend survey summary 2019. Koyukuk/Nowitna/Innoko NWR Complex (Game Management Units 21A, 21B, 21D, and 24D). Unpublished report.
- Bryant, J., B. Scotton. 2018. Moose trend survey summary 2018. Koyukuk/Nowitna/Innoko NWR Complex (Game Management Units 21A, 21B, 21D, and 24D). Unpublished report.
- Franzmann, A.W. and C.C. Schwartz. 2007. Ecology and management of the North American moose. 2<sup>nd</sup> edition. Wildlife Management Institute. Smithsonian Institution Press, Washington, D.C.



FWS. 2000. Staff analysis WP00-46 and WP00-47. Pages 483-512 *in* Federal Subsistence Board Meeting Materials, May 2-4, 2000. Office of Subsistence Management, USFWS, Anchorage, AK. 661pp.

FWS. 2004a. Staff analysis WP04-63. Pages 564-574 *in* Federal Subsistence Board Meeting Materials May 18-21, 2004. Office of Subsistence Management, USFWS. Anchorage, AK. 1041pp.

FWS. 2004b. Staff analysis WP04-65. Pages 582-618 *in* Federal Subsistence Board Meeting Materials May 18-21, 2004. Office of Subsistence Management, USFWS. Anchorage, AK. 1041pp.

Rebarchik, B. 2019. Acting refuge manager and deputy refuge manager. Personal communication: phone and e-mail. Koyukuk/Nowitna/Innoko National Wildlife Refuge, USFWS. Galena, AK.

Scotton, B. 2019. Supervisory Wildlife Biologist. Personal communication: e-mail. Koyukuk/Nowitna/Innoko National Wildlife Refuge, USFWS. Galena, AK.

Stout, G.W. 2015. Galena Area Biologist. Personal communication: phone. August 17, 2015. Alaska Department of Fish and Game. Fairbanks, AK.

Stout, G.W. 2010. Unit 21D moose. Pages 477-521 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007-30 June 2009. Alaska Department of Fish and Game. Project 1.0 Juneau, Alaska, USA.

Stout, G.W. 2012. Unit 21D moose. Pages 496-533 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009-30 June 2011. Alaska Department of Fish and Game. Species management report, ADF&G/SMR/DWC-2012-5, Juneau, Alaska, USA.

Stout, G.W. 2018. Moose management report and plan, Game Management Unit 21D: Report period 1 July 2010-30 June 2015, and plan period 1 July 2015-30 June 2020. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2018-5, Juneau.

USFWS. 2019. Decision on 2019 antlerless moose hunts for GMU's 21D, B, and 24D Memorandum. Feb. 14, 2019. Koyukuk/Nowitna/Innoko National Wildlife Refuge Complex. USFWS. Galena, AK.

WINFONET. 2019. Wildlife Information Network. Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>. Accessed May 2019.

WIRAC. 2019. Transcripts of the Western Interior Alaska Subsistence Regional Advisory Council proceedings. March 26-27, 2019. Fairbanks, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Western Interior Alaska Subsistence Regional Advisory Council

**Oppose WP20-36. Support WP20-37 with modification.** The Council unanimously supported WP20-37 with modification to define the December hunt area for Unit 21D as that area southeast of Kaiyuh Slough and Nine-Mile Camp to Bonanza Creek Drainage to the Kaiyuh Mountains, and south to the Unit 21D boundary. The Council discussed the bull:cow ratios near Galena of 10 bulls per 100 cows and wanted to ensure that this area was not included in the December hunt. The modified hunt area would allow for harvests in a high-density moose area with good bull:cow ratios, while applying conservation measures where needed.

The Council also requested that the modification to WP20-37 be submitted to the Alaska Board of Game (BOG) to modify the Council's BOG Proposal 59. This should be done to align the Federal and State regulations with the modification cited above and adopted by the Council at the October 8-9, 2019, meeting in McGrath. The Council believes aligning both State and Federal regulations will further conserve the moose population in low-density areas of Unit 21D, while providing for subsistence opportunities in areas of high moose density. The Council's intention is also to provide moose harvest opportunities earlier in the winter within the described new hunt area of Unit 21D under both State and Federal Regulations. It is not the desire of the Council to add a disparate Federal hunt. Therefore, if the BOG fails to adopt Proposal 59 as amended, then the Council will withdraw the December hunt portion of WP20-37 from Board consideration.

The Council opposed WP20-36 because of its action taken on WP20-37. However, the Chair stated that he does not support eliminating the Federal-only hunts in Unit 21 as proposed in WP20-36, noting that while moose populations may not support an additional season right now, those seasons should be kept in regulation to provide subsistence harvest opportunity whenever the moose population increases.

**Note:** At their winter 2020 meeting, the Council clarified that they do support requiring a State registration permit in the Koyukuk Controlled Use Area as proposed in WP20-36. The Council also supported modified language for the December hunt area as "that portion of Unit 21D southeast of the Yukon River and south of and including the Kaiyuh Slough and Gorton Creek drainages."

The modified regulation should read:

#### **Unit 21D — Moose**

*Unit 21D—Koyukuk Controlled Use Area—1 bull; 1 antlerless moose by Federal permit if authorized by announcement by the Koyukuk/Nowitna*      *Sep. 1-25.  
Mar. 1-5 season  
to be announced.*

*NWR manager. Harvest of cow moose accompanied by calves is prohibited. A harvestable surplus of cows will be determined for a quota*

**OR**

*1 antlered bull by Federal permit, if there is no Mar. 1-5 season and if authorized by announcement by the Koyukuk/Nowitna NWR manager and BLM Central Yukon field office manager. A harvestable surplus of bulls will be determined for a quota. Announcement for the March and April seasons and harvest quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and Middle Yukon and Koyukuk River Fish and Game Advisory Committee.*

*Apr. 10-15 season to be announced.*

***Unit 21D, that portion south of the South bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek – 1 moose by State registration permit. However, antlerless moose may be taken only during Sep. 21-25 and the Dec. and Mar. seasons. Harvest of cow moose accompanied by calves is prohibited. A 15 day season will be announced in Dec. for that portion of Unit 21D southeast of Kaiyuh Slough and Nine-Mile Camp to Bonanza Creek Drainage to the Kaiyuh Mountains, and south to the Unit 21D boundary. If the harvest quota, which is announced annually is not met, then another 15 day season will be announced in Mar.***

*Aug. 22-31.  
Sep. 5-25.*

*Dec. 1 – Dec. 31, season to be announced*

*Mar. 1 – Mar. 31 season may be announced.*

*Unit 21D, remainder—1 moose; however, antlerless moose may be taken only during Sep. 21-25 and the Mar. 1-5 season if authorized jointly by the Koyukuk/Nowitna National Wildlife Refuge Manager and the Central Yukon Field Office Manager, Bureau of Land Management. Harvest of cow moose accompanied by calves is prohibited. During the Aug. 22-31 and Sep. 5-25 seasons, a State registration permit is required. During the Mar. 1-5 season, a Federal registration permit is required. Announcement for the antlerless moose seasons and cow quotas will be made after consultation with the ADF&G area biologist and the Chairs of the Western Interior Regional Advisory Council and the Middle Yukon Fish and Game Advisory Committee*

*Aug. 22-31.  
Sep. 5-25.*

*Mar. 1-5 season to be announced.*

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-36/37:** This proposal, submitted by Koyukuk/Nowitna/Innoko National Wildlife Refuge (Refuge), would change a portion of the federal regulations to align with new state regulation hunt in southern Unit 21D. The new state regulations open an any-moose season during March.

**Introduction:** The moose population in the Kaiyuh Flats of Unit 21D is increasing rapidly, especially the number of cows in the population. Rather than allow the population to quickly exceed carrying capacity and go through dramatic rates of expansion and contraction, we believe it is prudent to dampen the accelerating rate of increase. It is important to implement this action proactively so that we can assess the density dependent indicators through time. This season would also provide a harvest opportunity of cow moose that has only recently emerged. The Board of Game adopted this RM831 hunt in January, 2019 based on the recommendation of the Department and coordination with the Koyukuk National Wildlife Refuge.

Moose abundance in the RM831 hunt area (Figure 1) is estimated at 4,000–4,500 moose which is approximately 39–44% of the total moose estimated in Unit 21D. The initial harvest rate in the proposed hunt area will be approximately 0.5% of the pre-hunt estimate (0.9% of estimated number of cows). Although this is a relatively low harvest rate initially, we intend to slow the rate of increase, not stabilize the population at this time. The harvest rate will be adjusted in the future depending on our most recent population estimates and our assessment of carrying capacity monitored by twinning and browse surveys.

The existing federal March 1–5 season would open portions of Unit 21D outside of this RM831 hunt that cannot currently support additional harvest of cows or bulls and would be confusing and create enforcement issues because federal lands occur in a checker-board fashion in the RM831 hunt area. Therefore, that hunt should be discontinued.

The RM831 hunt will be announced annually by emergency order and closed once the quota established at the beginning of each season has been harvested. Within the discretionary authority of the registration permit, the department has a 2-day harvest reporting requirement and a quota of 25 moose or no more than 20 cows for 2020.

Analysis of three Trend Count Areas (Squirrel Creek, Pilot Mtn., and Kaiyuh Slough TCAs) within the Kaiyuh Flats showed a significant increase in the number of moose among all age classes, and adult moose increased 57% from the 2001–2017. The average count increased from 725 adult moose to 1,138 adult moose during the same period (Figure 2).

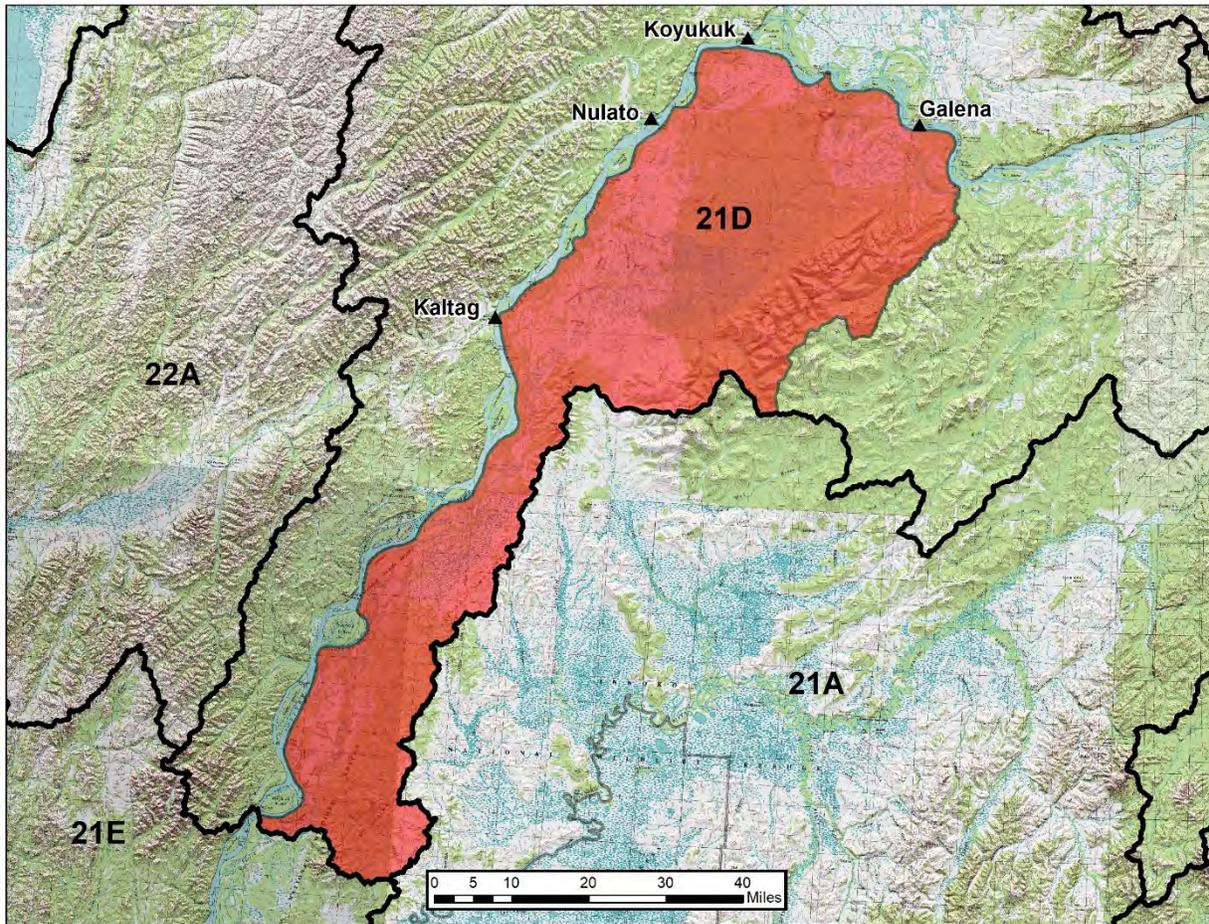
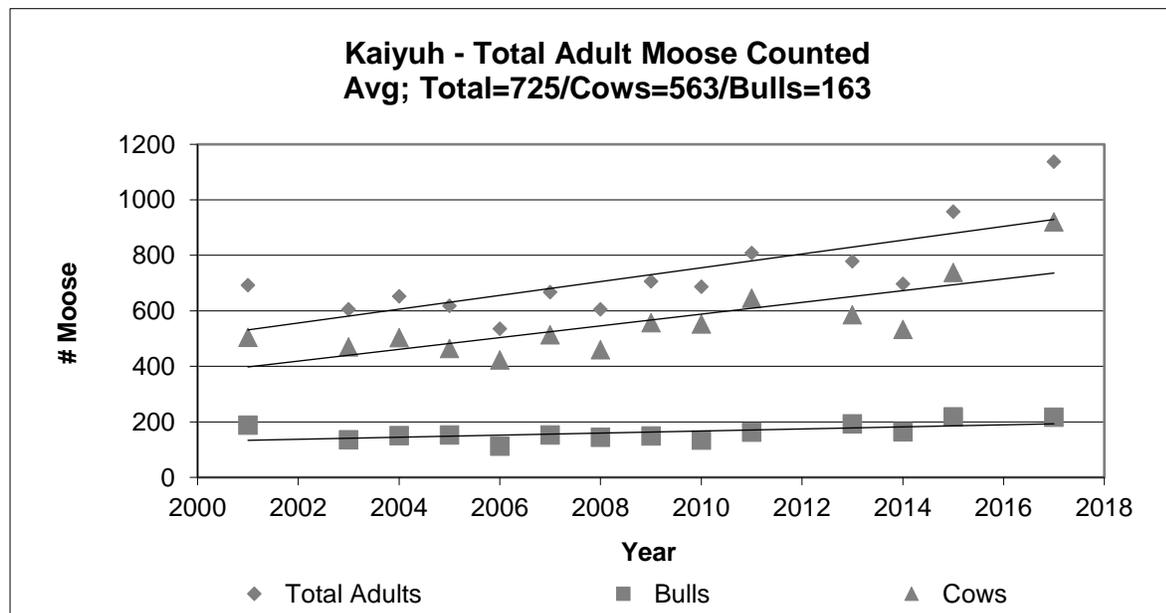


Figure 1. Kaiyuh Flats RM831 hunt area.



**Figure 2. Kaiyuh Trend Count Areas combined count of adult moose, 2001-2017, Unit 21D.**

Analysis of the Geospatial Population Estimate data also showed a statistically significant increase from 1,897 ±11% moose in 2011 to 4,116 ±10% moose in 2017 (Table 1).

**Table 1. Kaiyuh Flats Sub-Area, GSPE aerial moose population estimates, regulatory years 1987–2017, Unit 21D.**

Area/ Regulatory Year	Area mi <sup>2</sup>	Bulls:100 Cows	Calves:100 Cows	Yearling bulls:100 Cows	Percent calves	Adults	Population Estimate (90% C.I.)	Density
<i>Unit 21D–Kaiyuh Flats Sub-area</i>								
1987–1988 <sup>a</sup>	1,582	60.6	46.4	15.0	22.4	1,389	1,790±18%	1.13
1997–1998 <sup>b</sup>	1,582	42.3	28.4	13.0	16.6	1,113	1,335±17%	0.84
2001–2002 <sup>c</sup>	1,843	44.5	22.1	8.8	13.4	1,558	1,800±32%	0.98
2004–2005 <sup>c</sup>	1,843	35.1	43.3	12.2	24.7	1,119	1,487±10%	0.81
2011–2012 <sup>c</sup>	1,843	30.5	38.6	10.4	22.9	1,463	1,897±11%	1.03
2017–2018 <sup>c</sup>	1,894	32.2	50.3	11.8	27.5	3,009	4,116±10%	2.17

<sup>a</sup> Gasaway survey, MOOSEPOP analysis estimate, with sightability correction factor.

<sup>b</sup> Gasaway survey, Regression analysis estimate, with sightability correction factor.

<sup>c</sup> Geospatial population estimation survey, without sightability correction factor.

Analysis of the moose twinning data for the proposed hunt area show high and stable twinning rates since 2004 (Table 2). A 265,916 acre wildfire in the Kaiyuh Flats area in 2004 likely explains the increased productivity for the area, and ultimately the increase in the moose population.

**Table 2. Unit 21D moose aerial twinning surveys in the Pilot Mtn. Slough to Kaiyuh Slough trend count areas, regulatory years 2003–2004 through 2018–2019 (USFWS).**

Regulatory year	Cows w/o calves	Cows w/ 1 calf	Cows w/twins	Twinning % <sup>a</sup>	Yearlings	Dates in May
2003–2004	52	32	18	36	28	24,25
2004–2005	63	26	31	54	12	24–26
2005–2006	86	32	20	38	29	25,26
2006–2007	69	29	18	38	35	22–26
2007–2008 <sup>b</sup>	76	30	22	42 <sup>c</sup>	7	23,24,29
2008–2009	69	27	20	43	14	26–28
2009–2010	60	34	19	36	18	28,29
2010–2011	50	39	17	30	13	27
2011–2012	94	30	21	41	13	24–26,29
2012–2013	93	33	23	41	55	24,25
2013–2014	59	29	24	45	13	26–28
2014–2015	39	42	19	31	32	25–26
2015–2016	73	37	21	36	45	23–25

Regulatory year	Cows w/o calves	Cows w/ 1 calf	Cows w/twins	Twinning % <sup>a</sup>	Yearlings	Dates in May
2016–2017	61	34	29	46	25	23–24
2017–2018	100	50	19	28	32	24–25
2018–2019	80	57	30	34	35	24,25,28

<sup>a</sup> Percent of cows with calves that had twins.

<sup>b</sup> Radiocollared cows in sample

<sup>c</sup> Including 1 cow w/3 calves.

The moose population objective in all of Unit 21D (12,093.6 mi<sup>2</sup>) is 9,000–10,000 moose. In 2017, the mid-point of the 21D population estimate was above this objective, at 10,478 moose ( $\pm 1,572$ ; Table 3). The area affected by the proposal is approximately 21% (2,559 mi<sup>2</sup>) of the Unit 21D management area. The proposed hunt area overlaps with a portion of the drawing permit hunt areas for bull moose (DM816/DM817/DM818) in bold text in Table 3.

**Table 3. Unit 21D moose population estimate by drawing hunt areas, Interior Alaska, regulatory year<sup>a</sup> 2017<sup>b</sup>.**

Drawing hunt area	Density estimate	Moose population estimate
<b>(DM816) Yuki River and Bishop Creek</b>	<b>(545 mi<sup>2</sup> @ 1.44 moose/mi<sup>2</sup>)</b>	<b>785</b>
	<b>(1,555 mi<sup>2</sup> @ 0.37 moose/mi<sup>2</sup>)</b>	<b>575</b>
	<b>Subtotal</b>	<b>1,360</b>
<b>(DM817) Nulato River and Kaiyuh Flats</b>	<b>(612 mi<sup>2</sup> @ 3.99 moose/mi<sup>2</sup>)</b>	<b>2,442</b>
	<b>(2,329 mi<sup>2</sup> @ 0.35 moose/mi<sup>2</sup>)</b>	<b>815</b>
	<b>Subtotal</b>	<b>3,257</b>
<b>(DM818) Papa Willie Slough</b>	<b>(360 mi<sup>2</sup> @ 1.30 moose/mi<sup>2</sup>)</b>	<b>468</b>
	<b>(1,096 mi<sup>2</sup> @ 0.35 moose/mi<sup>2</sup>)</b>	<b>383</b>
	<b>Subtotal</b>	<b>851</b>
(DM823–DM830) Koyukuk Controlled Use Area	(1,929 mi <sup>2</sup> @ 1.83 moose/mi <sup>2</sup> )	3,703
	(468.6 mi <sup>2</sup> @ 0.35 moose/mi <sup>2</sup> )	164
	Subtotal	3,867
(DM814, DM815, DM819) Bear Creek	(916 mi <sup>2</sup> @ 0.75 moose/mi <sup>2</sup> )	687
(DM820) Gisasa and Kateel rivers	(2,283 mi <sup>2</sup> @ 0.20 moose/mi <sup>2</sup> )	456
Unit 21D total	(12,093.6 mi <sup>2</sup> )	10,478 ( $\pm 1,572$ ) <sup>c</sup>

<sup>a</sup> Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2017 = 1 July 2017–30 June 2018).



<sup>b</sup> Population estimates for each permit area were a combination of population estimation survey data, trend count survey data, and extrapolation data to varying degrees.

<sup>c</sup> The range on the estimate is not a statistically derived confidence interval. The 15% relative error of  $\pm 1,572$  moose is a presumed level of uncertainty with no empirical basis.

**Impact on Subsistence Users:** This hunt will provide additional opportunity for all resident hunters and the alignment with the state seasons will reduce confusion for federally qualified hunters.

**Impact on Other Users:** If adopted, there will be no effect on nonfederally qualified subsistence hunters..

**Opportunity Provided by State:** See Seasons and Bag Limits above.

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for Moose in Unit 21.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for Moose in Unit 21 is 600-800 animals. The following table includes an assessment of harvestable surplus relative to the ANS for all of Unit 21.

Unit	Prescribed Harvest rate	Avg annual harvest (rept + est. unrept)	Moose Population Estimate	Can Population Provide for Current level of harvest	Harvestable surplus
21A	5% of observed	75 (45 + 30)	2,442	yes	120
21B	5% of observed	101 (76 + 25)	2,317 ( $\pm$ 417)	yes	95*
21C	5% of observed	27 (22 + 5)	900-1300 extrapolated est. (0.25-0.35 moose/mi <sup>2</sup> )	yes	45
21D	5-7% of observed	412 (287 + 125)	10,478 ( $\pm$ 1,572)	yes	445
21E	4% of estimate with scf	190 (180 + 10)	9,777	yes	390
<b>Total</b>		<b>805 (610 + 195)</b>			<b>1,095</b>
<b>Combined ANS (Unit 21)</b>		<b>600-800</b>			

The seasons and bag limits for Unit 21D are:

Units and Bag Limits	Resident Open Season (Subsistence and General Hunts)	Nonresident Open Season
(a)		
(19)		
...		

Unit 21(D), that portion within the Koyukuk Controlled Use Area

**RESIDENT HUNTERS:**

- |  |                  |
|--|------------------|
| 1 bull, by registration permit only;<br>or   | Sept. 1-Sept. 25 |
| 1 bull by drawing permit only; up to 320 permits may be issued in combination with Unit 24 | Sept. 5-Sept. 25 |

Units and Bag Limits	Resident Open Season (Subsistence and General Hunts)	Nonresident Open Season
<p>that portion within the Koyukuk Controlled Use Area NONRESIDENT HUNTERS:</p>		
<p>1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side, by drawing permit only; up to 80 permits may be issued in combination with Unit 24 that portion within the Koyukuk Controlled Use Area</p>		Sept. 5–Sept. 25
<p>Unit 21(D), that portion south of the South bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek</p>		
<p>RESIDENT HUNTERS:</p>		
<p>1 bull, by registration permit only; or</p>	<p>Aug. 22–Aug. 31 Sept. 5–Sept. 25</p>	
<p>1 bull by drawing permit only; up to 600 permits may be issued in combination with Unit 21(D) remainder;</p>	<p>Sept. 5–Sept. 25</p>	
<p>or 1 moose, by registration permit (RM831) only, up to 15 days during March, however, a person may not take a cow accompanied by a calf</p>	<p>(Winter season to be announced)</p>	
<p>NONRESIDENT HUNTERS:</p>		
<p>1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side, by drawing permit only; up to 600 permits may be issued in combination with Unit 21(D) remainder</p>		Sept. 5–Sept. 25
<p>Remainder of Unit 21(D)</p>		
<p>RESIDENT HUNTERS:</p>		
<p>1 bull, by registration permit only; or</p>	<p>Aug. 22–Aug. 31 Sept. 5–Sept. 25</p>	
<p>1 bull by drawing permit only; up to 600 permits may be issued in combination with Unit 21(D) that portion south of the South bank of</p>	<p>Sept. 5–Sept. 25</p>	

<b>Units and Bag Limits</b>	<b>Resident Open Season (Subsistence and General Hunts)</b>	<b>Nonresident Open Season</b>
<p>the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek</p> <p>NONRESIDENT HUNTERS:</p> <p>1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side, by drawing permit only; up to 600 permits may be issued in combination with Unit 21(D) that portion south of the South bank of the Yukon River, downstream of the up-river entrance of Kala Slough and west of Kala Creek</p>		<p>Sept. 5–Sept. 25</p>

...

**Special instructions for Registration Hunts:**

Registration permit hunts RM832 and RM834 require antler destruction.  
 Registration permit hunt RM831 requires harvest reporting within 2 days.  
 Resident hunters may not possess a Galena Area drawing permit and registration permit in the same year.

**Conservation Issues:** Moose densities are declining north of the Yukon River in Unit 21D.

**Enforcement Issues:** Not Applicable

**Recommendation:** ADF&G **SUPPORTS** WP20-36 to adopt the seasons and bag limits adopted by the Board of Game which included discontinuing the March 1-5 season in 21D outside of the RM831 hunt area. The March 1-5 season has not been opened for many years and the moose population can no longer support that hunt. ADF&G does **NOT SUPPORT** Proposal WP20-37, that would create a December season because there is no State hunt during that period, and it would create confusion for hunters. This is an important concern because of the pervasive checker-board pattern of state and federal managed lands in the area.

## Appendix 1

Refuge Manager  
 Koyukuk/Nowitna/Innoko National Wildlife Refuge  
 101 Front Street 287  
 Galena, Alaska 99741

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the manager of the Koyukuk/Nowitna/Innoko National Wildlife Refuge to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within Unit 21D for the management of moose on these lands.

It is the intent of the Board that actions related to management of moose by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), the Bureau of Land Management (BLM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

### DELEGATION OF AUTHORITY

**1. Delegation:** The Koyukuk/Nowitna/Innoko NWR manager is hereby delegated authority to issue emergency or temporary special actions affecting moose on Federal lands as outlined under the **Scope of Delegation**. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- To announce season dates, harvest quotas, and sex restrictions for moose in Unit 21D.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify permit requirements or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve moose populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Unit 21D.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations

and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair

Enclosures

cc: Federal Subsistence Board

Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management  
Wildlife Division Supervisor, Office of Subsistence Management

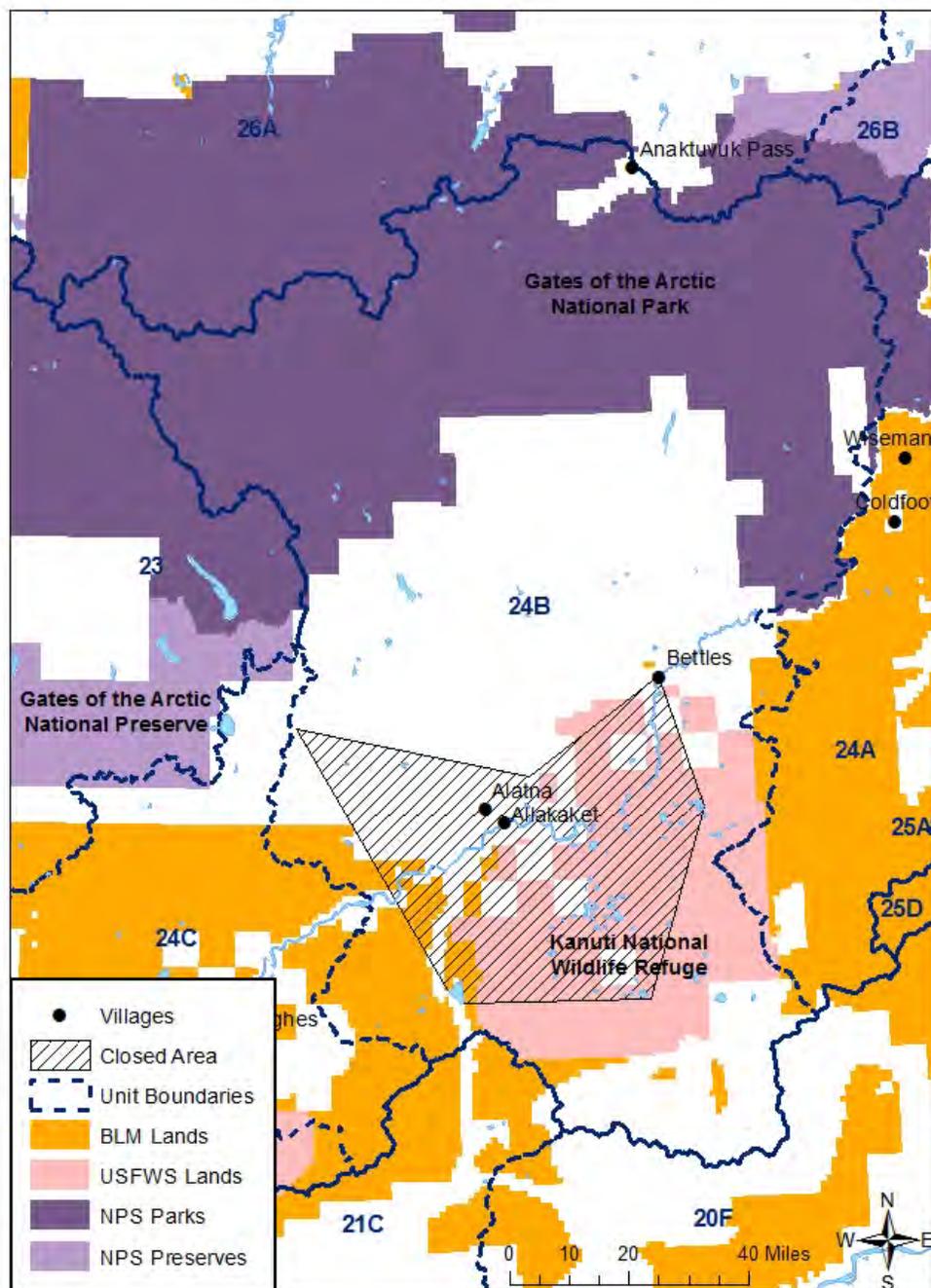
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Western Interior Alaska Subsistence Regional Advisory Council  
Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record



<b>WCR20-20 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-20 reviews the closure to moose hunting in the Kanuti Controlled Use Area of Unit 24B, except by Federally qualified subsistence users.
<b>Current Regulation</b>	<p><b>Unit 24–Moose</b></p> <p><i>Unit 24B, remainder—1 bull by State harvest ticket      Aug. 25- Oct. 1.</i></p> <p><i>OR</i></p> <p><i>1 antlered bull by State registration permit      Dec. 15- Apr. 15.</i></p> <p><i>Federal public lands in the Kanuti Controlled Use Area, as described in Federal regulations, are closed to taking of moose, except by Federally qualified subsistence users of Unit 24, Koyukuk, and Galena hunting under these regulations</i></p>
<b>OSM Preliminary Conclusion</b>	<b>Modify or eliminate the closure</b>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Western Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

### FEDERAL WILDLIFE CLOSURE REVIEW WCR20-20

**Closure Location:** Unit 24B remainder, Kanuti Controlled Use Area (**Map 1**) — Moose



**Map 1.** Federal hunt area closure for moose in Unit 24B remainder, Kanuti Controlled Use Area.

**Current Federal Regulation****Unit 24–Moose**

*Unit 24B, remainder—1 bull by State harvest ticket* *Aug. 25-Oct. 1.*

*OR*

*1 antlered bull by State registration permit* *Dec. 15-Apr. 15.*

*Federal public lands in the Kanuti Controlled Use Area, as described in Federal regulations, are closed to taking of moose, except by Federally qualified subsistence users of Unit 24, Koyukuk, and Galena hunting under these regulations*

**Closure Dates:** Year-round

**Current State Regulation****Unit 24B–Moose**

*Residents - One bull* *HT* *Sept. 1-Sept. 25*

*OR*

*Residents - One antlered bull by permit available online at <http://hunt.alaska.gov> or in person in Hughes, Allakaket, and Fairbanks beginning Dec. 6* *RM833* *Dec. 15-Apr. 15*

*Nonresidents – One bull with 50-inch antlers with 4 or more brow tines on at least one side* *HT* *Sept. 5-Sept. 25*

**Regulatory Year Initiated:** 1992

**Regulatory History**

The Kanuti Controlled Use Area (CUA) was created in 1979 under State regulations to address user conflicts and biological concerns and is important in maintaining reasonable opportunity for subsistence uses of moose (ADF&G 2010). In 1990, the Kanuti CUA was adopted into Federal subsistence regulations from State regulations and was part of Unit 24 remainder. The season was Aug. 25-Sept. 25 with a harvest limit of one bull. The Kanuti CUA consists of that portion of Unit 24 bounded by a line from the Bettles Field VOR to the east side of Fish Creek Lake; to Old Dummy Lake; to the south end of Lake Todatonten (including all water of these lakes); to the northernmost headwaters of Siruk Creek; to the highest peak of Double Point Mountain; and then back to the Bettles

Field VOR. The Kanuti CUA is closed during moose hunting seasons to the use of aircraft for hunting moose, including transportation of any moose hunter or moose part.

In 1992, the Tanana Chiefs Conference submitted Proposal P92-115, requesting the Kanuti CUA be closed to moose hunting except by residents of Alatna, Allakaket, Bettles, Evansville, and Hughes because subsistence needs were not being met. The Federal Subsistence Board (Board) adopted Proposal P92-115 with modification, closing the Kanuti CUA to moose hunting except by Federally qualified subsistence users to provide opportunity to all users with a customary and traditional use determination (C&T) for moose in Unit 24. Additionally, harvest met or exceeded the estimated harvestable surplus, recommending limiting harvest to conserve the moose population (FSB 1992).

In 2006, the Board adopted Proposal WP06-34 to change the closing date of the moose season in Unit 24 remainder from Sept. 25 to Oct. 1 and to require a Federal registration permit during the extended Federal season of Sept. 26-Oct. 1. An extended season provided additional opportunity, and survey data indicated the Unit 24 remainder moose population could sustain a modest increase in harvest. The Board also adopted Proposal WP06-36 to divide Unit 24 into four subunits to maintain consistency with State regulations, which subdivided Unit 24 to improve manageability. The Kanuti CUA became part of Unit 24B remainder.

Between 2007 and 2010, the Board approved several special action requests (WSA06-08, WSA07-09, WSA07-10, WSA09-15) for extensions or establishments of winter seasons in Unit 24B because of extreme cold weather and unmet subsistence needs.

In 2010, the Board adopted Proposal WP10-67 with modification to establish Kanuti National Wildlife Refuge (NWR) and BLM lands as a separate hunt area, specify the harvest limit as one antlered bull to discourage inadvertent cow harvest, and add a winter season of Dec. 15-Apr. 15 to provide additional opportunity in an area with low harvest success rates. The Board also stipulated the winter season would sunset on June 30, 2014.

Also in 2010, the Alaska Board of Game (BOG) adopted Proposal 94, which reduced the size of the Kanuti CUA under State regulations to accommodate access to a private cabin. As a result, the boundary of the State CUA has been out of alignment with the Federal CUA boundary since 2010.

In 2012, the Board adopted Proposal WP12-57 to redefine the hunt areas in Unit 24B to reduce user confusion by aligning State and Federal hunt area boundaries (although State and Federal boundaries of the Kanuti CUA were still out of alignment). The Kanuti CUA became part of two hunt areas: Unit 24B, all drainages of the Koyukuk River downstream from and including the Henshaw Creek drainage and Unit 24B remainder. The Henshaw Creek hunt area had a winter season (Dec. 15-Apr. 15) whereas Unit 24B remainder did not. The Board also adopted Proposal WP12-58 with modification to clarify permit requirements by requiring one Federal registration permit for both fall and winter seasons.

In 2014, the Board adopted Proposal WP14-29, making the Dec. 15-Apr. 15 season indefinite to provide additional opportunity. No impacts to the moose population had been observed since the winter season was established in 2010.

In 2016, the Board adopted Proposal WP16-42, establishing a winter season upstream of the Henshaw Creek drainage to provide additional opportunity. This resulted in the Henshaw Creek hunt area and Unit 24B remainder being collapsed into one hunt area, meaning all of the Kanuti CUA was part of Unit 24B remainder again.

In 2018, the Board adopted Proposal WP18-35 to remove “antlered” from the harvest limit for the fall season and to require a State harvest ticket and State registration permit for the fall and winter seasons in Unit 24B remainder, respectively. This eliminated the Federal registration permit requirement, aligning State and Federal reporting requirements.

The Kanuti CUA is comprised of 56% Federal public lands and consist of 49% U.S. Fish and Wildlife Service (USFWS) managed lands and 7% Bureau of Land Management (BLM) managed lands (**Map 1**).

**Closure last reviewed:** 2012 – WCR12-20

**Justification for Original Closure:**

In 1992, the Board closed the Kanuti CUA to moose hunting except by Federally qualified subsistence users via adoption of Proposal P92-115 with modification. As harvest met or exceeded the estimated harvestable surplus, the Board supported the closure to conserve the moose population and to provide continued opportunity for all users with C&T for moose in Unit 24.

Section §815(3) of ANILCA states:

Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...

**Council Recommendation for Original Closure:**

The Federal Subsistence Regional Advisory Councils were not yet established in 1992. However, the Interior Regional Council took no action on the original closure (Proposal P92-115) due to lack of input from the Koyukuk River Fish and Game Advisory Committee (FSB 1992).

**State Recommendation for Original Closure:**

The State opposed the original closure, stating the Kanuti CUA already restricted non-local use by prohibiting aircraft. Additionally, the State commented that local residents harvested the majority of moose in the Kanuti CUA, unlike other parts of Unit 24 where non-local harvest was greater (FSB 1992).

## Biological Background

The Koyukuk River Moose Hunters' Working Group in cooperation with the Alaska Department of Fish and Game (ADF&G) developed the Koyukuk River Moose Management Plan (Management Plan) in 2001 to guide moose management in the Koyukuk River drainage in response to concerns about overharvest (ADF&G 2001). The Management Plan made many regulatory recommendations to conserve the Koyukuk River drainage moose population that were adopted by the BOG and the Board. Goals of the Management Plan include managing the moose population on a sustained yield basis, protecting and enhancing moose habitat, and managing predation on moose (ADF&G 2001). ADF&G has the additional population objectives of 10,000-12,000 moose for all of Unit 24 and 4,000-4,500 moose for Unit 24B, specifically (Stout 2018).

ADF&G, BLM, and the USFWS cooperatively conduct aerial moose surveys in Kanuti NWR during November to estimate moose abundance and composition. Since 1999, the survey methodology (Geospatial Population Estimator technique) and area (Kanuti NWR) has remained the same, allowing direct comparisons between surveys (Julianus and Longson 2018).

Between 1989 and 2017, the moose population in Kanuti NWR ranged from 551 moose to 2,010 moose (**Figure 1**) (Stout 2014, 2018, Julianus and Longson 2018). The highest estimate was in 1993 and cannot be directly compared to later surveys due to changes in survey methodology. Poor survey conditions and low sample size may have influenced the lowest estimate in 2013 (Stout 2014). Since 1999, the highest population estimate was 1,311 moose in 2017. However, population models indicate no trend in the data, suggesting the Kanuti NWR moose population has been stable since 1999 (Julianus and Longson 2018).

Moose density estimates parallel moose population estimates. Between 1989 and 2017, the moose density in Kanuti NWR ranged from a high of 0.76 moose/mi<sup>2</sup> in 1993 to a low of 0.20 moose/mi<sup>2</sup> in 2013 (Stout 2014, 2018, Julianus and Longson 2018). Since 1999, the highest density estimate was 0.48 moose/mi<sup>2</sup> in 2017. These density estimates are typical of Interior Alaska moose populations that are limited by predation and indicate the Kanuti NWR moose population persists at a low-density dynamic equilibrium (Julianus and Longson 2018). Habitat limitations also affect moose densities in the Kanuti CUA. Moose densities in the upper Koyukuk drainage (north of Hughes) are significantly less than densities in the lower Koyukuk drainage where broad areas of riparian habitat are found (ADF&G 2001).

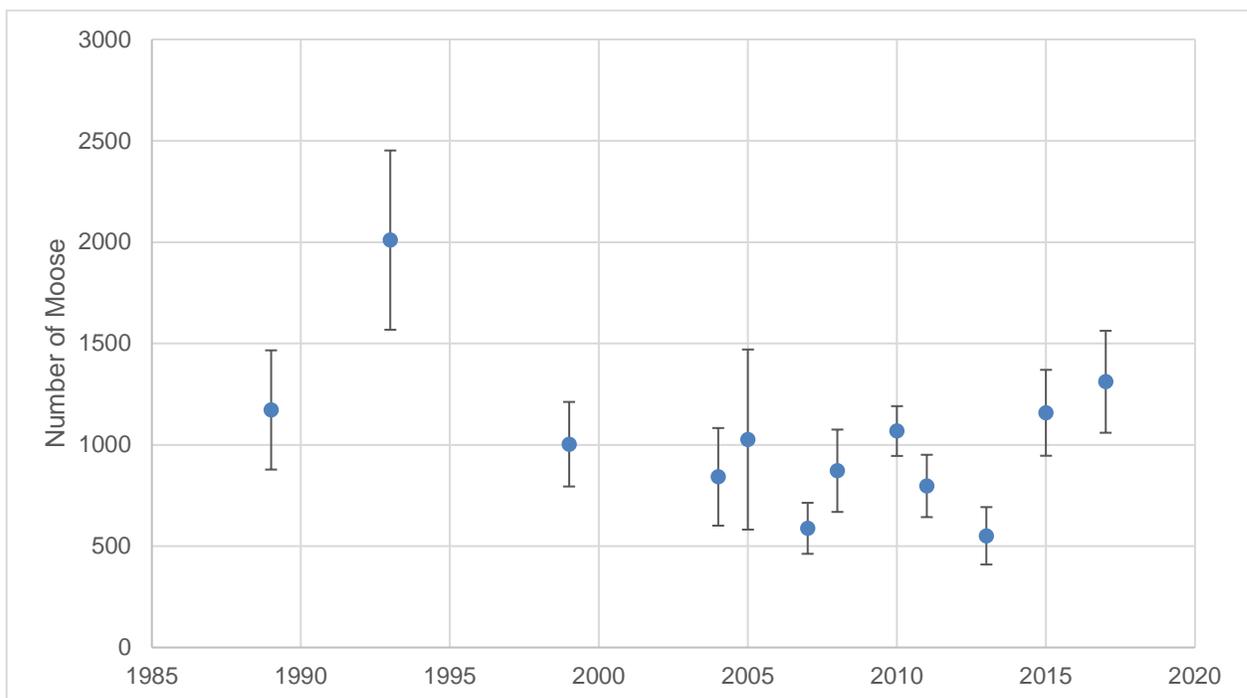
In low density moose populations, a ratio of 30-40 bulls:100 cows may be necessary to ensure adequate breeding as cows are sparsely distributed (ADF&G 2001). Between 1989 and 2017, bull:cow ratios ranged from 46 bulls:100 cows in 2010 to 75 bulls:100 cows in 2017 (**Figure 2**) (Stout 2014, 2018, Julianus and Longson 2018). These high bull:cow ratios indicate sufficient numbers for breeding and that bulls are not being overharvested.

Fall calf:cow ratios of < 20 calves:100 cows, 20-30 calves:100 cows, and > 30-40 calves:100 cows indicate declining, stable, and growing moose populations, respectively (ADF&G 2001). Between 1989 and 2017, fall calf:cow ratios in Kanuti NWR ranged from 17 calves:100 cows in 1989 to 58

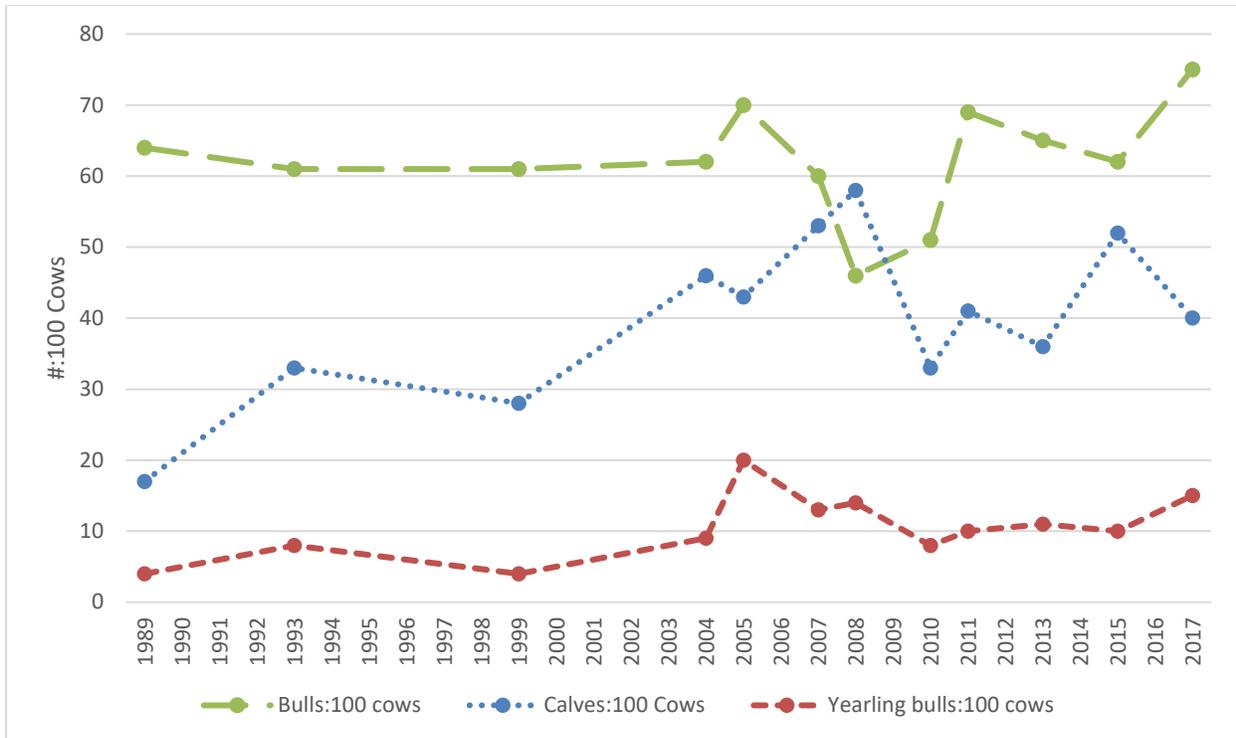
calves:100 cows in 2008 (**Figure 2**) (Stout 2014, 2018, Julianus and Longson 2018). Since 2004, calf:cow ratios have exceeded 30 calves:100 cows in all years surveyed and 40 calves:100 cows in 7 out of 9 years surveyed. These high calf:cow ratios suggest adequate productivity for population growth.

Predation by wolves and bears in Unit 24B is likely limiting growth of the moose population (ADF&G 2001, Stout 2014, 2018). The Management Plan lists black bear predation on calves and wolf predation on all moose as significant mortality factors (ADF&G 2001). During Board discussion on Proposal P92-115, 100 moose were estimated to be predated by wolves from the Kanuti CUA each year, decreasing the harvestable surplus from 156 moose/year to 56 moose/year (FSB 1992). While the Kanuti NWR moose population has been statistically stable since 1999, the observed population increase in 2017 may be partially due to reduction in wolf numbers (Julianus and Longson 2018). From 2012-2018, ADF&G conducted wolf control in Unit 24B, including along the western boundary of Kanuti NWR (ADF&G 2018a, Julianus and Longson 2018). Mild winters since 2009 may also have enhanced overwinter calf survival, increasing recruitment and contributing to population increases (Julianus and Longson 2018).

At the 2019 winter meeting of the Western Interior Alaska Subsistence Regional Advisory Council (Council), the Council Chair stated that 2018/19 was a very high snow year, raising concerns for this moose population. Deep snow increases moose mortality and has negative effects on moose production, survival and recruitment (WIRAC 2019).



**Figure 1.** Population estimates for moose in Kanuti National Wildlife Refuge (Stout 2014, 2018, Julianus and Longson 2018).



**Figure 2.** Bull:cow, calf:cow, and yearling bull:cow ratios for Kanuti National Wildlife Refuge (Stout 2014, 2018, Julianus and Longson 2018).

**Harvest History**

The Management Plan prescribes a maximum annual harvest rate of 5% for the Kanuti CUA moose population (ADF&G 2001). The Management Plan considers this a conservative harvest rate that is necessary due to significant mortality from predation. Given the 2017 population estimate for Kanuti NWR (1,311 moose), the 2017 harvestable surplus for Kanuti NWR was 65 moose.

As Federal public lands in the Kanuti CUA are closed to non-Federally qualified users, all moose harvest occurs under Federal regulations by Federally qualified subsistence users. Users with C&T for moose in the Kanuti CUA include residents of Unit 24, Galena, and Koyukuk. However, the primary harvesters are from Allakaket, Alatna, Bettles, and Evansville (FSB 1992).

In 1992, when the Board closed the Kanuti CUA to moose harvest by non-Federally qualified users, an estimated 50-75 moose were being harvested from the CUA by both subsistence and sport hunters each year, although annual reported harvest was 30 moose. ADF&G and Kanuti NWR staff recommended harvest from the CUA not exceed 50 moose per year (FSB 1992). A representative from the Tanana Chiefs Conference (the proposal’s proponent) testified that harvest pressure on moose was increasing because local people were depending more on moose to meet their subsistence needs given declines in caribou abundance. The Chair of the Interior Regional Council testified that subsistence needs in Allakaket and Alatna were not being met. The ADF&G representative testified that unlike other portions of Unit 24, most of the harvest from the Kanuti CUA was by local residents because of aircraft restrictions (FSB 1992).



Between 2006 (when Unit 24 was divided into subunits) and 2018, moose harvest by Federal registration permit in Unit 24B totaled 37 moose, ranging from 0-5 moose reported harvested per year (OSM 2018). Over the same time period, a total of 371 Federal permits were issued, ranging from 13-72 permits per year, indicating low success rates (**Figure 3**) (OSM 2019).

Between 2006 and 2017, annual reported moose harvest under State regulations in Unit 24B ranged from 23 - 49 moose and averaged 34.5 moose (**Figure 4**) (ADF&G 2018b). Non-local hunters accounted for the majority of the State-reported moose harvest in Unit 24B. Federally qualified subsistence users (those with C&T) only accounted for 28% of the reported moose harvest on average (ADF&G 2018b). Since the closure of the Kanuti CUA in 1992, reported moose harvest, moose hunters, and harvest success rates under State regulations in Unit 24B have all trended downward (**Table 1**) (ADF&G 2018b). Over 95% of reported harvests occur in September (Stout 2018).

Illegal and unreported moose harvest in Unit 24 is significant and hampers management (Stout 2014). Between 2006 and 2015, ADF&G has estimated unreported moose harvest for all of Unit 24 as 135-144 moose per year and that 60-70% of unreported harvests are cows (Stout 2014, 2018). Using community household survey data between 1997 and 2002, Stout (2018) estimated unreported harvest rates for non-local hunters and local residents of Unit 24 as 17.7% and 76%, respectively. Much of the unreported harvest likely occurs between Oct. and Mar. These data are based on intermittent household surveys, historical information, and public interviews (Stout 2014, 2018). Additionally, household surveys are intended to demonstrate community harvest patterns and resource use, rather than precise harvest numbers.

Between 1997 and 2011, annual moose harvest by the communities primarily responsible for moose harvest within the Kanuti CUA (Alatna, Allakaket, Bettles, and Evansville) ranged from 26-55 moose/year according to household survey data and from 3-10 moose/year according to State harvest reports (**Table 2**) (ADF&G 2018b, 2018c). This corresponds to unreported harvest rates of 81%-92% (**Table 2**). The number of moose actually harvested from the Kanuti CUA is unknown. The household survey data does not specify area and the State harvest reports are for all of Unit 24B.

However, unreported harvest rates are much lower for the Federal registration permit hunt (**Figure 3**). While most of the moose harvest in Unit 24B occurs under State regulations, unreported harvest rates for the Federal hunt between 2006 and 2018 only averaged 18%, ranging from 0%-44% per year (OSM 2019). These high reporting rates are likely due, in part, to good communication between local residents and Kanuti NWR staff who administer the Federal hunt and issue the permits.

At the 2019 winter Council meeting, the Council Chair stated that recent moose harvest in Allakaket and Alatna has been fairly low. The Koyukuk River Advisory Committee reported that only nine moose had been killed in these communities during the 2018 fall season, one in the Koyukuk CUA and eight locally (WIRAC 2019). Additionally, moose started moving later in the fall due to warmer weather, resulting in local hunters spending a lot of time and fuel searching for moose (WIRAC 2019).

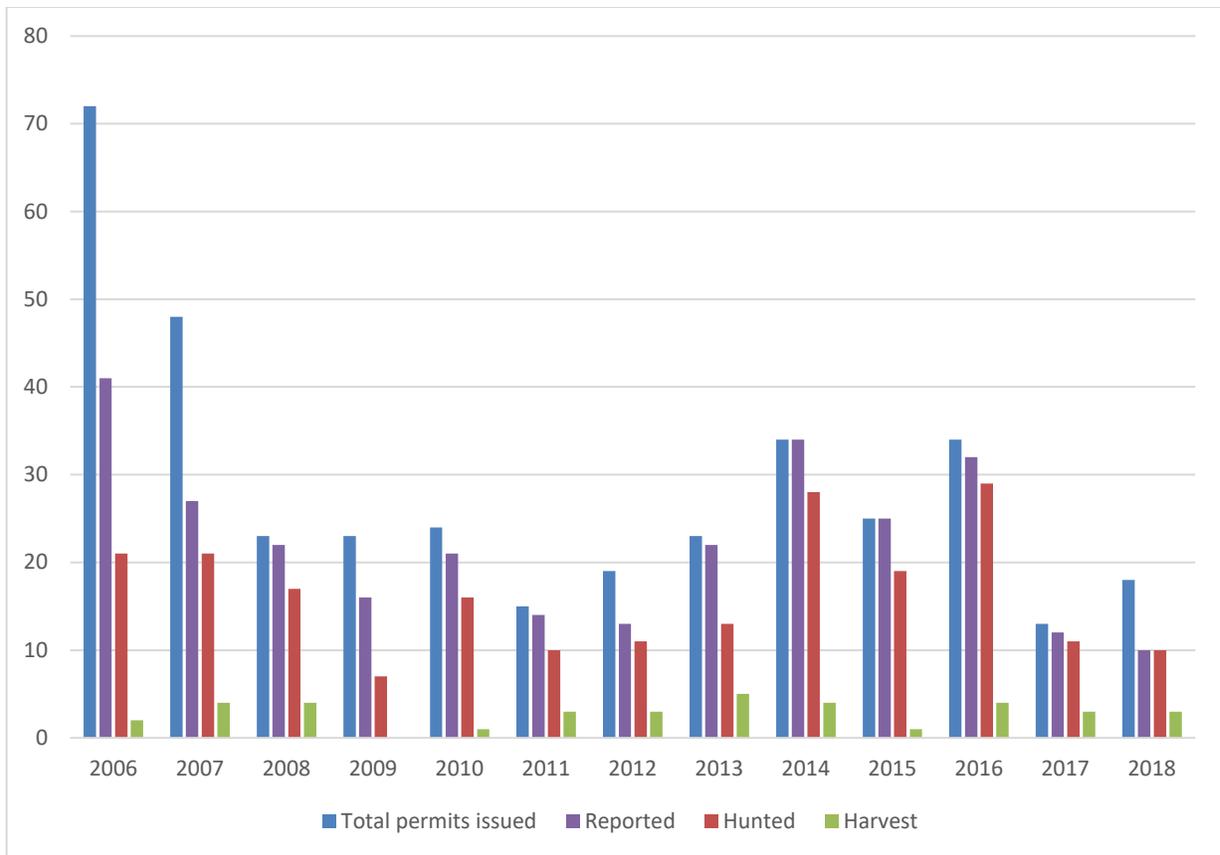
**Table 1.** Averages of reported harvest, number of hunters, and harvest success rates for moose in Unit 24B according to State harvest reports (ADF&G 2018b).

Years	Moose Harvest	Moose Hunters	Success Rate (%)
1987-1991	59.6	116.2	51.5
1992-2004	45.2	108.4	41.5
2005-2017	34.5	98.0	35.5
1992-2017	39.8	103.2	38.5

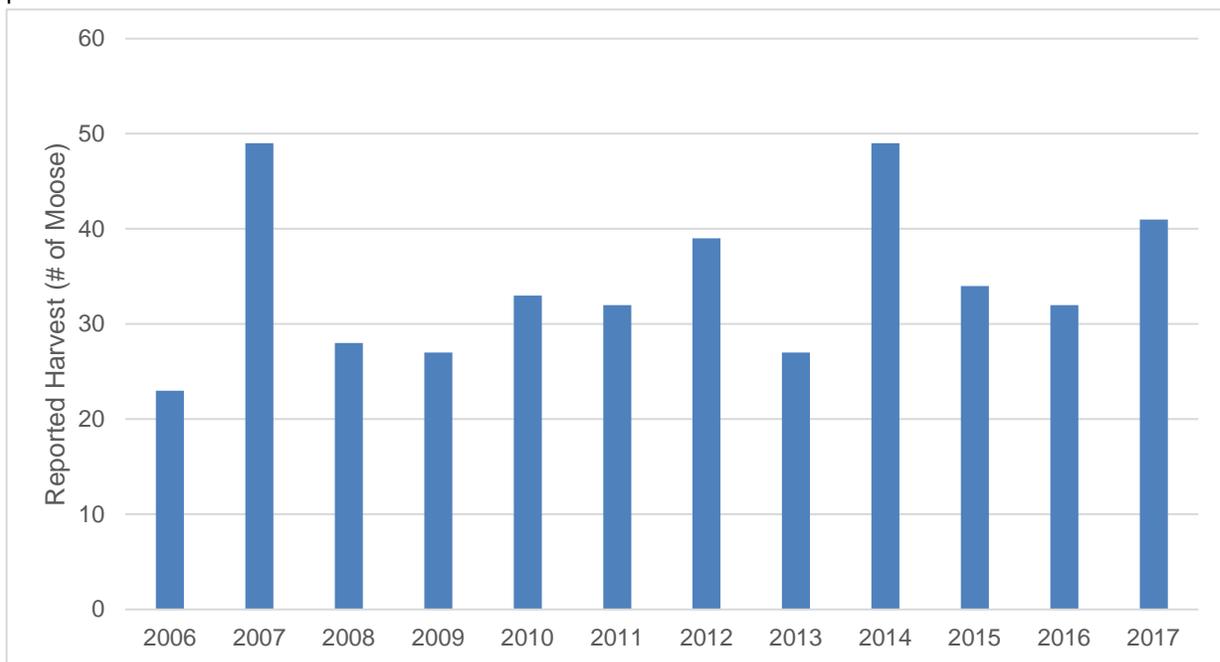
**Table 2.** Community household survey and reported moose harvests (ADF&G 2018b, 2018c, OSM 2019).

	Alatna	Allakaket	Bettles	Evansville	Household Survey Total	Reported Harvest Total	% Unreported
1997	9	43	0	3	55	7	87.3
1998	5	37	7	4	53	10	81.1
1999	6	37	2	2	47	8	83.0
2001	6	35	no data	no data	41	6	85.4
2002	12	35	0	0	47	4	91.5
2011	4	19	2	1	26	6*	76.9

\*includes 3 moose reported by Federal permit. (No Federal permit hunts existed before 2006)



**Figure 3.** Number of permits issued and reported, hunters attempting harvest, and moose reported harvested for the Federal registration permit moose hunts (FM2401-FM2404) in Unit 24B (OSM 2019). The vast majority of Federal permit holders (95%) lived in Allakaket or Alatna. The remaining 5% of permit holders lived in Bettles.



**Figure 4.** Reported moose harvested under State regulations in Unit 24B (ADF&G 2018b).

**OSM Preliminary Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

**Justification**

The Kanuti CUA was closed for biological and continuation of subsistence uses reasons. Biologically, the closure no longer seems warranted, primarily due to very high bull:cow ratios. Consistently high bull:cow ratios suggest there are surplus bulls available for harvest and only bulls can be legally harvested in Unit 24B. While the Kanuti CUA moose population has remained statistically stable since the closure was initiated in 1992, high calf:cow ratios and observed increases in the 2015 and 2017 population estimates indicate the moose population may be growing. Moreover, harvest of mature bulls in a population with high bull:cow ratios should not materially affect population growth.

Prior to the 1992 closure, local hunters harvested most of the moose from the Kanuti CUA due to aircraft restrictions. This contrasts with other portions of Unit 24 (pre-1992 and now) where non-local hunters harvest the majority of the moose. Since 1992, average annual reported harvest from Unit 24B has declined. This suggests opening the Kanuti CUA to non-Federally qualified users may result in only modest increases in reported moose harvests. A rural subsistence priority would be maintained by the longer Federal fall season.

However, whether or not the closure remains warranted for the continuation of subsistence uses is not clear. High unreported harvest rates and intermittent household surveys preclude accurate harvest information for Federally qualified subsistence users. Whether or not subsistence needs of Federally qualified subsistence users are being met is unknown, although high bull:cow ratios indicate bulls are available for harvest.

A conservative approach would be to recommend opening the Kanuti CUA for a limited time (e.g. 2-4 years) to evaluate any changes in the moose population, bull:cow ratios, and harvest.

**ANALYSIS ADDENDUM**

**OSM Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

While the closure in the Kanuti CUA may not be warranted biologically, the Western Interior Council clarified that subsistence needs are not being met in Allakaket and Alatna and that the closure is still warranted for the continuation of subsistence uses. Additionally, 2018/19 was a deep snow year, which may negatively impact the Kanuti CUA moose population.

## LITERATURE CITED

- ADF&G. 2001. Final Koyukuk River Moose Management Plan, 200-2005. March 2001. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, AK.
- ADF&G 2010. Preliminary recommendations. Board of Game Interior Region Proposals. February 2010. Alaska Department of Fish and Game, Division of Wildlife Conservation.
- ADF&G. 2018a. Annual report to the Alaska Board of Game on intensive management for moose with wolf predation control in Game Management Unit 24B. Alaska Department of Fish and Game, Division of Wildlife Conservation. <http://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.unit24b#anchor>. Accessed August 31, 2018.
- ADF&G. 2018b. General Harvest Reports. Alaska Department of Fish and Game. <https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>. Accessed October 10, 2018.
- ADF&G. 2018c. Community Subsistence Information System. <http://www.adfg.alaska.gov/sb/CSIS/>. Accessed November 27, 2018.
- FSB. 1992. Transcripts of Federal Subsistence Board proceedings, April 9, 1992. Office of Subsistence Management. USFWS. Anchorage, AK.
- Julianus, E., S. Longson. 2018. Aerial moose survey on and around Kanuti National Wildlife Refuge, November 2017. Unpublished report. Kanuti National Wildlife Refuge, U.S. Fish and Wildlife Service, Fairbanks, AK.
- OSM. 2018. Alaska Federal subsistence program database. Office of Subsistence Management, U.S. Fish and Wildlife Service. Anchorage, AK.
- Stout, G.W. 2014. Unit 24 moose. Chapter 33, pages 33-1 through 33-39 [*In*] P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011-30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.
- Stout, G.W. 2018. Moose management report and plan, Game Management Unit 24: Report period 1 July 2010-30 June 2015, and plan period 1 July 2015-30 June 2020. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2018-19, Juneau, AK.
- WIRAC. 2019. Transcripts of the Western Interior Alaska Subsistence Regional Advisory Council proceedings. March 26, 2019. Fairbanks, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Western Interior Alaska Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-20. The Council unanimously supported continuing a closure for moose hunting in Unit 24 under WCR20-20. The Council has real concerns about this population as harvest is not achieving the needs of subsistence communities. The Council is also concerned about the current high snow year and its likely negative impact on local moose populations.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

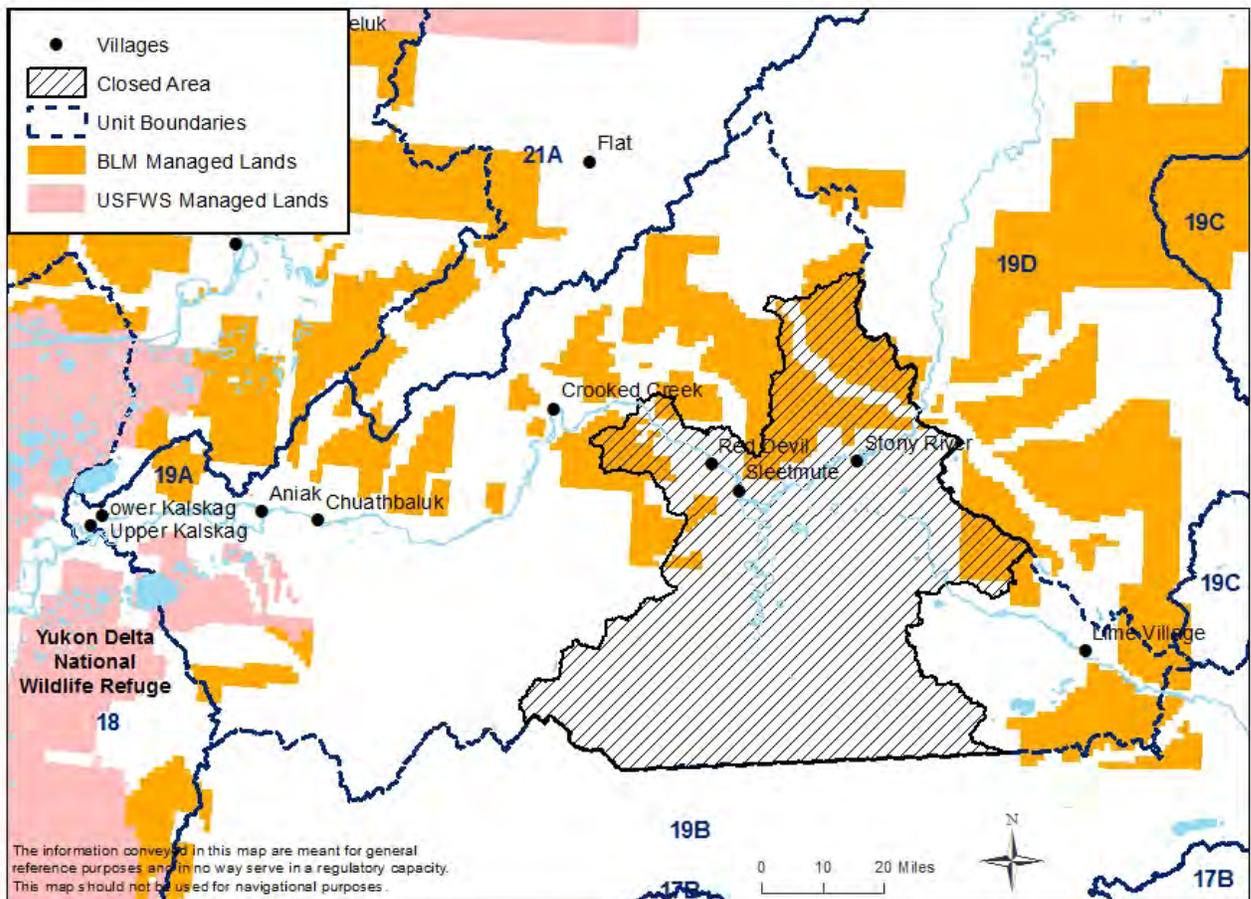
<b>WCR20-39 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-39 reviews the closure to moose hunting in the eastern portion of Unit 19A to all users.
<b>Current Regulation</b>	<p><b>Unit 19A–Moose</b></p> <p><i>Unit 19A, north of the Kuskokwim River, upstream from (but excluding) the George River drainage, and south of the Kuskokwim River upstream from (and including) the Downey Creek drainage, not including the Lime Village Management Area.</i></p> <p><i>Federal public lands are closed to the harvest of moose.</i></p> <p style="text-align: right;"><i>No Federal open season</i></p>
<b>OSM Preliminary Conclusion</b>	<b>Maintain status quo</b>
<b>OSM Conclusion</b>	<p><b>Eliminate the closure</b> for WCR20-39 to mirror recently adopted State regulations.</p> <p>The modified regulation should read:</p> <p><b>Unit 19A–Moose</b></p> <p><i>Unit 19A, north of the Kuskokwim River, upstream from (but excluding) the George River drainage, and south of the Kuskokwim River upstream from (and including) the Downey Creek drainage, not including the Lime Village Management Area –</i></p> <p style="text-align: right;"><i><del>No Federal open season</del></i></p> <p><b><i>One antlered bull by State registration permit available in Sleetmute and Stony River on July 24. Permits issued on a first-come, first-served basis (number of permits to be announced annually).</i></b></p> <p style="text-align: right;"><b><i>Sept. 1-Sept. 5</i></b></p> <p><i>Federal public lands are closed to the harvest of moose.</i></p>
<b>Yukon Kuskokwim Delta Subsistence Regional</b>	<b>Defer</b> to the Western Interior Council

<b>WCR20-39 Executive Summary</b>	
<b>Advisory Council Recommendation</b>	
<b>Western Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Eliminate the closure</b> for WCR20-39 to mirror recently adopted State regulations
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>



**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-39**

**Closure Location:** Eastern portion of Unit 19A (Map 1) – Moose



**Map 1.** Federal hunt area closure for moose in Unit 19A, north of the Kuskokwim River, upstream from (but excluding) the George River drainage, and south of the Kuskokwim River upstream from (and including) the Downey Creek drainage, not including the Lime Village Management Area.

### Current Federal Regulation

#### Unit 19A–Moose

*Unit 19A, north of the Kuskokwim River, upstream from (but excluding) the George River drainage, and south of the Kuskokwim River upstream from (and including) the Downey Creek drainage, not including the Lime Village Management Area.* No Federal open season

*Federal public lands are closed to the harvest of moose.*

**Closure Dates:** Year round

## Current State Regulation

### Unit 19A–Moose

#### *Unit 19A remainder*

*Residents – One antlered bull by permit available in Sleetmute and RM682 Sept. 1-Sept. 5 Stony River on July 24. Permits issued on a first-come, first-served basis (number of permits to be announced annually).*

*Nonresidents*

*No open season*

**Regulatory Year Initiated:** 2007

### Regulatory History

In 1990, Federal hunting regulations were adopted from State regulations. The moose season in Unit 19A was Sept. 1-Sept. 20, Nov. 20-Nov. 30, and Feb. 1-Feb. 10. The harvest limit was one moose, although antlerless moose could be taken only from Nov. 20-Nov. 30 and from Feb. 1-Feb. 10.

In 1992, the Federal Subsistence Board (Board) adopted Proposal P92-111 with modification to change the Unit 19A moose season to Sept. 5-Sept. 25, Jan. 1-Jan. 10, and Feb. 1-Feb. 5 to provide harvest opportunity during Russian orthodox holidays in January (FSB 1992). Antlerless moose could only be taken during the winter seasons. The Board rejected Proposal P92-66 to liberalize moose hunting regulations in several units including Unit 19A because moose densities were too low to sustain increased harvests.

In April 1994, the Board deferred Proposal P94-54 to align Unit 19A Federal harvest limits and seasons with State regulations because not all affected Subsistence Regional Advisory Councils (Councils) had considered the proposal. In November 1994, the Board adopted P94-54 with modification, aligning Unit 19A Federal moose regulations with State regulations with the exception of retaining the January season (FSB 1994). Unit 19A was divided into two hunt areas: that portion north of the Kuskokwim River upstream from, but not including the Kolmakof River drainage and south of the Kuskokwim River upstream from, but not including the Holokuk River drainage (Unit 19A east) and Unit 19A remainder. The seasons in both hunt areas were Sept. 1-Sept. 20, Nov. 20-Nov. 30, Jan. 1-Jan. 10, and Feb. 1-Feb. 10. The harvest limit in Unit 19A east was one moose, although antlerless moose could only be taken during the February season. The harvest limit in Unit 19A remainder was one bull.

In 2003, the Board adopted Proposal WP03-31 to shorten the February season in Unit 19A east to Feb. 1-Feb. 5 and eliminate the antlerless moose season because of declines in the Unit 19A moose population.

In 2004, the Board adopted Resolution 04-1 to support the Central Kuskokwim Moose Management Plan (Management Plan) (ADF&G 2004). The Board also adopted Proposal WP04-58 to eliminate the November, January, and February moose seasons in Unit 19A. Additionally, the Board adopted Proposal WP04-59 with modification to combine the Unit 19A hunt areas, require a State registration

permit, and change the harvest limit to one antlered bull. These restrictions addressed severe declines in the Unit 19A moose population and complied with the Management Plan.

In 2006, the Alaska Board of Game (BOG) closed moose hunting in Unit 19A remainder (same as Federal hunt area Unit 19A east below) due to conservation concerns (OSM 2006). Subsequently, the Alaska Department of Fish and Game (ADF&G) submitted Special Action WSA06-01b to close moose hunting in Unit 19A, North of the Kuskokwim River, upstream from but excluding the George River drainage, and south of the Kuskokwim River upstream from and including the Downey Creek drainage, not including the Lime Village Management Area (Unit 19A east). (WSA06-01a requested limiting hunter numbers in Unit 19A remainder). The Board approved WSA06-01b to conserve the moose population and align with State regulations.

In 2007, the Board adopted Proposal WP07-35 with modification to close moose hunting in Unit 19A east (the modifications applied to Unit 19A remainder) because of continued conservation concerns for the Unit 19A moose population including low productivity, bull:cow ratios, and density combined with historically high hunting pressure (OSM 2007). The Western Interior Alaska Subsistence Regional Advisory Council (Western Interior Council) submitted and supported the proposal because of conservation concerns over the moose resource. The Yukon-Kuskokwim Council also supported WP07-35 for conservation reasons (OSM 2007).

Moose hunting in Unit 19A east has remained closed under Federal and State regulations since 2007. In 2008, the Board rejected Proposal WP08-35 to establish a moose season in Unit 19A east due to continued conservation concerns. The closure was reviewed in 2011 by WCR10-39 and in 2014 by WCR14-39. The Western Interior Council recommended continuing the closure during both reviews.

In March 2019, the BOG adopted Proposal 127 as amended by the Stoney-Holitna Fish and Game Advisory Committee (Stoney-Holitna AC). Proposal 127 requested opening a Tier I registration hunt for moose in Unit 19A east. (This hunt area is Unit 19A remainder under State regulations). The Stoney-Holitna AC's amendment included establishing a 5 day season from Sept. 1-5, limiting permits to 75 permits per year with only 30 permits issued in 2019/20, issuing permits only within the hunt area during July, not allowing permit holders to hold any other moose permit in the Kuskokwim River drainage, allowing only one permit per household, prohibiting proxy hunting, and requiring successful hunters to report within 15 days of harvest. Additionally, the hunt area will close if the 2-year average bull:cow ratio drops below 35 bulls:100 cows, or if the harvestable surplus drops below the lower range of the State-determined amount necessary for subsistence (ADF&G 2019). These regulations became effective July 1, 2019.

Unit 19A east is comprised of 18% Federal public lands and consist of 18% Bureau of Land Management (BLM) managed lands (**Map 1**).

**Closure last reviewed:** 2014 – WCR14-39

**Justification for Original Closure:**

§815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

A portion of §816(b) of ANILCA states:

*The Secretary....may temporarily close any public lands (including those within any conservation unit) or any portion thereof, to subsistence uses of a particular fish and wildlife population only if necessary for the reasons of public safety, administration, or to assure the continued viability of such population.*

The combination of low moose population densities, low calf production and survival, low bull:cow ratios and high hunting pressure contributed to declines in the Unit 19A moose population. In response to these conservation concerns, the Board closed moose hunting in Unit 19A east in 2007.

#### **Council Recommendation for Original Closure:**

The Yukon-Kuskokwim Delta and Western Interior Councils supported the closure to protect the moose resource for future generations.

#### **State Recommendation for Original Closure:**

The State supported the closure due to continued conservation concerns for the Unit 19A moose population. The BOG closed State managed lands in Unit 19A remainder (same as the Unit 19A east Federal hunt area) to moose hunting at its March 2006 meeting.

#### **Current Events**

Numerous proposals concerning Unit 19A East were submitted to the Alaska BOG for consideration at their March 2020 meeting. Proposal 100 requests that the season dates for moose hunting in Unit 19A East (Unit 19A remainder under State regulations) be extended to Sept. 1-30. Proposal 103 requests that a Tier II permit hunt be established for moose in Unit 19A East. Proposals 104, 105, and 106 consider changes to the predator control program in Unit 19A.

#### **Biological Background**

In 2004, ADF&G in cooperation with the Central Kuskokwim Moose Management Planning Committee published the Central Kuskokwim Moose Management Plan (Management Plan) (ADF&G 2004). State management objectives for the composition of the moose population in Unit 19A are the same as those in the Management Plan (Peirce 2018, ADF&G 2004):

- Maintain a minimum fall post hunt bull:cow ratio of 20-30 bulls:100 cows.
- Maintain a minimum fall post hunt calf:cow ratio of 30-40 calves:100 cows.
- Maintain no fewer than 20% calves (short-yearlings) in late winter.

ADF&G has the additional intensive management objectives for both Units 19A and 19B (Peirce 2018, Seavoy 2014):

- Achieve a moose population of 13,500-16,500 moose (7,600-9,300 in Unit 19A) with 750-950 moose available for harvest annually.

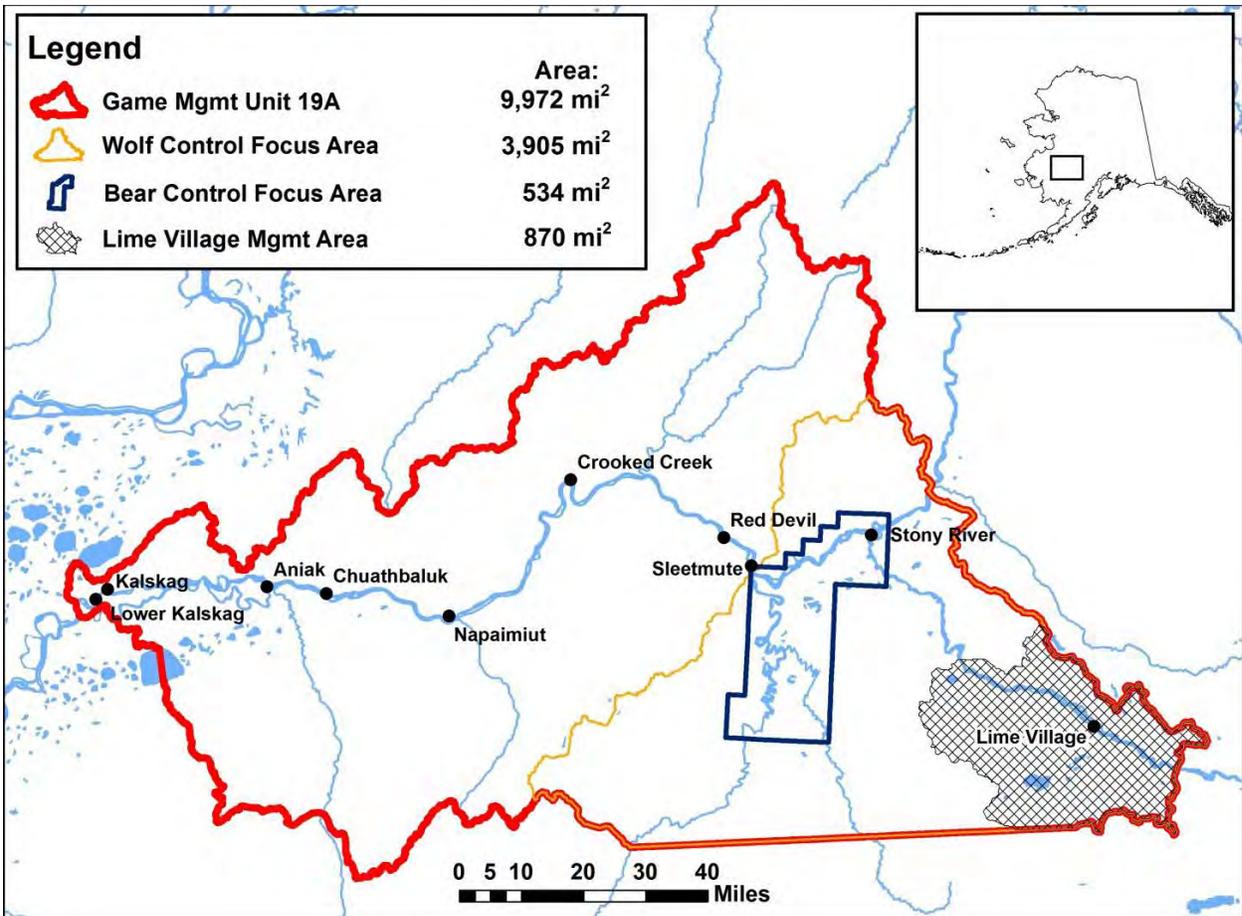
Predation by wolves, black bears, and brown bears influences moose abundance in Unit 19 and may be limiting population growth (Peirce 2018, Keech et al. 2011). ADF&G conducts intensive management in Unit 19A to reduce predation on moose. Wolf control has been ongoing in the wolf control focus area since 2006. In 2013 and 2014, black and brown bears were removed from the Bear Control Focus Area (BCFA) (**Map 2**) (Peirce 2018). ADF&G removed 89 bears (84 black and 5 brown) and 64 bears (54 black and 10 brown) in 2013 and 2014, respectively (ADF&G 2014).

ADF&G conducts aerial surveys in Unit 19A to estimate the moose population in March (**Map 3**) (Peirce 2018, Seavoy 2014). The Federal closed area, Unit 19A east, primarily falls into the Unit 19A east (Holitna) moose survey area (MSA). ADF&G surveys the Holitna MSA every three years and the Aniak MSA opportunistically (Seavoy 2014). Since 2008, the Unit 19A east moose population has appeared relatively stable due to overlapping confidence intervals, but has remained well below the State's management objective of 7,600 moose (**Figure 1**).

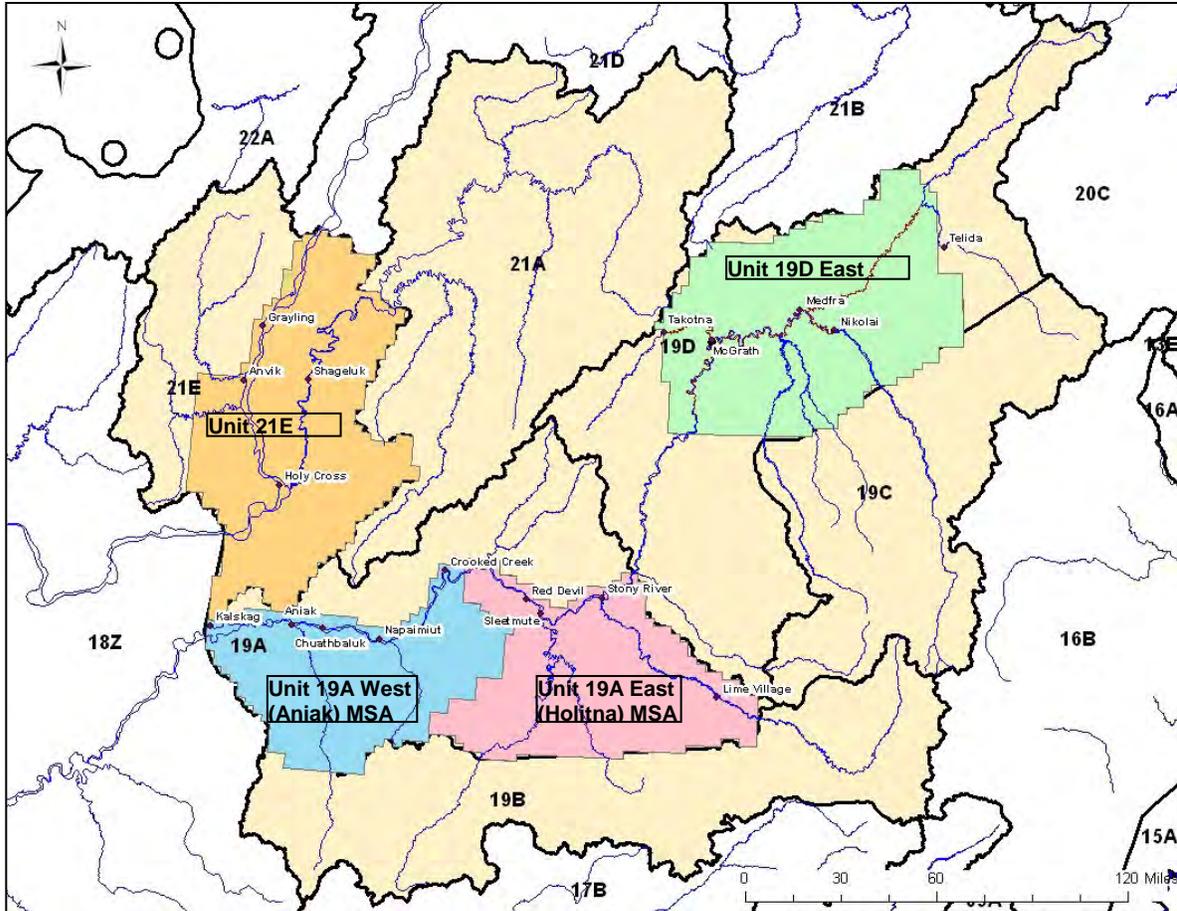
Moose densities of 0.75-0.93 moose/mi<sup>2</sup> are required to meet State population objectives (Seavoy 2014). Between 1998 and 2017, estimated moose density in Unit 19A ranged from 0.25 moose/mi<sup>2</sup> to 1.5 moose/mi<sup>2</sup> (**Table 1**). The highest densities occurred in the BCFA, which comprises only 14% of the Holitna MSA (**Maps 2-3**) (ADF&G 2018a, Peirce 2018). The BCFA estimates are not representative of the entire Holitna MSA or the Federal Unit 19A east hunt area due to the limited survey area and because bear removal likely influenced moose abundance in that area. Additionally, most radio-collared moose in Unit 19A display limited movements (Seavoy 2014).

ADF&G conducts aerial surveys to estimate the composition of the Unit 19A moose population in November (Peirce 2018). Between 1987 and 2018, the bull:cow ratio in the Holitna MSA ranged from 6 bulls:100 cows to 58 bulls:100 cows (**Figure 2**). The lowest bull:cow ratio occurred in 2001, but has exceeded management objectives since 2007. Intense hunting pressure and predation likely contributed to the low bull:cow ratio in 2001 (Boudreau 2004). Over the same time period, the calf:cow ratio in the Holitna MSA ranged from 8 calves:100 cows to 72 calves:100 cows (**Figure 2**). The lowest calf:cow ratio also occurred in 2001. Since 2011, the calf:cow ratio has been within or above management objectives (Peirce 2018, ADF&G 2018a, Seavoy 2014).

Twinning rates indicate nutritional status and habitat quality (Peirce 2018). Twinning rates in the BCFA were 56% and 63% in 2013 and 2014, respectively, suggesting habitat is not limiting the moose population in the BCFA (Peirce 2018).



Map 2. Unit 19A wolf control focus area and bear control focus area (ADF&G 2018a).

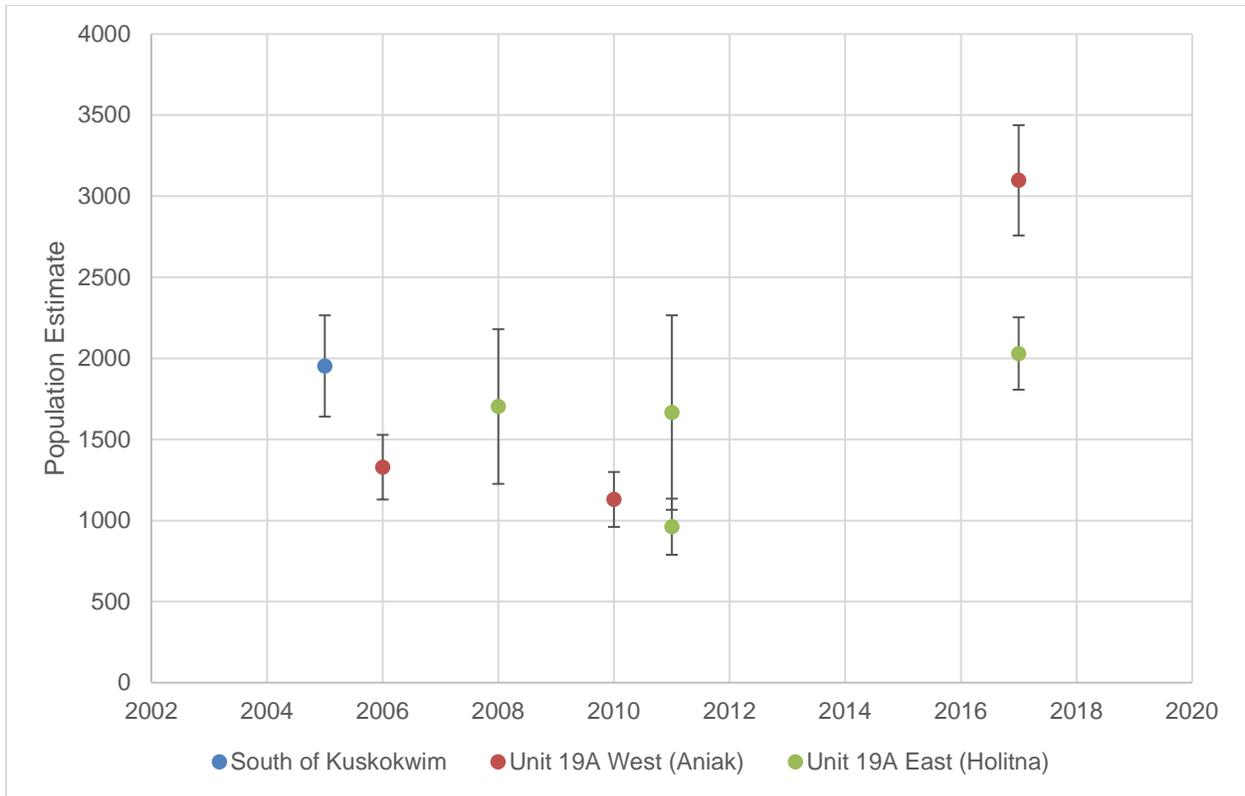


**Map 3.** Units 19, 21A, and 21E showing the 3 scheduled moose survey areas (MSA): Unit 19D East moose survey area, Unit 19A East (Holitna), and Unit 21E moose survey area. Also shown is the Unit 19A West (Aniak) moose survey area which is surveyed opportunistically. The area south of the Kuskokwim River includes both the Unit 19A East (Holitna) and Unit 19A West (Aniak) survey areas (Seavoy 2014).

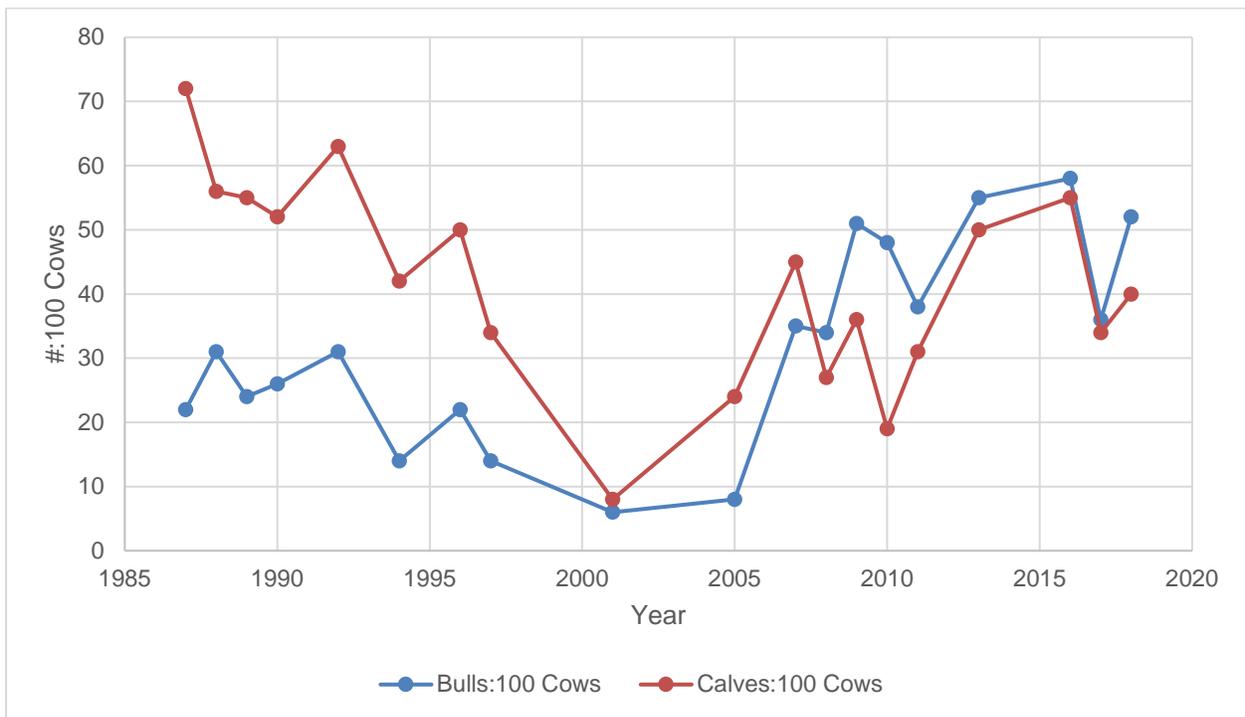
**Table 1.** Moose density estimates in Unit 19A (moose/mi<sup>2</sup>). See Maps 2-3 for survey areas (ADF&G 2018a, Peirce 2018, Seavoy 2014, ADF&G 2004).

Year	South of Kuskokwim	Unit 19A West (Aniak)	Unit 19A East (Holitna)	Bear Control Focus Area
1998			1.25	
2001		0.7		
2005	0.27			
2006		0.39		
2008			0.44	
2010		0.33		
2011			0.25	
2011			0.43 <sup>a</sup>	
2014				1.50 <sup>a</sup>
2017		1.3	0.52 <sup>a</sup>	1.36 <sup>a</sup>

<sup>a</sup> Includes a sightability correction factor



**Figure 1.** Population estimates for moose in Unit 19A with 90% confidence intervals. The higher estimate in 2011 and the 2017 estimate in the Unit 19A East (Holtna) survey area include sightability correction factors. See Map 3 for survey areas (ADF&G 2018a, Seavoy 2014).



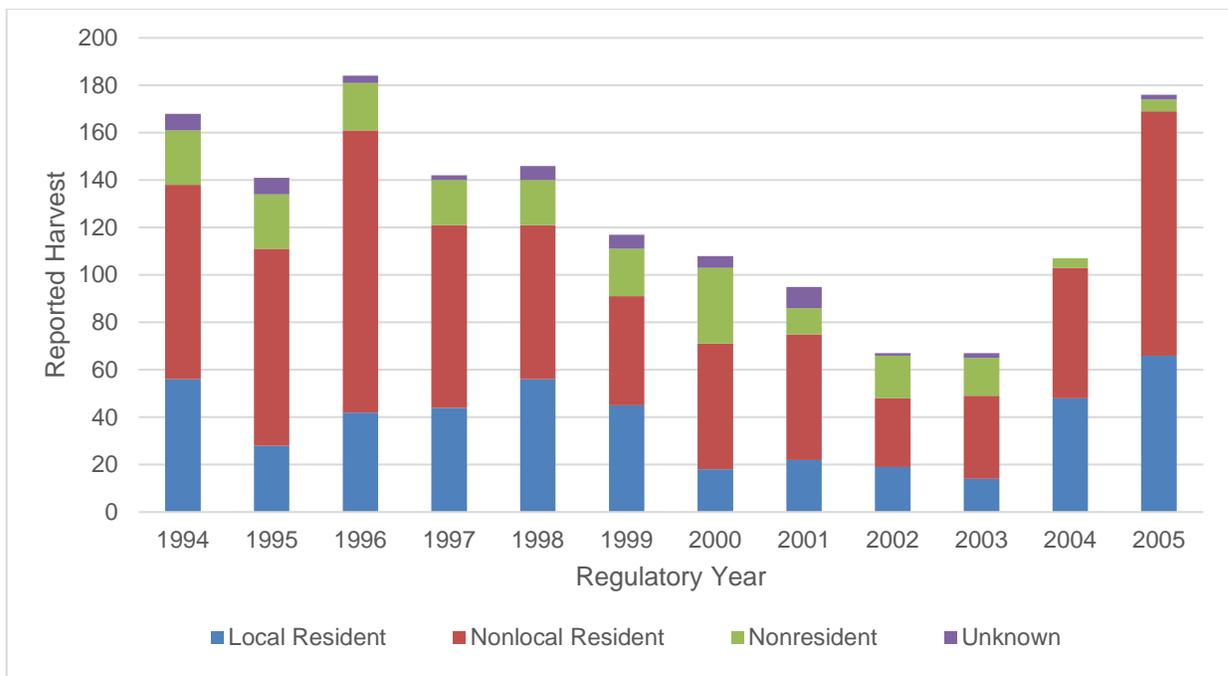
**Figure 2.** Fall bull:cow and calf:cow ratios for the Unit 19A East (Holtna) moose survey area (Peirce 2018, ADF&G 2018a, Seavoy 2014).



## Harvest History

No legal moose harvest occurred in Unit 19A east between 2006, when the season was closed under both Federal and State regulations and 2018. In 2019, the State opened a limited hunt in Unit 19A east from Sept. 1-5. Thirty permits were issued and eight bulls were harvested (ADF&G 2020). ADF&G states the harvestable surplus for Unit 19A east is currently 77 moose, although the harvestable surplus along the Holitna and Hoholitna Rivers where most harvest occurs is only 29 moose (ADF&G 2020).

Between 1994 and 2005, reported annual moose harvest in Unit 19A ranged from 67-184 moose and averaged 127 moose (**Figure 3**). Over the same time period, local residents (defined as residents of Units 19A and 19B) harvested 30% of the total reported harvest on average (ADF&G 2004, 2018b). However, harvest reporting is low in many areas of rural Alaska. ADF&G (2004) estimated actual harvest in rural areas as 50-72% greater than reported harvest, resulting in an estimated 57-66 moose/year being harvested by local residents between 1994 and 2005 in Unit 19A.



**Figure 3.** Reported moose harvest in Unit 19A by residency (ADF&G 2004, 2018b). Moose hunting in Unit 19A East was closed in 2006 and has remained closed under State and Federal regulations.

### OSM Preliminary Conclusion:

- maintain status quo  
 modify or eliminate the closure

### Justification

Moose abundance in Unit 19A east has not significantly changed since the hunt area closed in 2007 because of conservation concerns. Therefore, the Federal lands closure in Unit 19A East should be retained.

## ANALYSIS ADDENDUM

### OSM Conclusion:

- maintain status quo  
 modify or eliminate the closure

Eliminate the closure for WCR20-39 to mirror recently adopted State regulations.

The modified regulation should read:

#### Unit 19A–Moose

*Unit 19A, north of the Kuskokwim River, upstream from (but excluding) the George River drainage, and south of the Kuskokwim River upstream from (and including) the Downey Creek drainage, not including the Lime Village Management Area – One antlered bull by State registration permit available in Sleetmute and Stony River on July 24. Permits issued on a first-come, first-served basis (number of permits to be announced annually).*

~~No Federal  
open season~~

**Sept. 1-Sept. 5**

~~Federal public lands are closed to the harvest of moose.~~

### Justification

The BOG recently established a limited Tier I registration hunt in Unit 19A East. At the 2019 winter meeting of the Western Interior Council, the ADF&G area biologist stated that continuing the Federal closure could have a negative effect on Federally qualified subsistence users from Red Devil, Sleetmute, and Stony River who hoped to hunt on Federal public lands during the State's new season (WIRAC 2019). Federal public lands comprise 18% of Unit 19A East and are accessible across the Kuskokwim River from the local communities.

The ADF&G area biologist also stated the lower bull:cow ratio in 2017 was likely due to bull distribution during surveys rather than an actual change in bull abundance. Additionally, a large number of large bulls, which are important for breeding, are present in the hunt area due to years of no human harvest (WIRAC 2019). The ADF&G area biologist stated that the harvestable surplus for the Unit 19A moose population is currently 70 moose. As ADF&G will only issue 30 permits during the 2019/20 regulatory year, less than half the harvestable surplus would be used if every permit holder was successful, which is unlikely given the short season (WIRAC 2019).

Establishing a Federal hunt increases harvest opportunity for Federally qualified subsistence users and prevents Federal regulations from being more restrictive than State regulations. The State and Federal hunts are extremely conservative with a short season and limited number of permits available.

Additionally, the Unit 19A east moose population can sustain a limited harvest due to a sufficient number of large bulls and high bull:cow ratios. The Western Interior Council recommended a joint Federal/State permit. However, just requiring a State registration permit under Federal regulations simplifies regulations while still achieving the Council's intent of all users hunting under a single permit.

## LITERATURE CITED

ADF&G. 2004. Central Kuskokwim Moose Management Plan. Alaska Department of Fish and Game, Division of Wildlife Conservation. Central Kuskokwim Moose Management Planning Committee.  
[https://www.adfg.alaska.gov/static/research/plans/pdfs/final\\_ckmmp.pdf](https://www.adfg.alaska.gov/static/research/plans/pdfs/final_ckmmp.pdf). Accessed May 3, 2018.

ADF&G. 2014. Unit 19A predator control program provides meat for Western Interior villages. Press release. May 29, 2014. <http://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/pr-05-29-2014.pdf>. Accessed August 2, 2018.

ADF&G. 2018a. Annual report to the Alaska board of game on intensive management for moose with wolf, black bear, brown bear predation control in game management unit 19A. Alaska Department of Fish and Game. Division of Wildlife Conservation.  
[http://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/2018\\_gmu\\_19a\\_intensive\\_management\\_annual\\_report.pdf](http://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/2018_gmu_19a_intensive_management_annual_report.pdf). Accessed August 2, 2018.

ADF&G. 2018b. General Harvest Reports. Alaska Department of Fish and Game.  
<https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>. Accessed May 3, 2018.

ADF&G. 2019. Meeting summary. Alaska Board of Game Southcentral Region Meeting. March 14-20, 2019. Anchorage, AK. Alaska Department of Fish and Game.  
<http://www.adfg.alaska.gov/static/applications/web/nocache/regulations/regprocess/gameboard/pdfs/2018-2019/sc/soa.pdf1D66EB71D3AD6EC8D88F0CE9611F8868/soa.pdf>. Accessed June 10, 2019.

ADF&G. 2020. Alaska Department of Fish and Game. Staff comments. Interior and Eastern Arctic region proposals. Alaska Board of Game meeting. Fairbanks, AK. March 6-14, 2020.  
<http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=03-06-2020&meeting=fairbanks>. Accessed February 12, 2020.

Boudreau, T.A., and D.I. Parker McNeill. 2004. Units 19, 21A, and 21E moose management report. Pages 293–337 in C. Brown, editor. Moose management report of survey and inventory activities 1 July 2001–30 June 2003. Alaska Department of Fish and Game. Project 1.0. Juneau, AK.

FSB. 1992. Transcripts of Federal Subsistence Board proceedings. April 9, 1992. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 1994. Transcripts of Federal Subsistence Board proceedings. November 14, 1994. Office of Subsistence Management, USFWS. Anchorage, AK.

Keech, M.A., M.S. Lindberg, R.D. Boertje, P. Valkenburg, B.D. Taras, T.A. Boudreau, K. B. Beckmen. 2011. Effects of predator treatments, individual traits, and environment on moose survival in Alaska. *Journal of Wildlife Management* 75:1361-1380.

OSM. 2006. Staff analysis WSA01-01b. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.

OSM. 2007. Staff analysis WP07-35. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.

Peirce, J. M. 2018. Moose management report and plan, Game Management Unit 19: Report period 1 July 2010–30 June 2015, and plan period 1 July 2015–30 June 2020. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2018-22, Juneau, AK.

Seavoy, R.J. 2014. Units 19A, 19B, 19C, and 19D moose. Chapter 21, pages 21-1 through 21-34 [*In*] P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011-30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.

WIRAC. 2019. Transcripts of the Western Interior Alaska Subsistence Regional Advisory Council proceedings. March 26, 2019. Fairbanks, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Western Interior Alaska Subsistence Regional Advisory Council

**Eliminate the closure** for WCR20-39. The Council voted unanimously to eliminate the closure in Unit 19A East and to mirror recently adopted State regulations, which established a Tier I registration permit hunt in the area. The permit would be a joint Federal/State permit that is only available in local communities during July and allow the harvest of one antlered bull per household. The number of available permits will be announced annually.

There was extensive discussion between the Council, the Office of Subsistence Management (OSM) and the Alaska Department of Fish and Game (ADF&G) regarding this closure. The Council believes the Unit 19A moose population can support a limited bull harvest due to high bull:cow ratios. The Council commented that only issuing permits in local communities gives local people the first opportunity at obtaining those permits.

### Yukon Kuskokwim Delta Subsistence Regional Advisory Council

The Council voted to **defer** to the Western Interior Council. The Council noted that both the Y-K Delta and Western Interior Councils supported the original closure in 2007 as well as continuing the closure in 2014 when it was last reviewed. The Council mentioned that some Unit 18 residents do hunt in this area, but felt comfortable deferring to and supporting the recommendation of the home region.

## INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

## ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

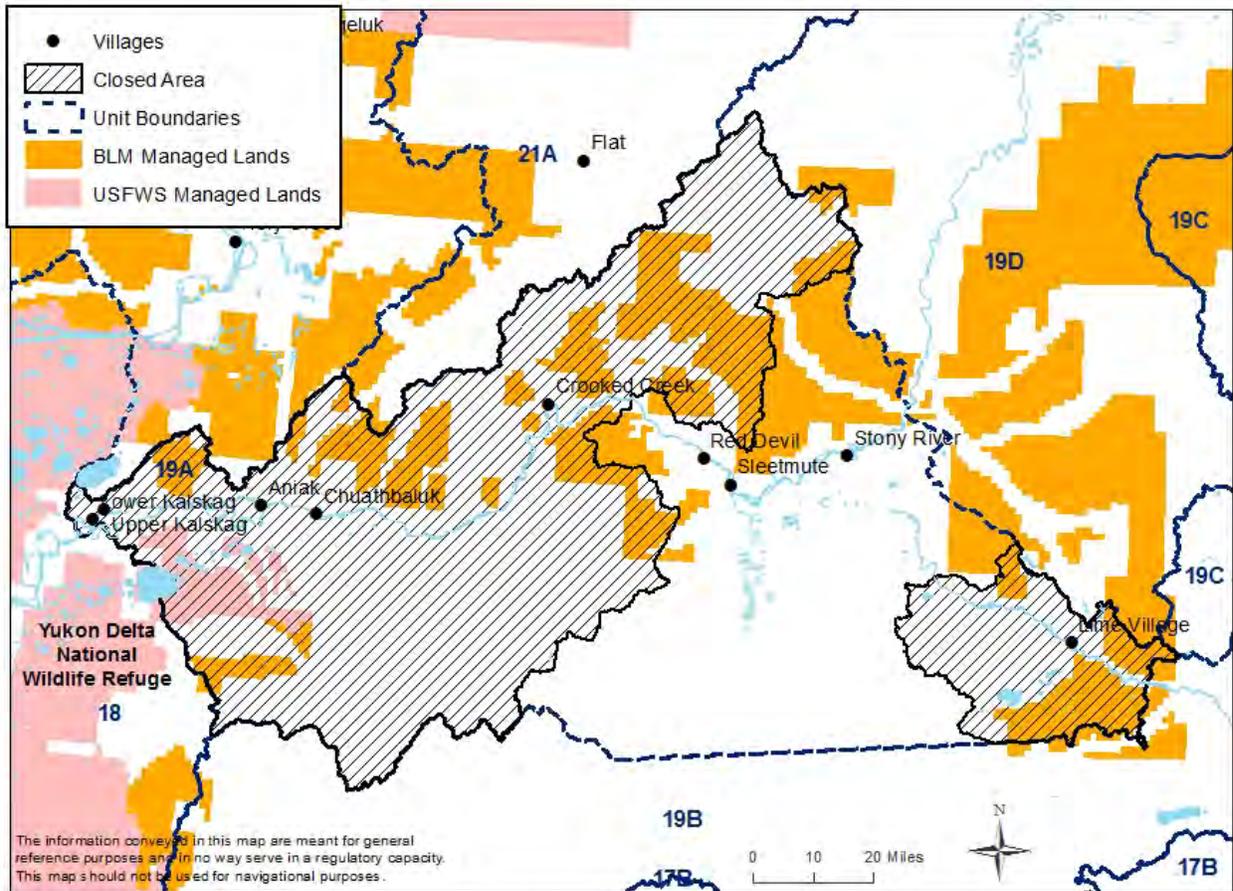
No comments.

<b>WCR20-43 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-43 reviews the closure to moose hunting in Unit 19A, remainder, except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek.
<b>Current Regulation</b>	<p><b>Unit 19A—Moose</b></p> <p><i>Unit 19A, remainder—1 antlered bull by Federal Sept. 1-20. drawing permit or a State permit.</i></p> <p><i>Federal public lands are closed to the taking of moose except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek hunting under these regulations. The Refuge Manager of the Yukon Delta NWR, in cooperation with the BLM Field Office Manager, will annually establish the harvest quota and number of permits to be issued in coordination with the State Tier I hunt. If the allowable harvest level is reached before the regular season closing date, the Refuge Manager, in consultation with the BLM Field Office Manager, will announce an early closure of Federal public lands to all moose hunting</i></p>
<b>OSM Preliminary Conclusion</b>	<b>Eliminate or modify the closure</b>
<b>OSM Conclusion</b>	<p><b>Modify the closure</b> for WCR20-43 to maintain the closure in the western portion of Unit 19A, eliminate the closure for the Lime Village Management Area, establish seasons, harvest limits, and permit requirements for the Lime Village Management Area hunt area, and remove the regulatory language referring to establishing quotas and permit numbers, and delegate authority to the Yukon Delta NWR manager to set quotas and permit numbers via a delegation of authority letter only (<b>Appendix 1</b>).</p> <p>The modified regulation should read:</p> <p><b>Unit 19A—Moose</b></p>

	<p><i>Lime Village Management Area—2 bulls by State or Federal registration permit</i></p> <p><i>Aug. 10-Sept. 25</i></p> <p><i>Nov. 20-Mar. 31</i></p> <p><i>Unit 19A, remainder—1 antlered bull by Federal drawing permit or a State permit.</i></p> <p><i>Sept. 1-Sept. 20.</i></p> <p><i>Federal public lands are closed to the taking of moose except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek hunting under these regulations.</i></p> <p><i>The Refuge Manager of the Yukon Delta NWR, in cooperation with the BLM Field Office Manager, will annually establish the harvest quota and number of permits to be issued in coordination with the State Tier I hunt. If the allowable harvest level is reached before the regular season closing date, the Refuge Manager, in consultation with the BLM Field Office Manager, will announce an early closure of Federal public lands to all moose hunting</i></p>
<b>Yukon Kuskokwim Delta Subsistence Regional Advisory Council Recommendation</b>	<b>Defer</b> to the Western Interior Council
<b>Western Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Modify the closure</b> for WCR20-43 to maintain the current moose hunting closure in the western portion of Unit 19A and to eliminate the closure for the Lime Village Management Area.
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW  
WCR20-43**

**Closure Location:** Unit 19A remainder (**Map 1**)—Moose



**Map 1.** Federal hunt area closure for moose in Unit 19A remainder.

**Current Federal Regulation**

**Unit 19A—Moose**

*Unit 19A, remainder—1 antlered bull by Federal drawing permit or a State permit. Sept. 1-20.*

*Federal public lands are closed to the taking of moose except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek hunting under these regulations. The Refuge Manager of the Yukon Delta NWR, in cooperation with the BLM Field Office Manager, will annually establish the harvest quota and number of permits to be issued in coordination with the State Tier I hunt. If the allowable harvest level is reached before the regular*



*season closing date, the Refuge Manager, in consultation with the BLM Field Office Manager, will announce an early closure of Federal public lands to all moose hunting*

**Closure Dates:** Year round

### **Current State Regulation**

#### **Unit 19A–Moose**

*Kuskokwim River drainage downstream from, and including, the George River drainage, and downstream from and excluding the Downey Creek drainage*      *One antlered bull      Sept. 1- 20 by permit*

**Regulatory Year Initiated:** 2007

### **Regulatory History**

In 1990, Federal hunting regulations were adopted from State regulations. The moose season in Unit 19A was Sept. 1-Sept. 20, Nov. 20-Nov. 30, and Feb. 1-Feb. 10. The harvest limit was one moose, although antlerless moose could be taken only from Nov. 20-Nov. 30 and from Feb. 1-Feb. 10.

In 1992, the Federal Subsistence Board (Board) adopted Proposal P92-111 with modification to change the Unit 19A moose season to Sept. 5-Sept. 25, Jan. 1-Jan. 10, and Feb. 1-Feb. 5 to provide harvest opportunity during Russian orthodox holidays in January (FSB 1992). Antlerless moose could only be taken during the winter seasons. The Board rejected Proposal P92-66 to liberalize moose hunting regulations in several units including Unit 19A because moose densities were too low to sustain increased harvests.

In April 1994, the Board deferred Proposal P94-54 to align Unit 19A Federal harvest limits and seasons with State regulations because not all affected Subsistence Regional Advisory Councils (Councils) had considered the proposal. In November 1994, the Board adopted P94-54 with modification, aligning Unit 19A Federal moose regulations with State regulations with the exception of retaining the January season (FSB 1994). Unit 19A was divided into two hunt areas: that portion north of the Kuskokwim River upstream from, but not including the Kolmakof River drainage and south of the Kuskokwim River upstream from, but not including the Holokuk River drainage (Unit 19A east) and Unit 19A remainder. The seasons in both hunt areas were Sept. 1-Sept. 20, Nov. 20-Nov. 30, Jan. 1-Jan. 10, and Feb. 1-Feb. 10. The harvest limit in Unit 19A east was one moose, although antlerless moose could only be taken during the February season. The harvest limit in Unit 19A remainder was one bull.

In 2003, the Board adopted Proposal WP03-31 to shorten the February season in Unit 19A east to Feb. 1-Feb. 5 and eliminate the antlerless moose season because of declines in the Unit 19A moose population.

In 2004, the Board adopted Resolution 04-1 to support the Central Kuskokwim Moose Management Plan (Management Plan) (ADF&G 2004). The Board also adopted Proposal WP04-58 to eliminate the November, January, and February moose seasons in Unit 19A. Additionally, the Board adopted Proposal WP04-59 with modification to combine the Unit 19A hunt areas, require a State registration permit, and change the harvest limit to one antlered bull. These restrictions addressed severe declines in the Unit 19A moose population and complied with the Management Plan.

In 2006, the Alaska Board of Game (BOG) established a Tier II only moose hunt in Unit 19A, Kuskokwim River drainage downstream from, and including, the George River drainage, and downstream from and excluding the Downey Creek drainage (same as the Federal Unit 19A remainder hunt area) and eliminated the registration permit hunt to conserve the moose resource (OSM 2006). Subsequently, the Alaska Department of Fish and Game (ADF&G) submitted Special Action WSA06-01a to require a permit in Unit 19A remainder that worked in concert with the State's Tier II hunt (WSA06-01b requested closing moose hunting in eastern Unit 19A). The Board approved WSA06-01a with modification, requiring a Federal drawing or State Tier II permit and closing moose hunting in Unit 19A remainder except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek (OSM 2007). A limited harvestable surplus required a §804 analysis, which determined these six communities to be the most dependent on the Unit 19A moose population (OSM 2006).

In 2007, the Western Interior Alaska Subsistence Regional Advisory Council (Western Interior Council) submitted Proposal WP07-35, requesting the same changes as WSA16-01. The Board adopted Proposal WP07-35 with modification because of continued conservation concerns for the Unit 19A moose population including low productivity, bull:cow ratios, and density combined with historically high hunting pressure (OSM 2007). The modification was to delegate authority to the Yukon Delta National Wildlife Refuge manager to annually establish the harvest quota and number of available draw permits. The Western Interior and Yukon-Kuskokwim Councils and ADF&G supported the proposal because of conservation concerns over the moose resource (OSM 2007).

Federal regulations for moose in Unit 19A remainder have not changed since 2007. In 2008, the Assistant Regional Director for the Office of Subsistence Management (OSM), with unanimous consent of the Interagency Staff Committee, rejected WSA08-07 to extend the Unit 19A remainder moose season by 10 days, ending Sept. 30 because the request did not meet the criteria in §\_\_.19(b) and (c) of ANILCA for accepting Special Action requests. Specifically, there was not an unusual, significant, or unanticipated change in resource abundance or hunting conditions (OSM 2008).

Unit 19A remainder is comprised of 27% Federal public lands and consist of 23% Bureau of Land Management (BLM) managed lands and 4% U.S. Fish and Wildlife Service (USFWS) managed lands (**Map 1**).

**Closure last reviewed:** 2007 – WP07-35

**Justification for Original Closure:**

§815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The combination of low moose population densities, low calf production and survival, low bull:cow ratios and high hunting pressure contributed to declines in the Unit 19A moose population. In response to these conservation concerns, the Board closed moose hunting in Unit 19A remainder except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek in 2007.

**Council Recommendation for Original Closure:**

The Yukon-Kuskokwim Delta and Western Interior Councils supported the closure to protect the moose resource for future generations.

**State Recommendation for Original Closure:**

The State supported the closure due to continued conservation concerns for the Unit 19A moose population and to better align with State regulations. The State established a Tier II only hunt in a portion of Unit 19A in 2006.

**Current Events**

Numerous proposals concerning Unit 19A remainder were submitted to the Alaska BOG for consideration at their March 2020 meeting. Proposals 97 and 98 propose changing the Tier II permit hunt to a registration permit hunt. Proposal 99 requests changing the Tier II permit hunt to a household permit hunt. Proposal 102 requests shifting the season dates from Sept. 1-20 to Sept. 5-25. Proposals 104, 105, and 106 consider changes to the predator control program in Unit 19A.

**Biological Background**

In 2004, ADF&G in cooperation with the Central Kuskokwim Moose Management Planning Committee published the Central Kuskokwim Moose Management Plan (Management Plan) (ADF&G 2004). State management objectives for the composition of the moose population in Unit 19A are the same as those in the Management Plan (Peirce 2018, ADF&G 2004):

Maintain a minimum fall posthunt bull:cow ratio of 20-30 bulls:100 cows.

Maintain a minimum fall posthunt calf:cow ratio of 30-40 calves:100 cows.

Maintain no fewer than 20% calves (short-yearlings) in late winter.

ADF&G has the additional intensive management objectives for both Units 19A and 19B (Peirce 2018, Seavoy 2014):

Achieve a moose population of 13,500-16,500 moose (7,600-9,300 in Unit 19A) with 750-950 moose available for harvest annually.

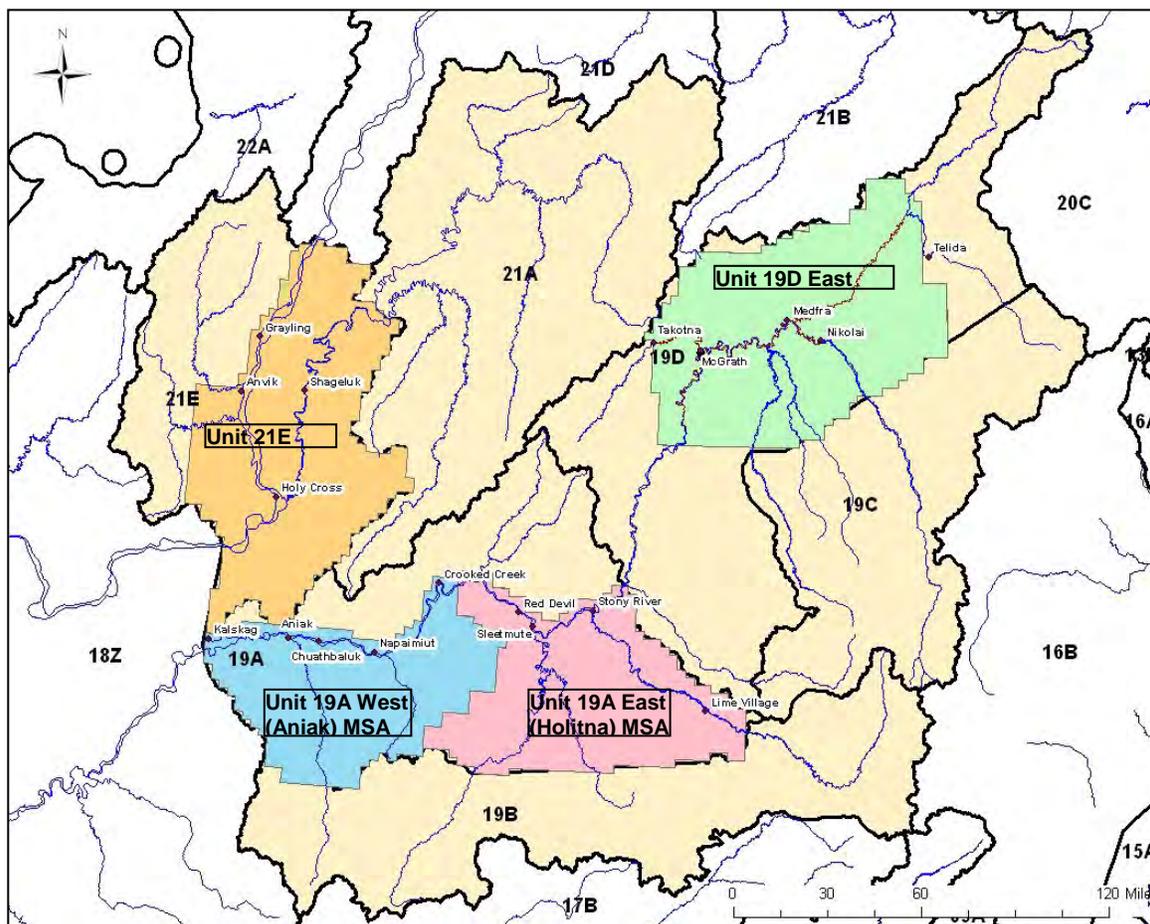
ADF&G conducts aerial surveys in Unit 19A to estimate the moose population in March (**Map 2**) (Peirce 2018, Seavoy 2014). The Federal closed area, Unit 19A remainder, primarily falls into the Unit 19A West (Aniak) moose survey area (MSA). ADF&G only surveys the Aniak MSA opportunistically, but surveys eastern Unit 19A every 3 years (**Map 2**) (Seavoy 2014). While the moose population in the Unit 19A West (Aniak) MSA appeared relatively stable between 2006 and 2010, it increased significantly in 2017 (**Figure 1**). ADF&G also surveyed the entire Unit 19A West hunt area (TM680) for the first time in 2017, estimating 4,135 moose (Peirce 2018, pers. comm.). ADF&G plans to conduct another population survey in winter 2020 and anticipates the Unit 19A West population to continue increasing based on the excellent status of adjacent Unit 18 moose populations (WIRAC 2019).

Moose densities of 0.75-0.93 moose/mi<sup>2</sup> are required to meet State population objectives (Seavoy 2014). Between 1998 and 2017, estimated moose density in Unit 19A ranged from 0.25 moose/mi<sup>2</sup> to 1.3 moose/mi<sup>2</sup> (**Table 1**) (ADF&G 2018a, Peirce 2018, Seavoy 2014, ADF&G 2004, Peirce 2018, pers. comm.). While the 2017 density estimate for the Unit 19A West (Aniak) MSA of 1.3 moose/mi<sup>2</sup> is the highest ever recorded for this area and is well above State population objectives, the 2017 density estimate for the entire Unit 19A West hunt area is only 0.7 moose/mi<sup>2</sup>, which is just below State management objectives (**Table 1**).

ADF&G conducts aerial surveys to estimate the composition of the Unit 19A moose population in November (Peirce 2018). Between 1987 and 2018, the bull:cow ratio in Unit 19A ranged from 6 bulls:100 cows to 58 bulls:100 cows (**Figure 2**). Between 2004 and 2018, the bull:cow ratio in the Aniak MSA ranged from 20 bulls:100 cows to 42 bulls:100 cows. The lowest bull:cow ratio occurred in 2001, but has met or exceeded management objectives since 2007. However, the 2017 bull:cow ratio in the Aniak MSA just met management objectives (20 bulls:100 cows). While the 2018 bull:cow ratio increased to 26 bull:100 cows, the number of large bulls in the population is fairly low (WIRAC 2019). Intense hunting pressure and predation likely contributed to the low bull:cow ratio in 2001 (Boudreau 2004).

Between 1987 and 2017, the calf:cow ratio in Unit 19A ranged from 8 calves:100 cows to 72 calves:100 cows (**Figure 3**) (Peirce 2018, Seavoy 2014). Between 2004 and 2017, the calf:cow ratio in the Aniak MSA ranged from 23 calves:100 cows to 64 calves:100 cows. The lowest calf:cow ratio also occurred in 2001. Since 2011, the calf:cow ratio has been within or above management objectives. The 2017 calf:cow ratio in the Aniak MSA is the highest ever recorded (Peirce 2018, pers. comm.).

Predation by wolves, black bears, and brown bears influences moose abundance in Unit 19 and may be limiting population growth (Peirce 2018, Keech et al. 2011). ADF&G conducts intensive management in Unit 19A to reduce predation on moose. However, management activities only occur in eastern Unit 19A, although the Lime Village Management Area is included in the wolf control focus area (ADF&G 2018a).

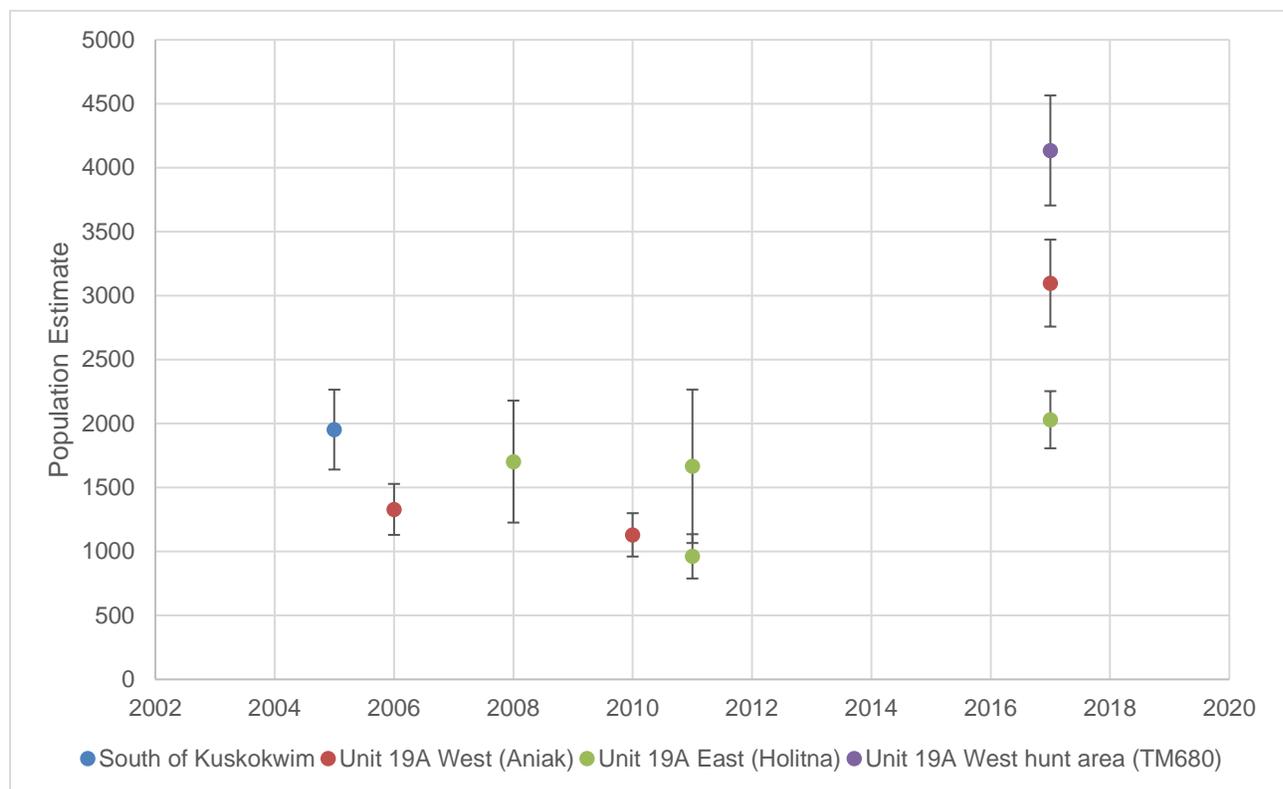


**Map 2.** Units 19, 21A, and 21E showing the 3 scheduled moose survey areas (MSA): Unit 19D East moose survey area, Unit 19A East (Holitna), and Unit 21E moose survey area. Also shown is the Unit 19A West (Aniak) moose survey area which is surveyed opportunistically. The area south of the Kuskokwim River includes both the Unit 19A East (Holitna) and Unit 19A West (Aniak) survey areas (figure from Seavoy 2014).

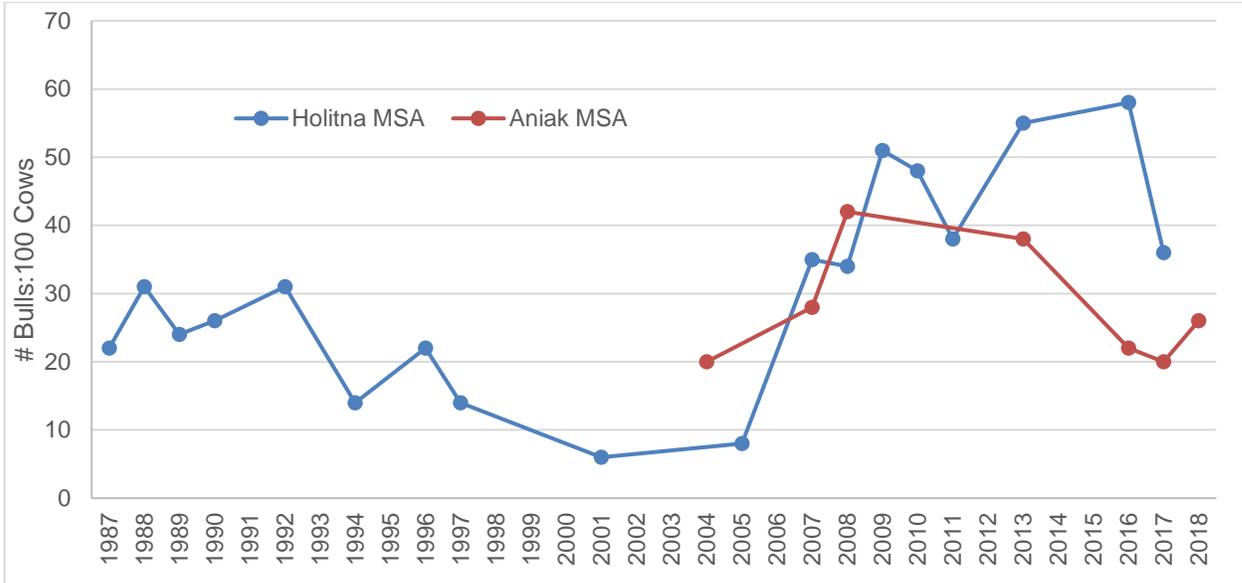
**Table 1.** Moose density estimates in Unit 19A (moose/mi<sup>2</sup>). See Map 2 for survey areas. The TM680 State hunt area is similar to the Federal Unit 19A remainder hunt area, but does not include the Lime Village Management Area (ADF&G 2018a, Peirce 2018, Seavoy 2014, ADF&G 2004, Peirce 2018, pers. comm.).

Year	South of Kuskokwim River	Unit 19A West (Aniak)	Unit 19A East (Holitna)	Unit 19A West hunt area (TM680)
1998			1.25	
2001		0.7		
2005	0.27			
2006		0.39		
2008			0.44	
2010		0.33		
2011			0.25	
2011			0.43 <sup>a</sup>	
2014				
2017		1.3 <sup>a</sup>	0.52 <sup>a</sup>	0.7 <sup>a</sup>

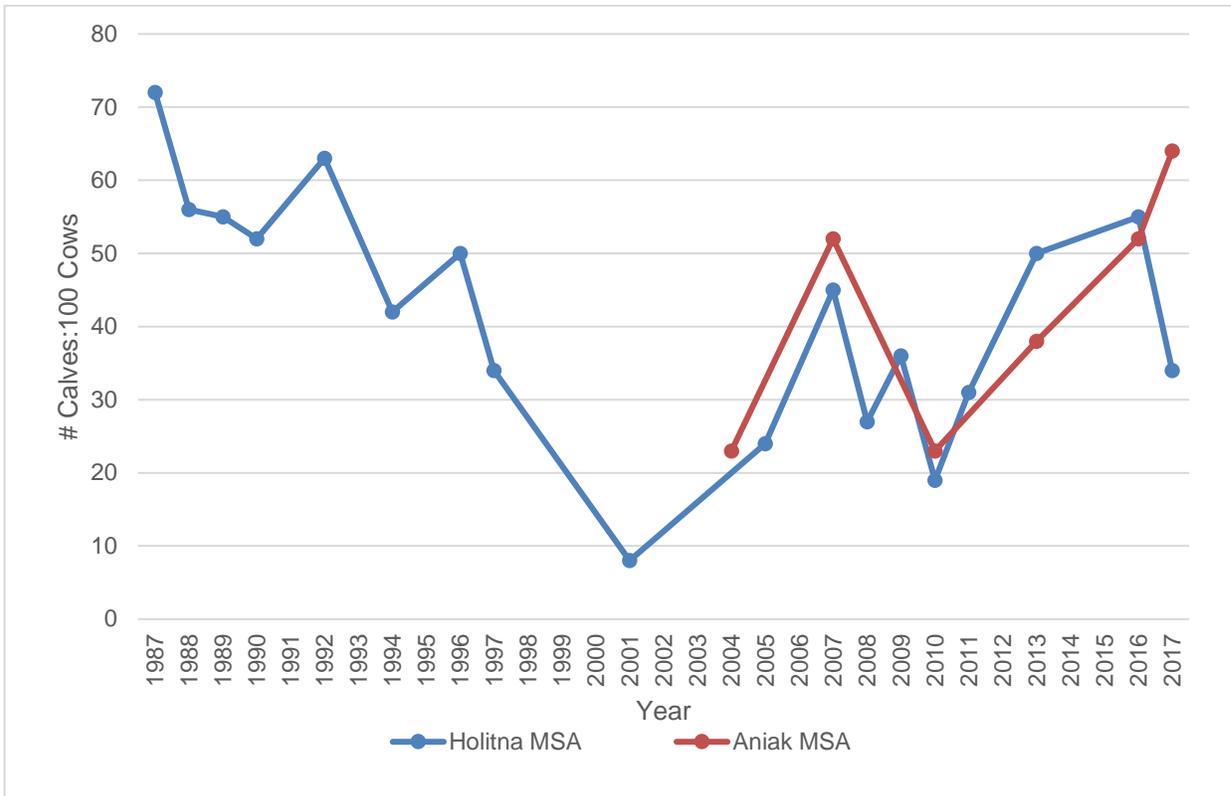
<sup>a</sup> Includes a sightability correction factor



**Figure 1.** Population estimates for moose in Unit 19A with 90% confidence intervals. The higher estimate in 2011 and the 2017 estimate in the Unit 19A East (Holitna) survey area include sightability correction factors. See Map 2 for survey areas. The TM680 State hunt area is similar to the Federal Unit 19A remainder hunt area, but does not include the Lime Village Management Area (ADF&G 2018a, Seavoy 2014, Peirce 2018, pers. comm.).



**Figure 2.** Fall bull:cow ratios for the Unit 19A East (Holitna) and Unit 19A West (Aniak) moose survey areas (Peirce 2018, ADF&G 2018a, Seavoy 2014, Peirce 2018, pers. comm., WIRAC 2019). See Map 2 for survey areas.



**Figure 3.** Fall calf:cow ratios for the Unit 19A East (Holitna) and Unit 19A West (Aniak) moose survey areas (Peirce 2018, ADF&G 2018a, Seavoy 2014, Peirce 2018, pers. comm.). See Map 2 for survey areas.

## Harvest History

Since 2006, moose harvest in Unit 19A remainder has only occurred under a State Tier II hunt, TM680, and a Federal drawing permit hunt, FM1901. Harvest for both hunts is limited to antlered bulls and restricted to Alaska residents. Harvest on Federal public lands is restricted to residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek.

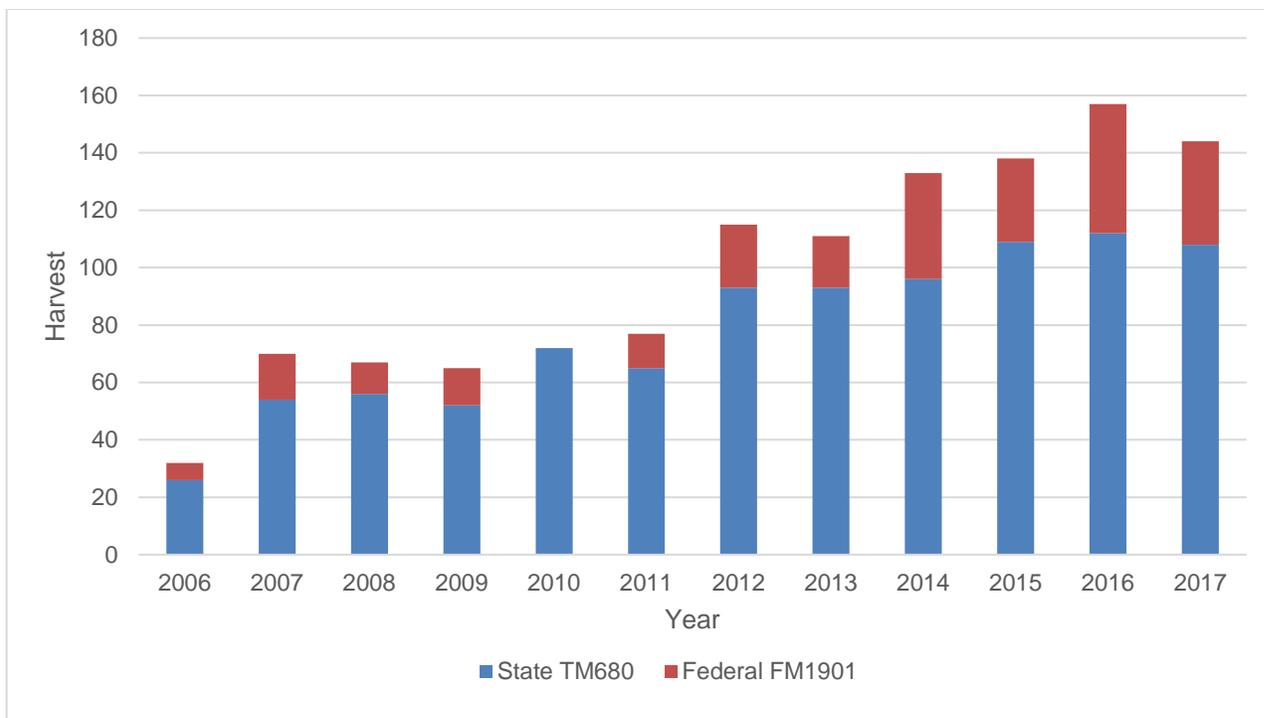
Between 1994 and 2005, prior to any closures, annual reported moose harvest in all of Unit 19A ranged from 67-184 moose and averaged 127 moose (ADF&G 2004, 2018b). Between 2006 and 2017, annual reported moose harvest in Unit 19A remainder averaged 98 moose, ranging from 32-157 moose (**Figure 4**) (ADF&G 2018b, OSM 2018). Over the same time period, annual reported harvest on Federal public lands averaged 22 moose, ranging from 6-45 moose (OSM 2018). On average, 19% of the Unit 19A remainder moose harvest between 2006 and 2017 has occurred on Federal public lands.

In 2006, ADF&G estimated the harvestable surplus of moose as 60 bulls for all of Unit 19A remainder (TM680 hunt area) and as 20 bulls on Federal public lands only (ADF&G 2006, OSM 2007). Most moose harvest on Federal public lands in Unit 19A remainder occurred on Yukon Delta National Wildlife Refuge (NWR) (ADF&G 2006). ADF&G estimated the harvestable surplus of moose for the Yukon Delta NWR portion of Unit 19A remainder as 16 bulls with a few additional harvests from BLM lands (ADF&G 2006).

Between 2006 and 2016, the moose population in the Unit 19A West (Aniak) MSA appeared stable, suggesting the harvestable surplus had not changed (**Figure 1**). Since 2007, annual reported harvest has exceeded 60 bulls, the harvestable surplus. Since 2012, annual reported harvest has exceeded 110 moose (**Figure 4**). On Federal public lands, harvest has exceeded 20 bulls/year since 2014. While the number of available Tier II and Federal drawing permits has not changed substantially, hunter success rates have steadily increased since 2006 (**Table 2**).

The significant increase in the 2017 population estimate for the Unit 19A West (Aniak) MSA suggests a parallel increase in the harvestable surplus. At the 2019 winter meeting of the Western Interior Council, the ADF&G area biologist stated that the harvestable surplus is currently 160-165 moose per year while total reported harvest is roughly 150 moose per year (100 from Tier II permits and 50 from Federal permits) (WIRAC 2019). However, low 2016 and 2017 bull:cow ratios in the Unit 19A West (Aniak) MSA indicate few surplus bulls.





**Figure 4.** Reported moose harvest in Unit 19A remainder (ADF&G 2018b, OSM 2018).

**Table 2.** Number of permits issued and success rates for the State Tier II, TM680 hunt and the Federal drawing permit, FM1901 hunt (ADF&G 2018b, OSM 2018).

Year	TM680 Issued	TM680 Success (%)	FM1901 Issued	FM1901 Success (%)
2006	197	13	92	13
2007	227	24	92	25
2008	230	24	97	14
2009	231	23	92	22
2010	200	36	*	*
2011	200	33	72	29
2012	165	47	82	43
2013	222	42	74	32
2014	191	50	92	64
2015	200	55	77	73
2016	197	57	96	65
2017	195	55	96	62
* No data available				

**OSM Preliminary Conclusion:**

- maintain status quo  
 modify or eliminate the closure

## **Justification**

No change to the closure is currently recommended. While Federal harvest may have exceeded the harvestable surplus on Federal public lands between 2014 and 2016, harvest can be adjusted by the in-season Federal manager who can set the quota, number of available permits, and close the season when the quota is met. While the 2017 moose density estimate for the Unit 19A West (Aniak) MSA increased significantly and is above State management objectives, the density estimate for the entire Unit 19A West hunt area is much lower and just within State management objectives. Additionally, the 2016 and 2017 bull:cow ratios for the Unit 19A West (Aniak) MSA are low, just meeting State management objectives. As moose harvest in Unit 19A West is restricted to bulls only, a robust bull:cow ratio is recommended before relaxing the closure. For these reasons, no change to the closure is recommended at this time.

While Lime Village Management Area is a separate hunt area under State regulations, it is part of Unit 19A remainder under Federal regulations. The §804 analysis (part of Proposal WP07-35) failed to realize this. Currently, residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek (§804 communities) can hunt in the Lime Village Management Area while residents of Lime Village cannot. OSM recommends establishing a new hunt area for the Lime Village Management Area or adding Lime Village to the §804 communities. Submittal of a regulatory proposal is necessary to make these changes.

OSM also recommends removing the regulatory language referring to establishing quotas and permit numbers and delegating authority to a Federal land manager to set quotas and permit numbers via a delegation of authority letter only. Creation of a delegation of authority letter for the Federal in-season manager will serve to simplify regulations and allow for management flexibility through adjustment of in-season winter hunt parameters. Submittal of a regulatory proposal is also necessary to delegate authority.

## **ANALYSIS ADDENDUM**

### **OSM Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

**Modify the closure for WCR20-43** to maintain the closure in the western portion of Unit 19A, eliminate the closure for the Lime Village Management Area, establish seasons, harvest limits, and permit requirements for the Lime Village Management Area hunt area, and remove the regulatory language referring to establishing quotas and permit numbers, and delegate authority to the Yukon Delta NWR manager to set quotas and permit numbers via a delegation of authority letter only (**Appendix 1**).

The modified regulation should read:

**Unit 19A—Moose**

*Lime Village Management Area—2 bulls by State or Federal registration permit* Aug. 10-Sept. 25

Nov. 20-Mar. 31

*Unit 19A, remainder—1 antlered bull by Federal drawing permit or a State permit.* Sept. 1-Sept. 20.

*Federal public lands are closed to the taking of moose except by residents of Tuluksak, Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, and Crooked Creek hunting under these regulations.*

*The Refuge Manager of the Yukon Delta NWR, in cooperation with the BLM Field Office Manager, will annually establish the harvest quota and number of permits to be issued in coordination with the State Tier I hunt. If the allowable harvest level is reached before the regular season closing date, the Refuge Manager, in consultation with the BLM Field Office Manager, will announce an early closure of Federal public lands to all moose hunting*

**Justification**

At the 2019 winter meeting of the Western Interior Council, the ADF&G area biologist stated that ADF&G issues seven Tier II permits within the State's Lime Village Management Area each year. As the harvest limit is two bulls, a maximum of 14 bulls could be harvested each year from this area. However, an average of two bulls per year have been harvested in recent years. He is also not aware of any Lime Village residents utilizing the moose or caribou community harvest system under Federal regulations (WIRAC 2019). However, given the current Federal closure in Unit 19A remainder, residents of Lime Village cannot hunt on Federal public lands within the Lime Village Management Area under the State's Tier II hunt or the Federal community hunt.

The Western Interior Council recommended eliminating the Federal closure for the Lime Village Management Area, but did not specify harvest limits or season dates. The Council did express interest in aligning with State regulations and in maintaining the year-round season and community hunt for Lime Village residents (WIRAC 2019). The proposed harvest limit and seasons for the new Federal hunt area around Lime Village mirror the current State hunting regulations for this area. Additionally, the Lime Village community hunt will not be affected by this modification, except that eliminating the Federal closure will allow moose hunting on Federal public lands within the Lime Village Management Area under both State and Federal regulations.

## LITERATURE CITED

- ADF&G. 2004. Central Kuskokwim Moose Management Plan. Alaska Department of Fish and Game, Division of Wildlife Conservation. Central Kuskokwim Moose Management Planning Committee.  
[https://www.adfg.alaska.gov/static/research/plans/pdfs/final\\_ckmmp.pdf](https://www.adfg.alaska.gov/static/research/plans/pdfs/final_ckmmp.pdf). Accessed May 3, 2018.
- ADF&G. 2006. Special Action Request for moose hunting regulations in Units 19A and B for the 2006-2007 regulatory year. Alaska Department of Fish and Game, Division of Wildlife Conservation.
- ADF&G. 2018a. Annual report to the Alaska board of game on intensive management for moose with wolf, black bear, brown bear predation control in game management unit 19A. Alaska Department of Fish and Game. Division of Wildlife Conservation.  
[http://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/2018\\_gmu\\_19a\\_intensive\\_management\\_annual\\_report.pdf](http://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/2018_gmu_19a_intensive_management_annual_report.pdf). Accessed August 2, 2018.
- ADF&G. 2018b. General Harvest Reports. Alaska Department of Fish and Game.  
<https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>. Accessed August 16, 2018.
- Boudreau, T.A., and D.I. Parker McNeill. 2004. Units 19, 21A, and 21E moose management report. Pages 293–337 in C. Brown, editor. Moose management report of survey and inventory activities 1 July 2001–30 June 2003. Alaska Department of Fish and Game. Project 1.0. Juneau, AK.
- FSB. 1992. Transcripts of Federal Subsistence Board proceedings. April 9, 1992. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 1994. Transcripts of Federal Subsistence Board proceedings. November 14, 1994. Office of Subsistence Management, USFWS. Anchorage, AK.
- Keech, M.A., M.S. Lindberg, R.D. Boertje, P. Valkenburg, B.D. Taras, T.A. Boudreau, K. B. Beckmen. 2011. Effects of predator treatments, individual traits, and environment on moose survival in Alaska. *Journal of Wildlife Management* 75:1361-1380.
- OSM. 2006. Staff analysis WSA01-01a. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2007. Staff analysis WP07-35. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2008. Staff analysis WSA08-07. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2018. Permit database. Office of Subsistence Management, USFWS. Anchorage, AK. Accessed August 16, 2018.
- Peirce, J. M. 2018. Moose management report and plan, Game Management Unit 19: Report period 1 July 2010–30 June 2015, and plan period 1 July 2015–30 June 2020. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2018-22, Juneau, AK.

Peirce, J.M. 2018. Wildlife Biologist. Personal communication: e-mail. Alaska Department of Fish and Game. McGrath, AK.

Seavoy, R.J. 2014. Units 19A, 19B, 19C, and 19D moose. Chapter 21, pages 21-1 through 21-34 [In] P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011-30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.

WIRAC. 2019. Transcripts of the Western Interior Alaska Subsistence Regional Advisory Council proceedings. March 26, 2019. Fairbanks, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Western Interior Alaska Subsistence Regional Advisory Council**

**Modify the closure** for WCR20-43. The Council voted unanimously to maintain the current moose hunting closure in the western portion of Unit 19A and to eliminate the closure for the Lime Village Management Area in the southeastern portion of Unit 19A, agreeing with OSM's recommendation. The bull:cow ratio in the western portion of Unit 19A remainder is relatively low, the number of large bulls is fairly depressed, and the harvestable surplus is almost met under the current harvest regime. Thus, the Council supported maintaining the status quo for the closure in this area.

The Council also agreed with OSM's conclusion that including the Lime Village Management Area in the Unit 19A remainder closure was a mistake that should be corrected. The Council expressed interest in aligning Federal regulations with State regulations for the Lime Village Management Area and in maintaining the Lime Village community hunt. Additionally, the Council requested that OSM review the community harvest regulation for Lime Village and report back to the Council at its next meeting.

### **Yukon Kuskokwim Delta Subsistence Regional Advisory Council**

The Council voted to **defer** to the Western Interior Council, supporting its recommendation.

## **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

## **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

## Appendix 1

Yukon Delta National Wildlife Refuge Manager  
 U.S. Fish and Wildlife Service  
 807 Chief Eddie Hoffman Road 346  
 Bethel, AK 99559

Dear Refuge Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the manager of the Yukon Delta National Wildlife Refuge (Refuge) to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Lands Conservation Act (ANILCA) Title VIII jurisdiction within Unit 19A remainder for the management of moose on these lands.

It is the intent of the Board that actions related to management of moose by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), the Bureau of Land Management (BLM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

### DELEGATION OF AUTHORITY

**1. Delegation:** The Yukon Delta NWR manager is hereby delegated authority to issue emergency or temporary special actions affecting moose on Federal lands as outlined under the **Scope of Delegation**. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- To establish annual harvest quotas and number of permits to be issued in coordination with the State Tier I hunt.
- To close the Federal hunt early if the harvest quota is reached before the regular season closing date.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify permit requirements or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when it is necessary to conserve moose populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Unit 19A remainder.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 50 CFR 100.19 and 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).



You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair

Enclosures

cc: Federal Subsistence Board

Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management  
Wildlife Division Supervisor, Office of Subsistence Management  
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Western Interior Alaska Subsistence Regional Advisory Council  
Chair, Yukon-Kuskokwim Delta Subsistence Regional Advisory Council  
Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record



<b>WP20-38 Executive Summary</b>	
	<p><i>Unit 22D remainder—1 moose; however, no person may take a calf or cow accompanied by a calf</i></p> <p><i>Unit 22D remainder—1 antlered bull by State registration permit</i></p> <p style="text-align: right;"><i>Season may be announced—<del>Jan.</del> Dec. 1–Jan. 31.</i></p>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<p><b>Support</b> WP20-38 <b>with modification</b> to change the harvest limit for the Dec. 1 – Jan. 31 may-be-announced season to one antlered bull.</p> <p>See note and modified regulations on pages 1045-1046.</p>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.</p>
<b>ADF&amp;G Comments</b>	<p><b>Support</b> WP20-38 <b>with modification</b> to change the harvest limit for the Dec. 1 – Jan. 31 may-be-announced season to one antlered bull.</p>
<b>Written Public Comments</b>	<p><b>None</b></p>

## STAFF ANALYSIS WP20-38

### ISSUES

Wildlife Proposal WP20-38, submitted by the Alaska Department of Fish and Game (ADF&G), requests that the December and January moose seasons in Unit 22D remainder be combined into a “may be announced” season, that the Oct. 1–Nov. 30 season be eliminated, and that the harvest limit be modified to one bull by State registration permit for both remaining seasons.

**Note:** A similar proposal (WP20-39) was also submitted regarding the harvest limit for moose in Unit 22D remainder. The outcome of either proposal will impact the action taken on the other. Therefore, it is important to consider both of these proposals prior to taking action. A complimentary proposal (WP20-40) was additionally submitted regarding the closure of the hunt area to non-Federally qualified users. It may also be important to consider how an action on WP20-40 would impact actions taken on either WP20-38 or WP20-39.

### DISCUSSION

The proponent is concerned with the harvest of cow moose and the disturbance of breeding bulls during the rut in Unit 22D remainder, due to a declining population trend since 2011. The proponent states that moose population surveys showed an annual decline of 14% between 2011 and 2014, which resulted in the Alaska Board of Game (BOG) closing antlerless moose hunts in the area in 2015 and closing nonresident hunting starting in 2017. Moose harvest in Unit 22D remainder has increased through the years and, according to the proponent, fall composition surveys conducted in 2018 found a decline in the bull:cow ratio, suggesting that the current level of harvest is not sustainable. The proponent states that requiring a State registration permit will provide them with more accurate harvest reporting, and therefore, provide them with the tools necessary to better manage harvest at sustainable levels. The proponent claims that continued harvest of cow moose and breeding bulls in Unit 22D remainder will lead to further declines in the population. It is mentioned that a similar proposal will be submitted to the BOG in 2020 to align regulations and reduce overall harvest of moose in Unit 22D remainder.

### Existing Federal Regulation

#### Unit 22—Moose

*Unit 22D remainder—1 bull*

*Aug. 10–Sep. 14.  
Oct. 1–Nov. 30.*

*Unit 22D remainder—1 moose; however, no person may take a calf or  
cow accompanied by a calf*

*Dec. 1–31.*

*Unit 22D remainder—1 antlered bull*

*Jan. 1–31.*

**Proposed Federal Regulation**

**Unit 22D—Moose**

*Unit 22D remainder—1 bull by State registration permit*

*Aug. 10–Sep. 14.*

~~*Oct. 1–Nov. 30.*~~

~~*Unit 22D remainder—1 moose; however, no person may take a calf or  
cow accompanied by a calf*~~

~~*Dec. 1–31.*~~

*Unit 22D remainder—1 antlered bull by State registration permit*

*Season may be  
announced—Jan.*

~~*Dec. 1–Jan. 31.*~~

**Existing State Regulation**

**Unit 22D—Moose**

*22D remainder*

*Residents: One bull*

*Aug. 10 – Sept. 14*

*OR*

*One bull*

*Oct. 1 – Nov. 30*

*OR*

*One antlered bull*

*Dec. 1 – Jan. 31*

*Nonresidents*

*no open season*

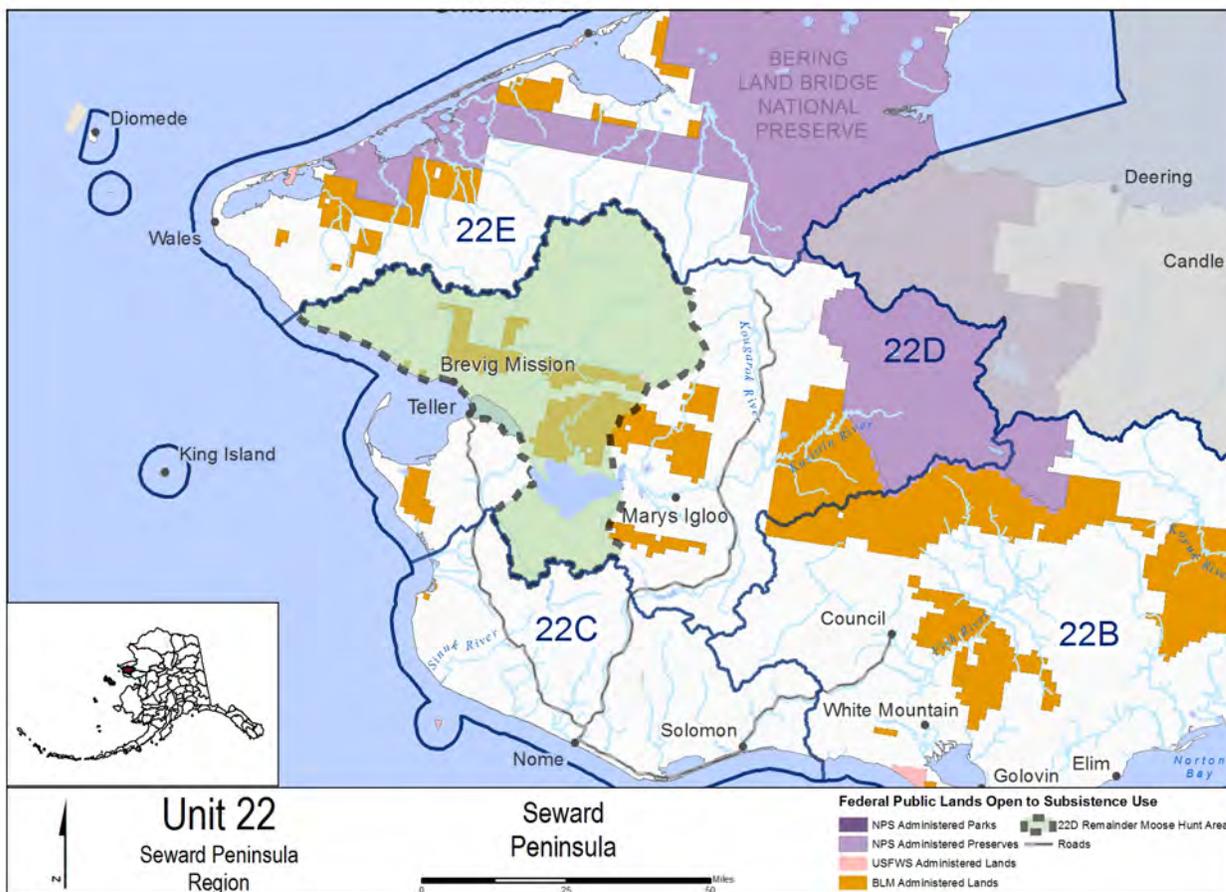
**Extent of Federal Public Lands/Waters**

Unit 22D is comprised of approximately 23% Federal public lands and consists of 12% Bureau of Land Management (BLM) managed lands, and 11% National Park Service (NPS) managed lands (Figure 1).

**Note:** Federal public lands comprise 8% of the Unit 22D remainder moose hunt area, specifically. All of these Federal public lands are managed by BLM.

### Customary and Traditional Use Determinations

Residents of Unit 22 have a customary and traditional use determination for moose in Unit 22.



**Figure 1.** Unit 22D remainder moose hunt area.

### Regulatory History

In 1998, the Federal Subsistence Board (Board) adopted Proposal WP98-087, which changed the harvest limit from one moose to one antlered bull in that portion of Unit 22D that lies within the Kuzitrin River drainage, just east of Unit 22D remainder, due to a declining local moose population and heavy hunting pressure. As a result of a continuing regional trend in declining moose populations, the Board also restricted the harvest in adjacent Unit 22B in 2000.

In 2001, the Board approved with modification, two Special Action Requests (WSA01-09 and WSA01-11) to close Federal public lands to the harvest of moose by non-Federally qualified users in Unit 22B west of the Darby Mountains, Unit 22D within the Kuzitrin River drainage and west of the Tisuk River drainage and Canyon Creek, and Unit 22E, shorten the seasons in all these hunt areas except for Unit 22D west of the Tisuk River drainage, and modify Unit 22E harvest limits from one moose to one bull for the 2001 fall and winter seasons. As a follow-up to these actions, the BOG

addressed concerns about declining moose populations in parts of Unit 22 by shortening seasons in portions of Units 22B and 22D, adding registration permit requirements in Unit 22D, dividing Unit 22D into additional hunt areas, modifying harvest limits, and closing nonresident hunts in portions of Units 22B, 22D, and 22E. The BOG decided to restrict the season in Unit 22D remainder, despite a relatively healthier moose population. The fall season was closed from Sept. 15–30, to match other portions of Unit 22D, in order to prevent focusing hunting efforts on the American and Agiapuk River drainages when all the other areas would have been closed. These changes went into effect in regulatory year 2002/03.

In May 2002, the Board adopted Proposal WP02-34 with modification to add State registration permit requirements to the portion of Unit 22B west of the Darby Mountains, the portion of Unit 22D that lies within the Kuzitrin River drainage, and the portion of Unit 22D west of the Tisuk River drainage, revise harvest limits to bull only hunts in Units 22B, portions of 22D (Kuzitrin River drainage and west of the Tisuk River drainage), and Unit 22E, and shorten seasons in these areas. It also closed Federal public lands in Unit 22D remainder and Unit 22E to the taking of moose except by Federally qualified subsistence users. The Board’s justification stated that the closure “would improve rural subsistence harvest opportunities in an area recently deemed necessary by the State to restrict the moose harvest” (OSM 2002: 15).

ADF&G issued an emergency order in 2005, changing the State fall moose hunt in Unit 22D to Sept. 1–14. In 2005, the Board approved Special Action Request WSA05-01, which shortened the hunting season for all of Unit 22D from Aug. 20–Sept. 30 to Sept. 1–14, in response to conservation concerns from harvests exceeding the joint State/Federal harvest quota for the Kuzitrin River drainage in 2003 and 2004 (OSM 2005). Overharvest occurred in 2003 and 2004, despite State and Federal efforts to reduce the harvest by closing the seasons early.

Upon consideration of Wildlife Closure Review WCR06-15 in 2006, the Seward Peninsula Subsistence Regional Advisory Council (Council) submitted Proposal WP07-38 to eliminate the closure put in place in 2002 to all non-Federally qualified users. In 2007, the Board adopted WP07-38, eliminating the closure to non-Federally qualified users in Unit 22D remainder, and aligning Federal and State hunting season dates. The Council justified the request by stating that “land closures are no longer necessary to protect the moose population because numbers have increased unit-wide and have remained stable for at least ten years; recruitment rates are up; and bull:cow ratios are consistently high despite a five-month Federal season” (OSM 2007: 468).

In 2015, the BOG modified State regulations, transitioning to a bull moose hunt within Unit 22D remainder. In addition, for regulatory years 2015/16 and 2016/17, ADF&G established a three moose harvest quota for nonresident hunters in Unit 22D remainder to prevent excessive harvest. This harvest quota was enacted due to a decline in moose populations since 2011. ADF&G issued emergency orders in regulatory years 2015/16 and 2016/17 to close this season early due to the quota being met (ADF&G 2016a).



At its March 2016 meeting, the Council submitted Proposal 28 to the BOG, requesting elimination of the nonresident moose season in Units 22E and 22D remainder until the relationship between the changing moose population distribution and growth and decline between the subunits was better understood. During discussion of the proposal, ADF&G was asked for an overview of the moose population in the area. ADF&G brought concern about the decreasing population numbers in Unit 22D to the attention of the Council, mentioning that moose in Unit 22D were last counted in 2014, and that declines in the population were observed in both of the major survey areas. Additionally, ADF&G noted that some Unit 22D moose may have migrated to Unit 22E. Even with the possible migration taken into consideration, a significant decline in Unit 22D moose was observed during the 2014 survey (SPRAC 2016). Proposal 28 was adopted in Unit 22D remainder by the BOG prior to the 2017/18 regulatory year.

Special Action Request WSA16-07, submitted by BLM and requesting that the December cow season be closed, was presented to the Council on November 2, 2016. The Council supported WSA16-07, stating that hunters had expressed concern about the moose populations in the area. In particular, the Council Chair discussed the need to refrain from harvesting cow moose during population declines and asked ADF&G to explain the current levels of antlerless moose harvest and the potential impacts to the population. ADF&G noted that the average annual reported harvest of cow moose in Unit 22D over the last ten years totaled one moose per year, but that an antlerless harvest as low as 3% could have a substantial negative impact to the population. The Council Chair emphasized that this Special Action would only close the Federal cow moose hunting season for one month. The Board approved WSA16-07 on November 30, 2016.

In 2017, the same request was submitted as Special Action Request WSA17-06. The proponent, BLM, submitted this request because they believed that continued harvest of cow moose in Unit 22D remainder would lead to further declines in the moose population. The Board approved WSA17-06 with modification to change the harvest limit from one bull to one antlered bull for the harvest season of Dec. 1–Dec. 31, 2017. This modification was approved to prevent the accidental harvest of cows, since most larger bulls would have dropped their antlers by December. An antlered moose hunt was also preferred to reduce mid-winter harassment of non-antlered moose by hunters trying to distinguish the sex of the animal. It was stated that approval of this modification would help to ensure the long term viability of the moose population in Unit 22D remainder.

Similarly, in 2018, the same request was submitted as Special Action Request WSA18-03. The Board again approved this request with modification. The modified WSA18-03 that was approved by the Board limited harvest from one moose to one antlered bull in Unit 22D remainder for the remainder of the current wildlife regulatory cycle (through June 30, 2020). The harvest limit was modified through the remainder of the wildlife regulatory cycle to ensure that antlerless moose in Unit 22D remainder were protected until a proposal could be submitted to change Federal subsistence regulations.

## **Current Events**

ADF&G submitted Proposal 33 to the BOG, proposing the same changes to Unit 22D remainder moose regulations as WP20-38. While not explicit in Proposal 33, ADF&G's presentation to the BOG at its January 2020 meeting specified that the fall moose hunt in Unit 22D remainder would be administered under RM840 with a harvest quota of 18 bulls and a three day reporting requirement. The may-be-announced winter hunt would be administered under RM849 (ADF&G 2020). The BOG adopted Proposal 33. The BOG also adopted Proposal 35 as amended to change the availability of Unit 22 registration permits for moose hunting. As a result, registration permits for moose hunting in Unit 22 will only be issued by vendors in Unit 22 between July 27 and August 25.

### **Biological Background**

Moose have been present in Unit 22 for a relatively short time, with very few being observed prior to 1930. The moose population on the Seward Peninsula grew and reached its peak in the mid-1980s (Nelson 1995, Gorn and Dunker 2014). This rise in the population was followed by multiple severe winters, which greatly reduced the population and overall moose density due to limited winter browse (Nelson 1995). Brown bear predation on calves is now considered the main limiting factor on the Unit 22 moose population; although no formal study has yet been conducted to confirm this (Gorn and Dunker 2014).

State management goals for moose in Unit 22 include maintaining a unit-wide combined population of 5,100–6,800 moose, and more specifically, maintaining a population of 2,000–2,500 moose in Unit 22D while maintaining a minimum bull:cow ratio of 30:100. The population goal in Unit 22D would provide for an increased and stabilized population following recent declines (Gorn and Dunker 2014).

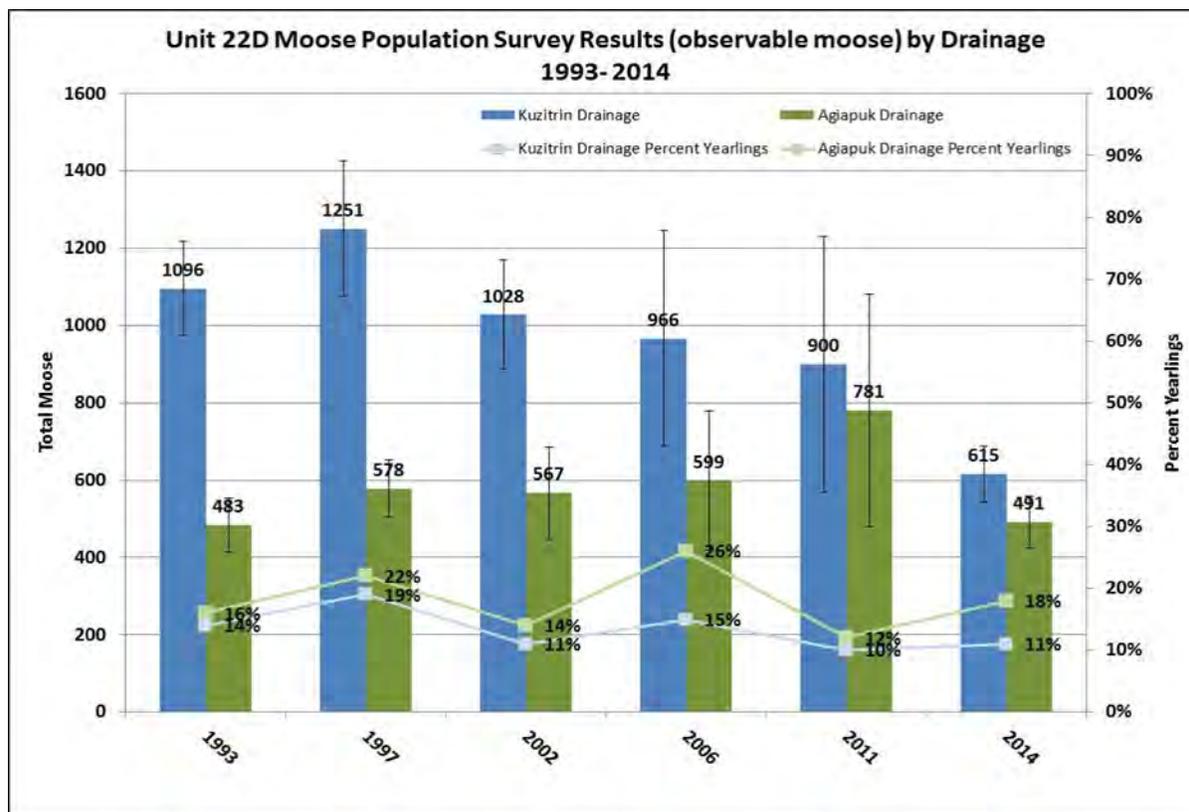
During a moose population survey conducted in 2014, the population estimate for moose in all of Unit 22D was 1,106 observable moose, which represents a 13% annual rate of decline from 2011 (1,681 observable moose). Specifically in the Agiapuk River drainage survey area (within which, the Unit 22D remainder hunt area is located), the population estimate was 491 (0.39 moose/mi<sup>2</sup>) observable moose (**Figure 2**). This is a 14% annual rate of decline since the 2011 survey (Gorn 2012, Dunker 2016, pers. comm.). These numbers were reported as observable moose, rather than an overall population estimate, due to the lack of a sightability correction factor for these surveys. Another population survey was planned for March of 2018 in Units 22D and 22E, but due to inclement weather, the survey did not take place (Seppi 2018, pers. comm.).

Fall composition surveys indicate a negative change in the composition within Unit 22D remainder. Composition surveys in the Agiapuk River Drainage were conducted in 2011 for the first time since 2003, and found 38 bulls:100 cows, which is within State management goals (Gorn 2012, Dunker 2019 pers. comm.). In 2013, efforts to complete composition surveys were hampered by poor weather conditions. The limited data obtained from these attempts indicated that the bull:cow ratio had likely declined since the 2011 surveys (Dunker 2016, pers. comm.). This was confirmed during the most recent composition surveys in the area, which were completed in fall of 2016 and 2018. Results showed a bull:cow ratio of 23 and 18 bulls:100 cows, respectively, both of which are below the State management objective of 30 bulls: 100 cows (Dunker 2017, pers. comm.).

Weight measurements were collected on short-yearling (10-month old) moose in Unit 22D in April 2007–2009. Annual average weights ranged 372–393 pounds. Snowfall was greater than normal in both 2008 and 2009, but did not have a significant impact on average short-yearling weights. Research indicates that short-yearling weights of less than 385 pounds are considered an indication that moose are resource limited, but browse does not seem to be a limiting factor in this area (Gorn and Dunker 2014). A spring recruitment survey was completed by ADF&G in April of 2018 for Unit 22D remainder. This survey provided a 12% estimate of recruitment, which suggests that recruitment is poor and the population is likely still in need of rebuilding efforts at this time (ADF&G 2018a).

Habitat

There is limited habitat data for Unit 22D. Although winter browse was seen as a limiting factor when moose density/numbers were at their highest during the mid-1980s, current moose populations have been managed based on what winter browse can easily support throughout Unit 22D. Browse is no longer viewed as a limiting factor to moose in this unit, and brown bear predation on calves is now seen as the most significant factor influencing moose numbers (Gorn and Dunker 2014).



**Figure 2.** Unit 22D moose population survey results (Figure from Dunker 2016, pers. comm.).

**Cultural Knowledge and Traditional Practices**

The Seward Peninsula has been inhabited by humans for at least 12,000 years. The Inupiaq, Central Yup'ik, and Siberian Yupik-speaking peoples of the Bering Strait region have a deeply rooted practice

of subsistence hunting, fishing, and gathering of wild resources (Ray 1984). Until the establishment of mission settlements and later, government schools, many of these groups were semi-nomadic, moving with the seasons based on the availability of wild resources. Gold was discovered in Anvil Creek in 1898, precipitating a gold rush, settlement by outsiders, and re-distribution of the local population. Major epidemics including influenza in 1918 further reshaped populations on the Seward Peninsula (Ray 1984).

The western boundary of unit 22D remainder is contiguous with the villages of Teller and Brevig Mission; both communities hunt moose within this area (Mikow et al. 2018). The present location of Teller was established in 1900 when the Bluestone Placer Mine was created 15 miles to the south. In the 2010 (U.S. Census), Teller had 229 year-round, permanent residents (U.S. Census 2010). Brevig Mission is named after the Lutheran minister who established a reindeer herd at the current town site in 1900. During the most recent census, there were 388 year-round permanent residents of Brevig Mission (U.S. Census 2010).

Moose did not start migrating into the Seward Peninsula until the 1940s, and while caribou were hunted traditionally, their numbers declined in the region in the mid-1800s (Dau 2000). Introduced reindeer were the economic base for Brevig Mission until the 1970s, a source of food and income which has since declined (Finstad 2007). Historically, people in the Seward Peninsula area hunted a variety of species, but as moose moved into the region in the mid-20th century, harvest of these animals grew.

Between May 2015 and May 2016, the most recent study period for which big game subsistence data is available for the area, 85% of Brevig Mission households and 55% of Teller households used moose (Mikow et al. 2018). The percentage of households using moose in each community in 2015-2016 was greater compared to a previous study period, 2011-2012, during which 43.3% of Brevig Mission and 30.5% of Teller households used moose (Mikow et al. 2014).

For the 2015-2016 study period, Brevig Mission households harvested 33 pounds of edible moose per capita, with 90% of the harvest occurring within unit 22D remainder. Teller households harvested 32 pounds of edible moose per capita, 27% of which were harvested from 22D remainder. For Teller, a higher percentage of households used moose than caribou, but that situation was reversed for Brevig Mission. The fall moose hunting season was most important for both communities. In Brevig mission, 85% of moose were taken in the fall, while in Teller 100% were taken in that season (Mikow et al. 2018).

### **Harvest History**

Reported harvest remains well below levels seen in the 1980s, in part, due to more stringent hunting regulations in Unit 22D. According to the ADF&G harvest report website, 178 (133 male, 45 female) moose were harvested throughout Unit 22D in 1986, with 39.9% hunter success throughout the subunit (ADF&G 2018b). Conversely, 61 moose were harvested in Unit 22D in 2018, with 28% hunter success throughout the subunit (ADF&G 2018b, 2019). Average annual reported harvest in Unit 22D

from 2005 to 2018 was 66 moose (**Table 1**). The majority of moose taken over these years have been bulls. Residents of Unit 22 accounted for 73% of the total harvest between 2005 and 2018 (**Table 1**).

In Unit 22D remainder, specifically, the average annual reported moose harvest by State residents between 2009 and 2018 was 24 moose (ADF&G 2020). Accounting for unreported harvest, ADF&G estimated total moose harvest in Unit 22D remainder between 2009 and 2018 as 42-57 moose per year, which translates to a 7%-10% harvest rate. This is a very high harvest rate, especially for a low-density and declining moose population. ADF&G currently estimates the harvestable surplus for Unit 22D remainder as 18-30 moose per year, which translates to a 3%-5% harvest rate (ADF&G 2020).

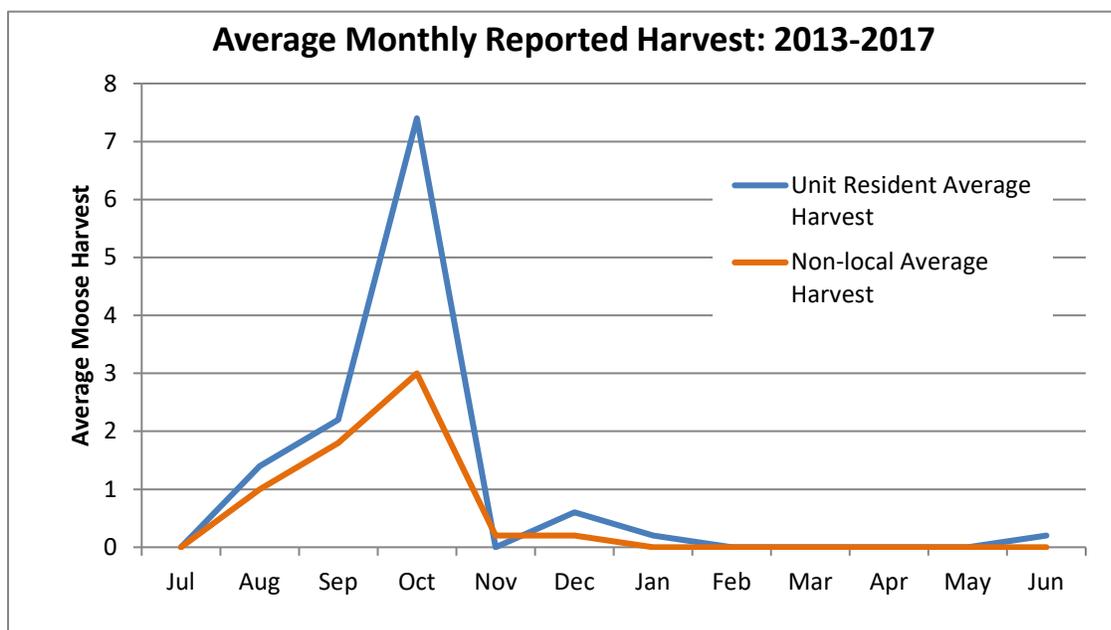
Unit 22 residents, most of which were residents of Nome, accounted for 74% of the total reported harvest between 2013 and 2018 in Unit 22D remainder, and 59% of reported harvest took place during the month of October (**Table 2, Figure 3**). According to Household Subsistence Surveys between 2000 and 2015, residents of Brevig Mission and Teller, the communities closest to Unit 22D remainder, harvested an average of 18 moose and 8 moose per year, respectively (ADF&G 2020).

**Table 1.** Reported moose harvest in Unit 22D for 2005–2018. Local resident harvest refers to harvest by residents of Unit 22 (ADF&G 2016b, 2017, 2018b, 2019).

Year	Species	Local Resident Harvest	Nonlocal Resident Harvest	Total Resident Harvest	Unknown Residency Harvest	Nonresident Harvest	Total Harvest	Male	Female	Unknown
2005	Moose	47	4	51	0	6	57	56	0	1
2006	Moose	47	11	58	0	8	66	65	1	0
2007	Moose	52	14	66	1	5	72	70	2	0
2008	Moose	42	10	52	1	7	60	57	1	2
2009	Moose	54	15	69	0	7	76	74	1	1
2010	Moose	39	12	51	3	4	58	55	2	1
2011	Moose	50	19	69	1	9	79	76	2	1
2012	Moose	50	12	62	1	6	69	66	2	1
2013	Moose	45	10	55	1	3	59	58	1	0
2014	Moose	43	11	54	2	8	64	61	2	1
2015	Moose	54	12	66	1	5	72	69	0	3
2016	Moose	52	8	60	0	3	63	63	0	0
2017	Moose	59	12	71	0	0	71	69	0	2
2018	Moose	47	14	61	0	0	61	61	0	0
<b>Average:</b>		<b>49</b>	<b>12</b>	<b>60</b>	<b>1</b>	<b>5</b>	<b>66</b>	<b>64</b>	<b>1</b>	<b>1</b>
<b>Total:</b>		<b>679</b>	<b>164</b>	<b>843</b>	<b>11</b>	<b>71</b>	<b>925</b>	<b>899</b>	<b>14</b>	<b>12</b>

**Table 2.** Unit 22D remainder moose harvest, 2013–2018, according to ADF&G Unit 22D GM000 harvest reports (ADF&G 2019). Local harvest refers to harvest by residents of Unit 22.

Year	Total Harvest	Local harvest		Non-local harvest	
		Number of moose	% of total	Number of moose	% of total
2013	12	7	58%	5	42%
2014	16	11	69%	5	31%
2015	22	17	77%	5	23%
2016	22	16	73%	6	27%
2017	35	28	80%	7	20%
2018	33	25	76%	8	24%



**Figure 3.** Unit 22D remainder average moose harvest by month, 2013–2017, according to ADF&G Unit 22D GM000 harvest data (WinfoNet 2018).

**Other Alternatives Considered**

One alternative that was considered for this proposal was to maintain the harvest season for the month of October. This alternative was considered due to October being the primary month that moose are harvested by local residents in Unit 22D remainder. Due to conservation concerns for the moose population and the vulnerability of rutting bulls during this time of the year, this alternative was not further considered.

A different alternative considered was to additionally close Federal public lands in Unit 22D remainder to the harvest of moose except by Federally qualified subsistence users. This would further protect the

moose population in the hunt area and maintain priority for Federally qualified subsistence users. This modification was considered beyond the scope of the proposal and was not further considered.

### **Effects of the Proposal**

Only 8% of the Unit 22D remainder moose hunt area consists of Federal public lands. All of these Federal public lands are managed by BLM. The low amount of Federal lands located in the hunt area may limit the impact that this proposal would have on Federally qualified subsistence users and the moose population.

If this proposal is adopted, it would limit subsistence opportunity for Federally qualified subsistence users in Unit 22D remainder, but it would also help to ensure that users have the moose resource available for future generations. Adoption of this proposal would eliminate cow harvest and shorten the overall harvest season, which, due to low moose densities in the area and a declining population that is below State management goals, could provide benefits to the moose population in the unit. Requiring a registration permit would put more of a burden on users, but it would allow for more accurate tracking of moose harvest in the hunt area.

As the BOG adopted State Proposals 33 and 35, adoption of WP20-38 would align State and Federal regulations, which could reduce regulatory complexity and user confusion. As Proposal 35 limited the availability of registration permits and WP20-38 requires the use of a State registration permit, Federally qualified subsistence users would only be able to obtain permits in Unit 22 between July 27 and August 25. While this burdens Federally qualified subsistence users, it may help conserve the moose population and limit competition with non-local resident hunters who would have to make an extra trip to Unit 22 to obtain a permit.

Proposal 33 also established a harvest quota for moose in Unit 22D remainder. According to the ADF&G Area Biologist at the Fall 2019 Seward Peninsula Council meeting, the intention is for the winter season to be announced if the harvest quota is not met during the fall hunt (SPRAC 2019). Of note, Proposal WP20-40 also affects moose in Unit 22D remainder by proposing to close Federal public lands in this area to moose hunting, except by Federally qualified subsistence users.

### **OSM PRELIMINARY CONCLUSION**

**Support Proposal WP20-38 with modification** to delegate authority to the Federal manager to open a "may be announced" season between Dec. 1 and Jan. 31 via a delegation of authority letter only (**Appendix 1**).

### **Justification**

The moose population in Unit 22D remainder is currently below State management goals and declined at a rate of 14% annually between 2011 and 2014. In addition, the current estimated annual harvest may be above sustainable levels. Cow hunts are typically used to reduce increasing populations that are above sustainable levels. Due to this declining population, the State has removed antlerless hunts

from their regulations in Unit 22 and eliminated non-resident harvest opportunity in the area. Requiring a registration permit will help to obtain more accurate harvest data, which is necessary to properly manage this moose population. Although eliminating the cow moose season and requiring a registration permit may limit short-term subsistence opportunity for Federally qualified subsistence users, it will help to assure the long term viability of this moose population.

**ANALYSIS ADDENDUM**

**ISSUES**

At its October 22<sup>nd</sup> and 23<sup>rd</sup> meeting, the Seward Peninsula Subsistence Regional Advisory Council discussed this proposal in depth. During the discussion, it was brought to light that the proposal had a typo and that the intent of the proponent was to modify the harvest limit to be one antlered bull during the proposed Dec. 1–Jan. 31 season. This harvest limit was proposed to prevent accidental take of cow moose, as well as to prevent the potential harassment of cow moose from users trying to determine the sex of an antlerless moose during this season.

**OSM CONCLUSION**

**Support** Proposal WP20-38 **with modification** to delegate authority to the Federal manager to announce harvest quotas, close the fall season and to open a “may be announced” season between Dec. 1 and Jan. 31 via a delegation of authority letter only (**Appendix 1**) and to modify the harvest limit for the “may be announced” season between Dec. 1 and Jan. 31 to be one antlered bull.

The modified regulation should read:

**Unit 22D—Moose**

<i>Unit 22D remainder—1 bull by State registration permit</i>	<i>Aug. 10–Sep. 14. <del>Oct. 1–Nov. 30.</del></i>
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<i><del>Unit 22D remainder—1 moose; however, no person may take a calf or cow accompanied by a calf</del></i>	<i><del>Dec. 1–31.</del></i>
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<i>Unit 22D remainder—1 antlered bull by State registration permit</i>	<i>Season may be announced— <del>Jan.–Dec. 1–Jan. 31.</del></i>
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**Justification**

Modifying the harvest limit for the may-be-announced season to one antlered bull protects cow moose from accidental harvest and harassment by hunters. This modification also addresses the original intent of the proponent.



The BOG adopted Proposal 33, which established a harvest quota for Unit 22D remainder that will be administered through a State registration permit. ADF&G plans to close the fall moose season by emergency order if the quota is met. As this proposal requires the use of a State registration permit under Federal regulations, the Federal in-season manager would need the authority to announce harvest quotas and to close the Federal season if the quota is reached.

## LITERATURE CITED

ADF&G. 2016a. State Closes Nonresident Moose Hunt in Remainder of Unit 22D. Emergency Order 05-05-16. Division of Wildlife Conservation. Nome, AK.

ADF&G. 2016b. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: October 26, 2016.

ADF&G. 2017. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: November 20, 2017.

ADF&G. 2018a. Wildlife Special Action WSA 18-03: Temporary Special Action Request. Letter of Comment to the Federal Subsistence Board. October 5, 2018.

ADF&G. 2018b. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: August 30, 2018.

ADF&G. 2019. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: July 5, 2019.

ADF&G. 2020. RC 4: Department Reports and Recommendations. Tab 7.2: Nome Proposals, Proposal 33. Alaska Board of Game Meeting Information. Western Arctic/Western Region. January 17-20, 2020. Nome, AK. <http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=01-17-2020&meeting=nome>. Accessed January 21, 2020.

Braem, N.M., E.H. Mikow, and M.L. Kostick, eds. 2014. Chukchi Seas and Norton Sound observation network: harvest and use of wildlife resources in 9 communities in Arctic Alaska, 2012–2014. ADF&G Division of Subsistence Technical Paper No. 403. Fairbanks, AK. 797 pages.

Dau, J. 2000. Managing reindeer and wildlife on Alaska's Seward Peninsula. *Polar Research* 19(1), 57-62.

Dunker, W. 2016. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Dunker, W. 2017. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Dunker, W. 2018. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Dunker, W. 2019. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Finstad, G. L., Kielland, K. K., and W.S. Schneider, W. S. 2007. Reindeer herding in transition: historical and modern day challenges for Alaskan reindeer herders. *Nomadic Peoples*, 10(2): 31–49.

- Gorn, T. 2012. Unit 22 moose management report. Pages 534–559 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009–30 June 2011. ADF&G, Species Management Report, ADF&G/DWC/SMR-2012-5, Juneau, AK.
- Gorn, T. and W. R. Dunker. 2014. Unit 22 moose management report. Pages 31-1 through 31-38 in P. Harper and Laura A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011–30 June 2013. ADF&G, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.
- MacLean, E.A. 2012. Iñupiatun Uqaluit Taniktun Sivunniugutiñit: North Slope Iñupiaq to English Dictionary. Alaska Native Languages Archives, University of Alaska Fairbanks. 50 pp.
- Mikow, E. H., Gonzalez, D., and M.L. Kostick. 2018. Subsistence Wildlife Harvests in Brevig Mission, Teller, and White Mountain, Alaska , 2015 – 2016. ADF&G Division of Subsistence Special Publication No. 2018-03. Fairbanks, AK. 42 pages.
- Mikow, E., Braem, N. M., and M. Kostick, M. 2014. Subsistence Wildlife Harvests in Brevig Mission, Deering, Noatak, and Teller, Alaska, 2011-2012. ADF&G Division of Subsistence Special Publication No. 2014-02. Fairbanks, AK. 47 pages.
- Nelson, R.R. 1995. Unit 22 moose survey-inventory progress report. Pages 405-419 in M.V. Hicks, editor. Management report of survey-inventory activities 1 July 1993 – 30 June 1995. Federal aid in wildlife restoration progress report, Project W-24-2, W-24-3, Study 1.0. Juneau, AK.
- OSM. 2002. Staff Analysis WP02-34. Pages 12-26 in Federal Subsistence Board Meeting Materials May 13-15, 2002. Office of Subsistence Management, USFWS. Anchorage, AK. 676 pp.
- OSM. 2005. Staff Analysis WSA05-01. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2007. Staff Analysis WP07-37. Pages 467-475 in Federal Subsistence Board Meeting Materials April 30-May 2, 2007. Office of Subsistence Management, USFWS. Anchorage, AK. 643 pp.
- Ray, D.J. 1984. Bering Strait Eskimo. Pages 285–302 in W.C Sturtevant, ed. The handbook of North American Indians, Volume 5: Arctic. Smithsonian Institution, Washington D.C.
- Seppi, B. 2018. Wildlife biologist. Personal communication: phone. BLM. Nome, AK.
- SPRAC. 2016. Transcripts of the Seward Peninsula Subsistence Regional Advisory Council proceedings, March 09, 2016 in Anchorage, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- SPRAC. 2019. Transcripts of the Seward Peninsula Subsistence Regional Advisory Council proceedings, October, 22, 2019 in Nome, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- Stern, O., E.L. Arobio, L.L. Naylor, and W.C. Thomas. 1980. Eskimos, Reindeer, and Land. University of Alaska Fairbanks – School of Agriculture and Land Resources Management Bulletin. 59: 93 pp.
- U.S. Census Bureau. 2010. <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Retrieved: June 3, 2019.
- WinfoNet. 2018. <https://winfonet.alaska.gov/>. Retrieved: July 18, 2018.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Seward Peninsula Subsistence Regional Advisory Council

**Support WP20-38 with modification.** The Council voted unanimously to support WP20-38 with modification to modify the harvest limit for the December 1 - January 31 season to 1 *antlered* bull in Unit 22D, remainder. The Council believes a may-be-announced system for a winter hunt would work best to protect the low moose population in Unit 22D, remainder, and allow for additional harvest during December/January only, if the harvest quota was not met in the fall.

The Council was reluctant to eliminate the October 1-November 30 season but believed that some sacrifice was necessary on behalf of subsistence hunters to protect breeding bulls during the rut. Subsistence users will still have the opportunity to harvest moose during the August/September season (which is generally preferred due to meat condition) and possibly during a may-be-announced December/January season, if the harvest quota was not met. The Council determined that a requirement for an antlered bull only during the December and January season was necessary to protect cow moose in Unit 22D, remainder. The Council also agreed that a registration permit is needed to capture actual moose harvest in Unit 22D, remainder.

Note: The Council did not address delegating authority to a Federal in-season manager via a delegation of authority letter or in unit specific regulations. However, supporting the State registration permit and a may-be-announced season implicitly requires a Federal in-season manager be able to announce quotas and season closures associated with the State permit and to open a season associated with the may-be-announced winter season. Below are two sets of regulations. The first set is what the Council explicitly voted on at their meeting. The second set includes the delegated authority language that was implicitly included in their motion (OSM included this language in a delegation of authority letter).

The modified regulation should read:

#### 1. Unit 22D—Moose

*Unit 22D remainder—1 bull by State registration permit.*

*Aug. 10–Sep. 14.  
~~Oct. 1–Nov. 30.~~*

~~*Unit 22D remainder—1 moose; however, no person may take a calf or  
cow accompanied by a calf*~~

*Unit 22D remainder—1 antlered bull by State registration permit.*

~~*Dec. 1–31.*~~

*Season may be  
announced—~~Jan.~~  
Dec. 1–Jan. 31.*

**2. Unit 22D—Moose**

*Unit 22D remainder—1 bull by State registration permit. Quotas and any needed closures will be announced by the BLM Anchorage Field Office Manager, in consultation with ADF&G, OSM, and Chair of the Seward Peninsula Subsistence Regional Advisory Council.* Aug. 10–Sep. 14.  
~~Oct. 1–Nov. 30.~~

~~Unit 22D remainder—1 moose; however, no person may take a calf or ewe accompanied by a calf~~ Dec. 1–31.

*Unit 22D remainder—1 antlered bull by State registration permit if authorized by the BLM Anchorage Field Office manager. Season dates may be announced after consultation with ADF&G, OSM, and Chair of the Seward Peninsula Subsistence Regional Advisory Council.* Season may be announced—~~Jan.~~  
Dec. 1–Jan. 31.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-38:** This proposal, submitted by the Alaska Department of Fish and Game, would revise seasons, harvest limits and permit requirements for moose in Unit 22D remainder.

**Introduction:** The proposal would establish a registration permit hunt in the 22D Remainder hunt area. The proposed season dates would eliminate the Oct. 1–Nov. 31 season resulting in a reduction in the overall season length by 62 days. Season dates under the proposed regulations would be Aug. 10–Sept. 14 with a bag limit of one bull, and a “to be announced” winter hunt Dec. 1–Jan. 31 with a bag limit of one bull.

**Impact on Subsistence Users:** Subsistence users would be required to obtain a registration moose permit to hunt moose in Unit 22D Remainder and follow the permit hunt conditions. These would likely include a reporting requirement, submitting a hunt report and complying with any emergency order closures.

**Impact on Other Users:** The proposal seeks to put in place measures to better monitor and, if necessary, limit harvest to sustainable levels. Non-resident hunting in the area is currently closed, the proposed regulations would only apply to Alaska Residents.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for moose in Unit 22.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS Moose in Unit 22 is 250-300 animals.

The season and bag limit for Unit 22D Remainder is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
<i>22D remainder:</i>	<i>One bull</i>	<i>Aug. 10 – Sept. 14</i>	<i>No Open Season</i>
<i>OR</i>	<i>One bull</i>	<i>Oct. 1 – Nov. 30</i>	<i>No Open Season</i>
<i>OR</i>	<i>One antlered bull</i>	<i>Dec. 1 – Jan. 31</i>	<i>No Open Season</i>

<sup>a</sup> Subsistence and General Hunts.

**Special instructions:** If adopted the department intends to administer the hunt in 22D Remainder with a harvest quota and will be subject to emergency order closures if and when it becomes necessary to maintain harvest at sustainable levels.

**Conservation Issues:** Moose abundance in Unit 22D has persisted at low density since declines in abundance occurred throughout Unit 22 in the late 80s and early 90s. Moose abundance in Unit 22D Remainder was last surveyed in the spring of 2014 at which time the population was estimated at 491 moose (95% CI: 410-571) with 18% recruitment. This represents a 14% annual rate of decline 2011-2014. A spring recruitment survey completed in 2018 observed 977 moose and found 11% recruitment throughout Unit 22D suggesting that the population of moose has not continued to decline; however, recruitment in the area is low.

Fall composition surveys completed in the area (2001-2018) indicate that the bull:cow ratio has declined to below our management objective of 30 bulls:100 cows. Surveys completed in 2018 found 18 bulls:100 cows.

The Unit 22D Remainder hunt area is remote and not immediately accessible along the Nome road system. Access is challenging. Such challenges have historically limited hunter participation and harvest in the area: as a consequence liberal seasons and bag limits have persisted in the area. Elsewhere in hunt areas immediately accessible along the Nome Road System registration permit hunts with harvest quotas (RM840) have been implemented in order to maintain harvest at sustainable levels.

Hunter participation in 22D Remainder has steadily grown during the period 2000 to 2018. Hunters seeking to take advantage of more liberal moose seasons coupled with advances in the capabilities of off-road vehicles have likely reduced some of the challenges associated with hunting in the area and facilitated the apparent increase in hunter participation.

Reported harvest during RY2017 and RY2018 was 34 and 33 bulls, respectively. This is compared to the long-term average annual reported harvest between 2007 and 2016 of 21 bulls per year. Reported harvest should be considered a minimum estimate of harvest because a portion of the moose harvested from 22D Remainder is not reported to the Department. Household subsistence surveys completed by the Division of Subsistence in the communities of Teller and Brevig Mission (1988-2016) suggest an average of 18 and 8 moose are harvested annually by residents of these communities. Conversely, average annual reported harvest from residents of Teller and Brevig Mission 2006-2017 is <1 moose and 1-2 moose, respectively. Combined estimates of total reported harvest and unreported harvest indicate that the average annual harvest of moose from Unit 22D Remainder 2014-2018 is 53 moose with a realized harvest rate of 8%-10%.

A series of small incremental changes have been enacted by the Board of Game in response to declines in abundance and poor productivity. In 2014, antlerless moose hunts in the area were eliminated; and in 2017, nonresident hunting was closed.

In response to declines in the bull:cow ratio in Unit 22D Remainder estimates of the harvestable surplus were calculated using a more conservative harvest rate of 3%-5% applied to the most recent abundance estimate. The current harvestable surplus estimate for 22D Remainder is 18-30 moose.

**Enforcement Issues:** There are no enforcement issues associated with this proposal.

**Recommendation:** The department **SUPPORTS** the creation of a registration permit hunt in the Unit 22D Remainder hunt area in order to maintain harvest at sustainable levels and improve reporting compliance. Declines in the bull:cow ratio suggest that the current level of harvest is not sustainable, and that management action should be taken to reduce harvest in the area. The Board of Game took action during the January meeting that mirrors this proposal. ADF&G looks to the FSB to align the federal regulations with the state actions.

## APPENDIX 1



FISH and WILDLIFE SERVICE  
BUREAU of LAND MANAGEMENT  
NATIONAL PARK SERVICE  
BUREAU of INDIAN AFFAIRS

## Federal Subsistence Board

1011 East Tudor Road, MS121  
Anchorage, Alaska 99503-6199



FOREST SERVICE

OSM

Anchorage Field Office Manager  
Bureau of Land Management  
4700 BLM Road  
Anchorage, Alaska 99507

Dear Field Office Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the manager of the Bureau of Land Management (BLM) Anchorage Field Office to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Land Conservation Act (ANILCA) Title VIII jurisdiction within Unit 22D remainder as it applies to moose on these lands.

It is the intent of the Board that actions related to management of moose by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), representatives of the Office of Subsistence Management (OSM), and the Chair of the affected Council(s) to the extent possible. The Office of Subsistence Management will be used by managers to facilitate communication of actions and to ensure proposed actions are technically and administratively aligned with legal mandates and policies. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chair or alternate, local tribes, and Alaska Native Corporations to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

## DELEGATION OF AUTHORITY

**1. Delegation:** The BLM Anchorage Field Office manager is hereby delegated authority to issue emergency or temporary special actions affecting moose on Federal lands as outlined under the **Scope of Delegation**. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by Federal regulation at 36 CFR 242.19 and 50 CFR 100.19.

**2. Authority:** This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which state: “The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board.”

**3. Scope of Delegation:** The regulatory authority hereby delegated is limited to the following authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- You may announce annual harvest quotas, close the fall season if the quota is met, and open a may-be-announced season between the dates of Dec. 1 – Jan. 31 for moose on Federal public lands in Unit 22D remainder.

This delegation also permits you to close and reopen Federal public lands to nonsubsistence hunting, but does not permit you to specify methods and means, permit requirements, or harvest and possession limits for State-managed hunts.

This delegation may be exercised only when necessary to conserve moose populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the populations. All other proposed changes to codified regulations, such as customary and traditional use determinations or adjustments to methods and means of take, shall be directed to the Board.

The Federal public lands subject to this delegated authority are those within Unit 22D remainder.

**4. Effective Period:** This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

**5. Guidelines for Delegation:** You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will provide subsistence users in the region a local point of contact about Federal subsistence issues and regulations and facilitate a local liaison with State managers and other user groups.

You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 50 CFR 100.19 and 36 CFR 242.19,



(2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected Federally qualified subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in OSM no later than sixty days after development of the document.

For management decisions on special actions, consultation is not always possible, but to the extent practicable, two-way communication will take place before decisions are implemented. You will also establish meaningful and timely opportunities for government-to-government consultation related to pre-season and post-season management actions as established in the Board's Government-to-Government Tribal Consultation Policy (Federal Subsistence Board Government-to-Government Tribal Consultation Policy 2012 and Federal Subsistence Board Policy on Consultation with Alaska Native Claim Settlement Act Corporations 2015).

You will immediately notify the Board through the Assistant Regional Director for OSM, and coordinate with the Chair(s) or alternate of the affected Council(s), local ADF&G managers, and other affected Federal conservation unit managers concerning emergency and temporary special actions being considered. You will ensure that you have communicated with OSM to ensure the special action is aligned with ANILCA Title VIII, Federal Subsistence regulations and policy, and that the perspectives of the Chair(s) or alternate of the affected Council(s), OSM, and affected State and Federal managers have been fully considered in the review of the proposed special action.

If the timing of a regularly scheduled meeting of the affected Council(s) permits without incurring undue delay, you will seek Council recommendations on the proposed temporary special action(s). If the affected Council(s) provided a recommendation, and your action differs from that recommendation, you will provide an explanation in writing in accordance with 50 CFR 100.10(e)(1) and 36 CFR 242.10(e)(1).

You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council members. If an action is to supersede a State action not yet in effect, the decision will be communicated to the public, OSM, affected State and Federal managers, and the local Council members at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant actions must be provided to the coordinator of the appropriate Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option

should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

**6. Support Services:** Administrative support for regulatory actions will be provided by the Office of Subsistence Management.

Sincerely,

Anthony Christianson  
Chair

Enclosures

cc: Federal Subsistence Board

Assistant Regional Director, Office of Subsistence Management  
Deputy Assistant Regional Director, Office of Subsistence Management  
Subsistence Policy Coordinator, Office of Subsistence Management  
Wildlife Division Supervisor, Office of Subsistence Management  
Subsistence Council Coordinator, Office of Subsistence Management  
Chair, Seward Peninsula Regional Advisory Council  
Commissioner, Alaska Department of Fish and Game  
Special Assistant to the Commissioner, Alaska Department of Fish and Game  
Interagency Staff Committee  
Administrative Record

<b>WP20–40 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-40 requests that Federal public lands in Unit 22D remainder be closed to moose hunting except by Federally qualified subsistence users. <i>Submitted by: Seward Peninsula Subsistence Regional Advisory Council.</i>
<b>Proposed Regulation</b>	<p><b><i>Unit 22D—Moose</i></b></p> <p><i>Unit 22D, remainder—1 bull</i> <span style="float: right;"><i>Aug. 10–Sep. 14.</i> <i>Oct. 1–Nov. 30.</i></span></p> <p><b><i>Federal public lands are closed to the harvest of moose except by Federally qualified subsistence users.</i></b></p> <p><i>Unit 22D, remainder—1 moose; however, no person may take a calf or a cow accompanied by a calf</i> <span style="float: right;"><i>Dec. 1–31.</i></span></p> <p><b><i>Federal public lands are closed to the harvest of moose except by Federally qualified subsistence users.</i></b></p> <p><i>Unit 22D, remainder—1 antlered bull</i> <span style="float: right;"><i>Jan. 1–31.</i></span></p> <p><b><i>Federal public lands are closed to the harvest of moose except by Federally qualified subsistence users.</i></b></p>
<b>OSM Preliminary Conclusion</b>	<b>Support</b>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>

<b>WP20–40 Executive Summary</b>	
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>Oppose</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS**  
**WP20-40**

**ISSUES**

Wildlife Proposal WP20-40, submitted by the Seward Peninsula Subsistence Regional Advisory Council (Council), requests that Federal public lands in Unit 22D remainder be closed to moose hunting except by Federally qualified subsistence users.

**Note:** Two proposals (WP20-38 and WP20-39) were also submitted regarding the harvest of moose in Unit 22D remainder. The outcome of those proposals may impact the action taken on this proposal. Therefore, it may be important to consider all three of these proposals prior to taking action.

**DISCUSSION**

The proponent is concerned with the harvest of cow moose in Unit 22D remainder due to a declining population trend since 2011. The proponent states that moose population surveys conducted by the Alaska Department of Fish and Game (ADF&G) showed severe declines between 2011 and 2014. The Council mentions that it was recently informed by ADF&G that low moose recruitment remains a concern in Unit 22D remainder, and that action is needed to protect this population. The proponent states that closing Federal public lands in the Unit 22D remainder hunt area to the harvest of moose except by Federally qualified subsistence users would contribute to conservation of moose and allow for local subsistence users to meet their subsistence harvest needs.

**Existing Federal Regulation**

**Unit 22D—Moose**

*Unit 22D, remainder—1 bull* *Aug. 10–Sep. 14.*  
*Oct. 1–Nov. 30.*

*Unit 22D, remainder—1 moose; however, no person may take a calf or  
a cow accompanied by a calf* *Dec. 1–31.*

*Unit 22D, remainder—1 antlered bull* *Jan. 1–31.*

**Proposed Federal Regulation**

**Unit 22D—Moose**

*Unit 22D, remainder—1 bull* *Aug. 10–Sep. 14.*  
*Oct. 1–Nov. 30.*

***Federal public lands are closed to the harvest of moose except by Federally qualified subsistence users.***

*Unit 22D, remainder—1 moose; however, no person may take a calf or a cow accompanied by a calf Dec. 1–31.*

***Federal public lands are closed to the harvest of moose except by Federally qualified subsistence users.***

*Unit 22D, remainder—1 antlered bull Jan. 1–31.*

***Federal public lands are closed to the harvest of moose except by Federally qualified subsistence users.***

**Existing State Regulation**

**Unit 22D—Moose**

<i>22D remainder</i>	<i>Residents: One bull</i>	<i>Aug. 10 – Sept. 14</i>
	<i>OR</i>	
	<i>One bull</i>	<i>Oct. 1 – Nov. 30</i>
	<i>OR</i>	
	<i>One antlered bull</i>	<i>Dec. 1 – Jan. 31</i>
	<i>Nonresidents</i>	<i>no open season</i>

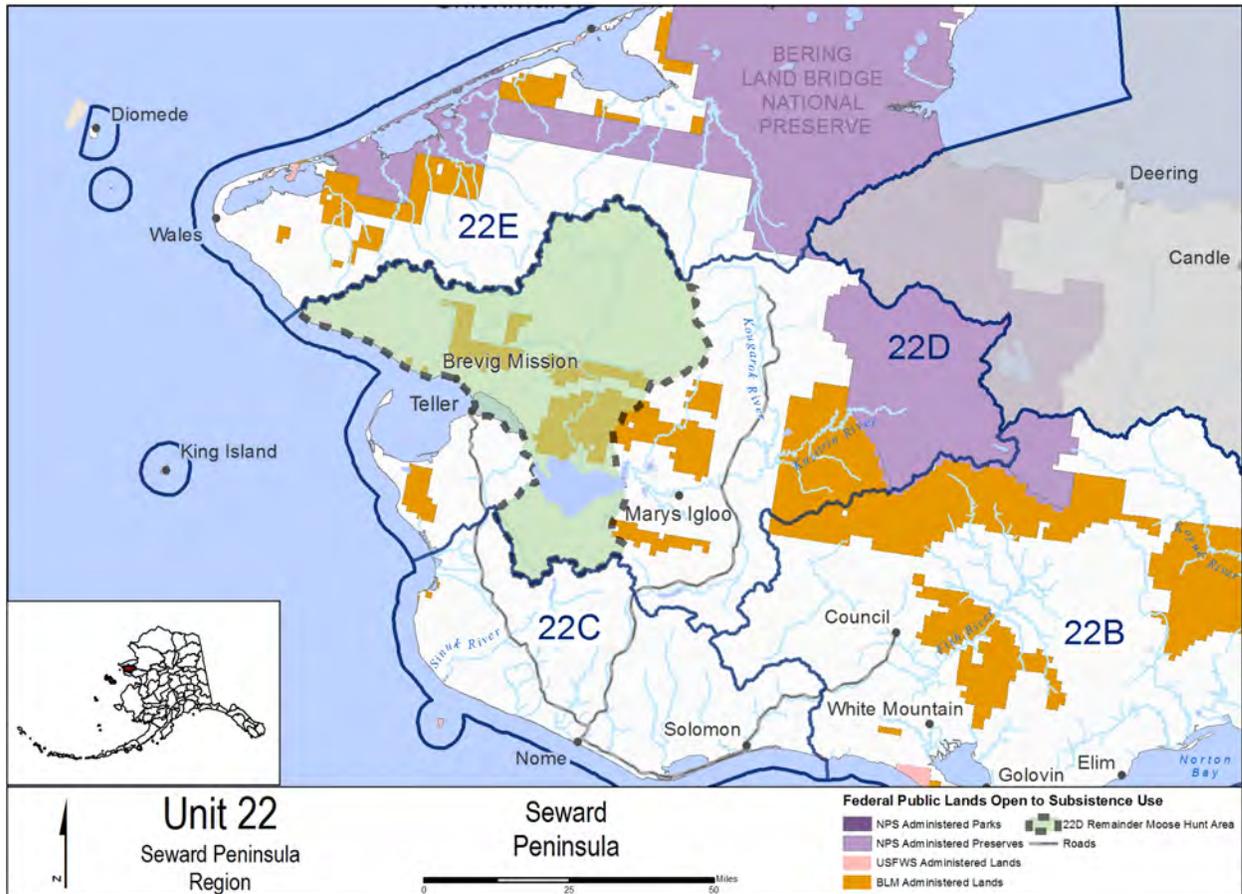
**Extent of Federal Public Lands/Waters**

Unit 22D is comprised of approximately 23% of Federal public lands and consists of 12% Bureau of Land Management (BLM) managed lands, and 11% National Park Service (NPS) managed lands (Figure 1).

**Note:** Federal public lands comprise 8% of the Unit 22D remainder moose hunt area, specifically. All of these Federal public lands are managed by BLM.

**Customary and Traditional Use Determinations**

Residents of Unit 22 have a customary and traditional use determination for moose in Unit 22.



**Figure 1.** Unit 22D remainder moose hunt area.

### Regulatory History

In 1998, the Federal Subsistence Board (Board) adopted Proposal WP98-087, which changed the harvest limit from one moose to one antlered bull in that portion of Unit 22D that lies within the Kuzitrin River drainage, just east of Unit 22D remainder, due to a declining local moose population and heavy hunting pressure. As a result of a continuing regional trend in declining moose populations, the Board also restricted the harvest in adjacent Unit 22B in 2000.

In 2001, the Board approved with modification, two Special Action Requests (WSA01-09 and WSA01-11) to close Federal public lands to the harvest of moose by non-Federally qualified users in Unit 22B west of the Darby Mountains, Unit 22D within the Kuzitrin River drainage and west of the Tisuk River drainage and Canyon Creek, and Unit 22E, shorten the seasons in all these hunt areas except for Unit 22D west of the Tisuk River drainage, and modify Unit 22E harvest limits from one moose to one bull for the 2001 fall and winter seasons. As a follow-up to these actions, the Alaska Board of Game (BOG) addressed concerns about declining moose populations in parts of Unit 22 by shortening seasons in portions of Units 22B and 22D, adding registration permit requirements in Unit 22D, dividing Unit 22D into additional hunt areas, modifying harvest limits, and closing nonresident hunts in portions of Units 22B, 22D, and 22E. The BOG decided to restrict the season in Unit 22D

remainder, despite a relatively healthier moose population. The fall season was closed from Sept. 15–30, to match other portions of Unit 22D, in order to prevent focusing hunting efforts on the American and Agiapuk River drainages when all the other areas would have been closed. These changes went into effect in regulatory year 2002/03.

In May 2002, the Board adopted Proposal WP02-34 with modification to add State registration permit requirements to the portion of Unit 22B west of the Darby Mountains, the portion of Unit 22D that lies within the Kuzitrin River drainage, and the portion of Unit 22D west of the Tisuk River drainage, revise harvest limits to bull only hunts in Units 22B, portions of 22D (Kuzitrin River drainage and west of the Tisuk River drainage), and Unit 22E, and shorten seasons in these areas. It also closed Federal public lands in Unit 22D remainder and Unit 22E to the taking of moose except by Federally qualified subsistence users. The Board’s justification stated that the closure “would improve rural subsistence harvest opportunities in an area recently deemed necessary by the State to restrict the moose harvest” (OSM 2002: 15).

ADF&G issued an emergency order in 2005, changing the State fall moose hunt in Unit 22D to Sept. 1–14. In 2005, the Board approved Special Action Request WSA05-01, which shortened the hunting season for all of Unit 22D from Aug. 20–Sept. 30 to Sept. 1–14, in response to conservation concerns from harvests exceeding the joint State/Federal harvest quota for the Kuzitrin River drainage in 2003 and 2004 (OSM 2005). Overharvest occurred in 2003 and 2004, despite State and Federal efforts to reduce the harvest by closing the seasons early.

Upon consideration of Wildlife Closure Review WCR06-15 in 2006, the Council submitted Proposal WP07-38 to eliminate the closure put in place in 2002 to all non-Federally qualified users. In 2007, the Board adopted WP07-38, eliminating the closure to non-Federally qualified users in Unit 22D remainder, and aligning Federal and State hunting season dates. The Council justified the request by stating that “land closures are no longer necessary to protect the moose population because numbers have increased unit-wide and have remained stable for at least ten years; recruitment rates are up; and bull:cow ratios are consistently high despite a five-month Federal season” (OSM 2007: 468).

In 2015, the BOG modified State regulations, transitioning to a bull moose hunt within Unit 22D remainder. In addition, for regulatory years 2015/16 and 2016/17, ADF&G established a three moose harvest quota for nonresident hunters in Unit 22D remainder to prevent excessive harvest. This harvest quota was enacted due to a decline in moose populations since 2011. ADF&G issued emergency orders in regulatory years 2015/16 and 2016/17 to close this season early due to the quota being met (ADF&G 2016a).

At its March 2016 meeting, the Council submitted Proposal 28 to the BOG, requesting elimination of the nonresident moose season in Units 22E and 22D remainder until the relationship between the changing moose population distribution and growth and decline between the subunits was better understood. During discussion of the proposal, ADF&G was asked for an overview of the moose population in the area. ADF&G brought concerns about the decreasing population numbers in Unit 22D to the attention of the Council, mentioning that moose in Unit 22D were last counted in 2014, and



that declines in the population were observed in both of the major survey areas. Additionally, ADF&G noted that some Unit 22D moose may have migrated to Unit 22E. Even with the possible migration taken into consideration, a significant decline in Unit 22D moose was observed during the 2014 survey (SPRAC 2016). Proposal 28 was adopted in Unit 22D remainder by the BOG prior to the 2017/18 regulatory year.

Special Action Request WSA16-07, submitted by BLM and requesting that the December cow season be closed, was presented to the Council on November 2, 2016. The Council supported WSA16-07, stating that hunters had expressed concern about the moose populations in the area. In particular, the Council Chair discussed the need to refrain from harvesting cow moose during population declines and asked ADF&G to explain the current levels of antlerless moose harvest and the potential impacts to the population. ADF&G noted that the average annual reported harvest of cow moose in Unit 22D over the last ten years totaled one moose per year, but that an antlerless harvest as low as 3% could have a substantial negative impact to the population. The Council Chair emphasized that this Special Action would only close the Federal cow moose hunting season for one month. The Board approved WSA16-07 on November 30, 2016.

In 2017, the same request was submitted as Special Action Request WSA17-06. The proponent, BLM, submitted this request because they believed that continued harvest of cow moose in Unit 22D remainder would lead to further declines in the moose population. The Board approved WSA17-06 with modification to change the harvest limit from one bull to one antlered bull for the harvest season of Dec. 1–Dec. 31, 2017. This modification was approved to prevent the accidental harvest of cows, since most larger bulls would have dropped their antlers by December. An antlered moose hunt was also preferred to reduce mid-winter harassment of non-antlered moose by hunters trying to distinguish the sex of the animal. It was stated that approval of this modification would help to ensure the long term viability of the moose population in Unit 22D remainder.

Similarly, in 2018, the same request was submitted as Special Action Request WSA18-03. The Board again approved this request with modification. The modified WSA18-03 that was approved by the Board limited harvest from one moose to one antlered bull in Unit 22D remainder for the remainder of the current wildlife regulatory cycle (through June 30, 2020). The harvest limit was modified through the remainder of the wildlife regulatory cycle to ensure that antlerless moose in Unit 22D remainder were protected until a proposal could be submitted to change Federal subsistence regulations.

### **Current Events**

ADF&G submitted Proposal 33 to the BOG, proposing the same changes to Unit 22D remainder moose regulations as WP20-38. While not explicit in Proposal 33, ADF&G's presentation to the BOG at its January 2020 meeting specified that the fall moose hunt in Unit 22D remainder would be administered under RM840 with a harvest quota of 18 bulls and a three day reporting requirement. The may-be-announced winter hunt would be administered under RM849 (ADF&G 2020). The BOG adopted Proposal 33. The BOG also adopted Proposal 35 as amended to change the availability of

Unit 22 registration permits for moose hunting. As a result, registration permits for moose hunting in Unit 22 will only be issued by vendors in Unit 22 between July 27 and August 25.

### **Biological Background**

Moose have been present in Unit 22 for a relatively short time, with very few being observed prior to 1930. The moose population on the Seward Peninsula grew and reached its peak in the mid-1980s (Nelson 1995, Gorn and Dunker 2014). This rise in the population was followed by multiple severe winters, which greatly reduced the population and overall moose density due to limited winter browse (Nelson 1995). Brown bear predation on calves is now considered the main limiting factor on the Unit 22 moose population; although no formal study has yet been conducted to confirm this (Gorn and Dunker 2014).

State management goals for moose in Unit 22 include maintaining a unit-wide combined population of 5,100–6,800 moose, and more specifically, maintaining a population of 2,000–2,500 moose in Unit 22D while maintaining a minimum bull:cow ratio of 30:100. The population goal in Unit 22D would provide for an increased and stabilized population following recent declines (Gorn and Dunker 2014).

During a moose population survey conducted in 2014, the population estimate for moose in all of Unit 22D was 1,106 observable moose, which represents a 13% annual rate of decline from 2011 (1,681 observable moose). Specifically in the Agiapuk River drainage survey area (within which, the Unit 22D remainder hunt area is located), the population estimate was 491 (0.39 moose/mi<sup>2</sup>) observable moose (**Figure 2**). These numbers were reported as observable moose, rather than an overall population estimate, due to the lack of a sightability correction factor for these surveys. This is a 14% annual rate of decline since the 2011 survey (Gorn 2012, Dunker 2016, pers. comm.). Another population survey was planned for March of 2018 in Units 22D and 22E, but due to inclement weather, the survey did not take place (Seppi 2018, pers. comm.).

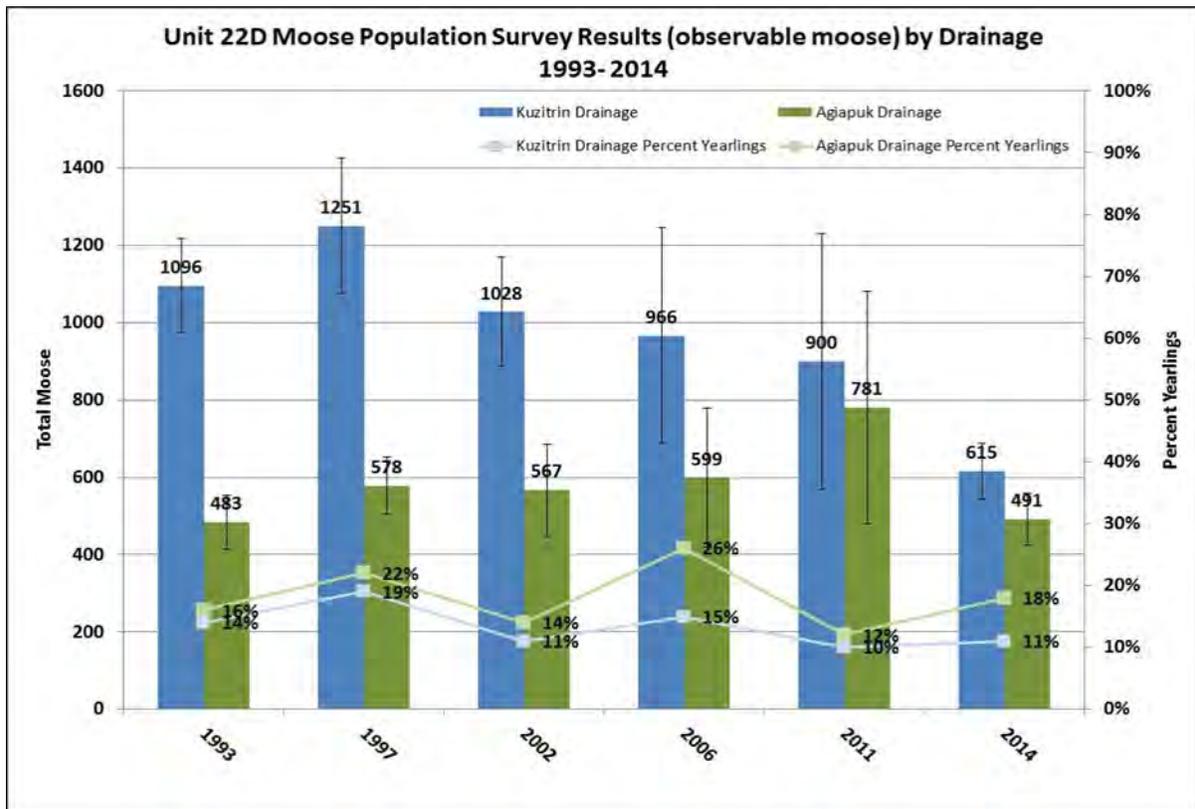
Fall composition surveys indicate a negative change in the composition within Unit 22D remainder. Composition surveys in the Agiapuk River Drainage were conducted in 2011 for the first time since 2003, and found 38 bulls:100 cows, which was within State management goals (Gorn 2012, Dunker 2019 pers. comm.). In 2013, efforts to complete composition surveys were hampered by poor weather conditions. The limited data obtained from these attempts indicated that the bull:cow ratio had likely declined since the 2011 surveys (Dunker 2016, pers. comm.). This was confirmed during the most recent composition surveys in the area, which were completed in fall of 2016 and 2018. Results showed a bull:cow ratio of 23 and 18 bulls:100 cows, respectively, both of which are below the State management objective of 30 bulls: 100 cows (Dunker 2017, pers. comm.).

Weight measurements were collected on short-yearling (10-month old) moose in Unit 22D in April 2007–2009. Annual average weights ranged 372–393 pounds. Snowfall was greater than normal levels in both 2008 and 2009, but did not have a significant impact on average short-yearling weights. Research indicates that short-yearling weights of less than 385 pounds are considered an indication that moose are resource limited, but browse does not seem to be limiting factor in this area (Gorn and

Dunker 2014). A spring recruitment survey was completed by ADF&G in April of 2018 for Unit 22D remainder. This survey provided a 12% estimate of recruitment, suggesting that recruitment is poor and the population is likely still in need of rebuilding efforts at this time (ADF&G 2018a).

Habitat

There is limited habitat data for Unit 22D. Although winter browse was seen as a limiting factor when moose density/numbers were at their highest during the mid-1980s, current moose populations have been managed based on what winter browse can easily support throughout Unit 22D. Browse is no longer viewed as a limiting factor to moose in this unit, and brown bear predation on calves is now seen as the most significant factor influencing moose numbers (Gorn and Dunker 2014).



**Figure 2.** Unit 22D moose population survey results (Figure from Dunker 2016, pers. comm.).

**Cultural Knowledge and Traditional Practices**

The Seward Peninsula has been inhabited by humans for at least 12,000 years. The Inupiaq, Central Yup’ik, and Siberian Yupik-speaking peoples of the Bering Strait region have a deeply rooted practice of subsistence hunting, fishing, and gathering of wild resources (Ray 1984). Until the establishment of mission settlements and later, government schools, many of these groups were semi-nomadic, moving with the seasons based on the availability of wild resources. Gold was discovered in Anvil Creek in 1898, precipitating a gold rush, settlement by outsiders, and re-distribution of the local

population. Major epidemics including influenza in 1918 further reshaped populations on the Seward Peninsula (Ray 1984).

The western boundary of unit 22D remainder is contiguous with the villages of Teller and Brevig Mission; both communities hunt moose within this area (Mikow et al. 2018). The present location of Teller was established in 1900 when the Bluestone Placer Mine was created 15 miles to the south. In the 2010 (U.S. Census), Teller had 229 year-round, permanent residents (U.S. Census 2010). Brevig Mission is named after the Lutheran minister who established a reindeer herd at the current town site in 1900. During the most recent census, there were 388 year-round permanent residents of Brevig Mission (U.S. Census 2010).

Moose did not start migrating into the Seward Peninsula until the 1940s, and while caribou were hunted traditionally, their numbers declined in the region in the mid-1800s (Dau 2000). Introduced reindeer were the economic base for Brevig Mission until the 1970s, a source of food and income which has since declined (Finstad 2007). Historically, people in the Seward Peninsula area hunted a variety of species, but as moose moved into the region in the mid-20th century, harvest of these animals grew.

Between May 2015 and May 2016, the most recent study period for which big game subsistence data is available for the area, 85% of Brevig Mission households and 55% of Teller households used moose (Mikow et al. 2018). The percentage of households using moose in each community in 2015-2016 was greater compared to a previous study period, 2011-2012, during which 43.3% of Brevig Mission and 30.5% of Teller households used moose (Mikow et al. 2014).

For the 2015-2016 study period, Brevig Mission households harvested 33 pounds of edible moose per capita, with 90% of the harvest occurring within unit 22D remainder. Teller households harvested 32 pounds of edible moose per capita, 27% of which were harvested from 22D remainder. For Teller, a higher percentage of households used moose than caribou, but that situation was reversed for Brevig Mission. The fall moose hunting season was most important for both communities. In Brevig mission, 85% of moose were taken in the fall, while in Teller 100% were taken in that season (Mikow et al. 2018).

### **Harvest History**

Reported harvest remains well below levels seen in the 1980s, in part, due to more stringent hunting regulations in Unit 22D. According to the ADF&G harvest report website, 178 (133 male, 45 female) moose were harvested throughout Unit 22D in 1986, with 39.9% hunter success throughout the subunit (ADF&G 2018b). Conversely, 61 moose were harvested in Unit 22D in 2018, with 28% hunter success throughout the subunit (ADF&G 2018b, 2019). Average annual reported harvest from 2005 to 2018 was 66 moose (**Table 1**). The majority of moose taken over these years have been bulls. Residents of Unit 22 accounted for 73% of the total harvest between 2005 and 2018 (**Table 1**).

In Unit 22D remainder, specifically, the average annual reported moose harvest by State residents between 2009 and 2018 was 24 moose (ADF&G 2020). Accounting for unreported harvest, ADF&G

estimated total moose harvest in Unit 22D remainder between 2009 and 2018 as 42-57 moose per year, which translates to a 7%-10% harvest rate. This is a very high harvest rate, especially for a low-density and declining moose population. ADF&G currently estimates the harvestable surplus for Unit 22D remainder as 18-30 moose per year, which translates to a 3%-5% harvest rate (ADF&G 2020).

Unit 22 residents, most of which were residents of Nome, accounted for 74% of the total reported harvest between 2013 and 2018 in Unit 22D remainder, and 59% of reported harvest took place during the month of October (**Table 2**). According to Household Subsistence Surveys between 2000 and 2015, residents of Brevig Mission and Teller, the communities closest to Unit 22D remainder, harvested an average of 18 moose and 8 moose per year, respectively (ADF&G 2020).

**Table 1.** Reported moose harvest in Unit 22D for 2005–2018. Local resident harvest refers to harvest by residents of Unit 22 (ADF&G 2016b, 2017, 2018b, 2019).

Year	Species	Local Resident Harvest	Nonlocal Resident Harvest	Total Resident Harvest	Unknown Residency Harvest	Nonresident Harvest	Total Harvest	Male	Female	Unknown
2005	Moose	47	4	51	0	6	57	56	0	1
2006	Moose	47	11	58	0	8	66	65	1	0
2007	Moose	52	14	66	1	5	72	70	2	0
2008	Moose	42	10	52	1	7	60	57	1	2
2009	Moose	54	15	69	0	7	76	74	1	1
2010	Moose	39	12	51	3	4	58	55	2	1
2011	Moose	50	19	69	1	9	79	76	2	1
2012	Moose	50	12	62	1	6	69	66	2	1
2013	Moose	45	10	55	1	3	59	58	1	0
2014	Moose	43	11	54	2	8	64	61	2	1
2015	Moose	54	12	66	1	5	72	69	0	3
2016	Moose	52	8	60	0	3	63	63	0	0
2017	Moose	59	12	71	0	0	71	69	0	2
2018	Moose	47	14	61	0	0	61	61	0	0
<b>Average:</b>		<b>49</b>	<b>12</b>	<b>60</b>	<b>1</b>	<b>5</b>	<b>66</b>	<b>64</b>	<b>1</b>	<b>1</b>
<b>Total:</b>		<b>679</b>	<b>164</b>	<b>843</b>	<b>11</b>	<b>71</b>	<b>925</b>	<b>899</b>	<b>14</b>	<b>12</b>

**Table 2.** Unit 22D remainder moose harvest, 2013–2018, according to ADF&G Unit 22D GM000 harvest reports (ADF&G 2019). Local harvest refers to harvest by residents of Unit 22.

Year	Total Harvest	Local harvest		Non-local harvest	
		Number of moose	% of total	Number of moose	% of total
2013	12	7	58%	5	42%
2014	16	11	69%	5	31%
2015	22	17	77%	5	23%
2016	22	16	73%	6	27%
2017	35	28	80%	7	20%
2018	33	25	76%	8	24%

## **Effects of the Proposal**

Only 8% of the Unit 22D remainder moose hunt area consists of Federal public lands. All of these Federal public lands are managed by BLM. The low amount of Federal lands located in the hunt area limits the impact that this proposal would have on non-Federally qualified users hunting in the area, but may help to provide extra protection for the moose population.

If this proposal is adopted, it would provide greater subsistence opportunity for Federally qualified subsistence users in Unit 22D remainder by limiting the users permitted to harvest on Federal public lands in this area. Limiting the number of moose harvested on BLM lands in this hunt area may also help to ensure that users have the moose resource available for future generations. Due to low moose densities in the area and a declining population that is below State management goals, adoption of this proposal would provide additional protection for the moose population in the hunt area, which could provide benefits to the moose population in the overall unit.

Proposal WP20-38 affects the same regulations on WP20-40. Therefore, action on WP20-38 could affect the outcome and effects of WP20-40.

## **OSM PRELIMINARY CONCLUSION**

**Support** Proposal WP20-40.

### **Justification**

The moose population in Unit 22D remainder is currently below State management goals and declined at a rate of 14% annually between 2011 and 2014. In addition, the current estimated annual harvest is above sustainable levels. Due to this declining population, the State has removed antlerless hunts from their regulations in Unit 22 and eliminated non-resident harvest opportunity in the area. Closing Federal public lands, in Unit 22D remainder, to the harvest of moose except by Federally qualified subsistence users will provide additional help to ensure the long term viability of this moose population.

## **ANALYSIS ADDENDUM**

### **OSM CONCLUSION**

**Oppose** WP20-40.

Recent actions by the BOG to conserve the moose population, restrict harvest, and limit hunter numbers in Unit 22D remainder represent new information not previously considered by OSM in this analysis. Given the BOG's actions, adopting WP20-40 may slightly reduce competition from non-local resident hunters, but would likely do little to conserve the Unit 22D moose population for several reasons. First, only 8% of the Unit 22D remainder hunt area consists of Federal public lands. Second, the State established a harvest quota of 18 bull moose for Unit 22D remainder through

adoption of Proposal 33, which greatly limits harvest. Third, the non-resident season is already closed under State regulations. Fourth, Federally qualified subsistence users account for 74% of the moose harvest in Unit 22D remainder and harvest by non-local residents will likely decline as a result of Proposal 35, which limits permit availability. Fifth, State Proposal 33 and WP20-38 eliminate the October season when 59% of the moose harvest occurred on average, and bull moose are most susceptible to harvest. Finally, since the RM840 permit was required in other Unit 22 hunt areas in 2004, the number of hunters in Unit 22D remainder has nearly tripled (ADF&G 2020). Requiring the RM840 permit in Unit 22D remainder will likely decrease hunter numbers in that area, redistributing them to other, road-accessible hunt areas.

## LITERATURE CITED

ADF&G. 2016a. State Closes Nonresident Moose Hunt in Remainder of Unit 22D. Emergency Order 05-05-16. Division of Wildlife Conservation. Nome, AK.

ADF&G. 2016b. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: October 26, 2016.

ADF&G. 2017. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: November 20, 2017.

ADF&G. 2018a. Wildlife Special Action WSA 18-03: Temporary Special Action Request. Letter of Comment to the Federal Subsistence Board. October 5, 2018.

ADF&G. 2018b. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: August 30, 2018.

ADF&G. 2019. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: March 1, 2019.

ADF&G. 2020. RC 4: Department Reports and Recommendations. Tab 7.2: Nome Proposals, Proposal 33. Alaska Board of Game Meeting Information. Western Arctic/Western Region. January 17-20, 2020. Nome, AK. <http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=01-17-2020&meeting=nome>. Accessed January 21, 2020.

Braem, N.M., E.H. Mikow, and M.L. Kostick, eds. 2014. Chukchi Seas and Norton Sound observation network: harvest and use of wildlife resources in 9 communities in Arctic Alaska, 2012–2014. ADF&G Division of Subsistence Technical Paper No. 403. Fairbanks, AK. 797 pages.

Dau, J. 2000. Managing reindeer and wildlife on Alaska's Seward Peninsula. *Polar Research* 19(1), 57-62.

Dunker, W. 2016. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Dunker, W. 2017. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Dunker, W. 2018. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Dunker, W. 2019. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Nome, AK.

Finstad, G. L., Kielland, K. K., and W.S. Schneider, W. S. 2007. Reindeer herding in transition: historical and modern day challenges for Alaskan reindeer herders. *Nomadic Peoples*, 10(2): 31–49.

Gorn, T. 2012. Unit 22 moose management report. Pages 534–559 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009–30 June 2011. ADF&G, Species Management Report, ADF&G/DWC/SMR-2012-5, Juneau, AK.

Gorn, T. and W. R. Dunker. 2014. Unit 22 moose management report. Pages 31-1 through 31-38 in P. Harper and Laura A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011–30 June 2013. ADF&G, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.

Mikow, E. H., Gonzalez, D., and M.L. Kostick. 2018. Subsistence Wildlife Harvests in Brevig Mission, Teller, and White Mountain, Alaska , 2015 – 2016. ADF&G Division of Subsistence Special Publication No. 2018-03. Fairbanks, AK. 42 pages.

Mikow, E., Braem, N. M., and M. Kostick, M. 2014. Subsistence Wildlife Harvests in Brevig Mission, Deering, Noatak, and Teller, Alaska, 2011-2012. ADF&G Division of Subsistence Special Publication No. 2014-02. Fairbanks, AK. 47 pages.

Nelson, R.R. 1995. Unit 22 moose survey-inventory progress report. Pages 405-419 in M.V. Hicks, editor. Management report of survey-inventory activities 1 July 1993 – 30 June 1995. Federal aid in wildlife restoration progress report, Project W-24-2, W-24-3, Study 1.0. Juneau, AK.

OSM. 2002. Staff Analysis WP02-34. Pages 12-26 in Federal Subsistence Board Meeting Materials May 13-15, 2002. Office of Subsistence Management, USFWS. Anchorage, AK. 676 pp.

OSM. 2005. Staff Analysis WSA05-01. Office of Subsistence Management, USFWS. Anchorage, AK.

OSM. 2007. Staff Analysis WP07-37. Pages 467-475 in Federal Subsistence Board Meeting Materials April 30-May 2, 2007. Office of Subsistence Management, USFWS. Anchorage, AK. 643 pp.

Ray, D.J. 1984. Bering Strait Eskimo. Pages 285–302 *in* W.C Sturtevant, ed. The handbook of North American Indians, Volume 5: Arctic. Smithsonian Institution, Washington D.C.

Seppi, B. 2018. Wildlife biologist. Personal communication: phone. BLM. Nome, AK.

SPRAC. 2016. Transcripts of the Seward Peninsula Subsistence Regional Advisory Council proceedings, March 09, 2016 in Anchorage, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.

Stern, O., E.L. Arobio, L.L. Naylor, and W.C. Thomas. 1980. Eskimos, Reindeer, and Land. University of Alaska Fairbanks – School of Agriculture and Land Resources Management Bulletin. 59: 93 pp.

U.S. Census Bureau. 2010. <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Retrieved: June 3, 2019.



## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Seward Peninsula Subsistence Regional Advisory Council

**Support WP20-40.** The Council voted unanimously to support WP20-40. The Council had submitted this proposal to protect the moose population in Unit 22D remainder, by eliminating non-local harvest while still allowing harvest by Federally qualified subsistence users in the region. The Council noted that all other subunits in Unit 22D are currently closed to non-Federally qualified users.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-40:** This proposal, submitted by the Seward Peninsula Subsistence Regional Advisory Council, requests that federal public lands in Unit 22D Remainder be closed to moose hunting except by federally qualified subsistence users.

**Introduction:** This proposal would restrict hunting on federal public lands in Unit 22D, Remainder to federally qualified subsistence users, which includes all residents of Unit 22.

**Impact on Subsistence User:** Only Alaska residents who reside in Unit 22 and qualify as federally qualified subsistence users would be eligible to hunt moose on federal public lands in Unit 22D Remainder.

**Impact on Other Users:** Non-resident hunting in the area is currently closed; the proposed restrictions would eliminate the opportunity for Alaskans living outside of Unit 22, to hunt moose on federal public lands under state regulations in Unit 22D remainder.

#### **Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for moose in Unit 22.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for moose in Unit 22 is 250-300 animals.

The season and bag limit for Unit 22D Remainder is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
<i>22D remainder:</i>	<i>One bull</i>	<i>Aug. 10 – Sept. 14</i>	<i>No Open Season</i>
<i>OR</i>	<i>One bull</i>	<i>Oct. 1 – Nov. 30</i>	<i>No Open Season</i>
<i>OR</i>	<i>One antlered bull</i>	<i>Dec. 1 – Jan. 31</i>	<i>No Open Season</i>

<sup>a</sup> Subsistence and General Hunts.

**Conservation Issues: Issues:** Moose abundance in Unit 22D has persisted at low density since declines in abundance occurred throughout Unit 22 in the late 80s and early 90s. Moose abundance in Unit 22D Remainder was last surveyed in the spring of 2014 at which time the population was estimated at 491 moose (95% CI: 410-571) with 18% recruitment. This represents a 14% annual rate of decline from 2011 to 2014. A spring recruitment survey completed in 2018 observed 977 moose and found 11% recruitment throughout Unit 22D, suggesting that the population of moose has not continued to decline; however, recruitment in the area is low.

Reported harvest during RY2017 and RY2018 was 34 and 33 bulls, respectively. This is an improvement compared to the long-term average annual reported harvest between 2007 and 2016 of 21 bulls per year. Reported harvest should be considered a minimum estimate of harvest because a portion of the moose harvested from 22D Remainder are not reported to the Department. Household subsistence surveys completed by the Division of Subsistence in the communities of Teller and Brevig Mission (1988-2016) suggest an average of 18 and 8 moose are harvested annually by residents of these communities. Conversely, average annual reported harvest from residents of Teller and Brevig Mission between 2006 and 2017 is <1 moose and 1-2 moose, respectively. Combined estimates of total reported harvest and unreported harvest indicate that the average annual harvest of moose from Unit 22D Remainder between 2014 and 2018 is 53 moose, with a realized harvest rate of 8%-10%.

Harvest information from the Unit 22D Remainder hunt area indicates that, between RY2014 and RY2018, federally qualified subsistence users and non-federally qualified subsistence users accounted

for 75% and 25% of the resident reported harvest, respectively. A patchwork of federal public lands and state managed lands occurs within Unit 22D Remainder. The department is unable to determine if harvest by non-federally qualified subsistence users occurs on federal public lands.

**Enforcement Issues:** There are no enforcement issues associated with this proposal.

**Recommendation:** ADF&G is **OPPOSED** to this proposal since it is not necessary in order to accommodate local subsistence uses. Should proposal WP20- 38 or 39 be approved, that will be a prudent step toward addressing the concern regarding this moose population. Harvest records indicate that federally qualified hunters take the majority of the moose already. This restriction is not necessary to provide for subsistence uses, nor is it necessary to ensure a healthy moose population.

<b>WP20-41 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-41 requests that the Federal public lands closure for moose in the portion of Unit 22 north of and including the Tagoomenik and Shaktoolik River drainages (“Unit 22A north”) be rescinded Sep. 1 – Sep. 20, to coincide with the State’s nonresident moose season. <i>Submitted by: Lance Kronberger.</i>
<b>Proposed Regulation</b>	<p><b>Unit 22A—Moose</b></p> <p><i>Unit 22A—that portion north of and including the Tagoomenik and Shaktoolik River drainages—1 bull. Federal public lands are closed to hunting <b>Sep. 21 – Aug. 31</b> except by federally qualified users hunting under these regulations</i> <span style="float: right;"><i>Aug. 1 – Sep. 30</i></span></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>None</b>

## STAFF ANALYSIS WP20-41

### ISSUES

Wildlife Proposal WP20-41, submitted by Lance Kronberger of Eagle River, requests that the Federal public lands closure for moose in the portion of Unit 22 north of and including the Tagoomenik and Shaktoolik River drainages (“Unit 22A north”) be rescinded Sep. 1 – Sep. 20, to coincide with the State’s nonresident moose season.

### DISCUSSION

The proponent states that Federal public lands, which are remote and difficult to access, comprise a large portion of this hunt area, while the communities in the area are surrounded by State-managed land. He states that the Federal public lands closure serves to concentrate all moose hunting activities onto a small area of State-managed land, and that rescinding the closure would reduce the potential for conflicts in the field.

#### Existing Federal Regulation

##### Unit 22A—Moose

*Unit 22A—that portion north of and including the Tagoomenik and Shaktoolik River drainages—1 bull. Federal public lands are closed to hunting except by federally qualified users hunting under these regulations* Aug. 1 – Sep. 30

#### Proposed Federal Regulation

##### Unit 22A—Moose

*Unit 22A—that portion north of and including the Tagoomenik and Shaktoolik River drainages—1 bull. Federal public lands are closed to hunting Sep. 21 – Aug. 31 except by federally qualified users hunting under these regulations* Aug. 1 – Sep. 30

## Existing State Regulation

### Unit 22A—Moose

*Residents: One bull* *HT Aug. 1 – Sep. 30*

*Nonresidents: One bull with 50 inch antlers or antlers with 4 or more brow tines on at least one side* *HT Sep. 1 – Sep. 20*

## Extent of Federal Public Lands/Waters

The Unit 22A north hunt area is comprised of 78% Federal public lands, all of which are managed by the Bureau of Land Management (BLM) (**Figure 1**).

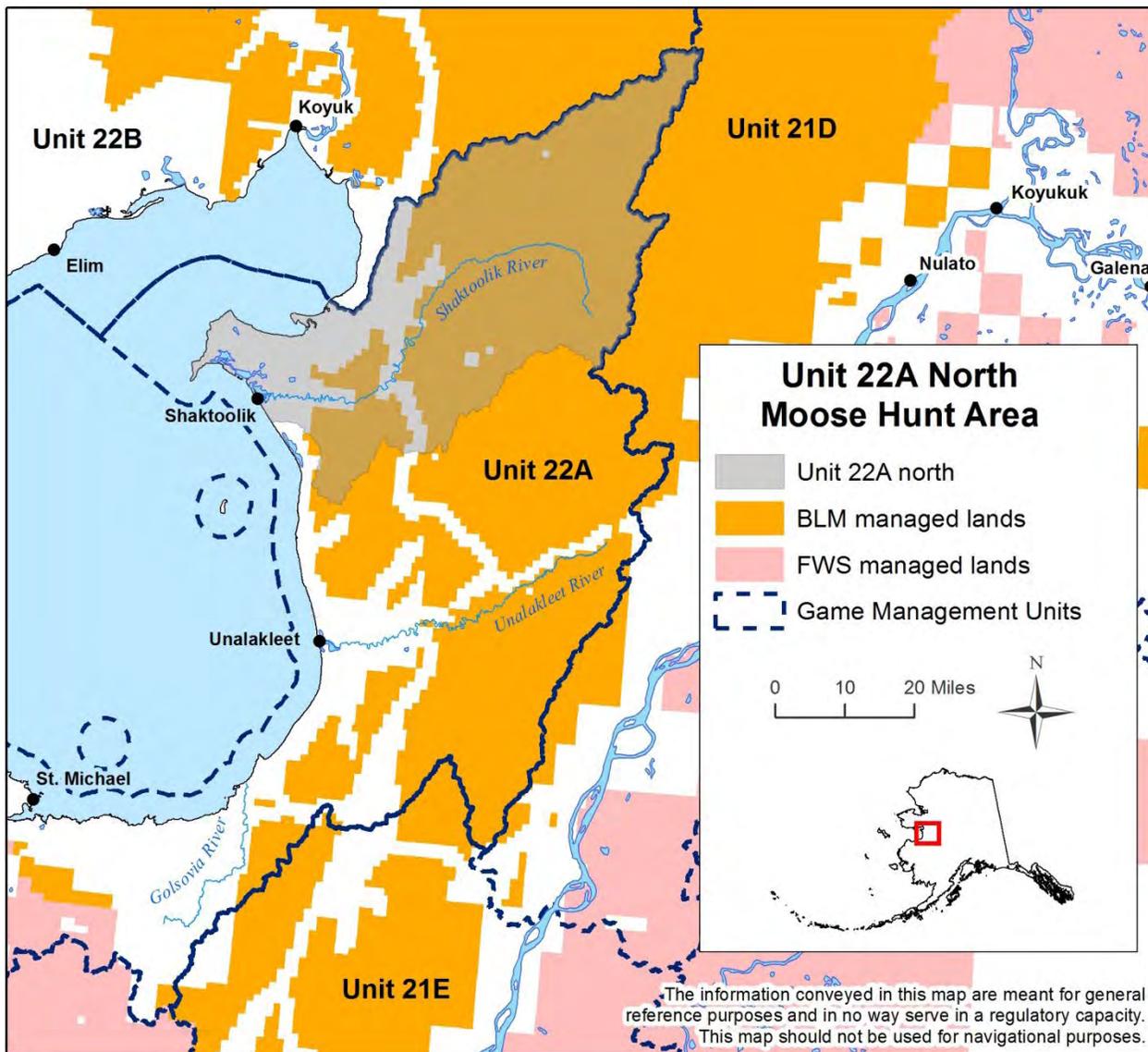
## Customary and Traditional Use Determinations

Rural residents of Unit 22 have a customary and traditional use determination for moose in Unit 22.

## Regulatory History

Prior to 1995, Federal public lands in Unit 22A were open to moose harvest by all users. In 1995, the Seward Peninsula Subsistence Regional Advisory Council (Council) submitted Proposal P95-42, requesting that the fall moose season in Unit 22A be extended from Aug. 1 – Sep. 30 to Aug. 1 – Oct. 10. The Federal Subsistence Board (Board) adopted this proposal with modification to extend the season, as proposed, and to close Federal public lands for the Oct. 1 – Oct. 10 portion of the season to all users except residents of Unit 22A (FSB 1995a).

The Alaska Department of Fish and Game (ADF&G) subsequently submitted a Request for Reconsideration, R95-11, asserting that the Oct. 1 – Oct. 10 Federal public lands closure was not substantiated, and that the season extension violated established principles of wildlife management. The Board reversed their decision on P95-42, concurring that the season extension was not consistent with the maintenance of a healthy moose population. The Board recognized that residents of Unit 22A traditionally harvested moose in October, but were concerned that the October season extension overlapped the rut and could have led to an unsustainable harvest. As a result of the Board's decision, the fall moose season was open Aug. 1 – Sep. 30. The Board also took action to close Federal public lands in Unit 22A to the harvest of moose to all users except residents of Unit 22A during the Dec. 1 – Jan. 31 season (FSB 1995b). This pool of eligible users is smaller than the pool of Federally qualified subsistence users, defined as those who have a customary and traditional use determination and includes all residents of Unit 22.



**Figure 1.** Unit 22A North moose hunt area.

Proposal 50 was submitted by the Council in 1996 to ensure continuation of the Aug. 1 – Sep. 30 season in Unit 22A, as well as to request closure of Federal public lands to the harvest of moose except by Federally qualified subsistence users during this season. The Board rejected this proposal (FSB 1996) but retained the Aug. 1 – Sep. 30 season.

Proposal P98-86, submitted by the Council, requested the harvest limit be changed from one antlered bull to one moose for the Aug. 1–Sep. 30 and Dec. 1–Jan. 31 seasons. The Board adopted this proposal with modification to change the harvest limit to one bull, which provided additional harvest opportunity, particularly during the winter season when many bulls are antlerless, while protecting cows (OSM 1998).

In 2003, the Alaska Board of Game (BOG) made a number of regulatory changes for moose in Unit 22. In Unit 22A, three distinct hunt areas were established, and seasons and harvest limits were adjusted to account for localized patterns of harvest. Prior to these changes, the State resident season was Aug. 1 – Sep. 30 and Dec. 1 – Jan. 31, and the harvest limit was one bull throughout Unit 22A. The BOG's action 1) closed the winter season in North Unit 22A (north of and including the Tagoomenik and Shaktoolik River drainages), 2) shortened the fall season to Aug. 15 – Sep. 25, and closed the winter season in Central Unit 22A (Unalakleet River drainage area), 3) shortened the winter season to Dec 1 – Dec. 31, and changed the harvest limit for the winter season to one antlered bull in Unit 22A remainder (Persons 2004). These changes were scheduled to become effective in regulatory year 2004/05. However, data showing steep declines in the Unit 22A moose population prompted ADF&G to issue Emergency Order 05-05-03 in November 2003, which implemented the new regulations immediately. Due to the timing of the Emergency Order, only the winter seasons were affected. The same changes to the winter seasons were made in Federal regulation through Special Action WSA03-14, approved by the Board in December 2003 (Persons 2004).

In 2004, the Council submitted Proposal WP04-70, requesting, in part, retention of the temporary changes made through Special Action WSA03-14. Specifically, the proposal requested 1) changing the harvest limit from one bull to one antlered moose throughout Unit 22A; 2) eliminating the winter seasons in North and Central Unit 22A; 3) shortening the fall season from Aug. 1 – Sep. 30 to Aug. 15 – Sept. 30 in Central Unit 22A; and 4) closing Federal public lands throughout Unit 22A to the harvest of moose in all seasons, except by residents of Unit 22A (OSM 2004). The Board adopted Proposal WP04-70 with modification to set the harvest limit at one bull for the fall seasons and one antlered bull for the winter season in Unit 22 Remainder, and further reduce the Central Unit 22A season, to Aug. 15 – Sep. 25 (OSM 2016). These changes resulted in alignment of State and Federal moose seasons and harvest limits in Unit 22A. They also resulted in the Federal lands closure, as it currently exists.

Since 2004, there have been several regulatory changes and special action requests in the Central and Remainder hunt areas. However, Federal moose harvest regulations in Unit 22A North have remained unchanged, with an Aug. 1 – Sep.30 season, a harvest limit of one bull, and a Federal public lands closure.

The State nonresident season in the North hunt area was extended in 2017, from Sep. 1 – Sep. 14 to Sep. 1 – Sep. 20, when the BOG adopted Proposal 27 at their January 2017 meeting in Bethel. The BOG expressed concern about increasing nonresident harvest in an area where subsistence harvest is high, and deliberated the merits of requiring a registration permit, in order to closely monitor harvest. Ultimately, they concluded that the high bull:cow ratio in the area provided sufficient protection against overharvest and adopted the proposal without modification.

In 2018, Proposal WP18-38 was submitted by Lance Kronberger. He requested that the Federal public lands closure in Unit 22A North, which restricted the harvest of moose to residents of Unit 22A, be rescinded Sep. 1 – Sep. 20, to coincide with the State's nonresident season. The Board adopted WP18-38 with modification to open Federal public lands to the harvest of moose by all Federally qualified users, which includes all residents of Unit 22. The Board noted that, though growing, the



Unit 22 moose population was still at low densities, and opening Federal public lands to all users may be premature.

### Biological Background

Prior to 1930, moose were scarce on the Seward Peninsula, but became a resident species by the late 1960s. Moose populations increased during the 1970s and peaked during the 1980s (Gorn 2012). There were several severe winters during the 1990s, which may have contributed to population declines during that time (Nelson 1995). Populations within Unit 22 have not recovered to peak levels of the 1980s, with brown bear predation on moose calves suspected to be a contributing factor (Gorn 2012). Current population objectives for Unit 22A, established by ADF&G, are to maintain a population of 600 – 800 moose and maintain a minimum bull:cow ratio of 30:100.

Unit 22A North is the northernmost of three moose hunt areas in Unit 22A, and is comprised of the portion of Unit 22A north of and including the Tagoomenik and Shaktoolik river drainages (**Figure 1**). In Unit 22, moose surveys are limited to select drainages (Gorn and Dunker 2014). Consequently, management decisions for moose throughout Unit 22A have typically been made based on surveys conducted in and around the Unalakleet River drainage. This survey area is located in the Central Unit 22A hunt area, adjacent to the southern Unit 22A North boundary, and contains similar habitat.

In this area, geospatial and composition surveys are used to assess moose population status. Spring geospatial surveys were conducted between 2003 and 2017 to estimate the size of the moose population in Central Unit 22A (**Table 1**). The population in this area has been increasing since 2003 and was estimated to be 840 moose ( $\pm 11\%$ ), or 0.35 moose/mi<sup>2</sup>, in 2017. This estimate spans the upper bound of the Unit 22A management goal of 600 – 800 moose and represents a 9% annual growth rate between 2012 and 2017 (SPRAC 2017).

**Table 1.** Population and age class estimates for moose in Unit 22A during spring, 1989–2017 (Gorn and Dunker 2014, SPRAC 2017).

Survey area	Year	Population estimate (moose)	Density estimate (per mi <sup>2</sup> )	% Short yearlings	Survey method
Unalakleet drainage	1989	325	0.29	16	Gassaway
	2003	75	0.04	15	Geospatial
	2005	123	0.15	8	Geospatial
	2008	339	0.14	18	Geospatial
	2012	545	0.24	19	Geospatial
	2017	840	0.35	12	Geospatial

In addition to estimates of population size, spring surveys generated age class estimates. The percent short yearlings, or ten month old calves, is an estimate of recruitment, and was 12% in 2017 (**Table 1**). This is lower than recruitment estimates in the past decade, but was characterized as adequate by the local biologists (SPRAC 2017).

Fall composition surveys were conducted between 2003 and 2016 in the Unalakleet drainage (**Table 2**). The bull:cow ratio has increased since the last survey and was 124 bulls:100 cows in 2016. This unusually high bull:cow ratio is well above the minimum population objective and raises questions about the influences of local harvest patterns and moose movements. Local biologists believe that this issue warrants further attention (BOG 2017, SPRAC 2017).

**Table 2.** Composition estimates for moose in the Central Unit 22A hunt area during fall, 2003 - 2016 (Gorn and Dunker 2014, SPRAC 2017).

Survey Area	Year	Bulls: 100 Cows	Calves: 100 Cows	Total moose observed
Golsovia River	2003	50	67	26
Unalakleet River	2003	69	20	66
	2006	69	34	78
	2016	124	30	250

### Cultural Knowledge and Traditional Practices

The Seward Peninsula region has been inhabited by humans for at least 12,000 years. The Inupiaq, Siberian Yupik, and Central Yup'ik people of the area have a deeply rooted practice of subsistence hunting, fishing, and gathering of wild resources. Until European contact in the early 19<sup>th</sup> century, many of these groups were semi-nomadic, moving with the seasons based on the availability of wild resources (Ray 1984). During the winter months, people often lived in permanent villages along the coast where they harvested seals, belugas, other marine mammals, fish and small land mammals. During warmer months they established family fish camps near rivers and lakes to harvest fish and plant resources.

Large ungulates were not readily available on the Seward Peninsula in the 1800s. Moose did not start migrating into the area until the 1940s, and while caribou were hunted traditionally, their numbers declined in the mid-1800s (Dau 2000). Reindeer were introduced from Siberia in 1892 under a Federal program initiated by Sheldon Jackson to provide more meat for the Inupiat people in the area (Dau 2000), but as caribou moved into the area in the 1990s, the reindeer industry has declined (Finstad et al. 2007). Historically, people in the Seward Peninsula area hunted a variety of species opportunistically. As moose increased in the region during the second half of the 20<sup>th</sup> century, harvest of the animals grew.

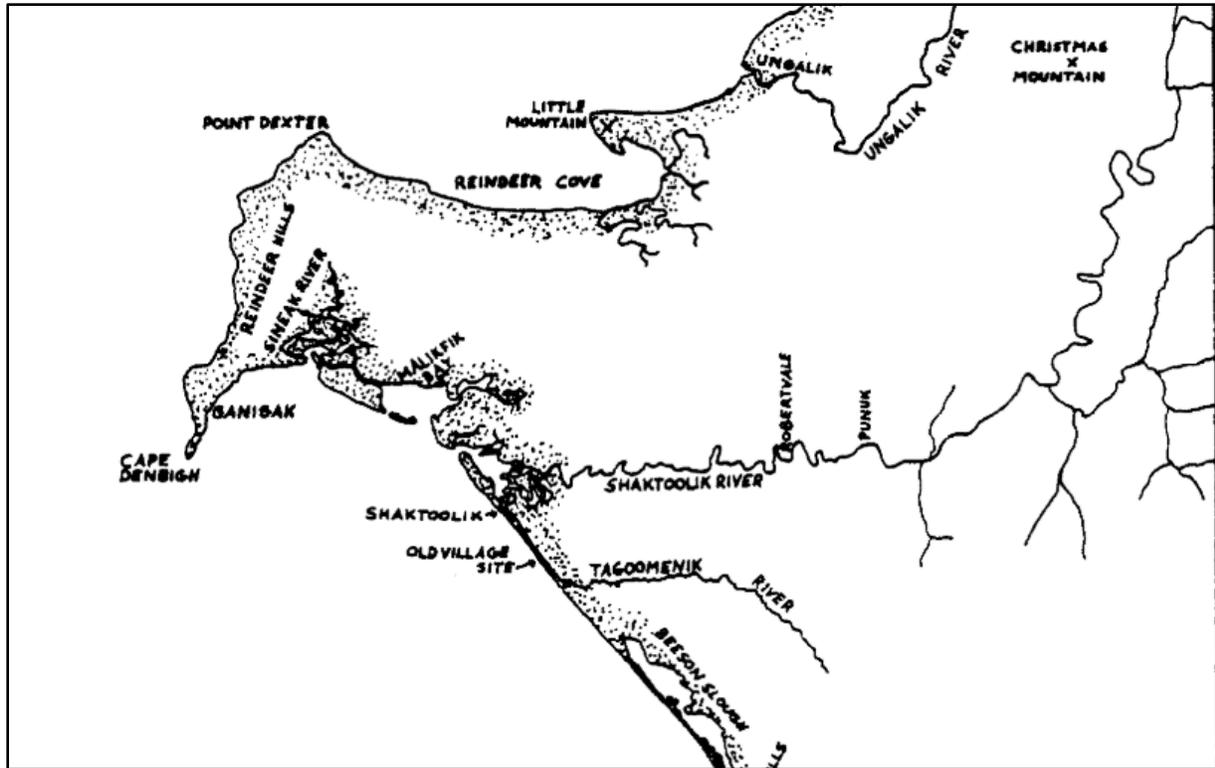
The Unit 22A community of Shaktoolik is located on the eastern shore of Norton Sound, 125 miles east of Nome and 33 miles north of Unalakleet (Kawerak 2019). The Tagoomenik and Shaktoolik Rivers converge two miles northwest of the village. Shaktoolik identifies as primarily Inupiat. The community resettled several times due to storms and flooding in recent times. The village first appears in the written records of an Imperial Russian Navy officer in 1842 (Strickling 2013). It was

incorporated in 1969. In 2017, Shaktoolik had an estimated population of 278 (ADLWD 2018). Shaktoolik's economy is based on subsistence and supplemented by wage earnings (Strickling 2013).

ADF&G provides some information on the harvest of moose from subsistence harvest surveys, but these surveys are not conducted on a regular basis. Based on the survey administered for 2009, the most recent year for which data are available, Shaktoolik harvested more caribou than moose, but moose were still an important part of the subsistence diet for many households (Braem 2012). That year, Shaktoolik residents harvested an estimated 8 moose, or 18 pounds of moose per capita, and 27% of the community used moose through direct harvest or sharing (Braem 2012).

Subsistence research conducted in 1980 found that moose are important to Shaktoolik residents because they “can be harvested in the fall when caribou are not accessible due to lack of snow cover” (Thomas 1982:232). Based on subsistence surveys from 2009, surveyed households in Shaktoolik obtained 57% of their moose harvest in August and the remaining 43% in September (Braem 2012:55).

Thomas et al. also documented the preferred hunting area for moose by local residents as including the Shaktoolik River, and particularly the portions upstream of “Punuk” (1982; **Figure 2**). Hunters preferred this area because “from Punuk upriver, hills are available to allow the hunters to climb to higher elevations and glass the surrounding area” (Thomas 1982:233). While dated, this information may still be useful for demonstrating spatial and temporal factors shaping the local search for moose. As freeze-up begins, hunters have less success finding moose along the river. At the winter 2019 Seward Peninsula Regional Advisory Council meeting, a Council member explained that moose avoid the river during freeze-up because of the sounds of ice cracking. Moose “disappear into the high hills until that activity...ceases” (SPRAC 2019).



**Figure 2:** Map of Shaktolik place names, including “Punuk.” Source: Thomas 1982:19).

## Harvest History

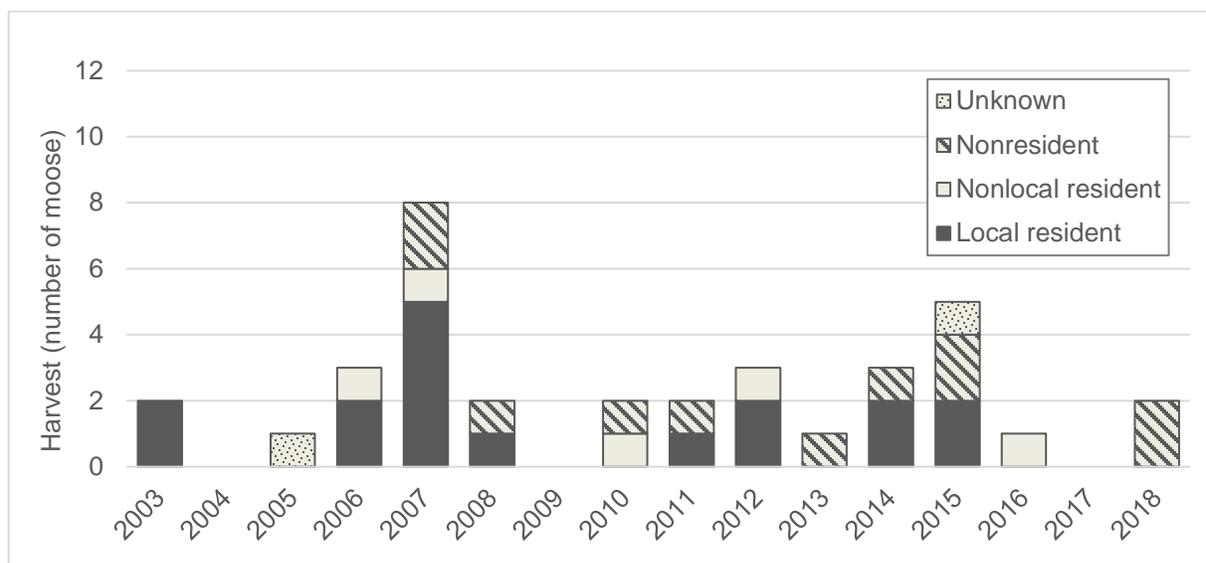
Most of the reported harvest within Unit 22A is attributable to local residents, defined here as Federally qualified subsistence users. On average, reported harvest was 27 moose annually for the 2003 – 2018 regulatory years. During this time period, 72% of the reported moose harvest was taken by local residents, while nonlocal residents of Alaska harvested 7%, and nonresidents harvested 18% of the total reported harvest (ADF&G 2019a). For the most recent five years, 2014 – 2018, reported harvest has been higher, averaging 39 moose annually. For those years, local residents took a smaller percentage of the reported harvest (66%) while non-residents took a larger percentage (24%) (ADF&G 2019a; OSM 2019).

Reported moose harvest in Unit 22A is not evenly distributed among the three hunt areas. This observation cannot be explained solely on the basis of human population size and expected harvest pressure. For instance, the Central Unit 22A hunt area is home to 36% of Unit 22A residents, but accounts for 58% of the total reported harvest. In contrast, the remaining two hunt areas (Unit 22A North and Unit 22A Remainder) contain 64% of the human population but account for only 40% of the total moose harvest (ADLWD 2018; ADF&G 2019a; OSM 2019). One likely explanation for this disparity is the difference among hunt areas in permit requirements and associated reporting rates. Specifically, Central Unit 22A requires a State or Federal registration permit, which includes penalties

for non-reporting, while the remaining hunt areas require a harvest ticket that includes no such penalties.

This suggests that reported harvest (**Figure 3**) does not sufficiently represent actual harvest within Unit 22A North. This may be particularly true for harvest among local users, who have reported no harvest within the last three years. Additional insight can be gained by considering results from household surveys. These surveys show that moose harvest by residents of Shaktoolik, the only community within this hunt area, was 21, 14, and 10 moose in 1998, 1999, and 2003, respectively (ADF&G 2019b). This contrasts with the reported harvest of two moose in 2003 by local residents within Unit 22A North (ADF&G 2019a).

Although reported harvest in Unit 22A North likely does not represent the magnitude of harvest, it may provide insight into hunting patterns among local users. Of local hunters who reported their harvest 2003 - 2018, 53% harvested moose in the month of August, while 41% harvest in September. This pattern does not hold in recent years, however, with all reported harvest since 2013 occurring in September (ADF&G 2019a). Hunting occurs primarily along the Shaktoolik River corridor, which provides access well into the eastern portion of the hunt area (BOG 2017), and 71% percent of local harvest occurred in either the Shaktoolik or Tagoomenik drainages (ADF&G 2019a).



**Figure 3.** Reported moose harvest among local users in Unit 22A North, 2003 – 2018 (ADF&G 2019a; OSM 2019).

Reported harvest is likely to be a relatively reliable accounting of harvest among non-resident hunters in Unit 22A North. Assuming so, non-resident harvest appears to have increased. In the most recent five year period, 5 moose were reported harvested by non-residents, while in each of the previous five year periods, 3 moose were harvested by non-residents (ADF&G 2019a). Non-resident harvest remains low, however (**Figure 3**).

### Guide and Transporter Use

Guides are regulated by the Alaska Big Game Commercial Services Board. To operate within a specific guide use area, a guide must be registered in that guide use area and it must be within a game management unit in which they are licensed to conduct hunts. In addition, guides must be authorized to operate within a given area by the public or private land owner (ADCCE 2019). BLM, the only Federal land manager in Unit 22A North, requires that guides be permitted to operate on BLM managed lands. The BLM permit authorizes a guide to establish a hunting camp at a specific location (Seppi 2019, pers. comm.). Though transporters must also be licensed by the Alaska Big Game Commercial Services Board, they are not required to secure permits to operate on BLM lands. Consequently, there is no cap on the number of transporters operating on BLM lands (ADCCE 2019; Seppi 2019, pers. comm.).

In Guide Use Area 22-07, which encompasses Unit 22A North, there are five active guides, none of whom are currently permitted to operate moose hunts on Federal public lands on account of the Federal public lands closure (ADCCE 2019; Seppi 2019, pers. comm.). At its April 2019 meeting, the Council expressed concern about the potential impacts of guided moose hunting on moose migration into Unit 22A.

### **Effects of the Proposal**

If this proposal is adopted, Federal public lands within the Unit 22A North moose hunt area will be open to all users Sep. 1 – Sep. 20, a period that coincides with the State’s nonresident season. Rescinding the Federal public lands closure will allow any of the five guides registered to operate within the hunt area to seek BLM permits to operate on Federal public land. It will also allow transporters to operate on these lands in support of non-Federally qualified users.

This action may result in additional harvest by nonlocal users. In particular, nonresident hunting pressure may increase, given the 2017 addition of 6 days to what was previously a 14 day nonresident State season, combined with the potential for increased guide use. Hunting pressure from nonlocal residents may increase as well, as moose hunting on Federal public lands will be allowable for 20 days of a 61 day resident State season. The Shaktoolik River provides access to Federal public lands, which increases the chances that rescinding the closure will result in additional nonlocal hunting pressure.

Given our limited understanding of the population status in the specific area, there is some uncertainty whether increased harvest will have a significant impact on the moose population. Recent surveys in Unit 22A indicate that the population has increased over the past decade, but it remains at a low density. High bull:cow ratios suggest that the population can sustain additional bull harvest, although these ratios also raise questions about local population dynamics and patterns of dispersal.

Federally qualified subsistence users in Unit 22 may be affected by rescission of the Federal lands closure. If additional harvest has detrimental effects on the moose population, there will be long-term negative effects for local users. In addition, an increase in nonlocal users may result in increased user

conflict in the area, particularly along the Shaktoolik River. While the lower portion of the river is bounded by non-Federal lands and is currently open to all users, most of the upper portion of the river is bounded by Federal lands and is currently open only to residents of Unit 22. In addition, local harvest in recent years occurs primarily in September, which coincides with the State's nonresident season.

## **OSM CONCLUSION**

**Oppose** Proposal WP20-41.

### **Justification**

It is unknown what effect rescinding the closure in Unit 22A North will have on the moose population in the area, or on subsistence users. Moose densities in Unit 22A, while improving, remain low. Local biologists believe that the population can sustain at least some additional harvest. The proponent's assertion that opening Federal public lands will reduce user conflict by decentralizing use may have merit as it relates to guided hunters who access the hunt area via aircraft. However, opening Federal public lands could also result in increased hunter activity and conflict along the Shaktoolik River, resulting in potential adverse effects to subsistence users who have customarily focused on this area for their fall moose hunting.

When the Board considered this action in 2018, they declined to fully rescind the Federal public lands closure, noting that such a move may have been premature. Previously, only residents of Unit 22A had been permitted to hunt in Unit 22A North. In 2018, the Board expanded moose hunting on Federal public lands in Unit 22A North to all residents of Unit 22, who have a customary and traditional use determination. Along with the longer nonresident season implemented by the BOG in 2017, this followed an incremental approach to increasing the number of moose hunters in 22A North. To date, we have only one year's harvest data to assess the effect of these regulatory changes and there have been no updates on the moose population status since the Board's 2018 decision. Nor do we have updated subsistence surveys, which would show whether Federally qualified subsistence users have been successful in their attempts to harvest moose. Consequently, there is little additional evidence about the effects of the incremental opening available to inform a decision. Maintaining the status quo until additional information is available is the most conservative approach and provides an assurance that subsistence use continues to be prioritized.

## LITERATURE CITED

- ADF&G. 2019a. Winfonet. Retrieved May 22, 2019.
- ADF&G. 2019b. Community Subsistence Information System. <http://www.adfg.alaska.gov/sb/CSIS/>. Retrieved: May 28, 2019.
- ADCCE. 2019. Alaska Department of Commerce, Community, and Economic Development. <https://www.commerce.alaska.gov/web/cbpl/ProfessionalLicensing/BigGameCommercialServicesBoard.aspx>. Retrieved May 23, 2019.
- ADLWD. 2018. Alaska Population Overview, 2017 Estimates. Alaska Department of Labor and Workforce Development, Research and Analysis Section, Juneau, AK.
- BOG. 2017. Audio transcripts of the Alaska Board of Game proceedings. January 9, 2017. Bethel, AK. ADF&G. Juneau, AK.
- Braem, N. M. 2012. Subsistence wildlife harvests in Ambler, Buckland, Kiana, Kobuk, Shaktoolik, and Shishmaref, Alaska 2009-2010. Special Publication No. SP2012-003. Fairbanks, AK.
- Dau, J. 2000. Managing reindeer and wildlife on Alaska's Seward Peninsula. *Polar Research* 19(1): 57-62.
- Finstad, G. L., Kielland, K. K., and W.S. Schneider, W. S. 2007. Reindeer herding in transition: historical and modern day challenges for Alaskan reindeer herders. *Nomadic Peoples*, 10(2): 31-49.
- FSB. 1995a. Transcripts of Federal Subsistence Board proceedings. April 12, 1995. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 1995b. Transcripts of Federal Subsistence Board proceedings. September 26, 1995. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 1996. Transcripts of Federal Subsistence Board proceedings. May 1, 1996. Office of Subsistence Management, FWS. Anchorage, AK.
- Gorn, T. 2012. Unit 22 moose management report. Pages 534-559 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009-30 June 2011. ADF&G. Juneau, AK.
- Gorn, T. and W.R. Dunker. 2014. Unit 22 management report. Pages 31-1 - 31-38 in P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011 - 30 June 2013. ADF&G. Juneau, AK.
- Kawerak, Inc. 2019. Shaktoolik. <https://kawerak.org/our-region/shaktoolik/>. Retrieved: May 28<sup>th</sup>, 2019.
- Nelson, R. R. 1995. Unit 22 moose survey-inventory progress report. Pages 405-419 in M. V. Hicks, editor. Management report of survey-inventory activities 1 July 1993 - 30 June 1995. ADF&G. Juneau, AK.
- OSM. 1998. Staff analysis WP98-86. Pages Seward Peninsula Region 33 - 42 in Federal Subsistence Board Meeting Materials. May 4 - 8, 1998. Office of Subsistence Management, USFWS. Anchorage, AK. 1449 pages.



- OSM. 2004. Staff analysis WP04-70. Pages 660–677 in Federal Subsistence Board Meeting Materials. May 18-21, 2004. Office of Subsistence Management, USFWS. Anchorage, AK. 849 pages.
- OSM. 2016. Federal subsistence permit system. Microcomputer database, accessed June 10, 2016. Anchorage, AK.
- OSM. 2019. OSM proposal document library. Microcomputer database, accessed May 26, 2010. Anchorage, AK.
- Persons, K. 2004. Unit 22 moose management report. Pages 496–522 in C. Brown, ed. Moose management report of survey and inventory activities 1 July 2001–30 June 2003. ADF&G. Juneau, AK.
- Ray, D.J. 1984. Bering Strait Eskimo. Pages 285–302 in W.C Surtevand, ed. The handbook of North American Indians, Volume 5: Arctic. Smithsonian Institution, Washington D.C.
- Seppi, B. 2019. Wildlife biologist. Personal communication: phone and email. Anchorage Field Office. BLM. Anchorage, AK.
- SPRAC. 2017. Transcripts of the Seward Peninsula Subsistence Regional Advisory Council proceedings. March 6 – 7, 2017. Nome, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- Strickling, S. E. 2013. Shaktoolik local economic development plan 2013-2018. Kawerak. Nome, AK.
- Thomas, D. C. 1982. The role of local fish and wildlife resources in the community of Shaktoolik, Alaska. ADF&G, Div. of Subsistence Tech. Paper No. 13. Nome, AK. 312 pages.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Seward Peninsula Subsistence Regional Advisory Council

**Oppose.** There continues to be minimal or extrapolated information on moose populations in portions of Unit 22A. Easy access by non-local or guided airplane hunters to moose could negatively impact subsistence users. Some Council members stated that habitat where moose populations go for protection from harvest are frequently accessed by non-locals in aircraft. Harvest in these areas could impair the herd's opportunity to grow.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-41:** This proposal, submitted by Lance Kronberger, would rescind the federal public lands closure for moose in the portion of Unit 22 north of and including the Tagoomenik and Shaktoolik River drainages (22A North) from Sep. 1 – Sep. 20 to coincide with the state nonresident moose season in the area.

**Introduction:** All federal lands in Unit 22A North are currently closed to non-federally qualified users. Residents of Unit 22 are the federally qualified users eligible for this hunt. The proponent seeks to remove this federal public land closure during the nonresident general moose season.

**Impact on Subsistence Users:** The impact of this proposal on subsistence users is uncertain. Very few nonresidents currently hunt in Unit 22A North. However, if this proposal were to be approved, nonresident moose harvest in the area may increase. Considering the current low harvest levels by federally qualified and non-federally qualified hunters alike in the area, it is unlikely an increase harvest by non-federally qualified users will be above sustainable harvest levels for the population. Further, rescinding the federal closure in 22A North may result in a change in distribution of harvest by non-federally qualified users who are currently restricted to state lands.

**Impact on Other Users:** If adopted, this proposal will increase opportunity for non-federally qualified moose hunters in 22A North. It may result in decreased hunting pressure on moose in state and, decreasing congestion and hunter conflict.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for moose in Unit 22.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for moose in Unit 22 is 250-300 animals. The moose seasons and bag limits for Unit 22 are:

<u>Units and Bag Limits</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
<i>Unit 22(A), that portion north of and including the Tagoomenik and Shaktoolik River drainages</i>	<i>1 antlered bull HT</i>	<i>Aug. 1 – Sept. 30</i>	
	<i>1 bull with 50-inch antlers with 4 or more brow tines on one side HT</i>		<i>Sept. 1 – Sept. 20</i>

<sup>a</sup> Subsistence and General Hunts.

Source: ADF&G. 2019. 2019-2020 Alaska hunting regulations. Effective July 1, 2019-June 30, 2020. Alaska Department of Fish and Game. Division of Wildlife Conservation, Anchorage.

**Conservation Issues:** Unit 22 has an population objective of 600-800 moose in Unit 22A. We lack biological information regarding the status of moose specific to 22A North; however, we can draw inferences about the population from surveys in the adjacent area, which is Unit 22A, that portion in the Unalakleet River drainage and all drainages flowing into Norton Sound north of the Golsovia River drainage and south of the Tagoomenik and Shaktoolik River drainages (22A Central). A population survey was last conducted in 22A Central in the spring of 2017, resulting in a moose abundance estimate of 840 moose. These results indicated that the population had grown 9% annually over the period 2012-2017. The extrapolated estimate for 22A North was 645 moose with a density of 0.35 moose/mi<sup>2</sup>. Unit 22A’s comprehensive moose abundance estimate is 2,043 moose, indicating Unit

22A's moose population may be well above population objectives. The harvestable surplus of moose in 22A North during RY2019 is 32 moose.

From RY14-RY18, a total of 11 moose were reported harvested by 18 total hunters in 22A North, for an average hunter success rate of 61%. The average reported annual 22A North moose harvest is 3 (range 1 – 6) moose. Of the hunters that report hunting in Unit 22A North, 50% are nonresidents and 50% are Alaskan residents. In addition to the reported harvest, we estimate that approximately 10-15 additional moose are harvested annually by local residents but are not reported (BOG 2017). These data suggest that the actual harvest of moose in 22 North may be as many as 20 moose annually.

*Source:* BOG. 2017. Audio transcripts of the Alaska Board of Game proceedings. January 9, 2017. Bethel, AK. ADF&G. Juneau, AK.

**Enforcement Issues:** There are no known enforcement issues associated with this proposal.

**Recommendation:** ADF&G **SUPPORTS** this proposal. Adoption of this proposal is not expected to pose a biological concern to the local moose population in Unit 22A North. Considering the low combined reported harvest and estimated harvest in the area, the potential increased harvest in Unit 22A North resulting from the approval of this proposal is unlikely to exceed the harvestable surplus of moose in the area. Hunting under state authority in Unit 22A North will require hunter effort and success reporting which can be used to better understand moose abundance in the area.

## WP20–42 Executive Summary

<b>General Description</b>	<p>Proposal WP20-42 requests that the Federal public lands closure in the Unit 22A remainder moose hunt area be rescinded Sep. 1 – Sep. 30, to coincide with the State’s nonresident moose season.</p> <p><i>Submitted by: Lance Kronberger.</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 22—Moose</b></p> <p><i>Unit 22A, remainder—1 bull. However, during the period Jan. 1 – Feb. 15, only an antlered bull may be taken. Federal public lands are closed to the taking of moose Oct. 1 – Aug. 31 except by federally qualified subsistence users</i></p> <p style="text-align: right;"><i>Aug. 1 – Sep. 30 Jan. 1 – Feb. 15</i></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.</p>
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS  
WP20-42**

**ISSUES**

Wildlife Proposal WP20-42, submitted by Lance Kronberger of Eagle River, requests that the Federal public lands closure in the Unit 22A remainder moose hunt area be rescinded Sep. 1 – Sep. 30, to coincide with the State’s nonresident moose season.

**DISCUSSION**

The proponent notes that the Federal public lands in Unit 22A remainder, which are currently closed to non-Federally qualified users, are adjacent to Unit 18, which has very high moose densities.

**Existing Federal Regulation**

**Unit 22—Moose**

*Unit 22A, remainder—1 bull. However, during the period Jan. 1 – Feb. 15, Aug. 1 – Sep. 30  
only an antlered bull may be taken. Federal public lands are closed Jan. 1 – Feb. 15  
to the taking of moose except by federally qualified subsistence users*

**Proposed Federal Regulation**

**Unit 22—Moose**

*Unit 22A, remainder—1 bull. However, during the period Jan. 1 – Feb. 15, Aug. 1 – Sep. 30  
only an antlered bull may be taken. Federal public lands are closed Jan. 1 – Feb. 15  
to the taking of moose **Oct. 1 – Aug. 31** except by federally qualified  
subsistence users*

**Existing State Regulation**

**Unit 22A—Moose**

*Residents: One bull HT Aug. 1 – Sep. 30*

OR

*Residents: On antlered bull* HT Jan. 1 – Jan. 31

*Nonresidents: One bull with 50 inch antlers or antlers with  
4 or more brow tines on at least one side* HT Sep. 1 – Sep. 30

### **Extent of Federal Public Lands**

Unit 22A remainder is comprised of 50% Federal public lands and consists of 43% U.S. Fish and Wildlife Service (USFWS) managed lands and 7% Bureau of Land Management (BLM) managed lands (**Figure 1**).

### **Customary and Traditional Use Determinations**

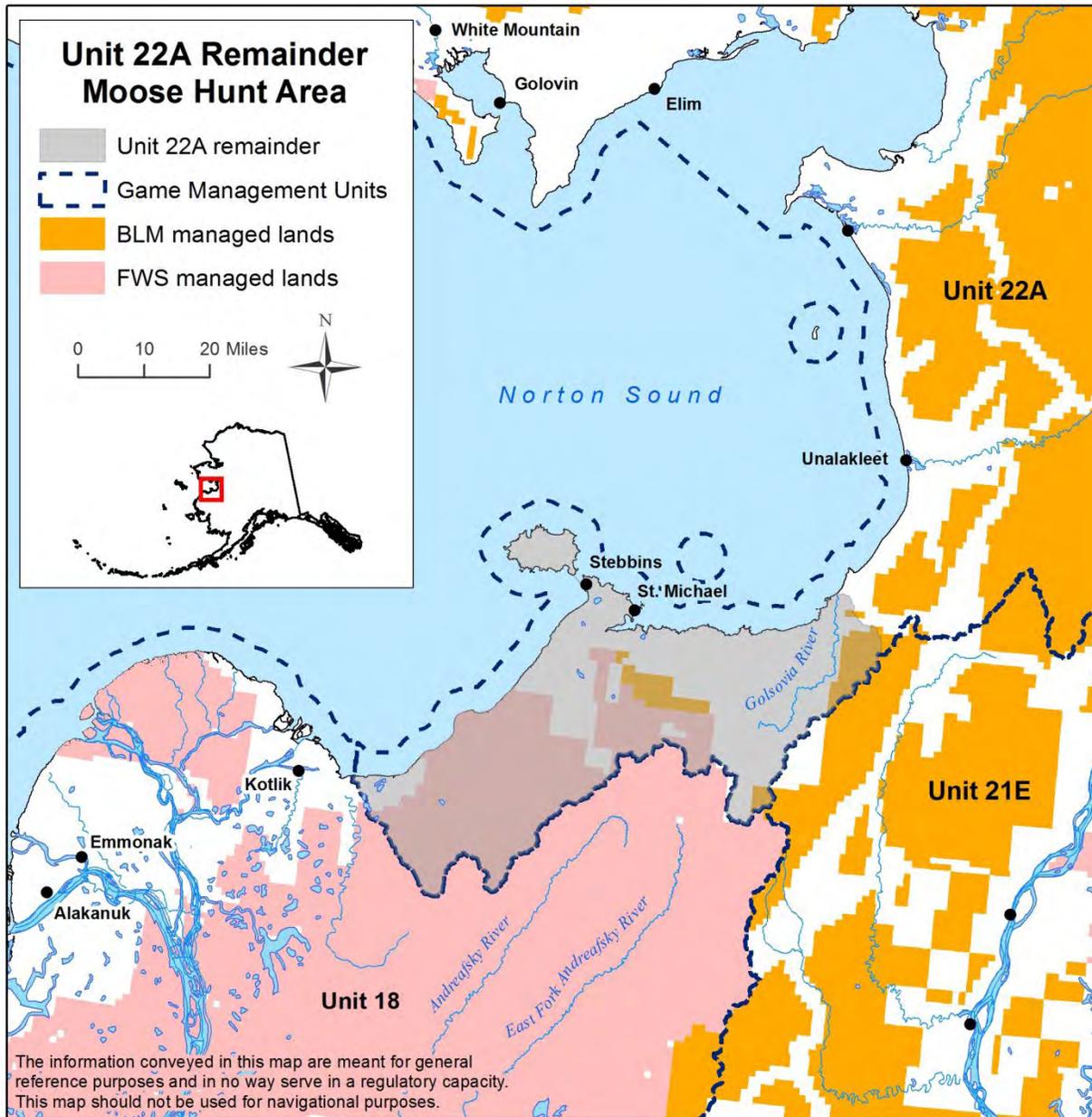
Residents of Unit 22 have a customary and traditional use determination for moose in Unit 22.

### **Regulatory History**

Prior to 1995, Federal public lands in Unit 22A were open to moose harvest by all users. In 1995, the Seward Peninsula Subsistence Regional Advisory Council (Council) submitted Proposal P95-42, requesting that the 1995 fall moose season in Unit 22A be extended from Aug. 1 – Sep. 30 to Aug. 1 – Oct. 10. The Federal Subsistence Board (Board) adopted this proposal with modification to extend the season, as proposed, and to close Federal public lands for the Oct. 1 – Oct. 10 portion of the season to all users except residents of Unit 22A (FSB 1995a).

The Alaska Department of Fish and Game (ADF&G) subsequently submitted a Request for Reconsideration, R95-11, asserting that the Oct. 1 – Oct. 10 Federal public lands closure was not substantiated, and that the season extension violated established principles of wildlife management. The Board reversed their decision on P95-42, concurring that the season extension was not consistent with the maintenance of a healthy moose population. The Board recognized that residents of Unit 22A traditionally harvested moose in October, but were concerned that the October season extension overlapped the rut and could have led to an unsustainable harvest. As a result of the Board's decision, the fall moose season was open Aug. 1 – Sep. 30. The Board also took action to close Federal public lands in Unit 22A to the harvest of moose to all users except residents of Unit 22A during the Dec. 1 – Jan. 31 season (FSB 1995b).

Proposal 50 was submitted by the Council in 1996 to ensure continuation of the Aug. 1 – Sep. 30 season in Unit 22A, as well as to request closure of Federal public lands to the harvest of moose except by Federally qualified subsistence users during this season. The Board rejected this proposal (FSB 1996) but retained the Aug. 1 – Sep. 30 season.



**Figure 1.** Unit 22A remainder moose hunt area.

Proposal P98-86, submitted by the Council, requested the harvest limit be changed from one antlered bull to one moose for the Aug. 1– Sep. 30 and Dec. 1 – Jan. 31 seasons. The Board adopted this proposal with modification to change the harvest limit to one bull, which provided additional harvest opportunity, particularly during the winter season when many bulls are antlerless, while protecting cows (OSM 1998).

In 2003, the Alaska Board of Game (BOG) made a number of regulatory changes for moose in Unit 22. In Unit 22A, three distinct hunt areas were established, and seasons and harvest limits were adjusted to account for localized patterns of harvest. Prior to these changes, the State resident season was Aug. 1 – Sep. 30 and Dec. 1 – Jan. 31, and the harvest limit was one bull throughout Unit 22A.



The BOG's action 1) closed the winter season in North Unit 22A (north of and including the Tagoomenik and Shaktoolik River drainages); 2) shortened the fall season to Aug. 15 – Sep. 25, and closed the winter season in Central Unit 22A (Unalakleet River drainage area); and 3) shortened the winter season to Dec. 1 – Dec. 31, and changed the harvest limit for the winter season to one antlered bull in Unit 22A remainder (Persons 2004). These changes were scheduled to become effective in regulatory year 2004/05. However, data showing steep declines in the Unit 22A moose population prompted ADF&G to issue Emergency Order 05-05-03 in November 2003, which implemented the new regulations immediately. Due to the timing of the Emergency Order, only the winter seasons were affected. The same changes to the winter seasons were made in Federal regulation through Special Action WSA03-14, approved by the Board in December 2003 (Persons 2004).

In 2004, the Council submitted Proposal WP04-70, requesting, in part, retention of the temporary changes made through Special Action WSA03-14. Specifically, the proposal requested 1) changing the harvest limit from one bull to one antlered moose throughout Unit 22A; 2) eliminating the winter seasons in North and Central Unit 22A; 3) shortening the fall season from Aug. 1 – Sep. 30 to Aug. 15 – Sept. 30 in Central Unit 22A; and 4) closing Federal public lands throughout Unit 22A to the harvest of moose in all seasons, except by residents of Unit 22A (OSM 2004). The Board adopted Proposal WP04-70 with modification to set the harvest limit at one bull for the fall seasons and one antlered bull for the winter season in Unit 22 remainder, and further reduce the Central Unit 22A season, to Aug. 15 – Sep. 25 (OSM 2016). These changes resulted in alignment of State and Federal moose seasons and harvest limits in Unit 22A. They also resulted in the Federal lands closure, as it currently exists.

Due in part to low population and recruitment estimates, portions of Unit 22A were affected by temporary regulatory changes in 2005 that were subsequently adopted into Federal regulation by Board action in 2006. In Unit 22A remainder, harvest seasons were shifted from Dec. 1 – Dec. 31 to Jan. 1 – Jan. 31 in 2005 with the Board's approval of Special Action WSA05-12/13 and in 2006 with the adoption of Proposal WP06-38 (OSM 2016). These changes provided communities more harvest opportunity, due to more favorable hunting conditions later in the winter, but were not expected to affect the moose population due to the scarcity of mature antlered bulls at this time of year. The modified season in Unit 22A mirrored State regulation changes associated with the adoption of State Proposal 6 and Emergency Order 05-08-05 in 2005, and resulted in reduced regulatory complexity.

Proposal WP10-80, submitted by the Stebbins Community Association, requested that the winter moose season in Unit 22A remainder be shifted from Jan. 1 – Jan. 31 to Jan. 15 – Feb. 15. The Board adopted the proposal with modification to extend the season to February 15, but keep the January 1 start date. The modification provided additional harvest opportunity to Federally qualified subsistence users (OSM 2016).

In the past decade, inclement weather has affected winter moose harvest in Unit 22A remainder and resulted in multiple special action requests to extend seasons. Special Action WSA07-08, submitted by the Stebbins Community Association, requested that a Feb. 1 – Mar. 1, 2008 bull season be added in Unit 22A remainder to provide additional harvest opportunity. The Board approved the special action, but modified the season to Feb. 27 – Mar. 5 because a decision could not be made in time to

accommodate the original request. Special Action WSA08-17 extended the winter bull moose season on Federal public lands within Unit 22A remainder an additional two weeks (Feb. 7 – Feb. 20) in 2009. The season extension was approved by the Board to provide additional harvest opportunities for Federally qualified subsistence users after a period of inclement weather and high gas prices prevented users from hunting moose (OSM 2016). The winter of 2011/2012 was unusually cold and prevented many Federally qualified subsistence users from harvesting moose during the Jan. 1 – Feb. 15 season in Unit 22A remainder. In February 2012, Special Action WSA11-09 was approved by the Board (OSM 2016) and Emergency Order 05-06-12 was issued by the State to provide a 14-day extension to the winter moose season to provide additional harvest opportunity.

In 2017, Temporary Special Action WSA17-01, submitted by Lance Kronberger of Eagle River, requested that the Federal public lands closure in Unit 22A remainder be rescinded Sep. 1 – Sep. 30, 2017. The proponent asserted that the moose population in this hunt area had grown considerably, due in part to the rapid growth of the Unit 18 moose population. The Board rejected this request on the grounds that conservative management of the Unit 22A remainder moose population was still warranted, but acknowledged that continued review of the issue was prudent to ensure that the closure remained justifiable.

The request to open Federal public lands in Unit 22A remainder during the State's nonresident season was resubmitted by Mr. Kronberger as WP18-37. The Board adopted the proposal with modification to open Federal public lands to all Federally qualified subsistence users. Previously, moose hunting was authorized only by residents of Unit 22A. In their deliberation, the Board expressed the difficulty of the decision, noting the absence of clear biological evidence in support of full rescission of the closure. They opted for the more conservative incremental liberalization, but again expressed an interest in additional population level information that might support rescission of the closure in the future.

### **Biological Background**

Prior to 1930, moose were scarce on the Seward Peninsula, but became a resident species by the late 1960s. Moose populations increased during the 1970s and peaked during the 1980s (Gorn 2012). There were several severe winters during the 1990s, which may have contributed to population declines during that time (Nelson 1995). Populations within Unit 22 have not recovered to peak levels of the 1980s, with brown bear predation on moose calves suspected to be a contributing factor (Gorn 2012).

Unit 22A remainder is the southernmost of three moose hunt areas in Unit 22A, and is comprised of the portion of Unit 22A south of and including the Golsovia River drainage (**Figure 1**). In Unit 22, regular moose surveys are limited to select drainages. Population estimates do not exist for Unit 22A remainder, and composition data has been updated infrequently (Gorn and Dunker 2014). The single contemporary metric for Unit 22A remainder is a recruitment survey conducted in 2018 in the Pitmiktalik and Golsovia river drainages. That survey indicated a recruitment rate of 10%, which was characterized as low by local biologists (SPRAC 2019).

Given the limited biological information available for Unit 22A remainder, this analysis will rely on recent population estimates in adjacent areas, the Central Unit 22A hunt area to the northeast, Unit 21E to the southeast, and Unit 18 to the south.

### Central Unit 22A

Spring surveys were conducted between 1989 and 2017 to estimate the size of the moose population in Central Unit 22A (**Table 1**). The population in this area has been increasing since 2003 and was estimated to be 840 moose ( $\pm 11\%$ ), or 0.35 moose/mi<sup>2</sup>, in 2017. This estimate spans the upper bound of the Unit 22A management goal of 600 – 800 moose, and represents a 9% annual growth rate between 2012 and 2017. In addition to estimates of population size, spring surveys generated age class estimates. The percent short yearlings, or ten month old calves, is an estimate of recruitment, and was 12% in 2017 (**Table 1**). This was lower than recruitment estimates in the previous decade, but was characterized as adequate by the Unit 22 Area Biologist (SPRAC 2017).

**Table 1.** Population and age class estimates for moose in the Central Unit 22A hunt area during spring, 1989 – 2017 (Gorn and Dunker 2014, SPRAC 2017).

Survey area	Year	Population estimate (moose)	Density estimate (per mi <sup>2</sup> )	% Short yearlings	Survey method
Unalakleet drainage	1989	325	0.29	16	Gassaway
	2003	75	0.04	15	Geospatial
	2005	123	0.15	8	Geospatial
	2008	339	0.14	18	Geospatial
	2012	545	0.24	19	Geospatial
	2017	840	0.35	12	Geospatial

Fall composition surveys were conducted between 2003 and 2016 in the Unalakleet drainage (**Table 2**). The bull:cow ratio has increased since the last survey and was 124 bulls:100 cows in 2016. This unusually high bull:cow ratio is well above the goal of at least 30 bulls:100 cows, and raises questions about the influences of local harvest patterns and moose movements. Local biologists believe that this issue warrants further attention (BOG 2017, SPRAC 2017).

**Table 2.** Composition estimates for moose in the Central Unit 22A hunt area during fall, 2003 – 2016 (Gorn and Dunker 2014, SPRAC 2017).

Survey Area	Year	Bulls: 100 Cows	Calves: 100 Cows	Total moose observed
Golsovia River	2003	50	67	26
Unalakleet River	2003	69	20	66
	2006	69	34	78
	2016	124	30	250

Unit 21E

Moose are present throughout Unit 21E. Prior to 2000, population trends were difficult to assess due to changing survey areas and methodologies (Boudreau 2002). However, local residents reported declining populations beginning in the mid-1990s, and the BOG established an intensive management plan to reduce predators for Unit 21E in 2010 (ADF&G 2016).

Surveys conducted between 2000 and 2012 indicate that the population in this area was relatively stable during this period, varying between and 0.9 and 1.2 moose/mi<sup>2</sup> (**Table 3**). The most recent survey was conducted in 2019, when the moose population was estimated to be 8,607 moose, or 2.1 moose/ mi<sup>2</sup>, within the Wolf Control Focus Area (WCFA), which comprises ~80% of the historical survey area. The population is believed to be stable and exceeds the intensive management objective of 1.0 moose/mi<sup>2</sup> (Peirce 2014; Peirce 2017, pers. comm.; Burch 2019, pers. comm.). To date, wolf control has not been initiated in Unit 21E (ADF&G 2016).

**Table 3.** Population estimates for moose in Unit 21E, 2000 – 2019 (Peirce 2014, Peirce 2017, pers. comm.; Burch 2019, pers. comm.).

Survey area	Year	Population estimate ± 90% Confidence Interval (moose)	Density estimate (per mi <sup>2</sup> )	Survey method
Unit 21E	<b>2000</b>	5,151 ± 13%	1.0	Gassaway
	<b>2005</b>	4,673 ± 17%	0.9	Geospatial
	<b>2009</b>	6,218 ± 17%	1.2	Geospatial
	<b>2012</b>	5,710 ± 16%	1.1	Geospatial (w/ SCF <sup>a</sup> )
	<b>2012<sup>b</sup></b>	5,398 ± 19%	1.3	Geospatial (w/ SCF <sup>a</sup> )
	<b>2016<sup>b</sup></b>	8,372 ± 18%	2.0	Geospatial (w/ SCF <sup>a</sup> )
	<b>2019<sup>b</sup></b>	8,607 ± 27%	2.1	Geospatial (w/ SCF <sup>a</sup> )

<sup>a</sup>Sightability Correction Factor

<sup>b</sup>Results reported for the WCFA, which is smaller than the historical survey area. The WCFA differed in slightly in size among survey years.

Bull:cow ratios in Unit 21E were high between 2008 and 2011 (**Table 4**), exceeding the management objective of 25 – 30 bulls:100 cows. In 2011, the last time composition surveys were conducted, the calf:cow ratio was 47 calves:100 cows, exceeding the management objective of 30 – 40 calves:100 cows.

It is unknown to what degree moose dispersal is influencing local moose densities in this area. Given the recent growth of the Unit 21E moose population, dispersal into Unit 22A could be occurring above historical levels and may be contributing to observations by locals and guides that there have been more moose in Unit 22A in recent years.

**Table 4.** Composition estimates for moose in Unit 21E during fall, 2008 – 2011 (Peirce 2014). Data from the 2009 survey, which was only partially completed, is not shown.

Survey Area	Year	Bulls: 100 Cows	Calves: 100 Cows	Total moose observed
Unit 21E	2008	62	37	186
	2010	61	51	287
	2011	64	47	201

### Unit 18

Moose began to immigrate into the Yukon-Kuskokwim Delta during the mid- to late-1940s and have become an important subsistence resource for locals. Most of the Yukon-Kuskokwim Delta is lowland treeless tundra and is not suitable as winter moose habitat. Consequently, much of the region supports only low to very low density moose populations. However, productive habitat does exist along river corridors. The Yukon River population currently occupies most of the available riparian habitat, is at moderate to high density, is growing, and has high calf production and yearling recruitment (Perry 2014). Several moose survey areas exist in Unit 18, with the Lowest Yukon and Andraefsky areas being the most relevant to this analysis.

Between 1988 and 2008, surveys to estimate population size were conducted in the Lowest Yukon survey area of Unit 18 (**Table 5**). At that time, the survey area encompassed the riparian corridor along the main stem of the Yukon River downstream of Mountain Village (Perry 2014). The population grew significantly during that time, coincident with a six year harvest moratorium in the area. In February 2017, a survey was conducted in an expanded survey area to accommodate the widening distribution of the moose. The results of that survey estimate the current population to be 8,226 moose in the expanded survey area, or 4.7 moose/mi<sup>2</sup>. For comparison purposes, the moose density within the original survey area was calculated to be 4.8 moose/mi<sup>2</sup> in 2017, compared to 2.4 moose/mi<sup>2</sup> in 2008.

In addition to surveys aimed at estimating population size, composition surveys have been conducted periodically (**Table 6**). In 2013, the bull:cow ratio was 40 bulls:100 cows, exceeding the management objective of 30 bulls:100 cows. The 2013 survey indicated that the calf:cow ratio was 48 calves:100 cows, a notable decline since 2005, when there were 92 calves:100 cows (Perry 2006, 2008, 2014; Rearden 2015).

**Table 5.** Population estimates for moose in portions of Unit 18, 1988 – 2017 (Rearden 2015, 2017, pers. comm.).

Survey area	Year	Population estimate ± 95% Confidence Interval (moose)	Density estimate (per mi <sup>2</sup> )	Survey method
Lowest Yukon	1988	0	NA	Minimum count
	1992	28	0.0	Minimum count
	1994	65	0.0	Minimum count
	2002	674 ± 21%	0.6	Geospatial
	2005	1,342 ± 21%	1.1	Geospatial
	2008	2,827 ± 11%	2.4	Geospatial
	2008	3,319 ± 16%	2.8	Geospatial (w/ SCF <sup>a</sup> )
	2017	8,226 ± 11%	4.7	Geospatial
Andreafsky	1995	52 ± 74%	0.0	Gassaway
	1999	524 ± 29%	0.2	Geospatial
	2002	418 ± 22%	0.3	Geospatial
	2012	2,748 ± 19%	1.7	Geospatial
	2012	3,170 ± 24%	2.0	Geospatial (w/ SCF <sup>a</sup> )

<sup>a</sup>Sightability Correction Factor

In the adjacent Andreafsky survey area, which includes the Yukon River from Pilot Village downstream to Mountain Village (Perry 2014), surveys were most recently conducted in 2012 (**Table 5**). At that time, the moose population in this area was estimated at 3,170 moose (2.0 moose/mi<sup>2</sup>), when corrected for sightability. Like the moose population in the Lowest Yukon survey area, the population in the Andreafsky area has grown substantially since the early 2000s, but it remains at lower density compared to the Lowest Yukon population. Bull:cow ratios in the Andreafsky area were similar to those in the Lowest Yukon area, at 40 bulls:100 cows in 2011 (**Table 6**). Calf:cow ratios have increased since the early 2000s and were at 67 calves:100 cows in 2011 (Perry 2006, 2008, 2014; Rearden 2015).

It is unknown the degree to which moose dispersal from Unit 18 is influencing moose density in southern Unit 22. However, given the high moose density and continuing growth of the Yukon and Andreafsky populations, there is a likely effect. Local biologists report that, in Unit 18, moose can be found anywhere there are willows present (Rearden 2017, pers. comm.). This suggests that movement through the riparian corridors of the Andreafsky drainages into Unit 22A is likely.

**Table 6.** Composition estimates for moose in portions of Unit 18, 2004 – 2013 (Perry 2006, 2008, 2014; Rearden 2015).

Survey Area	Year	Bulls: 100 Cows	Calves: 100 Cows
Lowest Yukon	2004	-	64
	2005	37	92
	2010	30	69
	2013	40	48
Andreafsky <sup>a</sup>	2002	-	22
	2005	-	42
	2010	42	64
	2011	40	67

<sup>a</sup>Results include the Andreafsky and Paimiut survey areas. The Paimiut survey area is adjacent to the Andreafsky survey area, extending upstream from Pilot Village to Paimiut Village

### Cultural Knowledge and Traditional Practices

The Seward Peninsula region has been inhabited by humans for at least 12,000 years (Magdanz et al. 2007). The Inupiaq, Siberian Yupik, and Central Yup'ik people of the area have a deeply rooted practice of subsistence hunting, fishing, and gathering of wild resources. Until European contact in the early 19<sup>th</sup> century, many of these groups were semi-nomadic, moving with the seasons based on the availability of wild resources (Ray 1984).

There are two communities located within Unit 22A remainder, Stebbins and Saint Michael. Both are Central Yup'ik communities with strong family connections to the Yup'ik communities of the Yukon Delta and Lower Yukon River. Along with Elim, they are the only Central Yup'ik communities in the Seward Peninsula area (Magdanz et al. 2007). Stebbins and Saint Michael have a mixed economy of wage labor jobs, fishing, and subsistence.

Stebbins is located on the southern shore of Norton Sound, 120 miles southeast of Nome. The Yup'ik name for the village is *Tapraq*, while the name Stebbins first appeared in 1900 (ADCCED 2019a). The community is located in the Nome Census Area and encompasses 36 square miles of land and two square miles of water (ADCCED 2019a). Stebbins was incorporated in 1969 and had an estimated population of 645 people in 2017 (ADLWD 2018). The community is accessible by air or water, and there is a 10.5 mile road connecting Stebbins with Saint Michael (Magdanz et al. 2007).

Saint Michael is also located on the southern shore of Norton Sound, on the opposite side of Saint Michael Island from Stebbins, 123 miles southeast of Nome. In 2017, Saint Michael had an estimated population of 389 people (ADLWD 2018). A trading post called Redoubt St. Michael was built by the Russian-American Company in 1833 in the area that is now Saint Michael. A U.S. military post

was established in 1897. This area also became an important area during the gold rush as a gateway to the Yukon River, with as many as 10,000 people living there during the gold rush (Kawerak 2019).

Large land mammals were not abundant in the Seward Peninsula area during the 1800s. Moose did not start immigrating into the area until the mid-1900s, and while caribou were hunted traditionally, their numbers declined in the mid-1800s (Dau 2000). Reindeer were introduced from Siberia in 1892 under a Federal program initiated by Sheldon Jackson, in part to provide more meat for the Inupiat people in the area (Dau 2000). Historically, people in the Seward Peninsula area hunted a variety of species. As moose moved into the region, opportunistic harvest of the animals grew.

In 2013, the most recent year for which comprehensive subsistence survey data is available for Stebbins, moose comprised 6% of per capita overall wild food harvest. 18.4% of Stebbins households attempted to harvest moose, with 12.6% being successful. Through significant sharing, 65.5% of households used moose (Mikow 2017). For 2006, the last year in which comprehensive subsistence survey data is available for Saint Michael, 20% of households attempted to harvest moose, and 16% were successful. With sharing, 49% of households used moose (Ahmasuk and Trigg 2007).

There is more information available on moose hunting practices in Stebbins than Saint Michael. In 2013, ADF&G Division of Subsistence documented a wide search area for moose, with residents traveling as far as the Yukon River communities of Alakanuk and Emmonak for their hunting (**Figure 2**; Mikow 2017). This may indicate difficulty finding moose locally, as well as reflecting cultural connections with these Yukon River communities. Search areas for moose documented by Mikow (2017) include public Federal lands in the vicinity of both Stebbins and Saint Michael.

Of the moose harvested by Stebbins households 77% occurs in August and September (spread evenly over the two months). A second period of moose hunting occurs in December and January and comprises 23% of the community's harvest of the species. However, lack of snow cover due to late freeze-up, low snowfall, and thinner ice on rivers, has made access to moose difficult and hazardous for hunters during recent winter hunting seasons (SPRAC 2017). The challenge posed by changing weather conditions was documented in ADF&G interviews conducted in Stebbins in 2014:

“Several key respondents explained that weather in recent years has made it difficult for hunters to take advantage of the winter hunt, a perspective that was echoed in a number of survey comments. Because of late freeze-up and lower snowfall, travel across the landscape has become difficult and, at times, treacherous. Scant snow cover hampered travel by snowmachine, and thinner ice made crossing rivers dangerous” (Mikow 2017:225).

Difficulty accessing moose in winter may increase pressure on residents to find moose in the fall. Of Stebbins households, 26% have report needing more moose in the most recent survey year, 2013 (Mikow 2017).

Caribou are not widely enough available to mitigate challenges to accessing moose. Of those households reporting under-harvest of large mammals in 2013, 12% indicated that they need more caribou. At its closest winter range, the Western Arctic herd is still 50 miles away from Stebbins. This

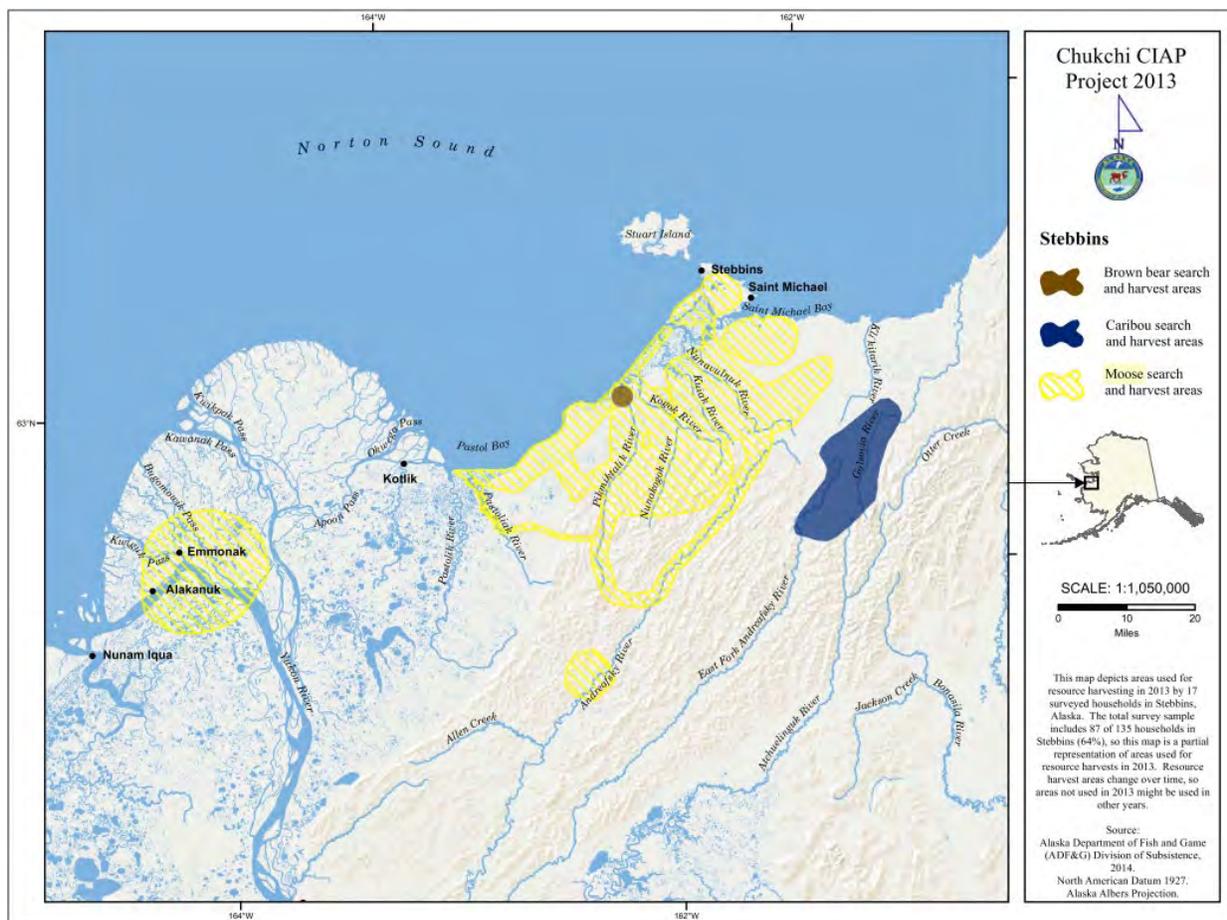


contrasts with 20 years ago, when caribou were closer to the community during winter months. Subsistence harvest for moose and caribou has historically been supplemented by use of reindeer, but freezing rain conditions now often result in widespread scattering of the herds (Mikow 2017).

### **Harvest History**

Most of the reported harvest within Unit 22A is attributable to local residents, defined here as Federally qualified subsistence users. On average, reported harvest was 27 moose annually for the 2003 – 2018 regulatory years. During this time period, 72% of the reported moose harvest was taken by local residents, while nonlocal residents of Alaska harvested 7%, and nonresidents harvested 18% of the total reported harvest (ADF&G 2019). For the most recent five years, 2014 – 2018, reported harvest has been higher, averaging 39 moose annually. For those years, local residents took a smaller percentage of the reported harvest (66%) while non-residents took a larger percentage (24%) (ADF&G 2019; OSM 2019).

Reported moose harvest in Unit 22A is not evenly distributed among the three hunt areas. This observation cannot be explained solely on the basis of human population size and expected harvest pressure. For instance, the Central Unit 22A hunt area is home to 36% of Unit 22A residents, but accounts for 58% of the total reported harvest. In contrast, the remaining two hunt areas (Unit 22A North and Unit 22A remainder) contain 64% of the human population but account for only 40% of the total moose harvest (ADLWD 2018; ADF&G 2019; OSM 2019). One likely explanation for this disparity is the difference among hunt areas in permit requirements and associated reporting rates. Specifically, Central Unit 22A requires a State or Federal registration permit, which includes penalties for non-reporting, while the remaining hunt areas require a harvest ticket that includes no such penalties.



**Figure 2.** Large land mammal hunting areas, Stebbins, 2013. Moose search area for the year in yellow. Search and harvest areas reflect the practices of those individuals interviewed for a single year, and should not be taken as a comprehensive indication of the extent of subsistence search and use areas by the community. (Credit: Mikow 2017.)

This suggests that reported harvest (**Figure 3**) does not sufficiently represent actual harvest within Unit 22A remainder. This is likely particularly true among local users. However, additional insight into local use can be gained by considering results from household surveys. For instance, in 2005 residents of Stebbins and St. Michael reported harvesting 5 and 2 moose, respectively (ADF&G 2019). However, harvest data obtained from community surveys conducted by Kawerak, the regional Native Association, indicate that 26 moose were harvested by residents of Stebbins and 17 moose were harvested by residents of St. Michael that year (Ahmasuk and Trigg 2007). More recently, in 2013, Stebbins residents reported no moose harvest but household surveys indicate that 20 moose were taken, primarily in August and September (Mikow 2017). Annual community harvest data is only sporadically available for any given community, but typically exceeds reported harvest for the years it is available. Acknowledging that community harvest data is a snapshot and that trends over time may be more revealing, these community surveys are an important supplement to reported harvest when estimating total harvest among local users.

Reported harvest is likely to be a relatively reliable accounting of harvest among nonresident hunters. Assuming so, nonresident harvest is increasing. For the 2003 – 2008 time period, just 2 moose were

taken annually by nonresidents, while for the 2012 – 2018 time period, 6 moose were taken annually. In 2018, nonresident harvest was 15 moose, more than double that of any other previous year (ADF&G 2019) (**Figure 3**).

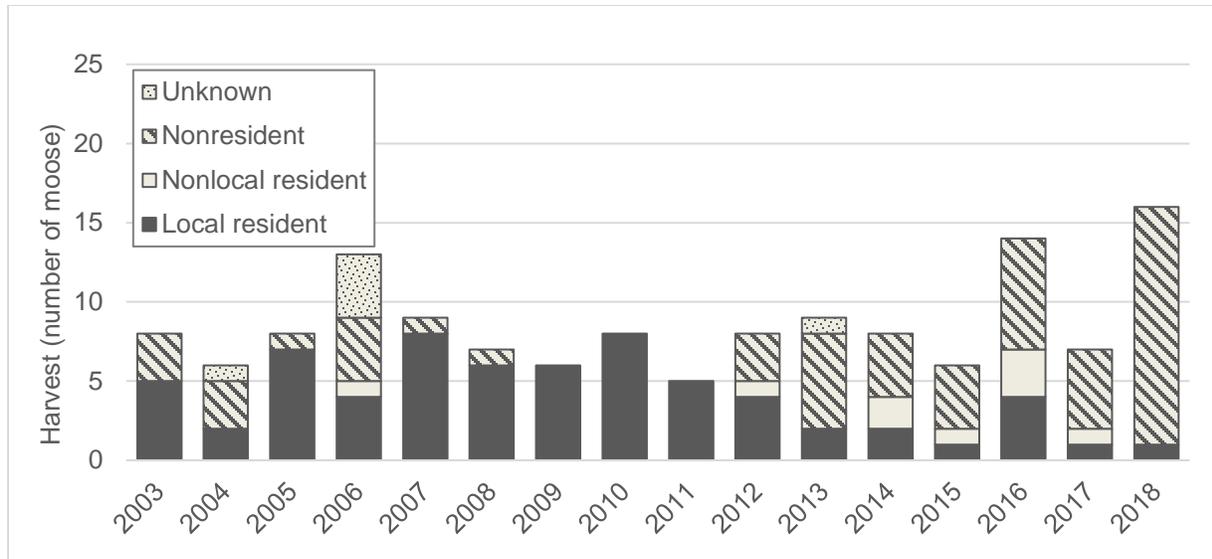
### Guide and Transporter Use

Guides are regulated by the Alaska Big Game Commercial Services Board. To operate within a specific guide use area, a guide must be registered in that guide use area and it must be within a game management unit in which they are licensed to conduct hunts. In addition, guides must be authorized to operate within a given area by the public or private land owner (ADCCED 2019b). In Guide Use Area 22-07, which encompasses Unit 22A remainder, there are five active guides (ADCCED 2019b) though the closure currently precludes commercial use of Federal public lands within this area.

The bulk of the Federal public lands within Unit 22A remainder are managed by the Yukon Delta National Wildlife Refuge (Refuge) (**Figure 1**). The Refuge maintains an exclusive guide concession for the Andreafsky portion of the Refuge, which includes southern Unit 22A and adjacent areas in Unit 18. This concession, which is awarded to a single competitor every ten years, is currently held by the proponent of this proposal. He currently guides clients on Federal and non-Federal lands adjacent to the closed area, and is limited to 8 moose annually. Transporters are also authorized to work in the Andreafsky area. There is no limit on the number of transporters that can operate in a given area, though there are limits on the number of people they may take in (Rearden 2019, pers. comm.).

BLM, which also manages lands within Unit 22A remainder, requires guides to secure permits to operate on Federal public lands. Unlike the Refuge guide use program, the BLM program does not limit the number of permits issued to guides. Currently, six guides are permitted on BLM lands in Unit 21E, where conditions are reported to be crowded. This has generated interest in operating out of Unit 22A (Seppi 2017, pers. comm., 2019, pers. comm.). Currently, none of the guides authorized by the Big Game Commercial Services Board to operate in Guide Use Area 21-01 (the area adjacent to Unit 22A remainder) are authorized to work in Guide Use Area 22-07, though all of the five guides already authorized to work in 22-07 could pursue a BLM permit. Under BLM rules, transporters are not required to secure permits prior to operating on public BLM lands (Seppi 2017, pers. comm., 2019, pers. comm.).

At its April 2019 meeting, the Council expressed concern about the potential impacts of guided moose hunting on moose migration into Unit 22A.



**Figure 3.** Reported moose harvest by user group in the Unit 22A remainder hunt area, 2003 – 2018 (ADF&G 2019).

**Effects of the Proposal**

If this proposal is adopted, Federal public lands in Unit 22A remainder will be open to all users Sep. 1 – Sep 30. This has the potential to increase harvest due to an increase in nonlocal use, including by guided hunters. On Refuge lands, this increase is expected to be limited since a single guide is authorized to use this area. On BLM lands, where all properly licensed and registered guides could secure permits, the increase might be more significant, though the smaller amount of BLM land may limit the influx of guides. More uncertain is the effect of unguided nonlocals. Many transporters could be authorized to operate on Federal public lands Unit 22A and it is not unlikely that rescission of the Federal lands closure will result in increased interest by nonlocal users seeking transport, or by those equipped to hunt without professional support.

Given our limited understanding of the population status in the specific area, there is some uncertainty whether additional harvest will have a significant impact on the moose population. However, it is expected that the population in this area is increasing, consistent with those in neighboring areas. Although unquantified, it is also likely that dispersal from neighboring high density populations is occurring. Collectively, this suggests that the population in Unit 22A can sustain at least some additional harvest, without jeopardizing the conservation status of the population.

If this proposal is adopted, it would primarily benefit nonlocal hunters and guides, who would have access to Federal public lands during the 30-day nonresident season. It is unclear whether this additional opportunity would come at the expense of Federally qualified subsistence users. Local users report that moose are an important resource, and that they are unable to harvest enough to meet their needs.

The fact that Federally qualified subsistence users are having difficulty harvesting moose during winter due to decreased snow cover could be increasing pressure on the fall harvest, which coincides with the proposed opening to non-Federally qualified users. Thus, opening Federal lands could increase competition and conflict between hunters in the fall, making it even more difficult for Federally qualified subsistence users to obtain the moose they need. However, it is also possible that opening public Federal lands to non-Federally qualified users would more evenly distribute hunters throughout the area, reducing spatial conflicts.

## **OSM CONCLUSION**

**Oppose** Proposal WP20-42.

### **Justification**

Metrics from adjacent moose population suggest that the Unit 22A remainder moose population may be growing. In particular, Unit 18 and Unit 21E support higher moose densities, supporting the supposition that neighboring populations are influencing moose density in Unit 22A through dispersal. This suggests that the population can sustain at least some additional harvest. Low recruitment rates in the Golsovia and Pitmiktalik drainages warrant caution, however.

Federally qualified subsistence residing in 22A remainder have reported difficulty in obtaining enough moose, a deficit not being filled by caribou. Reduced snow cover has made accessing moose in the winter more difficult, which in turn may place more pressure on subsistence hunters to harvest moose during the fall, the proposed timing of the opening to non-Federally qualified users.

When the Board considered this action in 2018, they declined to fully rescind the Federal public lands closure, noting that such a move may have been premature. Previously, only residents of Unit 22A had been permitted to hunt in Unit 22A remainder. In 2018, the Board expanded moose hunting on Federal public lands in Unit 22A remainder to all residents of Unit 22, who have a customary and traditional use determination. Along with the longer nonresident season implemented by the BOG in 2017, this followed an incremental approach to increasing the number of eligible moose hunters in 22A remainder. To date, we have only one year's harvest data to assess the effect of that regulatory change and there have been no updates on the moose population status since the Board's 2018 decision. Nor do we have updated subsistence surveys, which would show whether Federally qualified subsistence users are being successful in their attempts to harvest moose. Consequently, there is little additional evidence about the effects of the incremental opening available to inform a decision. Maintaining the status quo until additional information is available is the most conservative approach and provides an assurance that subsistence use continues to be prioritized. In addition, fully rescinding the closure is likely to result in increased pressure from non-Federally qualified users, and may result in increased guide and transporter use of the area. Given the temporal and spatial use patterns of local moose hunters, increased commercial traffic may result in increased conflict in this area. This may be exacerbated by the challenges Federally qualified subsistence users face in gaining access to harvestable moose.

## LITERATURE CITED

- Ahmasuk, A. and E. Trigg. 2007. Bering Strait region local and traditional knowledge pilot project: A comprehensive subsistence use study of the Bering Strait region. North Pacific Research Board Project Final Report, July 2007.
- ADCCED. 2019a. Community Histories Index. Alaska Department of Commerce, Community, and Economic Development. <http://explorenorth.com/library/communities/alaska/bl-Stebbins.htm>. Retrieved: May 28<sup>th</sup>, 2019.
- ADCCED. 2019b. Alaska Department of Commerce, Community, and Economic Development. <https://www.commerce.alaska.gov/web/cbpl/ProfessionalLicensing/BigGameCommercialServicesBoard.aspx>. Retrieved May 23, 2019.
- ADF&G. 2016. Operational plan for intensive management of moose in game management unit 21E during regulatory years 2017 – 2022. ADF&G, Division of Wildlife Conservation. Juneau, AK. 10 pp.
- ADF&G. 2019. Winfonet. Retrieved May 22, 2019.
- ADLWD. 2018. Alaska Population Overview, 2017 Estimates. Alaska Department of Labor and Workforce Development, Research and Analysis Section, Juneau, AK.
- BOG. 2017. Audio transcripts of the Alaska Board of Game proceedings. January 9, 2017. Bethel, AK. ADF&G. Juneau, AK
- Boudreau, T.A. 2002. Unit 19 and 21 moose management report. Pages 293 - 322 in C. Healy, editor. Moose management report of survey and inventory activities 1 July 1999–30 June 2001. ADF&G Project 1.0. Juneau, AK.
- Burch, M. 2019. Wildlife biologist. Personal communication: email. ADF&G. Anchorage, AK.
- Dau, J. 2000. Managing Reindeer and Wildlife on Alaska's Seward Peninsula. *Polar Research* 19(1): 57-62.
- FSB. 1995a. Transcripts of Federal Subsistence Board proceedings. April 12, 1995. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 1995b. Transcripts of Federal Subsistence Board proceedings. September 26, 1995. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 1996. Transcripts of Federal Subsistence Board proceedings. May 1, 1996. Office of Subsistence Management, FWS. Anchorage, AK.
- Gorn, T. 2012. Unit 22 moose management report. Pages 534–559 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009–30 June 2011. ADF&G. Juneau, AK.
- Gorn, T. and W.R. Dunker. 2014. Unit 22 management report. Pages 31-1 – 31-38 in P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011 – 30 June 2013. ADF&G. Juneau, AK.

- Kawerak, Inc. 2019. <http://kawerak.org>. Retrieved: May 28<sup>th</sup>, 2019.
- Magdanz, J., S. Tahbone, A. Ahmasuk, and D. Koster 2007. Customary Trade and Barter in Fish in the Seward Peninsula Area, Alaska. ADF&G.
- Mikow, E.H. 2017. Stebbins. Pages 202 – 258 *in* Chukchi Sea and Norton Sound Observation Network: Harvest and use of wild resources in 9 communities in Arctic Alaska, 2012 – 2014. ADF&G Division of Subsistence, Technical Paper No. 403. ADF&G. Juneau, AK.
- Nelson, R.R. 1995. Unit 22 moose survey-inventory progress report. Pages 405–419 *in* M. V. Hicks, editor. Management report of survey-inventory activities 1 July 1993 – 30 June 1995. ADF&G. Juneau, AK.
- OSM. 1998. Staff analysis WP98-86. Pages Seward Peninsula Region 33 – 42 *in* Federal Subsistence Board Meeting Materials. May 4 – 8, 1998. Office of Subsistence Management, USFWS. Anchorage, AK. 1449 pages.
- OSM. 2004. Staff analysis WP04-70. Pages 660–677 *in* Federal Subsistence Board Meeting Materials. May 18-21, 2004. Office of Subsistence Management, USFWS. Anchorage, AK. 849 pages.
- OSM. 2016. OSM proposal document library. Microcomputer database, accessed 1 June 2016. Anchorage, AK.
- OSM. 2019. Federal subsistence permit system. Microcomputer database, accessed May 26, 2019. Anchorage, AK.
- Peirce, J.M. 2014. Units 21A and 21E moose management report. Chapter 27, pages 27-1 – 27-15 *in* P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011 – 30 June 2013. ADF&G. Juneau, AK.
- Peirce, J.M. 2017. Wildlife biologist. Personal communication: email. ADF&G. McGrath, AK.
- Perry, P. 2006. Unit 18 moose management report. Pages 262 – 280 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2003 – 30 June 2005. ADF&G. Juneau, AK.
- Perry, P. 2008. Unit 18 moose management report. Pages 269 – 284 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2005 – 30 June 2007. ADF&G. Juneau, AK.
- Perry, P. 2014. Unit 18 moose management report. Chapter 20, pages 20-1 – 20-17 *in* P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011 – 30 June 2013. ADF&G. Juneau, AK.
- Persons, K. 2004. Unit 22 moose management report. Pages 496–522 *in* C. Brown, ed. Moose management report of survey and inventory activities 1 July 2001–30 June 2003. ADF&G. Juneau, AK.
- Ray, D.J. 1984. Bering Strait Eskimo. Pages 285–302 *in* W.C. Surtevant, ed. The handbook of North American Indians, Volume 5: Arctic. Smithsonian Institution, Washington D.C.
- Rearden, S. 2015. Unpublished survey report. USFWS. Bethel, AK. 5 pp.

Rearden, S. 2017. Wildlife biologist. Personal communication: phone and email. Yukon Delta NWR, USFWS. Bethel, AK.

Rearden, S. 2019. Wildlife biologist. Personal communication: phone and email. Yukon Delta NWR, USFWS. Bethel, AK.

Seppi, B. 2017. Wildlife biologist. Personal communication: phone and email. Anchorage Field Office. BLM. Anchorage, AK.

SPRAC. 2017. Transcripts of the Seward Peninsula Subsistence Regional Advisory Council proceedings. March 6 – 7, 2017. Nome, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

SPRAC. 2019. Transcripts of the Seward Peninsula Subsistence Regional Advisory Council proceedings. October 22 – 23, 2019. Nome, AK. Office of Subsistence Management, USFWS. Anchorage, AK.



## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Seward Peninsula Subsistence Regional Advisory Council

**Oppose.** Moose density in this area is unclear, and it is not currently known how additional harvest could impact moose populations. The Council also agrees with the OSM conclusion that this proposal would only benefit non-local hunters and could negatively affect subsistence users.

### INTERAGENCY STAFF COMMITTEE COMMENTS

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### ALASKA DEPARTMENT OF FISH AND GAME COMMENTS

**Wildlife Proposal WP20-42:** This proposal, submitted by Lance Kronberger, would rescind the federal public lands closure for moose in the remainder portion of Unit 22, that portion south of and including the Golsovia River drainage (22A Remainder) from Sep. 1 – Sep. 30 to coincide with the state nonresident moose season in the area.

**Introduction:** All federal lands in Unit 22A Remainder are currently closed to non-federally qualified users. Federally qualified users in the area are all Unit 22 residents. The proponent seeks to remove this federal public land closure during the nonresident general moose season.

**Impact on Subsistence Users:** The impact of this proposal on subsistence users is uncertain. Biological data are lacking regarding the status and trends of the moose population in 22A Remainder. It is difficult to surmise whether the approval of this proposal would increase harvest by non-federally qualified moose hunters, or simply change the distribution of harvest by those users who are currently restricted to hunting on state land.

**Impact on Other Users:** If adopted, this proposal will increase opportunity for non-federally qualified moose hunters in 22A Remainder. It may result in decreased hunting pressure on moose in state land.

#### **Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has a made positive customary and traditional use finding for moose in Unit 22.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for

customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for moose in Unit 22 is 250-300 animals. The moose seasons and bag limits for Unit 22 are:

<u>Units and Bag Limits</u>	<u>Open Season (Permit/Hunt #)</u>		
	<u>Bag Limit</u>	<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
<i>Remainder of Unit 22(A)</i>	<i>1 antlered bull HT</i>	<i>Aug. 1 – Sept. 30 Jan. 1 – Jan. 31</i>	
	<i>1 bull with 50-inch antlers with 4 or more brow tines on one side HT</i>		<i>Sept. 1 – Sept. 30</i>

<sup>a</sup> Subsistence and General Hunts.

Source: ADF&G. 2019. 2019-2020 Alaska hunting regulations. Effective July 1, 2019-June 30, 2020. Alaska Department of Fish and Game. Division of Wildlife Conservation, Anchorage.

**Conservation Issues:** Unit 22 has an population objective of 600-800 moose in Unit 22A. We lack biological information regarding the status of moose specific to 22A Remainder; however, we can draw inferences about the population from surveys in the adjacent area of Unit 22A, that portion in the Unalakleet River drainage and all drainages flowing into Norton Sound north of the Golsovia River drainage and south of the Tagoomenik and Shaktoolik River drainages (22A Central). A population survey was last conducted in 22A Central in the spring of 2017, resulting in a moose abundance estimate of 840 moose. These results indicated that the population had grown 9% annually over the period 2012-2017. As a result of these increased numbers, the harvestable surplus for moose in 22A Remainder was increased to 28 moose in RY2017, RY2018, and RY2019. The extrapolated estimate for 22A Remainder was 558 moose with a density of 0.35 moose/mi<sup>2</sup>. A fall composition survey in the Golsovia River drainage of 22A Remainder was last conducted in 2003 and resulted in an estimate of 50 bulls:100 cows and 67 calves:100 cows. A spring recruitment survey was conducted in Unit 22A Remainder in the spring of 2018 and resulted in an estimated recruitment of 10%, suggesting that

although the number of moose has increased in the area, the recruitment appears to be low. Unit 22A's comprehensive moose abundance estimate is 2,043 moose, indicating Unit 22A's moose population may be well above population objectives.

In adjacent Game Management Units (GMUs), moose populations appear to be at higher densities and increasing in numbers. In Unit 21E, just to the southeast of 22A Remainder, a 2019 population survey estimated  $8,607 \pm 27\%$  moose. To the south of 22A Remainder, Unit 18, in the Andrefsky River area, moose populations were last estimated in 2012 at  $3,170 \pm 24\%$  moose.

From RY14-RY18, a total of 61 moose were reported harvested by 77 total hunters in 22A Remainder, for an average hunter success rate of 79%. The average reported annual 22A Remainder moose harvest is 10 (range 5 – 16) moose. Of the hunters that report hunting in Unit 22A Remainder, 65% are nonresidents and 35% are Alaskan residents. Of the reporting residents, just 14% reporting hunters are from the local communities of St. Michaels or Stebbins. In addition to the reported harvest, the Division of Subsistence's big game harvest surveys suggest that at least 20 additional moose may be harvested annually by local St. Michaels and Stebbins residents, but are not reported (Mikow 2017). These data suggest that the actual harvest of moose in 22 Remainder may be as many as 30 moose annually.

**Enforcement Issues:** Ensuring hunters submit their harvest ticket reports continues to prove difficult, preventing wildlife managers from obtaining a precise count of how many moose are actually harvested within Unit 22A. Managers must therefore rely on estimates gathered from the Division of Subsistence's big game harvest surveys, which may be published up to a year after the survey was conducted, making it difficult to manage a population in real time.

**Recommendation:** ADF&G **SUPPORTS** this proposal. While the Department doesn't have current knowledge on the biological status of moose within Unit 22A Remainder, there are several adjacent Units that have medium to high density moose populations with good bull:cow ratios. Considering the combined reported harvest and estimated harvest of at least 30 moose in the area, required hunter reporting under state permit may provide better insight into the Unit 22A Remainder moose population.

#### Literature Cited

Mikow, E.H. 2017. Stebbins. Pages 202 – 258 in Chukchi Sea and Norton Sound Observation Network: Harvest and use of wild resources in 9 communities in Arctic Alaska, 2012 – 2014. ADF&G Division of Subsistence, Technical Paper No. 403. ADF&G. Juneau, AK.

<b>WCR20-10 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-10 reviews the closure to muskox hunting in Unit 22B, except by Federally qualified subsistence users.
<b>Current Regulation</b>	<p><b>Unit 22–Muskox</b></p> <p><i>Unit 22B—1 bull by Federal permit or State permit. Aug. 1 – Mar. 15</i></p> <p><i>Federal public lands are closed to the taking of muskox except by Federally qualified subsistence users hunting under these regulations</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIE CLOSURE REVIEW**  
**WCR20-10**

**Closure Location:** Unit 22B—Muskox

**Current Federal Regulation**

**Unit 22—Muskox**

*Unit 22B—1 bull by Federal permit or State permit.*

*Aug. 1 – Mar. 15*

*Federal public lands are closed to the taking of muskox except by Federally qualified subsistence users hunting under these regulations*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 22—Muskox**

*Residents: Unit 22B, east of the Darby Mtns., including drainages of Kwiniuk, Tubutulik, Koyuk and Inglutalik rivers—  
one bull by permit*

*TX105*

*Aug. 1 – Mar. 15*

*Residents: Unit 22B remainder—one bull by permit*

*TX105*

*Jan. 1 – Mar. 15*

**Regulatory Year Initiated:** 2001

**Regulatory History**

The Federal public lands closure for muskox in Unit 22B has been in place since 2001, when the Federal Subsistence Board (Board) adopted WP01-35. As a result of this proposal, which was submitted by the Seward Peninsula Muskox Cooperators' Group (the Cooperators), muskox harvest in Unit 22B was allowed by Federal regulation for the first time. The season was open Aug. 1 – Mar. 15 throughout the unit, harvest was limited to one bull by Federal or State permit, and Federal public lands were closed except to Federally qualified subsistence users. The harvest quota was set at 8 bulls.

The State season in Unit 22B was also implemented in 2001. At that time, the harvest of one bull was allowed by Tier II permit (TX105). In the portion of Unit 22B within the Fox River drainage upstream of the Fox River bridge and within one mile of the Council Road east of the Fox River bridge, the season was Nov. 1 – Mar. 15. In Unit 22B remainder, the season was Aug. 1 – Mar. 15.

In 2002, the Seward Peninsula Subsistence Regional Advisory Council (Council) submitted WP02-27, requesting that the Superintendent of the Western Arctic National Parklands be delegated the authority to set annual harvest quotas, in consultation with the Bureau of Land Management (BLM) and the Alaska Department of Fish and Game (ADF&G). They believed this would result in more efficient management of the Seward Peninsula muskox population. This proposal was adopted by the Board with modification to make minor adjustments to the regulatory language, as recommended by the Seward Peninsula and Northwest Arctic Subsistence Regional Advisory Councils.

In 2003, the Board considered WP03-41, submitted by Thomas Sparks of Nome. Originally submitted as a proposal to expand the customary and traditional use determination (C&T), the proponent amended the proposal to request that the Federal public lands closures in Units 22B and 22D be rescinded. The proponent argued that many Tier II users with a history of subsistence use of muskoxen were being excluded from Federal lands. The Seward Peninsula and the Northwest Arctic Subsistence Regional Advisory Councils recommended that the proposal be deferred until after it was considered by the Cooperators. ADF&G and the Interagency Staff Committee concurred with this recommendation and the Board deferred the proposal.

During the 2004 regulatory cycle, the proponent of WP03-41 withdrew the amended proposal and instead submitted WP04-71, requesting that the C&T in Units 22B and 22D be extended to all residents of Unit 22, except those from St. Lawrence Island. Previously, only residents of Unit 22B had C&T in Unit 22B and only residents of Unit 22D, excluding residents of St. Lawrence Island, had C&T in Unit 22D. The Board adopted the proposal with modification, as recommend by the Council, to 1) add residents of Unit 22C to the C&T determination in the portion of Unit 22B west of the Darby Mountains, and 2) add residents of Unit 22C and White Mountain to the C&T determination in the portion of Unit 22D in the Kougarok, Kuzitrin and Pilgrim River drainages.

In 2006, the Cooperators submitted WP06-41. This proposal requested that a designated hunter system be implemented for muskoxen throughout Unit 22. This request was supported by the Council, which noted that it was well aligned with traditional harvest and sharing practices. The Board adopted the proposal. The same year, the Federal public lands closure was reviewed through WCR06-10. The Office of Subsistence Management's analysis, which recommended retaining the closure, was presented to the Council, but the Council did not take action on the review.

In 2008, the Alaska Board of Game (BOG) made several regulatory changes affecting muskox in Unit 22B. Notably, the Unit 22B hunts became registration hunts, rather than Tier II hunts, with permit distribution limited to vendors in Nome and Unit 22B. Unit 22B hunt area boundaries were also adjusted. Within the portion of Unit 22B east of the Darby Mountains, including drainages of the Kwiniuk, Tubutulik, Koyuk and Inglutalik rivers, the season remained Aug. 1 – Mar. 15. In Unit 22B remainder, which now encompassed the entire western portion of the unit, the season was Jan. 1 – Mar. 15. The harvest limit remained one bull. Trophy destruction was required for all skulls removed from Unit 22.

The same year, the Cooperators submitted Temporary Special Action WSA08-08, requesting that the Federal muskox hunt in Unit 22B west of the Darby Mountains be limited to the communities of White Mountain and Golovin. This request followed a meeting of the Cooperators focused on developing recommendations for State and Federal muskox regulations. Specifically, the Special Action was submitted in response to the proposed Aug. 1 – Mar. 15 State season in the western portion of Unit 22B. The BOG's decision to delay opening the season until January 1, along with limited permitting locations and trophy destruction requirements, were influential in the Board's decision to reject this request.

The Federal public lands closure was reviewed in 2010 through WCR10-10. At that time, the Council voted to maintain the status quo. They believed the harvestable surplus was not sufficient to support use by non-Federally qualified users, and that maintaining the Federal lands closure was good for the conservation status of the population and allowed for the continuation of subsistence uses.

The BOG implemented changes for the 2012 regulatory year that allowed ADF&G flexibility to administer muskox hunt using Tier I, Tier II, or a combination of the two permit types, depending on the relationship between the estimated harvestable surplus and the amount necessary for subsistence. Under the State regulatory system, Tier I permits are used when it is anticipated that a reasonable opportunity can be provided to all residents who desire to engage in that subsistence use. In contrast, Tier II permits are used where it is anticipated that a reasonable opportunity to engage in the subsistence use cannot be provided to all eligible residents. In these situations, permit applications are scored to determine who is eligible for the limited number of permits. As consequence of the BOG's decision, implementation of Tier II muskox hunts in Unit 22B began in 2012.

In 2014, BLM submitted WP14-39, requesting that permit requirements be updated, that the BLM Anchorage Field Office Manager be designated as the Federal manager, and that language be added to authorize the Federal manager to restrict the number of Federal permits to be issued. The Council was supportive of the proposal but also recommended that the muskox season be shortened. Because changes in season openings were not considered by the public, tribes, or ANCSA corporations, the interagency staff committee recommended that the Board not act on this aspect of the Council's recommendation. The Board agreed and adopted this proposal with modification to make minor changes in the regulatory language and to delegate authority to close the season and determine annual quotas, the number of permits to be issued, and the method of permit allocation via a delegation of authority letter only.

Unit 22B is comprised of approximately 42% Federal public lands, consisting of 39% BLM managed lands, 2% National Park Service (NPS) managed lands, and less than 1% U.S. Fish and Wildlife Service (USFWS). See Figure 1.

**Closure last reviewed:** 2010 – WCR10-10. This closure was formally reviewed in 2010. However, the Unit 22B Federal muskox hunt was also the subject of Proposal WP14-39, in 2014.

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

Proposal WP01-35, which initiated the closure, was the result of a multi-year, cooperative effort of the Cooperators to establish a muskox harvest system that would be biologically sound and provide for continued subsistence use of this population. The Cooperators, composed of staff from ADF&G, BLM, NPS, USFWS, Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and representatives from other interested groups and organizations, have been involved in muskox management since the 1990s and have provided guidance for establishing harvest regulations under both State and Federal jurisdictions.

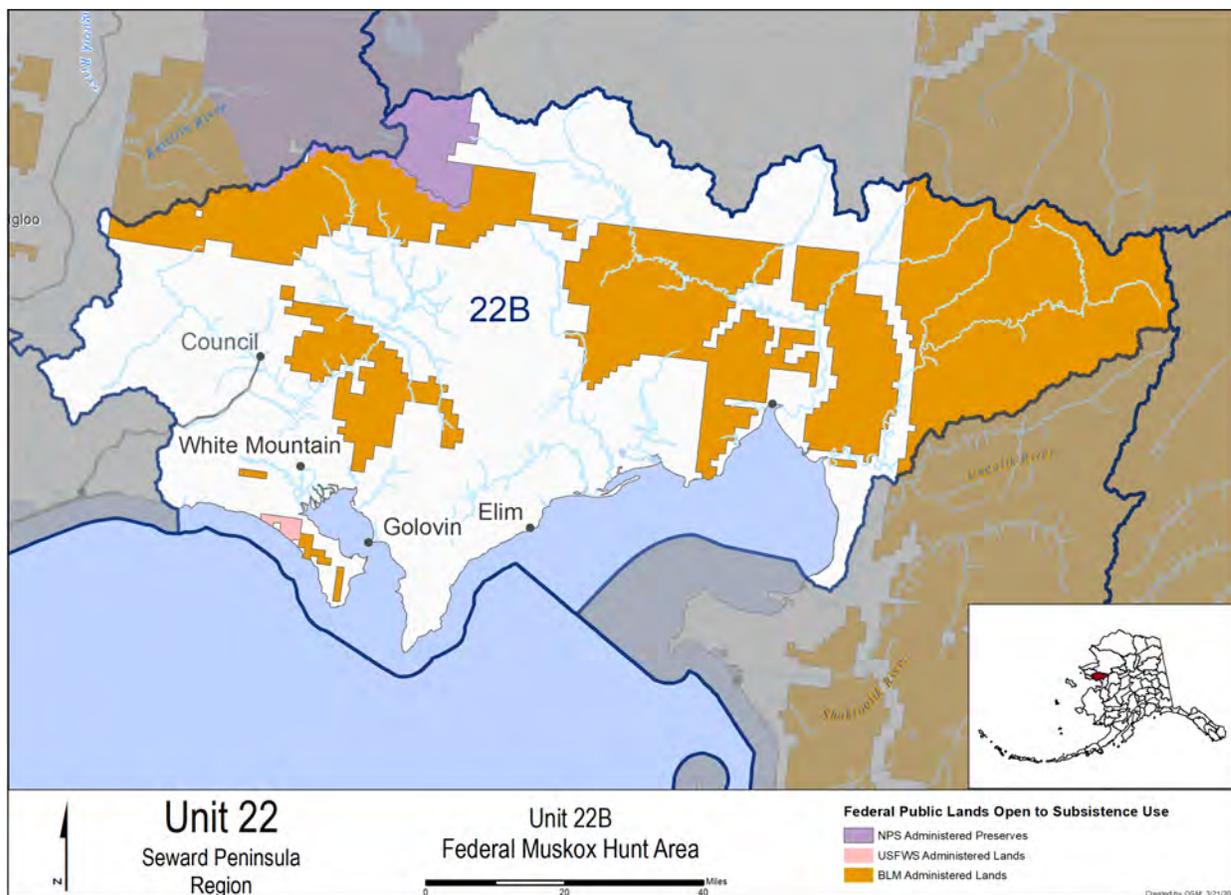
**Council Recommendation for Original Closure:**

The Seward Peninsula and Northwest Arctic Subsistence Regional Advisory Councils supported WP01-35 because it provided additional subsistence opportunity to Federally qualified subsistence users.

**State Recommendation for Original Closure:**

ADF&G supported the recommendation of the Councils for WP01-35. The regulatory changes, including the closure of Federal public lands in Unit 22B, were developed cooperatively at the August 2000 meeting of the Cooperators.





**Figure 1.** Unit 22B muskox hunt area.

### Biological Background

Muskoxen, which were once distributed throughout northern and western Alaska, were extirpated across their range by the late nineteenth century. A series of reintroductions and translocations in the twentieth century resulted in reestablishment of muskox populations in Units 18, 22, 23 and 26 (Gorn and Dunker 2015; Jones 2015; Hughes 2016). The first of these reintroductions occurred on Nunivak Island in 1935 and 1936, when 31 muskoxen were transported from Greenland. The Nunivak population was the source of the subsequent translocations of muskoxen to the southern Seward Peninsula in 1970 and 1981 (Gorn and Dunker 2015; Hughes 2016). While specific targets for population size and composition have not been established for the Unit 22 muskox population, management goals include allowing for continued growth and range expansion, and providing for sustained yield harvest.

The new muskox population on the Seward Peninsula demonstrated high annual growth rates for several decades. By 2010, the population had reached its peak of approximately 2,900 animals. Population growth was accompanied by range expansion to suitable habitat throughout the peninsula, resulting in well-established populations in Units 22A, 22B, 22C, 22D, 22E and southwest Unit 23, as well as continued colonization of peripheral areas (Gorn and Dunker 2015). Range-wide, the population experienced an apparent decline between 2010 and 2012, but has remained relatively stable

since. The 2017 range-wide population estimate, which includes peripheral areas, including portions of Units 22A and 21D, was 2,353 muskoxen (Gorn and Dunker 2015; Dunker 2017a).

Composition surveys indicate a range-wide decrease in mature bulls ( $\geq 4$  years of age) and short yearlings (10 – 15 months of age) since 2002, with low recruitment rates of particular concern (Gorn and Dunker 2015). As a result, composition data has become more important in harvest management of this population, with increased consideration given to the number of mature bulls in a population, rather than relying solely on estimates of abundance. Following reduced harvest rates beginning in 2012, the proportion of mature bulls showed improvement when surveyed in 2015 and remained relatively stable into 2017 (18% bulls), while recruitment climbed from 8% to 15% between 2015 and 2017 (Dunker 2017b).

Unit 22B population dynamics have been broadly similar to the range-wide population. The Unit 22B population appears to have peaked in 2012 – 2015 at over 450 muskoxen. The lag between the Seward Peninsula population peak and the Unit 22B population peak is likely the result of eastward redistribution of muskoxen from neighboring units, rather than factors relating to productivity or harvest (Gorn and Dunker 2015). Like the Seward Peninsula population, the Unit 22B population declined following its peak, declining 10% annually between 2015 and 2017 (**Table 1**). Also similar to the Seward Peninsula population, the proportion of mature bulls in the Unit 22B population declined after 2002, recovering somewhat and stabilizing in 2015 – 2017 at 22 – 25% bulls (**Table 1**). Recruitment in the Unit 22B population has also declined since 2002, when it was 18% (**Table 1**). Though it appears to have stabilized 2015 – 2017, it remains among the lowest values on record at 7% (Dunker 2017b). Due to the important social role prime-aged bulls play in predator defense and other activities, it is believed that high harvest rates of mature bulls may have contributed to the decline in bull:cow ratios and recruitment (Schmidt and Gorn 2013).

**Table 1.** Population and composition estimates for the Unit 22B muskox population (Gorn and Dunker 2015; Dunker 2017a, 2017b).

Year	Population estimate <sup>a</sup>	Mature Bulls: 100 cows	Short Yearlings: 100 cows	% Mature bulls (95% CI)	% Short yearlings (95% CI)
1992	3	-	-	-	-
1994	11	-	-	-	-
1996	51	-	-	-	-
1998	27	-	-	-	-
2000	159	-	-	-	-
2002	189	58	48	22% (20 – 24%)	18% (17 - 19%)
2004	-	39	39	18% (13 - 23%)	18% (13 - 23%)

Year	Population estimate <sup>a</sup>	Mature Bulls: 100 cows	Short Yearlings: 100 cows	% Mature bulls (95% CI)	% Short yearlings (95% CI)
2005	326	-	-	-	-
2007	329	48	35	21% (20 - 22%)	15% (14 - 16%)
2009	-	38	26	17% (12 - 22%)	11% (6 - 16%)
2010	420	30	25	17% (13 - 21%)	14% (11 - 17%)
2012	460	28	19	16% (13 - 19%)	10% (8 - 12%)
2015	455	44	12	22% (18 - 26%)	6% (4 - 8%)
2017	368	44	13	25% (22 - 29%)	7% (5 - 9%)

<sup>a</sup>Population estimates were obtained using minimum counts 1992 – 2007, and distance sampling 2010 – present.

### Harvest History

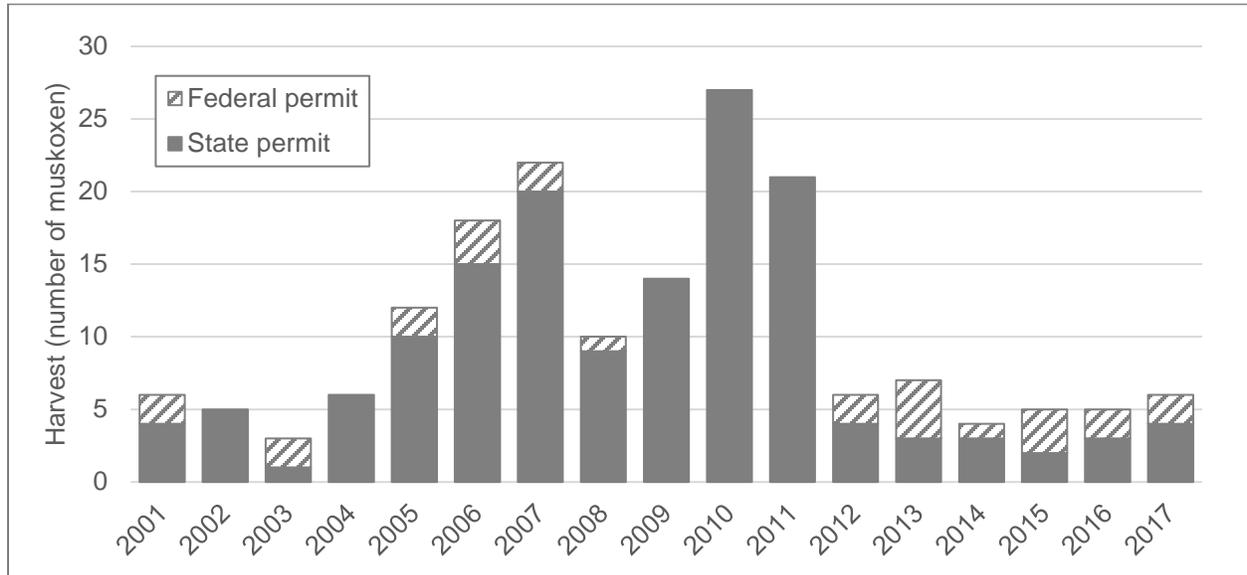
Prior to 2012, muskox harvest rates on the Seward Peninsula were calculated as a proportion of total population size. However, following declines in recruitment, bull:cow ratios, and overall population size, managers reassessed this strategy. Consequently, a new harvest management strategy was implemented in 2012. Since then, Unit 22 muskox harvest rates have been based primarily on the number of mature bulls in the population. Specifically, harvest quotas are calculated as 10% of the estimated number of mature bulls within the hunt area, and range-wide harvest targets are set at 2% of the estimated population size (Gorn and Schmidt 2013; Gorn and Dunker 2015).

This shift in harvest management was accompanied by a significant reduction in harvest. Range-wide, harvest declined from 111 muskox in 2011 (5.6% of the total population) to 28 muskoxen in 2012 (1.4% of the total population). Total harvest has remained below 2% of the total population, which has likely been influential in the subsequent increase in mature bulls (Gorn and Dunker 2015).

Within Unit 22B, harvest is currently administered by Tier II permit in State regulation and by registration permit in Federal regulation. Similar to range-wide harvest patterns, Unit 22B harvest rates dropped notably in 2012 under the revised harvest management strategy (**Figure 2**). In the six year period leading up to the change (2006 – 2011) harvest in Unit 22B averaged 18.7 muskoxen annually. In the most recent six year period (2012 – 2017) harvest has averaged 5.5 muskoxen annually (ADF&G 2018). Hunter success also differed among these two time periods, with 60% of hunters reporting successful harvest during the earlier time period and 45% reporting success since 2012.

Also notable since 2012 is the proportion of harvest taken by Federal registration permit (**Figure 2**). Since 2012, 42% of the Unit 22B muskox harvest has been taken by Federal permit, in contrast to 15% during the earliest years of the hunt, 2001 – 2007. The four-year period of 2008 – 2012 saw only 1%

of successful hunters using Federal permits (ADF&G 2018). Low utilization of Federal permits during these years coincides with the period that the ADF&G did not administer the hunt with Tier II permits. Given that less than half of the land in Unit 22B is Federal, and considering the remoteness of those lands, it is likely that local hunters prefer to hunt under State regulation when possible but may be unable to do so in Tier II hunts, where permit availability is limited.



**Figure 2.** Reported muskox harvest in Unit 22B by State and Federal permit for regulatory years 2001 – 2017 (ADF&G 2018). Harvest of muskox in Unit 22 is limited to bulls.

**OSM Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

**Justification**

The muskox population in Unit 22B has declined since 2015. It has also experienced declines in the proportion of mature bulls, and the estimated rate of recruitment is among the lowest on record. Given these conservation concerns, the current management approach, which includes a more conservative harvest strategy, the use of Tier II permits, and the closure of Federal public lands except to Federally qualified subsistence users, appears to be appropriate for the Unit 22B muskox population.

The consequence of this approach is that fewer muskoxen available for harvest. Relatively high Federal permit usage since 2012, when the new harvest guidelines were implemented and the Tier II hunt was reinstated, suggests that Federally qualified subsistence users are relying more heavily on Federal subsistence regulations to meet their subsistence needs. Retaining the Federal public lands closure will ensure that Federally qualified subsistence users continue to have the opportunity to meet their subsistence needs and, in combination with the State’s current management approach, provides for continued maintenance and improvement of the Seward Peninsula muskox population status.

**LITERATURE CITED**

- ADF&G. 2018. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>. Retrieved: September 19, 2018.
- Dunker, W.R. 2017a. 2017 Seward Peninsula muskox population survey summary. Unpublished memo. ADF&G. Nome, AK. 17pp.
- Dunker, W.R. 2017b. 2017 Seward Peninsula muskox composition survey summary. Unpublished memo. ADF&G. Nome, AK. 11pp.
- Gorn, T. and W.R. Dunker. 2015. Unit 22 muskox. Chapter 2, pages 2-1 – 2-44 *in* P. Harper and L.A. McCarthy, eds. Muskox management report of survey and inventory activities 1 July 2012 – 30 June 2014. ADF&G. Juneau, AK.
- Gorn, T. and J.H. Schmidt. 2013. Possible secondary population-level effects of selective harvest of adult male muskoxen. PLoS ONE. 8(6): e67493. doi:10.1371/journal.pone.0067493.
- Hughes, L.J. 2016. Unit 23 and 26A muskox. Chapter 3, pages 3-1 – 3-19 *in* P. Harper and L.A. McCarthy, eds. Muskox management report of survey and inventory activities 1 July 2012 – 30 June 2014. ADF&G. Juneau, AK.
- Jones, P. 2015. Unit 18 muskox. Chapter 1, pages 1-1 – 1-17 *in* P. Harper and L.A. McCarthy, eds. Muskox management report of survey and inventory activities 1 July 2012 – 30 June 2014. ADF&G. Juneau, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION**

### **Seward Peninsula Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-10. The Council voted to maintain the status quo for all of the Unit 22 muskox closure reviews due to the currently low muskox population in the region. The Council expressed that they are worried about extremely low population numbers, potential overharvest and susceptibility to bear predation. Overharvest could lead to a population decline to the point where the population may never be able to recover. The Council expressed alarm with the decline in muskox numbers and lack of herd recovery. The Council would like to see the closure remain in place to protect the remaining population while still allowing for a very small harvest by local subsistence users. Some Council members were open to closing the hunt entirely to give the muskox population an opportunity to grow.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

<b>WCR20-28 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-28 reviews the closure to muskox hunting in Unit 22D, west of the Tisuk River drainage and Canyon Creek, except by residents of Nome and Teller.
<b>Current Regulation</b>	<p><b>Unit 22D–Muskox</b></p> <p><i>Unit 22D—that portion west of the Tisuk River drainage and Canyon Creek—1 bull by Federal Permit or State Permit.      Sept. 1 – Mar. 15</i></p> <p><i>Federal public lands are closed to the harvest of musk ox except by residents of Nome and Teller hunting under these regulations.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW  
WCR20-28**

**Closure Location:** Unit 22D—Muskox

**Current Federal Regulation**

**Unit 22D—Muskox**

*Unit 22D—that portion west of the Tisuk River drainage and Canyon Creek—1 bull by Federal Permit or State Permit. Sept. 1 – Mar. 15*

*Federal public lands are closed to the harvest of musk ox except by residents of Nome and Teller hunting under these regulations.*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 22D—Muskox**

*Unit 22D—that portion west of the Tisuk River drainage, west of the west bank of the unnamed creek originating at the unit boundary opposite the headwaters of McAdam's Creek and west of the west bank of Canyon Creek to its confluence with Tuksuk Channel—One bull by permit TX103 Jan 1 – Mar 15*

*All skulls require trophy destruction at time of take in the field subject to permit conditions; specimens required*

**Regulatory Year Initiated:** 1996

**Regulatory History**

A cooperative muskox management effort for the Seward Peninsula was begun in 1993 with the creation of the Seward Peninsula Muskox Cooperators Group. Muskox management efforts were guided by recommendations from this group, and the Seward Peninsula Cooperative Muskox Management Plan (1994) established the guiding management goals for muskoxen in this region.

In 1995, Proposal WP95-44 was adopted by the Federal Subsistence Board (Board) to establish the first Federal muskoxen hunt on the Seward Peninsula and granted a Federal subsistence priority for rural Alaskan residents with a customary and traditional determination for muskoxen in Unit 22. The Board established a season of Sept. 1 – Jan. 31 for Units 22D, 22E, and 23 west of and including the



Buckland River drainage (Unit 23 SW), and limited the harvest to bulls with a quota of 3% of the population from the most recent census (FSB 1995a).

In August 1995, the Board rejected two Requests for Reconsideration (R95-04 and R95-05), but revised the harvest quota for Unit 22D reducing it from 12 to 2 muskoxen. The Board made this change in response to concerns for the maintenance of a healthy muskox population (FSB 1995b).

In 1996, Proposal WP96-51 was adopted by the Board to increase the harvest from two to eight muskoxen in Unit 22D. The proposal was submitted by the Seward Peninsula Subsistence Regional Advisory Council to increase the harvest quota to 12 muskoxen but was adopted with modification to increase the harvest quota to 8 muskoxen.

In 1997, the Board denied a Request for Reconsideration (R96-06) to keep the harvest quota set at eight muskox, but stratified Unit 22D into two permit areas comprising Bureau of Land Management (BLM) lands and Bering Land Bridge National Preserve (NPS lands), with half of permits designated in each area (FSB 1997:49). This decision was based on harvest information indicating all muskoxen harvest in Unit 22D was on BLM land. The split of permits was intended to encourage subsistence hunters to harvest from NPS lands in the eastern end of the unit.

In 1998, the Seward Peninsula Subsistence Regional Advisory Council submitted Proposal WP98-89 to extend the season (Sept. 1 – Jan. 31) three months to Aug. 1 – Mar. 31 for Units 22D, 22E, and Unit 23SW. However, as part of the consensus agenda, Proposal 89 was adopted with modification by the Board to extend the season to Aug. 1 – Mar. 15 in Units 22D and 22E and that portion of Unit 23. This modification was made due to biological concerns that hunting in late March could stress cows shortly before the calving season.

A shared Federal and State permit system for muskox on the Seward Peninsula was supported by the Seward Peninsula and Northwest Arctic Subsistence Regional Advisory Councils and adopted by the Board in 1998 (FSB 1998). In January 1998, the Seward Peninsula Muskox Cooperators met to discuss options for a combined Federal and State muskox harvest on the Seward Peninsula. The group reached consensus involving management on a subunit basis, allowing for continued growth of the population and increased harvest opportunities, with the intent that the Muskox Management Plan would be amended in the future to reflect these changes. Six affected villages considered allowing State harvest as a means to increase harvest opportunities. Individual villages made decisions on the percent harvest rate and how the harvest should be divided between the State and Federal systems within their respective subunits. Village recommendations were summarized in a resolution written and adopted by the Seward Peninsula Subsistence Regional Advisory Council in 1998 and subsequently presented to the Alaska Board of Game (BOG), which approved a Tier II subsistence muskox hunt for the Seward Peninsula with the assumption that this would be part of a combined Federal/State harvest program. Also in 1998, the Board followed the recommendations of the Seward Peninsula and Northwest Arctic Councils and approved a special action (WSA97-14) establishing these regulations for the 1998/99 Federal subsistence muskox season (FSB 1998:24).

In 1999, Proposal WP99-46 put the temporary regulations in WSA97-14 into permanent regulation. Due to the long traveling distances needed to reach Federal lands and the poor travel/snow conditions during that time, the six affected villages supported the combination of the State and Federal harvest systems to create more harvest opportunities due to declining hunter success rates under the Federal subsistence harvest. The combined Federal and State harvest was adopted into permanent State regulation by the BOG in 1998. The consensus was to manage on a subunit basis within Unit 22 and Unit 23SW, to allow for continued growth of the muskoxen population in this region and to increase harvest opportunities. Sharing the harvest quota between Federal and State systems helped meet the subsistence needs of the local users that may not have been met under only the Federal or State system separately. The cooperative management dispersed hunting pressure over an entire area regardless of land ownership to create a more biologically sound management approach (OSM 2001).

In 2000, the Board adopted Proposal WP00-56 to remove the split of two Federal permit areas, one on NPS land and the other on BLM land, as designated in 1997 in Unit 22D. Six of the Federal permits were then transferred into the State Tier II system.

In 2001, Proposal WP01-35 was adopted and changed the harvest limits in Unit 22 and Unit 23SW from one bull to one muskox and quotas were put in place for each hunt area

Proposal WP02-37 was adopted by the Board at its May 2002 meeting and authorized the Superintendent of the Western Arctic National Parklands to announce harvest quotas and any needed closures in consultation with the Alaska Department of Fish and Game (ADF&G) and BLM.

In 2004, Proposal WP04-71 requested that the customary and traditional use determination for muskox for Units 22B and 22D be expanded to include all residents of Unit 22, excluding residents of St. Lawrence Island. The proposal was adopted with modification by the Board and divided the Unit 22D customary and traditional use area into Unit 22D within the Kougarok, Kuzitrin, and Pilgrim river drainages and Unit 22D remainder and added residents of Unit 22C and White Mountain to the customary and traditional use determination for Unit 22D in the Kougarok, Kuzitrin, and Pilgrim River drainages hunt area.

In 2006, Proposal WP06-41 established the use of a designated hunter permit for muskoxen in Unit 22 by Federally qualified subsistence users. Special provisions allowed a Federally qualified subsistence user to designate another Federally qualified subsistence user to take muskoxen on their behalf, unless the recipient is a member of a community operating under a community harvest system.

In 2008, the BOG adopted Proposal 77 with modification. This changed the framework of the Seward Peninsula muskoxen hunts by adopting a combination of Tier I Subsistence registration hunts and drawing permit hunts. This ended the Tier II permit hunts that had been in place since 1998 (Gorn 2011, Hughes 2018, pers. comm.)

In 2009, State Emergency Order 05-11-09 closed the State subsistence hunting season for muskoxen by registration permit in Unit 22D remainder on October 13, 2009, because the joint State/Federal

harvest quota of 16 muskoxen had been reached. Based on this closure, the Federal manager closed the Federal subsistence muskoxen hunt in Unit 22D remainder on October 17, 2009.

The Board approved Emergency Special Action WSA09-06 on December 30, 2009, reopening the winter muskoxen season within Unit 22D remainder (that portion within the Kougarok, Kuzitrin, and Pilgrim River drainages) from January 15 to March 15, 2009.

An expansion of the customary and traditional use determination for muskox in Unit 22D (WP10-73) was adopted with modification by the Board in May of 2010. This combined the portion of Unit 22D within the Kougarok, Kuzitrin, and Pilgrim river drainages customary and traditional use area with the Unit 22D remainder area. This also added residents of Unit 22B (White Mountain, Golovin, Elim, Council, and Koyuk) and Unit 22E (Wales and Shishmaref) to the customary and traditional use determination for all of Unit 22D.

In 2010, Proposal WP10-77 requested the Federal hunt areas for muskoxen within Unit 22D remainder be aligned with State regulations by establishing hunts in the Kougarok, Kuzitrin, and Pilgrim river drainages. The Board adopted Proposal WP10-77 with modification to establish the current Unit 22D Kuzitrin hunt area, which encompasses the Kougarok and Pilgrim river drainages (**Figure 1**).

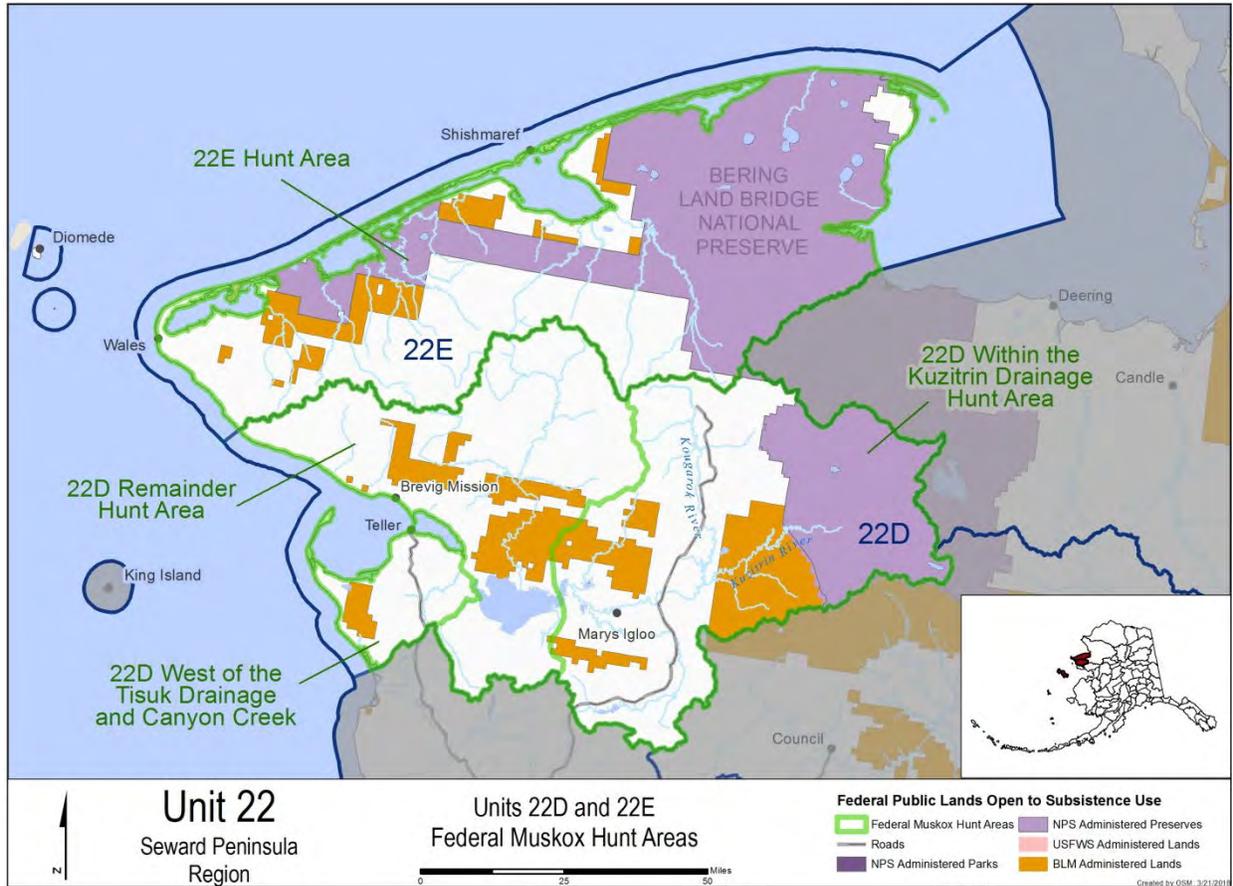
Proposal WP10-108 requested rescinding the closure of Federal public lands to the taking of muskoxen, except by Federally qualified subsistence users, in Unit 22D Southwest (that portion west of the Tisuk River drainage and Canyon Creek). Harvest quotas were not being met for this hunt area, leaving a harvestable surplus. Additionally, no Federal permits had been issued since 2006. The Board adopted this proposal to provide additional harvest opportunity, which ended the Federal lands closure in Unit 22D Southwest.

In 2011, the BOG adopted Proposal RC34 (A) making the muskox hunting regulation in Unit 22D part of a threshold-based hunt regime conditioned on the harvestable portion and the Amounts Necessary for Subsistence (ANS) available for the Seward Peninsula population, which includes all of Unit 22 and Unit 23SW (Dunker 2018, pers. comm.). The regulatory thresholds for this portion of the population define conditions for Tier II hunts (harvestable portion below the ANS), Tier I registration hunts (harvestable portion within the ANS range) and registration/drawing hunts (harvestable portion above ANS). This change was in response to significant population declines, low bull:cow ratios, and high harvest of mature bulls documented by the ADF&G. Based on the implementation of the new harvest guidelines intended to address the high harvest of mature bulls and the decline in bull:cow ratios and based on further population declines revealed in March 2012 population surveys, State Tier II hunts were required in Unit 22D for 2012-2013 regulatory year due to the reduction of the harvestable surplus being below the lower end of the ANS (Dunker 2018, pers. comm.).

In 2014, Proposal WP14-35 was adopted with modification by the Board and eliminated the cow hunt, provided the BLM Anchorage Field Manager with the authority to restrict the number of Federal permits to be issued, and closed Federal public lands to the harvest of muskox except by residents of Nome and Teller for Unit 22D Southwest. This restriction was suggested following an 804 user

prioritization analysis, significant declines in the muskox population, a low harvestable surplus, and concerns over sustainable harvests and maintaining rural subsistence priority.

Bureau of Land Management lands comprise approximately 11% of all lands in the 22D Southwest muskox hunt area. These are the only Federal public lands in this specified muskox hunt area.



**Figure 1.** Current muskox hunt areas in Units 22D and 22E.

**Closure last reviewed:** 2014– WP14-35

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

Section §815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The Federal Subsistence Board’s intent was to provide a subsistence priority for Alaskan residents with a Customary & Traditional use determination for muskox. The Board did not feel the State muskox

seasons would provide adequate opportunity and priority for subsistence users who provided active participation in the cooperative muskox management plan. Therefore, the Board determined that a Federal season managed via a Federal registration permit and the closure of Federal public lands to non-Federally qualified users was necessary.

#### **Council Recommendation for Original Closure:**

Proposal 44 (1995): Seward Peninsula Subsistence Regional Advisory Council recommendation – Support, to provide a subsistence priority for local users due to a lack of subsistence priority under State regulations; Northwest Arctic Subsistence Regional Advisory Council recommendation - No recommendation for Unit 22 since Unit 23 wasn't originally included in the proposal. Although these were the original recommendations from the Councils, both Councils agreed to support the modified proposal, voted on by the Board, which included that portion of Unit 23 including and west of the Buckland River drainage (FSB 1995a: 348).

#### **State Recommendation for Original Closure:**

Although ADF&G agreed with the intent of the cooperative muskox management planning effort, they believed it was advisable to postpone a decision on the proposal to close Federal public lands (Proposal 44) until the BOG had decided on State Regulations for a muskox hunt in Unit 22 and Unit 23SW. When the amendment that contained the closure language was proposed, the State had concerns in regards to permitting and wanted to be kept informed; however, no direct comments about the closure were made and the State's official recommendation was neutral.

#### **Biological Background**

Muskoxen have many adaptations to allow for their survival in arctic habitats, but some of these adaptations also limit muskoxen in some areas. The large body size, and therefore rumen size, allows muskoxen to consume and process large quantities of low quality forage that may be found on the tundra (Jingfors 1982, Klein 1992, Ihl and Klein 2001). This large body size, in addition to their thick undercoat and long guard hairs, allow muskoxen to stay warm in arctic climates and conserve energy (Klein 1992). However, these adaptations make it difficult for muskoxen to regulate their body temperature following high exertion activities, such as running, and lead to groups remaining more localized rather than migrating long distances like other arctic species, such as caribou (Klein 1992).

Muskoxen are more limited by snow than caribou due to their greater foot loading, low chest height, and smaller hooves making it more difficult to travel through deep or wind-hardened snow (Klein 1992, Ihl and Klein 2001) and therefore, tend towards coastal areas potentially due to the higher winds which reduce the snow depth during winter (Dau 2005). However, muskoxen in Unit 22 tend towards higher windblown slopes during the winter on the Seward Peninsula to avoid the deep snow drifts (Ihl and Klein 2001, Adkisson pers. comm. 2009). Muskoxen tend to be more sedentary during periods of heavy snow cover; however, adult bulls generally tend to be less conservative than the general population and will enter previously unused winter habitats due to distant movements during the fall in search of harems (Smith 1989).

The general lack of winter movements is a conservative energy budget survival strategy by muskoxen (Jingfors 1982). Winter forage for muskoxen is of very poor quality (Thing et al. 1987). As a behavioral response to poor forage quality, muskoxen settle onto sites with readily available forage so that minimum energy expenditures are made during foraging bouts (Klein 1992). Additionally, muskoxen spend significantly more time resting in early and late winter than in the post-calving, mid-summer, and rut periods (Jingfors 1982).

Muskoxen in winter appear to be particularly susceptible to disturbance, with sufficient disturbance causing site abandonment (Jonkel et al. 1975). Muskoxen that abandon a preferred wintering site may need to travel considerable distances before reaching an alternative foraging site.

Muskoxen were extirpated in Alaska by the late 1800s, and perhaps hundreds of years earlier on the Seward Peninsula (Gorn and Dunker 2015). Muskoxen were reintroduced to Units 22C and 22D of the Seward Peninsula in 1970, and have since expanded their range to the north and east (Gorn and Dunker 2015). Currently, muskoxen occupy suitable habitat in Units 22A, 22B West, 22C, 22D, 22E, and 23-Southwest.

Muskox management on the Seward Peninsula has been guided by recommendations from the Seward Peninsula Muskox Cooperators Group. The group is composed of staff from ADF&G, NPS, BLM, U.S. Fish and Wildlife Service (USFWS), Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and representatives from other interested groups or organizations. The Cooperators Group has not met since January of 2008, but information has been regularly provided to the Chair since that time (ADF&G 2016). The following management goals form the basis of the cooperative interagency management plan for Seward Peninsula muskoxen developed from 1992 through 1994 (Nelson 1994) and follow the guidelines of ADF&G Muskox Management Policies (ADF&G 1980):

- Manage population to allow for continued growth and range expansion of the Seward Peninsula Muskox.
- Provide for a limited harvest in a manner consistent with existing State and Federal laws by following the goals/objectives endorsed by the Seward Peninsula Muskox Cooperators Group and the Seward Peninsula Cooperative Muskox Management Plan.
- Manage muskoxen along the Nome road systems of Unit 22B and 22C for viewing, education, and other nonconsumptive uses.
- Work with local reindeer herding interests to minimize conflicts between reindeer and muskoxen.
- Protect and maintain the habitats and other components of the ecosystem upon which muskoxen depend.

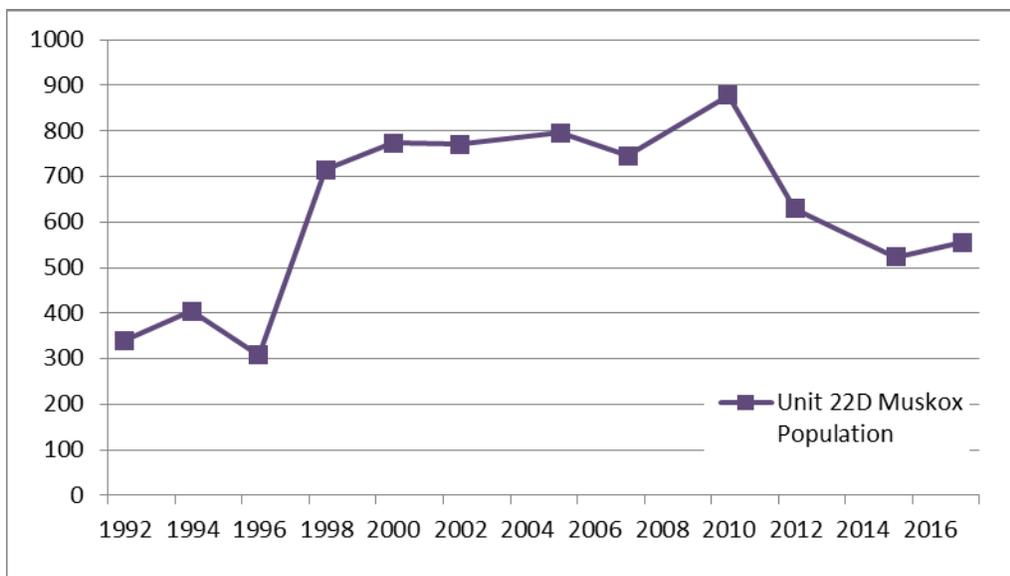
- Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.

After reintroduction, the muskox population experienced periods of growth between 1970 and 2000 (14% annual rate of increase) and 2000 and 2010 (3.8% annual rate of increase) (Gorn 2011). However, between 2010 and 2012 the muskox population declined 12.5% annually throughout the Seward Peninsula (Gorn 2012). Aspects of the recent decline were likely related to the high mortality rates of adult cows and declines in the number of short yearlings (10-11 month-old muskoxen) (Gorn 2012); however, some caution should be used when interpreting these mortality rates as they are based on a small sample of the population (Gorn 2011). Composition surveys also indicated declines in mature bulls between 2002 and 2010, which prompted changes to the method of determining harvest rates (Gorn 2011). Recent research suggested that selective harvest of mature bulls on the Seward Peninsula could be a driver of reduced population growth and that annual harvest be restricted to less than 10% of the estimated number of mature bulls (Schmidt and Gorn 2013). Following this change in methodology, the Seward Peninsula muskox population remained stable through 2017 (Dunker 2017).

In Unit 22D, the population followed a similar trend as the overall Seward Peninsula population. The population experienced growth from 1992 until approximately 2010, at which point the population declined and then remained stable until the most recent population survey in 2017 (Gorn and Dunker 2013, Dunker 2017; **Table 1, Figure 2**). The Unit 22D Southwest permit area similarly experienced a decline since 2010, but appeared to increase from 2015 through 2017 (Gorn and Dunker 2013, Dunker 2017; **Table 2**). Short yearling composition in Unit 22D showed an inverse trend to the population estimates (**Table 3, Figure 3**). The bull:cow ratios in Unit 22D followed the same trend as the population, with the number of mature bulls per 100 cows increasing through 2010 and then declining and stabilizing 2015-2017 (**Table 4, Figure 4**).

**Table 1.** Muskox population estimates in Unit 22D from 1992 to 2017.

Year	Unit	Muskox Population
1992	22D	340
1994	22D	405
1996	22D	308
1998	22D	714
2000	22D	774
2002	22D	771
2005	22D	796
2007	22D	746
2010	22D	878
2012	22D	629
2015	22D	523
2017	22D	556



**Figure 2.** Population fluctuations in Unit 22D between 1992 and 2017.

**Table 2.** Unit 22D Southwest hunt area muskox population estimates from 2010 to 2017

Year	Unit	Population
2010	22D SW	160
2012	22D SW	77
2015	22D SW	78
2017	22D SW	142

**Table 3.** Composition survey results in Unit 22D from 2002 to 2017.

Year	Unit	Mature Bulls:100 Cows	Short Yearlings:100 Cows
2002	22D	33	41
2006	22D	42	36
2010	22D	54	18
2011	22D	29	24
2012	22D	22	13
2015	22D	26	19
2017	22D	27	38



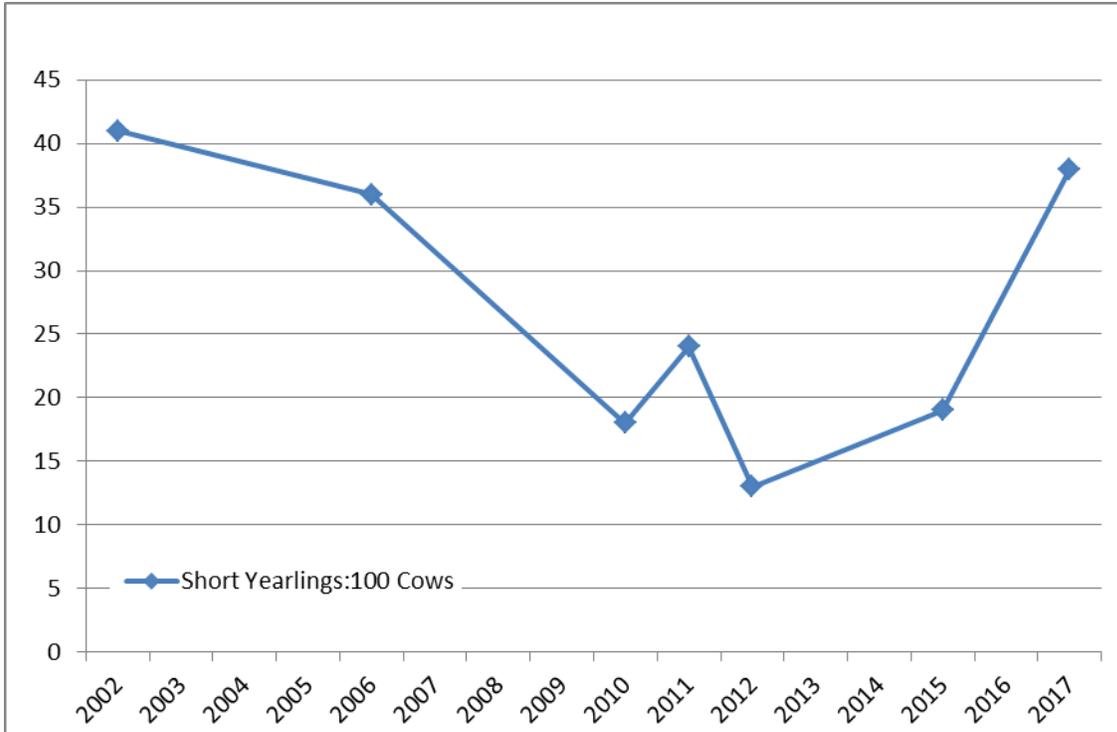


Figure 3. Short yearling composition survey estimates, in Unit 22D, between 2002 and 2017.

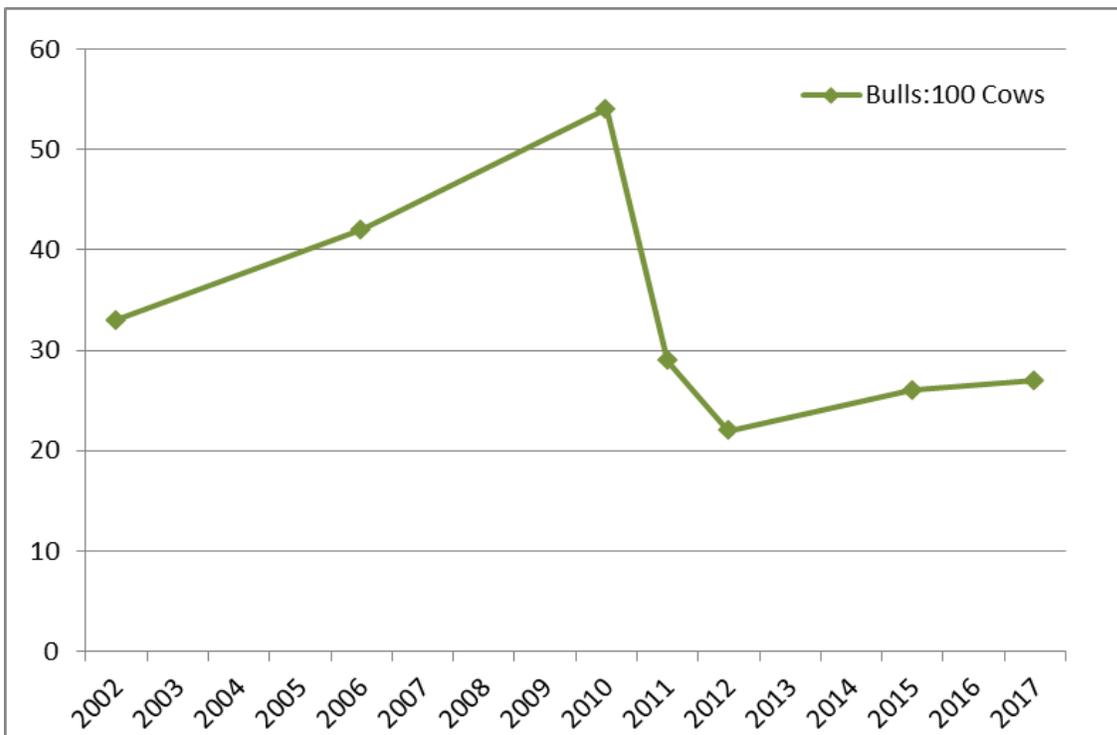


Figure 4. Bull composition survey estimates, in Unit 22D, between 2002 and 2017.

## Harvest History

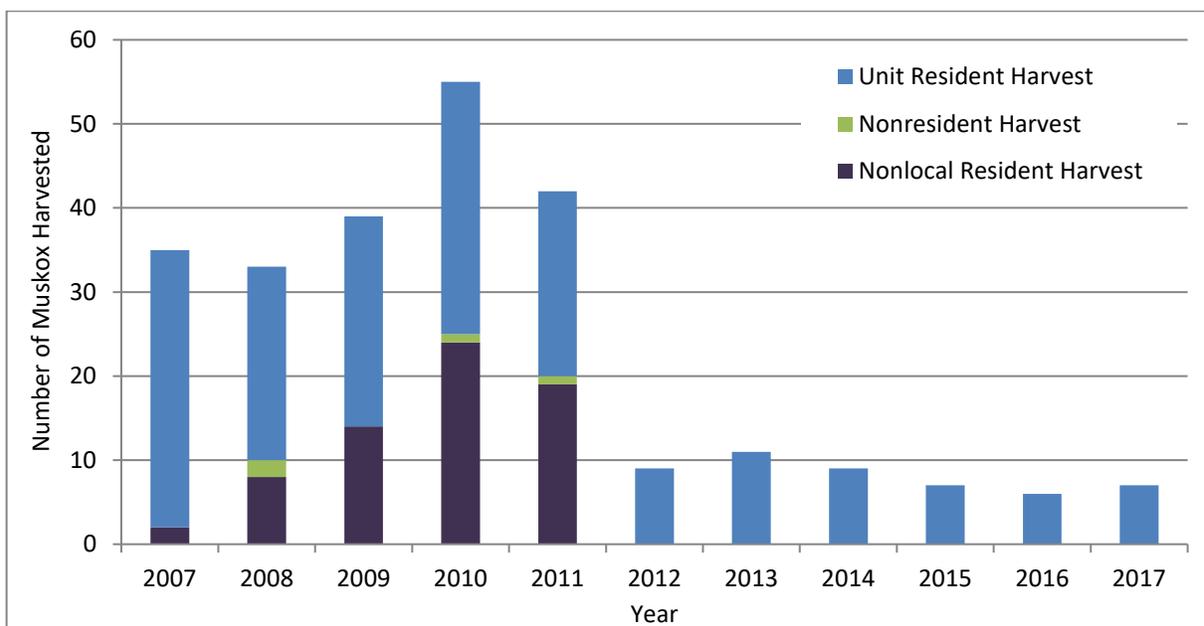
Muskox harvest in Unit 22 is based on population survey estimates on the Seward Peninsula. The allowable harvest is currently calculated as approximately 10% of the estimated number of mature bulls in a hunt area, and the overall range-wide harvest is calculated to be approximately 2% of the Seward Peninsula muskox population (Gorn and Dunker 2015). This method for evaluating the harvestable portion on the Seward Peninsula was put in place, starting in 2012, due to a decline in muskox abundance and mature bull:cow ratios (Schmidt and Gorn 2013, Dunker 2018, pers. comm.). Prior to this change, from 1998 to 2011, the harvest strategy was solely based on a percentage of hunt area muskox populations, with the harvest rate reaching up to 8% of a population in some areas (OSM 2014).

In Unit 22D, the average annual muskox harvest was 42 muskoxen from 2007 through 2011 (ADF&G 2018, Dunker 2018, pers. comm; **Table 4, Figure 5**). When the harvest management strategy was modified, in 2012, the harvest of muskox greatly decreased; nonresident harvest was no longer permitted and nonlocal resident harvest was greatly reduced (ADF&G 2018). Starting in 2012 through 2017, the State managed average annual harvest dropped to eight muskoxen in Unit 22D (ADF&G 2018), with Federally qualified subsistence users harvesting an average of one additional muskox by Federal registration permit annually (OSM 2018).

Unit 22D Southwest is currently managed under the Federal harvest permit FX2205 and State Tier II permit TX103 (**Table 5, Table 6**). In Unit 22D Southwest, the State harvest quota was reduced to one muskox in 2012, following the modification in harvest strategy (Dunker 2018, pers.comm.). Since 2012, the allowable harvest has remained low in this hunt area. In 2014, Federal public lands in Unit 22D Southwest were closed to the taking of muskox except by residents of Nome and Teller and the hunt was limited to bull muskox only under both Federal and State regulations. Following this modification, average annual harvest in this subunit was reported as one muskox for the 2014-2017 timeframe (Adkisson 2018, pers. comm., OSM 2018).

**Table 4.** Harvest of muskox by user residency in Unit 22D from 2007 through 2017 (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm.).

Year	GMU	Unit Resident Harvest	Nonlocal Resident Harvest	Nonresident Harvest	Unspecified	Total
2007	22D	33	2	0	0	35
2008	22D	23	8	2	0	33
2009	22D	25	14	0	4	43
2010	22D	30	24	1	3	58
2011	22D	22	19	1	1	43
2012	22D	9	0	0	0	9
2013	22D	11	0	0	0	11
2014	22D	9	0	0	0	9
2015	22D	7	0	0	0	7
2016	22D	6	0	0	0	6
2017	22D	7	0	0	0	7



**Figure 5.** Harvest of muskox in Unit 22D by user residency (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm.).

**Table 5.** Muskox harvest in Unit 22D Southwest broken down by State and Federal reported harvest (ADF&G 2018, Dunker 2018, pers. comm., OSM 2018).

Year	GMU	Federal Harvest (FX2205)	State Harvest (TX103)	Total Harvest	Allowable Harvest Estimate
2012	22D Southwest	0	0	0	1
2013	22D Southwest	0	1	1	1
2014	22D Southwest	1	1	2	1
2015	22D Southwest	0	0	0	1
2016	22D Southwest	0	1	1	1
2017	22D Southwest	0	1	0	1
2018	22D Southwest	-	-	-	2

**Table 6.** Permits issued for muskox harvest in Unit 22D Southwest (ADF&G 2018, Dunker 2018, pers. comm., OSM 2018).

Hunt Area	Year	Federal Permits Issued	State Permits Issued	Federal Hunt Permit	State Hunt Permit
22D West of Tisuk River	2012	0	1	FX2205	TX103
22D West of Tisuk River	2013	0	1	FX2205	TX103
22D West of Tisuk River	2014	1	1	FX2205	TX103
22D West of Tisuk River	2015	1	1	FX2205	TX103
22D West of Tisuk River	2016	1	1	FX2205	TX103
22D West of Tisuk River	2017	1	1	FX2205	TX103

**OSM Conclusion:**

- maintain status quo**
- modify or eliminate the closure**

**Justification**

In addition to direct mortality due to harvest, muskox survival could be susceptible to herd disturbances during winter months if caloric expenditures are too high. Harvest on the Seward Peninsula was reevaluated and reduced in 2012 due to a declining muskox population. Recently, some localized populations have experienced a slight increase in population size or have remained stable, but these populations still remain at much lower numbers than in the past. The current closure, in conjunction with decreased harvest quotas, have slowed or stalled the decline in muskox populations in this portion of the Seward Peninsula. This closure should remain in place to ensure that these muskox populations have the opportunity to reach healthy levels and to ensure that Federally qualified subsistence users continue to have the opportunity to harvest this subsistence resource into the future.

**LITERATURE CITED**

ADF&G. 1980. Muskox management policies. Pages X-1-X-4 in Alaska Wildlife Management Plans: Species Management Policies. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Miscellaneous Report. Project W-20-2. Juneau, AK.

ADF&G. 2016. Alaska Department of Fish and Game wildlife restoration grant. Federal Aid Annual Performance Report. Alaska Department of Fish and Game. Juneau, AK.

ADF&G. 2018. General Harvest Reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: August 3, 2018.

Adkisson, K. 2009. Subsistence Program Manager. Personal Communication: phone conversation. National Park Service. Nome, AK.

Adkisson, K. 2018. Subsistence Program Manager. Personal Communication: email. National Park Service. Nome, AK.

Dau, J. 2005. Unit 23 muskox management report. Page 38–48 in C. Brown, editor. Muskox management report of survey and inventory activities 1 July 2002–30 June 2004. Alaska Department of Fish and Game. Juneau, AK.

Dunker, W.R. 2017. 2017 Seward Peninsula muskox population survey summary. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.

Dunker, W.R. 2018. Area Biologist. Personal Communication: email. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.

FSB. 1995a. Transcripts of Federal Subsistence Board proceedings, April 12, 1995. Office of Subsistence Management. FWS. Anchorage, AK.

FSB. 1995b. Transcript of Federal Subsistence Board proceedings, August 15, 1995. Office of Subsistence Management. FWS. Anchorage, AK.

FSB. 1997. Transcripts of Federal Subsistence Board proceedings, April 10, 1997. Office of Subsistence Management, FWS. Anchorage, AK

FSB. 1998. Transcripts of Federal Subsistence Board proceedings, May 4, 1998. Office of Subsistence Management, FWS. Anchorage, AK

Gorn, T. 2011. Unit 22 muskox. Pages 16–47 in P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2008–30 June 2010. ADF&G. Project 16.0. Juneau, AK.

Gorn, T. 2012. 2012 muskox survey results memorandum. Alaska Department of Fish and Game. Nome, AK.

Gorn, T. and W. R. Dunker. 2013. Unit 22 muskox. Pages 17-51 in P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2013-2, Juneau, AK.

Gorn, T. and W. R. Dunker. 2015. Unit 22 muskox. Chapter 2, pages 2-1 through 2-44 in P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2012-30 June 2014. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2015-2, Juneau, AK.

Hughes, L. 2018. Wildlife Biologist. Personal Communication: email. National Park Service. Nome, AK.

Ihl, C. and D. R. Klein. 2001. Habitat and diet selection by muskoxen and reindeer in western Alaska. *Journal of Wildlife Management*. 65(4):964-972.

Jingfors, K. T. 1982. Seasonal activity budgets and movements of a reintroduced Alaskan muskox herd. *Journal of Wildlife Management*. 46(2):344-350.

Jonkel, C. J., D.R. Gray, and B. Hubert. 1975. Immobilizing and marking wild muskoxen in arctic Canada. *Journal of Wildlife Management*. 39(1):112-117.

Klein, D. R. 1992. Comparative ecological and behavioral adaptations of *Ovibos moschatus* and *Rangifer tarandus*. *Rangifer*. 12(2):47-55.

Nelson, R. 1994. Seward Peninsula cooperative muskox management plan. Unpublished report. Nome, AK.

OSM. 2001. Staff Analysis WP01-35. Pages 432–448 in Federal Subsistence Board Meeting Materials April 30–May 3, 2001. Office of Subsistence Management, FWS. Anchorage, AK. 615 pages.

OSM. 2014. Staff Analysis WP14-38. Supplemental Materials for Federal Subsistence Board Meeting April 15–May 17, 2014. Office of Subsistence Management, FWS. Anchorage, AK.

OSM. 2018. Federal Subsistence Permit System.

<https://subsistence.fws.gov/apex/f?p=104:53:14184345113765:::> Retrieved: August 3, 2018.

Schmidt, J.H. and T.S. Gorn. 2013. Possible secondary population-level effects of selective harvest of adult male muskoxen. *PLoS ONE* 8(6): e67493.doi:10.1371/journal.pone.0067493.

Smith, T. E. 1989. The role of bulls in pioneering new habitats in an expanding muskox population on the Seward Peninsula, Alaska. *Can. J. Zool.* 67: 1096-1101.

Thing, H., D. R. Klein. K. Jingfors, and S. Holt, 1987. Ecology of muskoxen in Jameson Land, northeast Greenland. *Holarctic Ecology*. 10:95-103.

**SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS****Seward Peninsula Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-28. The Council voted to maintain the status quo for all of the Unit 22 muskox closure reviews due to the currently low muskox population in the region. The Council expressed that they are worried about extremely low population numbers, potential overharvest and susceptibility to bear predation. Overharvest could lead to a population decline to the point where the population may never be able to recover. The Council expressed alarm with the decline in muskox numbers and lack of herd recovery. The Council would like to see the closure remain in place to protect the remaining population while still allowing for a very small harvest by local subsistence users. Some Council members were open to closing the hunt entirely to give the muskox population an opportunity to grow.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

<b>WCR20-29 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-29 reviews the closure to muskox hunting in Unit 22D, remainder, except by residents of Elim, White Mountain, Nome, Teller and Brevig Mission.
<b>Current Regulation</b>	<p><b>Unit 22D–Muskox</b></p> <p><i>Unit 22D remainder—1 bull by Federal permit or Aug. 1 – Mar. State permit. 15</i></p> <p><i>Federal public lands are closed to the taking of muskox except by residents of Elim, White Mountain, Nome, Teller, and Brevig Mission hunting under these regulations</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>



**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-29**

**Closure Location:** Unit 22D—Muskox

**Current Federal Regulation**

**Unit 22D—Muskox**

*Unit 22D remainder—1 bull by Federal permit or State permit. Aug. 1 – Mar. 15*

*Federal public lands are closed to the taking of muskox except by residents of Elim, White Mountain, Nome, Teller, and Brevig Mission hunting under these regulations*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 22D—Muskox**

*Unit 22D remainder—One bull by permit TX102 Aug 1 – Mar 15*

*All skulls require trophy destruction at time of take in the field subject to permit conditions; specimens required*

**Regulatory Year Initiated:** 1996

**Regulatory History**

A cooperative muskox management effort for the Seward Peninsula was begun in 1993 with the creation of the Seward Peninsula Muskox Cooperators Group. Muskox management efforts were guided by recommendations from this group and the Seward Peninsula Cooperative Muskox Management Plan (1994) established the guiding management goals for muskoxen in this region.

In 1995, Proposal WP95-44 was adopted by the Federal Subsistence Board (Board) to establish the first Federal muskoxen hunt on the Seward Peninsula and granted a Federal subsistence priority for rural Alaskan residents with a customary and traditional determination for muskoxen in Unit 22. The Board established a season of Sept. 1 – Jan. 31 for Units 22D, 22E, and 23 west of and including the Buckland River drainage, and limited the harvest to bulls with a quota of 3% of the population from the most recent census (FSB 1995a).

In August 1995, the Board rejected two Requests for Reconsideration (R95-04 and R95-05), but revised the harvest quota for Unit 22D reducing it from 12 to 2 muskoxen. The Board made this change in response to concerns for the maintenance of a healthy muskox population (FSB 1995b).

In 1996, Proposal WP96-51 was adopted by the Board to increase the harvest from two to eight muskoxen in Unit 22D. The proposal was submitted by the Seward Peninsula Subsistence Regional Advisory Council to increase the harvest quota to 12 muskoxen but was adopted with modification to increase the harvest quota to 8 muskoxen.

In 1997, the Board denied a Request for Reconsideration (R96-06) to keep the harvest quota set at eight muskox, but stratified Unit 22D into two permit areas comprising Bureau of Land Management (BLM) lands and Bering Land Bridge National Preserve (NPS lands), with half of permits designated in each area (FSB 1997:49). This decision was based on harvest information indicating all muskoxen harvest in Unit 22D was on BLM land. The split of permits was intended to encourage subsistence hunters to harvest from NPS lands in the eastern end of the unit.

In 1998, the Seward Peninsula Subsistence Regional Advisory Council submitted Proposal WP98-89 to extend the season (Sept. 1 – Jan. 31) three months to Aug. 1 – Mar. 31 for Units 22D, 22E, and Unit 23 SW. However, as part of the consensus agenda, Proposal 89 was adopted with modification by the Board to extend the season to Aug. 1 – Mar. 15 in Units 22D and 22E and that portion of Unit 23. This modification was made due to biological concerns that hunting in late March could stress cows shortly before the calving season.

A shared Federal and State permit system for muskox on the Seward Peninsula was supported by the Seward Peninsula and Northwest Arctic Subsistence Regional Advisory Councils and adopted by the Board in 1998 (FSB 1998). In January 1998, the Seward Peninsula Muskox Cooperators met to discuss options for a combined Federal and State muskox harvest on the Seward Peninsula. The group reached consensus involving management on a subunit basis, allowing for continued growth of the population and increased harvest opportunities, with the intent that the Muskox Management Plan would be amended in the future to reflect these changes. Six affected villages considered allowing State harvest as a means to increase harvest opportunities. Individual villages made decisions on the percent harvest rate and how the harvest should be divided between the State and Federal systems within their respective subunits. Village recommendations were summarized in a resolution written and adopted by the Seward Peninsula Subsistence Regional Advisory Council in 1998 and subsequently presented to the Alaska Board of Game (BOG), which approved a Tier II subsistence muskox hunt for the Seward Peninsula with the assumption that this would be part of a combined Federal/State harvest program. Also in 1998, the Board followed the recommendations of the Seward Peninsula and Northwest Arctic Councils and approved a special action (WSA97-14) establishing these regulations for the 1998/99 Federal subsistence muskox season (FSB 1998:24).

In 1999, Proposal WP99-46 put the temporary regulations approved in WSA97-14 into permanent regulation. Due to the long traveling distances needed to reach Federal lands and the poor travel/snow conditions during that time, the six affected villages supported the combination of the State and

Federal harvest systems to create more harvest opportunities due to declining hunter success rates under the Federal subsistence harvest. The combined Federal and State harvest was adopted into permanent State regulation by the BOG in 1998. The consensus was to manage on a subunit basis within Unit 22 and Unit 23SW to allow for continued growth of the muskoxen population in this region and to increase harvest opportunities. Sharing the harvest quota between Federal and State systems helped meet the subsistence needs of the local users that may not have been met under only the Federal or State system separately. The cooperative management dispersed hunting pressure over an entire area regardless of land ownership to create a more biologically sound management approach (OSM 2001).

In 2000, the Board adopted Proposal WP00-56 to remove the split of two Federal permit areas, one on NPS land and the other on BLM land, as designated in 1997 in Unit 22D. Six of the Federal permits were then transferred into the State Tier II system.

In 2001, Proposal WP01-35 was adopted and changed the harvest limits in Unit 22 and Unit 23SW from one bull to one muskox; additionally quotas were put in place for each hunt area.

Proposal WP02-37 was adopted by the Board at its May 2002 meeting and authorized the Superintendent of the Western Arctic National Parklands to announce harvest quotas and any needed closures in consultation with Alaska Department of Fish and Game (ADF&G) and BLM.

In 2004, Proposal WP04-71 requested that the customary and traditional use determination for muskox for Units 22B and 22D be expanded to include all residents of Unit 22, excluding residents of St. Lawrence Island. The proposal was adopted with modification by the Board and divided the Unit 22D customary and traditional use area into Unit 22D within the Kougarok, Kuzitrin, and Pilgrim river drainages and Unit 22D remainder and added residents of Unit 22C and White Mountain to the customary and traditional use determination for Unit 22D in the Kougarok, Kuzitrin, and Pilgrim River drainages hunt area.

In 2006, Proposal WP06-41 established the use of a designated hunter permit for muskoxen in Unit 22 by Federally qualified subsistence users. Special provisions allowed a Federally qualified subsistence user to designate another Federally qualified subsistence user to take muskoxen on their behalf, unless the recipient is a member of a community operating under a community harvest system.

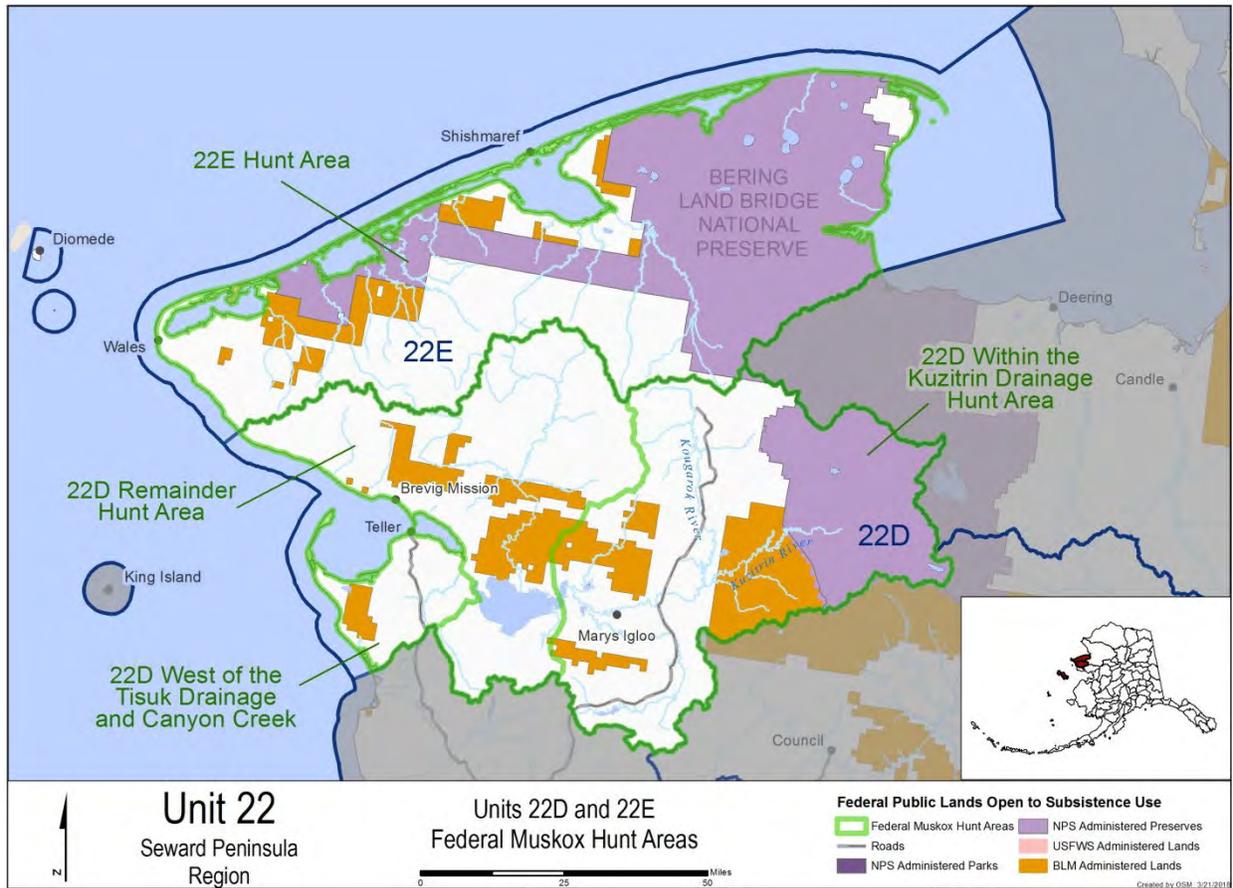
In 2008, the BOG adopted Proposal 77 with modification. This changed the framework of the Seward Peninsula muskoxen hunts by adopting a combination of Tier I Subsistence registration hunts and drawing permit hunts. This ended the Tier II permit hunts that had been in place since 1998 (Gorn 2011, Hughes 2018, pers. comm.)

In 2009, State Emergency Order 05-11-09 closed the State subsistence hunting season for muskoxen by registration permit in Unit 22D remainder on October 13, 2009, because the joint State/Federal harvest quota of 16 muskoxen had been reached. Based on this closure, the Federal manager closed the Federal subsistence muskoxen hunt in Unit 22D remainder on October 17, 2009.

The Board approved Emergency Special Action WSA09-06 on December 30, 2009, reopening the winter muskoxen season within Unit 22D remainder (that portion within the Kougarok, Kuzitrin, and Pilgrim River drainages) from January 15 to March 15, 2009.

An expansion of the customary and traditional use determination for muskox in Unit 22D (WP10-73) was adopted with modification by the Board in May of 2010. This combined the portion of Unit 22D within the Kougarok, Kuzitrin, and Pilgrim river drainages customary and traditional use area with the Unit 22D remainder area. This also added residents of Unit 22B (White Mountain, Golovin, Elim, Council, and Koyuk) and Unit 22E (Wales and Shishmaref) to the customary and traditional use determination for all of Unit 22D.

In 2010, Proposal WP10-77 requested the Federal hunt areas for muskoxen within Unit 22D remainder be aligned with State regulations by establishing hunts in the Kougarok, Kuzitrin, and Pilgrim river drainages. The Board adopted WP10-77 with modification to establish the current Unit 22D Kuzitrin hunt area, which encompasses the Kougarok and Pilgrim river drainages (**Figure 1**).



**Figure 1.** Current muskox hunt areas in Units 22D and 22E.

In 2011, the BOG adopted Proposal RC34 (A) making the muskox hunting regulation in Unit 22D part of a threshold-based hunt regime conditioned on the harvestable portion and the Amounts Necessary for Subsistence (ANS) available for the Seward Peninsula population, which includes all of Unit 22

and Unit 23SW (Dunker 2018, pers. comm.). The regulatory thresholds for this portion of the population define conditions for Tier II hunts (harvestable portion below the ANS), Tier I registration hunts (harvestable portion within the ANS range) and registration/drawing hunts (harvestable portion above ANS). This change was in response to significant population declines, low bull:cow ratios, and high harvest of mature bulls documented by the Alaska Department of Fish and Game (ADF&G). Based on the implementation of the new harvest guidelines intended to address the high harvest of mature bulls and the decline in bull:cow ratios and based on further population declines revealed in March 2012 population surveys, State Tier II hunts were required in Unit 22D for 2012-2013 regulatory year due to the reduction of the harvestable surplus being below the lower end of the ANS (Dunker 2018, pers. comm.).

In 2014, Proposal WP14-38 was adopted with modification by the Board and eliminated the cow hunt, provided the BLM Anchorage Field Manager with the authority to restrict the number of Federal registration permits to be issued, and further closed Federal public lands in Unit 22D remainder to the harvest of muskox except by residents of Elim, White Mountain, Nome, Teller, and Brevig Mission. This further restriction was suggested following an 804 user prioritization analysis, and because the harvestable surplus was very low.

Bureau of Land Management lands comprise approximately 15% of all lands in the 22D Remainder muskox hunt area. These are the only Federal public lands in this specified muskox hunt area.

**Closure last reviewed:** 2014– WP14-38

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

Section §815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The Federal Subsistence Board’s intent was to provide a subsistence priority for Alaskan residents with a Customary & Traditional use determination for muskox. The Board did not feel that the State muskox seasons would provide adequate opportunity and priority for subsistence users who provided active participation in the cooperative muskox management plan, and therefore determined that a Federal season managed via a Federal registration permit and the closure of Federal public lands to non-Federally qualified users was necessary.

**Council Recommendation for Original Closure:**

Proposal 44 (1995): Seward Peninsula Subsistence Regional Advisory Council recommendation – Support, to provide a subsistence priority for local users due to a lack of subsistence priority under State regulations; Northwest Arctic Subsistence Regional Advisory Council recommendation - No recommendation for Unit 22 since Unit 23 wasn’t originally included in the proposal. Although these

were the original recommendations from the Councils, both Councils agreed to support the modified proposal, voted on by the Board, which included that portion of Unit 23 including and west of the Buckland River drainage (FSB 1995a: 348).

### **State Recommendation for Original Closure:**

Although ADF&G agreed with the intent of the cooperative muskox management planning effort, they believed it was advisable to postpone a decision on the proposal to close Federal public lands (Proposal 44) until the BOG had decided on State Regulations for a muskox hunt in Unit 22 and Unit 23SW. When the amendment that contained the closure language was proposed, the State had concerns in regards to permitting and wanted to be kept informed; however, no direct comments about the closure were made and the State's official recommendation was neutral.

### **Biological Background**

Muskoxen have many adaptations to allow for survival in arctic habitats, but some of these adaptations also limit muskoxen in some areas. The large body size, and therefore rumen size, allows muskoxen to consume and process large quantities of low quality forage that may be found on the tundra (Jingfors 1982, Klein 1992, Ihl and Klein 2001). This large body size, in addition to their thick undercoat and long guard hairs, allow muskoxen to stay warm in arctic climates and conserve energy (Klein 1992). However, these adaptations make it difficult for muskoxen to regulate their body temperature following high exertion activities, such as running, and lead to groups remaining more localized rather than migrating long distances like other arctic species, such as caribou (Klein 1992).

Muskoxen are more limited by snow than caribou due to their greater foot loading, low chest height, and smaller hooves making it more difficult to travel through deep or wind-hardened snow (Ihl and Klein 2001, Klein 1992) and therefore, tend towards coastal areas potentially due to the higher winds which reduce the snow depth during winter (Dau 2005). However, muskoxen in Unit 22 tend towards higher windblown slopes during the winter on the Seward Peninsula to avoid the deep snow drifts (Ihl and Klein 2001, Adkisson pers comm. 2009). Muskoxen tend to be more sedentary during periods of heavy snow cover; however, adult bulls generally tend to be less conservative than the general population and will enter previously unused winter habitats due to distant movements during the fall in search of harems (Smith 1989).

The general lack of winter movements is a conservative energy budget survival strategy by muskoxen (Jingfors 1982). Winter forage for muskoxen is of very poor quality (Thing et al. 1987). As a behavioral response to poor forage quality, muskoxen settle onto sites with readily available forage so that minimum energy expenditures are made during foraging bouts (Klein 1992). Additionally, muskoxen spend significantly more time resting in early and late winter than in the post-calving, mid-summer, and rut periods (Jingfors 1982).

Muskoxen in winter appear to be particularly susceptible to disturbance, with sufficient disturbance causing site abandonment (Jonkel et al. 1975). Muskoxen that abandon a preferred wintering site may need to travel considerable distances before reaching an alternative foraging site.

Muskoxen were extirpated in Alaska by the late 1800s, and perhaps hundreds of years earlier on the Seward Peninsula (Gorn and Dunker 2015). Muskoxen were reintroduced to Units 22C and 22D of the Seward Peninsula in 1970, and have since expanded their range to the north and east (Gorn and Dunker 2015). Currently, muskoxen occupy suitable habitat in Units 22A, 22B West, 22C, 22D, 22E, and 23-Southwest.

Muskox management on the Seward Peninsula has been guided by recommendations from the Seward Peninsula Muskox Cooperators Group. The group is composed of staff from ADF&G, NPS, BLM, U.S. Fish and Wildlife Service (USFWS), Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and representatives from other interested groups or organizations. The Cooperators Group has not met since January of 2008, but information has been regularly provided to the Chair since that time (ADF&G 2016). The following management goals form the basis of the cooperative interagency management plan for Seward Peninsula muskoxen developed from 1992 through 1994 (Nelson 1994) and follow the guidelines of ADF&G Muskox Management Policies (ADF&G 1980):

- Manage population to allow for continued growth and range expansion of the Seward Peninsula Muskox.
- Provide for a limited harvest in a manner consistent with existing State and Federal laws by following the goals/objectives endorsed by the Seward Peninsula Muskox Cooperators Group and the Seward Peninsula Cooperative Muskox Management Plan.
- Manage muskoxen along the Nome road systems of Unit 22B and 22C for viewing, education, and other nonconsumptive uses.
- Work with local reindeer herding interests to minimize conflicts between reindeer and muskoxen.
- Protect and maintain the habitats and other components of the ecosystem upon which muskoxen depend.
- Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.

After reintroduction, the muskox population experienced periods of growth between 1970 and 2000 (14% annual rate of increase) and 2000 and 2010 (3.8% annual rate of increase) (Gorn 2011). However, between 2010 and 2012 the muskox population declined 12.5% annually throughout the Seward Peninsula (Gorn 2012). Aspects of the recent decline were likely related to the high mortality rates of adult cows and declines in the number of short yearlings (10-11 month-old muskoxen) (Gorn 2012); however, some caution should be used when interpreting these mortality rates as they are based on a small sample of the population (Gorn 2011). Composition surveys also indicated declines in mature bulls between 2002 and 2010, which prompted changes to the method of determining harvest rates (Gorn 2011). Recent research suggested that selective harvest of mature bulls on the Seward

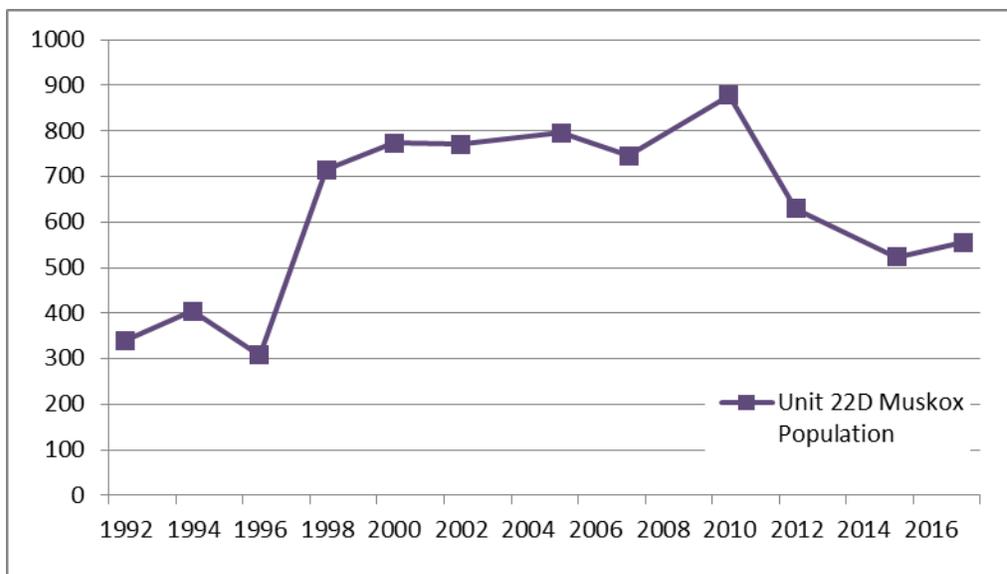
Peninsula could be a driver of reduced population growth and that annual harvest be restricted to less than 10% of the estimated number of mature bulls (Schmidt and Gorn 2013). Following this change in methodology, the Seward Peninsula muskox population remained stable through 2017 (Dunker 2017).

In Unit 22D, the population followed a similar trend as the overall Seward Peninsula population. The population experienced growth from 1992 until approximately 2010, at which point the population declined and then remained stable until the most recent population survey in 2017 (Dunker 2017a, Gorn and Dunker 2013, 2015; **Table 1, Figure 2**). The Unit 22D remainder permit area has similarly experienced a decline since 2010, but has appeared to stabilize from 2015-2017 (Gorn and Dunker 2013, 2015, Dunker 2017a; **Table 2**). Short yearling composition in Unit 22D showed an inverse trend to the population estimates (Dunker 2017b; **Table 3, Figure 3**). The bull:cow ratios in Unit 22D followed the same trend as the population, with the number of mature bulls per 100 cows increasing through 2010 and then declining and stabilizing 2015-2017 (Dunker 2017b; **Table 3, Figure 4**).

**Table 1.** Muskox population estimates in Unit 22D from 1992 to 2017.

Year	Unit	Muskox Population
1992	22D	340
1994	22D	405
1996	22D	308
1998	22D	714
2000	22D	774
2002	22D	771
2005	22D	796
2007	22D	746
2010	22D	878
2012	22D	629
2015	22D	523
2017	22D	556





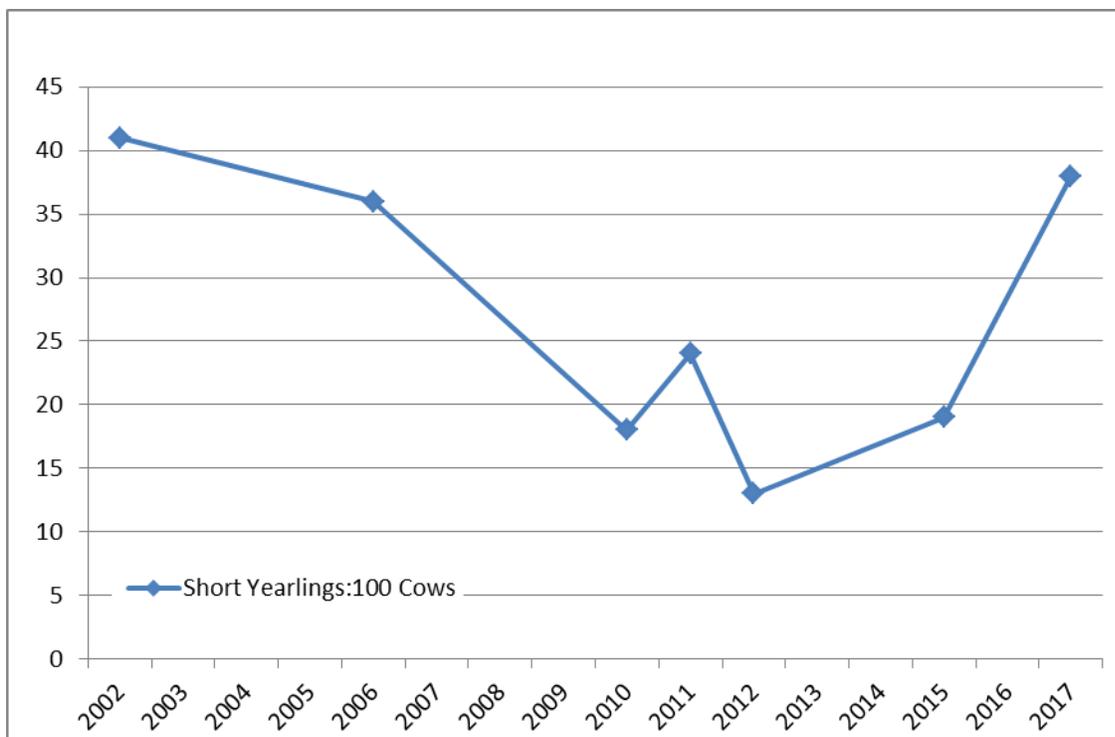
**Figure 2.** Population fluctuations in Unit 22D between 1992 and 2017.

**Table 2.** Unit 22D remainder population estimates from 2010 to 2017.

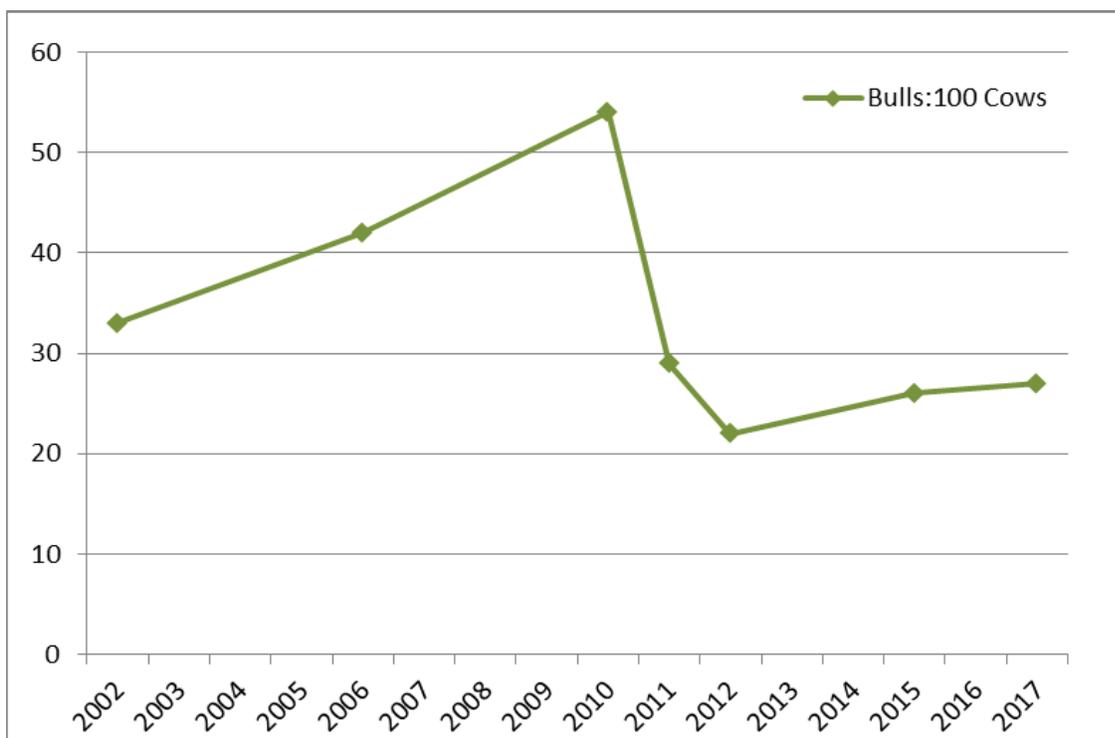
Year	Unit	Population
2010	22D Remainder	532
2012	22D Remainder	344
2015	22D Remainder	258
2017	22D Remainder	278

**Table 3.** Composition survey results in Unit 22D from 2002 to 2017.

Year	Unit	Mature Bulls:100 Cows	Short Yearlings:100 Cows
2002	22D	33	41
2006	22D	42	36
2010	22D	54	18
2011	22D	29	24
2012	22D	22	13
2015	22D	26	19
2017	22D	27	38



**Figure 3.** Short yearling composition survey estimates, in Unit 22D, between 2002 and 2017.



**Figure 4.** Bull composition survey estimates, in Unit 22D, between 2002 and 2017.

## Harvest History

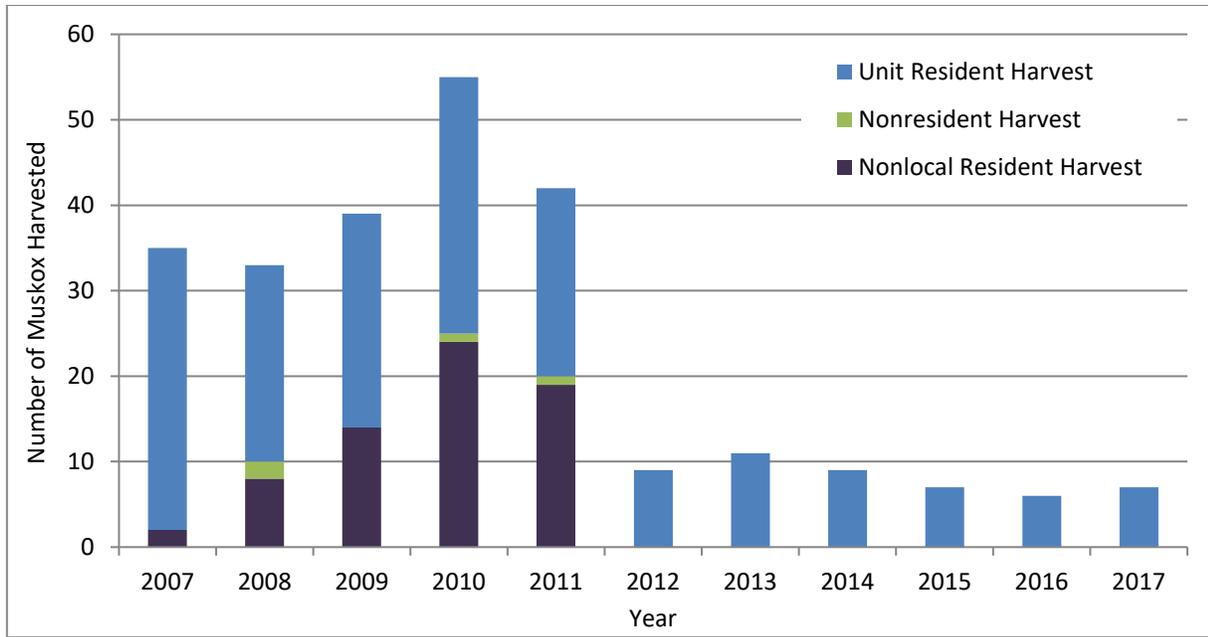
Muskox harvest in Unit 22 is based on population survey estimates on the Seward Peninsula. The allowable harvest is currently calculated as approximately 10% of the estimated number of mature bulls in a hunt area, and the overall range-wide harvest is calculated to be approximately 2% of the Seward Peninsula muskox population (Gorn and Dunker 2015). This method for evaluating the harvestable portion on the Seward Peninsula was put in place, starting in 2012, due to a decline in muskox abundance and mature bull:cow ratios (Schmidt and Gorn 2013, Dunker 2018, pers. comm.). Prior to this change, from 1998 to 2011, the harvest strategy was solely based on a percentage of hunt area muskox populations, with the harvest rate reaching up to 8% of a population in some areas (OSM 2014).

In Unit 22D, the average annual muskox harvest was 42 muskoxen from 2007 through 2011 (ADF&G 2018, Dunker 2018, pers. comm.; **Table 4, Figure 5**). When the harvest management strategy was modified, in 2012, the harvest of muskox greatly decreased; nonresident harvest was no longer permitted and nonlocal resident harvest was greatly reduced (ADF&G 2018). Starting in 2012 through 2017, the State managed average annual harvest dropped to eight muskoxen in Unit 22D (ADF&G 2018); with Federally qualified subsistence users harvesting an average of one additional muskox by Federal registration permit annually (OSM 2018).

Unit 22D remainder is currently managed under the Federal harvest permit FX2208 and State Tier II permit TX102 (**Table 5, Table 6**). In Unit 22D remainder the State harvest quota was reduced to seven muskoxen in 2012, following the modification in harvest strategy (Dunker 2018, pers. comm.). Since 2012, the allowable harvest has remained low in this hunt area. In 2014, Federal public lands in Unit 22D remainder were closed to the taking of muskox except by residents of Elim, White Mountain, Nome, Teller, and Brevig Mission and the hunt was limited to bull muskox only under both Federal and State regulations. Following this modification, average annual harvest in this subunit was reported as two muskoxen for the 2014-2017 timeframe (Adkisson 2018, pers. comm., OSM 2018).

**Table 4.** Harvest of muskox by user residency in Unit 22D from 2007 through 2017 (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm.).

Year	GMU	Unit Resident Harvest	Nonlocal Resident Harvest	Nonresident Harvest	Unspecified	Total
2007	22D	33	2	0	0	35
2008	22D	23	8	2	0	33
2009	22D	25	14	0	4	43
2010	22D	30	24	1	3	58
2011	22D	22	19	1	1	43
2012	22D	9	0	0	0	9
2013	22D	11	0	0	0	11
2014	22D	9	0	0	0	9
2015	22D	7	0	0	0	7
2016	22D	6	0	0	0	6
2017	22D	7	0	0	0	7



**Figure 5.** Harvest of muskox in Unit 22D by user residency (ADF&G 2018, Adkisson 2018, pers.comm., Dunker 2018, pers. comm.).

**Table 5.** Muskox harvest in Unit 22D remainder broken down by State and Federal reported harvest (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm., OSM 2018)

Year	GMU	Federal Harvest (FX2208)	State Harvest (TX102)	Total Harvest	Allowable Harvest Estimate
2012	22D Remainder	0	5	5	7
2013	22D Remainder	1	2	3	7
2014	22D Remainder	0	4	4	7
2015	22D Remainder	1	2	3	7
2016	22D Remainder	0	1	1	5
2017	22D Remainder	0	0	0	5
2018	22D Remainder	-	-	-	4

**Table 6.** Permits issued for muskox harvest in Unit 22D remainder (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm., OSM 2018).

Hunt Area	Year	Federal Permits Issued	State Permits Issued	Federal Hunt Permit	State Hunt Permit
22D Remainder	2012	0	7	FX2208	TX102
22D Remainder	2013	2	7	FX2208	TX102
22D Remainder	2014	2	7	FX2208	TX102
22D Remainder	2015	2	7	FX2208	TX102
22D Remainder	2016	2	5	FX2208	TX102
22D Remainder	2017	2	5	FX2208	TX102

**OSM Conclusion:**

- maintain status quo**  
 **modify or eliminate the closure**

**Justification**

In addition to direct mortality due to harvest, muskox survival could be susceptible to herd disturbances during winter months if caloric expenditures are too high. Harvest on the Seward Peninsula was reevaluated and reduced in 2012 due to a declining muskox population. Recently, some localized populations have experienced a slight increase in population size or have remained stable, but these populations still remain at much lower numbers than in the past. The current closure, in conjunction with decreased harvest quotas, have slowed or stalled the decline in muskox populations in this portion of the Seward Peninsula. This closure should remain in place to ensure that these muskox populations have the opportunity to reach healthy levels and to ensure that Federally qualified subsistence users continue to have the opportunity to harvest this subsistence resource into the future.

## LITERATURE CITED

- ADF&G. 1980. Muskox management policies. Pages X-1-X-4 in *Alaska Wildlife Management Plans: Species Management Policies*. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Miscellaneous Report. Project W-20-2. Juneau, AK.
- ADF&G. 2016. Alaska Department of Fish and Game wildlife restoration grant. Federal Aid Annual Performance Report. Alaska Department of Fish and Game. Juneau, AK.
- ADF&G. 2018. General Harvest Reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: August 3, 2018.
- Adkisson, Ken. 2009. Subsistence Program Manager. Personal Communication: phone conversation. National Park Service. Nome, AK.
- Adkisson, Ken. 2018. Subsistence Program Manager. Personal Communication: email. National Park Service. Nome, AK.
- Dau, J. 2005. Unit 23 muskox management report. Page 38–48 in C. Brown, editor. Muskox management report of survey and inventory activities 1 July 2002–30 June 2004. Alaska Department of Fish and Game. Juneau, Alaska.
- Dunker, W.R. 2017a. 2017 Seward Peninsula muskox population survey summary. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.
- Dunker, W.R. 2017b. 2017 Seward Peninsula muskox composition survey summary. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.
- Dunker, W.R. 2018. 2017 Area Biologist. Personal Communication: email. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.
- FSB. 1995a. Transcripts of Federal Subsistence Board proceedings, April 12, 1995. Office of Subsistence Management. FWS. Anchorage, AK.
- FSB. 1995b. Transcript of proceedings, August 15, 1995. Office of Subsistence Management. FWS. Anchorage, AK.
- FSB. 1997. Transcripts of Federal Subsistence Board proceedings, April 10, 1997. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 1998. Transcripts of Federal Subsistence Board proceedings, May 4, 1998. Office of Subsistence Management, FWS. Anchorage, AK.
- Gorn, T. 2011. Unit 22 muskox. Pages 16–47 in P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2008–30 June 2010. ADF&G. Project 16.0. Juneau, AK.
- Gorn, T. 2012. 2012 muskox survey results memorandum. Alaska Department of Fish and Game. Nome, AK.
- Gorn, T. and W. R. Dunker. 2013. Unit 22 muskox. Pages 17-51 in P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2013-2, Juneau, AK.

- Gorn, T. and W. R. Dunker. 2013. Unit 22 muskox. Pages 17-51 *in* P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2013-2, Juneau, AK.
- Gorn, T. and W. R. Dunker. 2015. Unit 22 muskox. Chapter 2, pages 2-1 through 2-44 *in* P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2012-30 June 2014. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2015-2, Juneau, AK.
- Hughes, L. 2018. Wildlife Biologist. Personal Communication: email. National Park Service. Nome, AK.
- Ihl, C. and D. R. Klein. 2001. Habitat and diet selection by muskoxen and reindeer in western Alaska. *Journal of Wildlife Management*. 65(4):964-972.
- Jingfors, K. T. 1982. Seasonal activity budgets and movements of a reintroduced Alaskan muskox herd. *Journal of Wildlife Management*. 46(2):344-350.
- Jonkel, C. J., D.R. Gray, and B. Hubert. 1975. Immobilizing and marking wild muskoxen in arctic Canada. *Journal of Wildlife Management*. 39(1):112-117.
- Klein, D. R. 1992. Comparative ecological and behavioral adaptations of *Ovibos moschatus* and *Rangifer tarandus*. *Rangifer*. 12(2):47-55.
- Nelson, R. 1994. Seward Peninsula cooperative muskox management plan. Unpublished report. Nome, AK.
- OSM. 2001. Staff Analysis WP01-35. Pages 432–448 in Federal Subsistence Board Meeting Materials April 30–May 3, 2001. Office of Subsistence Management, FWS. Anchorage, AK. 615 pages.
- OSM. 2014. Staff Analysis WP14-38. Supplemental Materials for Federal Subsistence Board Meeting April 15–May 17, 2014. Office of Subsistence Management, FWS. Anchorage, AK.
- OSM. 2018. Federal Subsistence Permit System.  
<https://subsistence.fws.gov/apex/f?p=104:53:14184345113765::::>. Retrieved: August 3, 2018.
- Schmidt, J.H. and T.S. Gorn. 2013. Possible secondary population-level effects of selective harvest of adult male muskoxen. *PLoS ONE* 8(6): e67493.doi:10.1371/journal.pone.0067493.
- Smith, T. E. 1989. The role of bulls in pioneering new habitats in an expanding muskox population on the Seward Peninsula, Alaska. *Can. J. Zool.* 67: 1096-1101.
- Thing, H., D. R. Klein. K. Jingfors, and S. Holt, 1987. Ecology of muskoxen in Jameson Land, northeast Greenland. *Holarctic Ecology*. 10:95-103.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Seward Peninsula Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-29. The Council voted to maintain the status quo for all of the Unit 22 muskox closure reviews due to the currently low muskox population in the region. The Council expressed that they are worried about extremely low population numbers, potential overharvest and susceptibility to bear predation. Overharvest could lead to a population decline to the point where the population may never be able to recover. The Council expressed alarm with the decline in muskox numbers and lack of herd recovery. The Council would like to see the closure remain in place to protect the remaining population while still allowing for a very small harvest by local subsistence users. Some Council members were open to closing the hunt entirely to give the muskox population an opportunity to grow.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.



<b>WCR20-30 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-30 reviews the closure to muskox hunting in Unit 22E, except by Federally qualified subsistence users.
<b>Current Regulation</b>	<p><b>Unit 22E–Muskox</b></p> <p><i>Unit 22E—1 bull by Federal permit or State permit. Aug. 1 – Mar. 15</i></p> <p><i>Federal public lands are closed to the taking of muskox except by Federally qualified subsistence users hunting under these regulations.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW  
WCR20-30**

**Closure Location:** Unit 22E—Muskox

**Current Federal Regulation**

**Unit 22E—Muskox**

*Unit 22E—1 bull by Federal permit or State permit.*

*Aug. 1 – Mar. 15*

*Federal public lands are closed to the taking of muskox except by Federally qualified subsistence users hunting under these regulations.*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 22E—Muskox**

*Unit 22E—one bull by permit*

*TX104 Aug 1 – Mar 15*

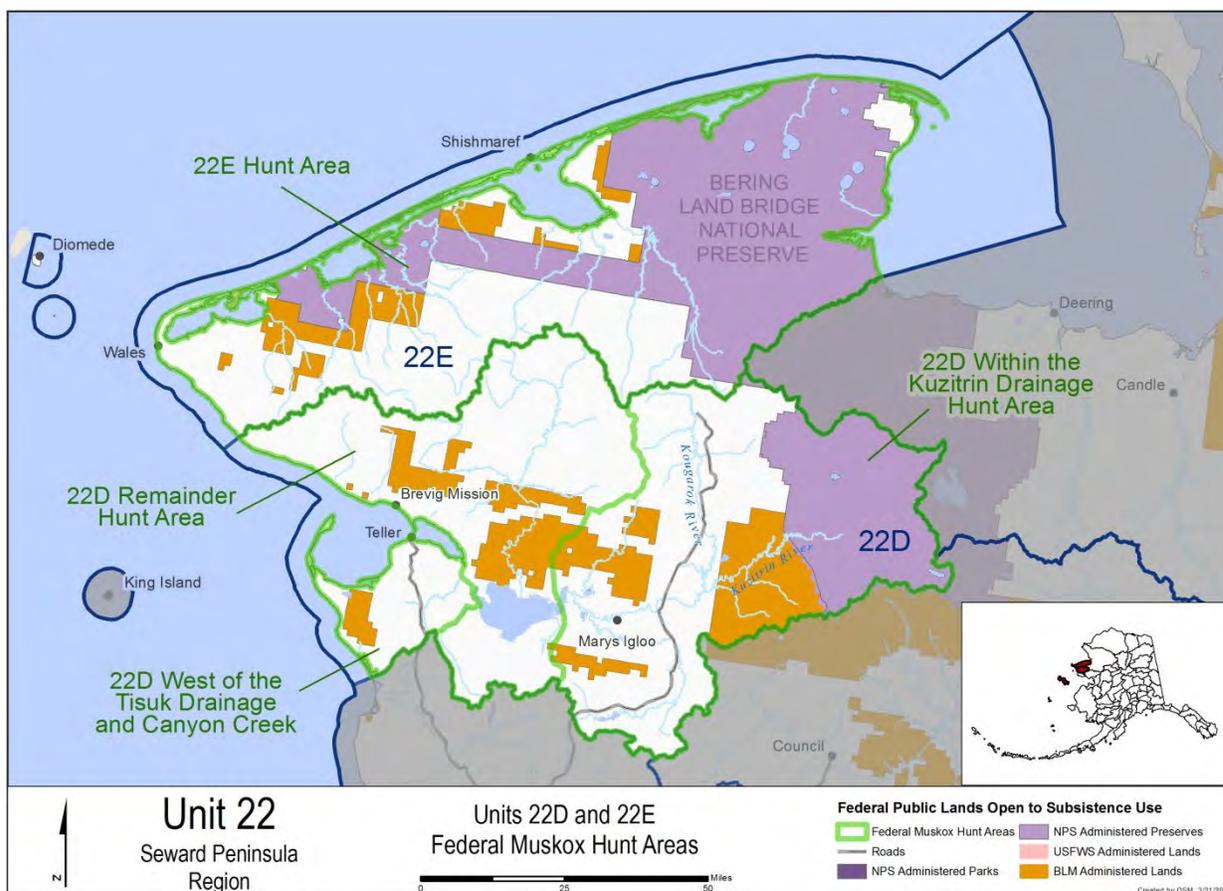
*All skulls require trophy destruction at time of take in the field subject to permit conditions; specimens required*

**Regulatory Year Initiated:** 1996

**Regulatory History**

A cooperative muskox management effort for the Seward Peninsula was begun in 1993 with the creation of the Seward Peninsula Muskox Cooperators Group. Muskox management efforts were guided by recommendations from this group and the Seward Peninsula Cooperative Muskox Management Plan (1994) established the guiding management goals for muskoxen in this region. The Seward Peninsula Muskox Cooperators Group began the process of initiating harvest seasons for muskox on the Seward Peninsula and providing input for regulatory proposals throughout the years.

In 1995, Proposal WP95-44 was adopted by the Federal Subsistence Board (Board) to establish the first Federal muskoxen hunt on the Seward Peninsula and granted a Federal subsistence priority for rural Alaskan residents with a customary and traditional determination for muskoxen in Unit 22. The Board established a season of Sept. 1 – Jan. 31 for Units 22D, 22E, and 23 west of and including the Buckland River drainage (Unit 23SW), and limited the harvest to bulls with a quota of 3% of the population from the most recent census (FSB 1995; **Figure 1**).



**Figure 1.** Current muskox hunt areas in Units 22D and 22E.

In 1998, the Seward Peninsula Subsistence Regional Advisory Council submitted Proposal WP98-89 to extend the season (Sept. 1 – Jan. 31) three months to Aug. 1 – Mar. 31 for Units 22D, 22E, and Unit 23SW. However, as part of the consensus agenda, Proposal 89 was adopted with modification by the Board to extend the season to Aug. 1 – Mar. 15 in Units 22D and 22E and that portion of Unit 23. This modification was made due to biological concerns that hunting in late March could stress cows shortly before the calving season.

A shared Federal and State permit system for muskox on the Seward Peninsula was supported by the Seward Peninsula and Northwest Arctic Subsistence Regional Advisory Councils and adopted by the Board in 1998 (FSB 1998). In January 1998, the Seward Peninsula Muskox Cooperators met to discuss options for a combined Federal and State muskox harvest on the Seward Peninsula. The group reached consensus involving management on a subunit basis, allowing for continued growth of the population and increased harvest opportunities, with the thought that the Muskox Management Plan would be amended in the future to reflect these changes. Six affected villages considered allowing State harvest as a means to increase harvest opportunities. Individual villages made decisions on the percent harvest rate and how the harvest should be divided between the State and Federal systems within their respective subunits. Village recommendations were summarized in a resolution written and passed by the Seward Peninsula Subsistence Regional Advisory Council in 1998 and subsequently

presented to the Alaska Board of Game (BOG), which approved a Tier II subsistence muskox hunt for the Seward Peninsula with the assumption that this would be part of a combined Federal/State harvest program. Also in 1998, the Federal Subsistence Board followed the recommendations of the Seward Peninsula and Northwest Arctic Councils and approved a special action (WSA97-14) establishing these regulations for the 1998/99 Federal subsistence muskox season (FSB 1998:24).

In 1999, Proposal WP99-46 put the temporary regulations in WSA97-14 into permanent regulation. Due to the long traveling distances needed to reach Federal lands and the poor travel/snow conditions during that time, the six affected villages supported the combination of the State and Federal harvest systems to create more harvest opportunities due to declining hunter success rates under the Federal subsistence harvest. The combined Federal and State harvest was adopted into permanent State regulation by the BOG in 1998. The consensus was to manage on a subunit basis within Unit 22 and Unit 23SW, to allow for continued growth of the muskoxen population in this region and to increase harvest opportunities. Sharing the harvest quota between Federal and State systems helped meet the subsistence needs of the local users that may not have been met under only the Federal or State system separately. The cooperative management dispersed hunting pressure over an entire area regardless of land ownership to create a more biologically sound management approach (OSM 2001).

In 2001, Proposal WP01-35 was adopted and changed the harvest limits in Unit 22 and Unit 23SW from one bull to one muskox, additionally quotas were put in place for each hunt area.

Proposal WP02-37 was adopted by the Board at its May 2002 meeting and authorized the Superintendent of the Western Arctic National Parklands to announce harvest quotas and any needed closures in consultation with Alaska Department of Fish and Game (ADF&G) and the Bureau of Land Management (BLM).

In 2005, the BOG established a Tier I subsistence registration hunt, previously a Tier II hunt, in Unit 22E as proposed by the Seward Peninsula Muskox Cooperators Group. This was expected to help users reach the harvest quota in an area where the harvestable surplus was greater than the number of permit applicants.

In 2006, Proposal WP06-41 established the use of a designated hunter permit for muskoxen in Unit 22 by Federally qualified subsistence users. Special provisions allowed a Federally qualified subsistence user to designate another Federally qualified subsistence user to take muskoxen on their behalf, unless the recipient is a member of a community operating under a community harvest system.

In 2008, the BOG adopted Proposal 77 with modification. This changed the framework of the Seward Peninsula muskoxen hunts by adopting a combination of Tier I Subsistence registration hunts and drawing permit hunts. This ended the Tier II permit hunts, throughout the Seward Peninsula, that had been in place since 1998 (Gorn 2011, Hughes 2018, pers. comm.)

In 2010, Proposal WP10-74 requested rescinding the closure of Federal public lands to the harvest of muskoxen in Unit 22E, except by Federally qualified subsistence users, and was adopted by the Board. Harvest quotas were rarely met in Unit 22E, indicating harvest should be allowed on Federal public

lands under both Federal and State regulations. Conservation concerns were minimal due to harvest quotas. This same year, the Board adopted WP10-75 which requested the harvest of cow muskoxen be allowed for the entire Aug. 1–Mar. 15 season in Unit 22E, rather than restricting it to Jan. 1–Mar. 15.

Tier II permit hunts were reinstated by the BOG in 2011 (Proposal A, RC34). The BOG adopted regulations to allow more flexibility in management of Tier I and Tier II subsistence hunts. This increased regulatory flexibility led to the adoption of Tier II permit hunts in Units 22B, 22C, 22D, 22E, and 23 Southwest, although from 2012 to 2014 Tier I permits were administered for Unit 22E (Gorn and Dunker 2015).

In 2014, Proposal WP14-36 was adopted with modification by the Board. This eliminated the cow hunt, provided the Superintendent of the Bering Land Bridge National Preserve with the authority to restrict the number of Federal registration permits to be issued, and closed Federal public lands in Unit 22E to the harvest of muskox except by Federally qualified subsistence users hunting under these regulations. This restriction was suggested following an 804 user prioritization analysis, to preserve a rural subsistence priority, and because the harvestable surplus had declined substantially.

In 2018, using the flexibility that was adopted into regulations in 2011, the BOG began administering the Unit 22E muskox harvest as a Tier II hunt (TX104). This modification resulted from population surveys suggesting that the harvest strategy that was in place resulted in a harvestable portion that would continue to be below the lower end of the ADF&G's goals for the amount necessary for subsistence (Dunker 2018, pers. comm.)

Federal public lands comprise approximately 62% of Unit 22E and consist of 55% National Park Service (NPS) managed lands, 7% Bureau of Land Management (BLM) managed lands, and 0.12% U.S. Fish and Wildlife Service (USFWS) managed lands.

**Closure last reviewed:** 2014 – WP14-36

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

Section §815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The Federal Subsistence Board's intent was to provide a subsistence priority for Alaskan residents with a Customary & Traditional use determination for muskox. The Board did not feel that the State muskox seasons would provide adequate opportunity and priority for subsistence users who provided active participation in the cooperative muskox management plan, and therefore determined that a Federal season managed via a Federal registration permit and the closure of Federal public lands to non-Federally qualified users was necessary.

### **Council Recommendation for Original Closure:**

Proposal 44 (1995): Seward Peninsula Subsistence Regional Advisory Council recommendation – Support, to provide a subsistence priority for local users due to a lack of subsistence priority under State regulations; Northwest Arctic Subsistence Regional Advisory Council recommendation - No recommendation for Unit 22 since Unit 23 wasn't originally included in the proposal. Although these were the original recommendations from the Councils, both Councils agreed to support the modified proposal, voted on by the Board, which included that portion of Unit 23 including and west of the Buckland River drainage (FSB 1995: 348).

### **State Recommendation for Original Closure:**

Although ADF&G agreed with the intent of the cooperative muskox management planning effort, they believed it was advisable to postpone a decision on the proposal to close Federal public lands (Proposal 44) until the BOG had decided on State Regulations for a muskox hunt in Unit 22 and Unit 23SW. When the amendment that contained the closure language was proposed, the State had concerns in regards to permitting and wanted to be kept informed; however, no direct comments about the closure were made and the State's official recommendation was neutral.

### **Biological Background**

Muskoxen have many adaptations to allow for their survival in arctic habitats, but some of these adaptations also limit muskoxen in some areas. The large body size, and therefore rumen size, allows muskoxen to consume and process large quantities of low quality forage that may be found on the tundra (Jingfors 1982, Klein 1992, Ihl and Klein 2001). This large body size, in addition to their thick undercoat and long guard hairs, allow muskoxen to stay warm in arctic climates and conserve energy (Klein 1992). However, these adaptations make it difficult for muskoxen to regulate their body temperature following high exertion activities, such as running, and lead to groups remaining more localized rather than migrating long distances like other arctic species, such as caribou (Klein 1992).

Muskoxen are more limited by snow than caribou due to their greater foot loading, low chest height, and smaller hooves making it more difficult to travel through deep or wind-hardened snow (Klein 1992, Ihl and Klein 2001) and therefore, tend towards coastal areas potentially due to the higher winds which reduce the snow depth during winter (Dau 2005). By the same token, muskoxen in Unit 22 tend towards higher windblown slopes during the winter on the Seward Peninsula to avoid the deep snow drifts (Ihl and Klein 2001, Adkisson pers comm. 2009). Muskoxen tend to be more sedentary during periods of heavy snow cover; however, adult bulls generally tend to be less conservative than the general population and will enter previously unused winter habitats due to distant movements during the fall in search of harems (Smith 1989).

The general lack of winter movements is a conservative energy budget survival strategy by muskoxen (Jingfors 1982). Winter forage for muskoxen is of very poor quality (Thing et al. 1987). As a behavioral response to poor forage quality, muskoxen settle onto sites with readily available forage so that minimum energy expenditures are made during foraging bouts (Klein 1992). Additionally,

muskoxen spend significantly more time resting in early and late winter than in the post-calving, mid-summer, and rut periods (Jingfors 1982).

Muskoxen in winter appear to be particularly susceptible to disturbance, with sufficient disturbance causing site abandonment (Jonkel et al. 1975). Muskoxen that abandon a preferred wintering site may need to travel considerable distances before reaching alternative foraging sites.

Muskoxen were extirpated in Alaska by the late 1800s, and perhaps hundreds of years earlier on the Seward Peninsula (Gorn and Dunker 2015). Muskoxen were reintroduced to Units 22C and 22D of the Seward Peninsula in 1970, and have since expanded their range to the north and east (Gorn and Dunker 2015). Currently, muskoxen occupy suitable habitat in Units 22A, 22B West, 22C, 22D, 22E, and 23-Southwest.

Muskox management on the Seward Peninsula has been guided by recommendations from the Seward Peninsula Muskox Cooperators Group. The group is composed of staff from ADF&G, NPS, BLM, USFWS, Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and representatives from other interested groups or organizations. The Cooperators Group has not met since January of 2008, but information has been regularly provided to the Chair since that time (ADF&G 2016). The following management goals form the basis of the cooperative interagency management plan for Seward Peninsula muskoxen developed from 1992 through 1994 (Nelson 1994) and follow the guidelines of ADF&G Muskox Management Policies (ADF&G 1980):

- Manage population to allow for continued growth and range expansion of the Seward Peninsula Muskox.
- Provide for a limited harvest in a manner consistent with existing State and Federal laws by following the goals/objectives endorsed by the Seward Peninsula Muskox Cooperators Group and the Seward Peninsula Cooperative Muskox Management Plan.
- Manage muskoxen along the Nome road systems of Unit 22B and 22C for viewing, education, and other nonconsumptive uses.
- Work with local reindeer herding interests to minimize conflicts between reindeer and muskoxen.
- Protect and maintain the habitats and other components of the ecosystem upon which muskoxen depend.
- Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.

After reintroduction, the muskox population experienced periods of growth between 1970 and 2000 (14% annual rate of increase) and 2000 and 2010 (3.8% annual rate of increase) (Gorn 2011).

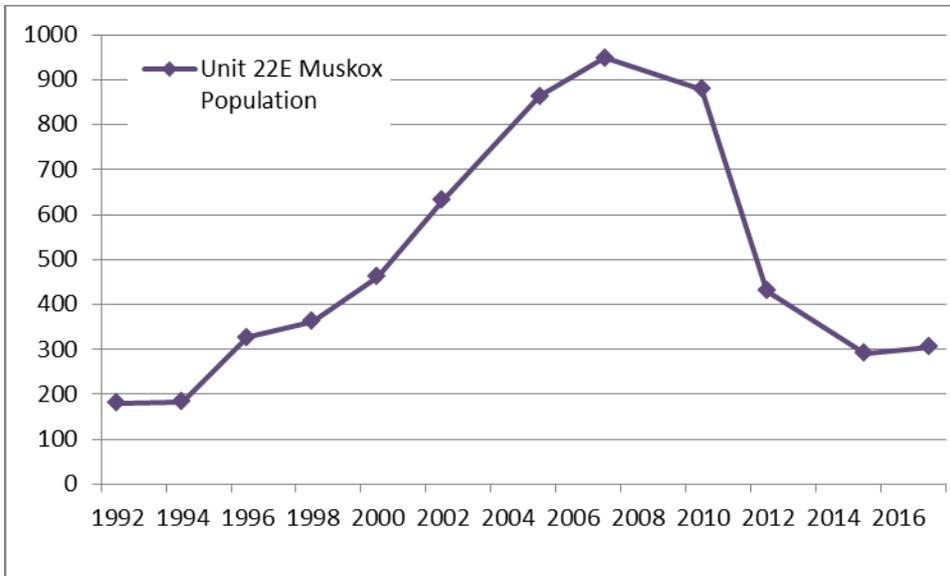
However, between 2010 and 2012 the muskox population declined 12.5% annually throughout the Seward Peninsula (Gorn 2012). Aspects of the recent decline were likely related to the high mortality rates of adult cows and declines in the number of short yearlings (10-11 month-old muskoxen) (Gorn 2012); however, some caution should be used when interpreting these mortality rates as they are based on a small sample of the population (Gorn 2011). Composition surveys also indicated declines in mature bulls between 2002 and 2010, which prompted changes to the method of determining harvest rates (Gorn 2011). Recent research suggested that selective harvest of mature bulls on the Seward Peninsula could be a driver of reduced population growth and that annual harvest be restricted to less than 10% of the estimated number of mature bulls (Schmidt and Gorn 2013). Following this change in methodology, the Seward Peninsula muskox population remained stable through 2017 (Dunker 2017a).

In Unit 22E, the population followed a similar trend as the overall Seward Peninsula population. The population experienced growth from 1992 until approximately 2007, at which point the population declined and then remained stable from 2015 until the most recent population survey in 2017 (Gorn and Dunker 2013, Dunker 2017a; **Table 1, Figure 2**). Short yearling composition in Unit 22E fluctuated substantially since 2002, with 2017 reaching a high point of 62 short yearlings: 100 cows (Gorn and Dunker 2013, Dunker 2017b; **Table 2, Figure 3**). The bull:cow ratios in Unit 22E declined since 2002, with the lowest count taking place in 2017 at 29 mature bulls:100 cows (Gorn and Dunker 2013, Dunker 2017b; **Table 2, Figure 4**).

**Table 1.** Muskox population estimates, in Unit 22E, from 1992 to 2017.

Year	Unit	Muskox Population
1992	22E	180
1994	22E	184
1996	22E	327
1998	22E	362
2000	22E	461
2002	22E	632
2005	22E	863
2007	22E	949
2010	22E	879
2012	22E	431
2015	22E	291
2017	22E	306

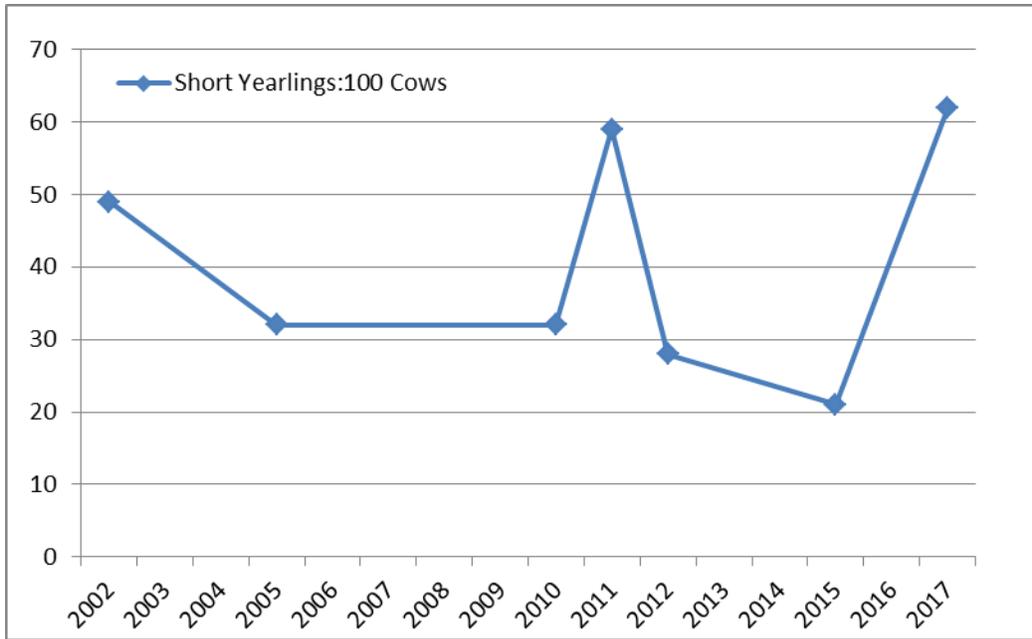




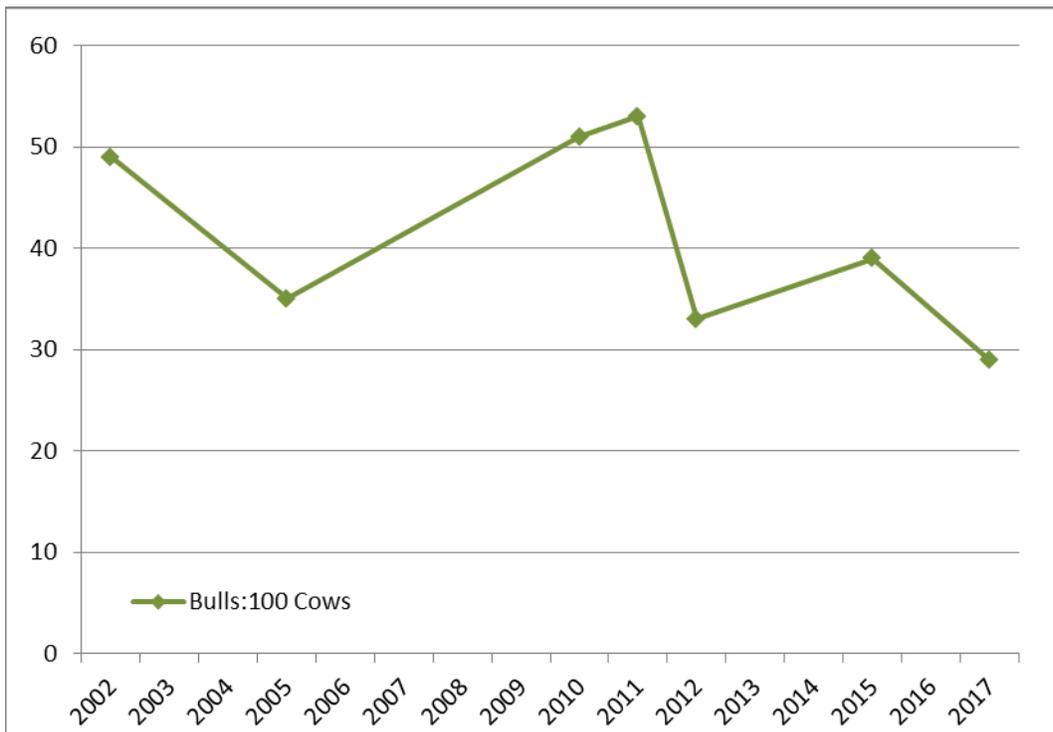
**Figure 2.** Population fluctuations in Unit 22E from 1992 to 2017.

**Table 2.** Composition survey results in Unit 22E from 2002 to 2017.

Year	Unit	Mature Bulls:100 Cows	Short Yearlings:100 Cows
2002	22E	49	49
2005	22E	35	32
2010	22E	51	32
2011	22E	53	59
2012	22E	33	28
2015	22E	39	21
2017	22E	29	62



**Figure 3.** Short yearling composition survey estimates, in Unit 22E, from 2002 to 2017.



**Figure 4.** Bull composition survey estimates, in Unit 22E, from 2002 to 2017.

## Harvest History

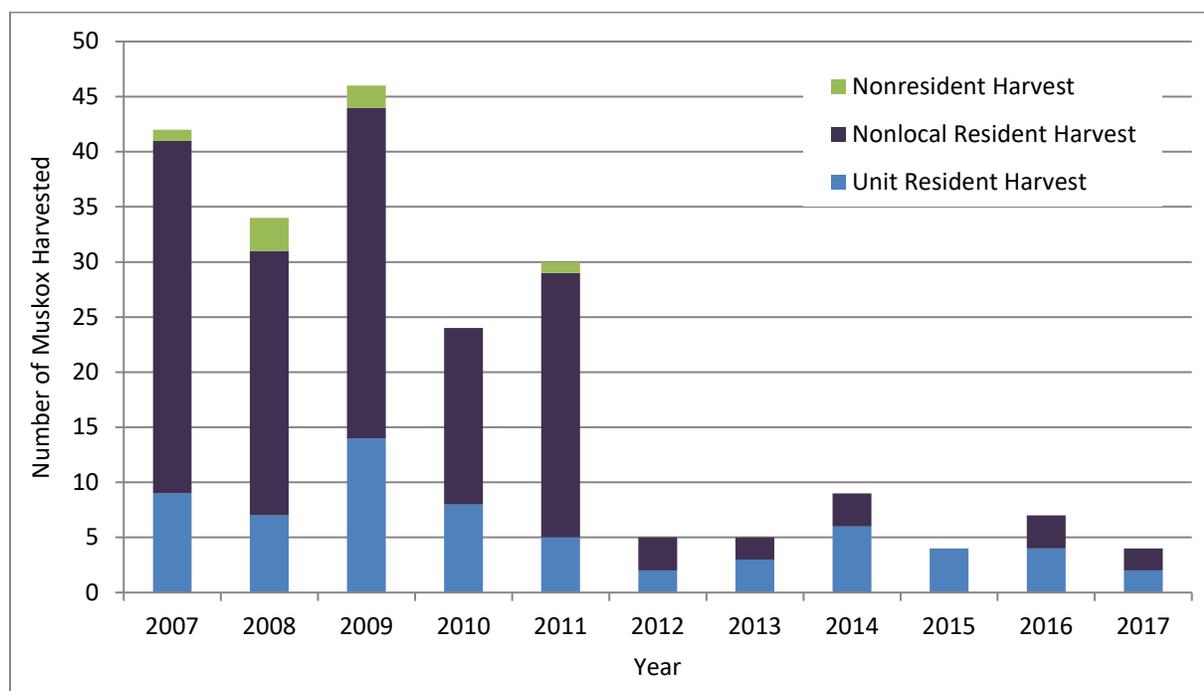
Muskox harvest in Unit 22 is based on population survey estimates on the Seward Peninsula. The allowable harvest is currently calculated as approximately 10% of the estimated number of mature bulls in a hunt area, and the overall range-wide harvest is calculated to be approximately 2% of the Seward Peninsula muskox population (Gorn and Dunker 2015). This method for evaluating the harvestable portion on the Seward Peninsula was put in place, starting in 2012, due to a decline in muskox abundance and mature bull:cow ratios (Schmidt and Gorn 2013, Dunker 2018, pers. comm.). Prior to this change, from 1998 to 2011, the harvest strategy was solely based on a percentage of hunt area muskox populations, with the harvest rate reaching up to 8% of a population in some areas (OSM 2014).

In Unit 22E, the average annual muskox harvest was 36 muskoxen from 2007 through 2011 (ADF&G 2018). When the harvest management strategy was modified in 2012, the harvest of muskox greatly decreased; nonresident harvest was no longer permitted and nonlocal resident harvest was greatly reduced (ADF&G 2018; **Table 3, Figure 5**). Starting in 2012 through 2017, the State managed average annual harvest dropped to five muskoxen in Unit 22E (ADF&G 2018), with Federally qualified subsistence users harvesting an average of two additional muskoxen by Federal registration permit annually (OSM 2018).

Unit 22E is currently managed under the Federal harvest permit FX2210 and State Tier II permit TX104. In Unit 22E the State harvest quota was reduced to 10 muskoxen in 2012, following the modification in harvest strategy (Dunker 2018, pers.comm.; **Table 4, Table 5**). Since 2012, the harvest quota has remained low in this hunt area and is currently down to four muskoxen. In 2014, Federal public lands in Unit 22E were closed to the taking of muskox except by Federally qualified subsistence users and the hunt was limited to bull muskox only. Following this modification, average annual harvest in this subunit was reported as six muskoxen for the 2014-2017 timeframe (Adkisson 2018, pers. comm., OSM 2018).

**Table 3.** Harvest of muskox by user residency in Unit 22E from 2007 through 2017 (ADF&G 2018, Adkisson 2018, pers. comm.)

Year	Unit	Unit Resident Harvest	Nonlocal Resident Harvest	Nonresident Harvest	Unspecified	Total
2007	22E	9	32	1	0	42
2008	22E	7	24	3	2	36
2009	22E	14	30	2	0	46
2010	22E	8	16	0	0	24
2011	22E	5	24	1	2	32
2012	22E	2	3	0	0	5
2013	22E	3	2	0	0	5
2014	22E	6	3	0	0	9
2015	22E	4	0	0	0	4
2016	22E	4	3	0	0	7
2017	22E	2	2	0	0	4



**Figure 5.** Harvest of muskox in Unit 22E by user residency (ADF&G 2018, Adkisson 2018, pers. comm.)

**Table 4.** Muskox harvest in Unit 22E broken down by State and Federal reported harvest (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm.).

Year	GMU	Federal Harvest (FX2210)	State Harvest (RX104)	Total Harvest	Allowable Harvest Estimate
2012	22E	0	5	5	10
2013	22E	2	3	5	10
2014	22E	3	6	9	10
2015	22E	2	2	4	6
2016	22E	2	5	7	6
2017	22E	0	4	4	4
2018	22E	-	-	-	4

**Table 5.** Permits issued for muskox harvest in Unit 22E (Adkisson 2018, pers. comm., Dunker 2018, pers. comm.).

Hunt Area	Year	Federal Permits Issued	State Permits Issued	Federal Hunt Permit	State Hunt Permit
22E	2012	0	10	FX2210	RX104
22E	2013	2	10	FX2210	RX104
22E	2014	5	10	FX2210	RX104
22E	2015	2	6	FX2210	RX104
22E	2016	2	6	FX2210	RX104
22E	2017	0	4	FX2210	RX104

**OSM Conclusion:**

- maintain status quo  
 modify or eliminate the closure

**Justification**

In addition to direct mortality due to harvest, muskox survival could be susceptible to herd disturbances during winter months if caloric expenditures are too high. Harvest on the Seward Peninsula was reevaluated and reduced in 2012 due to a declining muskox population. Recently, some localized populations have experienced a slight increase in population size or have remained stable, but these populations still remain at much lower numbers than in the past. The current closure, in conjunction with decreased harvest quotas, have slowed or stalled the decline in muskox populations in this portion of the Seward Peninsula. This closure should remain in place to ensure that these muskox populations have the opportunity to reach healthy levels and to ensure that Federally qualified subsistence users continue to have the opportunity to harvest this subsistence resource into the future.

## LITERATURE CITED

ADF&G. 1980. Muskox management policies. Pages X-1-X-4 in Alaska Wildlife Management Plans: Species Management Policies. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Miscellaneous Report. Project W-20-2. Juneau, AK.

ADF&G. 2016. Alaska Department of Fish and Game wildlife restoration grant. Federal Aid Annual Performance Report. Alaska Department of Fish and Game. Juneau, AK.

ADF&G. 2018. General Harvest Reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: August 3, 2018.

Adkisson, Ken. 2009. Subsistence Program Manager. Personal Communication: phone conversation. National Park Service. Nome, AK.

Adkisson, Ken. 2018. Subsistence Program Manager. Personal Communication: email. National Park Service. Nome, AK.

Dau, J. 2005. Unit 23 muskox management report. Page 38–48 in C. Brown, editor. Muskox management report of survey and inventory activities 1 July 2002–30 June 2004. Alaska Department of Fish and Game. Juneau, AK.

Dunker, W.R. 2017a. 2017 Seward Peninsula muskox population survey summary. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.

Dunker, W.R. 2017b. 2017 Seward Peninsula muskox composition survey summary. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, Alaska.

Dunker, W. R. 2018. Area Biologist. Personal Communication: email. Alaska Department of Fish and Game, Division of Wildlife conservation. Nome, AK.

FSB. 1995. Transcripts of Federal Subsistence Board proceedings, April 12, 1995. Office of Subsistence Management. FWS. Anchorage, AK.

FSB. 1998. Transcripts of Federal Subsistence Board proceedings, May 4, 1998. Office of Subsistence Management, FWS. Anchorage, AK

Gorn, T. 2011. Unit 22 muskox. Pages 16–47 in P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2008–30 June 2010. ADF&G. Project 16.0. Juneau, AK.

Gorn, T. 2012. 2012 muskox survey results memorandum. Alaska Department of Fish and Game. Nome, AK.

Gorn, T. and W. R. Dunker. 2013. Unit 22 muskox. Pages 17-51 in P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2013-2, Juneau, AK.

- Gorn, T. and W. R. Dunker. 2015. Unit 22 muskox. Chapter 2, pages 2-1 through 2-44 in P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2012-30 June 2014. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2015-2, Juneau, AK.
- Hughes, L. 2018. Wildlife Biologist. Personal Communication: email. National Park Service. Nome, AK.
- Ihl, C. and D. R. Klein. 2001. Habitat and diet selection by muskoxen and reindeer in western Alaska. *Journal of Wildlife Management*. 65(4):964-972.
- Jingfors, K. T. 1982. Seasonal activity budgets and movements of a reintroduced Alaskan muskox herd. *Journal of Wildlife Management*. 46(2):344-350.
- Jonkel, C. J., D.R. Gray, and B. Hubert. 1975. Immobilizing and marking wild muskoxen in arctic Canada. *Journal of Wildlife Management*. 39(1):112-117.
- Klein, D. R. 1992. Comparative ecological and behavioral adaptations of *Ovibos moschatus* and *Rangifer tarandus*. *Rangifer*. 12(2):47-55.
- Nelson, R. 1994. Seward Peninsula cooperative muskox management plan. Unpublished report. Nome, AK.
- OSM. 2001. Staff Analysis WP01-35. Pages 432–448 in Federal Subsistence Board Meeting Materials April 30–May 3, 2001. Office of Subsistence Management, FWS. Anchorage, AK. 615 pages.
- OSM. 2014. Staff Analysis WP14-38. Supplemental Materials for Federal Subsistence Board Meeting April 15–May 17, 2014. Office of Subsistence Management, FWS. Anchorage, AK.
- OSM. 2018. Federal Subsistence Permit System.  
<https://subsistence.fws.gov/apex/f?p=104:53:14184345113765::::>. Retrieved: August 3, 2018.
- Schmidt, J.H. and T.S. Gorn. 2013. Possible secondary population-level effects of selective harvest of adult male muskoxen. *PLoS ONE* 8(6): e67493.doi:10.1371/journal.pone.0067493.
- Smith, T. E. 1989. The role of bulls in pioneering new habitats in an expanding muskox population on the Seward Peninsula, Alaska. *Can. J. Zool.* 67: 1096-1101.
- Thing, H., D. R. Klein. K. Jingfors, and S. Holt, 1987. Ecology of muskoxen in Jameson Land, northeast Greenland. *Holarctic Ecology*. 10:95-103.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Seward Peninsula Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-30. The Council voted to maintain the status quo for all of the Unit 22 muskox closure reviews due to the currently low muskox population in the region. The Council expressed that they are worried about extremely low population numbers, potential overharvest and susceptibility to bear predation. Overharvest could lead to a population decline to the point where the population may never be able to recover. The Council expressed alarm with the decline in muskox numbers and lack of herd recovery. The Council would like to see the closure remain in place to protect the remaining population while still allowing for a very small harvest by local subsistence users. Some Council members were open to closing the hunt entirely to give the muskox population an opportunity to grow.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.



### WCR20-44 Executive Summary

<b>General Description</b>	Closure Review WCR20-44 reviews the closure to muskox hunting in Unit 22D, within the Kuzitrin River drainages, except by residents of Council, Golovin, White Mountain, Nome, Teller, and Brevig Mission.
<b>Current Regulation</b>	<p><b>Unit 22D–Muskox</b></p> <p><i>Unit 22D—That portion within the Kuzitrin River drainages—1 bull by Federal permit or State permit. Aug. 1 - Mar. 15</i></p> <p><i>Federal public lands are closed to the taking of muskox except for residents of Council, Golovin, White Mountain, Nome, Teller, and Brevig Mission hunting under these regulations.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW  
WCR20-44**

**Closure Location:** Unit 22D—Muskox

**Current Federal Regulation**

**Unit 22D—Muskox**

*Unit 22D—That portion within the Kuzitrin River drainages—1 bull by Aug. 1 - Mar. 15  
Federal permit or State permit.*

*Federal public lands are closed to the taking of muskox except for  
residents of Council, Golovin, White Mountain, Nome, Teller, and  
Brevig Mission hunting under these regulations.*

**Closure Dates:** Year-round

**Current State Regulation**

**Unit 22D—Muskox**

*Unit 22D—Kuzitrin River drainage (Includes Kougarok and TX102 Pilgrim rivers) —One bull by permit  
Jan 1 - Mar 15*

*All skulls require trophy destruction at time of take in the  
field subject to permit conditions; specimens required*

**Regulatory Year Initiated:** 1996

**Regulatory History**

A cooperative muskox management effort for the Seward Peninsula was begun in 1993 with the creation of the Seward Peninsula Muskox Cooperators Group. Muskox management efforts were guided by recommendations from this group and

and the Seward Peninsula Cooperative Muskox Management Plan (1994) established the guiding management goals for muskoxen in this region.

In 1995, Proposal WP95-44 was adopted by the Federal Subsistence Board (Board) to establish the first Federal muskoxen hunt on the Seward Peninsula and granted a Federal subsistence priority for Alaskan rural residents with a customary and traditional determination for muskoxen in Unit 22. The Board established a season of Sept. 1 – Jan. 31 for Units 22D, 22E, and 23 west of and including the Buckland River drainage (Unit 23SW), and limited the harvest to bulls with a quota of 3% of the population from the most recent census (FSB 1995a).

In August 1995, the Board rejected two Requests for Reconsideration (R95-04 and R95-05), but revised the harvest quota for Unit 22D reducing it from 12 to 2 muskoxen. The Board made this change in response to concerns for the maintenance of a healthy muskox population (FSB 1995b).

In 1996, Proposal WP96-51 was adopted by the Board to increase the harvest from two to eight muskoxen in Unit 22D. The proposal was submitted by the Seward Peninsula Subsistence Regional Advisory Council to increase the harvest limit to 12 muskoxen but was adopted with modification to increase the harvest to 8 muskoxen.

In 1997, the Board denied a Request for Reconsideration (R96-06) to keep the harvest quota set at eight muskox, but stratified Unit 22D into two permit areas comprising Bureau of Land Management (BLM) lands and Bering Land Bridge National Preserve (NPS lands), with half of permits designated in each area (FSB 1997:49). This decision was based on harvest information indicating all muskoxen harvest in Unit 22D was on BLM land. The split of permits was intended to encourage subsistence hunters to harvest from NPS lands in the eastern end of the unit.

In 1998, the Seward Peninsula Subsistence Regional Advisory Council submitted Proposal WP98-89 to extend the season (Sept. 1 – Jan. 31) three months to Aug. 1 – Mar. 31 for Units 22D, 22E, and Unit 23SW. However, as part of the consensus agenda, Proposal 89 was adopted with modification by the Board to extend the season to Aug. 1 – Mar. 15 in Units 22D and 22E and that portion of Unit 23. This modification was made due to biological concerns that hunting in late March could stress cows shortly before the calving season.

A shared Federal and State permit system for muskox on the Seward Peninsula was supported by the Seward Peninsula and Northwest Arctic Subsistence Regional Advisory Councils and adopted by the Board in 1998 (FSB 1998). In January 1998, the Seward Peninsula Muskox Cooperators met to discuss options for a combined Federal and State muskox harvest on the Seward Peninsula. The group reached consensus involving management on a subunit basis, allowing for continued growth of the population and increased harvest opportunities, with the thought that the Muskox Management Plan would be amended in the future to reflect these changes. Six affected villages considered allowing State harvest as a means to increase harvest opportunities. Individual villages made decisions on the percent harvest rate and how the harvest should be divided between the State and Federal systems within their respective subunits. Village recommendations were summarized in a resolution written and passed by the Seward Peninsula Regional Advisory Council in 1998 and subsequently presented to the Alaska Board of Game (BOG), which approved a Tier II subsistence muskox hunt for the Seward Peninsula with the assumption that this would be part of a combined Federal/State harvest program. Also in 1998, the Federal Subsistence Board followed the recommendations of the Seward Peninsula and Northwest Arctic Councils and approved a special action (WSA97-14) establishing these regulations for the 1998/99 Federal subsistence muskox season (FSB 1998:24).

In 1999, Proposal WP99-46 put the temporary regulations in WSA97-14 into permanent regulation. Due to the long traveling distances needed to reach Federal lands and the poor travel/snow conditions during that time, the six affected villages supported the combination of the State and Federal harvest

systems to create more harvest opportunities due to declining hunter success rates under the Federal subsistence harvest. The combined Federal and State harvest was adopted into permanent State regulation by the BOG in 1998. The consensus was to manage on a subunit basis within Unit 22 and Unit 23SW, to allow for continued growth of the muskoxen population in this region and to increase harvest opportunities. Sharing the harvest quota between Federal and State systems helped meet the subsistence needs of the local users that may not have been met under only the Federal or State system separately. The cooperative management dispersed hunting pressure over an entire area regardless of land ownership to create a more biologically sound management approach (OSM 2001).

In 2000, the Board approved Proposal WP00-56 to remove the split of two Federal permit areas, one on NPS land and the other on BLM land, as designated in 1997 in Unit 22D. Six of the Federal permits were then transferred into the State Tier II system.

In 2001, Proposal WP01-35 was adopted and changed the harvest limits in Unit 22 and Unit 23SW from one bull to one muskox; additionally quotas were put in place for each hunt area.

Proposal WP02-37 was adopted by the Board at its May 2002 meeting and authorized the Superintendent of the Western Arctic National Parklands to announce harvest quotas and any needed closures in consultation with Alaska Department of Fish and Game (ADF&G) and BLM.

In 2004, Proposal WP04-71 requested that the customary and traditional use determination for muskox for Units 22B and 22D be expanded to include all residents of Unit 22, excluding residents of St. Lawrence Island. The proposal was adopted with modification by the Board and divided the Unit 22D customary and traditional use area into Unit 22D within the Kougarok, Kuzitrin, and Pilgrim river drainages and Unit 22D remainder and added residents of Unit 22C and White Mountain to the customary and traditional use determination for Unit 22D in the Kougarok, Kuzitrin, and Pilgrim River drainages hunt area.

In 2006, Proposal WP06-41 established the use of a designated hunter permit for muskoxen in Unit 22 by Federally qualified subsistence users. Special provisions allowed a Federally qualified subsistence user to designate another Federally qualified subsistence user to take muskoxen on their behalf, unless the recipient is a member of a community operating under a community harvest system.

In 2008, the BOG adopted Proposal 77 with modification. This changed the framework of the Seward Peninsula muskoxen hunts by adopting a combination of Tier I Subsistence registration hunts and drawing permit hunts. This ended the Tier II permit hunts that had been in place since 1998 (Gorn 2011, Hughes 2018, pers. comm.)

In 2009, State Emergency Order 05-11-09 closed the State subsistence hunting season for muskoxen by registration permit in Unit 22D remainder on October 13, 2009, because the joint State/Federal harvest quota of 16 muskoxen had been reached. Based on this closure, the Federal manager closed the Federal subsistence muskoxen hunt in Unit 22D remainder on October 17, 2009.

The Board approved Emergency Special Action WSA09-06 on December 30, 2009, reopening the winter muskoxen season within Unit 22D remainder (that portion within the Kougarok, Kuzitrin, and Pilgrim River drainages) from January 15 to March 15, 2009.

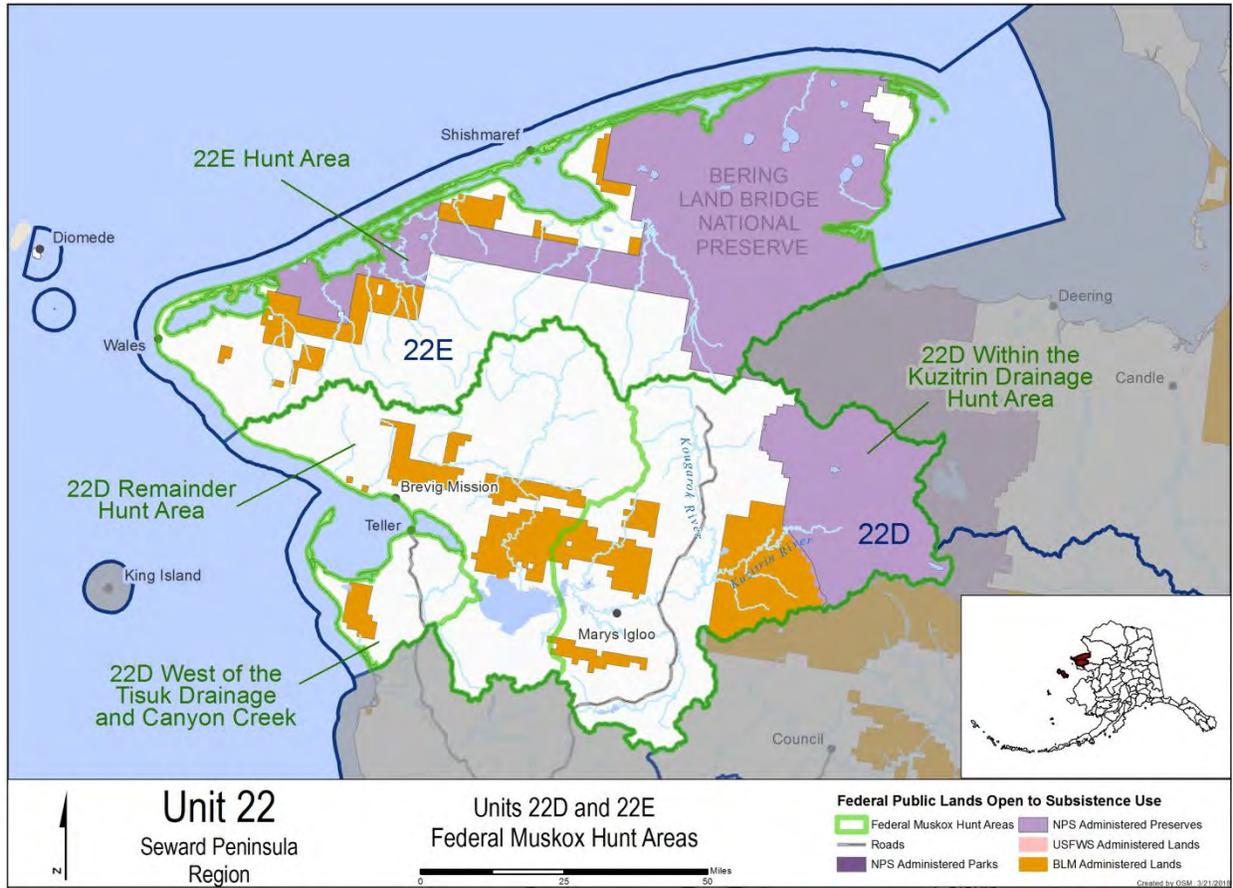
An expansion of the customary and traditional use determination for muskox in Unit 22D (WP10-73) was adopted with modification by the Board in May of 2010. This combined the portion of Unit 22D within the Kougarok, Kuzitrin, and Pilgrim river drainages customary and traditional use area with the Unit 22D remainder area. This also added residents of Unit 22B (White Mountain, Golovin, Elim, Council, and Koyuk) and Unit 22E (Wales and Shishmaref) to the customary and traditional use determination for all of Unit 22D.

In 2010, Proposal WP10-77 requested the Federal hunt areas for muskoxen within Unit 22D remainder be aligned with State regulations by establishing hunts in the Kougarok, Kuzitrin, and Pilgrim river drainages. The Board adopted Proposal WP10-77 with modification to establish the current Unit 22D Kuzitrin hunt area, which encompasses the Kougarok and Pilgrim river drainages (**Figure 1**).

In 2011, the BOG adopted Proposal RC34 (A) making the muskox hunting regulation in Unit 22D part of a threshold-based hunt regime conditioned on the harvestable portion and the Amounts Necessary for Subsistence (ANS) available for the Seward Peninsula population, which includes all of Unit 22 and Unit 23SW (Dunker 2018, pers. comm.). The regulatory thresholds for this portion of the population define conditions for Tier II hunts (harvestable portion below the ANS), Tier I registration hunts (harvestable portion within the ANS range) and registration/drawing hunts (harvestable portion above ANS). This change was in response to significant population declines, low bull:cow ratios, and high harvest of mature bulls documented by the Alaska Department of Fish and Game (ADF&G). Based on the implementation of the new harvest guidelines intended to address the high harvest of mature bulls and the decline in bull:cow ratios and based on further population declines revealed in March 2012 population surveys, State Tier II hunts were required in Unit 22D for 2012-2013 regulatory year due to the reduction of the harvestable surplus being below the lower end of the ANS (Dunker 2018, pers. comm.).

In 2014, Proposal WP14-33 was adopted with modification by the Board. This eliminated the cow hunt, provided the Superintendent of the Bering Land Bridge National Preserve with the authority to restrict the number of Federal registration permits to be issued, and further closed Federal public lands in Unit 22 D, that portion within the Kuzitrin River drainages, to the harvest of muskox except by residents of Council, Golovin, White Mountain, Nome, Teller, and Brevig Mission. This further restriction was suggested following an 804 user prioritization analysis.

Bureau of Land Management lands comprise approximately 18% of all lands and NPS lands comprise approximately 28% of all lands in the Unit 22D Kuzitrin drainage muskox hunt area. These are the only Federal public lands in this specified muskox hunt area and together make up approximately 46% of all lands in the hunt area.



**Figure 1.** Current muskox hunt areas in Units 22D and 22E.

**Closure last reviewed:** 2014 – WP14-33

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

Section §815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The Federal Subsistence Board’s intent was to provide a subsistence priority for Alaskan residents with a Customary & Traditional use determination for muskox. The Board did not feel the State muskox seasons would provide adequate opportunity and priority for subsistence users who provided active participation in the cooperative muskox management plan. Therefore, the Board determined that a Federal season managed via a Federal registration permit and the closure of Federal public lands to non-Federally qualified users was necessary.

### **Council Recommendation for Original Closure:**

Proposal 44 (1995): Seward Peninsula Subsistence Regional Advisory Council recommendation – Support, to provide a subsistence priority for local users due to a lack of subsistence priority under State regulations; Northwest Arctic Subsistence Regional Advisory Council recommendation - No recommendation for Unit 22, since Unit 23 wasn't originally included in the proposal. Although these were the original recommendations from the Councils, both Councils agreed to support the modified proposal, voted on by the Board, which included that portion of Unit 23 including and west of the Buckland River drainage (FSB 1995a: 348).

### **State Recommendation for Original Closure:**

Although ADF&G agreed with the intent of the cooperative muskox management planning effort, they believed it was advisable to postpone a decision on the proposal to close Federal public lands (Proposal 44) until the BOG had decided on State Regulations for a muskox hunt in Unit 22 and Unit 23SW. When the amendment that contained the closure language was proposed, the State had concerns in regards to permitting and wanted to be kept informed; however, no direct comments about the closure were made and the State's official recommendation was neutral.

### **Biological Background**

Muskoxen have many adaptations to allow for their survival in arctic habitats, but some of these adaptations also limit muskoxen in some areas. The large body size, and therefore rumen size, allows muskoxen to consume and process large quantities of low quality forage that may be found on the tundra (Jingfors 1982, Klein 1992, Ihl and Klein 2001). This large body size, in addition to their thick undercoat and long guard hairs, allow muskoxen to stay warm in arctic climates and conserve energy (Klein 1992). However, these adaptations make it difficult for muskoxen to regulate their body temperature following high exertion activities, such as running, and lead to groups remaining more localized rather than migrating long distances like other arctic species, such as caribou (Klein 1992).

Muskoxen are more limited by snow than caribou due to their greater foot loading, low chest height, and smaller hooves making it more difficult to travel through deep or wind-hardened snow (Klein 1992, Ihl and Klein 2001) and therefore, tend towards coastal areas potentially due to the higher winds which reduce the snow depth during winter (Dau 2005). However, muskoxen in Unit 22 tend towards higher windblown slopes during the winter on the Seward Peninsula to avoid the deep snow drifts (Ihl and Klein 2001, Adkisson, pers. comm. 2009). Muskoxen tend to be more sedentary during periods of heavy snow cover; however, adult bulls generally tend to be less conservative than the general population and will enter previously unused winter habitats due to distant movements during the fall in search of harems (Smith 1989).

The general lack of winter movements is a conservative energy budget survival strategy by muskoxen (Jingfors 1982). Winter forage for muskoxen is of very poor quality (Thing et al. 1987). As a behavioral response to poor forage quality, muskoxen settle onto sites with readily available forage so that minimum energy expenditures are made during foraging bouts (Klein 1992). Additionally,

muskoxen spend significantly more time resting in early and late winter than in the post-calving, mid-summer, and rut periods (Jingfors 1982).

Muskoxen in winter appear to be particularly susceptible to disturbance, with sufficient disturbance causing site abandonment (Jonkel et al. 1975). Muskoxen that abandon a preferred wintering site may need to travel considerable distances before reaching alternative foraging sites.

Muskoxen were extirpated in Alaska by the late 1800s, and perhaps hundreds of years earlier on the Seward Peninsula (Gorn and Dunker 2015). Muskoxen were reintroduced to Units 22C and 22D of the Seward Peninsula in 1970, and have since expanded their range to the north and east (Gorn and Dunker 2015). Currently, muskoxen occupy suitable habitat in Units 22A, 22B West, 22C, 22D, 22E, and 23-Southwest.

Muskox management on the Seward Peninsula has been guided by recommendations from the Seward Peninsula Muskox Cooperators Group. The group is composed of staff from ADF&G, NPS, BLM, U.S. Fish and Wildlife Service (USFWS), Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and representatives from other interested groups or organizations. The Cooperators Group has not met since January of 2008, but information has been regularly provided to the Chair since that time (ADF&G 2016). The following management goals form the basis of the cooperative interagency management plan for Seward Peninsula muskoxen developed from 1992 through 1994 (Nelson 1994) and follow the guidelines of ADF&G Muskox Management Policies (ADF&G 1980):

- Manage population to allow for continued growth and range expansion of the Seward Peninsula Muskox.
- Provide for a limited harvest in a manner consistent with existing State and Federal laws by following the goals/objectives endorsed by the Seward Peninsula Muskox Cooperators Group and the Seward Peninsula Cooperative Muskox Management Plan.
- Manage muskoxen along the Nome road systems of Unit 22B and 22C for viewing, education, and other nonconsumptive uses.
- Work with local reindeer herding interests to minimize conflicts between reindeer and muskoxen.
- Protect and maintain the habitats and other components of the ecosystem upon which muskoxen depend.
- Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.

After reintroduction, the muskox population experienced periods of growth between 1970 and 2000 (14% annual rate of increase) and 2000 and 2010 (3.8% annual rate of increase) (Gorn 2011).

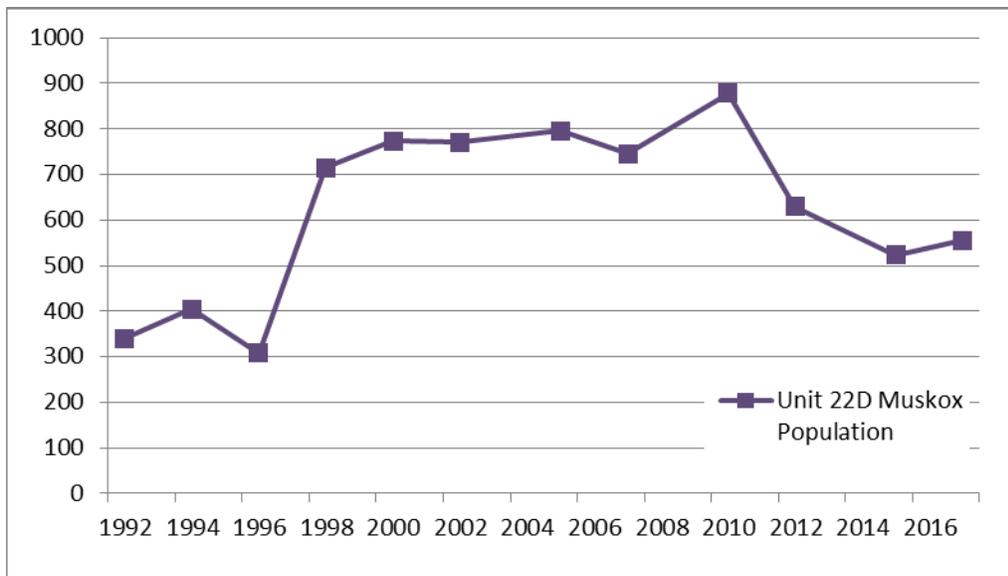


However, between 2010 and 2012 the muskox population declined 12.5% annually throughout the Seward Peninsula (Gorn 2012). Aspects of the recent decline were likely related to the high mortality rates of adult cows and declines in the number of short yearlings (10-11 month-old muskoxen) (Gorn 2012); however, some caution should be used when interpreting these mortality rates as they are based on a small sample of the population (Gorn 2011). Composition surveys also indicated declines in mature bulls between 2002 and 2010, which prompted changes to the method of determining harvest rates (Gorn 2011). Recent research suggested that selective harvest of mature bulls on the Seward Peninsula could be a driver of reduced population growth and that annual harvest be restricted to less than 10% of the estimated number of mature bulls (Schmidt and Gorn 2013). Following this change in methodology, the Seward Peninsula muskox population remained stable through 2017 (Dunker 2017).

In Unit 22D, the population followed a similar trend as the overall Seward Peninsula population. The population experienced growth from 1992 until approximately 2010, at which point the population declined and then remained stable until the most recent population survey in 2017 (Gorn and Dunker 2013, Dunker 2017; **Table 1, Figure 2**). The Unit 22D Kuzitrin drainage permit area similarly experienced a population decline since 2010, but this population has also continued to decline through 2017 (Gorn and Dunker 2013, Dunker 2017; **Table 2**). Short yearling composition in Unit 22D showed an inverse trend to the population estimates (**Table 3, Figure 3**). Bull:cow ratios in Unit 22D followed the same trend as the population, with the number of mature bulls per 100 cows increasing through 2010 and then declining and stabilizing 2015-2017 (**Table 3, Figure 4**).

**Table 1.** Muskox population estimates in Unit 22D from 1992 to 2017.

Year	Unit	Muskox Population
1992	22D	340
1994	22D	405
1996	22D	308
1998	22D	714
2000	22D	774
2002	22D	771
2005	22D	796
2007	22D	746
2010	22D	878
2012	22D	629
2015	22D	523
2017	22D	556



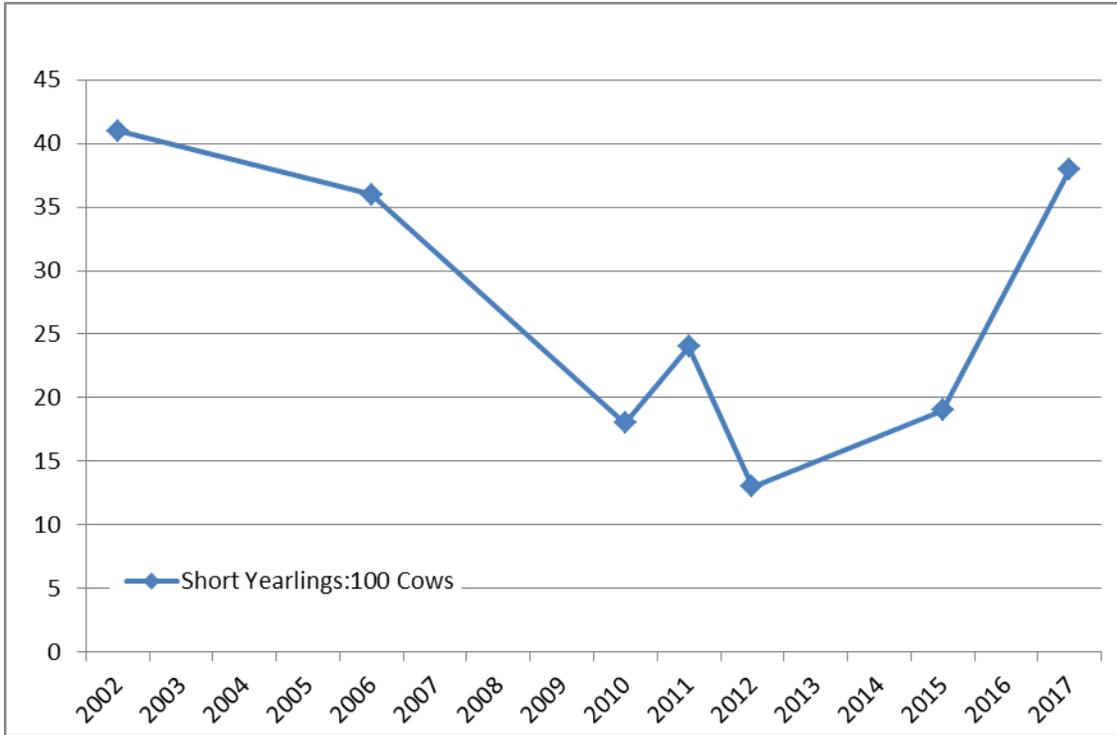
**Figure 2.** Population fluctuations in Unit 22D from 1992 to 2017.

**Table 2.** Unit 22D Kuzitrin River drainage hunt area muskox population estimates from 2010 to 2017.

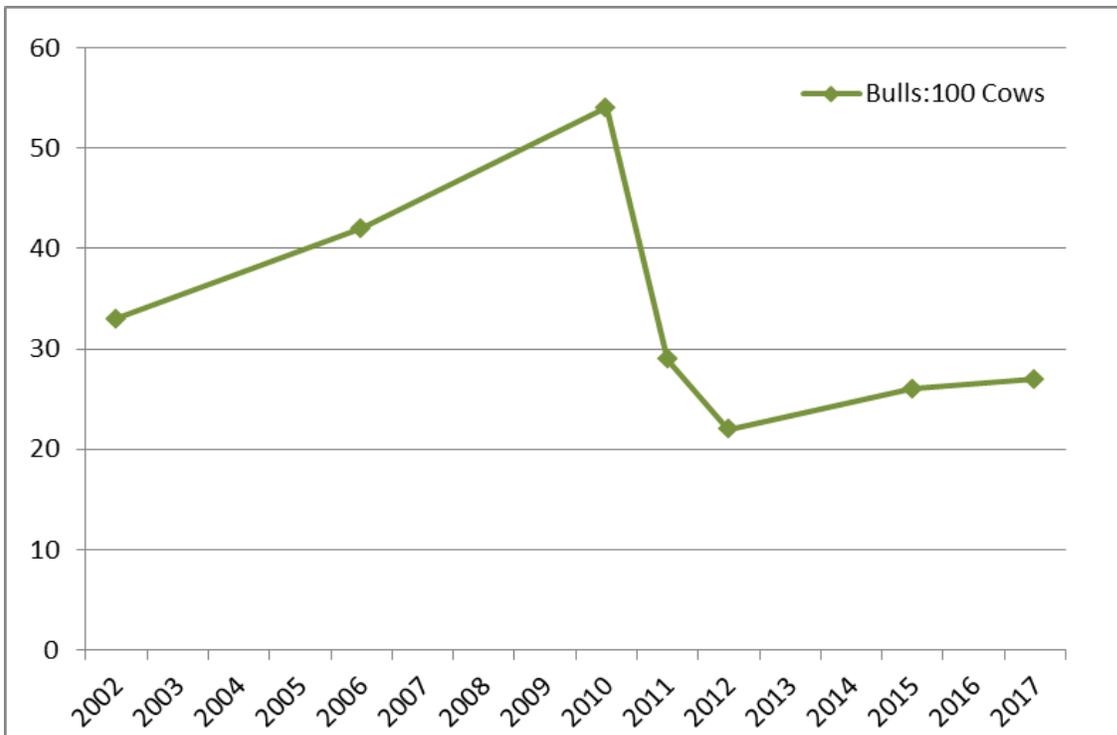
Year	Unit	Population
2010	22D Kuzitrin Drainage	285
2012	22D Kuzitrin Drainage	208
2015	22D Kuzitrin Drainage	187
2017	22D Kuzitrin Drainage	136

**Table 3.** Composition survey results in Unit 22D from 2002 to 2017.

Year	Unit	Mature Bulls:100 Cows	Short Yearlings:100 Cows
2002	22D	33	41
2006	22D	42	36
2010	22D	54	18
2011	22D	29	24
2012	22D	22	13
2015	22D	26	19
2017	22D	27	38



**Figure 3.** Short yearling composition survey estimates, in Unit 22D, from 2002 to 2017.



**Figure 4.** Bull composition survey estimates, in Unit 22D, from 2002 to 2017.

## Harvest History

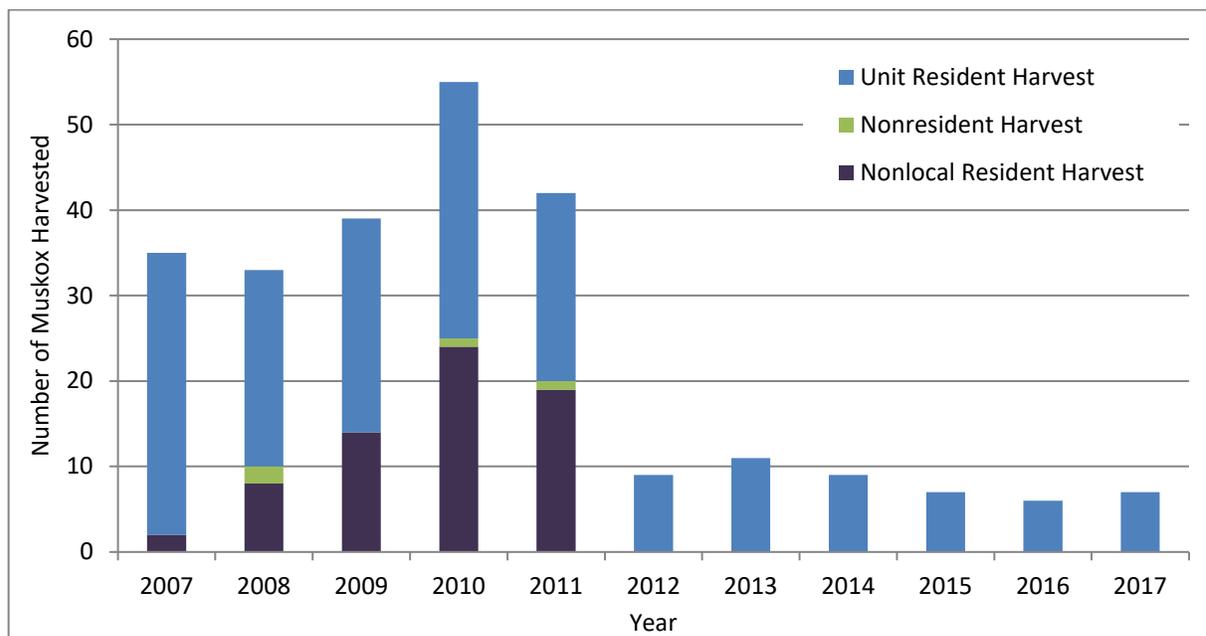
Muskox harvest in Unit 22 is based on population survey estimates on the Seward Peninsula. The allowable harvest is currently calculated as approximately 10% of the estimated number of mature bulls in a hunt area, and the overall range-wide harvest is calculated to be approximately 2% of the Seward Peninsula muskox population (Gorn and Dunker 2015). This method for evaluating the harvestable portion on the Seward Peninsula was put in place, starting in 2012, due to a decline in muskox abundance and mature bull:cow ratios (Schmidt and Gorn 2013, Dunker 2018, pers. comm.). Prior to this change, from 1998 to 2011, the harvest strategy was solely based on a percentage of hunt area muskox populations, with the harvest rate reaching up to 8% of a population in some areas (OSM 2014).

In Unit 22D, the average annual muskox harvest was 42 muskoxen from 2007 through 2011 (ADF&G 2018, Dunker 2018, pers. comm; **Table 4, Figure 5**). When the harvest management strategy was modified, in 2012, the harvest of muskox greatly decreased; nonresident harvest was no longer permitted and nonlocal resident harvest was greatly reduced (ADF&G 2018). Starting in 2012 through 2017, the State managed average annual harvest dropped to eight muskoxen in Unit 22D (ADF&G 2018), with Federally qualified subsistence users harvesting an average of one additional muskox by Federal registration permit annually (OSM 2018).

The Unit 22D Kuzitrin drainage area is currently managed under the Federal harvest permit FX2206 and State Tier II permit TX102 (**Table 5, Table 6**). In the Unit 22D Kuzitrin drainage area the State harvest quota was reduced to four muskoxen in 2012, following the modification in harvest strategy (Dunker 2018, pers.comm.). Since 2012, the allowable harvest has remained low in this hunt area. In 2014, Federal public lands in the Unit 22D Kuzitrin drainage hunt area were closed to the taking of muskox except by residents of Council, Golovin, White Mountain, Nome, Teller, and Brevig Mission and the hunt was limited to bull muskox only under both Federal and State regulations. Following this modification, average annual harvest in this subunit was reported as four muskoxen for the 2014-2017 timeframe (Adkisson 2018, pers. comm., OSM 2018).

**Table 4.** Harvest of muskox by user residency in Unit 22D from 2007 through 2017 (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm.).

Year	GMU	Unit Resident Harvest	Nonlocal Resident Harvest	Nonresident Harvest	Unspecified	Total
2007	22D	33	2	0	0	35
2008	22D	23	8	2	0	33
2009	22D	25	14	0	4	43
2010	22D	30	24	1	3	58
2011	22D	22	19	1	1	43
2012	22D	9	0	0	0	9
2013	22D	11	0	0	0	11
2014	22D	9	0	0	0	9
2015	22D	7	0	0	0	7
2016	22D	6	0	0	0	6
2017	22D	7	0	0	0	7



**Figure 5.** Harvest of muskox in Unit 22D by user residency (ADF&G 2018, Adkisson 2018, pers.comm., Dunker 2018, pers. comm.).

**Table 5.** Muskox harvest in Unit 22D Kuzitrin drainage broken down by State federal reported harvest (ADF&G 2018, Adkisson 2018, pers. comm., Dunker 2018, pers. comm., OSM 2018).

Year	GMU	Federal Harvest (FX2206)	State Harvest (TX102)	Total Harvest	Allowable Harvest Estimate
2012	22D Kuzitrin Drainage	0	2	2	4
2013	22D Kuzitrin Drainage	3	4	7	4
2014	22D Kuzitrin Drainage	1	2	3	3
2015	22D Kuzitrin Drainage	0	4	4	4
2016	22D Kuzitrin Drainage	0	4	4	3
2017	22D Kuzitrin Drainage	0	6	6	3
2018	22D Kuzitrin Drainage	-	-	-	2

**Table 6.** Permits issued for muskox harvest in Unit 22D Kuzitrin drainage (ADF&G 2018, Adkisson 2018, pers. comm. Dunker 2018, pers. comm., OSM 2018).

Hunt Area	Year	Federal Permits Issued	State Permits Issued	Federal Hunt Permit	State Hunt Permit
22D Kuzitrin Drainage	2012	5	4	FX2206	TX102
22D Kuzitrin Drainage	2013	4	4	FX2206	TX102
22D Kuzitrin Drainage	2014	2	4	FX2206	TX102
22D Kuzitrin Drainage	2015	2	4	FX2206	TX102
22D Kuzitrin Drainage	2016	2	3	FX2206	TX102
22D Kuzitrin Drainage	2017	2	3	FX2206	TX102

**OSM Conclusion:**

- maintain status quo**  
 **modify or eliminate the closure**

**Justification**

In addition to direct mortality due to harvest, muskox survival could be susceptible to herd disturbances during winter months if caloric expenditures are too high. Harvest on the Seward Peninsula was reevaluated and reduced in 2012 due to a declining muskox population. Recently, some localized populations have experienced a slight increase in population size or have remained stable, but these populations still remain at much lower numbers than in the past. The current closure, in conjunction with decreased harvest quotas, have slowed or stalled the decline in muskox populations in this portion of the Seward Peninsula. This closure should remain in place to ensure that these muskox populations have the opportunity to reach healthy levels and to ensure that Federally qualified subsistence users continue to have the opportunity to harvest this subsistence resource into the future.

## LITERATURE CITED

ADF&G. 1980. Muskox management policies. Pages X-1-X-4 *in* Alaska Wildlife Management Plans: Species Management Policies. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Miscellaneous Report. Project W-20-2. Juneau, AK.

ADF&G. 2016. Alaska Department of Fish and Game wildlife restoration grant. Federal Aid Annual Performance Report. Alaska Department of Fish and Game. Juneau, AK.

ADF&G. 2018. General Harvest Reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: August 3, 2018.

Adkisson, Ken. 2009. Subsistence Program Manager. Personal Communication: phone conversation. National Park Service. Nome, AK.

Adkisson, Ken. 2018. Subsistence Program Manager. Personal Communication: email. National Park Service. Nome, AK.

Dau, J. 2005. Unit 23 muskox management report. Page 38–48 *in* C. Brown, editor. Muskox management report of survey and inventory activities 1 July 2002–30 June 2004. Alaska Department of Fish and Game. Juneau, Alaska.

Dunker, W.R. 2017. 2017 Seward Peninsula muskox population survey summary. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.

Dunker, W.R. 2018. Area Biologist. Personal Communication: email. Alaska Department of Fish and Game, Division of Wildlife Conservation. Nome, AK.

FSB. 1995a. Transcripts of Federal Subsistence Board proceedings, April 12, 1995. Office of Subsistence Management. FWS. Anchorage, AK.

FSB. 1995b. Transcript of Federal Subsistence Board proceedings, August 15, 1995. Office of Subsistence Management. FWS. Anchorage, AK.

FSB. 1997. Transcripts of Federal Subsistence Board proceedings, April 10, 1997. Office of Subsistence Management, FWS. Anchorage, AK

FSB. 1998. Transcripts of Federal Subsistence Board proceedings, May 4, 1998. Office of Subsistence Management, FWS. Anchorage, AK

Gorn, T. 2011. Unit 22 muskox. Pages 16–47 *in* P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2008–30 June 2010. ADF&G. Project 16.0. Juneau, AK.

Gorn, T. 2012. 2012 muskox survey results memorandum. Alaska Department of Fish and Game. Nome, AK.

Gorn, T. and W. R. Dunker. 2013. Unit 22 muskox. Pages 17-51 *in* P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2013-2, Juneau, AK.

Gorn, T. and W. R. Dunker. 2015. Unit 22 muskox. Chapter 2, pages 2-1 through 2-44 in P. Harper and L. A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2012-30 June 2014. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2015-2, Juneau, AK.

Hughes, L. 2018. Wildlife Biologist. Personal Communication: email. National Park Service. Nome, AK.

Ihl, C. and D. R. Klein. 2001. Habitat and diet selection by muskoxen and reindeer in western Alaska. *Journal of Wildlife Management*. 65(4):964-972.

Jingfors, K. T. 1982. Seasonal activity budgets and movements of a reintroduced Alaskan muskox herd. *Journal of Wildlife Management*. 46(2):344-350.

Jonkel, C. J., D.R. Gray, and B. Hubert. 1975. Immobilizing and marking wild muskoxen in arctic Canada. *Journal of Wildlife Management*. 39(1):112-117.

Klein, D. R. 1992. Comparative ecological and behavioral adaptations of *Ovibos moschatus* and *Rangifer tarandus*. *Rangifer*. 12(2):47-55.

Nelson, R. 1994. Seward Peninsula cooperative muskox management plan. Unpublished report. Nome, AK.

OSM. 2001. Staff Analysis WP01-35. Pages 432–448 in Federal Subsistence Board Meeting Materials April 30–May 3, 2001. Office of Subsistence Management, FWS. Anchorage, AK. 615 pages.

OSM. 2014. Staff Analysis WP14-38. Supplemental Materials for Federal Subsistence Board Meeting April 15–May 17, 2014. Office of Subsistence Management, FWS. Anchorage, AK.

OSM. 2018. Federal Subsistence Permit System.

<https://subsistence.fws.gov/apex/f?p=104:53:14184345113765:::> Retrieved: August 3, 2018.

Schmidt, J.H. and T.S. Gorn. 2013. Possible secondary population-level effects of selective harvest of adult male muskoxen. *PLoS ONE* 8(6): e67493.doi:10.1371/journal.pone.0067493.

Smith, T. E. 1989. The role of bulls in pioneering new habitats in an expanding muskox population on the Seward Peninsula, Alaska. *Can. J. Zool.* 67: 1096-1101.

Thing, H., D. R. Klein. K. Jingfors, and S. Holt, 1987. Ecology of muskoxen in Jameson Land, northeast Greenland. *Holarctic Ecology*. 10:95-103.



**SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS****Seward Peninsula Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-44. The Council voted to maintain the status quo for all of the Unit 22 muskox closure reviews due to the currently low muskox population in the region. The Council expressed that they are worried about extremely low population numbers, potential overharvest and susceptibility to bear predation. Overharvest could lead to a population decline to the point where the population may never be able to recover. The Council expressed alarm with the decline in muskox numbers and lack of herd recovery. The Council would like to see the closure remain in place to protect the remaining population while still allowing for a very small harvest by local subsistence users. Some Council members were open to closing the hunt entirely to give the muskox population an opportunity to grow.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

**WP20–43/44/45/46 Executive Summary**

<p><b>General Description</b></p>	<p>Proposal WP20-43 requests a year-round bull season for caribou in Unit 23. <i>Submitted by: Kotzebue Sound Fish and Game Advisory Committee.</i></p> <p>Proposal WP20-44 requests that calf harvest be permitted for caribou in Unit 23. <i>Submitted by: Kotzebue Sound Fish and Game Advisory Committee.</i></p> <p>Proposal WP20-45 requests a year-round bull season for caribou in Unit 23. <i>Submitted by: Northwest Arctic Subsistence Regional Advisory Council.</i></p> <p>Proposal WP20-46 requests a year-round bull season and that calf harvest be permitted for caribou in Unit 23. <i>Submitted by: Western Arctic Caribou Herd Working Group.</i></p>
<p><b>Proposed Regulation</b></p>	<p><u>WP20-43/45</u></p> <p><b>Unit 23—Caribou</b></p> <p><i>Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage</i></p> <p><i>5 caribou per day by State registration permit as follows:</i></p> <p><i>Calves may not be taken.</i></p> <p><i>Bulls may be harvested</i> <span style="float: right;"><i>July 1–Oct. 14</i></span></p> <p><span style="float: right;"><i>Feb. 1–June 30</i></span></p> <p><i>Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.</i> <span style="float: right;"><i>July 15–Apr. 30</i></span></p> <p><i>Unit 23, remainder</i></p> <p><i>5 caribou per day by State registration permit as follows:</i></p> <p><i>Calves may not be taken.</i> <span style="float: right;"><i>July 1–Oct. 31</i></span></p> <p><i>Bulls may be harvested</i> <span style="float: right;"><i>Feb. 1–June 30</i></span></p>



**WP20–43/44/45/46 Executive Summary**

	<p><i>Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.</i></p> <p><i>Federal public lands within a 10-mile-wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by federally qualified subsistence users hunting under these regulations</i></p> <p><u>WP20-46</u></p> <p><b>Unit 23—Caribou</b></p> <p><i>Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage</i></p> <p><i>5 caribou per day by State registration permit as follows:</i>  <del><i>Calves may not be taken.</i></del></p> <p><i>Bulls may be harvested</i></p> <p><i>Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.</i></p> <p><i>Unit 23, remainder</i></p> <p><i>5 caribou per day by State registration permit as follows:</i>  <del><i>Calves may not be taken.</i></del></p>	<p><i>July 31–Mar. 31</i></p> <p><del><i>July 1–Oct. 14</i></del></p> <p><del><i>Feb. 1–June 30</i></del></p> <p><i>July 15–Apr. 30</i></p> <p><del><i>July 1–Oct. 31</i></del></p>
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WP20–43/44/45/46 Executive Summary	
	<p><i>Bulls may be harvested</i> <span style="float: right;"><i>Feb. 1–June 30</i></span></p> <p><i>Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.</i> <span style="float: right;"><i>July 31–Mar. 31</i></span></p> <p><i>Federal public lands within a 10-mile-wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by federally qualified subsistence users hunting under these regulations</i></p>
<b>OSM Conclusion</b>	<b>Support</b> Proposal WP20-46. <b>Take No Action</b> on Proposals WP20-43, WP20-44, and WP20-45.
<b>Western Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b> Proposal WP20-46. <b>Take No Action</b> on Proposals WP20-43, WP20-44, and WP20-45.
<b>Seward Peninsula Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b> Proposal WP20-46. <b>Take No Action</b> on Proposals WP20-43, WP20-44, and WP20-45.
<b>Northwest Arctic Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b> Proposal WP20-43. <b>Oppose</b> Proposal WP20-44. <b>Take No Action</b> on Proposals WP20-45 and WP20-46.
<b>North Slope Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b> Proposal WP20-45. <b>Take No Action</b> on Proposals WP20-43, WP20-44, and WP20-46.
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee (ISC) agrees with the intent of proposals WP20-43 and WP20-45, which request a year-round bull season for caribou in Unit 23. This action may help to grow the WACH by reducing pressure on cows and providing an additional subsistence opportunity for Federally qualified subsistence users.

### WP20–43/44/45/46 Executive Summary

	<p>Local testimony has suggested that meat from young bulls is frequently palatable, even during the fall rutting period.</p> <p>The ISC has concerns regarding the portion of proposals WP20-44 and WP20-46 that request that calf harvest be permitted for caribou in Unit 23. The issue of orphaned and wounded calves appears to be concentrated in the Kotzebue area. The situation may be better addressed with the formation of hunter education groups similar to the Caribou Hunter Success Working Group that is facilitated by Western Arctic Parklands, National Park Service. The Northwest Arctic Subsistence Regional Advisory Council and the Cape Krusenstern and Kobuk Valley Subsistence Resource Commissions (SRCs) have expressed concern regarding the hunting of calf caribou, especially considering ongoing conservation concerns. Members of both SRCs indicated that active calf harvest is no longer a cultural practice. Several members of these bodies have indicated a need to address orphaned and wounded calves, and not wanting hunters to be legally liable for dispatching and potentially utilizing calves in apparent distress due to these circumstances.</p> <p>The WACH Management plan recommends a prohibition on calf harvests while in the conservative management mode, which the WACH is currently in, and thus the prohibition on calf harvest may be warranted. The plan’s focus on conservation could be justification for opposing the Western Interior and Seward Peninsula Subsistence Regional Advisory Councils’ recommendations to support calf harvest opportunity. Still, calf harvest is expected to comprise a very small portion of the harvest, and with the new registration permit in place, if WP20-44 and WP20-46 are adopted, and if management agencies note significant calf harvests, they could submit a special action request for prohibiting harvest of calves. The Alaska Board of Game did, however, lift the prohibition of calf harvest in Unit 23 under State regulations, so opposing this action would make Federal regulations more restrictive than the State. Because much of the land immediately surrounding Kotzebue is State managed, a prohibition on Federal lands would still allow for orphaned and wounded calves to be harvested near Kotzebue.</p>
<b>ADF&amp;G Comments</b>	<b>Support</b> WP20-46; <b>Neutral</b> on WP20-43, WP20-44, and WP20-45
<b>Written Public Comments</b>	<b>None</b>

## **STAFF ANALYSIS**

### **WP20-43/44/45/46**

#### **ISSUES**

Wildlife Proposal WP20-43, submitted by the Kotzebue Sound Fish and Game Advisory Committee (Kotzebue Sound AC), requests a year-round bull season for caribou in Unit 23.

Wildlife Proposal WP20-44, submitted by the Kotzebue Sound AC, requests that calf harvest be permitted for caribou in Unit 23.

Wildlife Proposal WP20-45, submitted by the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council), requests a year-round bull season for caribou in Unit 23.

Wildlife Proposal WP20-46, submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group), requests a year-round bull season and that calf harvest be permitted for caribou in Unit 23.

#### **DISCUSSION**

The Kotzebue Sound AC, the proponent for WP20-43, noted that a variety of conservation measures were taken during the recent decline in the WACH population, including closing the bull season during the rut. As local people generally harvest bulls in September and avoid them during rut, little effect on traditional hunting practices was anticipated. However, in recent years, the timing of the Western Arctic Caribou Herd (WACH) migration has occurred later in the year, resulting in the bull season already being closed when caribou pass through accessible areas. This has shifted harvest pressure to cows, which could become a conservation concern. If the bull season remained open year-round, hunters could harvest young bulls that do not stink during rut like older bulls, and conserve cows to help grow the herd. Compliance issues associated with distinguishing between bulls and cows for harvest would also be alleviated.

The Kotzebue Sound AC, the proponent for WP20-44, states that removing the prohibition on calf harvest would allow harvest of orphaned calves that would otherwise succumb to predators. The proponent states that no one targets calves, but in rare circumstances, it makes sense to harvest an abandoned calf for human consumption rather than leaving it for other predators.

The Northwest Arctic Council, the proponent for WP20-45, states that eliminating the bull caribou closure would allow harvest of young bulls, reducing harvest pressure on cows. As the timing of fall caribou migration has shifted later in the year, only the cow season is open when caribou are accessible for harvest. The proponent also states that eliminating the bull closure takes pressure off of Federally qualified subsistence users, who can spend a lot of time and fuel accessing hunting areas, to harvest caribou during a certain timeframe.

The WACH Working Group, the proponent for WP20-46, provided the same rationale for the removal of the bull closure and prohibition on calf harvest as the Kotzebue AC, the proponent for WP20-43/44 (see above).

### Existing Federal Regulations

#### Unit 23—Caribou

*Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage*

*5 caribou per day by State registration permit as follows:*

*Calves may not be taken.*

*Bulls may be harvested*

*July 1–Oct. 14*

*Feb. 1–June 30*

*Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.*

*July 15–Apr. 30*

*Unit 23, remainder*

*5 caribou per day by State registration permit as follows:*

*Calves may not be taken.*

*Bulls may be harvested*

*July 1–Oct. 31*

*Feb. 1–June 30*

*Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.*

*July 31–Mar. 31*

*Federal public lands within a 10-mile-wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by federally qualified subsistence users hunting under these regulations*



**Proposed Federal Regulations**

WP20-43/45

**Unit 23—Caribou**

*Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage*

*5 caribou per day by State registration permit as follows:*

*Calves may not be taken.*

*Bulls may be harvested*

*July 1—~~Oct. 14~~*

*~~Feb. 1~~—June 30*

*Cows may be harvested. However, cows accompanied by calves may not be taken July 15—Oct. 14.*

*July 15—Apr. 30*

*Unit 23, remainder*

*5 caribou per day by State registration permit as follows:*

*Calves may not be taken.*

*Bulls may be harvested*

*July 1—~~Oct. 31~~*

*~~Feb. 1~~—June 30*

*Cows may be harvested. However, cows accompanied by calves may not be taken July 31—Oct. 14.*

*July 31—Mar.*

*31*

*Federal public lands within a 10-mile-wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by federally qualified subsistence users hunting under these regulations*

WP20-44

**Unit 23—Caribou**

*Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage*

5 caribou per day by State registration permit as follows:

~~Calves may not be taken.~~

Bulls may be harvested

July 1–Oct. 14

Feb. 1–June 30

Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.

July 15–Apr. 30

Unit 23, remainder

5 caribou per day by State registration permit as follows:

~~Calves may not be taken.~~

Bulls may be harvested

July 1–Oct. 31

Feb. 1–June 30

Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.

July 31–Mar.

31

Federal public lands within a 10-mile-wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by federally qualified subsistence users hunting under these regulations

WP20-46

**Unit 23—Caribou**

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage

5 caribou per day by State registration permit as follows:

~~Calves may not be taken.~~

Bulls may be harvested

July 1–Oct. 14

~~Feb. 1–June 30~~

Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.

July 15–Apr. 30

Unit 23, remainder

5 caribou per day by State registration permit as follows:

~~Calves may not be taken.~~

Bulls may be harvested

~~July 1–Oct. 31~~

~~Feb. 1–June 30~~

Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.

July 31–Mar.

31

Federal public lands within a 10-mile-wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by federally qualified subsistence users hunting under these regulations

**Existing State Regulations**

**Unit 23—Caribou**

23, north of and including Singoalik River drainage	Residents—Five caribou per day; however, calves may not be taken. Permits available online at <a href="http://hunt.alaska.gov">http://hunt.alaska.gov</a> or in person in Kotzebue, Barrow, and at license vendors in Unit 23 and 26A beginning June 20.	Bulls	RC907	July 1-Oct. 14 Feb. 1-June 30
		Cows	RC907	Jul. 15-Apr. 30
			HT	Aug. 1-Sept. 30
23 remainder	Residents—Five caribou per day; however, calves may not be taken. Permits available online at <a href="http://hunt.alaska.gov">http://hunt.alaska.gov</a> or in person in Kotzebue, Barrow, and at license vendors in Unit 23 and 26A beginning June 20.	Bulls	RC907	July 1-Oct. 14 Feb. 1-June 30
		Cows	RC907	Sept. 1-Mar. 31
			HT	Aug. 1-Sept. 30
	Nonresidents—One bull; however, calves may not be taken.			

## **Extent of Federal Public Lands**

Unit 23 is comprised of 71% Federal public lands and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

## **Customary and Traditional Use Determinations**

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23 (**Map 1**).

## **Regulatory History**

In 1990, the caribou hunting season in Unit 23 was open year round with a five caribou per day harvest limit and a restriction on the harvest of cows May 16-June 30.

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-51 to increase the caribou harvest limit from five to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (**Map 1**, FWS 1995b, 1997).

In 2000, the Board adopted Proposal WP00-53 with modification, allowing the use of snowmachines to position a hunter to select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region (FWS 2000a).

In 2013, an aerial photo census indicated significant declines in the Teshekpuk Caribou herd (TCH), WACH, and possibly the Central Arctic Caribou Herd (CACH) populations (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering bag limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas, and prohibiting calf harvest – were adopted to slow or reverse the population decline. The regulatory changes took effect on July 1, 2015.

In 2015, four special actions, WSA15-03/04/05/06, requesting changes to caribou regulations in Units 23, 24, and 26, were submitted by the North Slope Council and approved with modification by the Board, effective July 1, 2015. Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to five caribou per day, the harvest season would be shortened for bulls and cows, and the harvest of

calves would be prohibited. The Board did not establish a new hunt area, applying the restrictions to all of Unit 23 and also prohibited the harvest of cows with calves. These State and Federal regulatory changes were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

Five proposals (WP16-37, WP16-48, WP16-49/52, and WP16-61) concerning caribou regulations in Unit 23 were submitted to the Board for the 2016-2018 wildlife regulatory cycle. The Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to five caribou per day, restrict bull harvest during rut and cow harvest around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.), and to create a new hunt area in the northwest corner of Unit 23. The Board took no action on the remaining proposals (WP16-49/52, and WP16-61) due to action taken on WP16-37.

In 2015, the Northwest Arctic Council submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users (NFQU) for the 2016/17 regulatory year. The Council stated that their request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 (a similar proposal was passed for Unit 22 in 2016). The Alaska Department of Fish and Game (ADF&G) submitted the proposal in order to better monitor harvest and improve management flexibility. Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic Council submitted temporary special action request, WSA17-03 to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users for the

2017/18 regulatory year. The Council stated that the intent of the proposed closure was to ensure subsistence use in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board voted to approve WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage, to caribou hunting except by Federally qualified subsistence users for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users, and that closure of the specified area was warranted in order to continue subsistence use.

In April 2018, the Board adopted Proposals WP18-46 with modification and WP18-48 (effective July 1, 2018). Proposal WP18-46 requested closing caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users (similar to WSA16-01 and WSA17-03). The Board adopted WP18-46 with the same modification as WSA17-03 (see above) as the Northwest Arctic, Western Interior, and Seward Peninsula Councils as well as the village of Noatak supported this modification and viewed the targeted closure as effectively addressing user conflicts and the continuation of subsistence uses. The Board also adopted WP18-48 to require State registration permits for caribou hunting in Units 22, 23, and 26A to improve harvest reporting and herd management, and to align with State regulations.

### Controlled Use Areas

In 1988, the Traditional Council of Noatak submitted a proposal to the BOG to create the Noatak Controlled Use Area (CUA) in order to restrict the use of aircraft in any manner for big game hunting Aug. 15 - Sept. 20 due to user conflicts (Fall 1990:86). The proposed CUA extended five miles on either side of the Noatak River, from the mouth of the Eli River upstream to the mouth of the Nimiuktuk River, including the north side of Kivivik Creek (ADF&G 1988:47). The BOG adopted the proposal with modification to close a much smaller area extending from the Kugururok River to Sapun Creek from Aug. 20-Sept. 20.

The CUA was expanded in 1994 and modified in 2017 (Betchkal 2015, Halas 2015, ADF&G 2017a). From 1994-2016, the Noatak CUA consisted of a 10-mile wide corridor (5 miles either side) along the Noatak River from its mouth to Sapun Creek with approximately 80 miles of the CUA within Noatak National Preserve (NP) (**Map 2**, Betchkal 2015). The closure dates from 1994-2009 were Aug. 25-Sept. 15. In 2009 (effective 2010), the BOG adopted Proposal 22 to expand the closure dates to Aug. 15-Sept. 30 in response to the timing of caribou migration becoming less predictable (ADF&G 2009). During the 2016/17 BOG regulatory cycle, the Noatak/Kivalina & Kotzebue AC proposed (Proposal 44) extending the upriver boundary of the Noatak CUA to the Cutler River, citing increased user conflicts as their rationale (ADF&G 2017b). In January 2017, the BOG approved amended Proposal 44 to shift the boundaries of the Noatak CUA to start at the mouth of the Agashashok River and end at the mouth of the Nimiuktuk River with approximately 105 miles within Noatak NP (**Map 2**, ADF&G 2017a).

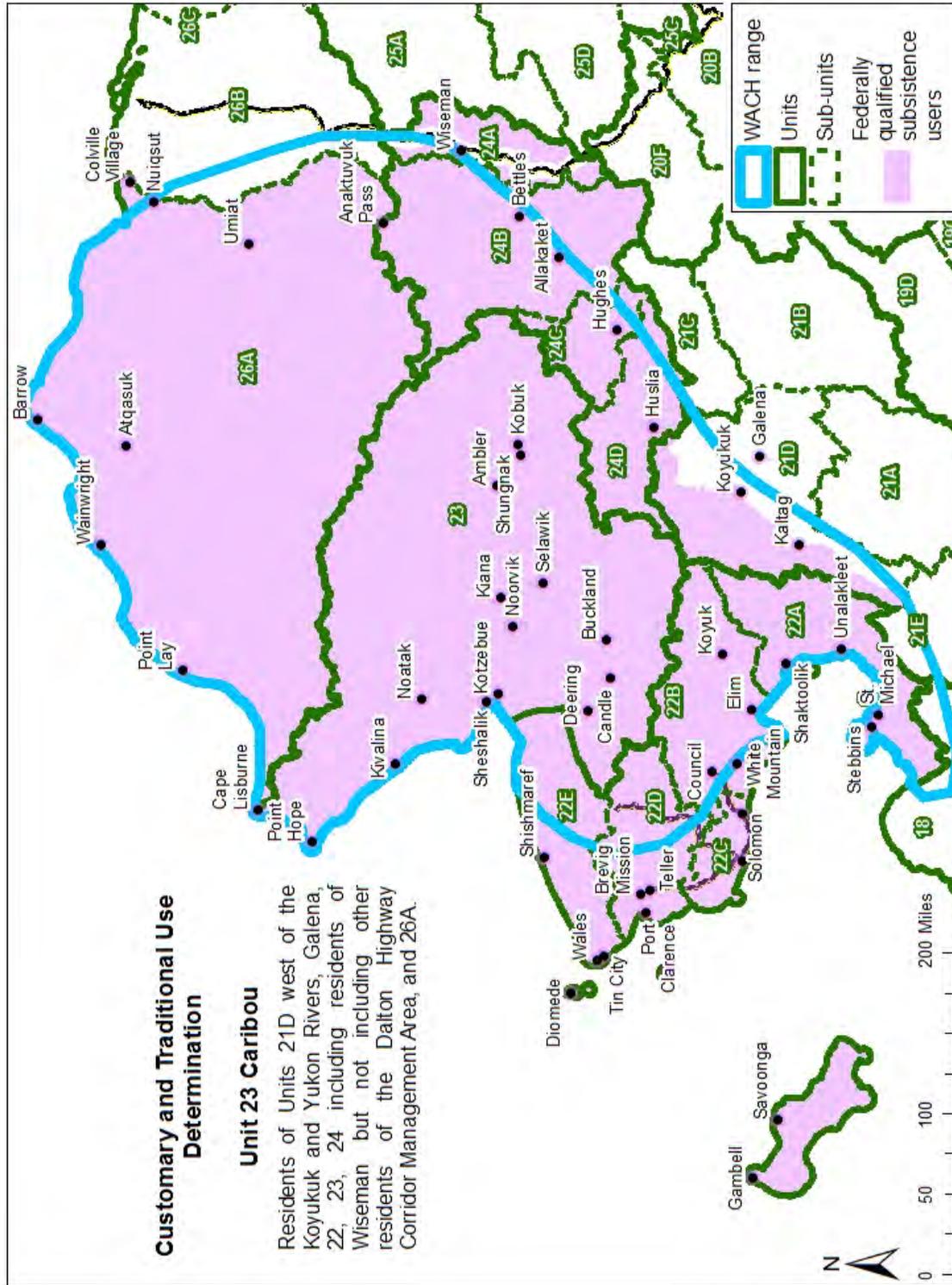
In 1990, the Noatak CUA was adopted under Federal regulations. In 1995, the Board adopted Proposal P95-50 to expand the time period and area of the CUA to Aug. 25-Sept. 15 and the mouth of the Noatak River upstream to the mouth of Sapun Creek, respectively, which aligned with current State regulations. In 2008, Proposals WP08-50 and 51 requested modifications to the Noatak CUA dates. These proposals were submitted in response to caribou migration occurring later in the season, to improve caribou harvest for subsistence users, and to decrease conflicts between local and nonlocal hunters. The Board deferred these proposals to the next regulatory cycle. In 2010, Proposals WP10-82, 83, and 85 requested similar date changes. The Board adopted WP10-85 to expand the time period during which aircraft are restricted in the Noatak CUA to Aug. 15-Sept. 30, which aligned with the current State regulations.

In 2011, Selawik National Wildlife Refuge (NWR) designated refuge lands in the northwest portion of the refuge as closed to big game hunting by commercial guides and transporters through their comprehensive conservation plan (FWS 2011, 2014). These refuge lands are intermingled with private lands near the villages of Noorvik and Selawik (**Map 2**). The purpose of this closure was to minimize trespass on private lands and to reduce user conflicts (FWS 2011).

In 2012, the NPS established a Special Commercial Use Area or “delayed entry zone” in the western portion of the Noatak NP (Halas 2015, Fix and Ackerman Fix 2015). Within this zone, transporters can only transport nonlocal caribou hunters after September 15 unless otherwise specified by the Western Arctic Parklands (WEAR) superintendent in consultation with commercial operators, other agencies and local villages (Halas 2015). The purpose of this zone is to allow a sufficient number of caribou to cross the Noatak River and establish migration routes, to limit interactions between local and nonlocal hunters, and to allow local hunters the first opportunity to harvest caribou in that area (**Map 2**, FWS 2014, Halas 2015). To date, the Superintendent has not used his/her authority to alter the closure dates in response to changes in caribou herd migration or to meet the needs of local hunters (Halas 2015).

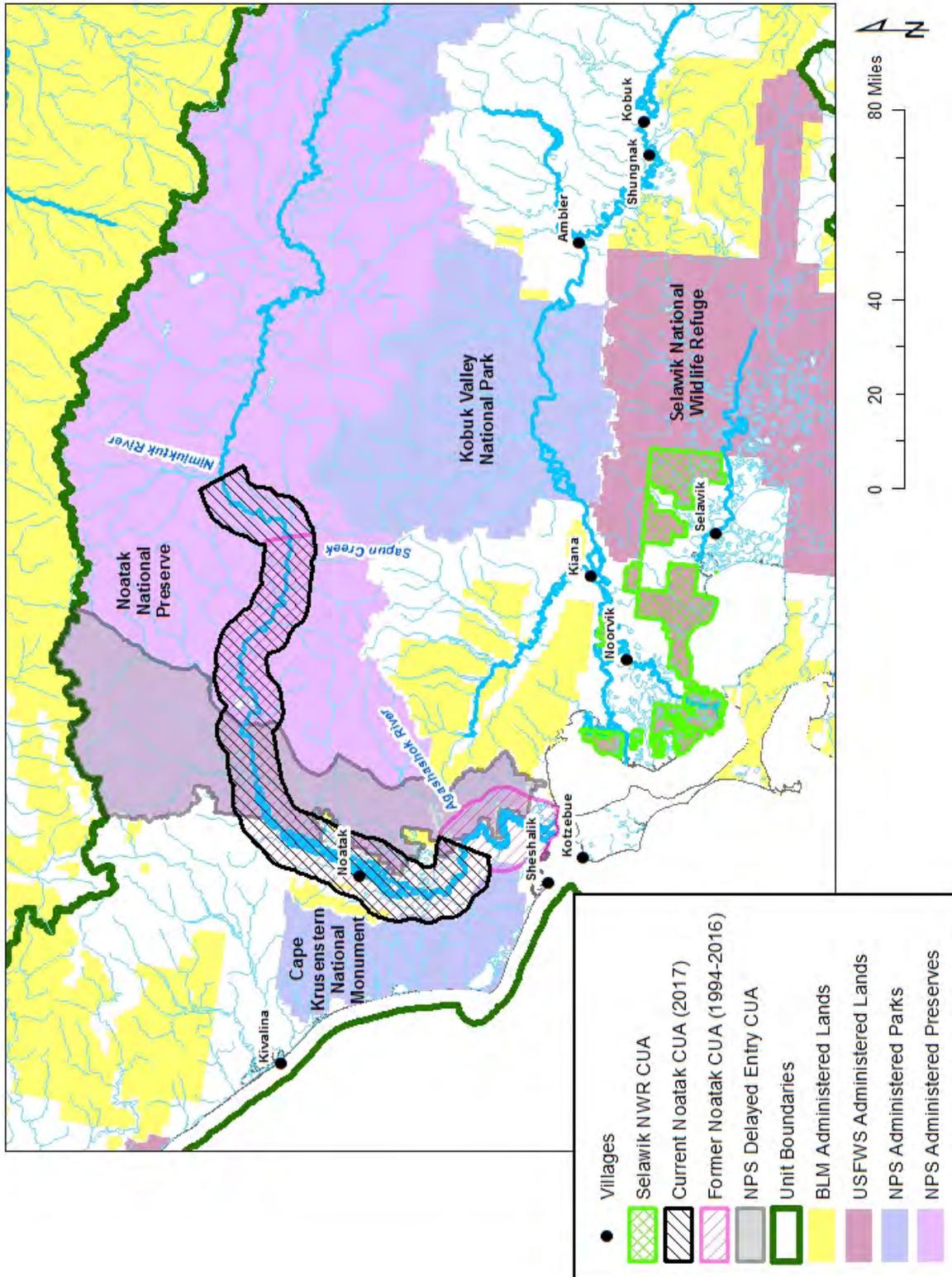
### **Current Events**

The Kotzebue Sound AC and the WACH Working Group submitted proposals to the BOG that mirror Proposal WP20-43 (eliminate bull closure) and WP20-44 (eliminate prohibition on calves) to maintain alignment of State and Federal regulations and reduce user confusion. The BOG acted on these proposals at its Arctic/Western Region meeting in January 2020. The BOG adopted Proposal 20 to open a year-round bull caribou season in Unit 23 and adopted Proposal 24 as amended to remove the restriction on caribou calf harvest in Units 22, 23, and 26A.



**Map 1.** Customary and Traditional (C&T) Use Determination for caribou in Unit 23. C&T Determinations indicate which Alaska rural residents are Federally qualified subsistence users. The range of the WACH is included for context.





Map 2. Federal and State Hunting Management Areas in Unit 23.

## Biological Background

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou as  $10 \pm 2.3$  years. Although the underlying mechanisms causing these fluctuations are uncertain, climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) may play an important role (Gunn 2001, Joly et al. 2011). Climatic oscillations can influence factors such as snow depth, icing, forage quality and growth, wildfire occurrence, insect levels, and predation, which all contribute to caribou population dynamics (Joly et al. 2011). Density-dependent reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

Caribou calving generally occurs from late May to mid-June (Dau 2013). Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition (Holand et al. 2012). Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, Joly 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014).

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 3**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds, but the degree of mixing seems to be increasing. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 4**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26 based on back-calculations from calving dates using a 230 day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 and 2019 (WACH Working Group 2011, 2019). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). Further revisions to Table 1 were made by the WACH Working Group at their 2019 meeting. However, copies of this updated table are yet to be officially published. The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a). In 2017, the herd increased to an estimated 259,000 caribou (Parrett 2017a). The 2019 population estimate is 244,000 caribou (Hansen 2019a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH was still within the conservative

management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a).

ADF&G conducted another photocensus in the summer of 2017 and also transitioned from film to digital cameras, which enhanced their ability to complete a successful and timely census (Parrett 2017a). The 2017 photocensus yielded a minimum count of 239,055 caribou with a point estimate of 259,000 caribou (Standard Error = 29,000) (Parrett 2017a). However, the use of new technology (digital cameras) may have influenced the counts, complicating comparisons between 2017 and past years. At their 2017 meeting, the WACH Working Group voted on the status of the herd, agreeing upon the conservative stable level (WACH WG 2017, **Table 1**). While population numbers alone indicate liberal management, the Working Group supported maintaining conservative management due to the use of new technology and because a large proportion of the herd is currently young caribou that are still vulnerable to harsh winters (WACH WG 2017).

ADF&G attempted another photocensus in 2018, but could not complete one due to weather and insufficient aggregation of the caribou (NWARAC 2019). At their 2018 meeting, the WACH Working Group voted to maintain the herd's status at the conservative stable level since updated population data was not available. ADF&G completed a photocensus in July 2019, which yielded a point estimate of 244,000 caribou (Standard Error=12,798) (Hansen 2019a). At their 2019 meeting, the WACH Working Group voted to change the herd's status to the conservative declining level based on poor adult cow survival and a decline in the 2019 population estimate.

Between 1970 and 2017, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality, and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). Prichard (2009) developed a population model specifically for the WACH using various demographic parameters. Prichard (2009) found adult survival to have the largest impact on population size, followed by calf survival and then parturition rates.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2017, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 47 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003 through 2016, SY:adult ratios have averaged 16 SY:100 adults/year (**Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). 2017 and 2018 SY:adult ratios were also high at 22 SY:100 adults and 23 SY:100 adults, respectively (NWARAC 2019). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

Cow mortality affects the trajectory of the herd (Dau 2011, 2013, NWARAC 2019). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Mortality rates declined in 2015 and 2016, but then increased sharply in 2017. However, the increased mortality rate in 2017 may be due to a low and aging sample size as few caribou have been collared in the past two years (NWARAC 2019). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled wolves to prey upon them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

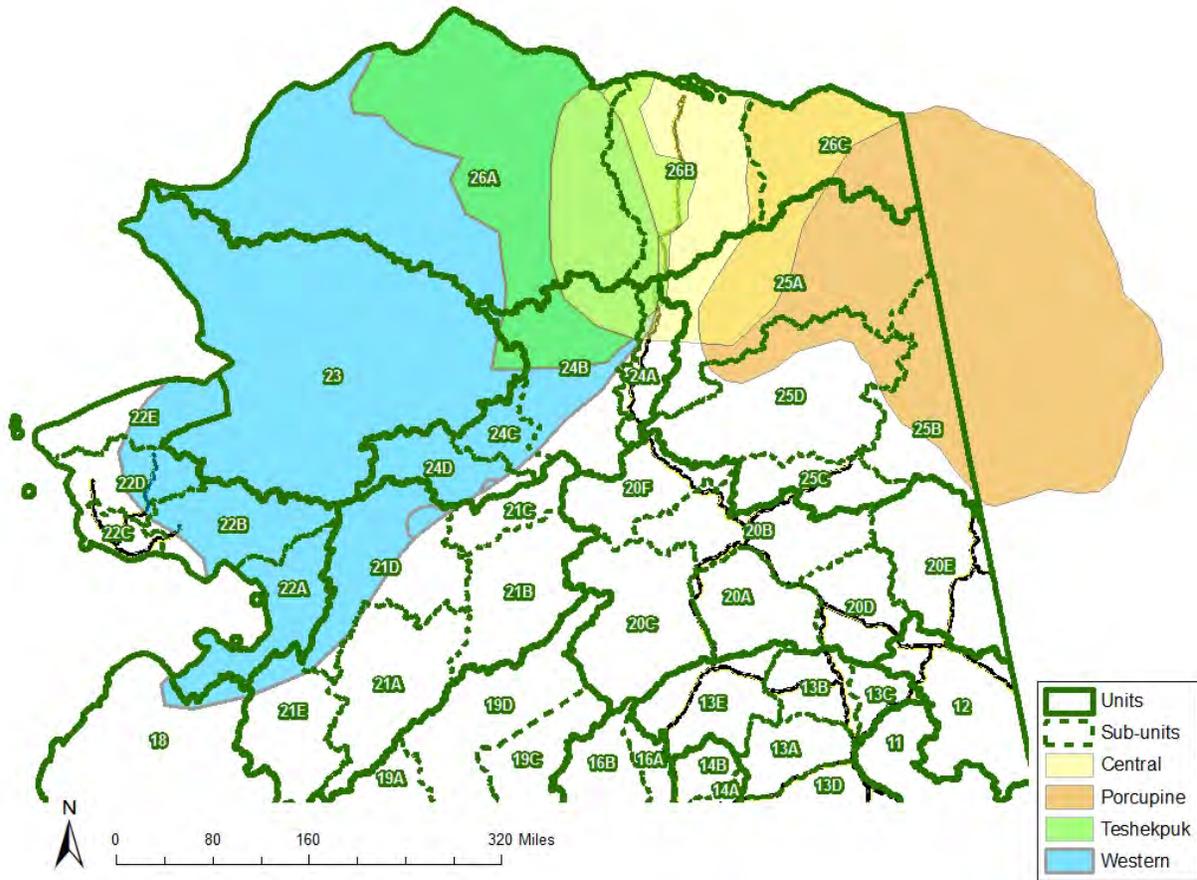
Far more caribou died from natural causes than from hunting between 1992 and 2012 (Dau 2013). Cow mortality remained constant throughout the year, but natural and harvest mortality for bulls

spiked during the fall. Predation, particularly by wolves, accounted for the majority of natural mortality (Dau 2013). However as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cows can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

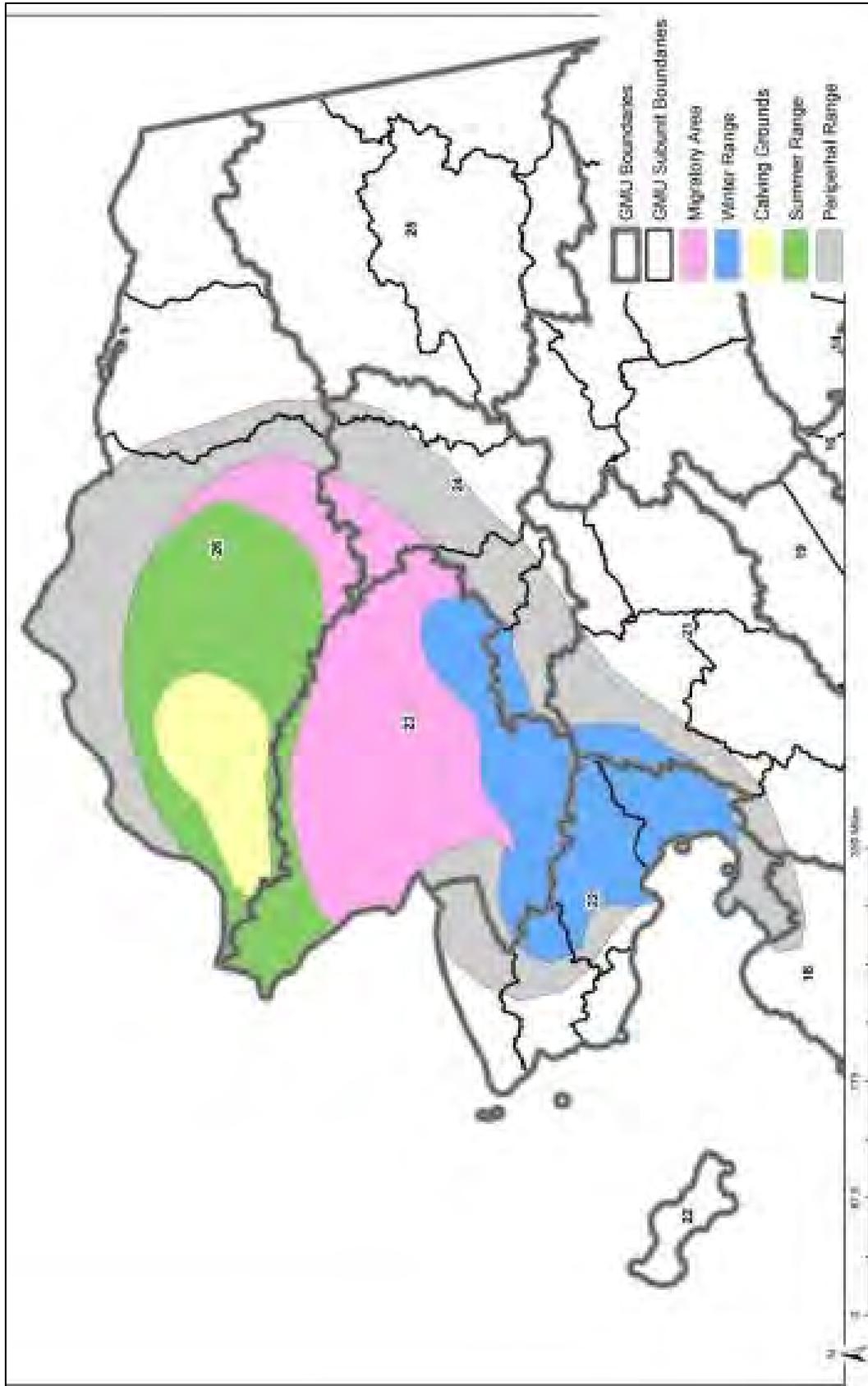
Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Dau 2015a, 2014). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the herd because animals have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The fall body condition of adult females in 2015 was characterized as “fat” (mean= 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015b). However, the body condition of the WACH in the spring may be a better indicator of the effects of range condition versus the fall when the body condition of the herd is routinely assessed and when caribou are in prime condition (Joly 2015, pers. comm.).

### Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Miller 2003).



Map 3. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.

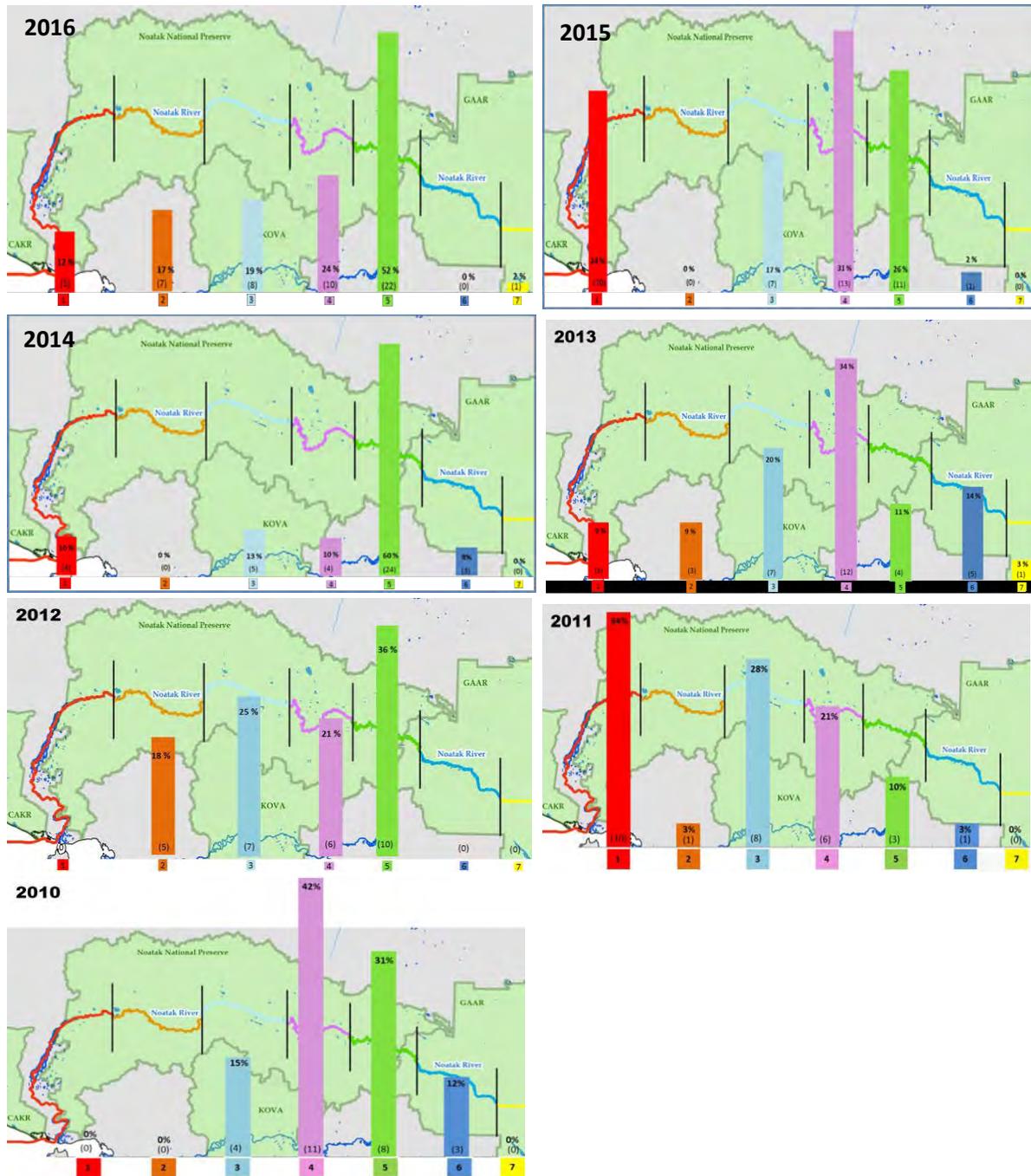


**Map 4.** Range of the WACH.

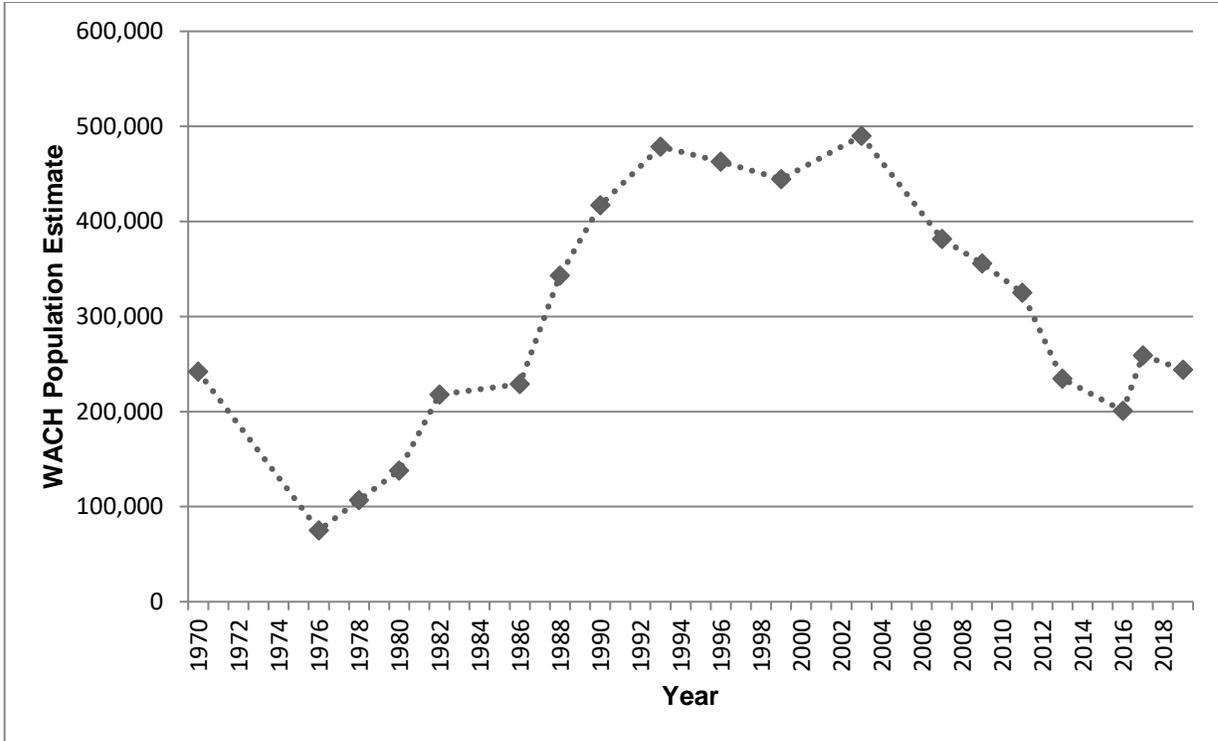


**Table 1.** Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

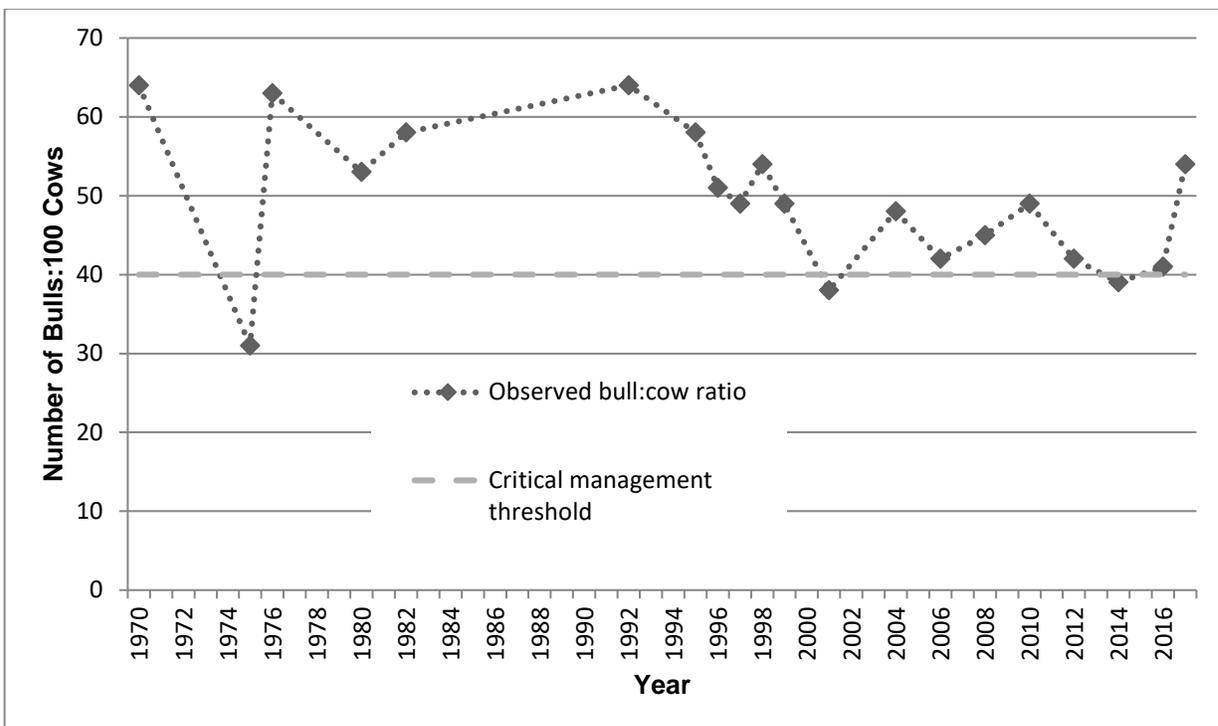
<b>Liberal</b>				
<b>Conservative</b>				
<b>Preservative</b>				
<b>Critical</b> Keep Bull: Cow ratio ≥ 40 Bulls: 100 Cows				



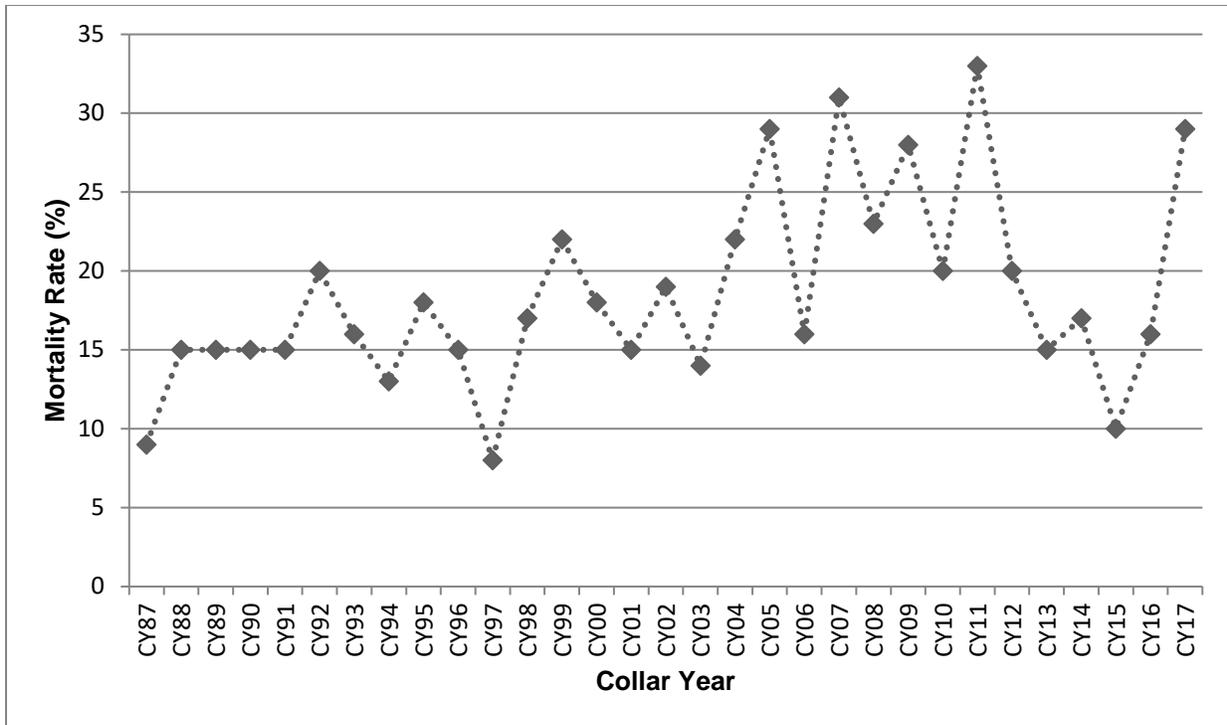
**Figure 1.** Distribution of caribou crossing the Noatak River during fall. Histograms depict where colored female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WAH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).



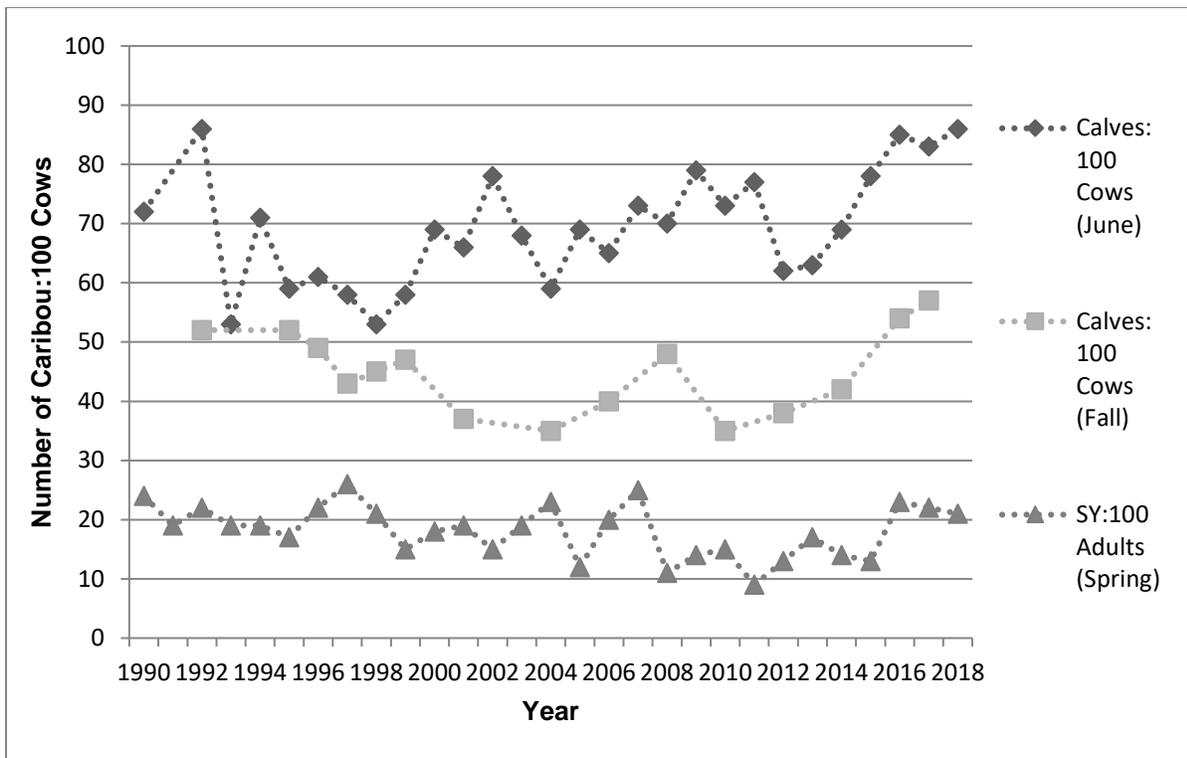
**Figure 2.** The WACH population estimates from 1970–2018. Population estimates from 1986–2018 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a, Parrett 2017a, Hansen 2019a).



**Figure 3.** Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c, Parrett 2017a).



**Figure 4.** Mortality rate of radio-collared cow caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b, NWARAC 2019). Collar Year = 1 Oct-30 Sept.



**Figure 5.** Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c, Parrett 2017a, NWARAC 2019). Short yearlings are 10-11 months old caribou.

## Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. However, the meaning of subsistence extends beyond human nutrition for Alaska's native peoples. Holthaus describes subsistence as the base on which Alaska Native cultures establish their identities through "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration" (2013: 70).

Earnest Burch describes the importance of caribou for the people of Northwest Alaska (Burch 1998). Caribou have been a primary resource for the Inupiat of the Northwest Arctic Region for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch notes: "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned" (2012:40).

Depending on where they were based, most Northwest Arctic Inupiaq Nations relied upon caribou as a primary food source and for their hides. Hides provided the best clothing material available to the Inupiat. Burch documents a preference for the late summer coats of caribou cows and calves, which were seen as providing both the softness and quality needed for high quality clothing, after the summer shedding and before acquiring a shaggy winter coat. While bulls were targeted for their fat stores and meat, cows and calves were targeted for their hides, which were considered prime during the early part of August (Burch 1998). The summer hunt's primary objective was the acquisition of hides. "It reportedly took two calf skins to make one parka, and every hunter tried to get at least twenty of them" (Burch 1998:163). Not only were the hides necessary to keep a family clothed during the winter; they also served as an important trade good.

The WACH population declined rapidly in the Northwest Arctic beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH began to rebound in the 1940s. Caribou continue to be the most important land animal consumed in this region (Burch 1998, ADF&G 1992). Foote wrote about caribou hunting in the Noatak region sixty years ago, noting that life would not be possible in Noatak without this source of meat (1959, 1961).

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). Hunt timing changed—and continues to change—from year to year according to the availability of caribou and their migration paths (ADF&G 1991). Ideally, caribou harvesting occurs when the

weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings.

Prior to freeze-up, bulls have traditionally been preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993). After freeze-up, small groups of caribou that have over-wintered may be harvested by hunters in areas that are accessible by snowmachine. Braem et al. explain, “Hunters harvest cows during the winter because they are fatter than bulls” (2015:141). Today, communities in the southern portion of Unit 23 (Buckland, Deering) harvest caribou in the winter and spring, while the other communities in Unit 23 harvest caribou in the fall, winter, and spring. Kivalina also harvests caribou in July (ADF&G 1992).

The present-day human population in Unit 23 includes 11 regional Inupiaq groups (Burch 1998). Kotzebue is the regional hub of transportation and commerce and is the home to the majority of non-Natives in the region. The population of Unit 23 was approximately 7,500 in 2010, according to the U.S. Census (ADOLWD 2016). Caribou continue to dominate the subsistence harvest of the region. In household harvest surveys conducted between 1964 and 2012, caribou were often the most harvested species, more than any other wild resource, in lbs. of edible weight (**Appendix 1**) (ADF&G 2016a). Based on these surveys, in a typical study year, the harvest of caribou was between 100 and 200 lbs. per person in northwest Alaska (**Appendix 1**) (ADF&G 2016a).

Present-day use of caribou calves appears to be limited, but does occur opportunistically. When calves are harvested, they can provide a special food for elders. At the winter 2019 Northwest Arctic Council meeting, one member from Kotzebue characterized local use of caribou calves: “We do use calves for baby garments, little mukluks and outfits and the meat is good for elders. They don’t like tough food...these are desired food for elderly that is soft and tender, especially those in the long-term care” (NWARAC 2019:185). This member indicated that in cases in which calves are orphaned, they could go to good use by the community.

At the fall 2015 Northwest Arctic Council meeting, in the context of discussing cow closures due to heightened conservation concerns at that time, two members stated that local hunters do not take calves or want to take calves (NWARAC 2015). Elders in the region have participated in efforts to educate hunters to avoid orphaning caribou calves. At the fall 2018 Northwest Arctic Council meeting, Kotzebue community member Cyrus Harris read guidelines from the Caribou Hunter Safety Group into the record, which included advice to hunters about how to avoid accidentally taking cows with calves:

“Take your time. Observe caribou groups before you approach. Pick out the animals you want to harvest. Look for animals that are fat and in good shape before you shoot...When mature bulls are in the rut, younger bulls and barren cows can still provide good meat. Don’t shoot cows with calves. If you want to take a cow, wait to see if it has a calf with it” (NWARAC 2018: 83).

There was discussion at the winter 2019 Northwest Arctic Council meeting regarding whether or not to submit a proposal to rescind the ban on calf harvest (NWARAC 2019). Council members explored

the value of being able to take calves that have been orphaned, but had concerns about the feasibility of distinguishing between orphaned and merely temporarily separated calves in practice. There was also testimony regarding the possibility that orphaned calves may survive on their own or be adopted by other cows in the herd, as has been observed by reindeer herders in the region. The member who had initially made a motion to submit a proposal to allow calf harvest withdrew her motion after hearing testimony from other Council members. The motion was still voted upon and failed unanimously.

### **Harvest History**

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is stable is calculated as 7% of the estimated population (WACH working group 2011, Parrett 2017b, pers. comm.). In 2017, the WACH harvestable surplus was 18,130 caribou (7% of 259,000 caribou). Assuming the herd remained stable in 2018 and 2019, the harvestable surplus remains 18,130 caribou. This is a substantial increase from the 2016 harvestable surplus of 12,056 caribou when harvest likely exceeded sustainable levels. However, there is substantial uncertainty in harvestable surplus estimates (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, “even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH.”

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G’s Division of Wildlife Conservation Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community, which are based on mean values from multiple community harvest surveys (Dau 2015a). In 2015, Craig’s models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig’s models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig’s new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a). Hunters considered local by ADF&G are functionally identical to Federally qualified subsistence users (e.g. Residents of St. Lawrence Island are technically Federally qualified subsistence users, but do not frequently harvest Western Arctic caribou) (**Map 1**).

From 1999–2017, the average estimated total harvest from the WACH was 14,119 caribou/year, ranging from 11,729-16,219 caribou/year (Hansen 2020, pers. comm., **Figure 6**). These harvest levels are within the conservative harvest level specified in the WACH Management Plan (**Table 1**). In 2015 and 2016, total local harvest estimates were 14,360 caribou and 14,971 caribou, respectively (Hansen 2019b, pers. comm.). While these harvest estimates are below the 2017-2019 harvestable surpluses, they exceed the 2016 harvestable surplus. Of note, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

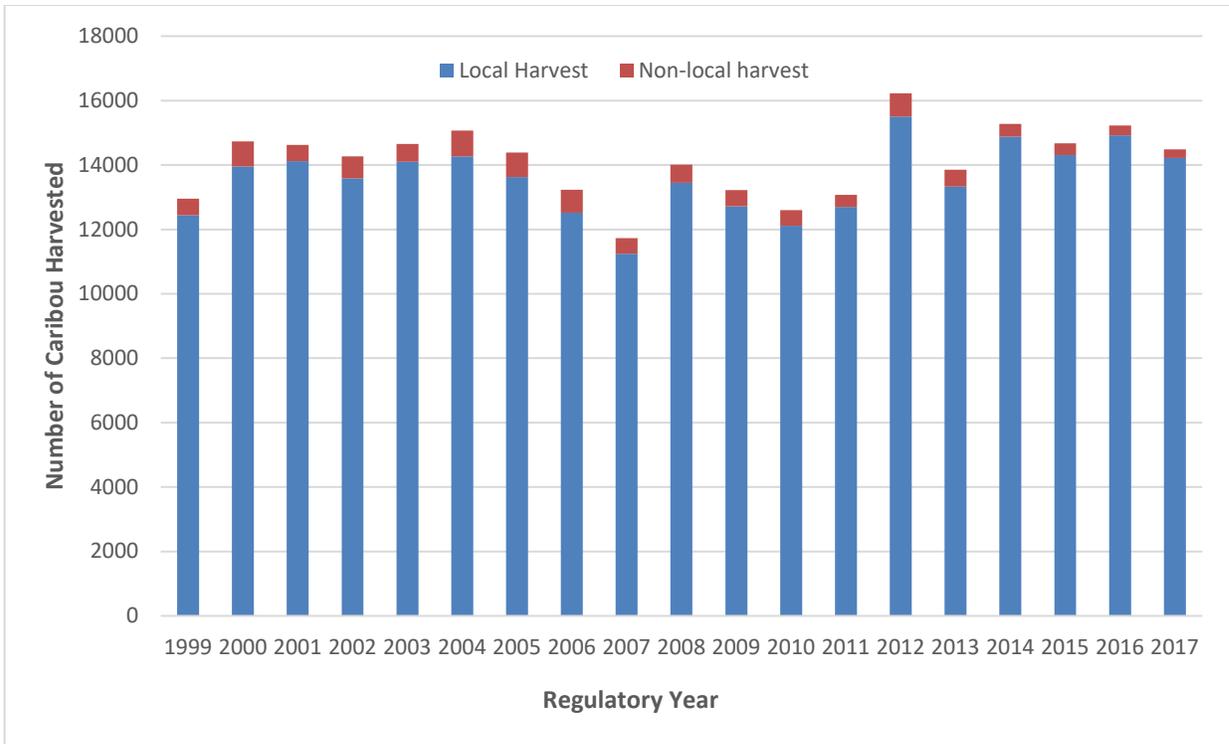
Local hunters account for approximately 95% of the total WACH harvest and residents of Unit 23 account for approximately 58% of the total harvest on average (**Figure 7**, ADF&G 2017c).

Comparison of caribou harvest by community from household survey data (**Appendix A**) with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through eastern Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when no GPS-collared caribou migrated through western Unit 23. Harvest increased substantially (360 caribou) the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through western Unit 23.

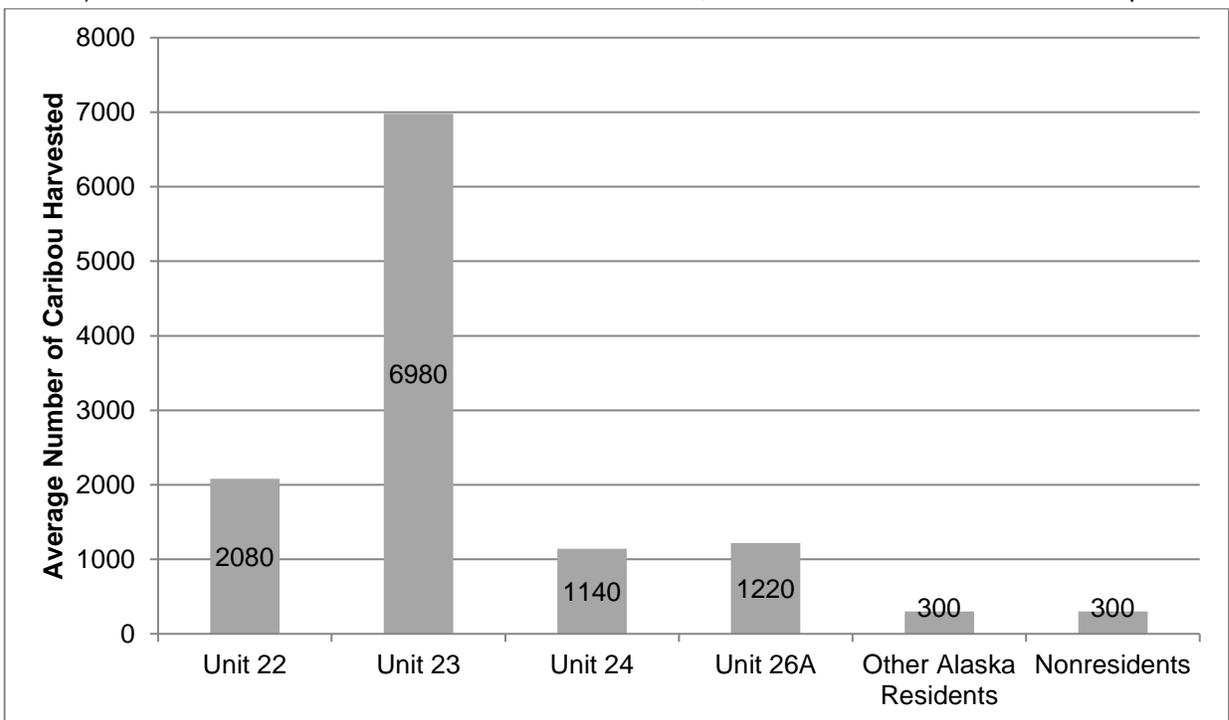
Between 1998 and 2018, annual reported caribou harvest in Unit 23 ranged from 168-676 caribou (**Figure 8**). Over the same time period, reported harvest by non-Federally qualified users ranged from 131-657 caribou. The lowest reported harvest occurred in 2016 when all Federal public lands in Unit 23 were closed to non-Federally qualified users, but before registration permits were required for Federally qualified subsistence users. In 2017, the BOG began requiring registration permits, which is reflected in the greater number of reported caribou harvest by Federally qualified subsistence users (**Figure 8**). On average, 76% of WACH caribou harvested by nonlocals are harvested in Unit 23 (Dau 2015a).

From 1999-2013, 72% of nonlocal hunters on average accessed the WACH by plane. Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally available during fall migration. In recent years, caribou migration has occurred later in fall, resulting in subsistence harvest also occurring later.

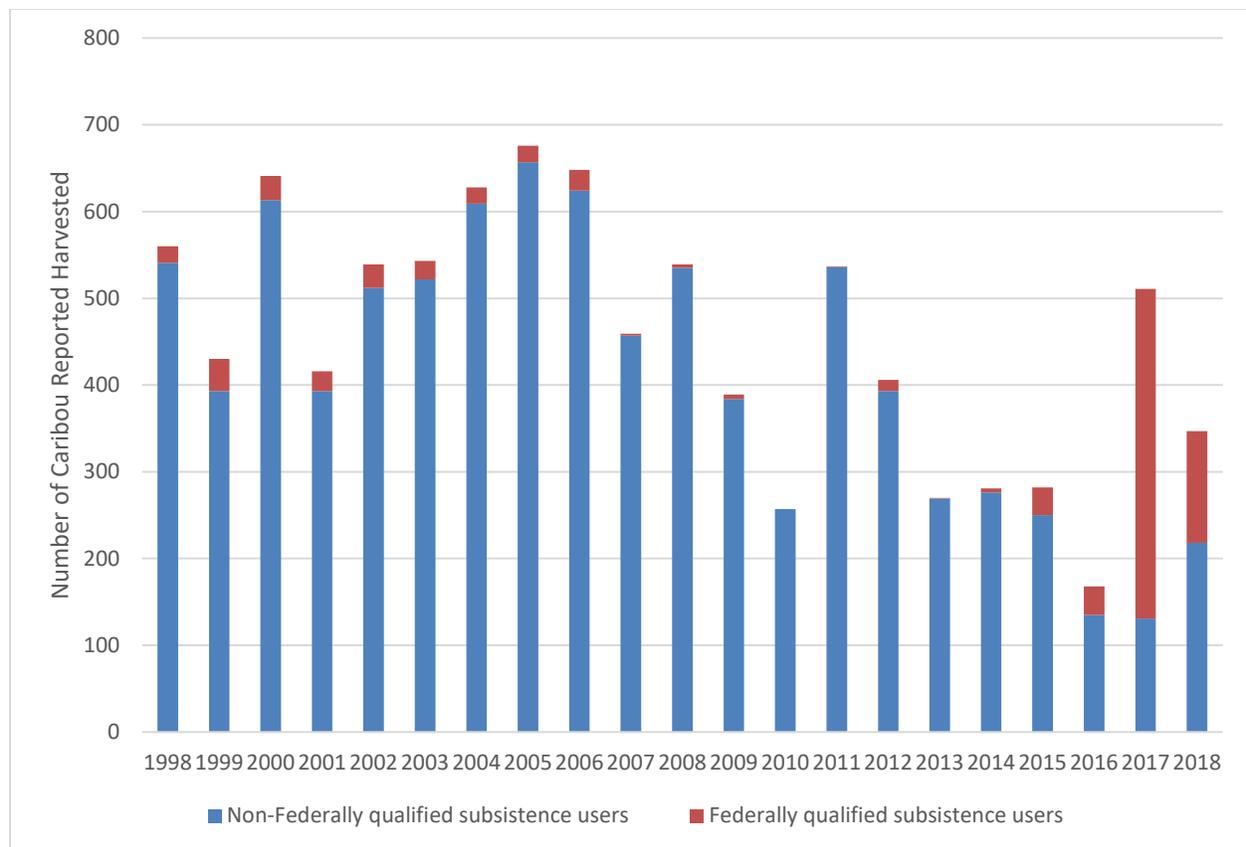




**Figure 6.** Estimated number of caribou harvested from the WACH by residency (Hansen 2020, pers. comm.). Local harvest is an estimate derived from models; non-local harvest is from harvest reports.



**Figure 7.** Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).



**Figure 8.** Reported caribou harvest in Unit 23 (WinfoNet 2018, 2019).

**Other Alternatives Considered**

One alternative considered was to maintain the prohibition on calf harvest. As described in the Cultural Knowledge and Traditional Practices of this analysis, some members and constituents of the Northwest Arctic Council have voiced opposition to the practice of harvesting caribou calves (NWARAC 2015; NWARAC 2018). Supporting calf harvest has the potential to undermine efforts by Kotzebue elders to educate hunters about respectful practices of selecting and hunting caribou that minimize the number of orphaned calves. Those Council members and constituents who have opposed calf harvest on record have indicated that not taking calves is a rule which informs their hunting and which contributes to the core identity of some subsistence hunters in the Northwest Arctic Region.

Under this alternative, the Office of Subsistence Management (OSM) recommends a year-round bull season for caribou but opposes permitting calf harvest in Unit 23. One of the purposes of the Alaska National Interests Land Conservation Act (ANILCA) is "to provide the opportunity for rural residents engaged in a subsistence way of life to do so" (§802(1)). Thus, increased harvest opportunity is supported, but so is practicing subsistence as a way of life, as defined locally. However, it is for the Councils, rather than OSM, to define what constitutes subsistence as a way of life for local constituents. Therefore, OSM considered and rejected this alternative. Traditions of taking or not

taking calves may not be generalizable for all residents of the Northwest Arctic region as evidenced by differing opinions between members of the Northwest Arctic Council and the Kotzebue AC and WACH working group. The Northwest Arctic Council will have the opportunity to consider and discuss these proposals at their Fall 2019 meeting, and can choose to oppose or support these proposals on the record at that time.

### **Effects of the Proposal**

If the Board adopts Proposal WP20-43/44/45/46, the bull caribou season would be open year-round and the harvest of calves would be permitted in Unit 23. This would increase harvest opportunity for Federally qualified subsistence users. No conservation concerns exist for allowing bull harvest during rut while calf harvest presents minimal conservation concerns.

Eliminating the bull closure would allow harvest of young bulls, which would reduce harvest pressure on cows, helping to grow the herd. As the timing of fall caribou migration has changed in recent years, it would also provide more harvest flexibility, alleviating pressure on Federally qualified subsistence users to harvest caribou during a particular timeframe (NWARAC 2019). While the risk of harvesting an unpalatable bull in rut exists, Federally qualified subsistence users had been selectively harvesting bulls before the closure was adopted in 2016. Furthermore, targeting younger bulls during rut is a recommended practice. The Native Village of Kotzebue (2018) produced an education flyer about winter caribou hunting, which included a recommendation to harvest younger bulls when mature bulls are in rut. The NANA regional corporation submitted comments to the BOG in 2015 in opposition to the bull closure to allow shareholders to harvest younger caribou for food security (Kramer 2015).

Eliminating the prohibition on calf harvest would allow the harvest of orphaned calves that may otherwise succumb to predation. However, it can be difficult to identify orphaned calves as caribou are scattered across the landscape, and calves and cows can be separated by substantial distances. Additionally, orphaned calves may survive, especially if they remain with the herd. Russell et al. (1991) found survival rates of orphaned and non-orphaned calves were 63% and 78%, respectively, indicating orphaned calves still have a good chance of survival, although the sample size for orphaned calves was very small. The timing of abandonment also influences survival. Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, July 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014). As caribou migration has been occurring later in the fall, subsistence users are harvesting caribou in November rather than September, which could improve the chances of orphaned calves surviving. Additionally, educational initiatives by Unit 23 Caribou Hunter Success Working Group may help reduce the number of orphaned calves. This group is working to educate hunters on better hunting practices, including taking the time to identify cows with calves (Atkinson 2019, pers. comm.). Finally, a member of the public also testified that other cow caribou will adopt orphaned calves (NWARAC 2019).

Allowing calf harvest may also reduce wanton waste. A Northwest Arctic Council member noted that he has seen dead calves in the field, presumably mistakenly shot and then left since they are illegal to

harvest (NWARAC 2019). The ADF&G caribou biologist stated many orphan calves have ended up around Kotzebue during the hunting season, but have been unavailable to harvest. He collared a few of these orphaned calves, all of which died shortly thereafter. He also stated that he receives many reports from hunters of orphaned and wounded calves out in the field that are not legally available for harvest (NWARAC 2019). In regards to the prohibition on the take of cows accompanied by calves, an NPS staff biologist voiced concern that unethical hunters could harvest calves and then harvest its mother, who would no longer be accompanied by a calf (NWARAC 2019). However, hunters can already harvest cows with calves under State regulations, which do not have that restriction.

The Western Arctic and Teshekpuk caribou herds are the only caribou herds in Alaska where calf harvest is prohibited. These restrictions were adopted by the BOG in 2015 and the Board in 2016 as conservation measures when both herds were declining. The WACH management plan also recommends prohibiting calf harvest when the herd is within the conservative management level. However, calves comprise a very small portion of the harvest. In his population model, Prichard (2009) assumed calves comprised only 2% of the total annual WACH harvest, which would not affect the population trajectory of the WACH. As most calves die within their first year and few hunters target calves, calf harvest may be compensatory mortality, although Prichard (2009) assumed all harvest mortality to be additive. While calf recruitment influences herd abundance and population trajectory, Prichard (2009) found adult survival to have the largest impact on WACH population size. Prohibiting cow harvest would have a greater impact on herd conservation than prohibiting calf harvest.

While calves were traditionally harvested for specific purposes, people no longer target calves in the Northwest Arctic region (NWARAC 2015, 2019). The Northwest Arctic Council discussed submitting a proposal to allow calf harvest at their winter 2019 meeting. One member mentioned that calves were traditionally used for garments and as food for elders. However, most members strongly opposed calf harvest due to conservation concerns and personal values, and the Council voted unanimously not to submit a proposal (NWARAC 2019).

§802(1) of ANILCA states, “consistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources of such lands.” While increasing harvest opportunity by liberalizing harvest limits and season lengths can certainly lessen adverse impacts on rural residents, OSM recognizes social and cultural concerns also affect the satisfaction of subsistence needs. While allowing calf harvest should not affect the conservation of the WACH and would increase harvest opportunities, maintaining the prohibition on calf harvest may be warranted due to socio-cultural concerns. Northwest Arctic Council members have stated on several occasions that no one hunts calves in the Northwest Arctic region and that hunting calves is wrong and unethical because calves are the future of the herd (NWARAC 2015, 2019). While the Northwest Arctic Council represents interests and concerns of Federally qualified subsistence users to the Board, subsistence users on the Kotzebue AC and the WACH Working Group support allowing calf harvest in the Northwest Arctic to utilize orphaned calves.

The BOG considered similar proposals at its Arctic/Western Region meeting in January 2020, adopting a year-round bull season and removing the restriction on calf caribou harvest. If both the BOG and the Board adopt proposals to eliminate the bull closure and the prohibition on calf harvest, State and Federal regulations would maintain alignment, reducing user confusion. If only the BOG adopts these changes, Federal regulations would be more restrictive than State regulations, contrary to the rural subsistence priority mandated by ANILCA. However, Federally qualified subsistence users would still be able to harvest bulls year-round as well as calves under State regulations, except in National Parks and Monuments and the area closed to non-Federally qualified users around Noatak (see Federal regulations). Given that gravel bars below the mean high water mark are under State jurisdiction, the mean high water mark can be difficult to distinguish, and that caribou are commonly harvested along rivers, misalignment between State and Federal regulations could result in substantial user confusion and law enforcement concerns. Therefore, the BOG's decision on the bull closure and prohibition on calf harvest could affect the outcome of Proposals WP20-43/44/45/46.

## **OSM CONCLUSION**

**Support** Proposal WP20-46 and **take no action** on Proposals WP20-43, WP20-44, and WP20-45.

### **Justification**

Adopting Proposal WP20-46 increases harvest opportunity for Federally qualified subsistence users. Eliminating the bull closure may help grow the WACH by reducing harvest pressure on cows. As most people do not target calves, calf harvest is expected to be very low and should not affect the conservation of the herd. Additionally, allowing calf harvest may reduce wanton waste by allowing mistakenly shot calves to be legally salvaged, and would permit harvest of orphaned calves.

## LITERATURE CITED

ADF&G. 1988. Regulatory Proposals Submitted to the Alaska Board of Game, March 1988. Division of Boards, Juneau.

ADF&G. 1991. Customary and Traditional Worksheets. Arctic Region: North Slope Area: GMU's 23, 24, 26. Division of Subsistence, Juneau, Alaska.

ADF&G. 1992. Customary and Traditional Worksheets. Northwest Alaska GMU's 22 and 23, Black Bear, Brown Bear, Caribou, Dall Sheep, Moose, Muskoxen. Division of Subsistence, Kotzebue, Alaska.

ADF&G. 2009. Alaska Board of Game meeting information. Summary. Arctic Region Nov. 13-16, 2009. Nome. Alaska Department of Fish and Game.

<http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=11-13-2009&meeting=arctic>. Accessed April 5, 2017.

ADF&G. 2015. RC069. Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources, GMUs 21, 22, 23, 24 and 26: Western Arctic caribou herd and Teshekpuk caribou herd. Alaska Board of Game Meeting Information. Southcentral Region, March 13-18, 2015. [http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2014-2015/Southcentral\\_03\\_13\\_15/rcs/rc069\\_ADFG\\_Caribou\\_harvest\\_data.pdf](http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2014-2015/Southcentral_03_13_15/rcs/rc069_ADFG_Caribou_harvest_data.pdf). Accessed: February 22, 2016.

ADF&G. 2016a. GMU 23 Working Group. <http://www.adfg.alaska.gov/index.cfm?adfg=plans.unit23>. Retrieved August 3<sup>rd</sup>, 2016.

ADF&G. 2016b. Community subsistence information system. <http://www.adfg.alaska.gov/sb/CSIS/>, accessed February 1. ADF&G. Division of Subsistence. Anchorage, AK.

ADF&G. 2016c. Harvest report online database. ADF&G, Anchorage, AK.

ADF&G. 2017a. Preliminary Actions Taken. Alaska Board of Game. Arctic and Western Region. Jan. 6-9, 2017. Bethel, AK. [http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2016-2017/aw/soa\\_prelim.pdf](http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2016-2017/aw/soa_prelim.pdf). Accessed January 20, 2017.

ADF&G 2017b.. Proposal book, 2016/2017 cycle. Alaska Board of Game. Arctic and Western Region. Jan. 6-9, 2017. Bethel, AK. <http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=01-06-2017&meeting=bethel>. Accessed March 13, 2017.

ADF&G 2017c. Region V Caribou Overview. Alaska Board of Game. Arctic and Western Region. Jan. 6-9, 2017. Bethel, AK. [http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2016-2017/aw/Tab\\_1.3\\_RegionV\\_Caribou\\_Overview.pdf](http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2016-2017/aw/Tab_1.3_RegionV_Caribou_Overview.pdf). Accessed January 20, 2017.

ADOLWD. 2016. Cities and Census Designated Places, 2010 to 2015. <http://laborstats.alaska.gov/pop/popest.htm>, accessed February 1, 2016. Labor Market Information (Research and Analysis). Juneau, AK.

Atkinson, Hannah. 2019. Cultural anthropologist. Personal communication: email. National Park Service. Kotzebue, AK.

- BHA Alaska. 2017. WSA16-01 Federal public lands closed to caribou hunting; Navigate the rules, GO HUNT! Backcountry Hunters and Anglers Alaska. <http://forums.outdoorsdirectory.com/showthread.php/156247-Unit-23-NW-Arctic-RAC-at-it-again-now-they-want-to-close-moose?p=1590300#post1590300> Accessed April 18, 2017.
- Betcher, S. 2016. "Counting on Caribou: Inupiaq Way of Life in Northwest Alaska". Documentary video; duration 17:05. Farthest North Films. Available at <http://www.farthestnorthfilms.com/>. Accessed: August 26<sup>th</sup>, 2016.
- Betchkal, D. 2015. Acoustic monitoring report, Noatak National Preserve – 2013 and 2014. National Park Service. <https://science.nature.nps.gov/im/units/cakn/vitalsign.cfm?vsid=71>. Accessed: February 1, 2017.
- Bradshaw, C.J., S. Boutin, and D.M. Hebert. 1997. Effects of petroleum exploration on woodland caribou in northeastern Alberta. *The Journal of wildlife management*. 1127-1133.
- Braem, N.M., E.H. Mikow, S.J. Wilson, M.L. Kostick. 2015. Wild food harvests in three upper Kobuk River communities: Ambler, Shungnak, and Kobuk, 2012-2013. ADF&G Division of Subsistence, Technical Paper No. 402. Fairbanks, AK.
- Burch, Jr., E. S. 1984. The Kotzebue Sound Eskimo. In Handbook of North American Indians--Arctic. Volume 5. Edited by David Damas. Smithsonian Institution, Washington, D.C.
- Burch, Jr., E. S. 1994. The Cultural and Natural Heritage of Northwest Alaska. Volume V. Nana Museum of the Arctic, Kotzebue, Alaska and U.S. National Park Service, Alaska Region. Anchorage, Alaska.
- Burch, E.S. 1998. The Inupiaq Eskimo nations of Northwest Alaska. University of Alaska Press. Fairbanks, AK.
- Burch, E.S. 2012. Caribou herds of Northwest Alaska. University of Alaska Press. Fairbanks, AK.
- Caribou Trails 2014. News from the Western Arctic Caribou Herd Working Group. Western Arctic Caribou Herd Working Group, Nome, AK. Issue 14. [http://westernarcticcaribou.org/wp-content/uploads/2014/07/CT2014\\_FINAL\\_lowres.pdf](http://westernarcticcaribou.org/wp-content/uploads/2014/07/CT2014_FINAL_lowres.pdf). Retrieved: June 23, 2015.
- Cohen, M.J. and Pinstrup-Andersen, P., 1999. Food security and conflict. *Social Research*, pp.375-416.
- Dau, J. 2011. Units 21D, 22A, 22B, 22C, 22D, 22E, 23, 24, and 26A caribou management report. Pages 187-250 in P. Harper, editor. Caribou management report of survey and inventory activities July 1, 2008–30 June 30, 2010. ADF&G. Juneau, AK.
- Dau, J. 2013. Units 21D, 22A, 22B, 22C, 22D, 22E, 23, 24, and 26A caribou management report. Pages 201-280 in P. Harper, editor. Caribou management report of survey and inventory activities July 1, 2010–30 June 30, 2012. ADF&G. Juneau, AK.
- Dau, J. 2014. Wildlife Biologist. Western Arctic Caribou herd presentation. Western Arctic Caribou Herd (WACH) Working Group Meeting, December 17-18, 2014. Anchorage, Alaska. ADF&G. Nome, AK.

Dau, J. 2015a. Units 21D, 22A, 22B, 22C, 22D, 22E, 23, 24 and 26A. Chapter 14, pages 14-1 through 14-89. *In* P. Harper, and Laura A. McCarthy, editors. Caribou management report of survey and inventory activities 1 July 2012–30 June 2014. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-4, Juneau.

Dau, J. 2015b. Wildlife Biologist. Letter to the WACH Working Group members. Western Arctic Caribou Herd Working Group meeting. Dec. 16-17. Anchorage, AK.

Dau, J. 2016a. Memorandum to S. Machida dated June 21, 2016. 2016 Western arctic caribou herd calving survey: 4-12 June. ADF&G Division of Wildlife Conservation, Fairbanks, AK. 1 page.

Dau, J. 2016b. Memorandum to S. Machida dated April 26, 2016. 2016 Western Arctic caribou herd recruitment survey: 31 March and 5, 19, and 21 April. ADF&G Division of Wildlife Conservation, Fairbanks, AK. 1 page.

Fall, J.A. 1990. The Division of Subsistence of the Alaska Department of Fish and Game: An Overview of its Research Program and Findings: 1980-1990. *Arctic Anthropology* 27(2): 68-92.

Fienup-Riordan, A., 1990. *Eskimo essays: Yup'ik lives and how we see them*. Rutgers University Press.

Fix, P.J. and A. Ackerman. 2015. Noatak National Preserve sport hunter survey. Caribou hunters from 2010-2013. Natural resources report. National Park Service.

Foote, D. C. 1959. The Economic Base and Seasonal Activities of Some Northwest Alaskan Villages: A Preliminary Study. U.S. Atomic Energy Commission.

Foote, D. C. 1961. A Human Geographical Study in Northwest Alaska. Final Report of the Human Geographic Studies Program, U.S. Atomic Energy Commission.

Fullman, T.J., K. Joly, A. Ackerman. 2017. Effects of environmental features and sport hunting on caribou migration in northwestern Alaska. *Movement Ecology*. 5:4

FSB. 2016. Transcripts of Federal Subsistence Board proceedings. April 13, 2016. Office of Subsistence Management, USFWS. Anchorage, AK.

FWS. 1995a. Staff analysis P97–051. Pages 334-339 *in* Federal Subsistence Board Meeting materials April 10-14, 1995. Office of Subsistence Management, USFWS. Anchorage, AK. 398pp.

FWS. 1995b. Staff analysis P95–062. Pages 399-404 *in* Federal Subsistence Board Meeting materials April 10-14, 1995. Office of Subsistence Management, USFWS. Anchorage, AK. 488pp.

FWS. 1997. Staff analysis P97–066. Pages 879-895 *in* Federal Subsistence Board Meeting materials April 7-11, 1997. Office of Subsistence Management, USFWS. Anchorage, AK. 1034pp.

FWS. 2000a. Staff analysis P00–053. Pages 563-573 *in* Federal Subsistence Board Meeting materials May 2-4, 2000. Office of Subsistence Management, USFWS. Anchorage, AK. 661pp.



- FWS. 2011. Selawik National Wildlife Refuge. Revised Comprehensive Conservation Plan. National Wildlife Refuge System. Alaska Region of the U.S. Fish and Wildlife Service.  
[https://www.fws.gov/uploadedFiles/Region\\_7/NWRS/Zone\\_2/Selawik/PDF/CCP\\_Full\\_Final\\_Document.pdf](https://www.fws.gov/uploadedFiles/Region_7/NWRS/Zone_2/Selawik/PDF/CCP_Full_Final_Document.pdf).  
 Accessed March 28, 2017.
- FWS. 2014. FY2014 Annual report reply to the Norwest Arctic Subsistence Regional Advisory Council. Office of Subsistence Management, USFWS. Anchorage, AK.
- FWS. 2016. OSM database. Office of Subsistence Management. U.S. Fish and Wildlife Service. Anchorage, AK.
- Georgette, S. and H. Loon. 1988. The Noatak River: Fall caribou hunting and airplane use. Technical Paper No. 162. ADF&G, Division of Subsistence. Kotzebue, AK.
- Georgette, S., and H. Loon. 1993. Subsistence use of fish and wildlife in Kotzebue, a Northwest Alaska regional center. ADF&G, Division of Subsistence, Technical Paper No. 167. Fairbanks, AK.
- Georgette, S. 2016. Refuge manager. Personal communication: e-mail. Selawik National Wildlife Refuge. Kotzebue, AK.
- Gunn, A. 2001. Voles, lemmings and caribou – population cycles revisited? *Rangifer*, Special Issue. 14: 105-111.
- Hansen, D.A. 2019a. 2019 Western Arctic Caribou Herd – Herd population status, other metrics. Presentation to Western Arctic Caribou Herd Working Group Technical Committee. December 10, 2019.  
<https://westernarcticcaribou.net/>.
- Hansen, D.A. 2019b. Wildlife Biologist. Personal communication: e-mail. Alaska Department of Fish and Game. Kotzebue, AK.
- Hansen, D.A. 2020. Wildlife Biologist. Personal communication: e-mail. Alaska Department of Fish and Game. Kotzebue, AK.
- Halas, G. 2015. Caribou migration, subsistence hunting, and user group conflicts in Northwest Alaska: A traditional knowledge perspective. University of Fairbanks-Alaska. Fairbanks, AK.
- Harrington, A.M. and P.J. Fix. 2009. Benefits based management study for the Squirrel River area. Project report for USDI Bureau of Land Management. Department of Resources management. University of Alaska-Fairbanks. Fairbanks, AK.
- Holand, O., R.B. Weladji, A. Mysterud, K. Roed, E. Reimers, M. Nieminen. 2012. Induced orphaning reveals post-weaning maternal care in reindeer. *European Journal of Wildlife Research*. 58: 589-596.
- Holthaus, G., 2012. Learning Native wisdom: What traditional cultures teach us about subsistence, sustainability, and spirituality. University Press of Kentucky.
- Homer-Dixon, T.F. 1994. Environmental scarcities and violent conflict: evidence from cases. *International security*, 19(1), pp.5-40.

Jacobson, C. 2008. Fall hunting in game management unit 23: assessment of issues and proposals for a planning process. ADF&G. Unpublished report. Juneau, AK.

Joly, K. 2000. Orphan Caribou, *Rangifer tarandus*, Calves: A re-evaluation of overwinter survival data. The Canadian Field Naturalist. 114: 322-323.

Joly, K., R.R. Jandt, C.R. Meyers, and J.M. Cole. 2007. Changes in vegetative cover on the Western Arctic herd winter range from 1981–2005: potential effects of grazing and climate change. Rangifer Special Issue 17:199-207.

Joly, K., D.R. Klein, D.L. Verbyla, T.S. Rupp, and F.S. Chapin, III. 2011. Linkages between large-scale climate patterns and the dynamics of Arctic caribou populations. Ecography 34:345-352.

Joly, K. 2015. Wildlife Biologist, Gates of the Arctic National Park and Preserve. Personal communication. email NPS. Fairbanks, AK.

Joly, K., M.D. Cameron. 2017. Caribou Vital Sign Annual Report for the Arctic Network Inventory and Monitoring Program September 2015-August 2016. Natural Resource Report. National Park Service.

Kramer, L. 2015. Comment to Alaska Board of Game on behalf of the NANA Regional Corporation. Alaska Board of Game Meeting Information. Southcentral Region. March 13-18, 2015. RC027. Lance Kramer Prop 202. <http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.meetinginfo&date=03-13-2015&meeting=anchorage>. Accessed July 1, 2019.

Lenart, E. A. 2011. Units 26B and 26C caribou. Pages 315-345 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008–30 June 2010. ADF&G. Project 3.0. Juneau, AK.

Loon, H. 2007. *Uqausriptigun* in our own words: Selawik elders speak about caribou, reindeer and life as they knew it. USFWS, Selawik National Wildlife Refuge. Kotzebue, AK.

Miller, F.L. 2003. Caribou (*Rangifer tarandus*). Pages 965-997 in Feldhamer, B.C. Thompson, and J.A. Chapman, eds. Wild Mammals of North America- Biology, Management, and Conservation. John Hopkins University Press. Baltimore, Maryland.

Native Village of Kotzebue. 2018. Inupiat Initqusiut Guidelines on Winter Caribou Hunting. Information Flyer. Kotzebue, AK.

NSRAC. 2015. Transcripts of the North Slope Subsistence Regional Advisory Council proceedings, November 4, 2015 in Anaktuvuk Pass, Alaska. Office of Subsistence Management, FWS. Anchorage, AK.

NWARAC. 2015. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, October 7, 2015 in Buckland, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

NWARAC. 2018. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, October 24, 2018 in Kotzebue, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

NWARAC. 2019. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, April 9-10, 2019 in Kotzebue, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

- OSM. 1995. Staff analysis. WP95-62. OSM database. Office of Subsistence Management. Anchorage, AK.
- OSM. 2017. Staff analysis. WSA17-03. Office of Subsistence Management. Anchorage, AK.
- Parrett, L.S. 2011. Units 26A, Teshekpuk caribou herd. Pages 283-314 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008–30 June 2010. ADF&G. Project 3.0. Juneau, AK.
- Parrett, L.S. 2013. Unit 26A, Teshekpuk caribou herd. Pages 314-355 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2006–30 June 2008. ADF&G species management report. ADF&G/DWC/SMR-2013-3, Juneau, AK.
- Parrett, L.S. 2015a. Western Arctic Caribou Herd Overview presentation. Presented at the Western Arctic Caribou Herd Working Group meeting. Dec. 16-17. Anchorage, AK.
- Parrett, L.S. 2015b. Memorandum to P. Bente, Management Coordinator, dated October 29, 2015. 2015 Western Arctic Herd (WAH) captured conducted September 15-17, 2015. ADF&G Division of Wildlife Conservation, Fairbanks, AK. 1 page.
- Parrett, L.S., 2015c. Unit 26A, Teshekpuk caribou herd. Chapter 17, pages 17-1 through 17-28 in P. Harper and L.A. McCarthy, editors. Caribou management report of survey and inventory activities 1 July 2012-30 June 2014. ADF&G, Species Management Report ADF&G /DWC?SMR-2015-4, Juneau, AK.
- Parrett, L.S. 2015d. Memorandum to P. Bente, Management Coordinator, dated December 31, 2015. Summary of Teshekpuk Caribou Herd photocensus conducted July 6, 2015. ADF&G Division of Wildlife Conservation. Fairbanks, AK.
- Parrett, L.S. 2016a. Memorandum for distribution, dated August 25, 2016. Summary of Western Arctic Caribou Herd photocensus conducted July 1, 2016. ADF&G Division of Wildlife Conservation, Fairbanks, AK. 6 pages.
- Parrett, L.S. 2016b. WAH Caribou Overview. Western Arctic Caribou Herd Working Group Meeting. December 2016. <https://westernarcticcaribounet.files.wordpress.com/2016/11/wg-binder-complete-w-toc-1.pdf>. Accessed January 31, 2017.
- Parrett, L.S. 2017a. WAH Caribou Overview. Western Arctic Caribou Herd Working Group Meeting. December 2017. <https://westernarcticcaribounet.files.wordpress.com/2017/12/2017-complete-wg-meeting-binder-dec-13-14-2017-for-webpost.pdf>. Accessed December 20, 2017.
- Parrett, L.S. 2017b. Wildlife Biologist IV. Personal communication: phone and e-mail. Alaska Department of Fish and Game. Fairbanks, AK.
- Pomeroy, R., Parks, J., Mrakovcich, K.L. and LaMonica, C., 2016. Drivers and impacts of fisheries scarcity, competition, and conflict on maritime security. *Marine Policy*, 67, pp.94-104.
- Prichard, A.K. 2009. Development of a Preliminary Model for the Western Arctic Caribou Herd. ABR, Inc. – Environmental Research and Services. Fairbanks, AK.

Russell, D.E., S.G. Fancy, K.R. Whitten, R.G. White. 1991. Overwinter survival of orphan caribou, *Rangifer tarandus*, calves. Canadian Field Naturalist. 105: 103-105.

Rughetti, M., M. Festa-Bianchet. 2014. Effects of selective harvest of non-lactating females on chamois population dynamics. Journal of Applied Ecology. 51: 1075-1084.

Sharp, Henry S. and Karyn Sharp. 2015. Hunting Caribou: Subsistence Hunting along the Northern Edge of the Boreal Forest. University of Nebraska Press. Lincoln, NE.

Sutherland, R. 2005. Harvest estimates of the Western Arctic caribou herd, Alaska. Proceedings of the 10<sup>th</sup> North American Caribou Workshop. Girdwood, AK. 4-6 May 2004. Rangifer Special Issue No. 16: 177-184.

Taillon, J., V. Brodeur, M. Festa-Bianchet, S.D. Cote. 2011. Variation in body condition of migratory caribou at calving and weaning: which measures should we use? Ecoscience. 18(3): 295-303.

Uhl, W. R. and C. K. Uhl. 1979. The Noatak National Preserve: Nuatalanitt, A Study of Subsistence Use of Renewable Resources in the Noatak River Valley. Cooperative Park Studies Unit, University of Alaska, Fairbanks, Occasional Paper No. 19.

Unit 23 Working Group. 2016. Meeting Summary of Unit 23 Working Group Meeting held in Kotzebue, Alaska on May 4-5, 2016.

Western Arctic Caribou Herd Working Group. 2011. Western Arctic Caribou Herd Cooperative Management Plan – Revised December 2011. Nome, AK 47 pp.

Western Arctic Caribou Herd Working Group. 2015. <https://westernarcticcaribou.net/herd-management/>. Accessed July 26, 2017.

Western Arctic Caribou Herd Working Group. 2017. Western Arctic Caribou Herd Working Group Meeting. December 13-14, 2017. Anchorage, AK.

Western Arctic Caribou Herd Working Group. 2019. Western Arctic Caribou Herd Working Group Meeting. December 10-12, 2019. Anchorage, AK. <https://westernarcticcaribou.net/>.

WINFONET. 2017. Wildlife Information Network. Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>. Accessed May-June 2017.

WINFONET. 2018. Wildlife Information Network. Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>. Accessed November 2018.

WINFONET. 2019. Wildlife Information Network. Alaska Department of Fish and Game. Anchorage, AK. <https://winfonet.alaska.gov/>. Accessed July 2019.

WIRAC. 2015. Transcripts of the Western Interior Subsistence Regional Advisory Council proceedings, November 3, 2015 in Galena, Alaska. Office of Subsistence Management, FWS. Anchorage, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Western Interior Alaska Subsistence Regional Advisory Council**

**Support** Proposal WP20-46. **Take No Action** on Proposals WP20-43, WP20-44, and WP20-45. The Council unanimously supported WP20-46, and took no action on WP20-43/44/45 due to the action taken on WP20-46. The Council believes this proposal would allow subsistence hunters to target younger, non-breeding bulls versus the older breeding bulls necessary for successful recruitment. The bull:cow ratio is currently very good and above management objectives. The cow:calf ratio is excellent and above management objectives. The June cow:calf ratios are excellent, indicating good calf production. The Council feels confident that the Western Arctic Caribou Herd is stabilizing, and that these additional opportunities would not negatively affect the herd's population growth.

### **Seward Peninsula Subsistence Regional Advisory Council**

**Support** Proposal WP20-46. **Take No Action** on Proposals WP20-43, WP20-44, and WP20-45. The Council voted unanimously to support WP20-46 and take no action on WP20-43/44/45. These actions were consistent with the Office of Subsistence Management (OSM) conclusion. The Council agreed with OSM that adopting WP20-46 "increases harvest opportunity for Federally qualified subsistence users. Eliminating the bull closure may help grow the WACH by reducing harvest pressure on cows. As most people do not target calves, calf harvest is expected to be very low and should not affect the conservation of the herd. Additionally, allowing calf harvest may reduce wanton waste by allowing mistakenly shot calves to be legally salvaged, and would permit harvest of orphaned calves."

### **Northwest Arctic Subsistence Regional Advisory Council**

**Support** Proposal WP20-43. **Oppose** Proposal WP20-44. **Take No Action** on Proposals WP20-45 and WP20-46. The Council voted to support WP20-43. The Council stated that WP20-43 would increase subsistence opportunity for Federally qualified subsistence users and supported the harvesting of young bull caribou when larger bulls are in rut as justification for its decision.

The Council voted to oppose WP20-44. The Council justified opposition to WP20-44, citing cultural values as the basis for wanting to avoid establishing an open season for any calf, while supporting the incidental harvest of mortally wounded or orphaned calves. The Council discussed the possibility of modifying the proposal to specify allowing the incidental harvest of wounded or orphaned calves. An Alaska Wildlife Trooper noted the enforcement of such a modification is impossible given the vast geography and limited number of law enforcement personnel in the region. The Council clarified the harvest of calves is uncommon and suggested modifying the RC907 permit to document the incidental harvest of wounded or orphaned calves. One Council member expressed opposition to the harvest of calves, noting the harvest of calves is inconsistent with Iñupiaq cultural values.

The Council voted to Take No Action on WP20-45/46, because of action taken on WP20-43 and WP20-44.

### **North Slope Subsistence Regional Advisory Council**

**Support** Proposal WP20-45. **Take No Action** on Proposals WP20-43, WP20-44, and WP20-46. The Council supported residents of Unit 23 including the North Slope community of Point Hope to be able to harvest bull caribou at any time and make the decision locally whether the bulls are in rut or not and good to eat. Council members discussed their observations that the migration and movement of caribou are changing and that the caribou have been coming by Point Hope later in the season. The Council expressed that an open bull season would allow flexibility to hunt bull caribou when the timing is right if the caribou are nearby the community and not in rut. The Council felt that while the closure was intended as a conservation measure initially, that perhaps it would be more beneficial to reduce pressure on cow harvest by lifting the bull closure and traditional knowledge will inform when the bulls are in rut or are good to eat.

The Council specifically supports the proposal WP20-45 in deference to the neighboring Northwest Arctic Subsistence Regional Advisory Council and the communities in Unit 23 to be able to increase subsistence opportunity for the harvest of bull caribou. However, the Council has concerns about the proposals requesting the harvest of calves since the Western Arctic Caribou Herd is still in conservative management. The Council recognizes traditional subsistence uses of calves but suggests ongoing protection of calves at this time for the future of the herd as the population is still recovering.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee (ISC) agrees with the intent of proposals WP20-43 and WP20-45, which request a year-round bull season for caribou in Unit 23. This action may help to grow the WACH by reducing pressure on cows and providing an additional subsistence opportunity for Federally qualified subsistence users. Local testimony has suggested that meat from young bulls is frequently palatable, even during the fall rutting period.

The ISC has concerns regarding the portion of proposals WP20-44 and WP20-46 that request that calf harvest be permitted for caribou in Unit 23. The issue of orphaned and wounded calves appears to be concentrated in the Kotzebue area. The situation may be better addressed with the formation of hunter education groups similar to the Caribou Hunter Success Working Group that is facilitated by Western Arctic Parklands, National Park Service. The Northwest Arctic Subsistence Regional Advisory Council and the Cape Krusenstern and Kobuk Valley Subsistence Resource Commissions (SRCs) have expressed concern regarding the hunting of calf caribou, especially considering ongoing conservation concerns. Members of both SRCs indicated that active calf harvest is no longer a cultural practice. Several members of these bodies have indicated a need to address orphaned and wounded calves, and not wanting hunters to be legally liable for dispatching and potentially utilizing calves in apparent distress due to these circumstances.

The WACH Management plan recommends a prohibition on calf harvests while in the conservative management mode, which the WACH is currently in, and thus the prohibition on calf harvest may be warranted. The plan's focus on conservation could be justification for opposing the Western Interior and Seward Peninsula Subsistence Regional Advisory Councils' recommendations to support calf harvest opportunity. Still, calf harvest is expected to comprise a very small portion of the harvest, and with the new registration permit in place, if WP20-44 and WP20-46 are adopted, and if management agencies note significant calf harvests, they could submit a special action request for prohibiting harvest of calves. The Alaska Board of Game did, however, lift the prohibition of calf harvest in Unit 23 under State regulations, so opposing this action would make Federal regulations more restrictive than the State. Because much of the land immediately surrounding Kotzebue is State managed, a prohibition on Federal lands would still allow for orphaned and wounded calves to be harvested near Kotzebue.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-43/44/45/46.** Proposal WP20-43, submitted by the Kotzebue Sound Fish and Game Advisory Committee, requests a year-round bull season for caribou in Unit 23. Proposal WP20-44, submitted by the Kotzebue Sound Fish and Game Advisory Committee, requests that calf harvest be permitted for caribou in Unit 23. Proposal WP20-45, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests a year-round bull season for caribou in Unit 23. Proposal WP20-46, submitted by the Western Arctic Caribou Herd Working Group, requests a year-round bull season and that calf harvest be permitted for caribou in Unit 23.

#### **Introduction:**

Prior to regulations enacted by the Board of Game in 2016, bull caribou harvest was open year-round with a daily bag limit of 5 bulls per day. After peaking at nearly 500,000 animals in 2003 the Western Arctic Herd (WAH) experienced a sharp decline through 2016 (Dau 2015). In response to this decline local Advisory Committees considered a variety of different conservation measures to help reduce additive mortality; One of these measures was to institute a bull closure period between October 14 and February 1, a period when many hunters consider mature bulls to be unpalatable.

Following the adoption of the proposal in 2017 the fall migration patterns for the WAH became less consistent with fall crossing events on the Kobuk River becoming less common and occurring later in the year (NPS 2018). This change in migration pattern reduced opportunity for Unit 23 residents who rely heavily on fall caribou harvest along the Kobuk River. The reduction in availability of prime-aged bulls in the fall appeared to lead to an increase in cow harvest, which was the only legal animal in early winter, when most communities in Unit 23 began to have access to caribou.

In 2016, portions of Unit 22 also adopted the bull closure between October 14 and February 1. Immediately following the change, Unit 22 hunters expressed concerns about additive cow harvest and

were frustrated by an increase in wildlife citations stemming from the closure. These concerns were taken to the Board of Game and the bull closure period was removed in 2017.

Given the lingering conservation concern and the increased harvest pressure on cows in the fall and winter, the Kotzebue AC has proposed eliminating the bull closure and restoring the opportunity for year-round bull harvest. The Kotzebue AC's proposal was presented to the Western Arctic Caribou Herd Working Group meeting in December of 2018 and was supported unanimously by the group's participants.

**Impact on Subsistence Users:**

If proposals WP20-43/45/46 were adopted, it would provide opportunity for hunters to harvest bulls later in the season. Harvest of bulls during and post rut within Unit 23 tends to favor younger males because meat quality is still good. This could potentially lead to hunters selecting young bulls in the late fall which may have the benefit of reducing cow harvest. It is anticipated that with the continued implementation of the registration permit (RC 907), the ability to track annual changes in harvest composition between bulls and cows will be strengthened, making it easier to evaluate the effects of such regulation changes.

In addition, if proposals WP20-44/46 were adopted, opportunity would increase for hunters to take calves. Communities have said that harvest of calves tends to be opportunistic if calves are observed to be abandoned, orphaned or injured

**Impact on Other Users:** Other users are unlikely to be affected by this proposed change because no population level impact on the caribou herd is expected.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for Caribou in Unit 23.

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.



The ANS for WAH and Teshekpuk caribou in Units 21, 22, 23, 24 and 26 is 8,000 – 12,000 animals.  
 The season and bag limit for Unit 23 is:

**WHAT ARE THE CURRENT REGULATIONS?**

<b>Units and Bag Limits</b>	<b>Resident Open Season</b>	<b>Nonresident Open Season</b>
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(18)

Unit 23, that portion north of  
 and including the Singoalik  
 River drainage

**RESIDENT HUNTERS:**

5 caribou per day, by  
 registration permit only,  
 as follows:

up to 5 bulls per day; however,  
 calves may not be taken;

July 1 - Oct. 14  
 Feb. 1 - June 30

up to 5 cows per day; however,  
 calves may not be taken

July 15 - Apr. 30

**NONRESIDENT HUNTERS:**

1 bull; however, calves may not  
 be taken

Aug. 1 - Sept. 30

Remainder of Unit 23

**RESIDENT HUNTERS:**

5 caribou per day, by  
 registration permit only,  
 as follows:

up to 5 bulls per day; however,  
 calves may not be taken;

July 1 - Oct. 14  
 Feb. 1 - June 30

up to 5 cows per day; however,  
 calves may not be taken

Sept. 1 - Mar. 31

**NONRESIDENT HUNTERS:**

1 bull; however, calves may not  
 be taken

Aug. 1 - Sept. 30

**Conservation Issues:** If WP20-44/46 were adopted it is expected that calf harvest would increase. This harvest is expected to be largely incidental, since calves are typically not targeted for harvest. Additional take of calves is expected to be largely compensatory, and not have significant effects on WAH abundance.

**Enforcement Issues:** There are no enforcement issues associated with this proposal.

**Recommendation:** ADF&G is **NEUTRAL** regarding proposals WP20-43 and WP20-45. Harvest levels appear to be at or below the harvestable surplus for the herd at the present time and bull to cow ratios have been stable at or above 40:100 for more than a decade. If the proposals were to be adopted, they could potentially re-allocate a portion of the harvest from cows to bulls. A reduction of cow harvest as a result of increased bull harvest could have a positive influence on the trajectory of the population if a substantial re-allocation were to occur.

ADF&G is **NEUTRAL** on Proposal WP20-44. In general, discussion at the community level suggests that calves would not intentionally be targeted but opportunistically harvested if abandoned, orphaned or injured. With herd animals it can often be difficult to determine which cows have attending calves; as a result, maternal cows are occasionally harvested unintentionally, leaving a calf orphaned. In general, the removal of these calves through human harvest would be largely compensatory in nature, and not consume a significant portion of the harvestable surplus.

Currently, the hunt reporting portion of the RC907 permit only asks for the sex of the harvested animals, leaving no way for the department to track or monitor calf harvest. Given the lack of age class reporting, it would be difficult for ADF&G to determine whether allowing calf harvest had any appreciable effect on calf recruitment. If the proposal is adopted, ADF&G would likely require reporting of calf harvest, defined as a caribou less than 12 months old, in the reporting portion of the RC907 registration permit. Additionally, for the ease of interpretation and compliance, the Board may wish to amend the proposal so that its scope addresses the entirety of the RC907 permit, which includes Units 26A and 22, as opposed to just Unit 23.

ADF&G **SUPPORTS** Proposal WP20-46. The Board of Game considered proposals similar to these during their January 17–20, 2020 meeting in Nome. They passed a proposal to open a year-round, resident season for caribou bull harvest in Unit 23. They also passed a proposal to remove restrictions on caribou calf harvest in Units 22, 23, and 26A. ADF&G recommends adopting Proposal WP20-46 with a modification to allow calf harvest in Units 22 and 26A to align the federal regulations with these Board of Game actions.

## Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

<b>Unit 23</b>				
Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

**Unit 23, continued**

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

<b>WP20-47 Executive Summary</b>	
<b>General Description</b>	<p>Proposal WP20-47 requests closure of the cow moose season and to require the use of a State registration permit (RM880) to harvest moose in Unit 23. <i>Submitted by: Northwest Arctic Subsistence Regional Advisory Council.</i></p>
<b>Proposed Regulation</b>	<p><b>Unit 23—Moose</b></p> <p><i>Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose bull by State registration permit.</i></p> <p style="text-align: right;"><del><i>Bulls may be harvested</i></del>                      July 1 - Dec. 31</p> <p style="text-align: right;"><del><i>Cows may be harvested</i></del>                      <del><i>Nov. 1—Dec. 31</i></del></p> <p style="text-align: center;"><del><i>No person may take a calf or a cow accompanied by a calf</i></del></p> <p><b>Unit 23, remainder—1 moose bull by State registration permit.</b></p> <p style="text-align: right;"><del><i>Bulls may be harvested</i></del>                      Aug. 1 - Dec. 31</p> <p style="text-align: right;"><del><i>Cows may be harvested</i></del>                      <del><i>Nov. 1—Dec. 31</i></del></p> <p style="text-align: center;"><del><i>No person may take a calf or a cow accompanied by a calf</i></del></p>
<b>OSM Conclusion</b>	<p><b>Support</b> Wildlife Proposal WP20-47 <b>with modification</b> to change the harvest limit from “one bull” to “one antlered bull”.</p> <p>The modified regulation should read:</p> <p><b>Unit 23—Moose</b></p> <p><i>Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose antlered bull by State registration permit.</i></p> <p style="text-align: right;"><del><i>Bulls may be harvested</i></del>                      <i>July 1 - Dec. 31</i></p>

<b>WP20-47 Executive Summary</b>	
	<p><i>Cows may be harvested</i> <span style="float: right;"><i>Nov. 1—Dec. 31</i></span></p> <p><i>No person may take a calf or a cow accompanied by a calf</i></p> <p><i>Unit 23, remainder—1 moose antlered bull by State registration permit.</i></p> <p><i>Bulls may be harvested</i> <span style="float: right;"><i>Aug. 1 - Dec. 31</i></span></p> <p><i>Cows may be harvested</i> <span style="float: right;"><i>Nov. 1—Dec. 31</i></span></p> <p><i>No person may take a calf or a cow accompanied by a calf</i></p>
<b>Northwest Arctic Subsistence Regional Advisory Council Recommendation</b>	<b>Support with OSM modification</b>
<b>North Slope Subsistence Regional Advisory Council Recommendation</b>	<b>Support</b>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee (ISC) agrees with the OSM conclusion and the Northwest Arctic Subsistence Regional Advisory Council recommendation to support Wildlife Proposal WP20-47 with modification to change the harvest limit from “one bull” to “one antlered bull.” Given the serious population viability concerns for moose in Unit 23, substantial declines in the population, low calf:cow ratios and possible exceedance of the harvestable surplus, conservative actions and harvest tracking mechanisms are necessary.</p> <p>The ISC would like the Board to be aware, however, of local concerns regarding the implementation of the RM880 permit. Local testimony has indicated that the original intent of the RM880 permit being made available only in Unit 23 communities during a specific period was to limit non-local use of the limited resource. Requiring local residents to obtain this permit adds a burden on local users, and several Unit 23 residents have indicated that access to vendors can be difficult, especially in the summer when subsistence activities are being undertaken. If implemented, a resident who is unable to or fails to obtain the RM880 permit within the available period (June 1 –</p>

<b>WP20-47 Executive Summary</b>	
	<p>July 15) will have to hunt under more restrictive State regulations that require larger bulls be taken only during the period of September 1 to September 20.</p> <p>Both the Northwest Arctic and the North Slope Subsistence Regional Advisory Councils expressed concerns regarding local access to the RM880 permit; the North Slope Council recommended that managers work with tribes to distribute permits. The Cape Krusenstern and Kobuk Valley SRCs both supported the cow moose season closure but opposed the implementation of the RM880 permit. It is unclear what level of compliance will result from a permit that may be difficult for some to obtain, and if availability is expanded, to what extent non-local harvest may increase as a result.</p>
<b>ADF&amp;G Comments</b>	<b>Neutral</b>
<b>Written Public Comments</b>	<b>None</b>

**STAFF ANALYSIS**  
**WP20-47**

**ISSUES**

Wildlife Proposal WP20-47, submitted by the Northwest Arctic Subsistence Regional Advisory Council (Council), requests closure of the cow moose season and to require the use of a State registration permit (RM880) to harvest moose in Unit 23.

**DISCUSSION**

The proponent is concerned about declines in the Unit 23 moose population. The Council states that they would like to eliminate the cow moose season and require the use of the State registration permit to conserve cows, improve harvest reporting, and in turn, help the Unit 23 moose population recover. The Council also mentions that this request would align State and Federal regulations, which would reduce user confusion in the area.

**Existing Federal Regulation****Unit 23—Moose**

*Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose*

<i>Bulls may be harvested</i>	<i>July 1 - Dec. 31</i>
<i>Cows may be harvested</i>	<i>Nov. 1 – Dec. 31</i>
<i>No person may take a calf or a cow accompanied by a calf</i>	

*Unit 23, remainder—1 moose*

<i>Bulls may be harvested</i>	<i>Aug. 1 - Dec. 31</i>
<i>Cows may be harvested</i>	<i>Nov. 1 – Dec. 31</i>
<i>No person may take a calf or a cow accompanied by a calf</i>	

**Proposed Federal Regulations****Unit 23—Moose**

*Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose bull by State registration permit.*

<i>Bulls may be harvested</i>	<i>July 1 - Dec. 31</i>
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<i>Cows may be harvested</i>	<i>Nov. 1—Dec. 31</i>
<i>No person may take a calf or a cow accompanied by a calf</i>	
<b>Unit 23, remainder—1 moose bull by State registration permit.</b>	
<i>Bulls may be harvested</i>	<i>Aug. 1 - Dec. 31</i>
<i>Cows may be harvested</i>	<i>Nov. 1—Dec. 31</i>
<i>No person may take a calf or a cow accompanied by a calf</i>	

**Existing State Regulation**

**Unit 23—Moose**

*Unit 23, north of and including Singoalik River drainage*

*Residents—One antlered bull by permit available in person at license vendors within Unit 23 villages June 1-July 15* *RM880* *July 1-Dec 31*  
*or*

*Residents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side* *HT* *Sept 1-Sept 20*

*Nonresidents* *No open season*

*Unit 23, remainder*

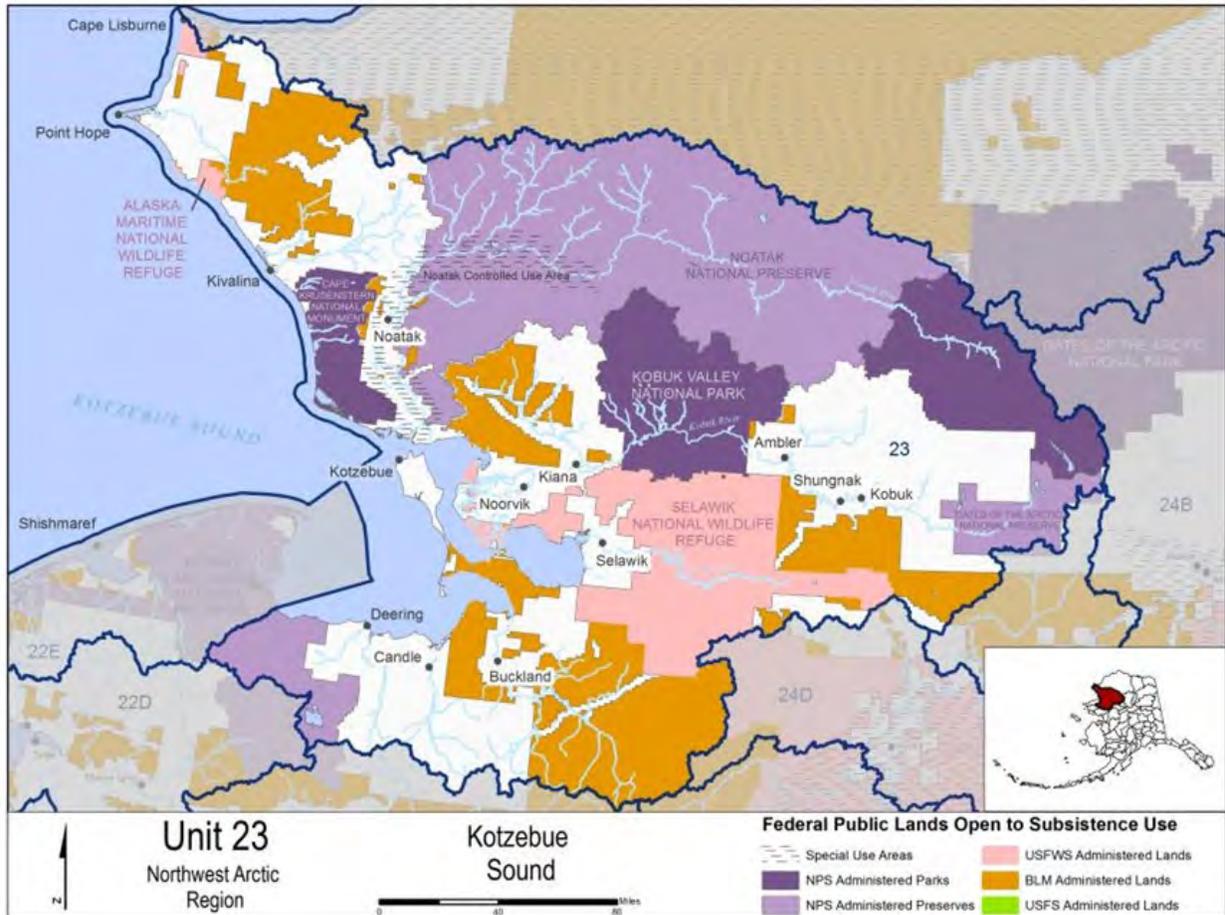
*Residents—One antlered bull by permit available in person at license vendors within Unit 23 villages June 1-July 15* *RM880* *Aug 1-Dec 31*  
*or*

*Residents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side* *HT* *Sept 1-Sept 20*

*Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit* *DM872/874-876/885* *Sept 1-Sept 20*

**Extent of Federal Public Lands**

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands (**Figure 1**).



**Figure 1.** Federal public lands in Unit 23.

**Customary and Traditional Use Determinations**

Residents of Unit 23 have a customary and traditional use determination for moose in Unit 23.

**Regulatory History**

In 1994, the Federal moose hunt in Unit 23 consisted of three hunt areas: Unit 23 north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik rivers (Unit 23 NW), Unit 23 within the Noatak River drainage, and Unit 23 remainder. The harvest limit in each hunt area was one moose with a prohibition on the take of cows accompanied by calves. The season in the Unit 23 NW hunt area was July 1-Mar. 31; the season in the Noatak River drainage hunt area was Aug. 1-Sept. 15 and Oct. 1-Mar. 31, although antlerless moose could only be taken Nov. 1-Mar. 31; the season in Unit 23 remainder was Aug. 1-Mar. 31.

State moose regulations became more restrictive in 2003 when Alaska Board of Game (BOG) approved amended Proposal 15 (effective starting with the 2004/05 regulatory year), making it more difficult for nonlocal residents to hunt moose, creating four registration hunts in the unit with permits (RM880) only available in person at licensed vendors in Unit 23 villages from June 1-July 15. This

early availability of permits occurred before most of the seasons opened, requiring nonlocal hunters to make a special trip to a Unit 23 village in order to receive a permit. These permits also allowed for better tracking of harvest.

In 2005, Proposal WP05-18, submitted by the Council, requested prohibiting the harvest of calves, shortening the season for moose in most of Unit 23 from July 1 (or Aug. 1)-Mar. 31 to Aug. 1-Dec. 31 (five month season), combining the Noatak drainage and remainder hunt areas, and allowing antlerless moose to be harvested only in November and December. The Federal Subsistence Board (Board) tabled this proposal in response to a Council recommendation to provide time for residents of local villages to review the proposal and provide their input due to differing viewpoints related to the moose population and local subsistence needs (FSB 2005).

In 2006, Proposal WP06-54 was submitted by the Council to replace WP05-18, requesting that the harvest of moose calves be prohibited and that the two week seasonal closure (Sept. 16-30) in the Noatak River drainage hunt area be rescinded. The Board adopted WP06-54 under its consensus agenda.

In January 2017, the BOG adopted amended Proposal 36, changing the antlerless moose season in Unit 23 to one antlered bull due to conservation concerns (ADF&G 2017a). Of note, nonresident drawing permits had been reduced from 50 permits in 2016/17 to 34 permits in 2017/18 and, later in 2017, the Alaska Department of Fish and Game (ADF&G) cancelled the 2017/18 nonresident moose hunt in Unit 23, voiding all issued permits (ADF&G 2017a, 2017b, NWARAC 2017a, Saito 2017 pers. comm.).

In April 2017, the Board rejected Temporary Special Action WSA17-02, which requested that Federal public lands in Unit 23 be closed to moose harvest by non-Federally qualified users during the 2017/18 regulatory year. The Board stated that they wanted to allow time to assess the effects of recent State actions prior to considering a unit-wide closure.

During the 2018/20 regulatory cycle, the Council (WP18-41) and Louis Cusack (WP18-42) submitted similar proposals requesting changes to the Unit 23 moose season, including shortening the cow and overall moose seasons and aligning Federal and State hunt areas. Specifically, WP18-41 requested combining the Noatak River drainage and remainder hunt areas, changing the closing date of the bull season from Mar. 31 to Dec. 31, and restricting cow harvest to Nov. 1-Dec. 31. The Board adopted Proposal WP18-41 to protect the declining moose population and took no action on WP18-42.

In 2018, Emergency Special Action WSA18-04, which requested closing the cow moose season in Unit 23, was submitted to the Board. The Board approved with modification to close the Federal winter cow moose season and close moose hunting in Unit 23 except by Federally qualified subsistence users for the 2018/19 regulatory year. ADF&G also closed the non-resident moose season in Unit 23 and planned to continue the nonresident closure until moose populations rebound (NWARAC 2018a).

#### Controlled Use Areas

In 1988, the BOG established the Noatak Controlled Use Area (CUA) in part, “to help reduce harvests on a declining moose population” (ADF&G 1988:47, Alaska Board of Game 1995: 1). In 1990, the Noatak CUA was adopted under Federal subsistence regulations. The Noatak CUA is closed to the use of aircraft in any manner for big game hunting, including transportation of big game hunters, their hunting gear, and/or parts of big game from Aug. 15-Sep. 30. Currently, the Noatak CUA under State regulations consists of a corridor extending five miles on either side of, and including, the Noatak River beginning at the mouth of Agashashok River, and extending upstream to the mouth of the Nimiuktuk River. Currently, the Noatak CUA under Federal regulations consists of a corridor extending five miles on either side of the Noatak River beginning at the mouth of the Noatak River and extending upstream to the mouth of Sapun Creek.

In 2011, Selawik National Wildlife Refuge designated refuge lands in the northwest portion of the refuge as closed to big game hunting by commercial guides and transporters through their comprehensive conservation plan (FWS 2011, 2014). These refuge lands are intermingled with private lands near the villages of Noorvik and Selawik. The purpose of this closure was to minimize trespass on private lands and to reduce user conflicts (FWS 2011).

### **Current Events**

The Council also submitted a wildlife special action request (WSA19-04) to close the cow moose harvest for the 2019/20 regulatory year to ensure that the cow harvest in the unit remains closed until the Board can take action on this regulatory proposal. The Board approved this special action request with modification to also delegate authority to the in-season manager to close moose hunting in Unit 23 to non-Federally qualified users during the 2019/2020 regulatory year, if warranted.

The State of Alaska submitted written comments in support of WSA19-04. The State mentioned that the moose population has declined from an estimate of 7,500 moose in 2017 to a current population estimate of 5,600.

### **Biological Background**

Moose first appeared in eastern Unit 23 during the 1920s, expanding their range from the east. Over the next several decades, moose spread northwest across Unit 23 to the Chukchi Sea coast (**Figure 2**) (LeResche et al. 1974, Tape et al. 2016, Westing 2012). The Unit 23 moose population grew through the late-1980s (Westing 2012). This rise in population was followed by severe winters and extensive flooding from 1988-1991 which, in conjunction with predation by brown bears and wolves, reduced the population and overall moose density (Westing 2012).

State management objectives for moose in Unit 23 include (Saito 2014):

Maintain a unit-wide adult moose population of 8,100-10,000 moose

Noatak River and northern drainages 2,000-2,300 moose

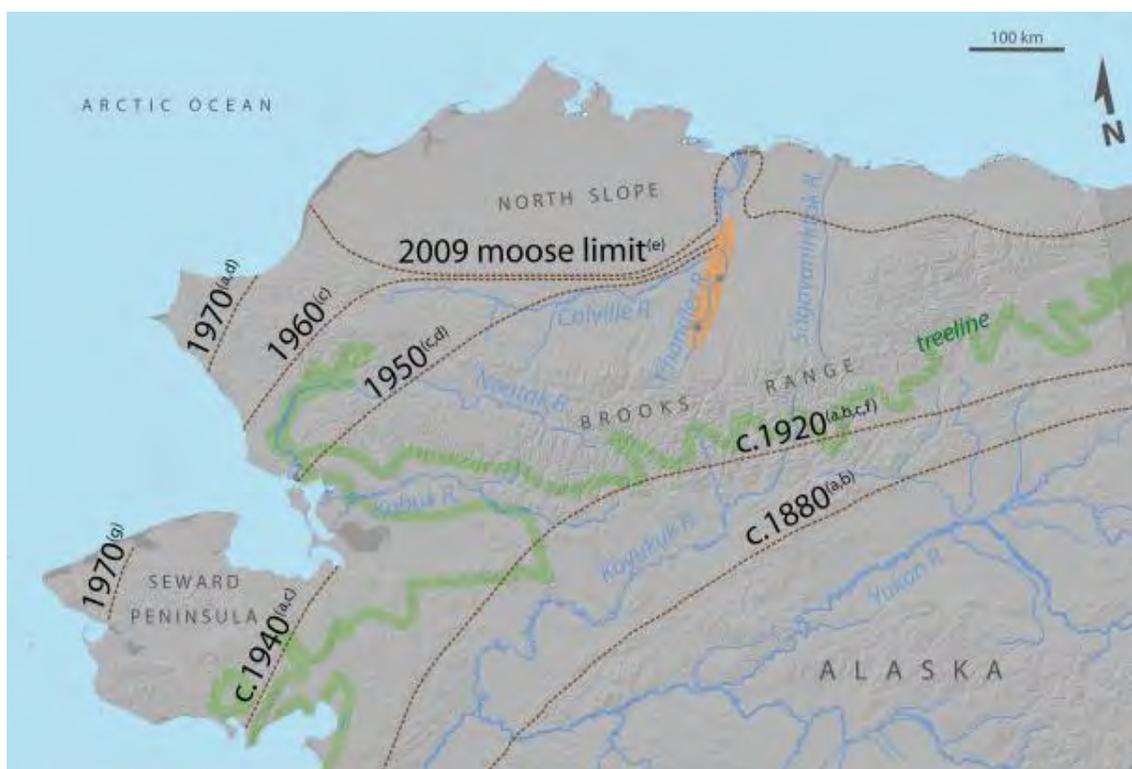
Upper Kobuk River drainage 600-800 moose

Lower Kobuk River drainage 2,800-3,400 moose

Northern Seward Peninsula drainages 700-1,000 moose

Selawik River drainage 2,000-2,500 moose

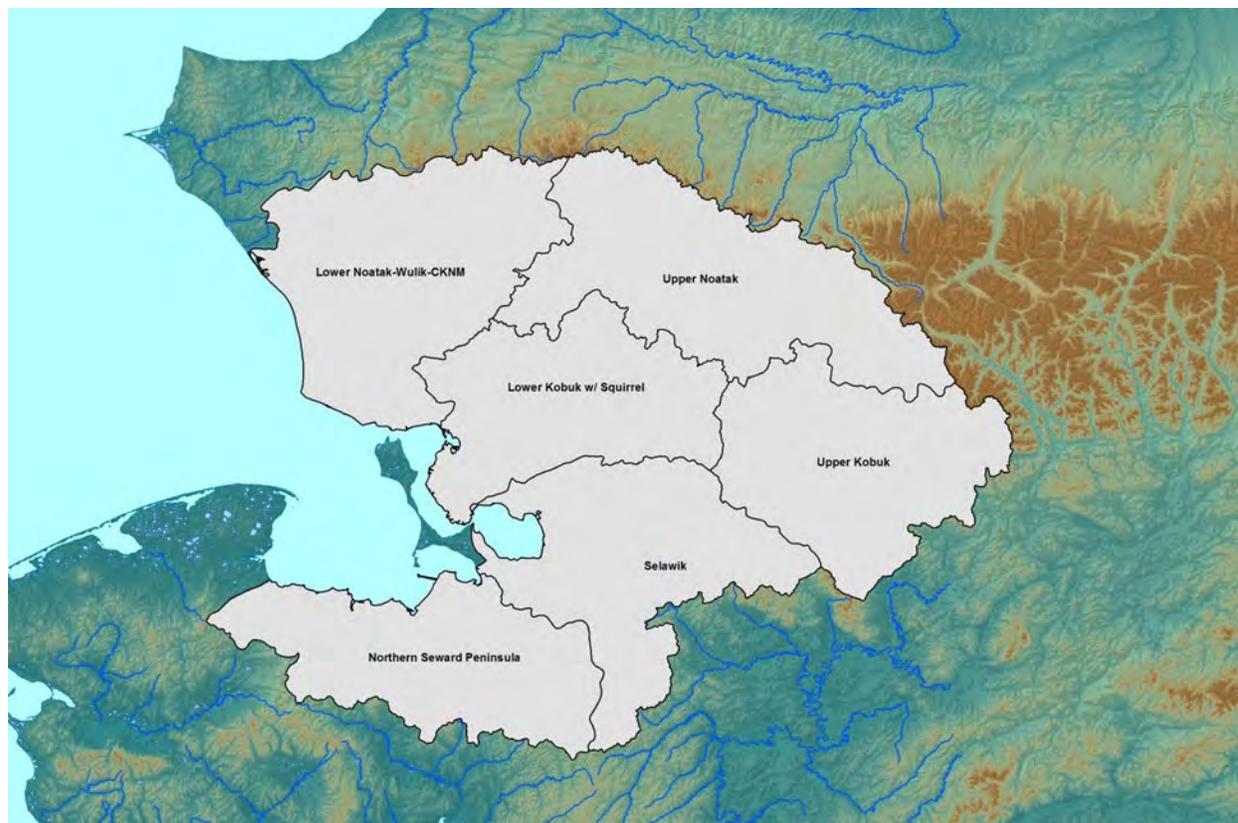
Maintain a minimum fall ratio of 40 bulls:100 cows, except in the Lower Kobuk where bull:cow ratios are skewed by its disproportional use by maternal cows. The higher bull:cow ratio goals are due to the low densities and wide distribution of moose throughout Unit 23 (Saito 2014).



**Figure 2.** Temporal moose distribution changes in northern Alaska (figure from Tape et al. 2016).

ADF&G, in cooperation with Federal partners, conducts spring population and fall composition surveys for moose in Unit 23. Surveys are conducted within census areas on a rotating basis with each census area being surveyed approximately every five years (**Figure 3**) (Alaska Board of Game 2017). Census areas have fluctuated throughout the years due to time and financial constraints as well as evolving survey techniques (Saito 2017, pers. comm.). In 2012, the Squirrel River drainage was moved from the Lower Noatak census area to the Lower Kobuk census area (Saito 2014). In 2014, the Upper Kobuk census area was expanded to include previously unsurveyed areas (Saito 2017, pers. comm.). Current census areas are static for the foreseeable future.

Moose density is primarily influenced by local factors such as snow depth, fire frequency, forage availability, and predators (Gasaway et al. 1992, Stephenson et al. 2006, Boertje et al. 2009, Street et al. 2015). Therefore, moose in Unit 23 are not evenly distributed across the landscape, with some drainages experiencing higher densities of moose than others. Between 2001 and 2017, total moose densities ranged across census areas from 0.03-0.7 moose/mi<sup>2</sup> while adult moose densities ranged from 0.03-0.59 moose/mi<sup>2</sup> (**Table 1**) (Robison 2017, Saito 2014, 2016a, pers. comm.).



**Figure 3.** ADF&G moose census areas in 2017 (figure from Saito 2017, pers. comm.).

Since 2009, the estimated moose population in every census area has declined (**Figure 4**), and the most recent population estimates are well below population objectives in every area except the Upper Kobuk, which just meets its lower population objective (**Table 2**) (Saito 2014, 2016a, pers.comm., Robison 2017, NWARAC 2019). An estimated 70% of the Unit 23 moose population is found in the Selawik, Lower Kobuk, and Lower Noatak River census areas (NWARAC 2018a). All three of these areas have experienced >40% population declines since 2011. (Note: Both the old (smaller) and new (larger) Upper Kobuk census areas were surveyed in 2014. The old census area data is depicted in **Figure 3** for better comparability across years while the new census area data is listed in **Table 2**).

In 2016 and 2017, ADF&G provided a unit-wide population estimate of 7,500 moose (ADF&G 2017a). In 2018, ADF&G estimated the Unit 23 moose population at 6,300 moose, representing a 16% decline in the unit-wide population estimate (NWARAC 2018a). The most recent unit-wide moose population estimate was reported at 5,600 moose in a comment on WSA19-04 submitted by ADF&G. This represented an additional 11% decline in the population since the 2018 survey. The Council and the public have also repeatedly reported at recent meetings that there are noticeably fewer moose than in the past (NWARAC 2017b, 2018a).

**Table 1.** Moose population data collected during spring population census surveys in Unit 23 since 2001. The Upper Kobuk was surveyed in 2014 using both the older census area and the updated census area (Robison 2017; Saito 2016a pers. comm., 2018 pers. comm., NWARAC 2019).

Census Area	Year	Moose Observed	Total Moose Estimated	Census Area (mi <sup>2</sup> )	Area Surveyed (mi <sup>2</sup> )	Total Density (/mi <sup>2</sup> )	Adult Density (/mi <sup>2</sup> )	Calves: 100 adults
Lower Noatak-Upper Squirrel	2001	709	1731	5230.2	832.0	0.33	0.30	10
	2005	575	1838	5349.7	915.5	0.34	0.30	13
	2008	596	2008	5349.7	1510.4	0.38	0.33	13
Lower Noatak-Wulik	2008	685	2273	6404.5	--	0.35	0.31	14
	2013	413	1478	6404.5	1310.2	0.23	0.21	11
	2018	--	866	--	--	--	--	--
Upper Noatak	2010	100	153	4485.6	1972.1	0.03	0.03	12
N. Seward Peninsula	2002	520	612	5888.5	1220.7	0.10	0.10	7
	2004	610	810	5882.9	1934.3	0.14	0.12	12
	2009	293	966	5773.2	1271.2	0.17	0.16	8
	2014	264	--	--	--	--	--	12
	2015	310	617	5767.8	1791.2	0.11	0.09	15
Upper Kobuk	2003	252	856	4001.5	895.4	0.21	0.19	12
	2006	219	737	4001.5	973.7	0.18	0.16	15
	2014	136	538	3990.8	839.2	0.13	0.13	7
	2014	186	727	5056.8	1082.5	0.14	0.13	7
	2019	--	601	--	--	--	--	23
Lower Kobuk	2006	1532	3398	4870.5	1457.6	0.70	0.59	15
	2012	789	2497	4870.5	1457.6	0.51	0.48	8
Lower Kobuk-Squirrel	2012	789	2546	5338.0	1290.8	0.48	0.44	8
	2017	796	1346	5338.0	--	0.25	--	15
Selawik	2007	678	2319	6580.1	1845.2	0.35	0.32	10
	2011	448	1739	6559	1289.1	0.27	0.24	11
	2015	532	--	--	--	--	--	14
	2016	520	940	6559	2273	0.14	0.13	14

ADF&G conducts composition surveys in the fall to estimate bull:cow and calf:cow ratios. In 2008, ADF&G changed the methodology of fall composition surveys, and data are not comparable between survey methods (Saito 2014). From 2004-2007, Unit 23 bull:cow ratios averaged 39 bulls:100 cows. Since 2008, bull:cow ratios have ranged across survey areas from 34-54 bulls:100 cows, although composition surveys are conducted sporadically (**Table 3**) (Saito 2014, 2016a pers.comm., 2018 pers.comm.). However, in all census areas with multiple composition surveys since 2008, bull:cow ratios have declined and are below or near the State management objectives (**Table 3**).

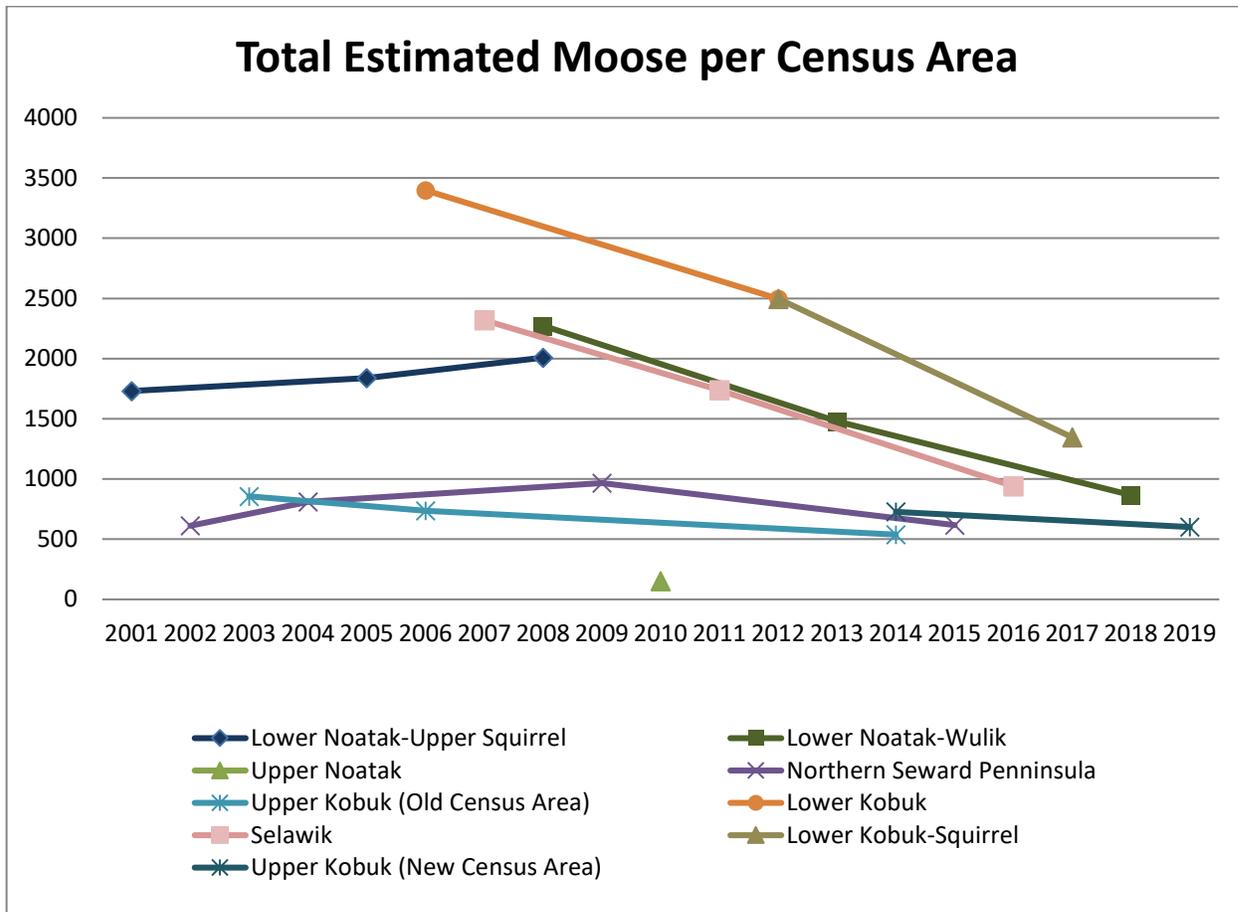
Fall calf:cow ratios of < 20 calves:100 cows, 20-40 calves:100 cows, and > 40 calves:100 cows may indicate declining, stable, and growing moose populations, respectively (Stout 2010). Since 2008, calf:cow ratios have ranged across survey areas from 4-24 calves:100 cows (**Table 3**) (Saito 2014, 2016a pers. comm., 2018 pers. comm.). These low calf:cow ratios indicate the Unit 23 moose population is declining, with the possible exception being the Lower Kobuk survey area which has a larger percentage of maternal cows. During spring population surveys, ratios of calves:100 adults are also estimated as a measure of recruitment. Between 2001 and 2019, ratios ranged across survey areas from 7-23 calves:100 adults (Saito 2016a, pers. comm., 2018, pers. comm., Robison 2017, NWARAC 2019). No clear trend is detectable with ratios increasing over time in some survey areas and decreasing or fluctuating in others.

While predation by brown bears, black bears, and wolves affects moose population dynamics in Unit 23, the overall level of impact of predators in relation to other factors such as weather, snow depth, disease, and human harvest is unknown, although deep snow and icing events limit moose movements, increasing their susceptibility to predation (Saito 2014, Fronstin 2018 pers. comm.). Relatively high moose densities and calf:cow ratios in the Kobuk River delta, where predator populations are lower due to its proximity to year-round human travel routes, suggest predators may be affecting moose in the more remote portions of the unit (Saito 2014). However, preliminary results from the first 6 months of a 3-year calf survival study in the Lower Kobuk drainage indicate 60% (46 out of 77) of collared calves died from bear predation, which is comparable to other moose populations in Alaska (Hansen 2018 pers. comm., NWARAC 2018b). As humans primarily harvest bull moose and bull:cow ratios have not substantially declined across years despite substantial population declines, human harvest may not be a limiting factor (NWARAC 2017a).

Habitat is not thought to be a limiting factor (NWARAC 2018a). Moose rely on willow and shrub habitats for browsing and for cover from predators. Shrub and willow productivity, height, and cover have increased and expanded in Unit 23 in response to rising average temperatures (Tape et al. 2016). Taller vegetation provides more suitable cover and increased available forage above the snowpack (Tape et al. 2016). Wildfire (the primary driver of boreal forest succession) frequency and shrub habitat is also forecasted to increase in Northern Alaska as the Arctic climate warms, resulting in more moose habitat in Unit 23 (Joly et al. 2012, Swanson 2015). During a 2005 habitat survey in Unit 23, willows did not appear to be over-browsed by moose (Westing 2012). A 2017 browse survey, completed in the Lower Kobuk, suggested that winter forage is not a limiting factor for moose populations (NWARAC 2018a). Twinning rates are another indicator of habitat and food limitations.



In 2016, 41% of cows surveyed in Unit 23 had twins, further suggesting food is not a limiting factor and the population is not experiencing a density-dependent response (NWARAC 2018a).



**Figure 4.** Total moose population estimates from 2001 to 2019 by census area. The old Upper Kobuk and new Upper Kobuk census area population estimates are both shown here (Robison 2017, Saito 2016a, pers. comm., NWARAC 2019).

**Table 2.** Comparisons across Unit 23 study areas of the most recent moose population estimates, population objectives, and harvestable surpluses. The harvestable surplus is calculated as 6% of the population. The Upper Kobuk census area represents the updated census area that was created in 2014. The spring 2017 and 2018 surveys in the Lower Kobuk and Lower Noatak-Wulik survey areas, respectively are incorporated in the table, but not into the extrapolated population total. Extrapolated total incorporates estimated populations in non-surveyed portions of Unit 23 (Robison 2017, Saito 2016a pers. comm., 2018 pers. comm., NWARAC 2018a, 2019).

Unit 23 Study Area	Most Recent Survey Year	Population Estimate	Population Objective	% Below Population Objective	Harvestable Surplus
Noatak River Drainages	2010 (Upper) 2018 (Lower)	1019	2,000-2,300	49	61
Lower Kobuk River Drainage	2017	1,346	2,800-3,400	52	81
Upper Kobuk River Drainage	2019	601	600-800	0	36
Selawik River Drainage	2016	940	2,000-2,500	53	56
Northern Seward Peninsula	2015	617	700-1,000	12	37
<b>Total</b>		<b>4,523</b>			<b>271</b>
<b>Extrapolated 2017 Total</b>		<b>7,500</b>			<b>450</b>
<b>Extrapolated 2018 Total</b>		<b>6,300</b>			<b>378</b>

**Table 3.** Bull:cow and calf:cow ratios in fall composition surveys conducted after 2007 (Saito 2014, 2016a pers. comm., 2018 pers. comm.).

Survey Area	Year	Bulls:100 Cows	Calves:100 Cows
Selawik	2008	54	18
	2010	47	19
	2015	43	20
Lower Kobuk	2011	45	15
	2017	38	24
Lower Noatak	2013	53	4
	2018	41	17
Northern Seward Peninsula	2009	53	4
Seward Peninsula	2014	34	16

### Cultural Knowledge and Traditional Practices

Unit 23 encompasses the Northwest Arctic Borough, which was established in 1986 and is home to 7,523 residents from 11 communities (NAB 2016). Approximately 86% of the residents identify as Alaska Native or part Native, with the majority of these identifying as Iñupiat Eskimo (NAB 2016). The borough comprises approximately 39,000 mi<sup>2</sup> on which subsistence activities are a vital part of the lifestyle for local residents (NAB 2016).

Historically, the people of the Northwest Arctic lived in small family clusters that were spread widely across the landscape (Burch 1980: 265). It was not until the 20<sup>th</sup> century that most residents of the region became centralized in more permanent winter villages (Georgette and Loon 1993: 3). Kotzebue became the largest community in the region and is currently considered the hub of economic activity in the area. In 1985, Kotzebue was more than eight times larger than the average community in the region by population (2,633 individuals), and four times larger than the second largest community – Selawik (Georgette and Loon 1993: 3). In 2010 the population of Kotzebue was recorded as 3,201 individuals (DCCED 2016). The community is near the mouth of several major river systems. It is surrounded by the marine waters of Kotzebue Sound, and the original village was named “Qikiqtagruk” (Georgette and Loon 1993: 4).

The resources of the Northwest Arctic region are relatively rich and varied despite its high latitude (Burch 1984: 306). A variety of animal species are available and utilized for subsistence including marine mammals, terrestrial mammals, birds, and fish (Burch 1984: 306). Caribou has been a staple in the diet of many Iñupiat peoples for centuries (Georgette and Loon 1993: 78). In many parts of the Northwest Arctic, however, shifts in herd migration and size often cause variability in the availability of this resource, with the use of caribou and harvest strategies often changing accordingly over time (Georgette and Loon 1993: 78).

Despite the diversity of resources in the region, moose are a relatively recent addition, especially in lowland and coastal areas (Georgette and Loon 1993: 83). Archaeological sites in tundra and northern tree-line areas of Alaska have reported few moose remains until the mid-20<sup>th</sup> century and this is consistent with historical accounts and minor representation in Iñupiat culture (Hall 1973, Coady 1980, Tape et al. 2016). Reports of nineteenth century explorers also lacked observations of moose along the Kobuk, Noatak, or Colville Rivers, as well as along the Arctic coast (Coady 1980).

Moose were present in the tributaries of the upper and middle Noatak River in the 1940s and became more common downriver after 1960 (Georgette and Loon 1993: 83). In the upper Kobuk River, moose did not appear until the 1920s but soon thereafter populated the entirety of the drainage (Georgette and Loon 1993: 83). Uhl and Uhl (1977) reported that residents of the Cape Krusenstern area lacked historic traditions that included moose. By the 1980s, moose were present in suitable habitat throughout northwest Alaska (Georgette and Loon 1993: 84).

According to Georgette and Loon (1993), residents of Kotzebue continued to consider moose as secondary to caribou in their importance and desirability as a subsistence food; they were taken to add dietary variety. Residents hunted moose in the fall, but moose were also harvested throughout the winter as needed (Georgette and Loon 1993: 84). The relative size of moose made them more difficult to butcher and pack than caribou, and hunters often preferred to harvest the species as close as possible to the edge of a river or a lake in proximity to their boat (Georgette and Loon 1993: 84). Moose were generally prepared and preserved by similar means as caribou, most often aged and frozen (Georgette and Loon 1993: 84). The cartilaginous parts of the nose were the only part of the heads used. Because moose hides were not generally smoked or tanned, they were rarely salvaged

(Georgette and Loon 1993: 84). Although much of this information was collected more than 25 year ago, much of this still holds true today.

The average per capita harvest of moose in Kotzebue in 1986 was 13 pounds, accounting for only 3% of the average household harvest (Georgette and Loon 1993: 84). Approximately 8% of Kotzebue households harvested moose (compared to 45% harvesting caribou), but 18% indicated that they hunted for moose but were unsuccessful (Georgette and Loon 1993: 84). Despite the small percentage of households harvesting moose, sharing of this resource was widespread with approximately 42% of households using it (Georgette and Loon 1993: 84). The use and harvest of moose by Kotzebue residents was similar in 2012 with approximately 13 pounds of this resource harvested per capita, 9% of households harvesting moose, and 37% of households using moose (ADF&G 2012).

The harvest and use of a resource in regional hubs may be different than that of a rural village since the former tends to be more heterogeneous in “culture, birthplace, education, employment, and length of residency” (Georgette and Loon 1993: 4). In 1992, the rural northwest arctic community of Kivalina harvested approximately 26 pounds of moose per capita, with 23% of the households harvesting the resource and 47% of households using the resource (ADF&G 1992). In 2010, residents of Kivalina harvested approximately 19 pounds of moose per capita with 13% of households harvesting the resource and 16% using the resource (ADF&G 2010).

Changes in harvest and use patterns may be attributable to many factors including the availability of moose and other resources in a given a year. Georgette and Loon (1993) suggested that future declines in caribou availability in the region could result in increased reliance on moose to meet the subsistence harvest demands of Kotzebue residents. Given recent declines in the Western Arctic Caribou Herd (Dau 2015), moose may already be becoming a more prominently sought after resource for meeting subsistence needs in the region.

## **Harvest History**

Harvest data is derived from State harvest reports and community household surveys. Community household surveys are used, in part, as a method to determine whether harvest is being reported accurately in State harvest reports. Harvest reports provide data on an annual basis. Community household surveys gather data from local communities pertaining to subsistence harvest on an irregular basis, with many communities only being visited once over a five year time span. In Unit 23, community household surveys show that moose harvest is underreported by local users (users residing in Unit 23), but nonlocal user harvest can be assumed accurate based on the requirement of registration permits and drawing permits in some areas. This section will discuss State harvest report data prior to reviewing community household survey data.

Between 2005 and 2018, total reported moose harvest in Unit 23 ranged from 55-189 moose, averaging 137 moose (**Table 4**) (ADF&G 2016, 2018a). The lowest reported harvest was in 2018, after ADF&G cancelled the nonresident moose season and Federal public lands were closed to moose harvest except by Federally qualified subsistence users (WSA18-04). Local resident (residents of Unit 23), nonlocal resident, and nonresident reported harvest averaged 73 moose (54%), 42 moose (31%),

and 21 moose (15%) per year, respectively (**Table 4**) (ADF&G 2016, 2018a). Cows comprised 7% of the annual reported harvest on average, with 1-21 cows being harvested each year, although the actual cow harvest is likely double what is reported (Alaska Board of Game 2017). The vast majority of moose are harvested in September (**Figure 5**) (WINFONET 2017). Since 2006, more moose have been harvested from the Kobuk River drainage than from other drainages within Unit 23 (**Figure 6**) (ADF&G 2017a).

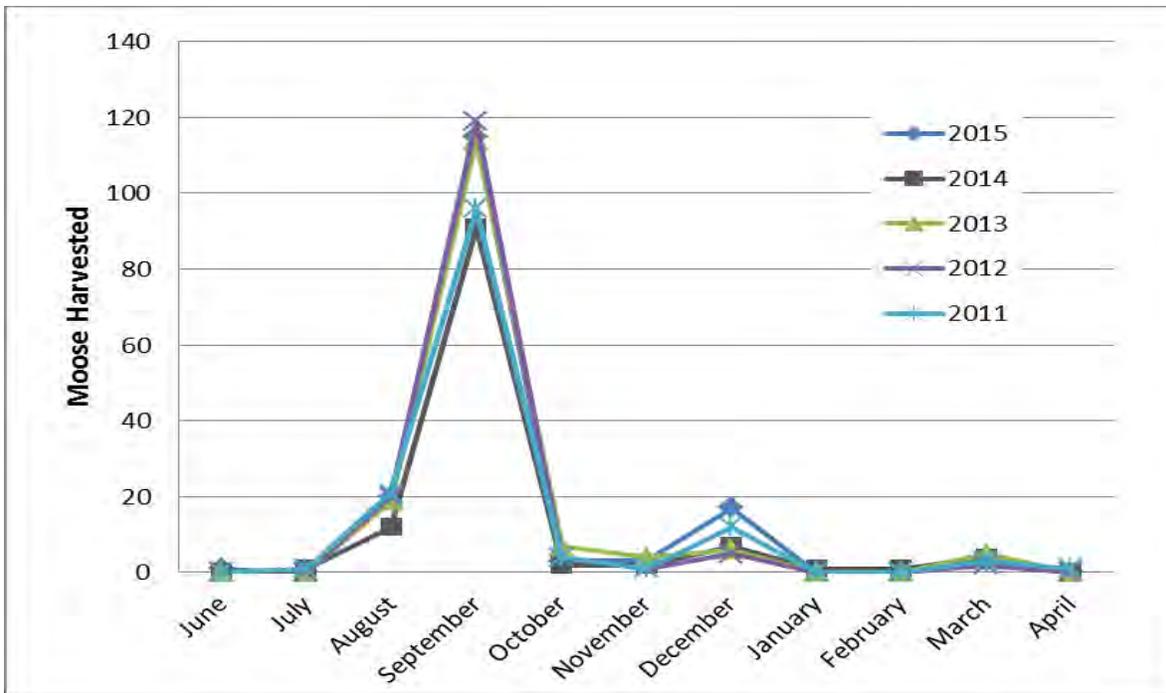
Since 2000, community household survey data has indicated 350-450 moose are harvested each year by local residents (Saito 2014). In regulatory year 2012/13 specifically, ADF&G estimated moose harvest by local residents as 342 moose (**Table 5**) (Saito 2014). The only community household survey data available for the number of cow moose harvested by local residents are for 2008 and 2009 in the villages of Noorvik, Shungnak, Ambler, Buckland, Kiana, and Kobuk. These data indicate 3 out of 67 total moose harvested were cows, although 6 moose were of unknown sex (ADF&G 2018b).

ADF&G calculates the harvestable surplus of moose in Unit 23 as 6% of the population (Saito 2016a, pers. comm.). As the 2018 unit-wide population estimate was 6,300 moose, 378 moose was the estimated harvestable surplus. In 2019, the harvestable surplus declined to 336 moose. Reported harvest by nonlocal residents and nonresidents (~67 moose/year) combined with community household survey harvest estimates for local residents (350-450 moose/year) indicate that total Unit 23 moose harvests likely exceed the harvestable surplus. While the State has closed the nonresident season, and nonlocal resident reported harvest declined in 2016 and 2017 (**Table 4**), harvest estimates by local residents alone may still exceed the harvestable surplus (Saito 2014).

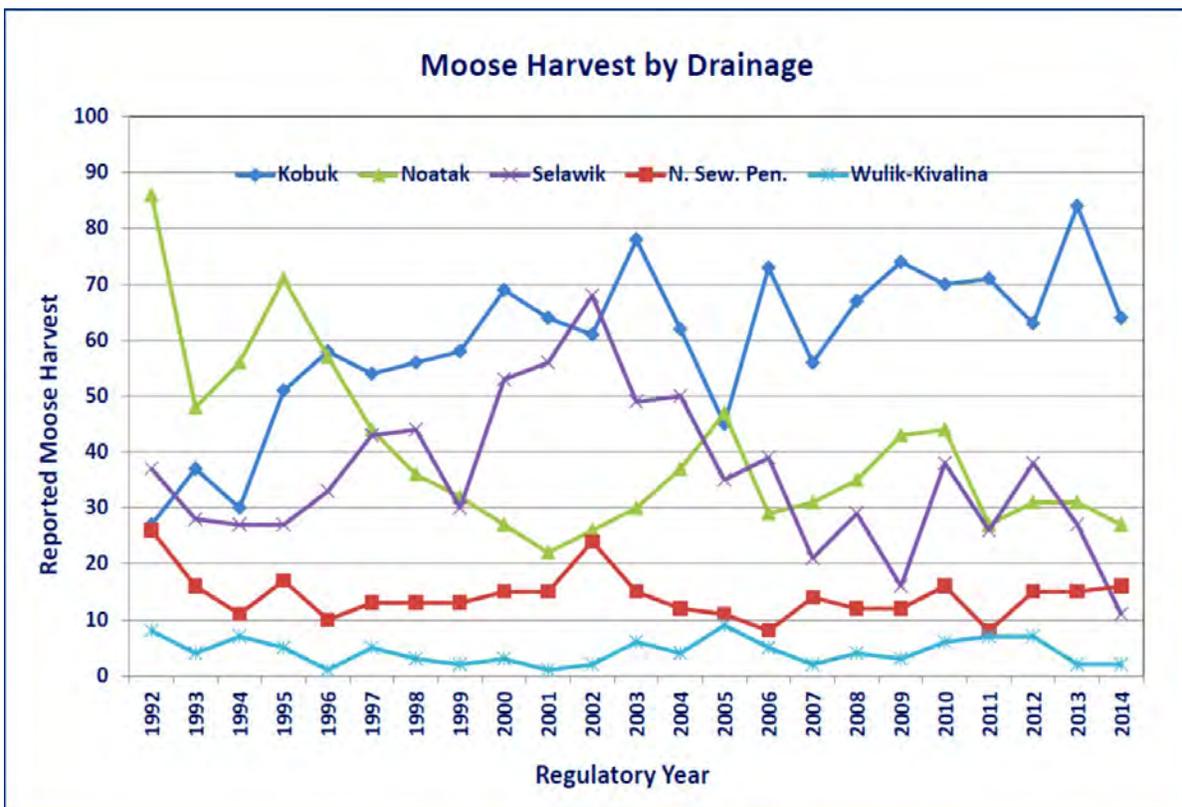
Harvest within individual drainages may be particularly high or have disproportionate effects on the population. For example, ADF&G estimates that approximately 70 moose are taken from Selawik drainage each year, which translates to a 7% harvest rate (**Table 2**) (NWARAC 2016). During winter months, large congregations of moose have been observed near villages, which can make these moose highly susceptible to harvest (Alaska Board of Game 2017). The Lower Kobuk River drainage hosts a disproportionate number of maternal cows, possibly because this area appears to support fewer large predators due to its proximity to human travel corridors (Saito 2014). More moose are also harvested from the Kobuk River drainage than any other drainage (**Figure 6**). This suggests cow moose in the Kobuk River drainage are particularly susceptible to harvest, although the taking of cows with calves is prohibited under both State and Federal regulations. While recent restrictions to State regulations have decreased reported moose harvest, decline of the Western Arctic Caribou Herd has likely increased moose harvest by local residents trying to meet their subsistence needs (Saito 2014, NWARAC 2017b, 2018a). During recent Council meetings, subsistence users have commented on the importance of moose as a subsistence resource, particularly when caribou are scarce (OSM 2017, NWARAC 2017b, 2018a).

**Table 4.** Reported moose harvest in Unit 23 for 2005-2018 from ADF&G harvest ticket and permit reports (ADF&G 2016, 2018a).

Year	Local Resident Harvest	Nonlocal Resident Harvest	Nonresident Harvest	Total Harvest	Male	Female	Unknown
2005	65	41	41	148	137	10	1
2006	79	49	30	159	150	7	2
2007	64	29	25	123	116	7	0
2008	62	48	40	151	143	7	1
2009	80	50	23	155	144	10	1
2010	102	63	22	189	169	17	3
2011	72	45	26	144	133	11	0
2012	75	57	24	156	146	10	0
2013	88	53	21	164	151	12	1
2014	74	40	10	124	109	14	1
2015	85	59	20	165	144	21	0
2016	63	18	11	95	90	4	1
2017	66	18	0	84	78	5	1
2018	42	13	0	55	54	1	0
<b>Average</b>	<b>73</b>	<b>42</b>	<b>21</b>	<b>137</b>	<b>126</b>	<b>10</b>	<b>1</b>



**Figure 5.** Moose harvest, by month, among users of Unit 23 from 2011-2015 according to State harvest reports (WINFONET 2017).



**Figure 6.** Moose harvest, by drainage, among users of Unit 23 from 1992-2014 according to State harvest reports (figure from ADF&G 2017a).

**Table 5.** Estimated moose harvest in Unit 23 villages from community harvest estimates 1991-2013 (Saito 2014).

Village	Year of Survey	Mean human population in survey years	Mean number of moose reported harvested	Per capita moose harvest	Estimated village population in 2012	Estimated annual moose harvest in 2012-2013
Ambler	2002, 2009, 2012	271	10	0.04	283	11
Buckland	2003, 2009	421	13	0.03	421	13
Deering	1994, 2007	159	8	0.05	153	8
Kiana	1999, 2006, 2009	387	13	0.03	378	13
Kivalina	1992, 2007, 2010	380	11	0.03	367	11
Kobuk	2004, 2009, 2012	135	6	0.04	164	7
Kotzebue	1991, 2013	3,362	154	0.05	3,076	154
Noatak	1994, 1999, 2001, 2007, 2010, 2011	481	7	0.02	545	11
Noorvik	2002, 2008, 2012	621	35	0.06	585	35
Point Hope	1992	685	14	0.02	674	14
Selawik	1999, 2006, 2011	797	50	0.06	856	51
Shungnak	1998, 2002, 2008, 2012	258	12	0.05	275	14
<b>Unit 23 Total</b>					<b>7,777</b>	<b>342</b>

### Other Alternatives Considered

One alternative considered is that in addition to closing the cow moose season to Federally qualified users, closure of Federal public lands in Unit 23 to moose hunting by non-Federally qualified users may be warranted for the continuation of subsistence uses. The estimated 2018 harvestable surplus is 378 moose. As harvest estimates for Federally qualified subsistence users (local residents) are 350-450 moose per year, the harvestable surplus may be met or exceeded by local resident harvest alone. Additionally, bull:cow ratios have declined in all census areas (**Table 3**).

Due to recent declines in the Western Arctic Caribou Herd population, local subsistence users are depending more on moose to meet their subsistence needs (NWARAC 2017b, 2018a). Therefore, moose harvest by Federally qualified subsistence users has likely increased in recent years. Local residents have emphasized that non-Federally qualified and Federally qualified subsistence users should share the burden of restricted moose harvest; this burden should not be put upon Federally qualified subsistence users alone who depend on moose to increase their food security (NPS 2016, OSM 2017, NWARAC 2017b, 2018a).

While the State closed the non-resident moose hunt in Unit 23, nonlocal residents still harvest approximately 44 moose from Unit 23 each year. While nonlocal resident harvest comprises only



12% of the harvestable surplus, ANILCA mandates a rural subsistence priority and indicates restrictions to non-Federally qualified users are necessary if resources are limited.

Due to comments shared by the Council at their April 2019 meeting and due to this alternative being outside the scope of the request, this alternative was not considered further. At this meeting, the Council shared their apprehension about closing Federal public lands due to the possibility of concentrating non-local hunters on State lands near the villages (NWARAC 2019).

Another alternative considered would be to not require a State registration permit under Federal regulations and to instead require a Federal registration permit. Current regulations for State registration permit RM880 state that these registration permits must be obtained by the user in person at license vendors within Unit 23 villages from June 1 through July 15. If a user is not able to make it to a village, or to a license vendor in their village, to pick up a permit during that time-frame, then they would not be permitted to harvest a moose for that year or they would need to participate in the short, antlered restricted, harvest ticket season under State regulations. It may be warranted to make the registration permit available for Federally qualified subsistence users to obtain year-round, so that local users can comply with regulations while not interfering with their seasonal subsistence practices. One way to accomplish this could be to require a Federal registration permit, rather than the current State registration permit. This alternative was not considered further due to Federal offices not having a system in place to distribute permits in all the villages.

### **Effects of the Proposal**

If this proposal is adopted, the Federal cow moose season in Unit 23 will be closed and moose harvest in the unit would require the use of the current State registration permit, which must be obtained between June 1 and July 15 in local villages (although users could still hunt under State regulations from Sept. 1–20 with a harvest ticket). This would decrease opportunity for Federally qualified subsistence users, as fewer moose would be available for harvest and would add the additional burden of traveling to a license vendor to obtain a registration permit every summer. If a Federally qualified subsistence user did not obtain a registration permit in person in one of the Unit 23 villages, then they would not be legally permitted to harvest a moose under Federal regulations for that year. The use of registration permits would, however, allow for better documentation of harvest in the area and would be beneficial to future moose population management in Unit 23. It may be important to note that education/outreach efforts would need to be put in place to ensure that locals are made aware of new permit requirements, if this proposal is adopted. Adoption of WP20-47 would also align State and Federal moose seasons in Unit 23, which could decrease user confusion and regulatory complexity, and would maintain the harvest limit of “one bull” rather than “one antlered bull” (which is the current State harvest limit), which would retain Federal priority for local users.

Adoption of WP20-47 could also aid in the recovery of the Unit 23 moose population. There are substantial conservation concerns that threaten the viability of the population. Surveys indicate substantial declines in almost every survey area (**Figure 3**), population estimates are below State objectives, and calf:cow ratios are below 20:100, which indicates a declining population. The

Selawik, Lower Noatak, and Lower Kobuk census areas, where most of the moose in Unit 23 reside, have experienced > 40% population declines since 2011. Moose densities vary by drainage, and winter populations can be highly concentrated near villages, making them more susceptible to harvest. While most of the land immediately surrounding villages are Native lands that are already closed to cow moose harvest under State regulations, Federal lands are within 10-15 miles of every village in Unit 23.

Additionally, the harvestable surplus has likely been exceeded. While harvest data show relatively few cows are harvested, conserving cows is particularly important in maintaining a healthy moose population as cow moose are the engine of population growth (NWARAC 2017a). Typically, cow moose harvest is only permitted in populations showing signs of nutritional stress and/or to limit a growing population (ADF&G 2008). Cow harvest is not advised in areas with low or declining moose populations (ADF&G 2008) such as Unit 23. Closing the cow season would help the population recover more quickly and curtail further declines, especially in drainages where moose congregate during winter months. As the cow moose season is closed under State regulations, adopting this proposal would result in no legal harvest of cow moose in Unit 23.

**OSM CONCLUSION**

**Support** Wildlife Proposal WP20-47 **with modification** to change the harvest limit to “one antlered bull”.

The modified regulation should read:

**Unit 23—Moose**

*Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose antlered bull by State registration permit.*

*Bulls may be harvested* *July 1 - Dec. 31*

*Cows may be harvested* *Nov. 1—Dec. 31*

*No person may take a calf ~~or a cow accompanied by a calf~~*

*Unit 23, remainder—1 moose antlered bull by State registration permit.*

*Bulls may be harvested* *Aug. 1 - Dec. 31*

*Cows may be harvested* *Nov. 1—Dec. 31*

*No person may take a calf ~~or a cow accompanied by a calf~~*

## Justification

There are serious population viability concerns for the Unit 23 moose population due to substantial declines in population estimates, low calf:cow ratios, and likely exceedance of the harvestable surplus. Actual cow moose harvest is likely double what is reported, according to household surveys. Since cow moose are the keystone to population growth, conserving cows is essential to maintaining a healthy moose population. Cow moose harvest is not recommended in a low density, declining population. Closing the cow season and requiring a State registration permit to help managers more accurately track harvest should help the Unit 23 moose population recover more quickly and prevent further declines. Likewise, modifying the harvest limit to “one antlered bull” could further limit cow harvest, as well as cow harassment by hunters, by ensuring that a cow is not inadvertently harvested when the user believes they are targeting an antlerless bull in December, after antlers have dropped.. While adoption of this proposal reduces opportunity for Federally qualified subsistence users to harvest cow moose, they will still be able to harvest antlered bulls during the winter season under either Federal and State regulations.

## LITERATURE CITED

- ADF&G. 1988. Western and Arctic Region Proposal Book. March, 1988.
- ADF&G. 1992. Community subsistence information system: Kivalina. ADF&G. Division of Subsistence, Anchorage, AK. <http://www.adfg.alaska.gov/sb/CSIS/> Retrieved: November 21, 2016.
- ADF&G. 2008. Cow moose hunts. When, where, and why. ADF&G, Division of Wildlife Conservation. Fairbanks, AK. [https://www.adfg.alaska.gov/static/hunting/moosehunting/pdfs/cow\\_moose\\_hunts\\_when\\_where\\_why.pdf](https://www.adfg.alaska.gov/static/hunting/moosehunting/pdfs/cow_moose_hunts_when_where_why.pdf) Accessed November 26, 2018.
- ADF&G. 2010. Community subsistence information system: Kivalina. ADF&G, Division of Subsistence, Anchorage, AK. <http://www.adfg.alaska.gov/sb/CSIS/> Retrieved: November 21, 2016.
- ADF&G. 2012. Community subsistence information system: Kotzebue. ADF&G, Division of Subsistence, Anchorage, AK. <http://www.adfg.alaska.gov/sb/CSIS/> Retrieved: November 21, 2016.
- ADF&G. 2016. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Accessed November 1, 2016.
- ADF&G. 2017a. Board of Game Arctic and Western Region Meeting Materials. January 6-9, 2017. Bethel, AK.
- ADF&G. 2017b. 2016-2017 draw supplement. [https://www.adfg.alaska.gov/static/license/huntlicense/pdfs/2016-2017\\_draw\\_supplement.pdf](https://www.adfg.alaska.gov/static/license/huntlicense/pdfs/2016-2017_draw_supplement.pdf) Retrieved: February 1, 2017.
- ADF&G. 2018a. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Accessed November 13, 2018.
- ADF&G. 2018b. Community Subsistence Information System. <http://www.adfg.alaska.gov/sb/CSIS/>. Accessed November 14, 2018.

Alaska Board of Game. 1995. Findings of the Board of Game: Noatak Controlled Use Area in Game Management Unit 23. 95-89-BOG.

Alaska Board of Game. 2017. Audio of the Alaska Board of Game Meeting proceedings. January 9, 2017. Bethel, AK. ADF&G. Juneau, AK.

Boertje, R. D., M. A. Keech, D. D. Young, K. A. Kellie, and T. C. Seaton. 2009. Managing for elevated yield of moose in Interior Alaska. *Journal of Wildlife Management*.

Burch, E.S. 1980. Traditional Eskimo societies in northwest Alaska. *Senri Ethnological Studies*, 4, pp.253-304.

Burch, E.S. 1984. Kotzebue Sound Eskimo. In D. Damas, editor. *Handbook of North American Indians--Arctic*. Volume 5. Edited by D. Damas. Smithsonian Institution, Washington, D.C. pp. 303-319.

Coady J. 1980. History of moose in northern Alaska and adjacent regions. *Canadian Field Naturalist* 94: 61–68.

Dau, J. 2015. Units 21D, 22A, 22B, 22C, 22D, 22E, 23, 24 and 26A. Chapter 14, pages 14-1 through 14-89. In P. Harper, and Laura A. McCarthy, editors. *Caribou management report of survey and inventory activities 1 July 2012–30 June 2014*. ADF&G, Species Management Report ADF&G/DWC/SMR-2015-4, Juneau, AK.

DCCED. 2016. Community and Regional Affairs: Kotzebue. <https://www.commerce.alaska.gov/dcra/DCRAExternal/community/Details/8aa56b8f-c01a-44a4-8f66-cbac5c6f2f4e> Retrieved: November 21, 2016.

Fronstin, R. 2018. Wildlife Biologist. Personal Communication: e-mail. Western Arctic National Parklands. National Park Service. Kotzebue, AK.

FSB. 2005. Transcripts of Federal Subsistence Board proceedings. May 3, 2005. Office of Subsistence Management, USFWS. Anchorage, AK.

FWS. 2011. Selawik National Wildlife Refuge. Revised Comprehensive Conservation Plan. National Wildlife Refuge System. Alaska Region of the U.S. Fish and Wildlife Service. [https://www.fws.gov/uploadedFiles/Region\\_7/NWRS/Zone\\_2/Selawik/PDF/CCP\\_Full\\_Final\\_Document.pdf](https://www.fws.gov/uploadedFiles/Region_7/NWRS/Zone_2/Selawik/PDF/CCP_Full_Final_Document.pdf). Accessed March 28, 2017.

FWS. 2014. FY2014 Annual report reply to the Norwest Arctic Subsistence Regional Advisory Council. Office of Subsistence Management, USFWS. Anchorage, AK.

Gasaway, W. C., R. D. Boertje, D. V Grangaard, D. G. Kelleyhouse, R. O. Stephenson, and D. G. Larsen. 1992. The Role of Predation in Limiting Moose at Low Densities in Alaska and Yukon and Implications for Conservation. *Wildlife Monographs*.

Georgette, S. and H. Loon. 1993. Subsistence use of fish and wildlife in Kotzebue, a Northwest Alaska regional center. ADFG, Division of Subsistence, Technical Paper No. 167. Fairbanks, AK.

Hall E.S. 1973. Archaeological and Recent Evidence for Expansion of Moose Range in Northern Alaska. *Journal of Mammalogy* 54: 294–295.

Hansen, W. 2018. Wildlife Biologist. Personal Communication: phone. ADF&G. Nome, AK.

- Joly, K., P.A. Duffy, and T.S. Rupp. 2012. Simulating the effects of climate change on fire regimes in Arctic biomes: implications for caribou and moose habitat. *Ecosphere* 3(5): 36.
- LeResche, R. E., R. H. Bishop, and J. W. Coady. 1974. Distribution and habitats of moose in Alaska. *Le Naturaliste Canadian*, Vol. 101: 143-178.
- NAB. 2016. About. <http://www.nwabor.org/about/> Retrieved: November 21, 2016.
- NPS. 2016. Minutes from the Cape Krusenstern Subsistence Resource Commission proceedings, November 7, 2016. Northwest Arctic Heritage Center, Kotzebue, AK.
- NWARAC. 2016. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, October 5-6, 2015 in Selawik, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- NWARAC. 2017a. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, March 1-2, 2017 in Kotzebue, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- NWARAC. 2017b. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, October 25-26, 2017 in Kotzebue, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- NWARAC. 2018a. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, February 28-March 1, 2018 in Kotzebue, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- NWARAC. 2018b. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, October 24-25, 2018 in Kotzebue, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- NWARAC. 2019. Transcripts of the Northwest Arctic Subsistence Regional Advisory Council proceedings, April 9-10, 2019 in Kotzebue, Alaska. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2017. Staff Analysis WSA17-02. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- Robison, H. 2017. National Park Service wildlife update. November 2017. NPS. Kotzebue, AK.
- Saito, B. 2014. Unit 23 moose management report. Pages 32-1 through 32-21 [In] P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009-30 June 2011. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-5, Juneau, AK.
- Saito, B. 2016a. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Kotzebue, AK.
- Saito, B. 2016b. Selawik moose population and harvest. Memorandum. ADF&G, DWC Region 5. Kotzebue, AK.
- Saito, B. 2017. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Kotzebue, AK.
- Saito, B. 2018. Wildlife biologist/Area biologist. Personal communication: email. ADF&G. Kotzebue, AK.

Stephenson, T. R., V. Van Ballenberghe, J. M. Peek, and J. G. MacCracken. 2006. Spatio-Temporal Constraints on Moose Habitat and Carrying Capacity in Coastal Alaska: Vegetation Succession and Climate. *Rangeland Ecology & Management*.

Street, G. M., A. R. Rodgers, T. Avgar, and J. M. Fryxell. 2015. Characterizing demographic parameters across environmental gradients: a case study with Ontario moose (*Alces alces*). *Ecosphere*.

Stout, G. W. 2010. Unit 21D moose. Pages 477–521 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. ADF&G, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 1.0, Juneau, AK.

Swanson, D.W. 2015. Environmental limits of tall shrubs in Alaska’s arctic national parks. *PLoS ONE*. 10(9): 1-34.

Tape, K.D., Gustine, D.D., Ruess, R.W., Adams, L.G. and Clark, J.A., 2016. Range Expansion of Moose in Arctic Alaska Linked to Warming and Increased Shrub Habitat. *PLoS ONE* 11(4): 1-12.

Uhl, W.R. and C.K. Uhl. 1977. *Tagiumsinaaqmiit: Ocean Beach Dwellers of the Cape Krusenstern Area-Subsistence Patterns*. Occasional Paper #14. Fairbanks: Cooperative Park Studies Unit, University of Alaska.

Westing, C. 2012. Unit 23 moose management report. Pages 560-582 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009-30 June 2011. ADF&G, species Management Report ADF&G/DWC/SMR-2012-5, Juneau, AK.

WinfoNet. 2017. <https://winfonet.alaska.gov/>. Retrieved: February 7, 2017.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Northwest Arctic Subsistence Regional Advisory Council**

**Support WP20-47 with OSM modification.** The Council voted to support WP20-47 as modified by OSM. The Council justified its position noting a concern for conserving the region's declining moose population while also expressing concern about the ability for Federally qualified subsistence users to access the RM880 permit.

### **North Slope Subsistence Regional Advisory Council**

**Support WP20-47.** The Council discussed that Point Hope occasionally has an opportunity to hunt moose when they are pushed north into the area by wildfires but were not familiar with other communities' subsistence moose hunting in Unit 23. However, the Council is supportive of the Northwest Arctic Council's efforts for conservation to help rebuild the moose population by closing the cow hunt and focus subsistence harvest on bull moose only. Further, the Council recommended that if the use of a registration permit were to be implemented that managers work with the local tribes to distribute permits so that they are readily available in each rural community in Unit 23.

## **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee (ISC) agrees with the OSM conclusion and the Northwest Arctic Subsistence Regional Advisory Council recommendation to support Wildlife Proposal WP20-47 with modification to change the harvest limit from "one bull" to "one antlered bull." Given the serious population viability concerns for moose in Unit 23, substantial declines in the population, low calf:cow ratios and possible exceedance of the harvestable surplus, conservative actions and harvest tracking mechanisms are necessary.

The ISC would like the Board to be aware, however, of local concerns regarding the implementation of the RM880 permit. Local testimony has indicated that the original intent of the RM880 permit being made available only in Unit 23 communities during a specific period was to limit non-local use of the limited resource. Requiring local residents to obtain this permit adds a burden on local users, and several Unit 23 residents have indicated that access to vendors can be difficult, especially in the summer when subsistence activities are being undertaken. If implemented, a resident who is unable to or fails to obtain the RM880 permit within the available period (June 1 – July 15) will have to hunt under more restrictive State regulations that require larger bulls be taken only during the period of September 1 to September 20.

Both the Northwest Arctic and the North Slope Subsistence Regional Advisory Councils expressed concerns regarding local access to the RM880 permit; the North Slope Council recommended that managers work with tribes to distribute permits. The Cape Krusenstern and Kobuk Valley SRCs both supported the cow moose season closure but opposed the implementation of the RM880 permit. It is unclear what level of compliance will result from a permit that may be difficult for some to obtain, and if availability is expanded, to what extent non-local harvest may increase as a result.

WP20-47

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

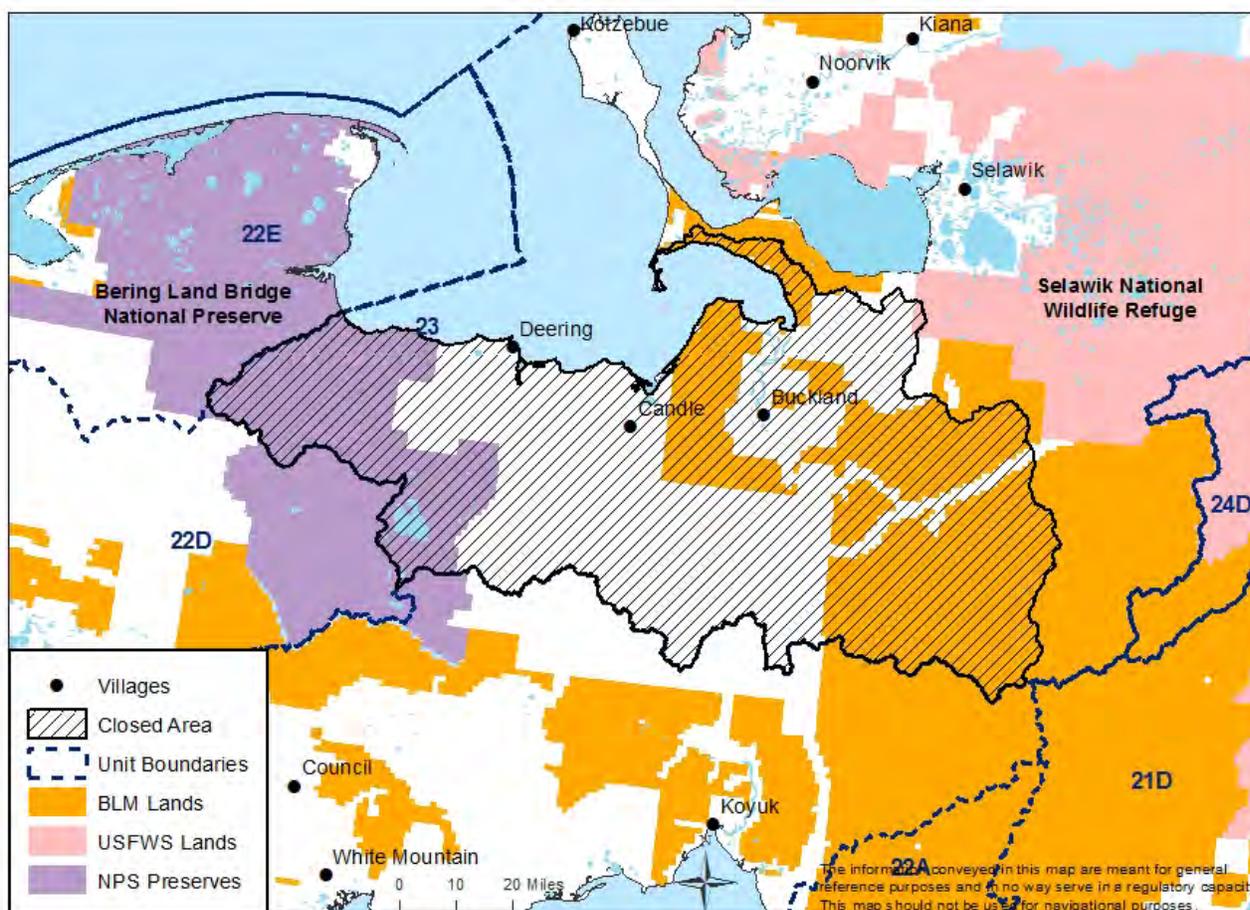
No comments on WP20-47.



<b>WCR20-19 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-19 reviews the closure to muskox hunting in Unit 23, south of Kotzebue Sound and west of and including the Buckland River drainage, except by Federally qualified subsistence users.
<b>Current Regulation</b>	<p><b>Unit 23–Muskox</b></p> <p><i>Unit 23—south of Kotzebue Sound and west of and including the Buckland River drainage—1 bull by Federal permit or State permit</i>      <i>Aug. 1–Mar. 15.</i></p> <p><i>Federal public lands are closed to the taking of musk oxen except by Federally qualified subsistence users hunting under these regulations</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Northwest Arctic Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW  
WCR20-19**

**Closure Location:** Southwest portion of Unit 23 (Map 1) — Muskox



**Map 1.** Federal hunt area closure for muskox in Unit 23, south of Kotzebue Sound and west of and including the Buckland River drainage.

**Current Federal Regulation**

**Unit 23—Muskox**

*Unit 23—south of Kotzebue Sound and west of and including the Buckland River drainage—1 bull by Federal permit or State permit Aug. 1-Mar. 15.*

*Federal public lands are closed to the taking of musk oxen except by Federally qualified subsistence users hunting under these regulations*

**Closure Dates:** Year round

## Current State Regulation

### Unit 23–Muskox

*Seward Peninsula west of and including the Buckland River drainage*      *One bull by permit (TX106)*      *Aug. 1-Mar. 15*

**Regulatory Year Initiated:** 1995

### Regulatory History

In 1991, the Bureau of Land Management (BLM) submitted and then withdrew Proposal P91-94 to add “no open season” and “no customary and traditional use determination” to muskox regulations in Unit 23. BLM submitted the proposal because the population estimate of 123 muskox did not support a viable hunt (OSM 1991).

In 1995, the Seward Peninsula Subsistence Regional Advisory Council submitted Proposal P95-44 to establish muskox hunts in Units 22D and 22E because the muskox population could withstand a harvest of 15 bulls as recommended by the Seward Peninsula Cooperative Muskox Management Plan (OSM 1995a). The Federal Subsistence Board (Board) adopted Proposal P95-44 with modification to also establish a Federal hunt for muskox in Unit 23 south of Kotzebue Sound and west of and including the Buckland River Drainage (Unit 23 SW) to provide additional subsistence opportunity. The Board added Unit 23 SW because muskox from the Seward Peninsula population occurred in the area. The harvest limit was one bull by Federal registration permit. The season was Sept. 1-Jan. 31, but closed whenever 7 muskox were harvested.

The Board also adopted Proposal P95-43, establishing a customary and traditional use determination (C&T) for muskox in Unit 23 SW as residents of Unit 23 SW, which included residents of Deering and Buckland (OSM 1995b).

Note: Prior to 1995, no muskox season existed in Unit 23 SW, so the unit was essentially closed to muskox hunting by both Federally qualified subsistence users and non-Federally qualified users. Proposal P95-44 opened Unit 23 SW to Federally qualified subsistence users only. As Unit 23 SW remained closed to non-Federally qualified users, 1995 is the year WCR20-19 is considered to be initiated.

In 1998, the Alaska Board of Game (BOG) established a Tier II muskox hunt in Unit 23 SW (Persons 1999). The harvest limit was one bull by Tier II permit and the season was Aug. 1-Mar. 15.

In 1999, the Board adopted Proposal P99-46, aligning Federal and State muskox seasons and permit requirements in Unit 23 SW. The season modification and establishment of a State Tier II hunt were the culmination of several years of work by the Seward Peninsula Muskox Cooperators Group (The Cooperators) to create a biologically sound harvest system that met the needs of local users.

In 2001, the Board adopted Proposal WP01-35, changing the harvest limit from one bull to one muskox. However, cows could only be taken from Jan. 1-Mar. 15 and not more than 8 cows could be

harvested. Total harvest could not exceed 13 muskox. The Cooperators unanimously supported submitting the proposal to provide more subsistence opportunity, to better coordinate between State and Federal hunts, and because there were no conservation concerns (OSM 2001). The BOG adopted similar regulations.

In 2002, the Board adopted Proposal WP02-37, delegating authority to the superintendent of the Western Arctic National Parklands to set annual harvest quotas and close the season for muskox in Unit 23 SW.

In 2006, the Board adopted Proposal WP06-55, establishing a designated hunter permit for muskox in Unit 23 SW.

In 2010, the Board adopted Proposal WP10-84 with modification, clarifying the regulatory language and requiring a Federal or State Tier I permit (instead of Tier II) to harvest muskox in Unit 23 SW. The Board revised permit requirements to maintain consistency with recent changes under State regulations.

In 2011, the BOG adopted regulations to allow flexibility in managing muskox hunts outside of the normal regulatory cycle. These changes enabled ADF&G to manage Tier II, Tier I, and drawing permit hunts and to set harvest thresholds based on the relationship between the harvestable surplus and amount necessary for subsistence (Gorn and Dunker 2015).

In 2014, the Board adopted Proposal WP14-41 with modification, eliminating the cow muskox hunt in Unit 23 SW because of conservation concerns.

Unit 23 SW is comprised of 50% Federal public lands and consist of 34% Bureau of Land Management (BLM) managed lands and 16% National Park Service (NPS) managed lands (**Map 1**).

**Closure last reviewed:** 2014 – WP14-41

**Justification for Original Closure:**

Section §815(3) of ANILCA states:

Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law... The Board’s intent was to provide subsistence opportunity for hunting muskox in Unit 23 SW, maintaining a subsistence priority as mandated by ANILCA. The closure began when the initial C&T and hunt were established by Proposals P95-43 and P95-44, respectively.

**Council Recommendation for Original Closure:**

The Northwest Arctic Subsistence Regional Advisory Council opposed Proposal P95-44, stating “let the State season and the system work for a year to see if it meets the needs of the local people. If it

does not, the Regional Council could always initiate a proposal to deal with the situation.” However, at the Federal Subsistence Board meeting, the Chair of the Northwest Arctic Council supported modified Proposal P95-44, which established a muskox hunt for Federally qualified subsistence users in Unit 23 SW (and closed the area to non-Federally qualified subsistence users) (FSB 1995).

#### **State Recommendation for Original Closure:**

The State was neutral on the original closure (P95-44). While the State agreed with the intent of the cooperative muskox management effort, it recommended postponing a decision on P95-44 until the BOG decided on State regulations for muskox in Units 22 and 23 (OSM 1995a). The State submitted a request for reconsideration, R95-05, requesting that the Board rescind their decision on P95-44. The Board rejected R95-05.

#### **Biological Background**

Muskox disappeared from Alaska by the late 1800s. In 1970, 36 muskox were reintroduced to the southern portion of the Seward Peninsula. The population grew to 104 muskox by 1980. In 1981, an additional 35 muskoxen were translocated from Nunivak Island to Unit 22D to augment the existing Seward Peninsula muskox population (Nelson 1994).

The Cooperators developed the Seward Peninsula Cooperative Muskox Management Plan (Nelson 1994) to guide muskox management on the Seward Peninsula. The Cooperators include representatives from ADF&G, the National Park Service (NPS), BLM, USFWS, Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and other interested groups or organizations. The goals developed by the Cooperators are the same as ADF&G management goals (Nelson 1997, Gorn and Dunker 2015):

- Allow for continued growth and range expansion of the Seward Peninsula muskox population
- Provide for sustained yield harvest in a manner consistent with existing State and Federal laws by following the goals/objectives endorsed by the Cooperators and the Seward Peninsula Cooperative Muskox Management Plan
- Manage muskoxen along the Nome road systems of Unit 22B and 22C for viewing, education, and other nonconsumptive uses
- Work with local reindeer herding interests to minimize conflicts between reindeer and muskoxen
- Protect and maintain the habitats and other components of the ecosystem upon which muskoxen depend
- Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs

Since the 1970s, the range of the Seward Peninsula muskox population has greatly expanded. Between 1970 and 2007, surveys were conducted in Units 22B, 22C, 22D, 22E, and 23SW, termed the “core count area” (Gorn and Dunker 2015). Since 2010, surveys have been conducted in the core count area as well as northern Unit 22A, southeastern Unit 23, and Unit 21D, termed the “expanded count area” (Gorn and Dunker 2015).

Between 1970 and 2007, the Seward Peninsula muskox population steadily increased at 13% per year, peaking at 2,688 muskox in 2007 within the core count area (**Figure 1**) (Gorn and Dunker 2015). In 2010, ADF&G changed survey methodologies (from minimum counts to distance sampling) and began surveying the expanded count area in addition to the core count area. Between 2007 and 2010, the population was stable, and the total muskox population peaked at 2,903 muskox in 2010 within the expanded count areas. Then the population decreased 13% per year between 2010 and 2012 in both the core and expanded count areas. Since 2012, the muskox population in the core and expanded count areas has appeared stable and stable-increasing, respectively (**Figure 1**) (Gorn and Dunker 2015, Dunker 2017a). The 2017 population counts for the core and expanded count areas were 1,864 muskox and 2,353 muskox, respectively (Dunker 2017a).

As muskox commonly move between subunits, hunt areas do not represent unique muskox populations (ADF&G 2016, Dunker 2017a). However, individual hunt area population estimates are useful for establishing harvest quotas and managing hunts. Between 1992 and 2017, the number of muskox in Unit 23 SW ranged from 134-255 muskox, averaging 205 muskox (**Figure 2**) (Gorn and Dunker 2015, Dunker 2017a). Over the same time period, the percentage of the Seward Peninsula muskox population occupying Unit 23 SW ranged from 6%-27%, averaging 13% of the population. In 2017, 10% of the Seward Peninsula muskox population occupied Unit 23 SW.

Given the gregarious nature of muskox, mature bulls are important for predator defense, foraging, and group cohesion in addition to breeding (Schmidt and Gorn 2013). For example, mature bulls may protect groups of females with calves against predators, effectively increasing calf survival and recruitment. Therefore, muskox may be more sensitive to selective harvest of mature males than other species (Schmidt and Gorn 2013). Schmidt and Gorn (2013) observed annual rates of population growth for Seward Peninsula muskox decreased disproportionately as harvest rates increased. Mature bulls (MB) are male muskox  $\geq 4$  years old. Cows are female muskox  $\geq 3$  years old (Gorn and Dunker 2015). Schmidt and Gorn (2013) suggest that harvest should be eliminated if ratios fall below 20 MB:100 cows and that ratios of 50-70 MB:100 cows may support both harvest and population growth.

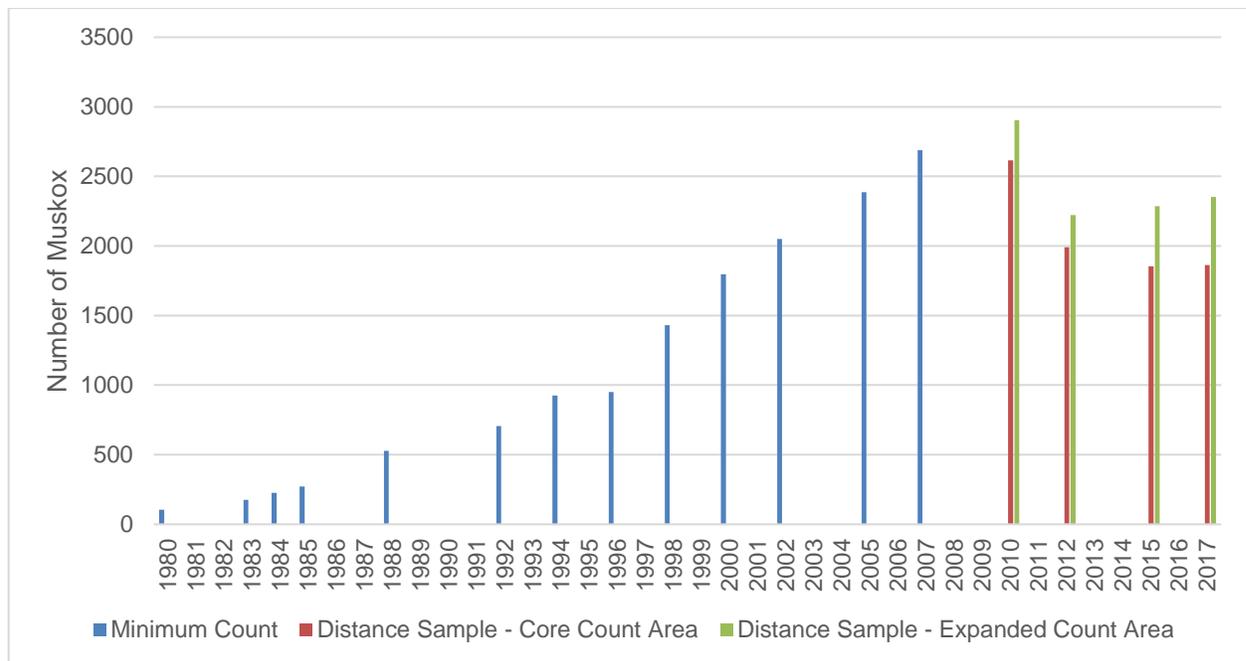
Between 2002 and 2017, MB:cow ratios for the entire Seward Peninsula muskox population ranged from 29-44 MB:100 cows (**Figure 3**). Ratios appeared stable between 2015 and 2017. Over the same time period, MB:cow ratios for muskox in Unit 23 SW ranged from 19-33 MB:100 cows (**Figure 3**). In Unit 23 SW, the MB:100 cow ratio decreased between 2015 and 2017 (Gorn and Dunker 2015, Dunker 2017b).

Short yearlings (SY) are muskox between 10 and 15 months old and provide a measure of recruitment. Between 2002 and 2017, SY:cow ratios for the entire Seward Peninsula muskox population ranged

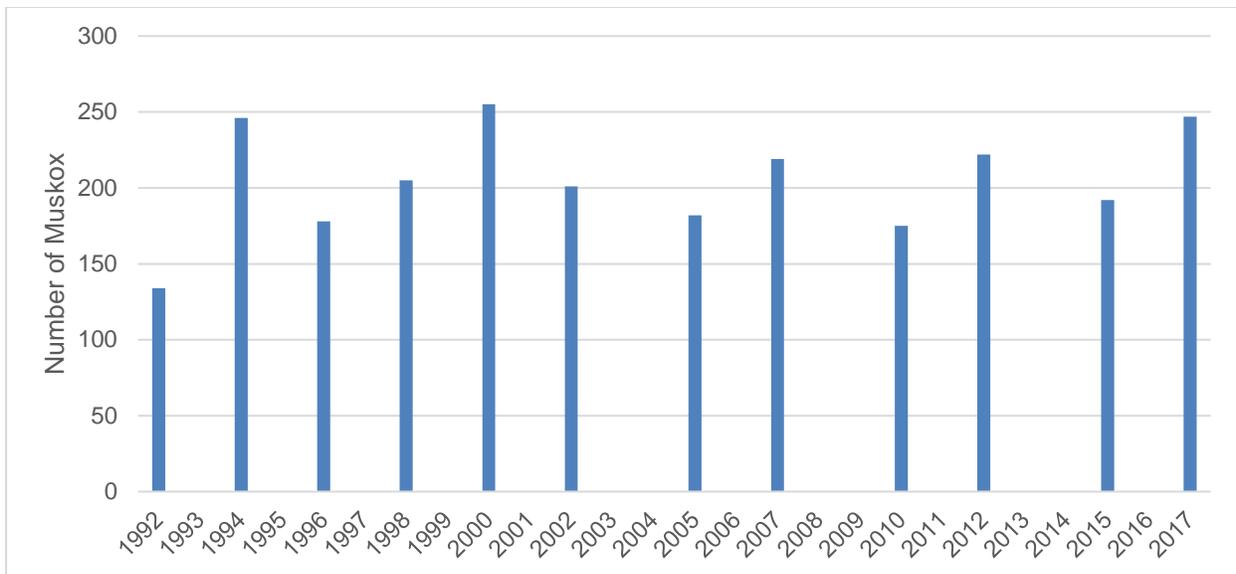
from 17-44 SY:100 cows (**Figure 4**). Ratios increased between 2015 and 2017. Over the same time period, SY:cow ratios for muskox in Unit 23 SW ranged from 10-31 SY:100 cows (**Figure 4**). In Unit 23 SW, the SY:100 cow ratio appeared stable between 2015 and 2017 (Gorn and Dunker 2015, Dunker 2017b).

Between 2008 and 2014, mortality rates for radio-collared cows ranged from 4%-26% (Gorn and Dunker 2015). These mortality rates are not representative of the entire population due to the low sample size (1% of the population) and non-random distribution of collars. Eighty-eight percent of mortalities occurred between April and October, suggesting brown bears as a causative agent. Predation on muskox seems to be increasing as bears learn to prey on muskoxen and wolf numbers increase on the Seward Peninsula in response to more Western Arctic caribou wintering there. Brown bear predation on calves may be decreasing recruitments rates (Gorn and Dunker 2015).

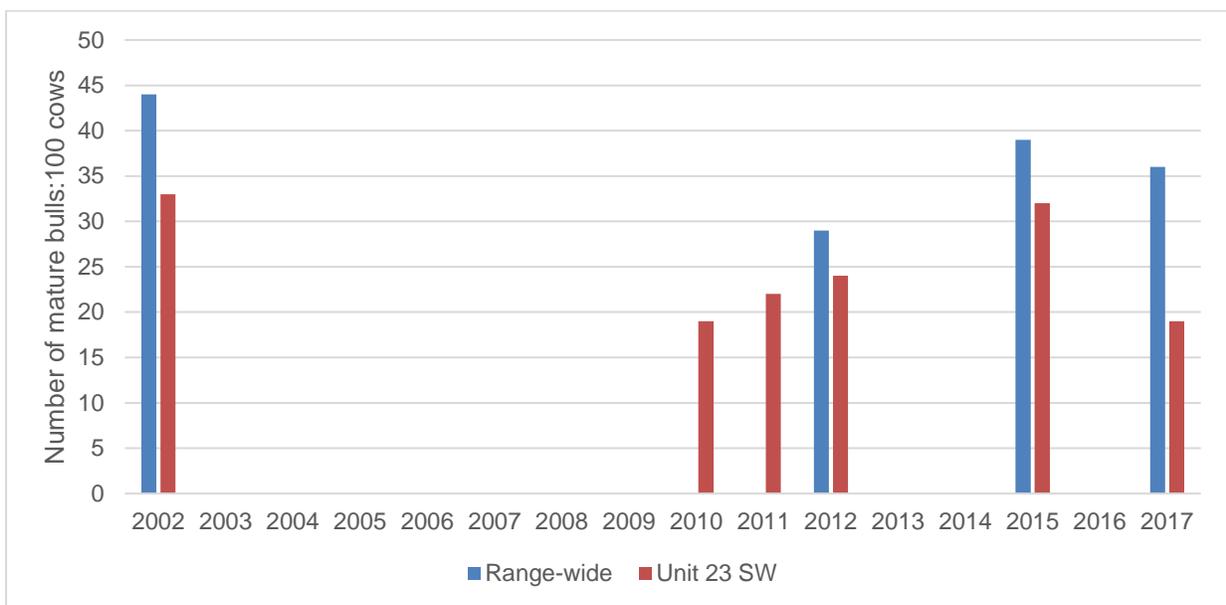
Muskox reduce movements during the winter to conserve energy (Nelson 1994). Muskox depend on areas with low snow cover as they cannot forage in deep, hard-packed snow. Therefore, disturbance to muskox groups during the winter by hunters or predators could decrease survival through increased energetic requirements and movement to unsuitable habitat (Nelson 1994).



**Figure 1.** Population estimates for Seward Peninsula muskox. The core count area includes Units 22B, 22C, 22D, 22E, and 23SW. The expanded count area includes the core count area, northern Unit 22A, southeastern Unit 23, and Unit 21D (Gorn and Dunker 2015, Dunker 2017a).

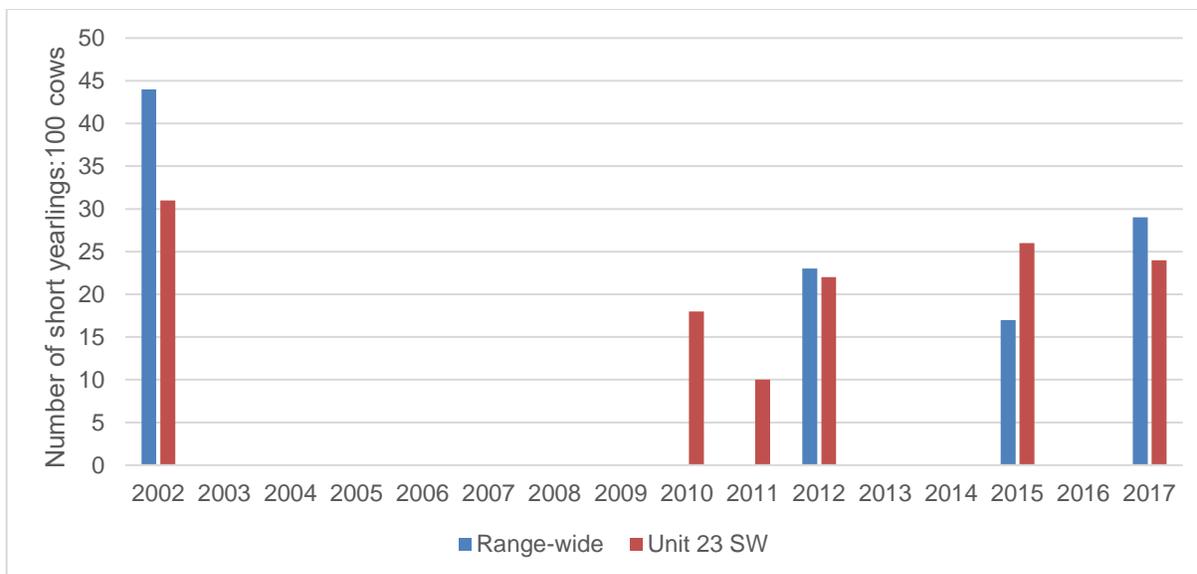


**Figure 2.** Population estimates for muskox in Unit 23SW (Gorn and Dunker 2015, Dunker 2017a).



**Figure 3.** Bull:cow ratios for Seward Peninsula muskox. Ratios are the number of mature bulls:100 cows. Mature bulls are  $\geq 4$  years old. Cows are  $\geq 3$  years old. (Gorn and Dunker 2015, Dunker 2017b).





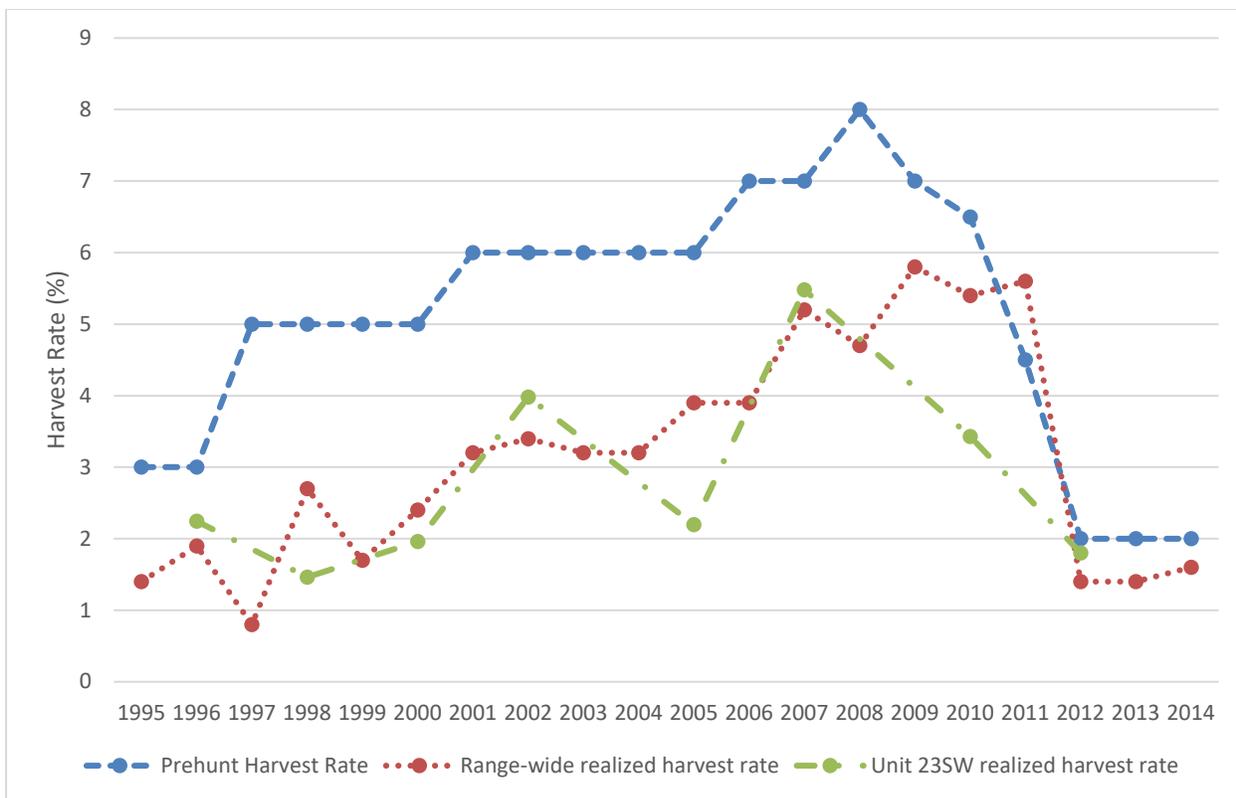
**Figure 4.** Ratios of short yearlings:100 cows for Seward Peninsula muskox. Short yearlings are muskox between 10 and 15 months old. Cows are  $\geq 3$  years old. (Gorn and Dunker 2015, Dunker 2017b).

### Harvest History

Muskox harvest in Unit 23 SW occurs by State Tier II permit, TX106 on non-Federal lands and by Federal permit, FX2302 on Federal public lands. Since 2012, the range-wide allowable harvest has been 2% of the total population estimate (**Figure 5**). Quotas for individual hunt areas are calculated as 10% of the estimated number of mature bulls in each area (Gorn and Dunker 2015).

Between 1995 and 2014, the allowable harvest for Seward Peninsula muskox ranged from 2%-8%, peaking in 2008 (**Figure 5**) (Gorn and Dunker 2015). After the population declined in 2012 and Schmidt and Gorn (2013) reported on the importance of mature bull muskoxen in a population (see Biological Background section), the allowable harvest has remained at 2% of the population estimate. Over the same time period, realized harvest has been below allowable harvest in all years except 2011 (**Figure 5**).

Between 1995 and 2011, the muskox harvest quota in Unit 23SW ranged from 6 muskox to 18 muskox (OSM 2014). Between 1995 and 2017, annual harvest ranged from 0 muskox to 18 muskox (**Table 1**) (Dunker 2018, pers. comm.). Most of the harvest occurred under State regulations. Since 2008, no muskox have been harvested by Federal registration permit in Unit 23 SW (**Table 1**) (Adkisson 2018, pers. comm.). Often, the more accessible muskox are found on State lands, so the harvest quota may already be reached before Federally qualified subsistence users have an opportunity to access Federal lands (Adkisson 2018, pers. comm.). Since 2012, non-Federally qualified users from Kotzebue and Noorvik have harvested over half of the muskox from Unit 23 SW (ADF&G 2018).



**Figure 5.** Harvest rates for Seward Peninsula muskox (Gorn and Dunker 2015). Pre-hunt harvest rate is the allowable harvest and realized harvest rate is the actual harvest.

**Table 1.** Muskox harvest in Unit 23 SW (Dunker 2018, pers. comm., Adkisson 2018, pers. comm.).

Year	FX2302 Issued	FX2302 Harvest	Tier II TX106 Issued	Tier II TX106 Harvest	RX106 Issued	RX106 Harvest	DX106 Issued	DX106 Harvest	Total Harvest
1995	7	6							6
1996	9	3							3
1997	6	1							1
1998	8	2	2	1					3
1999	8	0	1	1					1
2000	4	1	8	5					6
2001	6	2	11	6					8
2002	4	0	9	9					9
2003	6	2	10	3					5
2004	6	2	12	6					8
2005	4	1	8	3					4
2006	6	1	13	3					4
2007	10	2	30	10					12
2008	5	0	0	0	49	16	2	0	16
2009	4	0	0	0	27	17	1	1	18
2010	0	0	0	0	25	6			6
2011	0	0	0	0	8	7			7
2012	0	0	4	0					0
2013	0	0	5	2					2
2014	4	0	4	3					3
2015	2	0	4	3					3
2016	3	0	3	1					1
2017	1	0	3	3					3
2018	2		3						

**OSM Conclusion:**

- maintain status quo  
 modify or eliminate the closure

**Justification**

The harvestable surplus of muskoxen in Unit 23 SW is very low and the population cannot sustain increases in harvest. No muskox have been harvested under Federal regulations in Unit 23 SW since 2008. Continuing the current closure is necessary to conserve the muskox population while providing for subsistence opportunity and a meaningful rural subsistence priority.

## LITERATURE CITED

- ADF&G. 2016. Alaska Department of Fish and Game wildlife restoration grant. Federal Aid Annual Performance Report. Alaska Department of Fish and Game. Juneau, AK.
- ADF&G. 2018. General Harvest Reports. Alaska Department of Fish and Game.  
<https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>. Accessed August 22, 2018.
- Adkisson, K. 2018. Subsistence Program Manager. Personal communication: e-mail. Bering Land Bridge National Preserve, National Park Service. Nome, AK.
- Dunker, W.R. 2017a. 2017 Seward Peninsula Muskox Population Survey Summary. July 20, 2017. Alaska Department of Fish and Game, Division of Wildlife Conservation, Nome, AK.
- Dunker, W.R. 2017b. 2017 Seward Peninsula Muskox Composition Survey Summary. July 20, 2017. Alaska Department of Fish and Game, Division of Wildlife Conservation, Nome, AK.
- Dunker, W.R. 2018. Area Biologist. Personal communication: e-mail. Unit 22. Alaska Department of Fish and Game. Nome, AK.
- FSB. 1995. Transcripts of Federal Subsistence Board proceedings. April 12, 1995. Office of Subsistence Management, USFWS. Anchorage, AK.
- Gorn, T. and W.R. Dunker. 2015. Unit 22 Muskox. Chapter 2, pages 2-1 through 2-44 [In] P. Harper and L.A. McCarthy, editors. Muskox management report of survey and inventory activities 1 July 2012—30 June 2014. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report ADF&G/DWC/SMR-2015-2, Juneau, AK.
- Nelson, R. 1994. Seward Peninsula Cooperative Muskox Management Plan. Alaska Department of Fish and Game, Division of Wildlife Conservation, Nome, AK.
- OSM. 1991. Proposal P91-094. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 1995a. Proposal P95-44. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 1995b. Proposal P95-43. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2001. Proposal WP01-35. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2014. Proposal WP14-41. OSM database. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 2018. Permit database. Office of Subsistence Management, USFWS. Anchorage, AK. Accessed August 22, 2018.
- Persons, K. 1999. Unit 22 and southwest portion of Unit 23 muskox. Chapter 2, pages 14-23 [In] M. Hicks, editor. Muskox management report of survey and inventory activities 1 July 1996—30 June 1998. Alaska Department of Fish and Game, Division of Wildlife Conservation, Species Management Report.
- Schmidt, J.H., T.S. Gorn. 2013. Possible secondary population-level effects of selective harvest of adult male muskoxen. PLoS ONE 8(6): e67493. doi:10.1371/journal.pone.0067493.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Northwest Arctic Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-19.

The Council supported maintaining the closure (status quo) for muskox hunting in Unit 23 for the reasons stated in the OSM justification.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

<b>WP20-49 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-49 requests to open the Arctic Village Sheep Management Area in Unit 25A to the harvest of sheep by non-Federally qualified users. <i>Submitted by: Alaska Department of Fish and Game</i>
<b>Proposed Regulation</b>	<p><b>Unit 25A—Sheep</b></p> <p><i>Unit 25A —Arctic Village Sheep Management Area, 2 rams by Federal registration permit only. Aug. 10–Apr. 30</i></p> <p><i>Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.</i></p>
<b>OSM Conclusion</b>	<b>Oppose</b>
<b>Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>North Slope Subsistence Regional Advisory Council Recommendation</b>	<b>Oppose</b>
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee agrees with the Eastern Interior and North Slope Subsistence Regional Advisory Councils, and the OSM conclusion, to oppose this proposal.</p> <p>Harvest records for the area are incomplete and unreliable, as identified in the OSM analysis, tribal consultations and public meetings. The very low reported harvest may not be reflective of true harvest and is important to consider. Stressing the need for better harvest reporting is appropriate. The current sheep population within the management area is unknown, as the last survey was in 2016. A current survey would be helpful prior to opening, as most recent declines 2012 – 2015 were influenced by winter conditions and changes in habitat that may be related to climate change. A pre-cautionary approach to opening may be warranted to ensure this low density population is robust enough to sustain harvest beyond federally qualified users.</p>

### WP20-49 Executive Summary

	<p>In March, the Alaska Board of Game assessed proposal 82, submitted by the Eastern Interior Subsistence Regional Advisory Council. The Board of Game decision on proposal 82 may be important for the Board to consider when assessing the outcome for WP 20-49.</p>
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>None</b>

## STAFF ANALYSIS

### WP20-49

#### ISSUES

Proposal WP20-49, submitted by the Alaska Department of Fish and Game, requests to open the Arctic Village Sheep Management Area in Unit 25A to the harvest of sheep by non-Federally qualified users.

#### DISCUSSION

The proponent states that the restriction of sheep hunting to only residents of a few communities (Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie) is not necessary to accommodate local subsistence uses. Harvest records indicate residents of these communities rarely hunt sheep. Furthermore, there is no biological reason to preclude sheep hunting opportunities by the public in the Arctic Village Sheep Management Area. The proponent states that this restriction is not necessary to provide for subsistence uses.

The proponent continues there is no conservation concern associated with hunting opportunity in the Arctic Village Sheep Management Area. Sheep populations across the eastern Brooks Range appear to be stable. Because this is a full curl only harvest area during the fall hunting season, any harvest associated with this change would have no effect on the sheep population. On average, during the winter registration permit season, four hunters harvest a total of three sheep per year throughout the entire hunt area. Ninety-five percent of these sheep are males. Travel to the registration permit hunt area is difficult and methods are limited by regulations and statutes. The proponent states it has no concerns that harvest would increase to levels that could be of concern, should this area be opened to non-Federally-qualified users.

The proponent further states that it is unknown if Federally qualified subsistence users will be impacted from adoption of this proposal. Based on biological data, Federally qualified subsistence users will retain opportunity to meet their subsistence needs. Non-Federally qualified users will regain an opportunity to harvest sheep in the Arctic Village Sheep Management Area. This change would provide additional harvest opportunity for non-Federally qualified users. It would also provide some opportunity for guide businesses in the area.

#### Existing Federal Regulation

##### Unit 25A—Sheep

*Unit 25A —Arctic Village Sheep Management Area, 2 rams by Federal Aug. 10–Apr. 30 registration permit only.*



*Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.*

**Proposed Federal Regulation**

**Unit 25A—Sheep**

*Unit 25A —Arctic Village Sheep Management Area, 2 rams by Federal registration permit only. Aug. 10–Apr. 30*

~~*Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.*~~

**Existing State Regulation**

**Unit 25A Sheep**

<i>Resident hunters, 1 ram with full-curl horn or larger may be taken only from Aug. 10–Sept. 20; up to 3 sheep may be taken by registration permit only Oct. 1–Apr. 30;</i>	<i>HT</i>	<i>Aug. 10–Sept. 20</i>
	<i>RS595</i>	<i>Oct. 1–Apr. 30</i>

*or*

<i>Resident hunters, 1 ram with full-curl horn or larger, by youth hunt only.</i>	<i>HT</i>	<i>Aug. 1–5</i>
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<i>Nonresident hunters, 1 ram with full-curl horn or larger every 4 regulatory years.</i>	<i>HT</i>	<i>Aug. 10–Sept. 20</i>
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*or*

<i>Nonresident hunters, 1 ram with full-curl horn or larger, by youth hunt only; every 4 regulatory years.</i>	<i>HT</i>	<i>Aug. 1–5</i>
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**Note:** Codified regulations are shown above. Concerning the Arctic Village Sheep Management Area in Unit 25A, the Alaska Department of Fish and Game has used its discretion to allow the distribution of RS595 registration permits only after September 12, to prohibit the use of aircraft for access to hunt sheep, and to close the nonresident youth hunt. HT=harvest ticket, RS=registration permit.

**5 AAC 92.003 Hunter education and orientation requirements**

*(i) Before a person hunts sheep within the Red Sheep and Cane Creek drainages within the Arctic Village Sheep Management Area of Unit 25(A), that person must possess proof of completion of a*

*department-approved hunter ethics and orientation course, including land status and trespass information.*

### **Extent of Federal Public Lands**

Federal public lands comprise approximately 99% of the Arctic Village Sheep Management Area in Unit 25A and consist of U.S. Fish and Wildlife Service managed lands that are within the Arctic National Wildlife Refuge (**Figure 1**).

### **Customary and Traditional Use Determination**

Rural residents of Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie have a customary and traditional use determination for sheep in Unit 25A.

### **Regulatory History**

Knowledge of regulatory history necessary to analyze Proposal WP20-49 is extensive. It is described in **Appendix 1**.

### **Current Events**

#### Tribal Consultation

The Arctic Village Tribal Council requested to consult with the Board concerning this proposal, WP20-49. Five members of the Board or their representatives met with six Arctic Village tribal representatives in teleconference on November 26, 2019 from 1:00 to 2:00 pm. The teleconference was held at the U.S. Fish and Wildlife Service Alaska Regional Office in Anchorage.

Tribal representatives supported the continued closure to the harvest of sheep by non-Federally qualified subsistence users in the Arctic Village Sheep Management Area.

Tribal representatives said Red Sheep Creek drainage, situated in the Management Area, is sacred to Neets' aii Gwich'in people. According to local oral heritage, Red Sheep Creek drainage is home to distinctive sheep with red stripes on their backs due to local minerals in the soil. Periods of high water cause erosion that results in the creek running red. The red soil is part of who these sheep are, making them of spiritual and intrinsic value to Neets' aii Gwich'in. Tribal representatives emphasized that we all need to weigh the potential loss of this unique assemblage of sheep and landscape. Neets' aii Gwich'in traversed a long stretch of the Brooks Range where they held detailed knowledge of sheep and other animals' habits and populations. People's residences are situated at the site of modern-day Arctic Village due to the influence of western culture and the siting of the school. Several representatives reported traveling to the Red Sheep Creek drainage to harvest subsistence resources and to visit gravesites of family members. One said that the last time she was at Red Sheep Creek, hunters came and went for many days at a time searching for sheep and caribou. When it was time to return to Arctic Village, she and others did not want to return but they had employment and school obligations for which they must return. Neets' aii Gwich'in have been taking care of the Red Sheep Creek drainage for a long time and sheep have been providing food for them for a long time. The area must be cared for so that their children can experience it. For

example, when tourists are in the area, sheep are absent. Sheep populations have been reduced in other areas and residents of Arctic Village do not want this to happen in the Red Sheep Creek drainage.

Tribal representatives said the State of Alaska allows nonresidents of the state to deplete its resources, sheep included, for little benefit in return. They identified a decline in sheep and moose populations in the Brooks Range. Sheep and moose populations were negatively affected by a January 2013 heavy rain event. The Refuge manager reported that many affected animals perished. Additionally, sheep populations in the area have declined since the 1940s, based on documented aerial surveys. Few sheep remain compared to before 1940. The Lacey Act instructs tribes, the State of Alaska, and Federal agencies to work together towards consensus addressing problems. The Tribe is a co-manager of Refuge lands. There is work to be done and the Tribe and agencies must work together to protect the Refuge.

Tribal representatives said that for Neets' aii Gwich'in, subsistence is a matter of survival. They live far from cities, and it is expensive to bring in Western food items. They rely heavily on the land for moose, caribou, smaller animals, and sheep, which are especially important in their diets. Residents of Arctic Village need sheep populations to stay at numbers that allow subsistence hunters to be successful. They often travel within the Management Area in search of sheep, moose, and caribou to harvest even though there is no guarantee of harvesting. Sheep populations are far away from the village, and it takes a lot of time for a hunter to get to them. Neets' aii Gwich'in have always managed wildlife in their traditional territory by taking only what they need during specific seasons. They regulate themselves, and this is why sheep exist in the area today. No one else would manage the wildlife like they have. When the Management Area is open to other hunters, Neets' aii Gwich'in are forced to compete in order to obtain needed resources. Those other hunters use technology, such as GPS trackers and high accuracy rifle scopes, with which it is hard for local hunters to compete.

Tribal representatives said that some, especially older people, do not regularly use computers and do not request permits or report their harvests online. Not everything important is written down "in black and white," and this does not mean that tribal members don't care. Community members do care, and they often speak to a range of issues at meetings.

Tribal representatives said people need to continue to monitor the Management Area in order to protect it. Residents of Arctic Village take pride in the behavior of local hunters who carry out all meat from animals they have harvested. They often smoke meat for several days to make it lighter and easier to pack back to base camp. Many would continue to move across the land staying at Red Sheep Creek, hunting and gathering for subsistence, but as they described, obligations have prevented them from leaving the village for long periods, and a charter to Red Sheep Creek costs about \$600 one-way. However, the land there belongs to Neets' aii Gwich'in. People want to teach their children to hunt sheep there. Some hold Native allotments in the area, and trespassing needs to be monitored.

Tribal representatives said that it is not necessary to make sheep into trophies, as sport hunters do. This is why sport hunting should not be allowed. Air traffic in and out of the area creates too much noise and sheep move to avoid the noise, sometimes becoming isolated. This is not good for sheep. Some non-local hunters shoot moose, caribou, and sheep and use only the hind quarters, leaving the rest of the animal.

They also leave litter that attracts bears. This behavior harms the health of wildlife populations. There is only one Red Sheep Creek in the world and it needs to be protected. Sheep have been over-harvested. Allowing only subsistence hunting contributes to this protection.

Tribal representative invited Board members and FWS staff to come to Arctic Village and work on a conservation plan for the area.

Alaska Board of Game

The Eastern Interior Alaska Subsistence Regional Advisory Council (Eastern Interior Council) submitted Proposal 82, concerning Unit 25A sheep management, to the Alaska Board of Game to take up at its March 6 through 14, 2020, meeting at Fairbanks (ADF&G 2019b: 94–97). The Council is requesting, among other things, for the Alaska Board of Game to recognize the Management Area and implement new harvest limits by changing the resident harvest limit from up to three sheep every regulatory year to one ram with full curl horn or larger every 4 regulatory years and replacing some harvest tickets (HT) with drawing permits (DS). Additionally, the Council is requesting the nonresident youth hunt be eliminated in the Management Area. The Council states in the proposal that it “intends for this proposal to become a joint effort between the Alaska Board of Game, the Federal Subsistence Board, and Arctic Village residents to find a workable solution to a historically contentious issue and build mutual respect between parties” (ADF&G 2019: 95). These proposed changes to the State regulation are described below.

**Unit 25A Sheep—Arctic Sheep Management Area**

Resident hunters, <i>1 ram with full-curl horn or larger every 4 regulatory years by permit; <del>may be taken only from Aug. 10–Sept. 20; up to 3 sheep may be taken by registration permit only Oct. 1–Apr. 30;</del></i>	<i>DSXXX</i>	<i>Aug. 10–Sept. 20</i>
	<i>HT</i>	

*or*

Resident hunters, <i>1 ram with full-curl horn or larger every 4 regulatory years by permit <del>may be taken only from Aug. 10–Sept. 20; up to 3 sheep may be taken by registration permit only Oct. 1–Apr. 30;</del></i>	<i>RS595</i>	<i>Oct. 1–Apr. 30</i>
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*or*

Resident hunters, <i>1 ram with full-curl horn or larger, by youth hunt only.</i>	<i>HT</i>	<i>Aug. 1–5</i>
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Nonresident hunters, <i>1 ram with full-curl horn or larger every 4 regulatory years by permit</i>	<i>DSXXX</i>	<i>Aug. 10–Sept. 20</i>
	<i>HT</i>	

*or*

~~Nonresident hunters, 1 ram with full curl horn or larger every 4 regulatory years by permit by youth hunt only; every 4 regulatory years.~~ HT Aug. 1-5

## Biological Background

Sheep populations across the eastern Brooks Range of Alaska have appeared relatively stable at low densities since the late 1990s (Caikoski 2014). However, geographic barriers such as large valleys and rivers naturally limit sheep movements and distribution, resulting in discrete subpopulations (Arthur 2013, Caikoski 2014). Therefore, repeated, fine-scale surveys are necessary to understand sheep population status and trends in a specific area such as the Arctic Village Sheep Management Area.

State management goals and objectives for sheep in Unit 25A (Caikoski 2014) include:

- Protect, maintain, and enhance the sheep population and its habitat in concert with other components of the ecosystem.
- Provide for continued general sheep harvest and subsistence use of sheep.
- Provide an opportunity to hunt sheep under aesthetically pleasing conditions.
- Maximize hunter opportunity using a full-curl harvest strategy.
- Maintain an average harvest of rams  $\geq 8$  years old.

The State manages sheep using a full-curl harvest strategy, a conservative approach (ADF&G 2017a). Once sheep are eight years old, their chances of surviving each additional year is much lower. Harvesting older, full-curl rams (8+ years old) allows younger rams in their prime to continue breeding (ADF&G 2017a).

The Arctic National Wildlife Refuge conducts periodic aerial sheep surveys of the Arctic Village Sheep Management Area and surrounding areas. Due to differences in survey areas, comparisons across years are difficult. Sheep densities within the Management Area have generally been low compared to some other areas in the Brooks Range (Payer 2006 in OSM 2014a). Within the Management Area, sheep densities north of Cane Creek have been much higher than sheep densities south of Cane Creek, presumably because habitat quality is lower in that area (Mauer 1990 in OSM 2014a, Wald 2012). This is probably related to shale formations supporting more vegetation and therefore more sheep that are more common north (versus south) of Cane Creek, (Smith 1979 in OSM 2014a). The presence of mineral licks south of Cane Creek also influences sheep densities as most sheep observed by Mauer (1996) and Payer (2006) were clustered around such licks (OSM 2014a).

In 1991, sheep densities in the Management Area north and south of Cane Creek averaged 2.25 sheep/mi<sup>2</sup> and 0.2 sheep/mi<sup>2</sup>, respectively (Mauer 1996 in OSM 2014a). In 2006, sheep density north of Cane Creek averaged 1.7 sheep/mi<sup>2</sup> (Wald 2012). The observed decline in density is thought to be weather related (OSM 2014).

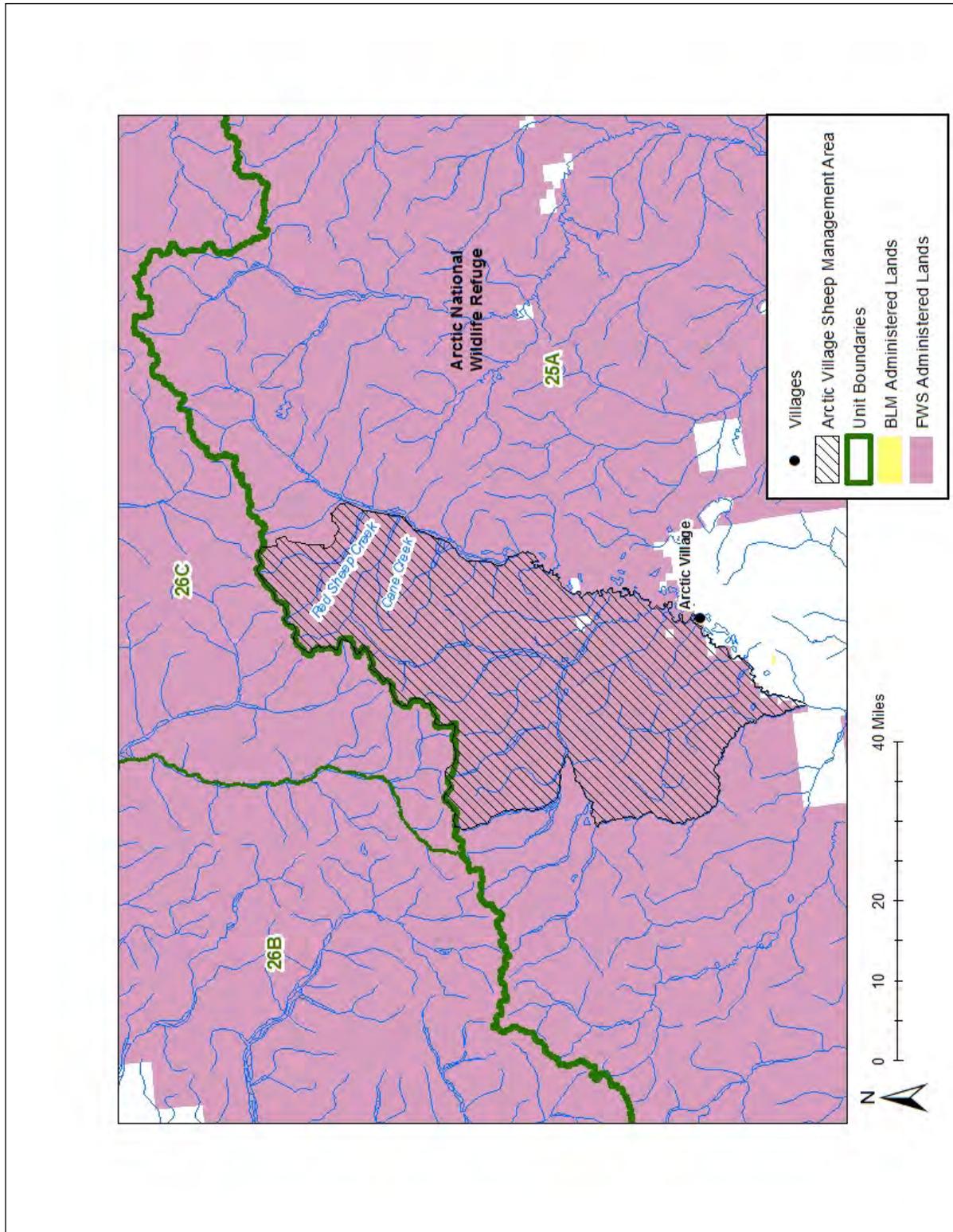


Figure 1. The Arctic Village Sheep Management Area in Unit 25A.

The sheep population in the Management Area likely declined between 2012 and 2015 due to several years of poor lamb production and severe winters (particularly the winters of 2012-13 and 2013-14). In 2012, surveys within and near the Management Area indicated an average sheep density of 0.79 sheep/mi<sup>2</sup> and 27 lambs:100 ewes (Arthur 2017, pers. comm.). Density north and south of Cane Creek ranged from 1.5–1.8 sheep/mi<sup>2</sup> and 0.25–0.7 sheep/mi<sup>2</sup>, respectively (Wald 2012). In 2015, estimated sheep density for the same areas averaged 0.67 sheep/mi<sup>2</sup> and the lamb:ewe ratio was 34 lambs:100 ewes. The 2015 survey also indicated a decline in rams of all age classes (Arthur 2017, pers. comm.).

In 2016, a larger area was surveyed, including the Hulahula River drainage in Unit 26C, which contains higher sheep densities than the Management Area. While the 2016 overall sheep density averaged 0.86 sheep/mi<sup>2</sup>, density within the Management Area was likely 0.70-0.75 sheep/mi<sup>2</sup> (Arthur 2017, pers. comm.). The ram:ewe ratio for the entire survey area averaged 28 rams:100 ewes, and the density of full-curl rams was 0.005/mi<sup>2</sup>. Due to improved lamb production in 2015 and 2016 (>30 lambs:100 ewes), the sheep population in the Management Area has likely not declined below 2015 levels and may be increasing. However, it will be at least 3–5 years before an increase in mature (8+ year old) rams are observed in the population (Arthur 2017, pers. comm.; 2019 pers. comm.). No surveys have been conducted since 2016.

### **Cultural Knowledge and Traditional Practices**

The Arctic Village Sheep Management Area was traditionally occupied by *Neets' aii Gwich'in* whose traditional territory was the northern reaches of the East Fork Chandalar, Koness, and Sheenjok rivers. Neets' aii Gwich'in continued their nomadic way of life into the 1950s when they established more permanent settlements at Arctic Village and Venetie taking extended trips to seasonal harvesting sites (McKenna 1965).

Neets' aii Gwich'in followed to the arctic coast routes that were situated within the Arctic Village Sheep Management Area. Gwich'in regularly visited the arctic coast for the purposes of trade (Burch 1979). Hadleigh-West, visiting in the late 1950s, spoke with people who had made the trip over the Brooks Range to the arctic coast. They said that families went into the mountains to hunt sheep and caribou. Traders went forward to the Barter Island area to exchange hides for Western goods from whalers. Hadleigh-West reported people preferring the Phillip Smith Mountains for sheep hunting, which is the source of many East Fork Chandalar tributaries including Red Sheep and Cane creeks and other drainages situated within the Arctic Village Sheep Management Area. This trade continued irregularly until 1928 (Hadleigh-West 1963).

Red Sheep Creek was a recognized favorite sheep hunting area on a route to the arctic coast (Hadleigh-West 1963: 257). At the Eastern Interior Alaska Council meeting in 2017, Hollis Twitchell related an onsite conversation with Trimble Gilbert who said that food and tools were cached in the mountains in the Red Sheep Creek drainage for the returning traders and for future trips, indicating the cultural importance of the area (EIASRAC 2017: 286)

While located approximately 45 miles from Arctic Village, Red Sheep Creek is situated well within the historical territory of Neets' aii Gwich'in. Native allotments cover the confluence of Red Sheep and Cane

creeks with the East Fork Chandalar River; a Native allotment is situated further up Red Sheep Creek, and a native allotment is situated upriver at the confluence of an unnamed creek and the East Fork Chandalar River. The Red Sheep Creek allotments were not conveyed until 1996 (FWS 2019). Prior to this time, the confluence was the site of a large guiding camp; however, currently the Refuge does not assign guides to this area (EIASRAC 2017). The allotment contains a large airstrip identifiable from the air. Another, smaller airstrip is situated between the two Red Sheep Creek allotments (Arthur 2019, pers. comm.). A source of community concerns is that guides and hunters create air and foot traffic in areas with prehistoric cultural and scientific value.

Neets' aii Gwich'in possessed specialized skills for traveling in mountainous areas, as described below by Hadleigh-Smith (1963):

The extent to which the Neets' aii Kutchin are adapted to their mountainous environment is evidenced by the willingness and agility with which they attack it. Hiking trails usually take the shortest route between two points. This always entails some climbing. Another evidence is inherent in their knowledge of the country; it is "impossible" to become lost in *Netsai*<sup>n</sup>. Hunting mountain sheep, nowadays viewed as a kind of family outing, often demands of the hunter an agility approaching that of the quarry. In this connection, too, the former use of a special climbing staff, surely is indicative of a mountaineering people (Hadleigh-Smith 1963:270).

Traditionally, after caribou, mountain sheep were the most important large land mammal for food. Moose were scarce (Hadleigh-West 1963: 172). Neets' aii Gwich'in relied upon sheep as a food source primarily in late summer or whenever caribou were scarce. Hadleigh-West (1963: 138) identified four very specific sheep hunting areas used by Arctic Village residents along the Junjik River, East Fork Chandalar River, Cane Creek, and Red Sheep Creek. All are within the Arctic Sheep Management Area.

The customary and traditional use determination for sheep in Unit 25A, including the Arctic Village Sheep Management Area, consists of five communities with a total population of roughly 1,200 people according to the 2010 U.S. Census (**Table 1**).

**Table 1.** The population of communities in the customary and traditional use determination for sheep in Unit 25A, from 1960 to 2010 (Source: ADCCED 2017).

<b>Community</b>	<b>1960</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>
Arctic Village	110	85	111	96	152	152
Chalkyitsik	57	130	100	90	83	69
Fort Yukon	701	448	619	580	595	583
Kaktovik	No data	123	165	224	293	239
Venetie	107	112	132	182	202	166
<b>Total</b>	<b>975</b>	<b>898</b>	<b>1,127</b>	<b>1,172</b>	<b>1,325</b>	<b>1,209</b>

Of the five communities with recognized customary and traditional uses of sheep in Unit 25A, the residents of Arctic Village have the strongest ties to and are the primary users of the area (OSM 1993; see



also Dinero 2003, Gustafson 2004, and Reed et al. 2008). Sheep hunting is a longstanding tradition of Arctic Village residents (Caulfield 1983:68; Dinero 2003; EISRAC 2006:110–137, 2007, 2011; Gustafson 2004), and the Cane Creek and Red Sheep Creek drainages have been a longstanding focus of this activity. Sheep are a prestigious subsistence resource, and providing sheep meat to the community is highly respected (cf. Caulfield 1983 and Dinero 2003 for discussion). Sheep are also known as an important “hunger food,” that is, a food source that is critical when caribou are unavailable (Caulfield 1983, Dinero 2011, pers. comm.; Gilbert 2011, pers. comm.). Local people report increasing uncertainty of caribou migrations in recent years, declining quality of caribou meat, and increasing difficulty and travel distance to obtain moose in recent years: in light of this, local residents say that sheep are an increasingly important resource (Gilbert 2011, pers. comm.; Swaney 2011, pers. comm.). As noted by one prominent elder, “When we have no caribou, that’s the time we have to go up [to get sheep]” (Gilbert 2011, pers. comm.).

The public record supports the fact that Arctic Village residents have a long history of using the Cane Creek and Red Sheep Creek drainages, which continue to be culturally significant areas. Extensive discussion included in previous proposal analyses (OSM 1993, 1995a, 2014a and 2018) pointed to regular use of these drainages by residents of Arctic Village. Gustafson (2004), in a study of traditional ecological knowledge, discusses the importance and continued use of the Red Sheep Creek drainage for sheep hunting. Testimony by Arctic Village residents in 2006, 2007, 2011, and 2017 at Eastern Interior Alaska Council meetings about hunting in Cane Creek and Red Sheep drainages demonstrates continued hunting in these areas. Discussions with Refuge Information Technicians from Arctic Village, other Arctic National Wildlife Refuge staff, researchers working in the area, and subsistence hunters from Arctic Village also confirm continued sheep hunting in the Cane Creek and Red Sheep drainages (Bryant 2011, pers. comm.; Dinero 2011 pers. comm.; Mathews 2011, pers. comm.; John 2011, pers. comm.).

The trip from Arctic Village to Red Sheep Creek and back is about 90 miles and residents use great effort both physically and economically to hunt sheep in this area (Bryant 2011, pers. comm.; John 2011, pers. comm.; Gilbert 2011, pers. comm.; Swaney 2011, pers. comm.). Residents of Arctic Village have repeatedly expressed concerns about non-Federally qualified users hunting sheep in Red Sheep Creek and Cane Creek drainages. These residents have provided testimony and public comment at numerous Council and Board meetings to attest to the importance of Red Sheep Creek, to describe their use of the area, and to explain that the presence of non-Federally qualified users has affected their access and reduced their harvest opportunities (EIASRAC 2006, 2007, 2011, and 2017; FSB 1991a:291–311, 1995, 2006a, 2007:292–306, and 2012; OSM 1993, 1995a, 1996, 2006b, 2007a, and 2014a; Swaney 2011, pers. comm.; Gilbert 2011, pers. comm.; John 2011, pers. comm.). Additionally, in their 2018 annual report to the Board, the Eastern Interior Alaska Council noted their concern about existing sheep harvest limits and seasons in State regulations: “The Council is . . . troubled by the possibility that with the three sheep harvest limit, a lot of ewes and lambs can be taken during the late winter [to] early spring seasons. The Council believes that the existing three sheep harvest limit in both State and Federal regulations could potentially result in overharvest and a conservation issue” (EIASRAC 2018:4).

Among the Gwich’in, there is a story about how Red Sheep Creek was named, which illustrates the link between subsistence and religious practices and beliefs. It also underscores the importance of this area to the residents of Arctic Village. The story relates Red Sheep Creek to the Episcopal Church, an influential

factor in establishing Arctic Village, and sheds some light on why Arctic Village residents consider Red Sheep Creek a revered place (Dinero 2007; Dinero 2011, pers. comm.). The story begins with people who were hungry. One day at the church someone spotted caribou moving in the brush. Upon closer inspection people realized they were looking at unusual sheep with red markings, or what many say were crosses on their coats. The next day, people followed these red sheep far into the mountains where they were finally able to harvest them. The hides of these sheep were kept and passed down because of their distinctive markings (Dinero 2011, pers. comm.). The story of the red sheep links a prestigious subsistence resource (sheep) to traditional and modern beliefs and practices, and demonstrates the complementary nature of subsistence to place, tradition, culture, and modern beliefs.

Traditionally, Arctic Village residents have harvested sheep in early fall (late August or early September) or in early winter (November) (Caulfield 1983, FSB 2007:292–306). “Sheep taste best in the fall,” as documented in earlier research (OSM 1995a:353). Residents generally travel to hunt sheep by boat, then by foot from hunting camps in the fall or by snowmachine in late fall, but not in winter given the dangerous terrain and winter weather (OSM 1993).

Arctic Village residents have commented that allowing non-Federally qualified users to harvest sheep in Red Sheep Creek and Cane Creek drainages during the time when Arctic Village residents customarily and traditionally harvested sheep affects Arctic Village residents’ ability to access an important sheep hunting area. Since 1993, Arctic Village residents have noted to the Board that plane traffic by non-Federally qualified users have interfered with their ability to successfully hunt sheep in the Red Sheep and Cane Creek drainages. Residents reported that plane fly-overs “spooked” sheep and that “older rams can climb to higher elevations, making them more difficult to hunt” (OSM 1993, see also OSM 1995a for additional discussion). Gideon James from Arctic Village explained that Red Sheep and Cane Creek are both very narrow valleys, and consequently flights through the area disturb sheep (FSB 2012:201). These disturbances have continued to be described by Arctic Refuge staff (Mathews 2011, pers. comm.), and local residents (Swaney 2011, pers. comm., John 2011 pers. comm., Gilbert 2011, pers. comm.). Frid (2003) found that fixed-wing aircraft disrupted resting or caused fleeing behavior in Dall sheep in the Yukon Territory during overflights. This disruption was of a longer duration during direct flight approaches. Results of this study could help provide managers with guidelines for determining spatial and temporal restrictions to aircraft in areas frequented by this species.

## **Harvest History**

A Federal closure to the harvest of sheep in the Arctic Village Sheep Management Area by non-Federally qualified users has been in effect since 1991. In 1995, the Management Area was expanded to include the area from Cane Creek north to, and including, the Red Sheep Creek drainage. The closure to the take of sheep in the area north of Cane Creek by non-Federally qualified users was rescinded for a portion (from August 10 through September 30) of the season from 2006 through 2011 regulatory years

Data on the reported use of the Management Area by Federally qualified subsistence users is sparse, and just how many sheep are harvested by Federally qualified subsistence users in the Management Area is unknown. It is likely that many Gwich’in hunters have not reported their harvest efforts (Van Lanen et al.

2012, Anderson and Alexander 1992). One source of data is the U.S. Fish and Wildlife Service harvest reporting system.

Since 1995, Federally qualified subsistence users have been required to get a Federal registration permit to hunt for sheep in the Management Area. **Table 2** shows data kept by the U.S. Fish and Wildlife Service from permits issued from 1995 through 2018. Federally qualified subsistence users have requested 40 permits to hunt for sheep in the Management Area. Only some hunters returned their permits so these following data are incomplete. Seventeen hunters reported hunting sheep, and 9 hunters reporting harvesting sheep in the Management Area. Hunters did not always report areas they used to hunt for sheep within the Management Area. Of these incomplete data, three hunters reported using the Red Sheep Creek drainage to hunt for sheep and one sheep harvest was reported. Sixteen hunters reported the type of transportation they used to reach hunt areas: one by boat, 14 by airplane, and one reported using no transportation. Of those reporting, hunting trips were a median average of 5 days (OSM 2019).

**Table 2.** *Federal permits only:* Reported efforts to harvest sheep and reported sheep harvests in the Arctic Village Sheep Management Area in Unit 25A (Federal Permit FS2502) from 1995 through 2018 regulatory years cumulative (Source: OSM 2019).

<b>Community</b>	<b>Number of Federal permits issued</b>	<b>Number of hunts reported</b>	<b>Number of sheep harvests reported</b>
Arctic Village	33	11	5
Fort Yukon	7	6	4
<b>Total</b>	<b>40</b>	<b>17</b>	<b>9</b>

The Alaska Department of Fish and Game maintains a harvest reporting database where hunters using State harvest tickets and permits report their hunting efforts (ADF&G 2019a). Complete records were not kept until the mid-1980s, and it is likely that many Gwich'in hunters have not reported their harvest efforts or have reported their harvest efforts on Federal permits (see above). The following description of hunter effort and success begins with Unit 25A. This is the finest level of reporting in the State harvest reporting system. A description of hunter effort and success within the Management Area at the uniform coding unit level is also described, although harvest site documentation is much less precise and is an approximation. Another reason that hunter effort and harvest in Unit 25A is described here is that the Board justified the original closure, in part, because the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164).

From 1983 to 2017 regulatory years, hunters with State harvest tickets and permits reported harvesting 1,746 sheep (about 50 sheep annually) from within the entire Unit 25A area (see **Table 3**, ADF&G 2019a).

The Arctic Village Sheep Management Area is a small area within Unit 25A (see **Unit 25 Map**). From 1983 to 1990 regulatory years, approximately 61 sheep harvests (about 8 sheep annually) were reported on State harvest tickets and permits in an area approximating the Arctic Village Sheep Management Area using uniform coding units, including the area north of Cane Creek and the Red Sheep Creek drainage, before most of this area was closed to the harvest of sheep by non-Federally qualified users in 1991 (OSM

**Table 3.** State harvest tickets and permits only: Reported effort to harvest sheep and reported sheep harvested in Unit 25A, from 1983 through 2017, by user group (Source: ADF&G 2019a).

Year	Federally qualified subsistence users:	Federally qualified subsistence users:	Other Alaska residents:	Other Alaska residents:	Non-residents of Alaska:	Non-residents of Alaska:	Total:	Total:
	Permits issued	Reported sheep harvest	Permits issued	Reported sheep harvest	Permits issued	Reported sheep harvest	Permits issued	Reported sheep harvest
2017			61	20	40	26	101	46
2016			62	20	37	24	99	44
2015			62	16	41	24	103	40
2014			77	24	41	21	118	45
2013			91	36	48	31	139	67
2012			90	36	41	26	131	62
2011			93	42	59	44	152	86
2010			107	47	52	30	159	77
2009			86	45	59	39	145	84
2008			91	39	57	37	148	76
2007			75	36	54	41	132	80
2006			60	36	46	33	107	70
2005			56	28	52	38	108	66
2004			35	9	47	37	82	46
2003			50	20	51	33	102	53
2002			44	14	45	25	89	39
2001			40	15	50	36	90	51
2000			37	12	35	19	72	31
1999			37	16	33	25	70	41
1998			30	12	21	15	51	27
1997			36	16	22	17	58	33
1996			33	13	19	13	52	26
1995			41	14	20	9	61	23
1994			16	2	15	8	31	10
1993			52	17	18	10	70	27
1992			62	15	33	24	96	40
1991			44	19	46	36	92	56
1990			78	27	44	40	126	71
1989			35	23	52	39	87	62
1988			38	24	46	38	85	62
1987			46	22	34	29	80	51
1986			54	22	31	27	86	49
1985			46	22	29	23	75	45
1984			34	14	19	16	53	30
1983			35	13	25	17	60	30
Total	14 <sup>1</sup>	11 <sup>1</sup>	1,934	786	1,362	950	3,310	1,746

<sup>1</sup> Four or fewer reports were received in any given year. Only the total is provided to protect confidentiality of Federally qualified subsistence users reporting their effort and harvest.

2019, 4 of these 61 sheep harvests were reported by Federally qualified subsistence users). The Arctic Village Sheep Management Area does not have the same boundaries as uniform coding units and harvest site reporting at the uniform coding unit level is often imprecise and is an approximation.

From 1983 to 1994 regulatory years, approximately 27 sheep harvests (about 2 sheep annually) were reported on State harvest tickets and permits in the area north of Cane Creek and in the Red Sheep Creek drainage, before it closed to the harvest of sheep by non-Federally qualified users in 1995 (OSM 2019, none was reported by Federally qualified subsistence users).

From 2006 to 2010 regulatory years, approximately 22 sheep harvests (about 4 sheep annually) were reported on State harvest tickets and permits in the area north of Cane Creek and in the Red Sheep Creek drainage while it was open to the harvest of sheep from August 10 through September 30 by non-Federally qualified users (OSM 2019, harvest site information is not readily available after the 2010 regulatory year).

### **Effects of Proposal**

If adopted, Proposal WP20-49 would open the Arctic Village Sheep Management Area to the harvest of sheep under State regulations.

Adopting this proposal and opening the Management Area to non-Federally qualified users may adversely affect subsistence users' access and ability to harvest sheep in the Management Area and thereby fail to provide a meaningful preference for Federally qualified subsistence users.

If adopted, this proposal could negatively impact the sheep population in the Management Area, especially south of Cane Creek where sheep density estimates are low.

If Proposal WP20-49 is not adopted, sheep hunting in the Management Area by non-Federally qualified users will remain closed.

### **OSM CONCLUSION**

**Oppose** Proposal WP20-49.

### **Justification**

Federal public lands in the Arctic Village Sheep Management Area should remain closed to the harvest of sheep except by Federally qualified subsistence users. Sheep densities within the Management Area have generally been low compared to other areas in the Brooks Range, which is likely due to poor habitat quality (Payer 2006 in OSM 2014a). In 1991, when the closure was adopted by the Board, portions of the area did not appear to be able to support more sheep than were present, and the Board said that the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164). Sheep populations in the Management Area situated south of Cane Creek continue to exist at low densities (Arthur 2017, pers. comm.) and should remain closed to nonsubsistence uses in order to protect healthy populations of sheep, as mandated in ANILCA Section 815(3).

Since 1995 the Board has continued to hear substantial testimony and ethnographic evidence demonstrating the importance of Cane Creek and Red Sheep Creek drainages to Federally qualified subsistence users, especially Neets'aiti Gwich'in who occupied the area historically and continue to occupy the area today. In 2012, the Board reiterated that the closure was needed to ensure the continuation of traditional subsistence uses of sheep by Arctic Village hunters (OSM 2012b:7), and again in 2014 (OSM 2014a:350), and 2018 (OSM 2018b). This area should remain closed to nonsubsistence uses in order to protect the continuation of subsistence uses, as mandated in ANILCA Section 815(3).

## LITERATURE CITED

- ADF&G (Alaska Department of Fish and Game). 2017a. Dall sheep hunting full-curl identification guide. ADF&G, Division of Wildlife Conservation.  
[http://www.adfg.alaska.gov/static/hunting/dallsheephunting/pdfs/dall\\_sheep\\_hunting\\_full\\_curl\\_identification\\_guide.pdf](http://www.adfg.alaska.gov/static/hunting/dallsheephunting/pdfs/dall_sheep_hunting_full_curl_identification_guide.pdf).
- ADF&G. 2019a. Harvest general reports. Online database, accessed August 20, 2019.  
<https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvestreports.main>
- ADF&G 2019b. 2019/2020 Proposal Book. Alaska Board of Game.  
<http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.main>
- ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2017. Community index. <https://www.commerce.alaska.gov/dcra/DCRAExternal/community>, accessed August 24, 2017. Division of Community and Regional Affairs. Juneau, AK.
- Anderson, D.B., and C.L. Alexander. 1992. Subsistence hunting patterns and compliance with moose harvest reporting requirements in rural interior Alaska. ADF&G, Division of Subsistence Technical Paper No. 215. Juneau, AK. 30 pages. <http://www.adfg.alaska.gov/sf/publications/index.cfm?ADFG=addLine.home>
- Arthur, S.M. 2013. Demographics and spatial ecology of Dall sheep in the central Brooks Range. ADF&G, Division of Wildlife Conservation, Final research performance report 1 July 2007-30 June 2013. Federal Aid in Wildlife Restoration Project 6.15, Juneau, AK.
- Arthur, S.M. 2017. Wildlife Biologist. Personal communication: e-mail. Arctic National Wildlife Refuge. Fairbanks, AK.
- Arthur, S. 2019. Supervisory Wildlife Biologist. Personal communication: e-mail and telephone. Arctic National Wildlife Refuge. U.S. Fish and Wildlife Service. Fairbanks, AK.
- Burch, E.J. 1979. Indians and Eskimos in North Alaska, 1816–1977: A study in changing ethnic relations. *Arctic Anthropology* 16(2): 123–151.
- Bryant, J.G. 2011. Refuge Information Technician, Arctic National Wildlife Refuge, former resident Arctic Village. Personal communication: phone. July 2011.

- Caikoski, J.R. 2014. Eastern Unit 24A and Units 25A, 26B, and 26C Dall sheep. Chapter 16 pages 16-1 through 16-18 in P. Harper and L.A. McCarthy, editors. Dall sheep management report of survey and inventory activities 1 July 2010-30 June 2013. ADF&G, Species Management Report ADF&G/DWC/SMR-2014-4, Juneau, AK.
- Caulfield, R. 1983. Subsistence land use in upper Yukon Porcupine communities, Alaska. *Dinjii Nats'aa Nan Kak Adagwaandaii*. ADF&G, Division of Subsistence Technical Paper No.16. Fairbanks, AK. 252 pages.
- Dinero, S. 2003. Analysis of a “mixed economy” in an Alaskan Native settlement: the case of Arctic Village. *The Canadian Journal of Native Studies* XXII, 1:135–164.
- Dinero, S. 2007. Globalization and development in a post-nomadic hunter/gatherer Alaskan village: a follow-up assessment. *Polar Record* 43(226): 225–269.
- Dinero, S. 2011. PhD. Anthropologist conducting research in Arctic Village. Personal communication: phone. July/August 2011. Philadelphia University, PA.
- EIASRAC 1995. Transcripts of the Eastern Interior Alaska Subsistence Regional Advisory Council proceeding. March 3, 1995. Northway, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- EIASRAC. 2006. Transcripts of the Eastern Interior Alaska Subsistence Regional Advisory Council Meeting. March 21, 2006. Fairbanks, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- EIASRAC. 2007. Transcripts of the Eastern Interior Alaska Subsistence Regional Advisory Council Meeting. March 20, 2007. Arctic Village, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- EIASRAC. 2011. Transcripts of the Eastern Interior Alaska Subsistence Regional Advisory Council Meeting. March 3, 2011. Fairbanks, AK. Arctic Village, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- EIASRAC. 2017. Transcripts of the Eastern Interior Alaska Subsistence Regional Advisory Council Meeting. November 9 in Fairbanks, AK. Office of Subsistence Management, USFWS. Anchorage, AK.
- EIASRAC. 2018. Annual Report. Office of Subsistence Management, USFWS. Anchorage, AK.
- Frid, A. 2003. Dall's sheep responses to overflights by helicopter and fixed-wing aircraft. *Biological Conservation* 110: 387–399.
- FSB. 1991a. Transcripts of Federal Subsistence Board proceeding. June 5, 1991. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 1991b. Transcripts of Federal Subsistence Board proceeding. March 6, 1991. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 1991c. Transcripts of Federal Subsistence Board proceeding. March 4, 1991. Office of Subsistence Management, USFWS. Anchorage, AK.
- FSB. 1992. Transcripts of Federal Subsistence Board proceeding. April 9, 1992. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 1993. Transcripts of Federal Subsistence Board proceeding. April 8, 1993. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 1995. Transcripts of Federal Subsistence Board proceeding. April 14, 1995. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 1996. Transcripts of Federal Subsistence Board proceeding. May 2, 1996. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2006. Transcripts of Federal Subsistence Board proceeding. May 17, 2006. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2007. Transcripts of the Federal Subsistence Board. May 1, 2007. Office of Subsistence Management, USFWS. Anchorage, AK.

FSB. 2012. Transcripts of the Federal Subsistence Board. January 19, 2012. Office of Subsistence Management, USFWS. Anchorage, AK.

FWS (U.S. Fish and Wildlife Service). 2019. Land status within the National Wildlife Refuges of Alaska. <https://fws.maps.arcgis.com/apps/webappviewer/index.html?id=3eed8d6b30ea443dafa4380d70d0fa5e>, accessed August 29.

Gilbert, T. 2011. Elder, resident of Arctic Village. Personal communication: phone. August 2011.

Gustafson, J. 2004. Traditional ecological knowledge of subsistence harvests and fishes, Old John Lake, Alaska. Final Report No. FIS01-003. Office of Subsistence Management, USFWS. Anchorage, AK.

Hadleigh-West, R. 1963. The Neets' aii Kutchin: an essay in human ecology. PhD dissertation. Louisiana State University. Ann Arbor, Michigan.

John, J. 2011. Arctic Village Council, First Chief, elder, resident. Personal communication: phone. August 2011.

Mathews, V. 2011. Refuge Subsistence Specialist. Personal communication: email, phone. Arctic National Wildlife Refuge. Fairbanks, AK.

Mauer, F.J. 1990. Dall sheep investigations in the Chandalar River drainage of the Arctic National Wildlife Refuge, 1990. ANWR Progress Report No. FY90-03. USFWS. Fairbanks, AK.

Mauer, F.J. 1996. Dall sheep investigations in the Arctic Village area. Arctic National Wildlife Refuge. Unpublished Report. USFWS. Fairbanks, AK.

McKenna, R.A. 1965. The Chandalar Kutchin. Arctic Institute of North America Technical Paper No. 17, Montreal.

NSSRAC 1995. Transcripts North Slope Subsistence Regional Advisory Council proceeding. February 17, 1995. Barrow, AK. Office of Subsistence Management, USFWS. Anchorage, AK.

OSM (Office of Subsistence Management). 1991. Staff Analysis P91-21 in Federal Subsistence Board Meeting Materials. April 5–8, 1993. Office of Subsistence Management, USFWS. Anchorage, AK.



- OSM. 1993. Staff Analysis P93–58. Pages 1–9 in Federal Subsistence Board Meeting Materials. April 5–8, 1993. Office of Subsistence Management, USFWS. Anchorage, AK.
- OSM. 1995a. Staff analysis P95-54. Pages 352–359 in Federal Subsistence Board Meeting Materials. April 10–12, 15, 1995. Office of Subsistence Management, USFWS. Anchorage.
- OSM. 1995b. Requests for reconsideration 1992–2000: summary of Federal Subsistence Board actions. On file, Office of Subsistence Management, USFWS. Anchorage.
- OSM. 1996. Staff analysis of Proposal 55. Pages (Eastern Interior) 2–12 in Federal Subsistence Board Meeting Materials. April 29–May 3, 1996. Office of Subsistence Management, USFWS. Anchorage.
- OSM. 2006a. Federal Subsistence Board action report: Eastern Interior proposals. Meeting held May 16–18 in Anchorage, AK. Office of Subsistence Management, USFWS, Anchorage, AK.
- OSM. 2006b. Staff analysis of WP06-57. Pages 452–459 in Federal Subsistence Board Meeting Materials. May 16–18, 1996. Office of Subsistence Management, USFWS. Anchorage.
- OSM. 2007a. Staff Analysis WP07-56. Pages 529–538 in Federal Subsistence Board Meeting Materials April 30–May 2, 2007. Office of Subsistence Management, USFWS. Anchorage, AK. 622 pages.
- OSM. 2007b. Federal Subsistence Board action report: Eastern Interior proposals. Meeting held April 30–May 2 in Anchorage, AK. Office of Subsistence Management, USFWS, Anchorage, AK.
- OSM. 2012a. Staff analysis of WP12-76. Pages 529–538 in Federal Subsistence Board Meeting Materials. January 17–20, 2012. Office of Subsistence Management, USFWS. Anchorage.
- OSM. 2012b. Federal Subsistence Board action report: Eastern Interior proposals. Meeting held January 17–20 in Anchorage, AK. Office of Subsistence Management, USFWS, Anchorage, AK.
- OSM. 2014a. Staff analysis of WP14-51. Pages 336–351 in Federal Subsistence Board Meeting Materials. April 15–17, 2014. Office of Subsistence Management, USFWS. Anchorage.
- OSM. 2014b. Federal Subsistence Board non-consensus action report: Eastern Interior Proposals. Meeting held April 15–18 in Anchorage, AK. Office of Subsistence Management, USFWS, Anchorage, AK.
- OSM. 2017. Proposal document Library: regulatory actions. Electronic database. Office of Subsistence Management, USFWS, Anchorage, AK.
- OSM. 2018a. Staff analysis of WP18-56. Supplemental materials in Federal Subsistence Board Meeting Materials. April 10–13. Office of Subsistence Management, USFWS. Anchorage.
- OSM. 2018b. Federal Subsistence Board non-consensus action report: Eastern Interior Proposals. Meeting held April 10-13 in Anchorage, AK. Office of Subsistence Management, USFWS, Anchorage, AK.
- OSM. 2019. Federal harvest reporting database. Electronic database. Office of Subsistence Management, USFWS, Anchorage, AK.

Payer, D.C. 2006. Dall sheep survey in the Arctic Village Sheep Management area and vicinity. Arctic National Wildlife Refuge. Unpublished report. USFWS. Fairbanks, AK.

Reed, J., C. Villa, and T. Underwood. 2008. Red Sheep Creek airstrip public use monitoring, Arctic National Wildlife Refuge, Alaska, 2006–2007. Report for Arctic National Wildlife Refuge. USFWS. Fairbanks, AK. 10 pages.

Smith, T. 1979. Distribution and abundance of Dall sheep in the Arctic National Wildlife Range. Unpublished report. USFWS. Fairbanks, AK.

Swaney, C. 2011. Subsistence user, resident Arctic Village. Personal communication: phone. July 2011.

Van Lanen, J.M., C. Stevens, C.L. Brown, K.B. Maracle, and D.S. Koster. 2012. Subsistence land mammal harvests and uses, Yukon Flats, Alaska: 2008–2010 harvest report and ethnographic update. ADF&G, Division of Subsistence Technical Paper No. 377. Juneau, AK.

<http://www.adfg.alaska.gov/sf/publications/index.cfm?ADFG=addLine.homeVoss> 2011, pers. comm.

Wald, E. 2012. Sheep survey summary for the Arctic Village Sheep Management Area, June 2012. Arctic National Wildlife Refuge. Unpublished Report. USFWS. Fairbanks, AK.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### **Eastern Interior Alaska Subsistence Regional Advisory Council**

**Oppose** WP20-49. Council members engaged into a lengthy discussion with Tribal representatives from Arctic Village and Venetie who testified to the Council about their concerns with this proposal. The Council spoke of the importance of considering traditional ecological knowledge when making decisions on Federal regulatory proposals and noted that, according to the Tribal representatives' testimonies, traditional ecological knowledge observations show that sheep counts are low. This is collaborated by the Federal survey results; therefore, the Council sees a conservation concern for the sheep population in the Arctic Village Sheep Management Area and views this proposal as detrimental to the satisfaction of subsistence needs of Federally qualified subsistence users.

Council members pointed out that although harvest records cited by the State may indicate that residents of these communities rarely hunt sheep, these records might not reflect the actual reality of the situation, especially when one deals with "a paperless society." The Council considered the lack of sufficient harvest data as justification for its decision on the proposal.

Additionally, the Council took into account the testimony of Tribal representatives from Arctic Village and Venetie about the Red Sheep Creek area being sacred and having important spiritual and cultural significance for the Tribes. The Council thought that if passed, then this proposal would negatively affect the traditional way of life and customary and traditional uses of sheep.

The Council thinks its recommendation will continue to benefit subsistence users but will restrict other uses in the area; however, the Council pointed out that there are many other areas in the State for other users to go sheep hunting.

The Council noted Arctic Village and Venetie tribal representatives desire to continue the dialogue about the Arctic Village Sheep Management Area and to have a more in-depth government-to-government consultation on the issue, which has been a recurring concern for over many years. The Council requested to have a more detailed tribal consultation with all of the involved tribes, citing the lack of local outreach, and the Council voted to send a letter to the Board to form a subcommittee (working group) composed of all interested stakeholders to work on a viable solution.

### **North Slope Alaska Subsistence Regional Advisory Council**

**Oppose** WP20-49. The Council expressed support for residents of the community of Arctic Village, recognizing the importance of sheep in their subsistence and traditional way of life. Maintaining the closure will help to ensure continuation of subsistence uses and traditional hunting practices without conflict with other users. The Council discussed that the North Slope community of Kaktovik primarily hunts on the north side of the Brooks Range, and the Council would like to defer to the Eastern Interior Subsistence Regional Advisory Council since they are more directly involved with the Arctic Village

Sheep Management Area. The vote to oppose WP20-49 aligns with the home region Council recommendation.

### **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee agrees with the Eastern Interior and North Slope Subsistence Regional Advisory Councils, and the OSM conclusion, to oppose this proposal.

Harvest records for the area are incomplete and unreliable, as identified in the OSM analysis, tribal consultations and public meetings. The very low reported harvest may not be reflective of true harvest and is important to consider. Stressing the need for better harvest reporting is appropriate. The current sheep population within the management area is unknown, as the last survey was in 2016. A current survey would be helpful prior to opening, as most recent declines 2012 – 2015 were influenced by winter conditions and changes in habitat that may be related to climate change. A pre-cautionary approach to opening may be warranted to ensure this low density population is robust enough to sustain harvest beyond federally qualified users.

In March, the Alaska Board of Game assessed proposal 82, submitted by the Eastern Interior Subsistence Regional Advisory Council. The Board of Game decision on proposal 82 may be important for the Board to consider when assessing the outcome for WP 20-49.

### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-49:** This proposal, submitted by the Alaska Department of Fish and Game, would open the Arctic Village Sheep Management Area (AVSMA) to the harvest of sheep by non-federally qualified users.

**Introduction:** The Arctic Village Sheep Management Area (AVSMA) of Unit 25A is closed to non-federally qualified subsistence users. WP12-76 was submitted from the Eastern Interior Regional Subsistence Advisory Council and supported by the North Slope Regional Subsistence Advisory Council in 2012. The Federal Subsistence Board (FSB) closed sheep hunting in the Red Sheep Creek and Cane Creek drainages in the AVSMA. ADF&G submitted WP14-51 to lift that closure and require hunters to complete a State-developed hunter ethics and orientation course. The FSB rejected the State's proposal at its 2014 meeting. Board members considered an alternative to open the federal season 10 days prior to the state season to allow federally qualified users to hunt without competition from hunters who do not qualify under federal regulations, but the board did not support this. The state submitted a timely request for reconsideration (RFR). The Office of Subsistence Management did not find merit to any of the state's claims in the RFR and recommended opposition to reconsideration of the WP14-51.

When the federal closure to non-federally qualified subsistence users was lifted in 2006 in Cane and Red Sheep creeks, hunting pressure and harvest was low under state regulations. In ADF&G's 2011 sheep management report, we reported that during 2006–2010, an average of 6 hunters harvested 3.7 full curl

rams per year using a state harvest ticket. No harvest was reported from state subsistence hunt RS595 in Red Sheep or Cane Creek. There are no harvest data from household surveys. State subsistence uses were likely underrepresented due to low harvest reporting. Cane and Red Sheep creek drainages remained open until July 1, 2012, when the Federal Subsistence Board closed those drainages also.

In 2017 a proposal (WP18-56) was submitted to reopen the area. After the Eastern Interior Regional Subsistence Advisory Council recommended reopening a portion of the area, the Federal Subsistence Board considered deferring the proposal. The intent was to allow the state time to establish regulations to reduce the number of nonfederally qualified hunters and to avoid user conflict. The majority of the concern centered around the areas being closed to hunting for an extended period and that a large number of hunters would use the area. After some debate, the Board voted to oppose the proposal. The Board indicated it was open to a new proposal from the State to limit the numbers of hunters in the area

The USFWS Office of Subsistence Management reports that a total of 33 federal permits were issued to local subsistence hunters for the AVSMA during 1995–2017 (average = 1.4 per year). A total of 8 sheep were harvested (average = 0.3 per year) by 14 hunters (average = 0.6 per year) over the same time period. Additional harvest may have occurred by local hunters that either did not obtain a federal permit or did not report.

During 2006–2011, the Cane Creek and Red Sheep Creek portion of the AVSMA was open to a state managed full-curl general season. During that period, a total of 40 hunters (average = 6.7 per year) harvested 27 sheep (average = 4.5 per year) from the area that encompasses Cane Creek and Red Sheep Creek. Some of this harvest likely occurred outside Cane Creek and Red Sheep Creek since the reporting area also includes an area northeast of those drainages.

Estimated sheep densities in the AVSMA are similar to other areas of the Brooks Range. The last surveys of the AVSMA were conducted by the USFWS in 2012 and 2015. Results of those surveys were sheep density estimates of 0.79 and 0.67 sheep/mi<sup>2</sup>, respectively. In 2016, a survey conducted by the USFWS of the Hulahula drainage and the AVSMA, combined, resulted in a sheep density estimate of 0.86 sheep/mi<sup>2</sup>. Surveys conducted by the National Park Service in Gates of the Arctic National Park and Preserve in 2009 and 2010 resulted in sheep density estimates of 0.69 and 0.97 sheep/mi<sup>2</sup>, respectively, and 0.65 sheep/mi<sup>2</sup> in the Itkilik Preserve in 2011. A 2018 survey conducted by the department in eastern unit 25A and western unit 24A resulted in a sheep density of 0.86 sheep/mi<sup>2</sup>. Sheep densities in these areas are healthy, fluctuating within normal limits.

The department has no biological concerns associated with any element of this proposal. . Based on long term harvest data for RS595, few sheep are harvested annually and most of the harvest consists of mature rams. Therefore, it is unlikely that sheep populations have been affected by harvest occurring from the RS595 hunt to date.

**Impact on Subsistence Users:** It is unknown if federally qualified subsistence users will be impacted by adoption of this proposal. Based on biological data, federally qualified users will retain opportunity to meet their subsistence needs.

**Impact on Other Users:** Other nonfederally qualified users will regain an opportunity to harvest sheep in the Arctic Village Sheep Management Area (AVSMA) of Unit 25A.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made positive customary and traditional use findings for sheep in Units 23, 24, 25A, and 26 (combined: Brooks Range).

**Amounts Reasonably Necessary for Subsistence:** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. This is an ANS. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

Contrary to its name, ANS does not indicate subsistence “need”. Instead, ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for sheep in Units 23, 24, 25A, and 26 (combined) is 75-125 animals.

<u>Unit</u>	<u>Bag limits</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident</u>	<u>Nonresident</u>
Unit 25A East of the Middle Fork of the Chandalar River or, or, Three sheep	One ram with full-curl horn or larger (youth hunt only)	August 1-August 5 (Harvest ticket)	
	One ram with full-curl horn or larger	August 10-September 20 (Harvest ticket)	
		October 1-April. 30 Registration permit RS595 available online at <a href="http://hunt.alaska.gov">http://hunt.alaska.gov</a> or in person in Fairbanks and	

Kaktovik beginning  
September 14.

One ram with full-curl horn  
or larger every  
four regulatory years

August 10-September 20  
(Harvest ticket)

*Source:* ADF&G. 2019. 2019–2020 Alaska hunting regulations, number 60. Effective July 1, 2019–June 30, 2020. Alaska Department of Fish and Game, Division of Wildlife Conservation, Juneau, AK.

**Special instructions:**

The use of aircraft for access to hunt sheep and to transport harvested sheep is prohibited in the RS595 hunt except into and out of Arctic Village and Kaktovik airports.

No motorized access from the Dalton Highway.

Nonresident hunters must be accompanied by a guide or resident relative, see page 10 of the state's *2019-2020 Alaska Hunting Regulations*.

See definition of full-curl horn and drawings on page 33 of the *2019-2020 Alaska Hunting Regulations*.

Horns must accompany meat from the field.

Ram horns must be sealed within 30 days of kill, except in the RS595 hunt.

**Conservation Issues:** Contrary to the assertion in the OSM analysis, there is no conservation concern associated with hunting opportunity in this area. Sheep populations across the eastern Brooks Range appear to be stable (Caikoski, 2014).

**Enforcement Issues:** No wildlife enforcement issues have been identified if this proposal were adopted.

**Recommendation:** ADF&G **SUPPORTS** this proposal to restore sustainable hunting opportunity to both local and non-local residents. The restriction of sheep hunting to only residents of a few communities (Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie) is not necessary to accommodate local subsistence uses. Harvest records indicate residents of these communities rarely hunt sheep (although the records may be biased low due to unreported harvests). Furthermore, there is no biological reason to preclude sheep hunting opportunities by the public in the AVSMA. This restriction is not necessary to provide for subsistence uses, nor is it necessary to ensure a healthy sheep population. At their March 2020 meeting, the Board of Game will be considering Proposal 82 submitted by the Eastern Interior Alaska Subsistence Regional Advisory Council. The outcome of that meeting may further support reopening the Arctic Village Sheep Management Area to nonfederally qualified users.

Literature Cited:

Caikoski, J. R. 2014. Eastern Unit 24A and Units 25A, 26B, and 26C Dall sheep. Chapter 15, pages 161 through 1618 in P. Harper and L. A. McCarthy, editors. Dall sheep management report of survey and inventory activities 1 July 2010–30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-4, Juneau, Alaska.

## APPENDIX 1 REGULATORY HISTORY

At the beginning of the Federal Subsistence Management Program in Alaska in 1990, existing State regulations were adopted into Temporary Subsistence Management Regulations (55 Fed. Reg. 126. 27117 [June 29, 1990]). The customary and traditional use determination for sheep in Unit 25A was for residents of Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie. The Board has not received a proposal to modify the determination.

In 1991, Proposal 75 was submitted by the Yukon Flats Fish and Game Advisory Committee and Proposal 100A by the Arctic National Wildlife Refuge. The Board met in March 1991 and based on submitted proposals took action to propose new regulations and published them in the Federal Register (56 Fed. Reg. 73 15433 [April 16, 1991]<sup>2</sup>). At its meeting in March 1991, the Board acted on Proposals 100A and 75.

The Chair stated,

As far as the Board's concerned, our first compliance is—or obligation—is compliance with the Federal [regulations], that will be its guiding principle that will be used by the Board. It considers this responsibility for various recommendations and proposals. The policy is that the State will reassume full responsibility to manage fish and game subsistence use on Federal lands, and that will be a principle that will guide the coming decisions of the Board. In keeping with that, we will want to minimize actions that will duplicate or complicate the State's resumption of the program. However, there are certain things that are happening that will cause us to make some decisions that may do that to some extent, but those will be well-discussed, well-considered, and well-calculated before we have to do that. So those are some of the general guidance policies that the Board will function under (FSB 1991c:5–6).

Proposal 100A requested the Board, in an area of Unit 25A encompassing most of the contemporary Arctic Village Sheep Management Area, to modify the harvest limit from 3 sheep from October 1 through April 30 and 1 ram with 7/8 curl horn or larger from August 20 through September 20, to 2 rams from August 10 through April 20, by registration permit. The northern boundary of the area was the mainstem of Cane Creek. The area did not include areas north of Cane Creek including Red Sheep Creek. Regional Advisory Councils did not meet until fall 1993, and there were no Council recommendations for the Board to consider. The Board adopted the Interagency Staff Committee recommendation and adopted the proposal with modification. The modification was to close the area to the harvest of sheep except by Federally qualified subsistence users and extend the hunting season to April 30. The justification was that portions of the area did not appear to be able to support more sheep than were currently present, the population of sheep in the Red Sheep Creek drainage was of much higher density and could continue to support existing

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<sup>2</sup> The Federal Register notice mistakenly included both the existing regulation (1 ram with 7/8 curl horn or larger, Aug. 10–Sept. 20) as well as the proposed regulation.



seasons and harvest limits, the Red Sheep Creek drainage received quite a bit more effort than other areas of Unit 25A, and the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164; 56 Fed. Reg. 123, 29344 [June 26, 1991]).

Proposal 75 requested the Board, in an area of Unit 25A encompassing most of the contemporary Arctic Village Sheep Management Area, to close to the harvest of sheep except by Federally qualified subsistence users. The northern boundary of the area was the Red Sheep Creek drainage. The Board adopted the Interagency Staff Committee recommendation and rejected the proposal because of its earlier action taken on Proposal 100A, described above (FSB 1991b:164–168).

In June 1991, the Board met and considered proposals received during the public comment period on wildlife regulations that included actions taken by the Board at its March 1991 meeting, described above (56 Fed. Reg. 73 15433 [April 16, 1991]). Proposals 09, 10, and 11 were submitted by the Arctic Village Council and Proposal 21 was submitted by Brooks Range Arctic Hunts. In Proposal 09, the Arctic Village Council requested the Board to include Cane Creek and Red Sheep Creek drainages in the Arctic Village Sheep Management Area, which had been closed to the harvest of sheep except by Federally qualified subsistence users. The proponent said that the area set aside did not include all of the areas that must be included to accommodate customary and traditional uses of sheep by residents of Arctic Village (OSM 1991). The Board adopted the Interagency Staff Committee recommendation and rejected the proposal. The Board said Arctic Village residents used Cane Creek and Red Sheep Creek only for a short time when air taxi service was available. These two areas could support both subsistence and sport harvest (FSB 1991a:297–299). Proposals 10 and 11 requested that the Board eliminate harvest limits in the Arctic Village Sheep Management Area (Proposal 10) or increase the harvest limit to 3 sheep (Proposal 11). The Board adopted the Interagency Staff Committee recommendations and rejected both proposals. The Board said the sheep population in the Sheep Management Area was extremely low and the proposed regulations would jeopardize the continuation of healthy populations of sheep (FSB 1991a:299–301). The Board adopted the Interagency Staff Committee recommendation and also rejected Proposal 21, which requested the Board to open the Sheep Management Area to the harvest of sheep by non-Federally qualified users. The Interagency Staff Committee said that the sheep population was extremely low, and subsistence users must be afforded a priority (OSM 1991).

In 1992, Request for Reconsideration (RFR) 23 was submitted by the Arctic Village Council requesting that the Board reconsider its decision on Proposal 9, described above, which if adopted would have added Cane Creek and Red Sheep Creek drainages to the Arctic Village Sheep Management Area, which had been closed to the harvest of sheep except by Federally qualified subsistence users. The Office of Subsistence Management incorporated the request into Proposal 58 of the 1993 regulatory cycle, described below (OSM 1993). The Arctic Village Council made the same request during the 1992 regulatory cycle in Proposals 118A and 118B, seeking to eliminate harvest limits in the Sheep Management Area, or alternatively to increase the harvest limit from 2 rams to 3 sheep. In Proposal 118B, the Arctic Village Council requested the Board to include Cane Creek and Red Sheep Creek drainages to the Sheep Management Area. The Board adopted Proposal 118A with modification, in the remainder of Unit 25A, outside of the Sheep Management Area, to increase the season from August 10 through September 20 and October 1 through April 30, to August 10 through April 30 and to modify the harvest limit from 1 ram with

7/8 curl horn in fall season to 3 sheep throughout the season (57 FR 103, 22557 [May 28, 1992]). Furthermore, the Board directed the staff to seek alternatives to a Federal registration permit before the opening of the 1992 season for implementation at that time. The Board followed the Interagency Staff Committee recommendation and rejected Proposal 118B because biological data indicated that the population in the Cane Creek and Red Sheep Creek drainages could support both sport and subsistence use. The Board stated that the Council had not provided adequate justification that subsistence sheep hunting opportunities were being limited. (FSB 1992:59–99).

In 1993, Proposal 58 (OSM 1993:1) was received from the Arctic Village Council, requesting that the Board add Cane Creek and Red Sheep Creek drainages to the Management Area; replace individual harvest limits with a community harvest limit for Arctic Village, to be established in consultation with the village; and to establish, in consultation with Arctic Village, an appropriate harvest reporting method that would avoid the need for registration permits and harvest tickets, relying instead on a community harvest report of an appropriate nature. At its meeting in April 1993, the Board adopted the Interagency Staff Committee recommendation and rejected the proposal. The Board said that Cane Creek and Red Sheep Creek drainages supported adequate sheep to support harvest by non-Federally qualified users and that not enough data was available on harvest levels to support community harvest or reporting systems (FSB 1993:140–512).

In 1995, Proposal 54 was submitted by the Arctic Village Council requesting that the Board add Cane Creek and Red Sheep Creek drainages to the Arctic Village Sheep Management Area. The Eastern Interior Council took no action on the proposal (EIASRAC 1995:88–97, OSM 1995a:359). The North Slope Subsistence Advisory Council (North Slope Council) recommended that the Board adopt the proposal (NSSRAC 1995:206, OSM 1995a:359). The Board adopted the proposal with modification. The Board said that although there was no biological reason for closing Cane Creek and Red Sheep Creek drainages to the harvest of sheep except by Federally qualified subsistence users, it had heard substantial testimony regarding the fact that due to the customary and traditional hunting practices of the residents of Arctic Village, not adopting the proposal would deny a subsistence opportunity to the residents of Arctic Village (FSB 1995:611–634, 686–693; 60 Fed. Reg. 115, 31545 [June 15, 1995]).

In 1995, Request for Reconsideration RFR95-06 was submitted by the Alaska Department of Fish and Game (ADF&G) requesting that the Board reconsider its decision on Proposal 54. The Board rejected the request in July 1995 (OSM 1995b). The Board determined that the request was not based on information that was not previously considered by the Board, or that demonstrated that the existing information used by the Board was incorrect, or that demonstrated that the Board's interpretation of information, applicable law, or regulation was in error or contrary to existing law. One of these factors would need to be present for the Board to reconsider its decision, as described in regulation (50 CFR 100.20).

In 1996, Proposal 55 was submitted by ADF&G. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users. The Eastern Interior Council recommended opposing the proposal. The Eastern Interior Council said it had heard no compelling evidence to overturn recent Board action closing these drainages. Opposition to the proposal came before the Council from an Arctic Village resident's testimony, a letter from the Arctic Village Council, and from

the Eastern Interior Alaska Council's representative from Arctic Village. The Eastern Interior Alaska Council affirmed its support for the existing Arctic Village Sheep Management Area. The North Slope Council recommended deferring action for one year until more information concerning Kaktovik residents' use of the Management Area was available, however, the Council expressed desire to "defer to wishes of their neighbors to the south" (OSM 1996:12). The Board rejected the proposal referring to its action on Proposal 54 the previous year in 1995, described above, and that there had still been no dialogue between the State and Arctic Village (FSB 1996:20).

This Regulatory History contains more information on each regulatory proposal below than above. This is because official records of Council and Board justifications were kept after 1995. Justification for Board actions that were provided in letters to the Councils, as mandated in ANILCA Section 805(c), were reviewed and compared to transcripts and provide an accurate description of the Board's justifications.

In 2006, Proposal WP06-57 was submitted by ADF&G. It requested that the Board open the Arctic Village Sheep Management Area to the harvest of sheep by non-Federally qualified users. The Eastern Interior Council recommended opposing the proposal and said that it needed to see results from sheep population surveys before considering reopening to non-Federally qualified hunters. The Council said that people of Arctic Village were totally dependent on the land for food for their nutritional and cultural needs. The Council said managers cannot only depend on harvest tickets for harvest information. It continued that there was a problem with transporters throughout the region. Transporters brought people up to this area, and they did not clean up after themselves. The Eastern Interior Council heard testimony from Arctic Village residents during the meeting that sheep have been harvested but not reported by subsistence users in this area. The Council indicated there was a need for a meeting with the people of Arctic Village and a need for more work on this issue before the area was opened to non-Federally qualified users. The Council said there was no biological reason given to support this proposal, and here was an opportunity for the people in the area to work with nonsubsistence users before submitting a proposal (OSM 2006b:452-453). The North Slope Council recommended deferring the proposal to get more information on the status of the sheep population and more harvest information. The Council said it would feel very uncomfortable making a decision that might be detrimental when there was a lack of information (OSM 2006a:452-453). The Board rejected the proposal. The Board said it had listened to public testimony on this proposal and was unable to pass a motion to allow non-Federally qualified users to hunt sheep in the drainages of Red Sheep Creek and Cane Creek or to defer action on the proposal with respect to the remainder of the Arctic Village Sheep Management Area. The Board did not see a need for action at this time because of the commitment of the Arctic National Wildlife Refuge staff to conduct sheep surveys in the area the following summer (FSB 2006:261-283, OSM 2006a:6).

In 2006, Wildlife Special Action Request WSA06-03 was submitted by the U.S. Fish and Wildlife Service. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from August 10 through September 20, 2006. The Board approved the request. It said it reviewed new information on sheep abundance in the Arctic Village Sheep Management Area from a survey conducted by the Service in June 2006 and presented in an assessment report. During the course of its consideration, the Board said it received an excerpt from the transcript of the May 2006

meeting of the Board relative to consideration of this issue concerning Proposal WP06-57, a staff analysis prepared by OSM, ADF&G comments, and written and telephonic public testimony (OSM 2017).

In 2007, Proposal WP07-56 was submitted by ADF&G. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from August 10 through September 20. The Eastern Interior Council recommended the Board defer action on the proposal for one year to allow formation of a working group of representatives from affected villages, hunting interests, and agencies to decide what an acceptable sheep harvest or number of sheep hunters would be in this area, and then draft a proposal to the Alaska Board of Game for its March 2008 meeting. The Council said the proposal could contain the number of non-Federally qualified hunters to be allowed to hunt in the Cane Creek and Red Sheep Creek area. The Council said the working group timeline would give the Federal Subsistence Board time to monitor the progress of the working group, the Board of Game proposal(s), and the actions of the Board of Game before the Federal Subsistence Board met later in the spring of 2008. The Council said it had received testimony from Arctic Village sheep hunters, local elders, and Arctic Village Tribal Council members who all had requested the closure of the Red Sheep and Cane Creek area remain in effect. Testimony included the cultural importance of the area because of burial sites, allotments, and a traditional area where they hunt sheep, and that they would not be able to compete with other hunters if the area was opened to other hunters. The Council said testimony also included the high cost of accessing the area and the difficulty reaching the area other than by aircraft. Council members discussed the relationship of caribou migrations and the need to hunt for sheep as well as the desired time to harvest sheep. When caribou and moose are plentiful, local hunters do not hunt for sheep, but when caribou and moose are not plentiful, they depend on sheep. The Council shared that the last time a similar proposal to open the area to other hunters was submitted, the Council had unanimously opposed it and was overridden by the Board. The Council sympathized with Arctic Village concerns, but it believed the closure of the Cane Creek and Red Sheep Creek drainages would be lifted by the Board based on its action with the recent special action to open the area (WSA06-03, which the Board approved). Several Council members worked with village leaders to see what options were available to limit the number of other hunters allowed to hunt in the area, hence the recommendation to defer to a working group (OSM 2007a). The North Slope Council recommended the Board oppose the proposal. The Council said that there was no evidence that passage of this proposal would not impact villages. The Council said resource needs should be assessed to ensure subsistence users' needs were being met at each village. The sheep population was so small, it could not support harvest by commercial and sport hunters (OSM 2007a).

The Board adopted the proposal. The Board said that Section 815(3) of ANILCA only allows restrictions on the taking of fish and wildlife for nonsubsistence uses on Federal public lands if necessary for the conservation of healthy populations of fish and wildlife, to continue subsistence uses of such populations, or pursuant to other applicable law. Maintaining the Federal closure to nonsubsistence hunting of sheep in the Red Sheep Creek and Cane Creek drainages was no longer necessary for the conservation of a healthy sheep population. Allowing sheep hunting by non-Federally qualified users in these drainages would not adversely affect the sheep population because these hunters would be limited to taking one full-curl ram in the fall season. Removal of some full-curl rams from the population was not expected to reduce the reproductive success of the sheep population. Maintaining the closure to nonsubsistence hunting of sheep in these drainages was also not necessary to provide for continued subsistence use of sheep. The sheep

population could support harvest by both subsistence and nonsubsistence hunters. The existing closure was also not justified for reasons of public safety, administration, or pursuant other applicable law (OSM 2007b).

In 2012, Proposal WP12-76 was submitted by the Eastern Interior Council. It requested that the Board close Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from August 10 through September 20. The Eastern Interior Council recommended the Board support the proposal. The Council said the proposal enhanced the ability of the residents of Arctic Village to pursue subsistence opportunities and might reduce incidents of trespass and resource damage. The Council said it appreciated the information provided during public testimony and recognized the powerful connection between residents of Arctic Village and the subject area as one that was deeply culturally rooted. The Council said it was compelled by extensive and detailed public testimony and that subsistence users were concerned that nonsubsistence users were interfering with subsistence users, particularly the people of Arctic Village. The North Slope Council recommended the Board support the proposal. The Council said that the amount of travel time by rural residents was a concern due to distance required to travel and the cost of fuel. The Board adopted the proposal (OSM 2012a:355). The Board said there was no conservation concern, and the closure was needed to ensure the continuation of traditional subsistence uses of sheep by Arctic Village hunters (OSM 2012b:7).

In 2014, Proposal WP14-51 was submitted by the State of Alaska. It requested the Board to open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from August 10 through September 20. It also requested that hunters be required to complete a course on hunter ethics and an orientation course, including land status and trespass information. The Eastern Interior Council recommended the Board oppose the proposal. The Council said it had heard extensive testimony from tribal and community members from Arctic Village and Venetie expressing the importance of sheep in this area to their culture and community. The Council said public testimony also noted that air traffic disturbance and hunter activity was pushing sheep further away and higher. The Council said that the cultural importance of the sheep and the area to Arctic Village and other residents for this hunt area was their overriding concern. The North Slope Council recommended the Board oppose the proposal. The Council said deflection or disturbance of sheep by sport hunters and aircraft flights made it difficult for Arctic Village residents to reach sheep for subsistence hunting. The Council said these sheep were a very important subsistence food shared within the community, and even if local harvest numbers were not high, effort to reach the animals was considerable and the sharing of the meat and organs was widespread and important. The Council said these sheep and this location had special cultural and medicinal value due to the history and relationship of the community as well the mineral licks that the sheep frequented in this area, which made their meat contain unique qualities (OSM 2014a:350).

The Board rejected Proposal WP14-51. The Board rejected this proposal based on the OSM analysis and conclusion, the recommendations of the North Slope and Eastern Interior Councils, and overwhelming public comment over the years and the testimony presented to the Board in the 2012 review of a similar proposal. The Board referenced extensive public testimony of local community concerns and cultural importance of this area and the long established administrative record on this issue. The Board recognized the cultural importance of the Cane Creek and Red Sheep Creek areas for subsistence harvest of sheep for

the residents of Arctic Village and Venetie. The Board said the importance of this area was also known by the number and location of Native allotments, cultural sites, and ethnographic studies documenting the long history of use in this area (OSM 2014b:3).

Furthermore, the Board said it had heard testimony and reports that subsistence users attempts to harvest sheep in this area may have been interfered with by aircraft and nonsubsistence hunter activity. The Board concurred with this testimony that the activities in this area by nonsubsistence users had resulted in the displacement of sheep, pushing them out of range and preventing subsistence hunters from being able to harvest sheep. The Board supported keeping the closure in place to help insure the continued subsistence use of sheep for residents of Arctic Village, Venetie, and the several other villages with customary and traditional use determinations for sheep in this area: Chalkyitsik, Fort Yukon, and Kaktovik. The Board said that this closure was based on ANILCA Section 815(3), which allows for a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands when necessary to continue Federal subsistence uses (OSM 2014b:3).

In 2014, WRFR14-01 was submitted by the State of Alaska requesting that the Board reconsider its actions on Proposal WP14-51, described above. In September 2015, the Board denied the request (OSM 2017). The Board determined that none of the claims in the request met the criteria to warrant further reconsideration, as set forth in 50 CFR Part 100.20.

In 2018, Proposal WP18-56 was submitted by Frank Bishop of Fairbanks requesting that the Board open the Arctic Village Sheep Management Area to the harvest of sheep by non-Federally qualified users. The Eastern Interior Council supported the proposal with modification to open the area north of Cane Creek only. The Council said that the only legitimate reasons under Title VIII of ANILCA to restrict or eliminate the use of a resource on Federal public lands by nonsubsistence users are conservation concerns and/or detrimental effects on satisfaction of subsistence needs. The Council recognized that the issue was of cultural concern and felt that “cultural or social issues” are not a legitimate reason to close the area under provisions of ANILCA. The closing of the Arctic Village Sheep Management Area to the harvest of sheep by nonsubsistence users only affects sheep hunters. All other types of visitors to the area, including hikers, wildlife photographers, and flight site-seers, have been allowed to use the area. The Council stated that they consider this issue to be a “political football” and were very disappointed to find out that it was not resolved and was on the table again. The Council felt that sheep conservation was very important and encouraged Federal and State governments to work together on this regulatory issue. The Council also suggested requiring a specially designed, respectful hunter education course for users who would hunt in this area. The Council felt that learning respect for other people’s uses and for the resource is very important, as well as learning and understanding other cultures. The Red Sheep Creek area is an important cultural place, and Alaska Native cultures value the world and wildlife very differently than Euroamerican culture. The importance of a certain area in the Alaska Native culture does not have to manifest itself in a substantial harvest. To alleviate some potential conservation concerns the Council modified the proposal to only open the area north of Cane Creek, including the Red Sheep Creek drainage (OSM 2018a).

The North Slope Council opposed Proposal WP18-56. The Council found this proposal alarming in that it could potentially take away a very important subsistence priority on Federal land that despite being small

in size, has been vital to the community of Arctic Village for generations and was very important to other rural communities in the region with cultural and traditional use of sheep in this area. The Council said it would be detrimental to subsistence users to open up the area to non-Federally qualified user hunting, and it was necessary to restrict these other uses in order to provide for subsistence needs. The Council highlighted that there is considerable amount of historical discussion, and the importance of this area to the local communities is well-supported. There was need for stability and for food security in these communities. The importance of protecting the subsistence opportunity in this area was well documented and recognized even through repeated proposal reviews. The historic and contemporary hunting patterns exist to provide food security to the community, and the closure had allowed for the continued traditional harvest of sheep. The Council also stressed that the concern was not only the harvest of sheep by non-Federally qualified users, but also the deflection of these sheep by nonresident hunting activity and plane access pushing sheep further and higher up into the mountains, displacing them away from the local community. The Council stated it had heard testimony from Arctic Village as well as Kaktovik in the past. It noted that hunters from Kaktovik hunted in this area when other animals were not available, and it was an important area because sheep have been reliably found around the natural mineral formations in that small area (OSM 2018a).

North Slope Council members spoke to the cultural importance of this area and that the sheep not only provided important subsistence food but were also considered medicinal, providing minerals and special nourishment for elders and helpful for recovery from illness. It noted that sheep become more important for survival food when caribou do not come around the community, and even if harvest is low in some years it is critical to maintain the population for food security when people need to shift harvest to more sheep in low caribou years. The Council stressed that the sheep population needs to be higher in order to provide for opening up the hunt and currently the census data is incomplete and unreliable. It was noted that even though non-Federally qualified users would be required to take a full-curl ram, the pressure of numerous hunters traveling into the area to harvest those rams would displace animals that locals would otherwise have been able to hunt. Additionally, the breeding impact of that lone, full-curl ram was important in a sheep population that was struggling, and when there are concerns about recruitment and stabilizing the population (OSM 2018a).

The Federal Subsistence Board rejected Proposal WP18-56. The Board stated that the Arctic Village Sheep Management Area needs to remain closed because of the significant religious and cultural importance of that area and to support the continuation of the subsistence uses by the area's residents. The Board also encouraged the State to come up with suggestions or a proposal to resolve this issue during the next wildlife regulatory cycle (OSM 2018b).

<b>WP20–50 Executive Summary</b>	
<b>General Description</b>	Proposal WP20-50 requests that Federal and State hunt areas, seasons, and harvest limits for moose in Unit 12 remainder be more closely aligned to reduce user confusion. <i>Submitted by: Eastern Interior Alaska Subsistence Regional Advisory Council.</i>
<b>Proposed Regulation</b>	<p><b>Unit 12—Moose</b></p> <p><i>Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and east of a line formed by the Pickerel Lake Winter trail from the Canadian border to Pickerel Lake—1 antlered bull by Federal registration permit</i> <span style="float: right;"><i>Aug. 24–Sep. 30. Nov. 1–Feb. 28.</i></span></p> <p><i>Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border—1 antlered bull</i> <span style="float: right;"><i>Aug. 24–Sep. 30.</i></span></p> <p><i>Unit 12, remainder that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife refuge—1 antlered bull by joint Federal/State registration permit only</i> <span style="float: right;"><i>Aug. 20–Sep. 20.</i></span></p> <p><i>Unit 12, that portion within the Tok River drainage upstream of a line from Peak 5885 at 63° 9.243 N. Lat., 143° 24.248 W. long., to MP 105 of the Glenn Highway (Tok Cutoff) at 63° 7.438 N. Lat., 143° 18.135 W. Long., then south along the Glenn Highway (Tok Cutoff) to the Little Tok River Bridge at mile 98.2; and within the Little Tok River drainage up-stream of the Little Tok River Bridge at mile 98.2 – 1 bull with spike-fork or 50-inch antlers or</i> <span style="float: right;"><i>Aug. 24–Aug. 28. Sept. 8–Sept. 17.</i></span></p>



WP20–50 Executive Summary	
	<p><i>antlers with 4 or more brow tines on at least one side.</i></p> <p><i>Unit 12, remainder – one bull</i> <span style="float: right;"><i>Aug. 24–Aug. 28.</i> <i>Sept. 8–Sept. 17.</i></span></p>
<b>OSM Conclusion</b>	<b>Support</b>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<p><b>Support with modification</b> to maintain the harvest limit and season throughout Unit 12, remainder and to create a separate hunt area for the RM291 permit hunt as described in the original proposal.</p> <p>The modified regulation should read:</p> <p style="text-align: center;"><b>Unit 12—Moose</b></p> <p><i>Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and east of a line formed by the Pickeral Lake Winter trail from the Canadian border to Pickeral Lake—1 antlered bull by Federal registration permit</i> <span style="float: right;"><i>Aug. 24–Sep. 30.</i> <i>Nov. 1–Feb. 28.</i></span></p> <p><i>Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickeral Lake to the Canadian border—1 antlered bull</i> <span style="float: right;"><i>Aug. 24–Sep. 30.</i></span></p> <p><i>Unit 12, <del>remainder</del> that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife refuge—1</i> <span style="float: right;"><i>Aug. 20–Sep. 20.</i></span></p>

WP20–50 Executive Summary	
	<p style="text-align: center;"><i>antlered bull by joint Federal/State registration permit only</i></p> <p style="text-align: center;"><b>Unit 12, remainder – 1 antlered bull</b>      <b>Aug. 20–Sept. 20.</b></p>
<p><b>Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation</b></p>	<p><b>Support with modification</b> to extend the fall season in Unit 12, remainder from Sept. 8-17 to Sept. 8-20 and to eliminate the Tok River drainage hunt area, which had antler restrictions.</p> <p>The modified regulation should read:</p> <p style="text-align: center;"><b>Unit 12—Moose</b></p> <p style="text-align: center;"><i>Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and east of a line formed by the Pickerel Lake Winter trail from the Canadian border to Pickerel Lake—1 antlered bull by Federal registration permit</i>      <i>Aug. 24–Sep. 30. Nov. 1–Feb. 28.</i></p> <p style="text-align: center;"><i>Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border—1 antlered bull</i>      <i>Aug. 24–Sep. 30.</i></p> <p style="text-align: center;"><b>Unit 12, remainder that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife refuge—1 antlered bull by joint Federal/State registration permit only</b>      <b>Aug. 20–Sept. 20.</b></p> <p style="text-align: center;"><b>Unit 12, remainder – one bull</b>      <b>Aug. 24–Aug. 28. Sept. 8–Sept. 20.</b></p>

<b>WP20–50 Executive Summary</b>	
<b>Interagency Staff Committee Comments</b>	<p>The Interagency Staff Committee (ISC) agrees with the intent of the proposal to reduce user confusion within a somewhat complex existing hunt structure for moose in Unit 12 remainder. Both the Southcentral and Eastern Interior Subsistence Regional Advisory Councils expressed concern that fully aligning State and Federal regulations would not provide a meaningful priority for Federally qualified subsistence users. These Councils indicated specific concern that alignment with State seasons would decrease the opportunity of Federally qualified subsistence users to harvest an antlered bull. Each offered a modification extending the proposed season length and removing antler restrictions.</p> <p>The Southcentral Council suggested maintaining the current Federal season for Unit 12 remainder—a continuous season between August 20<sup>th</sup> and September 20<sup>th</sup>. This provides four additional days prior to the State season, ten additional days in the middle of the State season, and three additional days at the end of the State season. The Eastern Interior Council suggested alignment with the split State season but with three additional days at the end of the State season.</p> <p>Given that moose populations appear to be stable and habitat is not found to be a limiting factor, the ISC agrees with the Southcentral Council modification to maintain the current Federal moose season in Unit 12 remainder to provide a meaningful priority for Federally qualified subsistence users. The ISC also supports a harvest limit of one bull, rather than one antlered bull, in Unit 12 remainder which includes the Tok River Drainage Management Area under Federal regulations. This harvest limit would align with the State’s resident hunt in Unit 12 remainder, and the RM291 permit would remain applicable in that portion within the Nabesna River drainage west of the east bank of the Nabesna River, upstream from the southern boundary of Tetlin National Wildlife Refuge.</p>
<b>ADF&amp;G Comments</b>	<b>Support</b>
<b>Written Public Comments</b>	<b>1 Support</b>

## STAFF ANALYSIS WP20-50

### ISSUES

Wildlife Proposal WP20-50, submitted by the Eastern Interior Alaska Subsistence Regional Advisory Council (Council), requests that Federal and State hunt areas, seasons, and harvest limits for moose in Unit 12 remainder be more closely aligned to reduce user confusion.

### DISCUSSION

The Council states that currently, Bureau of Land Management (BLM) lands in Unit 12 remainder have different seasons and antler restrictions under State and Federal regulations. The proponent affirms that because these BLM lands encompass small areas and are dispersed throughout the Unit 12 remainder hunt area, it is impractical for users to attempt to differentiate land ownership. The Council mentions that this proposal would further align Federal and State hunt areas, seasons, and harvest limits, which would reduce user confusion in the unit.

### Existing Federal Regulation

#### Unit 12—Moose

<i>Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and east of a line formed by the Pickerel Lake Winter trail from the Canadian border to Pickerel Lake—1 antlered bull by Federal registration permit</i>	<i>Aug. 24–Sep. 30. Nov. 1–Feb. 28</i>
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<i>Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border—1 antlered bull</i>	<i>Aug. 24–Sep. 30.</i>
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<i>Unit 12, remainder—1 antlered bull by joint Federal/State registration permit only</i>	<i>Aug. 20–Sep. 20.</i>
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### Proposed Federal Regulation

#### Unit 12—Moose

<i>Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and</i>	<i>Aug. 24–Sep. 30.</i>
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*east of a line formed by the Pickerel Lake Winter trail from the Canadian border to Pickerel Lake—1 antlered bull by Federal registration permit* Nov. 1–Feb. 28.

*Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border—1 antlered bull* Aug. 24–Sep. 30.

*Unit 12, remainder that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife refuge—1 antlered bull by joint Federal/State registration permit only* Aug. 20–Sep. 20.

*Unit 12, that portion within the Tok River drainage upstream of a line from Peak 5885 at 63° 9.243 N. Lat., 143° 24.248 W. long., to MP 105 of the Glenn Highway (Tok Cutoff) at 63° 7.438 N. Lat., 143° 18.135 W. Long., then south along the Glenn Highway (Tok Cutoff) to the Little Tok River Bridge at mile 98.2; and within the Little Tok River drainage up-stream of the Little Tok River Bridge at mile 98.2 – 1 bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.* Aug. 24–Aug. 28.  
Sept. 8–Sept. 17.

*Unit 12, remainder – one bull* Aug. 24–Aug. 28.  
Sept. 8–Sept. 17.

**Existing State Regulation**

**Unit 12—Moose**

*Unit 12, that portion including all drainages into the west bank of the Little Tok River, from its head-waters in Bear Valley at the intersection of the unit boundaries of Units 12 and 13* Residents—One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side Aug 24–Aug 28  
Sept 8–Sept 17

*to its junction with the Tok River, and all drainages into the south bank of the Tok River from its junction with the Little Tok River to the Tok Glacier*<sup>1</sup> Residents—One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side, by permit, available only by application.<sup>2</sup> Aug 24–Aug 28  
Sept 8–Sept 17

Sept 8–Sept. 17

	<i>Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side</i>	
<i>Unit 12, remainder of that portion within the Tok River drainage upstream of a line from Peak 5885 at 63° 9.243 N. Lat., 143° 24.248 W. long., to MP 105 of the Glenn Highway (Tok Cutoff) at 63° 7.438 N. Lat., 143° 18.135 W. Long., then south along the Glenn Highway (Tok Cutoff) to the Little Tok River Bridge at mile 98.2; and within the Little Tok River drainage up-stream of the Little Tok River Bridge at mile 98.2</i>	<i>Residents—One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side</i>	<i>Aug 24–Aug 28 Sept 8–Sept 17</i>
	<i>Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side</i>	<i>Sept 8–Sept 17</i>
<i>Unit 12, east of the Nabesna River and south of the winter trail running southeast from Pickerel Lake to the U.S./Canada border</i>	<i>Residents and Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side</i>	<i>Sept 1–Sept 30</i>
<i>Unit 12, that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife Refuge</i>	<i>Residents—One bull with spike-fork antlers or antlers with 3 or more brow tines on at least one side by permit available in person in Anchorage, Fairbanks, Glennallen, Palmer, Slana Ranger Station, and Tok beginning Aug 2 – Permit RM291</i>	<i>Aug 20–Sept 17</i>
	<i>Nonresidents—One bull with 50-inch antlers or antlers with 3 or more brow tines on at least one side by permit available in person in Anchorage, Fairbanks, Glennallen, Palmer, Slana Ranger</i>	<i>Aug 20–Sept 17</i>

*Station, and Tok beginning Aug 2 –  
Permit RM291*

<i>Unit 12, remainder – one bull</i>	<i>Residents—One bull</i>	<i>Aug 24–Aug 28 Sept 8–Sept 17</i>
	<i>Nonresidents—One bull with 50- inch antlers or antlers with 4 or more brow tines on at least one side</i>	<i>Sept 8–Sept 17</i>

<sup>1</sup> State regulations have two different Tok River drainage hunt areas and the proposal requests one Tok River drainage under Federal regulations. Although, on paper, this does not appear to align regulations, functionally it does align these regulations. This is because both of the Tok River drainage hunt areas under State regulations have the same harvest limit and seasons, with the exception that one of the Tok River drainage hunt areas includes the opportunity for a community subsistence permit hunt.

<sup>2</sup> This is a community subsistence permit hunt.

**Extent of Federal Public Lands**

Unit 12 is comprised of approximately 60% Federal public lands and consist of 48% National Park Service (NPS), 11% Fish and Wildlife Service (FWS), and 1% BLM managed lands (**Figure 1**).

**Note:** For more information pertaining to hunt area boundaries and Federal public lands located in the current Unit 12 remainder hunt area and the proposed hunt areas, please see the “Effects of the Proposal” section of this document.

**Customary and Traditional Use Determinations**

Rural residents of Units 11 north of the 62<sup>nd</sup> parallel, 12, 13A, 13B, 13C, 13D and residents of Chickaloon, Dot Lake, and Healy Lake have a customary and traditional use determination for moose in Unit 12 remainder.

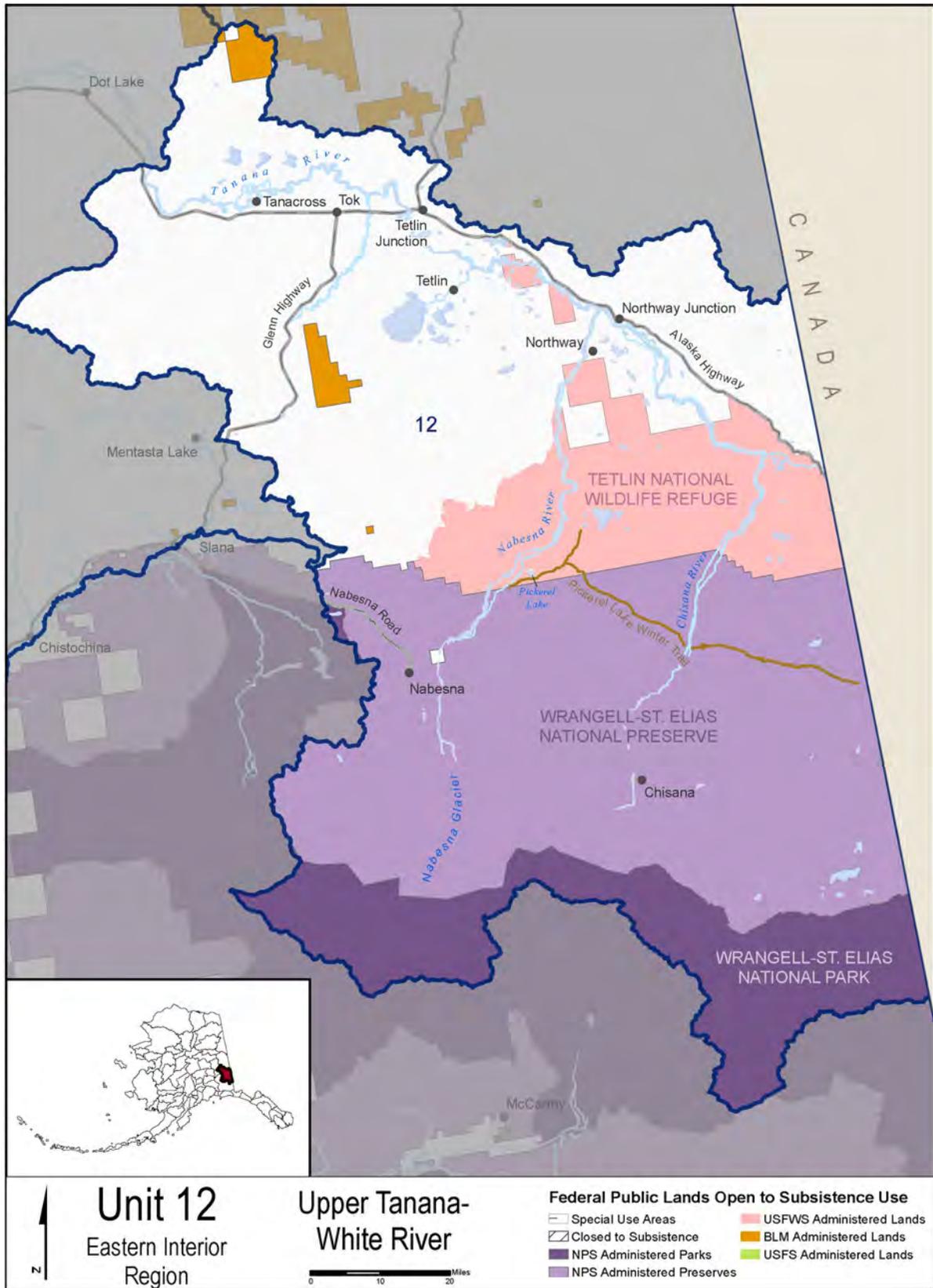


Figure 1. Federal public lands located within Unit 12.



## Regulatory History

Federal and State moose hunting regulations in Unit 12 have changed numerous times since 1989. Federal seasons and harvest limits have most often been changed in response to the State's establishment, modification, and/or subsequent discontinuance of spike-fork seasons. State and Federal regulations for the remote hunt area south of the Pickerel Lakes Winter Trail remained consistent until the Alaska Board of Game (BOG) added the unit-wide Aug. 20–28 spike-fork season in 1995, and the Federal Subsistence Board (Board) followed suit in 1996. In 1998, the BOG opened the Unit 12 spike-fork season on August 15 — five days earlier. In 1999, the Board aligned Federal regulations with the longer State season.

The BOG continued to modify moose regulations in Unit 12 throughout the 2000s. In March of 2000, the BOG adopted Proposal 38, submitted by the Alaska Department of Fish and Game (ADF&G), which changed the State's Unit 12 moose hunting season into a five day August season and a ten day September season. In March of 2012, the BOG adopted Proposal 186 with modification, to change the hunting seasons and harvest limit of moose in portions of Units 11 and 12. In Unit 12, this added a resident and nonresident bull (with antler restrictions) registration hunt (RM291) season from Aug. 20–Sept. 17 in a new hunt area located in the western portion of the Nabesna River Drainage (Wells 2014). In 2017, the BOG adopted Proposal 88, which clarified the antler-restricted moose hunting area within the Tok River drainage.

Federal regulations have also changed multiple times since 2000. Due to conservation concerns expressed by ADF&G and the Tetlin National Wildlife Refuge (NWR), the Council submitted Proposal WP01-41, requesting changes to the fall season dates (from Aug. 15–Aug. 28 and Sept. 1–Sept. 15 to Aug. 24–Aug. 28 and Sept. 8–Sept. 17) and removal of the August spike-fork season from the Tetlin NWR hunt area (FM1203 hunt area) portion of Unit 12. The Board adopted the proposed regulations for the 2001/02 regulatory year.

Throughout the subsequent years, the Board took action on many proposals concerning moose in Unit 12. In May 2003, the Board adopted Proposal WP03-45 with modification, establishing new dates for the fall moose season (from Aug. 15–Aug. 28 and Sept. 1–Sept. 30 to Aug. 24–Sept. 30) and paralleled State actions eliminating the spike-fork season, in that portion of Unit 12 east of the Nabesna River and the Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border (Unit 12 southern hunt area). The Board adopted Proposal WP06-59 in 2006 to clarify moose regulations in Unit 12. This proposal simplified the language for hunt area boundaries within the unit to reduce user confusion. In 2006, WP06-60 was also adopted with modification to eliminate the spike fork antler restriction in Unit 12 remainder during the Aug. 24–28 and Sept. 1–17 portion of the season while maintaining the restriction during the Aug. 15–23 season. In 2007, the Board adopted WP07-57 with modification, which changed the winter season dates (from Nov. 20–Nov. 30 to Nov. 20–Dec. 10) in the FM1203 hunt.

The Board addressed multiple proposals concerning moose in Unit 12 during the 2012 regulatory cycle. The Board adopted Proposal WP12-71/72 with modification to extend the winter season in the

Tetlin NWR hunt area portion of Unit 12 from Nov. 20–Dec. 10 to Nov.1–Feb. 28 and extend the fall season from Aug. 24–Aug. 28 and Sept. 8–Sept. 17 to Aug. 24–Sept. 20, while also maintaining the Federal registration permit requirement for the winter season. The same year, Proposal WP12-70/73 was also adopted with modification to align the Unit 11 and Unit 12 remainder moose seasons to Aug. 20–Sept. 20, and create a joint-State/Federal registration permit for a portion of Unit 11 (that portion draining into the east bank of the Copper River upstream from and including the Slana River drainage) and Unit 12 remainder. At the time this was adopted, this (and BOG Proposal 186) aligned the hunt areas in which the joint-State/Federal registration permit would be used. This is because, in 2012, NPS lands were the only Federal public lands located in Unit 12 remainder because the BLM lands currently located in this hunt area were still selected lands, at that time. Additionally in 2012, a Wildlife Special Action Request (WSA12-05) was submitted by Wrangell-St. Elias National Park and Preserve (WRST) to extend the moose season for the Batzulnetas Culture Camp (applies to both Unit 11 and Unit 12) by 31 days, changing the season end date from July 31 to August 31, 2012. This request was unanimously approved by the Board.

In 2018, the Board rejected Proposal WP18-55, which requested a longer harvest season for the Tetlin NWR hunt area. This proposal was opposed due to the low bull:cow ratios east of the Nabesna River.

## **Biological Background**

### Habitat

Moose rely on willow and shrub habitats for browsing and for cover from predators, and typically select areas with habitat heterogeneity (Maier et al. 2005) to meet their nutritional and shelter needs. Wildfire (the primary driver of boreal forest succession and habitat heterogeneity; Maier et al. 2005) frequency is forecast to increase as the Arctic climate warms, causing projected moose habitat to increase (Joly et al. 2012). Moose occur in greater densities in areas where fire has occurred within the past 11-30 years (Maier et al. 2005). Due to changes in climate, connectivity between moose populations is expected to increase as populations expand to make use of habitat expansion (Schmidt et al. 2008, Tape et al. 2016).

In Unit 12, moose typically inhabit areas below 4,500 feet with extensive river margin (Maier et al. 2005, Wells 2014, 2016). Approximately 6,000 mi<sup>2</sup> is categorized as suitable moose habitat within the unit, with approximately 5,250 mi<sup>2</sup> available in the winter and 6,572 mi<sup>2</sup> available in the summer (Wells 2014, 2016, 2018a). The southern and western portions of Unit 12 include more high elevation mountainous areas and lowland valleys that are dominated by spruce forest that transition to shrub communities (Wells 2018a). Past research has shown that the Tok River drainage contains important habitat for moose in Unit 12 and that the lower Tok River valley, specifically, serves as an important wintering area for the species (Wells 2018a).

Ecosystems can be modified by moose foraging (Maier et al. 2005, Schmidt et al. 2009) and thus, habitat and browse surveys are an important component of wildlife monitoring and management. In Unit 12, browse surveys have been conducted periodically since the 1970s (Wells 2014). Although fire suppression has led to many areas of potentially good moose habitat becoming dominated by

spruce forest, browse surveys have shown that use of preferred browse species in the unit is low relative to availability (Wells 2014). During these surveys, it was noted that early successional species of browse were used far more than species in undisturbed areas. Habitat was not found to be a limiting factor on the moose population in Unit 12, and habitat enhancement projects were conducted over the last ten years to maintain quality habitat (Wells 2014, 2018a).

### Population Management

State moose management goals for Unit 12 include protecting the moose population in conjunction with enhancing ecosystem function, maintaining subsistence use of moose, maximizing moose hunting opportunities, and maximizing nonconsumptive use opportunities for moose (Wells 2014, 2016, 2018a). The State management objective for moose in Unit 12 is to maintain a post hunt ratio of 40 bulls:100 cows east of the Nabesna River, and a bull:cow ratio of 25:100 in the remainder portion of the unit (Wells 2014, 2016, 2018a).

Tetlin NWR began collaborating with ADF&G to collect moose population data in Unit 12, shortly after the refuge was established in 1981 (Collins et al. 2005: 3). Similarly, the NPS also collaborates and assists with moose survey efforts throughout Unit 12 (Wells 2018a). An estimate of 4,300–5,600 moose was determined in 2008 using fall Geospatial Population Estimation (GSPE) survey data extrapolated to unsurveyed areas (ADF&G 2017a). This is a slight increase from the 2003 estimate of 2,900–5,100 moose (ADF&G 2017a). Moose densities vary widely throughout the unit, ranging from approximately 0.03 moose/mi<sup>2</sup> in Northway Flats to >2 moose/mi<sup>2</sup> by the north side of the Nutzotin Mountains, in the Chisana survey area (**Figure 2**; ADF&G 2017a).

Region and habitat specific surveys have been conducted since the 2008 population survey (**Table 1**), with unit-wide estimates being extrapolated from regional data. The Tetlin NWR portion (included in the southeastern Unit 12 survey area; **Figure 2**) of Unit 12 was surveyed in November of 2012 along with the northern and northwestern sections (excluding WRST) of the unit. GSPE surveys conducted in these areas produced an estimate of 4,773 moose (Wells 2014). This data was then extrapolated to the rest of the 6,000 mi<sup>2</sup> of estimated moose habitat within Unit 12 to develop an observable moose population estimate of 4,883–6,571 (0.8-1.1 moose/mi<sup>2</sup>) (Wells 2014). Similarly, data collected throughout the unit from 2010–2014 was summarized to develop a unit-wide observable November population estimate of 4,492–6,444 moose (Wells 2016, 2018a). However, it should be noted, that this should be considered a rough estimate of the overall Unit 12 moose population.

Surveys are only conducted in each survey area approximately every three or four years, which can make it difficult to determine and respond to population trends in a timely manner (Wells 2016, 2018a). In 2017, a population survey was conducted in the Northwestern survey area in Unit 12. This survey produced a population estimate of 4,081 (1.47 moose/mi<sup>2</sup>). In 2018, a survey was completed in the Northwestern Unit 12 any-bull analysis area, which is a subsection of the Northwestern survey area. This survey produced a lower moose population estimate, for this specific area, than previous surveys, but overall the moose population in this area appeared to be stable (ADF&G 2019a; **Table 1**). Moose densities appear to have been relatively stable within the

Southeastern and Northwestern survey areas since 2008, and are expected to remain stable throughout most of the unit (Wells 2016, ADF&G 2017a).

Current estimated unit-wide bull:cow ratios are below the management goal of 40:100 east of the Nabesna River and above the management goal of 25:100 in the remainder of the unit (Wells 2016, 2018b pers. comm., ADF&G 2017a). A majority of the moose harvest takes place near the highway system and the Tok, Little Tok, and Tanana Rivers due to easy access. In these heavily hunted areas, the bull:cow ratio dropped in the past, but this ratio has improved since antler restrictions were put in place in portions of the unit in 1993(ADF&G 2017a).

The most recent comprehensive composition surveys took place in November 2017 and included the portion of Unit 12 east of the Nabesna River and the Unit 12 Northwestern survey area. These surveys produced an estimate of 28 bulls:100 cows east of the Nabesna River, which is below the objective of 40 bulls:100 cows, and is much lower than the 2012 estimate of 46 bulls:100 cows (ADF&G 2018, Wells 2018b pers. comm.). These surveys also produced an estimate of 27 bulls: 100 cows in the Northwestern survey area, which is slightly above the objective of 25 bulls: 100 cows (ADF&G 2018, Wells 2018b pers. comm., **Table 2**).

A scaled down composition survey took place in a condensed Northwestern survey area, referred to as the Northwestern Unit 12 any bull analysis area, in 2018. This survey produced a bull:cow ratio of 30 bulls: 100 cows, which is above the State objective, and is very similar to estimates from the larger Northwestern area surveyed in 2012 and 2017 (**Table 3**; ADF&G 2019a). Composition appeared to remain stable since 2012 in the Northwestern survey area, although it may be important to track bull:cow ratios in this portion of Unit 12 in the future to ensure that bull:cow ratios remain above current objectives (ADF&G 2018, 2019a).

**Table 1.** Unit 12 moose population estimates from 2003-2017. The sightability correction factor (SCF) used for 2003-2006 was a factor of 1.25 and a factor of 1.20 for the years 2008–2012 (Wells 2014). No SCF was available for the Chisana survey area in 2014 or for the Northwestern survey in 2017 (Wells 2016, ADF&G 2018).

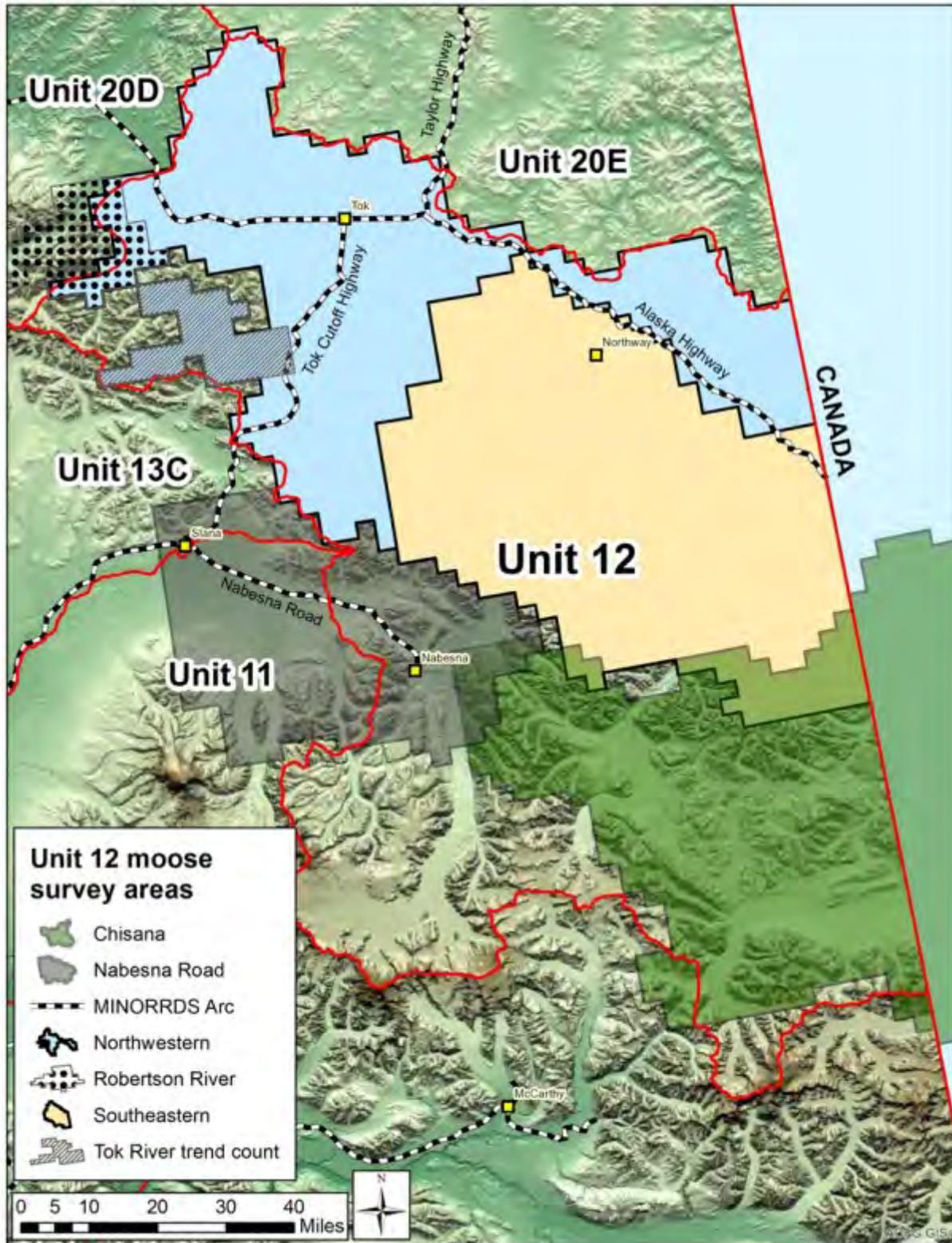
Survey Area	Year	Population Estimate (±90% CI)	Population Estimate with SCF	Moose/mi <sup>2</sup> w/SCF
Northwestern Unit 12	2003	3,064 (±35%)	3,830	1.35
	2005	2,129 (±15%)	2,661	0.94
	2006	2,317 (±18%)	2,896	1.07
	2008	3,225 (±18%)	3,870	1.43
	2012	3,058 (±12%)	3,670	1.36
	2017	4,081 (±20%)	---	1.47
Southeastern Unit 12	2003	1,317 (±19%)	1,646	0.56
	2004	1,272 (±20%)	1,590	0.54
	2008	1,843 (±20%)	2,212	0.75
	2012	1,613 (±17%)	1,936	0.66
Nabesna Road	2011	1,272 (±17%)	1,526	0.95
Chisana Alaska Portion	2014	673 (±23%)	---	---

**Table 2.** Fall aerial moose composition counts for Unit 12 from 2003-2017 (Wells 2014, 2016, 2018a, ADF&G 2018, Germain and Berg 2018). Hash-marks signify that these data were not available from this survey.

Survey Area	Year	Bulls:100 Cows	Calves:100 Cows	Percent Calves	Calves Observed	Adults Observed
Northwestern Unit 12	2003	25	32	19	111	464
	2005	22	30	18	69	315
	2006	37	41	21	185	688
	2008	46	35	20	218	899
	2012	29	27	16	133	650
	2017	27	29	---	---	---
Southeastern Unit 12	2003	89	33	16	89	475
	2004	70	48	20	89	351
	2008	62	24	13	81	552
	2012	52	18	9	65	634
	2017	35	25	16	64	395
Nabesna Road	2011	34	27	14	75	476
Chisana Alaska Portion	2014	50	11	---	---	---

**Table 3.** Moose surveys for the Northwestern Unit 12 any bull analysis area moose population and composition estimates from fall surveys from 2008-2018 (ADF&G 2019a).

Year	Population Estimate (±90% CI)	Moose/mi <sup>2</sup>	Bulls:100 Cows	Calves:100 Cows
2008	2,016 (±18%)	0.96	50	34
2012	1,965 (±19%)	0.93	29	27
2017	2,534 (±19%)	1.20	28	32
2018	1,822 (±16%)	0.86	30	36



**Figure 2.** Survey areas used by ADF&G for moose surveys in Unit 12. Map is from Wells (2016, 2018a).

## Harvest History

The State sustainable harvest rate for moose in Unit 12 is 3–4% (Wells 2014, 2018a). The Tok River drainage receives a considerable amount of the overall moose harvest in Unit 12 (Wells 2018a). Most of the unit is difficult to access, which leads to those areas near roads and rivers receiving higher harvest pressure than the rest of the unit. In Unit 12, an average of 130 moose have been harvested annually over the last 13 years, with 99 moose being harvested in 2018, the last year for which data are available (Table 4 and Figure 3; ADF&G 2017b, 2019b). This falls within the State sustainable harvest rate for the unit. Only one cow moose was reported harvested during the fall and winter seasons in this 13 year period, due to regulatory restrictions that only allow bull harvest and include antler restrictions, although an average of four cow moose were taken annually between 2011 and 2014 for use in potlatches (Wells 2016). In 2018, approximately 32% of the moose harvest was taken by users residing in Unit 12 and 35% was taken by all local users who have a customary and traditional use determination for portions of Unit 12 (ADF&G 2017b, 2019b).

Since 2012, an average of seven of the moose harvested in Unit 12 were harvested under the RM291 joint Federal/State registration permit, and an average of 121 moose were harvested under the general hunt, using a harvest ticket (**Table 5, Table 6**; ADF&G 2019b). These are the two main options for users harvesting moose in Unit 12 remainder (although the general hunt also covers the hunt area east of the Nabesna River and south of the Pickerel Lake winter trail, as well as the Unit 12 FM1203 hunt area if harvesting under State regulations). In 2018, only six moose were harvested under the RM291 permit in Unit 12 (ADF&G 2019b). Four of these moose were harvested by Federally qualified subsistence users and two were harvested by residents of Wasilla and Peters Creek (ADF&G 2019b). Conversely, 93 moose were harvested in Unit 12 under the general hunt in 2018, and only 31 of those moose were harvested by Federally qualified subsistence users (ADF&G 2019b).

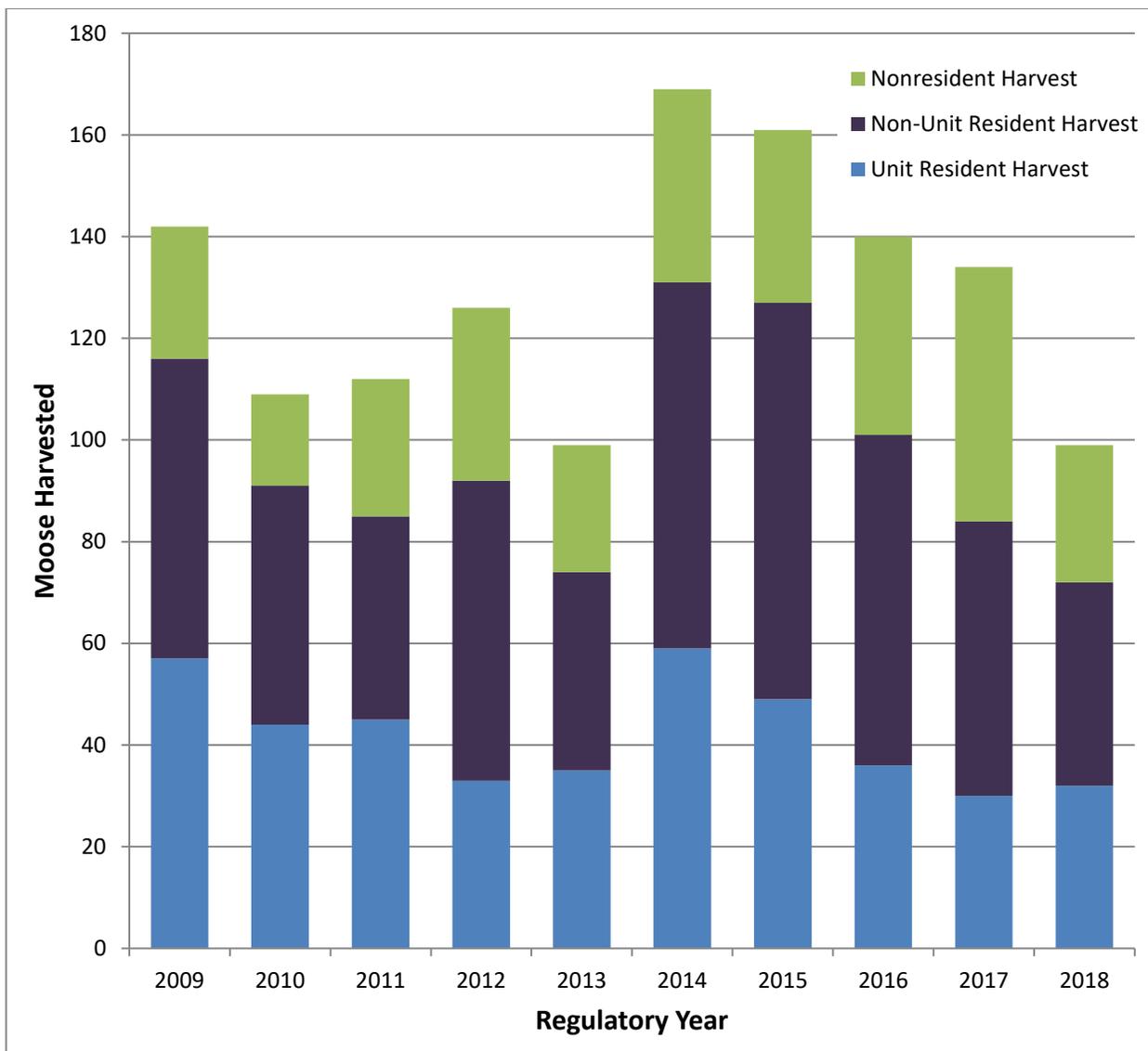
Harvest tickets are mandatory within Unit 12 when State or Federal registration permits are not required. These tickets require users to submit a report to track harvest throughout the unit. To increase the reporting rate for harvest tickets, ADF&G sends reminder letters to users who did not initially report their harvest (Wells 2014, 2018a). The State also conducts community household surveys in local communities, which helps assess unreported harvest.

A community household survey was completed in Unit 12 for 2011 in Tok. Based on this survey, 48 moose were recorded as being harvested by Tok residents (ADF&G 2011). This is greater than the overall harvest recorded (45 moose) in harvest reports for all local users in Unit 12 for 2011. Due to only 26% of Tok households being surveyed, the State used a conversion factor to develop an estimated harvest of 187 moose taken by Tok residents in 2011, some of which may not have been harvested in Unit 12 (ADF&G 2011, Holen et al. 2012).

**Table 4.** Reported moose harvest in Unit 12 according to the ADF&G harvest reporting database (ADF&G 2019b).

Year	Species	Unit Resident Harvest	Non-Unit Resident Harvest	Total Resident Harvest	Nonresident Harvest	Unknown Residency Harvest	Total Harvest	Bull Harvest	Cow Harvest	Unknown Gender
2006	Moose	45	44	89	26	2	117	117	0	0
2007	Moose	52	46	98	24	0	122	121	0	1
2008	Moose	55	53	108	49	0	157	157	0	0
2009	Moose	57	59	116	26	3	145	142	1	2
2010	Moose	44	47	91	18	0	109	109	0	0
2011	Moose	45	40	85	27	0	112	112	0	0
2012	Moose	33	59	92	34	1	127	124	0	3
2013	Moose	35	39	74	25	1	100	99	0	1
2014	Moose	59	72	131	38	0	169	169	0	0
2015	Moose	49	78	127	34	2	163	162	0	1
2016	Moose	36	65	101	39	0	140	139	0	1
2017	Moose	30	54	84	50	0	134	131	0	3
2018	Moose	32	40	72	27	0	99	95	0	4
<b>Total:</b>		<b>572</b>	<b>696</b>	<b>1268</b>	<b>317</b>	<b>9</b>	<b>1694</b>	<b>1677</b>	<b>1</b>	<b>16</b>
<b>Average:</b>		<b>44</b>	<b>54</b>	<b>98</b>	<b>32</b>	<b>1</b>	<b>130</b>	<b>129</b>	<b>0</b>	<b>1</b>





**Figure 3.** Reported harvest of moose in all of Unit 12, broken down by user type (ADF&G 2019b).

**Table 5.** Reported harvest under the RM291 joint Federal and State moose harvest permit in Unit 12 (ADF&G 2019b).

Year	Unsuccessful RM291 Hunters	Successful RM291 Hunters	Bulls Harvested	Cows Harvested	Unknown Gender
2012	50	7	6	0	1
2013	63	9	9	0	0
2014	85	9	9	0	0
2015	48	11	11	0	0
2016	58	6	6	0	0
2017	55	4	4	0	0
2018	49	6	6	0	0

**Table 6.** Reported harvest for the general moose hunt in Unit 12 (ADF&G 2019b).

Year	Unsuccessful Hunters	Successful Hunters	Bulls Harvested	Cows Harvested	Unknown Gender
2011	365	112	112	0	0
2012	401	120	118	0	2
2013	462	91	90	0	1
2014	416	160	160	0	0
2015	444	152	151	0	1
2016	412	134	133	0	1
2017	483	130	127	0	3
2018	390	93	89	0	4

### Effects of the Proposal

The Unit 12 remainder hunt area, which would be split into multiple hunt areas if this proposal is adopted, is currently comprised of 25% Federal public lands (**Figure 4**). This includes 23% NPS lands and 2% BLM lands. This proposal would divide this hunt area into three separate hunt areas. These new hunt areas would include the Unit 12 RM291 permit hunt area, the Tok River drainage hunt area, and the new Unit 12 remainder hunt area (**Figure 5**). National Park Service lands would comprise 99% of lands in the new RM291 permit hunt area, where regulations would stay the same. Bureau of Land Management lands would comprise 3% of the new Tok River drainage hunt area. The new Unit 12 remainder hunt area would be comprised of 2% BLM lands.

Harvest limit and season changes that would be implemented throughout the new hunt areas may appear to be more complicated than current Federal regulations, but the proposed changes are what a majority of local users already follow due to the large percentage of non-Federal lands located in this area. Although this proposal would introduce antler restrictions and a shorter season in the new Tok River drainage hunt area under Federal regulations, it may not have a noticeable effect on Federally qualified subsistence users, due to the small amount of Federal public lands in this hunt area. Similarly, moose populations would most likely not be impacted by the more lenient harvest limit restrictions in the new Unit 12 remainder hunt area, due to the small amount of Federal public lands in this hunt area, and the proposed shorter harvest season. This would also limit the area where the RM291 permit can be used under Federal regulations, to align with the State's RM291 permit hunt area, and would leave the seasons for the RM291 hunt area misaligned under State and Federal regulations. Overall, these modifications would simplify regulations by further aligning with current State harvest limits, seasons, and hunt areas and, therefore, would allow users to reference landscape features as hunt area boundaries, rather than trying to determine the boundary between Federal and non-Federal lands in this area.

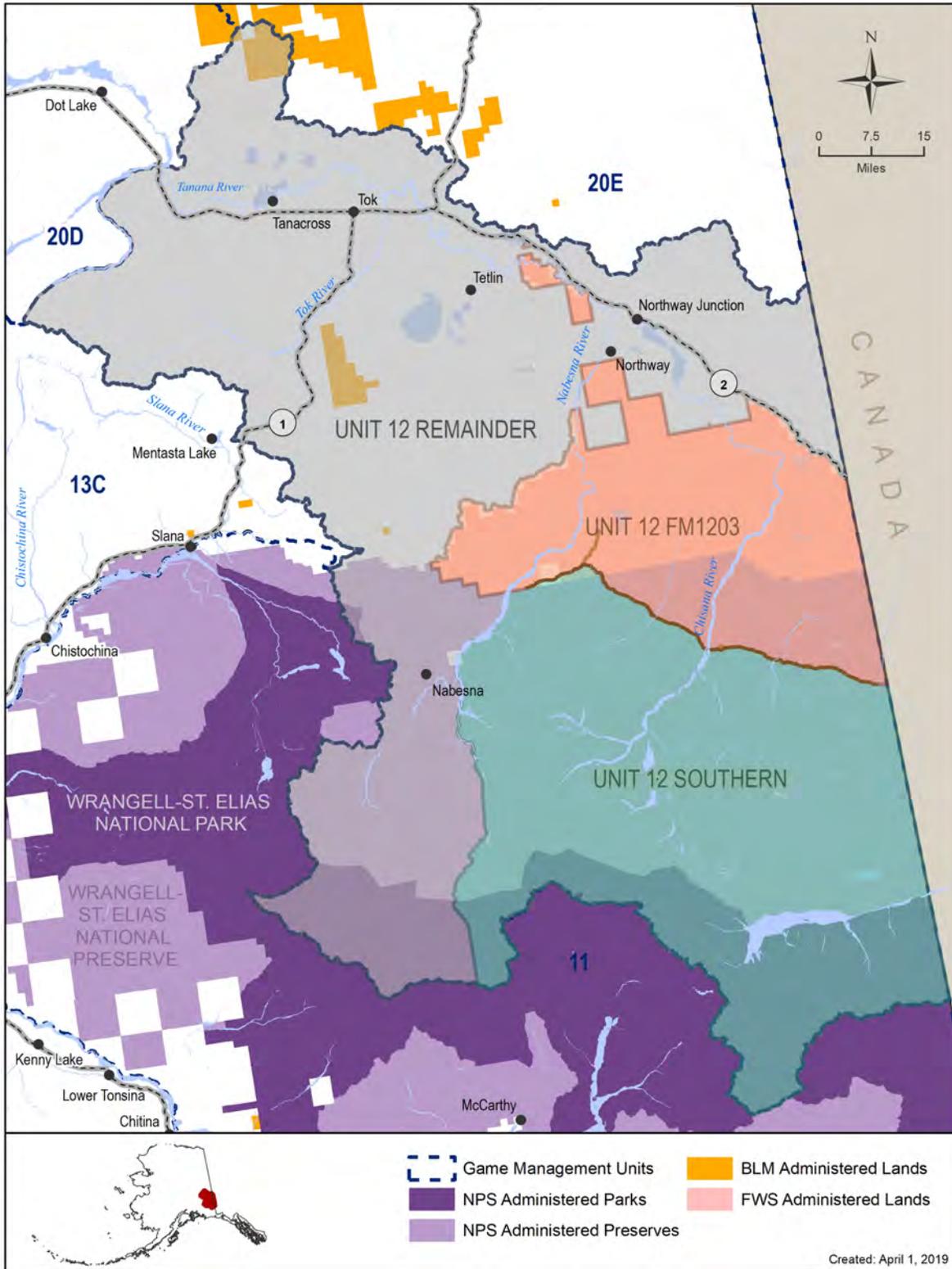


Figure 4. Current moose hunt areas located in Unit 12.

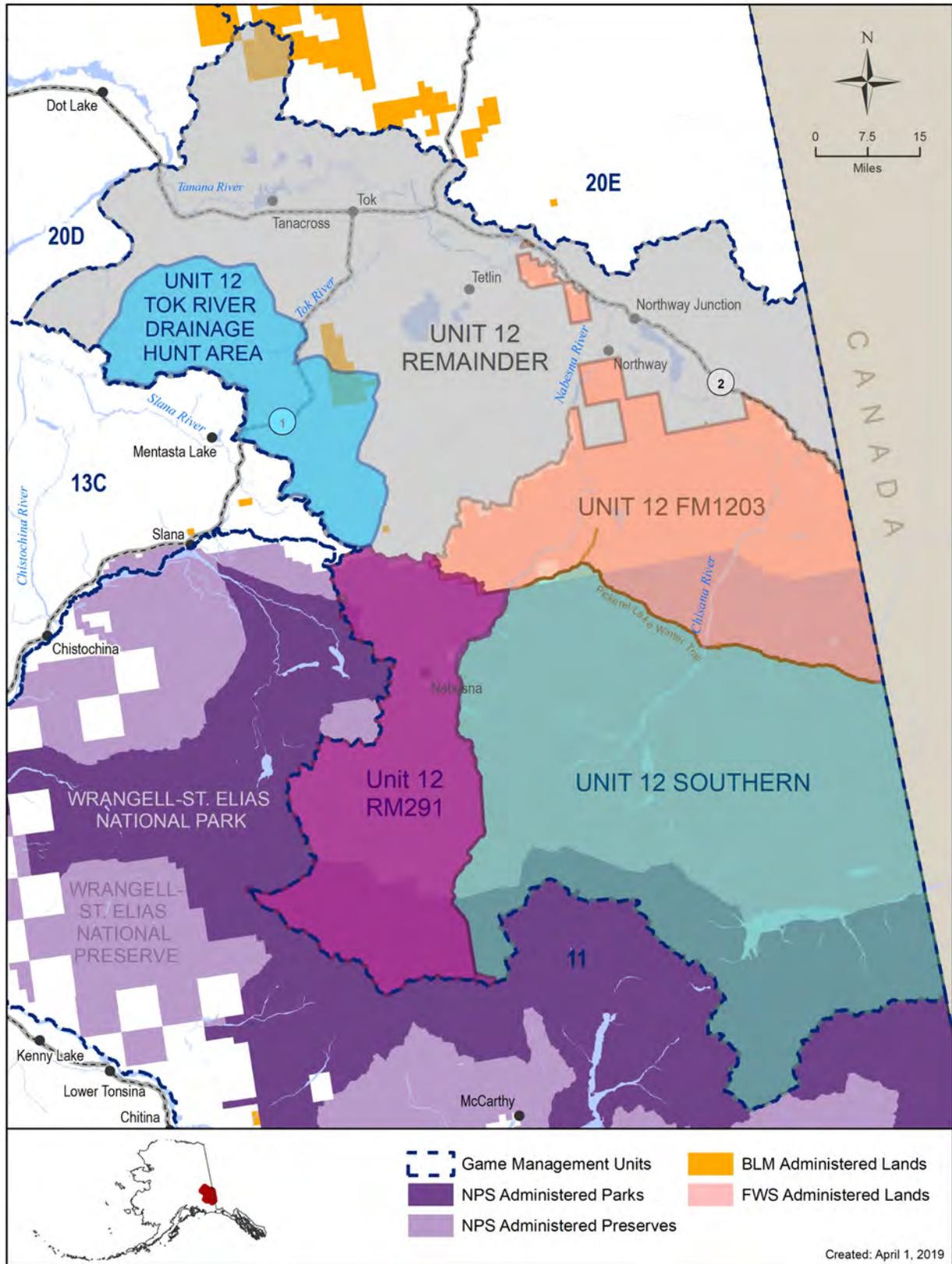


Figure 5. Proposed moose hunt areas in Unit 12.

## OSM CONCLUSION

**Support** Proposal WP20-50.

### Justification

This proposal would simplify regulations in a manner that should not negatively impact moose populations in this area. Moose populations in Unit 12 remainder appear to be stable and habitat is not found to be a limiting factor. Adopting this regulatory change would simplify regulations for Federally qualified subsistence users by aligning Federal and State regulations (except for the State and Federal seasons in the RM291 permit hunt area). This proposal would limit the area where an RM291 permit would be necessary, which would reduce complexity for those users harvesting moose in the northern portion of the current Unit 12 remainder, while keeping the permit requirements in place in the area that contains a majority of Federal lands. This proposal would also add antler restrictions in the Tok River drainage, which would help protect moose populations in the area, while simplifying the harvest limit in the new Unit 12 remainder to “one bull”, which would limit complexity in a hunt area with very limited Federal lands. It is unlikely that harvest will increase dramatically by modifying the harvest limits, seasons, and hunt area boundaries as proposed, but it will simplify regulations for users in the area and allow users to reference landscape features for hunt area boundaries.

### LITERATURE CITED

- ADF&G. 2011. Community subsistence information system: Unit 12. ADF&G, Division of Subsistence, Anchorage, AK. <http://www.adfg.alaska.gov/sb/CSIS/> Retrieved: May 3, 2017.
- ADF&G. 2017a. Board of Game Interior/Northeast Region Meeting Materials. February 17-25, 2017. Fairbanks, AK.
- ADF&G. 2017b. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: May 1, 2017.
- ADF&G. 2018. Memorandum. 2017 Northwestern Unit 12 moose survey. Tok, AK. 6 pp.
- ADF&G. 2019a. Memorandum. 2018 Northwestern Unit 12 moose survey. Tok, AK. 7 pp.
- ADF&G. 2019b. General harvest reports. <https://secure.wildlife.alaska.gov/index.cfm>. Retrieved: July 19, 2019.
- Bayless, S. 2017. Tetlin National Wildlife Refuge Manager. Personal communication: email. USFWS. Tok, AK.
- Collins, G.H., W.N. Johnson, H.K. Timm, and M.R. Cebrian. 2005. Moose population survey, 2004: Tetlin National Wildlife Refuge. USFWS. Tok, AK. 15 pp.
- Germain and Berg. 2018. Moose population survey in the Upper Tanana Valley, Game Management Unit 12, Alaska, 2017: Tetlin National Wildlife Refuge. USFWS. Tok, AK. 16 pp.

Holen, D., S.M. Hazell, and D.S. Koster, editors. 2012. Subsistence harvests and use of wild resources by communities in the eastern Interior of Alaska, 2011. ADF&G, Division of Subsistence Technical Paper No. 372, Anchorage, AK.

Joly, K., P.A. Duffy, and T.S. Rupp. 2012. Simulating the effects of climate change on fire regimes in Arctic biomes: implications for caribou and moose habitat. *Ecosphere* 3(5): 36.

Maier, J.A.K., J.M. Ver hoef, A.D McGuire, R.T. Bowyer, L. Saperstein, and J.A. Maier. 2005. Distribution and density of moose in relation to landscape characteristics: effects of scale. *Canadian Journal of Forest Research* 35: 2233-2243.

Schmidt, J.I., K.J. Hundertmark, R.T. Bowyer, and K.G. McCracken. 2009. Population structure and genetic diversity of moose in Alaska. *Journal of Heredity* 100(2):170-180.

Stout, G. W. 2010. Unit 21D moose. Pages 477–521 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. ADF&G, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 1.0, Juneau, AK.

Tape, K.D., Gustine, D.D., Ruess, R.W., Adams, L.G. and Clark, J.A., 2016. Range Expansion of Moose in Arctic Alaska Linked to Warming and Increased Shrub Habitat. *PLoS ONE* 11(4): 1-12.

USFWS. 2017. Federal Subsistence Permit System. <https://ifw7asm-orcldb.fws.gov>. Retrieved: May 2, 2017.

Wells, J.J. 2014. Unit 12 moose. Chapter 11, pages 11-1 through 11-17 in P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011-30 June 2013. ADF&G, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.

Wells, J.J. 2016. In prep. Moose management report and plan, Game Management Unit 12: Report period 1 July 2010–30 June 015 and plan period 1 July 2015–30 June 2020. ADF&G, Division of Wildlife Conservation, Species Management Report and Plan, Juneau, AK.

Wells, J.J. 2018a. Moose management report and plan, Game Management Unit 12: Report period 1 July 2010–30 June 2015 and plan period 1 July 2015–30 June 2020. ADF&G, Division of Wildlife Conservation, Species Management Report and Plan, Juneau, AK.

Wells, J.J. 2018b. Wildlife biologist. Personal Communication: email. ADF&G. Tok, AK.

## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Southcentral Alaska Subsistence Regional Advisory Council

**Support WP20-50 with modification** to maintain the harvest limit and season throughout Unit 12, remainder and to create a separate hunt area for the RM291 permit hunt as described in the original proposal. The Council believed it should support subsistence preference on Federal public lands, per ANILCA. This proposal affects Southcentral subsistence users who have C&T for Unit 12 and who hunt in this area. The Council stated that this would provide for a subsistence priority and assure that opportunities for local users are not limited. There was a concern that there would be a reduced harvest opportunity for local people (antler restriction for federally qualified users), making it harder to harvest an antlered bull. The proposal was found to be confusing for the user which led to the Council proposing its modification. The Council stated that this would provide for a subsistence priority and would assure that opportunities for local users are not limited.

The modified regulation should read:

#### **Unit 12—Moose**

- |  |   |
|--|---|
| <i>Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and east of a line formed by the Pickeral Lake Winter trail from the Canadian border to Pickerel Lake—1 antlered bull by Federal registration permit</i> | <i>Aug. 24–Sep. 30.<br/>Nov. 1–Feb. 28.</i> |
| <i>Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border—1 antlered bull</i>  | <i>Aug. 24–Sep. 30.</i>                     |
| <i>Unit 12, <del>remainder</del> that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife refuge—1 antlered bull by joint Federal/State registration permit only</i>                              | <i>Aug. 20–Sep. 20.</i>                     |
| <i>Unit 12, remainder – 1 antlered bull</i>  | <i>Aug. 20–Sept. 20.</i>                    |

**Eastern Interior Alaska Subsistence Regional Advisory Council**

**Support WP20-50 with modification** to extend the fall season in Unit 12, remainder from Sept. 8-17 to Sept. 8-20 and to eliminate the Tok River drainage hunt area, which had antler restrictions. The Council said that this modification will provide a meaningful opportunity for Federally qualified subsistence users. According to traditional ecological knowledge, bulls become more active later in the season, and having a Federal season that is longer than the State season and allowing the harvest of bulls with no antler restrictions would provide additional opportunity for the local Federally qualified subsistence users.

The modified regulation should read:

**Unit 12—Moose**

*Unit 12, that portion within the Tetlin National Wildlife Refuge and those lands within the Wrangell-St. Elias National Preserve north and east of a line formed by the Pickerel Lake Winter trail from the Canadian border to Pickerel Lake—1 antlered bull by Federal registration permit* *Aug. 24–Sep. 30.  
Nov. 1–Feb. 28.*

*Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border—1 antlered bull* *Aug. 24–Sep. 30.*

*Unit 12, remainder that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of Tetlin National Wildlife refuge—1 antlered bull by joint Federal/State registration permit only* *Aug. 20–Sep. 20.*

*Unit 12, remainder – one bull* *Aug. 24–Aug. 28.  
Sept. 8–Sept. 20.*

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee (ISC) agrees with the intent of the proposal to reduce user confusion within a somewhat complex existing hunt structure for moose in Unit 12 remainder. Both the Southcentral and Eastern Interior Subsistence Regional Advisory Councils expressed concern that fully aligning State and Federal regulations would not provide a meaningful priority for Federally qualified subsistence users. These Councils indicated specific concern that alignment with State seasons would



decrease the opportunity of Federally qualified subsistence users to harvest an antlered bull. Each offered a modification extending the proposed season length and removing antler restrictions.

The Southcentral Council suggested maintaining the current Federal season for Unit 12 remainder—a continuous season between August 20<sup>th</sup> and September 20<sup>th</sup>. This provides four additional days prior to the State season, ten additional days in the middle of the State season, and three additional days at the end of the State season. The Eastern Interior Council suggested alignment with the split State season but with three additional days at the end of the State season.

Given that moose populations appear to be stable and habitat is not found to be a limiting factor, the ISC agrees with the Southcentral Council modification to maintain the current Federal moose season in Unit 12 remainder to provide a meaningful priority for Federally qualified subsistence users. The ISC also supports a harvest limit of one bull, rather than one antlered bull, in Unit 12 remainder which includes the Tok River Drainage Management Area under Federal regulations. This harvest limit would align with the State’s resident hunt in Unit 12 remainder, and the RM291 permit would remain applicable in that portion within the Nabesna River drainage west of the east bank of the Nabesna River, upstream from the southern boundary of Tetlin National Wildlife Refuge.

#### **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

**Wildlife Proposal WP20-50:** This proposal, submitted by the Eastern Interior Alaska Subsistence Regional Advisory Council, would align federal and state moose hunting seasons on a portion of federal lands in Unit 12.

**Introduction:** The existing federal moose regulation for Unit 12 Remainder is 1 antlered bull during August 20–September 20 by joint state/federal registration permit (RM291). However, for the joint state/federal permit, the state portion of the permit is limited to that portion of Unit 12 within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of the Tetlin National Wildlife Refuge (Figure 1, area C), while the Unit 12 Remainder portion under the federal moose regulations includes areas outside of the area described for the state registration permit. This proposal would align the federal and state hunt areas for the registration permit and would align federal and state moose hunting areas, seasons, and bag limits for portions of Unit 12 outside of the registration permit hunt area.

**Impact on Subsistence Users:** This proposal would result in no change, and thus no impact, in the federal subsistence opportunity within the registration permit area. However, this would result in a reduction in federal subsistence opportunity in the Unit 12 Remainder area outside of the registration permit area, although the reduction in opportunity would be small because of the limited amounts of federal land.

**Impact on Other Users:** The proposed change is not expected to increase harvest, so it will have no impact on other users.

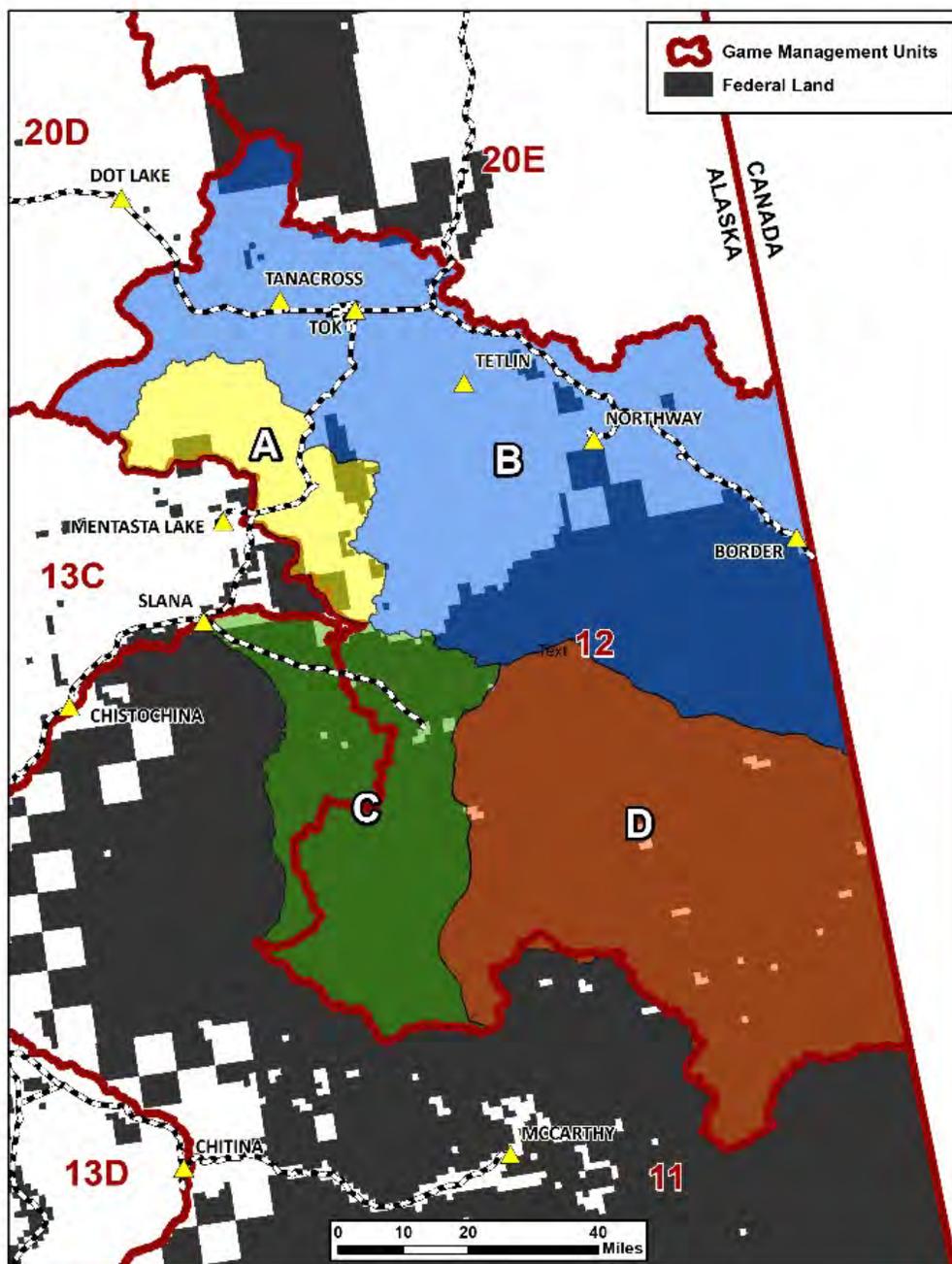


Figure 1: Federal lands and Alaska state resident moose hunting seasons and bag limits in Game Management Unit 12. Alaska state resident hunting seasons and bag limits by area are as follows: A) one bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side (general harvest ticket and/or community subsistence harvest ticket), B) one bull (general harvest ticket), C) one bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side (registration permit RM291), and D) one bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side (general harvest ticket). The federal seasons and areas that would be impacted by proposal WP20-50 are mostly contained within area A and the northwestern portion of area B.

**Opportunity Provided by State:**

**State customary and traditional use findings:** The Alaska Board of Game has made a positive customary and traditional use finding for moose in Unit 12.

**Amounts Reasonably Necessary for Subsistence (ANS):** Alaska state law requires the Board of Game to determine the amount of the harvestable portion of a game population that is reasonably necessary for customary and traditional uses. The board does this by reviewing extensive harvest data from all Alaskans, collected either by ADF&G or from other sources.

ANS provides the board with guidelines on typical numbers of animals harvested for customary and traditional uses under normal conditions. Hunting regulations can be re-examined if harvests for customary and traditional uses consistently fall below ANS. This may be for many reasons: hunting regulations, changes in animal abundance or distribution, or changes in human use patterns, just to name a few.

The ANS for moose in Unit 12 is 60–70 animals. The season and bag limit for moose within the portion of Unit 12 that would be impacted by this proposal is:

<u>Unit/Area</u>	<u>Bag Limit</u>	<u>Open Season (Permit/Hunt #)</u>	
		<u>Resident<sup>a</sup></u>	<u>Nonresident</u>
Remainder of that portion in the Tok River drainage upstream of a line from Peak 5885 at 63° 9.243 N. lat., 143° 24.248 W. long., to	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.	Aug. 24–28 (HT)	
		Sept. 8–17 (HT)	
Milepost 105 of the Tok Cutoff Highway at 63° 7.438' N. lat., 143° 18.135 W. long., then South along the Tok Cutoff Highway to the Little Tok River Bridge at Milepost 98.2; and within the Little Tok River drainage upstream of the Little Tok River Bridge at Milepost 98.2	One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.		Sept. 8–17 (HT)

That portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of	One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.	Aug. 20–Sept. 17 (RM291)	
Tetlin National Wildlife Refuge	One bull with 50-inch antlers or antlers with 3 or more brow tines on at least one side.		Aug. 20–Sept. 17 (RM291)
Unit 12 remainder	One bull	Aug. 24–28 (HT) Sept. 8–17 (HT)	
	One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.		Sept. 8–17 (HT)

<sup>a</sup> Subsistence and General Hunts.

Special instructions: None

**Conservation Issues:** No biological concerns were identified with this proposal since it is not expected to increase or change current harvest levels.

**Enforcement Issues:** Alignment of state and federal regulations would make it less confusing on the user and easier for enforcement to enforce the two sets of regulations.

**Recommendation:** The department **SUPPORTS** this proposal because it will reduce hunter confusion via an alignment of state and federal moose hunting seasons and bag limits in the portions of Unit 12 that have limited amounts of federal land. If the Southcentral RAC modifications were passed, the additional 14 days of hunting opportunity (and lack of antler-restrictions) for federally-qualified subsistence users prior to the start of the September portion of the state season could result in few if any bulls being left available for harvest by non-federally qualified users in September.

## WRITTEN PUBLIC COMMENTS

June 5, 2019

Federal Subsistence Board  
 ATTN: Theo Matuskowitz  
 Office of Subsistence Management  
 1011 E. Tudor Road  
 Anchorage, AK 99503-6199

Dear Mr. Matuskowitz:

Customary and Traditional Committee is hereby pleased to submit comments on 2020-2022 Federal Wildlife Proposals.

We oppose WP20-19 which intends to change Federal Joint Elder/Youth permit hunt (FS1103) regulation on Unit 11 federal public lands. We also oppose changing (FS1204) Unit 12 Joint Elder/Youth Hunt regulation on Unit 12 federal public lands.

An Ahtna Elder proposed this joint elder and youth hunt for sheep in Unit 11 on federal public lands so that Ahtna's customary and traditional use and practice of harvesting, preserving and uses of sheep would be carried on. We, the Ahtna People wish to respect our late Elder from Tazlina Village to continue this sheep hunt in GMU 11 and GMU 12 to pass down C&T knowledge to the younger generation.

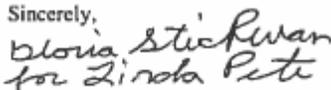
We support WP20-50, a housekeeping proposal to clean up description in Unit 12 unencumbered federal lands. Public members will have a precise description of federal lands that is surrounded by State lands. Federal subsistence hunters will have a better understanding where federal public lands are within Game Management Unit 12.

We oppose WP20-51 to allow the community of Slana to have a positive customary and traditional use (C&T) determination for sheep in Unit 12.

The community of Slana should prove in their own words that they have customary and traditional uses of sheep in GMU 12. The Ahtna People had to prove to the state and federal management systems that we have customary and traditional uses of fish and wildlife. We believe that C&T uses by all communities should be in sync with Ahtna customary and traditional uses of fish and wildlife in order to gain positive C&T use of the resources.

We support WCR20-42 to keep Unit 12 Caribou Wildlife Closure to the Non-federal qualified hunters. Only the federally qualified subsistence users should be able to continue to hunt Chisana caribou herd. The population of the Chisana caribou herd cannot sustain a hunt to include Non-federally qualified hunters. Keep the Unit 12 Caribou wildlife closure status quo.

Sincerely,



Linda Pete, Chair

Page 1 of 1

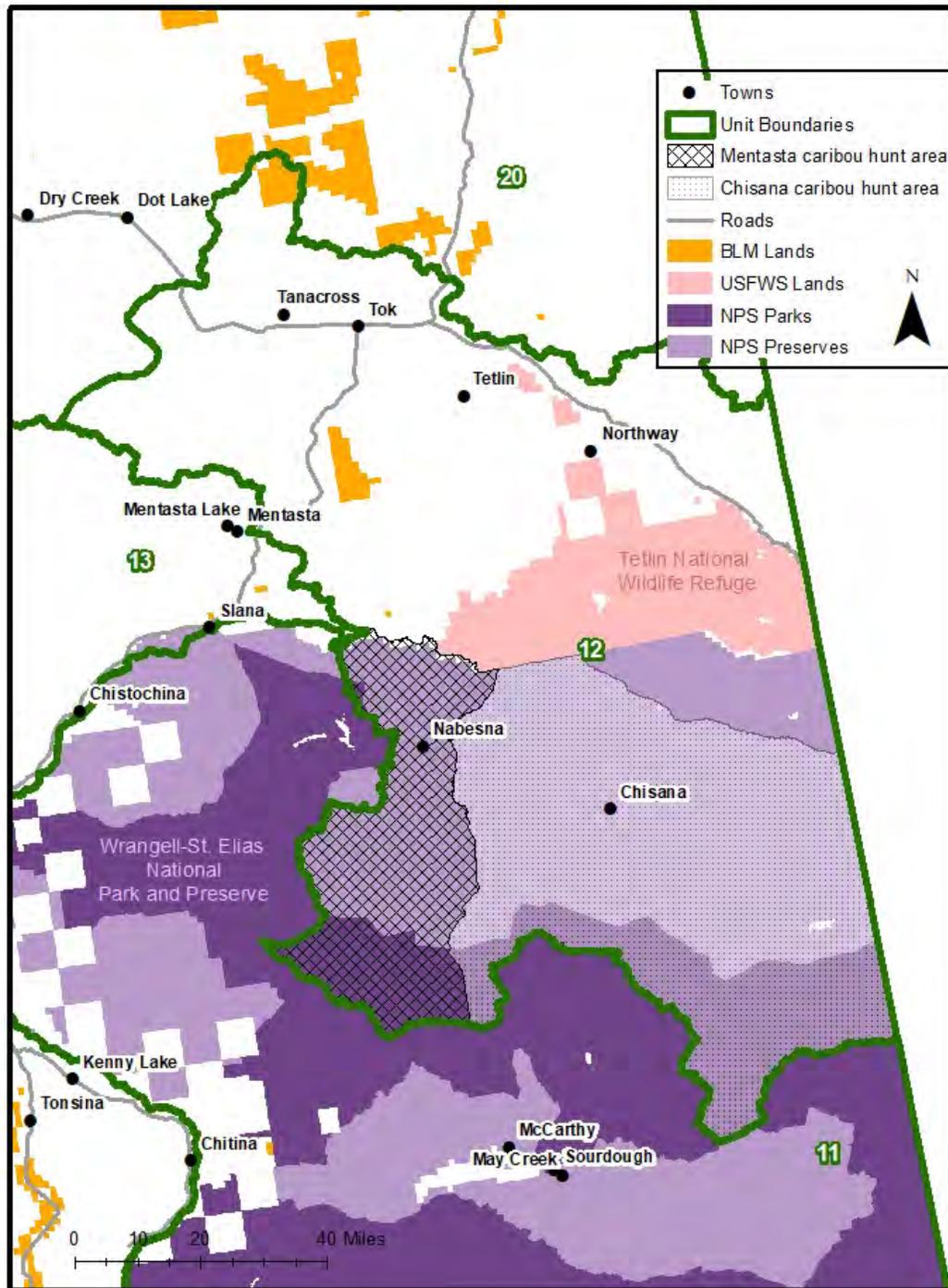
## WCR20-42 Executive Summary

<b>General Description</b>	Closure Review WCR20-42 reviews closures to caribou hunting in portions of Unit 12. The closure targeting the Mentasta Caribou Herd is closed to all users. The closure targeting the Chisana Caribou Herd is closed to caribou hunting, except by Federally qualified subsistence users.
<b>Current Regulation</b>	<p><b>Unit 12–Caribou</b></p> <p><i>Unit 12—that portion within the Wrangell-St. Elias National Park that lies west of the Nabesna River and the Nabesna Glacier. All hunting of caribou is prohibited on Federal public lands.</i>      <i>No Federal open season</i></p> <p><i>Unit 12—that portion east of the Nabesna River and the Nabesna Glacier and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border — 1 bull by Federal registration permit only.</i>      <i>Aug. 10-Sept. 30</i></p> <p><i>Federal public lands are closed to the harvest of caribou except by Federally qualified subsistence users hunting under these regulations.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>Southcentral Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>

<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

### FEDERAL WILDLIFE CLOSURE REVIEW WCR20-42

Closure Location: Unit 12 (Map 1)—Caribou



**Map 1.** Federal closure for caribou in Unit 12. The cross-hatched area targets the Mentasta caribou herd and is closed to all users. The stippled area targets the Chisana caribou herd and is closed to non-Federally qualified users.



## Current Federal Regulation

### Unit 12–Caribou

*Unit 12—that portion within the Wrangell-St. Elias National Park that lies west of the Nabesna River and the Nabesna Glacier. All hunting of caribou is prohibited on Federal public lands.* No Federal open season

*Unit 12—that portion east of the Nabesna River and the Nabesna Glacier and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border — 1 bull by Federal registration permit only.* Aug. 10-Sept. 30

*Federal public lands are closed to the harvest of caribou except by Federally qualified subsistence users hunting under these regulations.*

**Closure Dates:** Year-round

## Current State Regulation

### Unit 12 remainder–Caribou

*Residents and Nonresidents*

*No open season*

## Regulatory Year Initiated:

### Mentasta Caribou Herd - 1993

The original closure was for: *that portion west of the Nabesna River within the drainages of Jack Creek, Platinum Creek, and Totschunda Creek - The taking of caribou is prohibited on public lands.*

### Chisana Caribou Herd - 1994

The original closure was for: *that portion lying east of the Nabesna River and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border - The taking of caribou is prohibited on public lands.*

## Regulatory History

### Mentasta Caribou Herd (MCH)

In 1991, Federal subsistence hunting regulations for caribou in Unit 12 remainder were one bull from Sept. 1-20 and one caribou during a to-be-announced winter season for residents of Tetlin and

Northway only as they had a customary and traditional use determination for the Nelchina Caribou Herd (NCH) in Unit 12 (OSM 1991a). Dates for the September season have remained unchanged since then, however, some of the area has been closed to the harvest of caribou due to conservation concerns.

Also in 1991, the Federal Subsistence Board (Board) approved Special Actions S91-05 and S91-08. Special Action S91-05 opened the winter caribou hunt in Unit 12 remainder on Oct. 28 (OSM 1991b) and S91-08 closed it on Dec. 9 after subsistence needs had been met (OSM 1991c).

In 1992, the Board rejected Proposals P92-105 (OSM 1992a) and P92-106 (OSM 1992b) due to biological concerns. Proposal P92-105 requested abolishing the to-be-announced winter caribou season in Unit 12 remainder and Proposal P92-106 requested lengthening the fall caribou season in Unit 12 remainder from Sept. 1-20 to Aug. 20-Sept. 20. The Board determined that there was no biological reason to eliminate the winter hunt and that extending the September hunt could impact the declining MCH and jeopardize the more popular winter hunt.

Also in 1992, the Board adopted Proposal P92-107, which changed the harvest limit for the winter caribou season in Unit 12 remainder from one caribou to one bull in order to protect the declining MCH, which mixes with the NCH in Unit 12 during the winter (OSM 1992c).

In 1993, the Board adopted Proposal P93-034 to close the area west of the Nabesna River within the drainages of Jack Creek, Platinum Creek, and Totschunda Creek to caribou hunting to protect the declining Mentasta Caribou Herd population (OSM 1993). There has been no Federal open season since 1993 for Unit 12 west of the Nabesna River and Nabesna Glacier.

#### Chisana Caribou Herd (CCH)

Because of its small population size, the CCH has never supported a large harvest. Between 1989 and 1994 under State regulations, the harvest limit was 1 bull caribou and the annual harvest ranged between 16–34 animals (Gross 2005). The Federal subsistence regulation from 1989 to 1994 was one bull, Sept. 1- 20. By 1991, due to declining population numbers, the harvest was reduced through voluntary compliance by guides and local hunters. In 1994, the bull portion of the population declined below the ADF&G's management objective and hunting of Chisana caribou was closed by both the Alaska Board of Game (BOG) and the Federal Subsistence Board (Board). There was no legal harvest of CCH in Alaska between 1994 and 2011.

In 1989 and 1990 the reported harvest of Chisana caribou in the Yukon was 18 and 11 animals and in Alaska was 34 and 34 animals, respectively (Gross 2005). Gross (2005) also reported that the estimated unreported harvest of Chisana caribou between 1989 through 2002 ranged from 1 – 20 in the Yukon and 1-3 animals in Alaska each year. After 2001, Yukon First Nation members voluntarily stopped harvesting Chisana caribou and there continues to be no legal harvest of Chisana caribou in the Yukon.

In 1994, the caribou hunt areas in Unit 12 were split from two areas: 1) Unit 12- that portion lying west of the Nabesna River within the drainages of Jack, Platinum, and Totschunda creeks and 2) Unit 12- remainder, to three hunt areas: 1) Unit 12 west of the Nabesna River within the drainages of Jack, Platinum, and Totschunda creeks, 2) Unit 12- that portion lying east of the Nabesna River and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border, and 3) Unit 12- remainder (OSM 1994). In 1994, the Board adopted Proposal P94-71, which closed the area east of the Nabesna River to the Canadian border to the harvest of caribou (OSM 1994). The closure for the Mentasta Caribou Herd remained in effect for the area west of the Nabesna River, and the area east of Nabesna River was closed primarily to protect the declining Chisana Caribou Herd (CSH), resulting in the following hunt areas:

*Unit 12 – That portion west of the Nabesna River within the drainages of Jack Creek, Platinum Creek, and Totschunda Creek.*

*Unit 12 – That portion lying east of the Nabesna River and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border.*

In 2000, the areas previously designated west and east of the Nabesna River were combined into one area in Proposal P00-59 (OSM 2000):

*Unit 12 – That portion of the Nabesna River drainage within the Wrangell-St. Elias National Park and Preserve and all Federal lands south of the Winter Trail running southeast from Pickerel Lake to the Canadian border.*

In 2010, the BOG approved a hunt for residents and nonresidents from September 1 through 30 on the CCH for one bull by drawing permit. The hunt was authorized in the portion of Unit 12 within the White River drainage and that portion within the Chisana River drainage upstream from the winter trail that runs southeast from Pickerel Lake to the Canadian Border. However, on Federal public lands the Federal closure supersedes the existing State regulation and thus Federal public lands effectively remained closed to hunting of the CCH under State regulations at this time.

The entire area remained closed to caribou hunting in the Federal subsistence regulations until 2012, when the areas west and east of the Nabesna River were once again split out into two areas (OSM 2012a).

*Unit 12 – that portion within the Wrangell-St-Elias National Park that lies west of the Nabesna River and the Nabesna Glacier.*

*Unit 12 – that portion east of the Nabesna River and the Nabesna Glacier and south of the Winter Trail running southeast from Pickerel Lake to the Canadian border.*

In 2012, the combined proposals WP10-104 and WP12-65/66 were addressed by the Board (OSM 2012a). Proposal WP10-104 requested establishment of a joint Federal/State draw permit for the CCH in Unit 12 with a harvest limit of one bull and a season of Sept. 1–Sept. 30. Proposal WP12-65

requested establishment of a Federal registration hunt for the CCH with a harvest limit of one bull and a season of Aug. 10 – Sept. 30, while WP12-66 requested establishment of a Federal registration hunt with a harvest limit of one bull and a season of Sept. 1–Sept. 30, with the hunt restricted to Federal public lands in Unit 12 east of the Nabesna River and the Nabesna Glacier. OSM noted in its justification for WP12-66 that restricting the hunt west of the Nabesna River and Nabesna Glacier would protect the MCH with minimal impact to subsistence hunters wanting to harvest caribou from the CCH (OSM 2012a). The Board took no action on WP10-104 and WP12-65 and adopted WP12-66 with modification to list the communities allowed to harvest caribou in Unit 12, that portion east of the Nabesna River and Nabesna Glacier, and lands south of the Winter Trail running southeast from Pickerel Lake to the Canadian border: Northway, Mentasta, Tetlin, Tok, Chisana, and Chistochina. The authority to manage the Federal hunt was granted by delegation of authority to the Wrangell-St. Elias National Park and Preserve Superintendent. The CCH was considered stable in 2010 and the bull:cow and calf:cow ratios were above the minimums set by the Draft Management Plan, which was finalized in the fall of 2011 (OSM 2012a, Chisana Caribou Herd Working Group 2012).

The Board adopted Proposal WP12-68, submitted by the Cheesh'na Tribal Council, which requested the residents of Chistochina be added to the Unit 12 caribou customary and traditional use determination (OSM 2012b).

In 2014, the Board adopted Proposal WP14-15/45 to expand the list of communities eligible to participate in the caribou hunt from the CCH to also include residents of the hunt area and those living in Unit 12 along the Nabesna Road (mileposts 25-46) (OSM 2014a).

In 2014, the Board also adopted Proposal WP14-49 with modification to change the fall season dates from Sept. 1-Sept. 30 to Aug. 10-Sept. 30, so that the bulls would be less likely to be in the rut, and thus, ensure the quality of the meat (OSM 2014b). In 2016, the Board adopted Proposal WP16-60 opening Federal public lands east of the Nabesna Glacier and south of the Winter Trail running from Pickerel Lake to the Canadian border to all Federally qualified users hunting under these regulations (OSM 2016).

Federal public lands comprise approximately 61% of Unit 12 and consists of 48% National Park Service (NPS) managed lands, 11% U.S. Fish and Wildlife Service managed lands (FWS), and 2% Bureau of Land Management (BLM) managed lands (**Map 1**).

**Closure last reviewed:**

Mentasta Caribou Herd: 1993 – P93-034

Chisana Caribou Herd: 2014 – WP16-60

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

Section §815(3) of ANILCA states:

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and park monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law;...*

The justifications given for the original closure for the MCH and CCH was:

Mentasta Caribou Herd

**Council Recommendation for Original Closure:**

The Federal Subsistence Board's April 1993 decision, which closed Federal public lands to caribou hunting in Unit 11 and a portion of Unit 12, occurred prior to the establishment of the Federal Subsistence Regional Advisory Councils.

**State Recommendation for Original Closure:**

ADF&G supported the closure because the State season for Mentasta caribou in this area had been closed for several years (OSM 1993).

From 1985-1992, the MCH decreased from a peak population of 3,100 caribou to 1,300 and the fall calf:cow ratio had fallen below the threshold level required to balance the mortality of the adults ( $\approx 15\%$ ) during the previous 2-3 years. The near total reproductive failure in 1991 and 1992 resulted in the population age structure to be skewed towards the older age classes, which generally results in delayed recovery. Another factor that may have contributed to the population declines was the relatively poor lichen conditions noted throughout a large portion of their range.

Although the fall harvest is relatively easy to track, the MCH is subject to unknown harvest when it mixes with the NCH during the winter. In addition, the extent of the illegal harvest is unknown, but considering the number of small rural communities they pass through during migration, it is likely high. Thus, the potential for over-harvest of this small herd is high. Most subsistence users also have access to the much larger neighboring NCH.

Thus, closing the subsistence hunt on the MCH was necessary to assure the herd's continued viability.

Chisana Caribou Herd:

**Council Recommendation for Original Closure:**

The Eastern Interior Council concluded that the Chisana caribou herd should be protected from all hunting to stop the population decrease (OSM 1994). The justification for their decision was based on the following:

- Over the past 3 years (1990-1993) the CCH population had declined from 1850 to 900 animals.

- The fall calf:cow ratio was below that which is required to balance the natural mortality of adults ( $\approx 15\%$ ) for at least 4 consecutive years
- The potential for overharvest of this small herd was considered high since they cross international boundaries and are subject to an unknown amount of unreported harvest.
- This proposal (Wildlife Proposal 14-49) is intended to protect the continued viability of the CCH and allow them to recover more quickly.

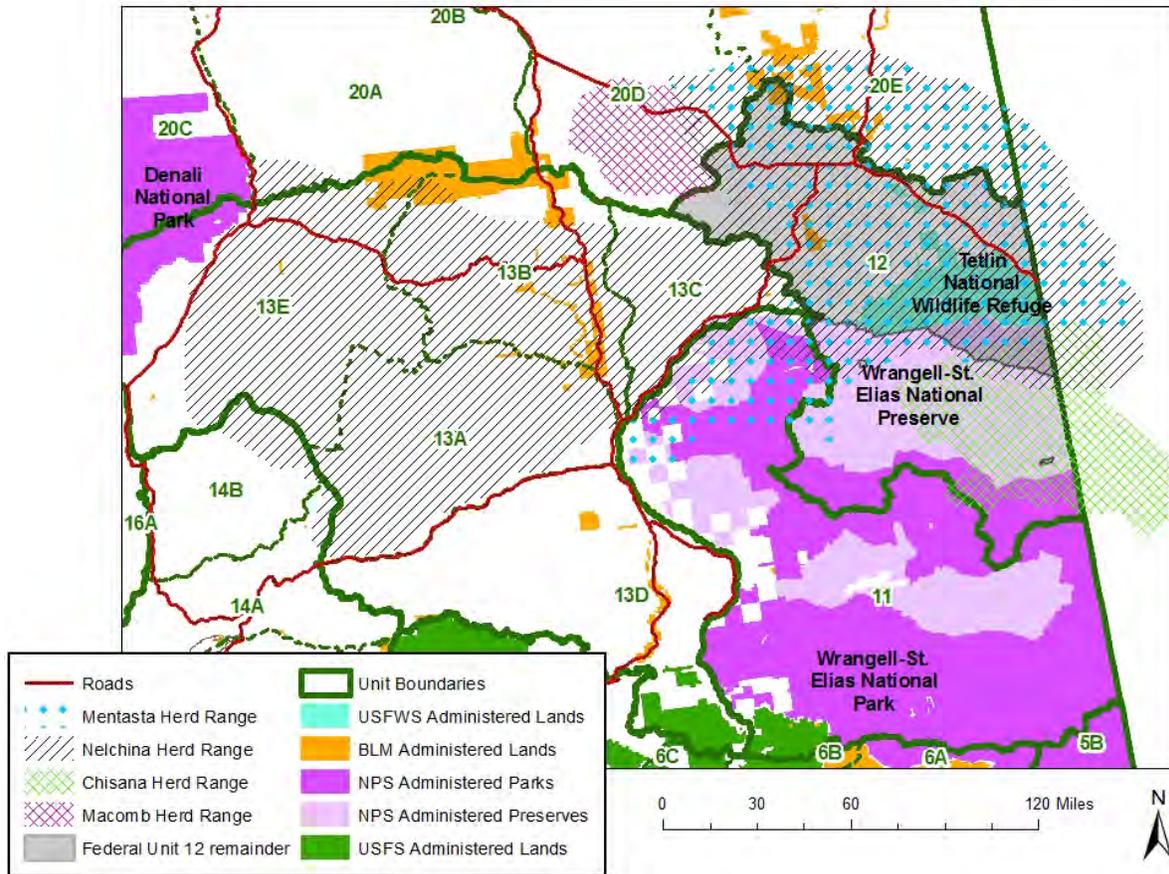
**State Recommendation for Original Closure:**

The Alaska Department of Fish and Game (ADF&G) and the Yukon Department of Natural Resources supported closure to caribou hunting of the CCH until calf:cow and bull:cow ratios increased.

**Biological Background**

The ranges of the Mentasta, Chisana, and Nelchina caribou herds overlap in Unit 12 (**Map 2**). As of July 2018 the NCH is declining and is at the lower end of the State population objectives (ADF&G 2018, Hatcher 2018, pers. comm.). The MCH occurs primarily in the northern portion of Unit 12 (Unit 12-remainder) and the northern portion of Unit 11 within Wrangell-St. Elias National Park and Preserve (WRST). While the NCH and MCH are considered distinct herds because females calve in separate areas, the herds mix during some breeding seasons, resulting in male-mediated gene flow (Roffler et al. 2012). Therefore, the Nelchina and Mentasta herds function as a genetic metapopulation, although Nelchina and Mentasta cows have discrete mitochondrial DNA (Roffler et al. 2012). However, since there are no closures associated with the NCH, the NCH is not considered further in this analysis.

The CCH is a shared population between Alaska and Southern Yukon, Canada. Since this international herd ranges across multiple jurisdictions, multiple land agencies are involved and responsible for the management of the CCH. In Alaska the CCH occurs primarily on Federal public lands within the WRST, although there is some overlap with Tetlin National Wildlife Refuge (TNWR) and adjacent State lands. In the Yukon, the CCH ranges within the boundaries of Kluane Wildlife Sanctuary and Asi Keyi Natural Environmental Park. Since the overlap between the CCH and MCH is minimal, each population will be considered separately in this analysis. The Management Plan for the Chisana Caribou Herd (Chisana Caribou Herd Working Group 2012) is currently being reviewed and updated.



**Map 2.** Ranges of the Nelchina, Mentasta, Macomb, and Chisana caribou herds.

### Mentasta Caribou Herd

The MCH, the primary herd within Unit 11, calves and summers within the upper Copper River Basin and the northern and western flanks of the Wrangell Mountains (OSM 2018). Barten et al. (2001) found that parturient female caribou from the Mentasta herd used birth sites that lowered the risk of predation and traded-off forage abundance for increased safety. Minimizing risk of predation of neonates may result in ungulates selecting habitats that compromise their ability to optimize foraging (Bowyer et al. 1999, Barten et al. 2001). Female Mentasta herd caribou used sites at higher elevations with sub-optimal forage, presumably to avoid predators, and, when <10 day old neonates were lost, females descended from the higher elevations to join other nonparturient females. In addition, females with neonates >10 days old also descended to join the larger group of females, which coincides with moving out of the riskiest period of predation on ungulate neonates (Adams et al. 1995a).

The calving grounds for the MCH are located in northern Unit 11 within WRST (MCH Mgmt. Plan 1995, **Map 2**). The MCH disperses across Unit 12 and southern Unit 20E in winter, often intermingling with the NCH (MCH Mgmt. Plan 1995).

In 1995, Federal and State biologists completed the Mentasta Herd Cooperative Management Plan, which specifies the following management objectives (MCH Mgmt. Plan 1995):

- To the extent possible, allow for human harvest that will have minimal effects on the production, composition, and abundance of Mentasta caribou.
- To provide harvest priority to Federally-eligible subsistence users and to allow State authorized hunting to occur whenever possible.
- To monitor the herd demographics and harvest such that all pertinent data on the health of the herd are collected and disseminated to all agencies and citizens concerned with their management.

The MCH Management Plan (1995) states “an annual fall harvest quota will be established between 15 and 20 percent of the previous 2-year mean calf recruitment as long as such recruitment is at least 80 calves. In addition, at population levels below 2,000 the harvest limit will be limited to “bulls only” and will be closed if the 2-year mean bull:cow ratio drops below 35 bulls:100 cows.” When fall annual quotas are greater than 70 both non-Federally and Federally qualified users are allowed to hunt the MCH during the fall season. When the fall annual quota falls below 70, only federally qualified users are allowed to hunt the MCH during the fall season. Below 30, a Section 804 analysis will determine the allocation of permits among the Federally qualified subsistence users. Since 2000, managers at the TNWR have used a 20:1 mixing ratio of Nelchina caribou to Mentasta caribou as the minimum threshold for considering winter season openings. The TNWR monitors the location and movement from aerial surveys of radio-collared caribou of the MCH and NCH. This information is used to determine a reliable mixing ratio with the NCH. In 2016 and 2017 the number of active collars in the MCH declined to 10 which was too few to adequately determine a reliable mixing ratio with the NCH. In 2018, staff from the WRST and ADF&G deployed an additional 10 collars, which brings the total to about 20 active collars. Population and composition surveys were conducted during fall of 2018 (Putera 2018, pers. comm.).

The MCH population declined from an estimated 3,160 caribou in 1987 to an estimated 479 caribou in 2019 (**Table 1**). The extremely low calf :cow ratio of 2-6 calves: 100 cows from 1991 to 1993 (OSM 1992d) resulted in a complete failure of fall recruitment of young in the MCH (Jenkins and Barton 2005). Dale (2000) postulated that this may have been due to poor condition from poor forage quality in the summer. Poor forage quality in the summer can cause cow caribou to skip a breeding season to regain body condition due to being nutritionally stressed. The resulting decrease in body condition in female caribou can have a negative effect on productivity by causing lower weight gain or survival in calves (Crete and Huot 1993, Dale 2000). Between 1990 and 1997, Jenkins and Barten (2005) confirmed predation, particularly by gray wolves and grizzly bears, as the proximate cause of the MCH population decline. Grizzly bears were the most important predators of neonates and gray wolves



mostly predated on older juvenile caribou in the MCH. The combined predation by bears and wolves was 86% during the neonate and summer periods. In comparison, predation of calves in the Denali Caribou Herd from 1984 to 1987 by wolves and bears, during the same time period, was only 53% (Adams et al. 1995b). Factors such as the timing of birth and habitat at the birth site, particularly snow patterns, affected the vulnerability and survival of neonates and birth mass affected the survival of juveniles through summer (Jenkins and Barten 2005). The MCH declined at the greatest rate from 1990-1993 compared to 1994-1997. Winter severity was postulated to decrease the birth mass of neonates and, thus, the survival and vulnerability of neonates and juveniles (Jenkins and Barton 2005). The MCH population has remained stable at relatively low levels since 2004 as evidenced by low calf productivity (Putera 2017a, pers. comm.). Between 1987 and 2019, the bull:cow ratio has fluctuated widely (Putera 2019), ranging from 35-120 bulls:100 cows and averaging 58 bulls:100 cows. June and fall calf:cow ratios fluctuated over the same time period, ranging from 1-38 calves:100 cows and 0-33 calves:100 cows, respectively (**Table 1**, OSM 2018). Low calf production and survival and high cow mortality from 1987 and 2009 were the primary causes for the population declines in the MCH. The number of cows observed during the fall surveys declined from 2,065 in 1987 to 79 in 2009 (OSM 2012c).

Fall surveys conducted within the same 23-year period also revealed severe declines in total observed Mentasta bulls from 847 in 1987 to 68 in the fall 2013 survey (**Table 1**). Although observed fall bull:cow ratios appear high, the number of cows observed is small and the bull component likely includes a significant number of Nelchina bulls. While Nelchina bulls have wintered within the range of the Mentasta herd (OSM 2018), the range of the Nelchina herd has varied widely due to burns and their effect on lichen availability within their traditional area (Collins et al 2011). Thus, there is limited ability to predict the extent or frequency of mixing between Nelchina and Mentasta bulls, and it is impossible to discern whether the harvest of a bull would be from the Nelchina or Mentasta herd. Higher numbers of adult bulls in the population are important as it helps maintain synchrony in parturition. Holand et al. (2003) showed that skewed sex ratio and increased young male age structure of reindeer could result in fewer adult females conceiving during the first estrous cycle due to their hesitation to mate with young bulls. Maintaining synchrony in parturition also provides increased survival chances for calves since parturition is typically timed with the start of plant growth (Bergerud 2000). Late-born offspring have been shown to have lower body mass than caribou offspring produced earlier in the season (Holand et al. 2003), which can lead to lower juvenile survival rates due to density dependent factors of winter food limitation (Skogland 1985) and deep snows (Bergerud 2000).

The MCH is considered a sedentary and low density ecotype (Bergerud 1996, Hinkes et al. 2005) versus a migratory and high density ecotype, such as the Nelchina herd, and thus more susceptible to extreme random events. The term ecotype designates populations of the same species that evolved different demographic and behavioral adaptations to cope with specific ecological constraints. A key factor in distinguishing between two ecotypes is whether animals were dispersed or aggregated when young were born (Seip 1991, Bergerud 2000). The chronic low calf productivity and recruitment for the Mentasta caribou could make random environmental events a primary driver for a more severe population decline (Tews et al. 2006). Increased winter mortality due to icing events may result in

malnutrition and starvation for more susceptible calves and bulls with depleted energy reserves following the rut (Dau 2011, Miller and Gunn 2003). Bull caribou die at a higher rate than cows due to greater energy demands during early winter rutting activities, which greatly reduce their body reserves (Russell et al. 1993, Miller and Gunn 2003).

**Table 1.** Population size and composition of the Mentasta caribou herd (OSM 2012c, 2018; FWS 2018, Putera 2017a, pers. comm., Putera 2019).

Year	June Calves:100 Cows <sup>a</sup>	Fall Cows	Fall Calves	Fall Bulls	Fall Calves: 100 cows	Fall Bulls: 100 cows <sup>b</sup>	Fall Population Estimate <sup>c</sup>
1987	18	2065	248	847	12	41	3,160
1988	34	1540	277	662	18	43	2,480
1989	31	1615	727	258	16	45	2,600
1990	-	-	-	-	-	-	-
1991	3	1347	27	566	2	42	1,940
1992	16	973	58	399	6	41	1,430
1993	9	683	27	260	4	38	970
1994	19	591	65	224	11	38	880
1995	26	541	119	189	22	35	850
1996	16	534	59	187	11 <sup>d</sup>	35 <sup>d</sup>	780
1997	15	432	23	159	5	40	610
1998	13	350	35	150	10	42	540
1999	13	230	22	177	10	77	430
2000	1	297	0	175	0	59	470
2001	11	228	12	150	5	66	586 <sup>g</sup>
2002	21	190	55	86	29	45	410 <sup>g</sup>
2003	17	223	38	101	16	46	522 <sup>g</sup>
2004	8	-	-	-	5 <sup>e</sup>	-	293 <sup>f</sup>
2005	23	113	17	78	15	69	261
2006	-	66	20	51	30	77	-
2007	23	93	27	72	29	77	280
2008	14	89	18	65	20	73	319 <sup>h</sup>
2009	12	79	8	68	10	86	421 <sup>h</sup>
2010	25	88	22	106	25	120	336 <sup>h</sup>
2011	-	101	29	40	29	40	
2012	-	58	20	49	34	84	-
2013	38	88	20	68	23	77	512
2014	-	-	-		-	-	-
2015	-	60	20	44	33	73	-
2016	-	54	18	77	33	142	-
2017	11	91	18	79	18	87	389

Year	June Calves:100 Cows <sup>a</sup>	Fall Cows	Fall Calves	Fall Bulls	Fall Calves: 100 cows	Fall Bulls: 100 cows <sup>b</sup>	Fall Population Estimate <sup>c</sup>
2018		72	16	66	22	92	470
2019		113	29	100	26	95	479

<sup>a</sup>Includes small bulls that are indistinguishable from cows during fixed-wing flights.

<sup>b</sup>Observed high bull:cow ratios likely due to presence of Nelchina bulls.

<sup>c</sup>Population estimates between 2008 and 2017 are based on a June census of cows corrected for sightability, the fall calf:cow ratio, and a fall ratio of 30 bulls:100 cows.

<sup>d</sup>1996 fall composition count was not conducted, because of early mixing with the NCH. Fall calf/cow was estimated from postcalving calf/cow ratio and survival radio-collared cows (0.70; 30 June – 30 September).

<sup>e</sup>2004 Fall composition count was not conducted due to budget restraints. Fall calf/cow ratio estimated from post-calving calf:cow ratio and average (1987-2003) calf survivorship (0.63).

<sup>f</sup>2004 population estimate is based on extrapolation from June census, adjusted for average calf survivorship and average bull ratios.

<sup>g</sup>September population estimates are adjusted based on sighting probabilities.

<sup>h</sup>September population estimates are adjusted based on sightability probabilities and assuming a ratio of 30 bulls: 100 cows within the MCH to adjust for mixing with the NCH.

### Chisana Caribou Herd

The CCH is a small herd that occurs on the Klutan Plateau and near the headwaters of the White River in southwest Yukon Territory and east central Alaska. During the summer the CCH spends most of their time in WRST and during the winter in the Kluane Wildlife Sanctuary and the Asi Keyi Natural Environmental Park (Chisana Caribou Herd Working Group 2012).

The CCH is a genetically distinct population (Zittlau et al. 2000, Zittlau 2004). Genetic analysis of the CCH found large genetic distances between the CCH and the other 5 adjacent herds, which suggests that the herd has been unique for thousands of years and that the CCH is correctly classified as a woodland caribou (Zittlau et al. 2000). The CCH acts and looks like woodland caribou, but the herd's classification is ambiguous. Behaviorally, the CCH is typical of other mountain herds, particularly with respect to calving females, where, rather than aggregating in certain areas, they disperse up in elevation away from other calving females as an anti-predator strategy (Farnell and Gardner 2002). In Canada, the CCH is classified as woodland caribou, whereas in Alaska the CCH is classified a barren-ground caribou (Miller 2003). Occasionally the CCH mix with the Nelchina and Mentasta caribou herds during the winter in Alaska and Yukon in the vicinity of Beaver Creek, Yukon Territory. For example in 1989/1990, a large portion of the CCH shifted northeast into the upper and middle portions of Beaver Creek, where some mixing between the CCH, Nelchina, and Mentasta caribou herds occurred (Lieb et al. 1994).

In Canada, the Canadian Wildlife Service (CWS) has designated the Northern Mountain Caribou population, which includes the CCH, as a species of "Special Concern" under the Canadian Federal Species at Risk Act (SARA). In 2002, the CCH was designated as "Specially Protected" under the

Yukon Wildlife Act, which prohibits all licensed harvest of the CCH and requires a regulation change to initiate a harvest. A cooperative draft CCH Management Plan and Yukon CCH Recovery Plan were developed for the CCH in 2001 and 2002, respectively. In 2009, a working group consisting of members from the Government of Yukon, ADF&G, White River First Nation, Kluane First Nation, the National Park Service, and the U.S. Fish and Wildlife Service developed a five-year management Plan for the CCH (Chisana Caribou Herd Working Group 2012). The working group is now in the process of updating the plan.

The CCH Management Plan guidelines for harvest are:

- A bull:cow ratio greater than 35 bulls: 100 cows
- A calf:cow ratio greater than 15 calves: 100 cows based on a 3-year average
- A stable or increasing population trend

The Management Plan guidelines for a harvest include a maximum allocation of 2% of the herd size, a bull-only harvest, and an allocation equally distributed between Yukon Territory and Alaska (Chisana Caribou Herd Working Group 2012).

Information about the CCH prior to 1970s is limited. The population estimate from first survey conducted in 1977 was about 1000 caribou (Kellyhouse 1990). In 1988, the CCH reached a peak of 1,900 caribou (Kellyhouse 1990) and then declined to an estimated low of 315 in 2002 (Farnell and Gardner 2002). Since 1988, a majority of the CCH have been located east of the Nabesna River (Bentzen 2011). Adverse weather conditions, poor habitat, predation, and harvest pressure were factors for the low calf recruitment and high adult mortality associated with the decline (Farnell and Gardiner 2002). From 2003-2006, a recovery effort, which included an intensive captive rearing program to increase recruitment and calf survival, was conducted by the U.S. Geological Survey and CWS. The recovery effort involved capturing pregnant cows and enclosing them in holding pens during the last weeks of gestation and for a few weeks following calving. An intensive radio-collaring program was also initiated in 2003 along with the captive rearing program, which resulted in more reliable population and composition data. Therefore, sex and age composition and herd size estimates prior to 2003 are not directly comparable to those after 2003 (**Table 2**) (Bentzen 2011, 2013; Gross 2015, Putera 2017b). In 2010, the CCH population was stable at 696 animals and the 3-year average for the bull:cow and calf:cow ratios were 45: 100 cows and 20: 100 cows, respectively (Bentzen 2011, Gross 2015). The 2017 bull:cow ratio of 32 bulls per 100 cows was below the minimum threshold of 35 bulls:100 cows set by the Chisana Caribou Management Plan, triggering a meeting of the management authorities. This occurred as part of the conversations regarding updating the plan, and the consensus of the group was that a 3 year running average was a more appropriate threshold and that the 2018 hunt could occur (Cellarius 2018a). From 2014-2019, the calf:cow ratio averaged 21 calves:100 cows which was above the minimum threshold set by the Plan of 15 calves: 100 cows based on three year average (Chisana Caribou Herd Working Group, 2012). In April 2019, another 15 GPS/Iridium and 10 VHF collars are scheduled for deployment in Alaska and Yukon (Putera 2018, pers. comm.).

**Table 2.** Fall sex and age composition of the Chisana Caribou Herd, 2000-2013 (Chisana Caribou Herd Working Group 2012, Gross 2015, Putera 2014, 2017b, Taylor 2018).

Regulatory Year	Total Bulls:100 Cows	Calves :100 Cows	Calves (%)	Cows (%)	Bulls (%)	Composition Sample Size	Estimated Herd Size
2000 <sup>a</sup>	20	6	5	80	15	412	425
2001 <sup>a</sup>	23	4	3	79	18	356	375
2002 <sup>a</sup>	25	13	10	72	18	258	315
2003 <sup>b</sup>	37	25	15	62	23	603	720
2005 <sup>b</sup>	46	23	14	59	27	646	706
2006 <sup>b</sup>	48	21	13	59	28	628	N/A <sup>c</sup>
2007 <sup>b</sup>	50	13	8	61	30	719	766
2008	44	21	13	61	27	532	N/A
2009	48	15	9	61	30	505	N/A
2010	42	23	14	61	25	622	697
2011	38	16	14	66	25	542	N/A
2013	49	16	N/A	N/A	N/A	631	N/A
2014	40	23	N/A	N/A	N/A	528	N/A
2015	40	19	N/A	N/A	N/A	399	N/A
2016	46	28	N/A	N/A	N/A	534	N/A
2017	32	21	N/A	N/A	N/A	540	N/A
2018	39	13	32	65	25	373	

<sup>a</sup> Surveys conducted by ADF&G based on a visual search of the herd range.

<sup>b</sup> USGS survey results.

<sup>c</sup> Not available.

## Harvest History

### Mentasta Caribou Herd

There has been no Federal open season since 1993 for the area west of the Nabesna River and Nabesna Glacier in Unit 12. There has been no reported harvest from the MCH since 1998 as there has been no State or Federal season. However, some incidental harvest of Mentasta caribou may take place during winter hunts targeting the NCH and Forty-mile caribou herd in Unit 12-remainder. While the MCH management plan does not specify an appropriate mixing ratio, the 20:1 ratio has been used to determine winter season openings by the Board since at least 2000 (OSM 2000). The MCH management plan suggests that incidental harvest of Mentasta caribou is usually minimal (MCH Management Plan 1995). In 2012, the Board excluded the area west of the Nabesna River and Nabesna Glacier to protect the MCH, when it established a Federal registration hunt for the CCH in Unit 12 east of the Nabesna River and Nabesna Glacier (OSM 2012a).

### Chisana Caribou Herd

The CCH has historically been an important food source for the Athabascans of Alaska and the First Nations of the Yukon in Canada (Gross 2007). During the early to mid-1900s, the CCH was used as a subsistence food source by the Ahtna and Upper Tanana Athabascans. Although subsistence hunting has declined in recent years, the CCH continues to be an important aspect of Upper Tanana and Ahtna

Athabascan culture. Subsistence use of the CCH declined after 1929. For the last 60 years, few people in Alaska or the Yukon have depended on the CCH as a food source (Bentzen 2011), although First Nation members continued to harvest from the CCH in the Yukon through the 1990s.

In addition to providing an important subsistence resource, in the late 1920s, Chisana caribou became economically important to local hunters as guided hunting became common in the Chisana area. Caribou from the Chisana herd were harvested by nonresident hunters guided by local guides until 1994, when hunting was closed. Primarily five guide/outfitters hunted the herd (4 operated in Alaska and 1 in the Yukon). Bulls were desired by sport hunters, because of their large stature. From 1990 to 1994, 43% of the hunters participating in hunting were nonresidents, who were responsible for 58% of the harvest. Local subsistence users accounted for 9% of the harvest during that time period (Gross 2005).

At its January 2012 meeting, the Board authorized a limited harvest of the CCH consistent with the herd's management plan. The Board delegated authority to the Wrangell-St. Elias National Park and Preserve Superintendent to open and close the season to announce the harvest quota, the number of permits to be issued and the reporting period. Based on the estimated population size and the guidance in the management plan, the harvest quota for the 2012 was set at seven animals.

The National Park Service met with participating communities and associated tribal governments and other stakeholders to ask for their input regarding permit distribution. As a result, a decision was made to allocate two permits to each of the four eligible communities with Federally recognized tribal governments (Chistochina, Mentasta Lake, Northway, and Tetlin) with the understanding that all community residents, not just tribal members, would be considered for permit distribution. Any remaining permits would be made available to Tok and Chisana residents on a first come-first served basis. The number of permits was limited to fourteen and the reporting period requirement was set at within three days of harvest. In 2017, nine permits were issued, three people hunted, and no animals were harvested (FWS 2018). Currently the CCH appears stable at approximately 700 animals and the quota for the 2018-2019 Federal subsistence hunt for the CCH is set at seven bull caribou (Cellarius 2018b). Preliminary reports (as of October 5, 2018) indicate that six permits were issued in 2018 and two caribou were harvested (FWS 2018).

Since 2012, ten caribou have been taken (**Table 3**).

**Table 3.** Summary of the caribou harvest in the southeast portion of Unit 12 (FC1205) (FWS 2018).

	2012	2013	2014	2015	2016	2017 <sup>a</sup>	2018 <sup>b</sup>
<b>Permits Issued</b>	9	9	11	11	8	9	6
<b>Individuals Hunting</b>	8	7	8	7	8	3	2
<b>Caribou Harvest</b>	2	3	2	0	1	0	2
<b>Success Rate<sup>c</sup></b>	25.0	42.9	25.0	0	12.5	0	100.0

<sup>a</sup> 2017 data as of March 20, 2018.

<sup>b</sup> 2018 data as of October 5, 2018.

<sup>c</sup> Success rate is calculated based on the number of individuals hunting, not total permits issued.

**OSM Conclusion:**

- X **maintain status quo – *Maintain closure for the MCH and the limited hunt for the CCH***
- \_ **modify or eliminate the closure**
- \_ **other recommendation**

**Justification**Mentasta Caribou Herd:

The Mentasta Caribou herd, as currently defined, exists in low numbers and their distribution as small groups in the summer and winter ranges has resulted in a fragmented population. Because of this, total numbers and composition can be significantly affected by sightability when searching for small groups of caribou over vast terrain. Mixing of the Nelchina and Mentasta caribou bulls makes interpreting fall composition surveys difficult and there is limited ability to predict the extent, timing or frequency of mixing between the two herds. It would be impossible for most hunters to discern whether the bull was from the Mentasta herd or the Nelchina herd. In addition, there is the possibility of increased winter mortality due to icing events, which may result in malnutrition and starvation for more susceptible bulls with depleted energy reserves following the rut furthering the decline of the Mentasta caribou population. Calf production and survival remain critically low and have resulted in low numbers of adult cows and bulls observed during recent fall population surveys. Calf production and recruitment in particular remains below the management objective. These declines are indicative of low production, poor recruitment, and low survival rates among cohorts within the population.

In addition, the MCH has not increased much, despite a moratorium on hunting since 1993. This may be due to a variety of factors including low calf production and recruitment due to relatively poor range quality, predation, and susceptibility to severe weather events. The MCH population has remained at relatively low levels of approximately 400 (mean = 413) caribou since 1998 (**Table 1**). The relatively low number of active collars presently in the MCH ( $\approx 10$ ) makes it difficult for biologists and managers to adequately monitor the location and movements of the MCH in relation to the much more numerous NCH. Without a reliable mixing ratio, Federal public lands within WRST in Unit 12 should continue to remain closed to caribou hunting, west of the Nabesna River and Nabesna Glacier, for the conservation of a healthy population.

Chisana Caribou Herd:

Historically very few Chisana caribou have migrated west of the Nabesna River and Nabesna Glacier in Unit 12. Restricting the current hunt to east of the Nabesna River and Nabesna Glacier will protect the Mentasta Caribou herd with minimal impact to subsistence hunters wanting to harvest a caribou from the CCH. The relatively few caribou harvested from the CCH in WRST since 2012 do not seem to be having a negative population level effect on the CCH. In addition, the WRST Superintendent has Delegated Authority to open and close the season, and to announce the harvest quota, the number of permits and the reporting period. Thus, the current season and limited harvest by Federally qualified subsistence users in that portion east of Nabesna River and the Nabesna Glacier and south of the winter

trail running southeast from Pickerel Lake to the Canadian border in Unit 12 are consistent with recommendations and management guidelines in the CCH Management Plan (Chisana Caribou Herd Working Group 2012).

## LITERATURE CITED

Adams, L. G., F.J. Singer, and B.W. Dale. 1995a. Caribou calf mortality in Denali National Park, Alaska. *Journal of Wildlife Management* 59:584-594.

Adams, L.G., B.W. Dale, B. Shults, and L.D. Mech. 1995b. Wolf predation on caribou calves in Denali National Park, Alaska. *in Ecology and conservation of wolves in a changing world*. Eds. S.H. Fritz, and D.R. Seip. Occasional Publications No. 35., Canadian Circumpolar Institute, University of Alberta, Edmonton. Pp. 245-260.

Alaska Department of Fish and Game (ADF&G). 2018. News Release: 04-07-18 – Winter Seasons closed for the Nelchina Caribou Hunts RC561, RC562, and DC485. ADF&G, Glenallen, AK.

Barten, N.L., R.T. Bowyer, and K.J. Jenkins. 2001. Habitat use by female caribou: tradeoffs associated with parturition. *Journal of Wildlife Management* 65:77-92.

Bentzen, T.W. 2011. Unit 12 caribou. Pages 60-73 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008-30 June 2010. Alaska Department of Fish and Game. Project 2.0. Juneau, AK.

Bentzen, T.W. 2013. Unit 12 caribou. Pages 76-88 *in* P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2010-30 June 2012. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2013-3, Juneau, AK.

Bergerud, A.T. 1996. Evolving perspectives on caribou population dynamics, have we got it right yet? *Rangifer* 9:95-115.

Bergerud, A.T. 2000. Caribou. Pages 658-693 *in* S. Demarais and P.R. Krausman, editors. *Ecology and Management of Large Mammals in North America*. Prentice Hall Press. Upper saddle River, NJ. 778 pages.

Bowyer, R.T., V. Van Ballenberghe, J.G. Kie, and J.A.K. Maier. 1999. Birth-site selection in Alaska moose: maternal strategies for coping with a risky environment. *Journal of Mammalogy* 80: 1070-1083.

Cellarius, B. 2013. Fall Subsistence Report. Wrangell-St. Elias National Park and Preserve. Copper Center, AK. 3 pp.

Cellarius, B. 2018a. Cultural Anthropologist. Personal communication: e-mail. Wrangell-St. Elias National Park and Preserve. Copper Center, AK

Cellarius, B. 2018b. News Release. NPS announces plans for 2018 Federal subsistence hunt of Chisana Caribou Herd. Wrangell-St. Elias National Park and Preserve, Copper Center, AK.

Chisana Caribou Herd Working Group. 2012. Management Plan for the Chisana Caribou Herd: 2010-2015. Government of Yukon, Department of Environment, Whitehorse, YT. 48 pp.



- Collins, W.B., B.W. Dale, L.G. Adams, D.E. McElwain, and K. Joly. 2011. Fire, grazing history, lichen abundance, and winter distribution of caribou in Alaska's Taiga. *Journal of Wildlife Management* 75:369-377.
- Crete, M. and J. Huot. 1993. Regulation of a large herd of caribou: Summer nutrition affects calf growth and body reserves of dams. *Canadian Journal of Zoology* 71:2291-2296.
- Dale, B. 2000. The influence of seasonal spatial distribution on growth and age of first reproduction of Nelchina caribou with comparisons to the Mentasta herd, Research Performance Report. 1 July 1999 – 30 June 2000. Federal Aid Annual Performance Report Grant W-27-3. Study 3.44. Anchorage, AK.
- Dau, J. 2011. Units 21D, 22A, 22B, 22C, 22D, 22E, 232, 24, and 26A caribou management report Pages 187-250 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008-30 June 2010. Alaska Department of the Fish and Game, Juneau, AK.
- Farnell, R., and C. Gardner. 2002. Chisana caribou herd-2002. Yukon Department of Environment. Whitehorse, Yukon, Canada.
- FWS. 2018. Harvest database. Office of Subsistence Management, USFWS, Anchorage, AK.
- Gross, J.A. 2005. Unit 12 caribou management report. Pages 61-69 in C. Brown, editor. Caribou management report of survey and inventory activities 1 July 2002-30 June 2004. Alaska Department of Fish and Game, Division of Wildlife Restoration, Project 3.0. Juneau, AK.
- Gross, J.A. 2007. Unit 12 caribou. Pages 56-64 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2004-30 June 2006. Alaska Department of Fish and Game, Project 3.0. Juneau, AK.
- Gross, J.A. 2015. Unit 12 caribou. Chapter 7, Pages 7-1 through 7-11 in P. Harper and L.A. McCarthy, editors. Caribou management report of survey and inventory activities 1 July 2012-30 June 2014. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-4, Juneau, AK.
- Hatcher, Heidi. 2018. 2018 Nelchina Caribou Herd minimum count and population estimate. Alaska Department of Fish and Game, Glennallen, AK. 4 pp.
- Hinkes, M.T., G.H. Collins, L.J. Van Daele, S.D. Kovach, A.R. Aderman, J.D. Woolington, R.J. Seavoy. 2005. Influence of Population Growth on Caribou Herd Identity, Calving Ground Fidelity, and Behavior. *Journal of Wildlife Management* 69(3):1147–1162.
- Holand, O., K.H. Roed, A. Myrsetrud, J. Kumpula, M. Nieminen, and M.E. Smith. 2003. The effect of sex ratio and male age structure on reindeer calving. *Journal of the Wildlife Management* 67:25-33.
- Jenkins, K.J., N.L. Barten. 2005. Demography and decline of the Mentasta caribou herd in Alaska. *Canadian Journal of Zoology*. 83: 1174-1188.
- Kellyhouse, D.G. 1990. Unit 12 caribou. Pages 46-54 in C. Healy, editor. Caribou annual report of survey and inventory activities 1 July 1988-30 June 1989. Alaska Department of Fish and Game. Project 3.0. Juneau, AK
- Lieb, J.W., B.W. Cella and R.W. Tobey 1994. Population dynamics of the Mentasta caribou herd. Alaska Department of Fish and Game, Division of Wildlife Conservation, Research Final Report, Juneau, AK. 72 pp.

Mentasta Caribou Herd Cooperative Management Plan. 1995. Wrangell St.-Elias National Park and Preserve, Glennallen, AK 17 pp.

Miller, F.L. 2003. Caribou. Pages 965-977 *in* G.A. Feldhamer, B.C. Thompson, and J.A. Chapman eds. Wild Mammals of North America, Second edition. John Hopkins University Press, Baltimore, MD.

Miller, F.L. and A. Gunn. 2003. Catastrophic Die-off of Peary Caribou on the Western Queen Elizabeth Islands, Canadian High Arctic. *Arctic* 56:381–390.

OSM 1991a. Staff analysis P91-130. Pages 35-36 *in* Federal Subsistence Board Meeting Materials March 4–8, 1991. Office of Subsistence Management, FWS. Anchorage, AK. 246 pp.

OSM. 1991b. Staff analysis S91-05. Office of Subsistence Management, FWS. Anchorage, AK.

OSM. 1991c. Staff Analysis S91-08. Office of the Subsistence Management, FWS. Anchorage, AK.

OSM 1992a. Staff analysis P92-105. Pages 584-585 *in* Federal Subsistence Board Meeting Materials April 6–10, 1992. Office of Subsistence Management, FWS. Anchorage, AK. 1254 pp.

OSM 1992b. Staff analysis P92-106. Pages 592-593 *in* Federal Subsistence Board Meeting Materials April 6–10, 1992. Office of Subsistence Management, FWS. Anchorage, AK. 1254 pp.

OSM 1992c. Staff analysis P92-107. Pages 588-589 *in* Federal Subsistence Board Meeting Materials April 6–10, 1992. Office of Subsistence Management, FWS. Anchorage, AK. 1254 pp.

OSM 1992d. Staff analysis P92-18. Pages 94-95 *in* Federal Subsistence Board Meeting Materials April 6–10, 1992. Office of Subsistence Management, FWS. Anchorage, AK. 1254 pp.

OSM. 1993. Staff analysis P93-034. Pages 283–290 *in* Federal Subsistence Board Meeting Materials April 5–8, 1993. Office of Subsistence Management, FWS. Anchorage, AK. 622 pp.

OSM. 1994. Staff analysis P94-71. Pages 593–600 *in* Federal Subsistence Board Meeting Materials April 11–15, 1994. Office of Subsistence Management, FWS. Anchorage, AK. 726 pp.

OSM. 2000. Staff analysis P00-59. Pages 628–638 *in* Federal Subsistence Board Meeting Materials May 2–4, 2000. Office of Subsistence Management, FWS. Anchorage, AK. 661 pp.

OSM. 2012a. Staff analysis WP10-104 and WP12-65/66. Pages 255–274 *in* Federal Subsistence Board Meeting Materials January 17–20, 2012. Office of Subsistence Management, FWS. Anchorage, AK. 1021 pp.

OSM. 2012b. Staff analysis WP12-68. Pages 275–287 *in* Federal Subsistence Board Meeting Materials January 17–20, 2012. Office of Subsistence Management, FWS. Anchorage, AK. 1021 pp.

OSM. 2012c. Staff analysis WP12-24. Pages 575–588 *in* Federal Subsistence Board Meeting Materials January 17–20, 2012. Office of Subsistence Management, FWS. Anchorage, AK. 1021 pp.

OSM. 2014a. Staff analysis WP14-15/45. Pages 465–484 *in* Federal Subsistence Board Meeting Materials April 15–17, 2014. Office of Subsistence Management, FWS. Anchorage, AK. 680 pp.

- OSM. 2014b. Staff analysis WP14-49. Pages 322–335 in Federal Subsistence Board Meeting Materials April 15–17, 2014. Office of Subsistence Management, FWS. Anchorage, AK. 680 pp.
- OSM 2016. Staff analysis WP18-60. Pages 354-370 in Federal Subsistence Board Meeting Materials April 12-14, 2016. Office of Subsistence Management, FWS, Anchorage, AK 948 pp.
- OSM 2018. Staff analysis WP18-54. Pages 1195-1227 in Federal Subsistence Board Meeting Materials April 10-13, 2018. Office of Subsistence Management, FWS, Anchorage, AK 1488 pp.
- Putera, J. 2014. Wrangell-St.-Elias National Park and Preserve March 2014 Wildlife Report. Wrangell-St. Elias National Park and Preserve. Copper Center, AK.
- Putera, J. 2017a. Wildlife Biologist. Personal communication: e-mail. Wrangell-St. Elias National Park and Preserve. Copper Center, AK.
- Putera, J. 2017b. Wrangell-St. Elias National Park and Preserve Fall 2017 Wildlife Report. Wrangell-St. Elias National Park and Preserve, Copper Center, AK. 5 pp.
- Putera, J. 2018. Wildlife Biologist. Personal communication: e-mail, phone Wrangell-St. Elias National Park and Preserve. Copper Center, AK.
- Putera, J. 2019. Wrangell-St. Elias National Park and Preserve Fall 2019 Wildlife Report. Wrangell-St. Elias National Park and Preserve, Copper Center, AK. 4 pp.
- Roffler, G.H., L.G. Adams, S.L. Talbot, G.K. Sage, and B.W. Dale. 2012. Range overlap and individual movements during breeding season influence genetic relationships of caribou herds in south-central Alaska. *Journal of Mammalogy* 93(5): 1318-1330.
- Russell, D.E., A.M. Martell, and W.A.C. Nixon. 1993. Range ecology of the porcupine caribou herd in Canada. *Rangifer Special Issue* 8:1– 167.
- Seip, D.R. 1991. Predation and caribou populations. *Rangifer* 7:46–72.
- Skogland, T. 1985. The effects of density-dependent resource limitations on the demography of wild reindeer. *Journal of Animal Ecology* 54:359–374.
- Taylor, S. 2018. Kluane Regional Biologist. Personal communication: e-mail. Yukon Environment – Fish and Wildlife Branch, Yukon, Canada.
- Tews, J., M.A.D. Ferguson, L. Fahrig. 2006. Potential net effects of climate change on High Arctic Peary caribou: Lessons from a spatially explicit simulation model. *Ecological Modelling* 207:85–98.
- Zittlau, K.J. Coffin, R. Farnell, G. Kuzyk, and C. Strobeck. 2000. Genetic relationships of the Yukon woodland caribou herds determined by DNA typing. *Rangifer Special Issue* 12:59-62.
- Zittlau, K. 2004. Population genetic analyses of North American caribou (*Rangifer tarandus*). Ph.D. Dissertation. University of Alberta, Edmonton, Canada.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS**

### **Southcentral Alaska Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-42. The Council voted (10-1) to maintain the status quo to retain the closure for the Mentasta Caribou Herd and the closure to non-Federally qualified users for Chisana Caribou herd for conservation concerns.

### **Eastern Interior Alaska Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-42. The Council voted unanimously to maintain the status quo and reconsider when more information on movements, degree of mixing with other caribou herds, particularly the Nelchina Caribou Herd, and population status is available in the future. Ten collars were placed on caribou in the Mentasta Caribou Herd during the fall of 2018 and more ( $\approx 15$ ) are scheduled for deployment during the fall of 2019.

## **INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

## **ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

## WRITTEN PUBLIC COMMENTS

June 5, 2019

Federal Subsistence Board  
 ATTN: Theo Matuskowitz  
 Office of Subsistence Management  
 1011 E. Tudor Road  
 Anchorage, AK 99503-6199

Dear Mr. Matuskowitz:

Customary and Traditional Committee is hereby pleased to submit comments on 2020-2022 Federal Wildlife Proposals.

We oppose WP20-19 which intends to change Federal Joint Elder/Youth permit hunt (FS1103) regulation on Unit 11 federal public lands. We also oppose changing (FS1204) Unit 12 Joint Elder/Youth Hunt regulation on Unit 12 federal public lands.

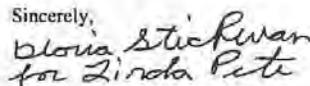
An Ahtna Elder proposed this joint elder and youth hunt for sheep in Unit 11 on federal public lands so that Ahtna's customary and traditional use and practice of harvesting, preserving and uses of sheep would be carried on. We, the Ahtna People wish to respect our late Elder from Tazlina Village to continue this sheep hunt in GMU 11 and GMU 12 to pass down C&T knowledge to the younger generation.

We support WP20-50, a housekeeping proposal to clean up description in Unit 12 unencumbered federal lands. Public members will have a precise description of federal lands that is surrounded by State lands. Federal subsistence hunters will have a better understanding where federal public lands are within Game Management Unit 12.

We oppose WP20-51 to allow the community of Slana to have a positive customary and traditional use (C&T) determination for sheep in Unit 12.

The community of Slana should prove in their own words that they have customary and traditional uses of sheep in GMU 12. The Ahtna People had to prove to the state and federal management systems that we have customary and traditional uses of fish and wildlife. We believe that C&T uses by all communities should be in sync with Ahtna customary and traditional uses of fish and wildlife in order to gain positive C&T use of the resources.

We support WCR20-42 to keep Unit 12 Caribou Wildlife Closure to the Non-federal qualified hunters. Only the federally qualified subsistence users should be able to continue to hunt Chisana caribou herd. The population of the Chisana caribou herd cannot sustain a hunt to include Non-federally qualified hunters. Keep the Unit 12 Caribou wildlife closure status quo.

Sincerely,  


Linda Pete, Chair

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<b>WCR20-31 Executive Summary</b>	
<b>General Description</b>	Closure Review WCR20-31 reviews the closure to moose hunting in Units 26B, remainder and 26C, except by residents of Kaktovik.
<b>Current Regulation</b>	<p><b>Units 26B remainder and 26C–Moose</b></p> <p><i>Units 26B, remainder and 26C—1 moose by Federal registration permit by residents of Kaktovik only.</i></p> <p><i>May be announced</i></p> <p><i>Federal public lands are closed to the taking of moose except by a Kaktovik resident holding a Federal registration permit and hunting under these regulations.</i></p>
<b>OSM Conclusion</b>	<b>Maintain status quo</b>
<b>North Slope Subsistence Regional Advisory Council Recommendation</b>	<b>Maintain status quo</b>
<b>Interagency Staff Committee Comments</b>	The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.
<b>ADF&amp;G Comments</b>	<b>None</b>
<b>Written Public Comments</b>	<b>None</b>

**FEDERAL WILDLIFE CLOSURE REVIEW**  
**WCR20-31**

**Closure Location:** Units 26B remainder and 26C—Moose

**Current Federal Regulation**

**Units 26B remainder and 26C—Moose**

*Units 26B, remainder and 26C—1 moose by Federal registration permit by residents of Kaktovik only.* *May be announced*

*Federal public lands are closed to the taking of moose except by a Kaktovik resident holding a Federal registration permit and hunting under these regulations.*

**Closure Dates:** Year-round

**Current State Regulation**

**Units 26B and 26C—Moose**

*Residents and Nonresidents* *No open season*

**Regulatory Year Initiated:** 2004

**Regulatory History**

Federal and State moose seasons in Units 26B and 26C were closed in 1996 due to a low moose population following declines in the early 1990s (Mauer 1997, Lenart 2010). The declines were probably due to a combination of factors, including limited habitat at the northern limits of their range, weather, predation by wolves and brown bears, disease, and possibly insect harassment (Lenart 2008).

The Federal closure was temporarily lifted in 2003, when the Federal Subsistence Board (Board) approved a modification of Special Action WSA03-04 to allow residents of Kaktovik to harvest one moose in the combined Units 26B and 26C for their Thanksgiving feast and one moose for their Christmas feast; however, only one moose was harvested in Unit 26C (OSM 2003).

In 2004, the Board adopted Proposal WP04-86b with modification to allow a total harvest quota of 3 moose (2 bulls and 1 moose of either sex) in Units 26B and 26C with the restrictions that no more than 2 bulls and no cows could be harvested in Unit 26C (OSM 2004a). Proposal WP04-86b also included a request for a Customary and Traditional Use determination to give priority to residents of

Kaktovik to harvest moose in Units 26B and 26C but was withdrawn so a more thorough ANILCA Section 804 analysis could be completed (WP04-86a) (OSM 2004b).

Proposals WP06-67a and WP06-67b requested that residents of Unit 25A be added to the customary and traditional use determination for the Firth and Kongakut river drainages of Unit 26C (WP06-67a) and set a harvest quota of two moose per drainage (WP06-67b). Proposal WP06-67a was rejected by the Board because the residents of Arctic Village and the surrounding area did not have a demonstrated pattern of moose harvest in Unit 26C. Proposal WP06-67b was rejected by the Board (FSB 2006) based on conservation concerns (OSM 2006).

In 2007, the Board adopted Proposal WP07-63 with modification to lift the closure of Federal public lands to non-Federally qualified subsistence users in the portion of Unit 26B outside of the Canning River drainage based on increasing moose numbers (FSB 2007). The Board retained the closure of Federal public lands in Unit 26C and areas within the Canning River drainage in Unit 26B (now called Unit 26B remainder), except for residents of Kaktovik (OSM 2007).

Proposal WP08-54 requested a modification of the moose harvest quota in Unit 26C to 5 moose (4 bulls and 1 of either sex) with a shorter harvest season of Jul. 1 - Dec. 31 versus Jul. 1 - Mar. 31 for Kaktovik residents in Unit 26C. The proposal also requested lifting the closure of Federal public lands in Unit 26B remainder (OSM 2008). The Board adopted the proposal with modification to keep the closure in place, except for residents of Kaktovik, but changed the harvest quota from 3 moose (2 bulls and 1 of either sex) to 3 moose (2 antlered bulls and 1 of either sex) (FSB 2008). Changing the harvest limit to antlered bulls was done to protect cows from being harvested later in the season when bulls have typically shed their antlers. The restriction of harvesting a cow accompanied by a calf was retained for Units 26B remainder and 26C and no more than two antlered bulls could be taken from Unit 26C.

In March 2012, the Alaska Board of Game (BOG) adopted Proposal 174A to establish a moose season in a portion of Unit 26C which includes the Firth River, Mancha Creek and the Upper Kongakut River drainages; however, there has been no State hunt because the area consists of Federal public lands that were closed to the harvest of moose, except by residents of Kaktovik.

In March 2013, the BOG, by Emergency Order 03-03-13, authorized a general moose season in Unit 26B, excluding the Canning River drainage, when hunting conditions were favorable for up to 14 days during the period Feb.15–Apr. 15. It was thought that the population of approximately 500 moose in Unit 26B could sustain a harvest quota of 15 bull moose, including the additional 4 that might be harvested under State regulations during the general hunt through the Emergency Order (ADF&G 2013). In Unit 26B State lands are closer to the village of Kaktovik than Federal public lands in Unit 26B remainder, thus making it easier for Kaktovik residents to harvest additional moose close to the village without having to travel long distances to access Federal land.

On April 3, 2013, the Board approved Emergency Special Action WSA12-12 with modification to allow Kaktovik residents to harvest one additional moose in Unit 26B remainder and to extend the season through April 14, 2013 (OSM 2013).



In 2013, ADF&G submitted Proposal WP14-55 which requested the closure to non-Federally qualified users be lifted in the Firth, Mancha, and upper Kongakut river drainages (upstream from and including Drain Creek) for the harvest of moose in Unit 26C (OSM 2014a). The remaining Federal public lands in Unit 26C and Unit 26B remainder would remain closed to the harvest of moose, except by residents of Kaktovik. At its April 2014 meeting, the Board rejected Proposal WP14-55 to allow for additional information to be collected on the population (OSM 2014a, FSB 2014).

In April 2014 the Board adopted Proposal WP14-54 to increase to the harvest quota from 3 to 5 moose, to allow for the harvest of cows and cows with calves in Unit 26C, and to lengthen the season in Units 26B remainder and 26C from Jul. 1–Mar. 31 to a year-round season (Jul. 1 – June 30) (OSM 2014b).

In May 2014, the BOG reduced harvest limits and season dates for resident moose hunts in Unit 26A and 26B in response to low population numbers and poor recruitment. An Emergency Order (05-05-14) closed the general season hunt in Unit 26B and closed drawing permits for moose by residents and nonresidents in Unit 26A and 26B for the 2014/2015 regulatory year (ADF&G 2014a). The seasons were closed to allow for population recovery.

In 2014/2015, due to the population decline on the North Slope, the Board closed the moose season on Federal public lands in Units 26B remainder and 26C by Temporary Special Action WSA14-02 (OSM 2014c).

In 2015, the Board approved Temporary Special Action WSA15-08 to close the moose season in Units 26B remainder and 26C for 2015/2016 regulatory year. This request, submitted by the Arctic National Wildlife Refuge, was in response to the continued low moose numbers along the coastal plain of Unit 26C and 26B remainder (OSM 2015). Surveys conducted in April 2014 by the Arctic National Wildlife Refuge and ADF&G indicated that the North Slope moose populations in the affected area had declined by approximately 50% since 2011 (Wald 2014).

In 2016, the Board adopted Proposal WP16-65 with modification to create a “*May-be –announced*” season; remove regulatory language referencing harvest quotas and delegate authority to the Arctic National Wildlife Refuge to determine annual quotas, set opening and closing season dates, and the number of Federal permits to be issued via a delegation of authority letter only (OSM 2016).

In April 2017, in response to the recent increase in moose abundance, the Arctic National Wildlife Refuge (ANWR) Manager authorized two Federal Registration permits for the harvest of two bull moose in the Kongakut River drainage. Permits were issued to Kaktovik residents only and one moose was harvested (ANWR 2017a).

Federal public lands comprise approximately 98% of the lands in Unit 26C and consist of 100% U.S. Fish and Wildlife (FWS) managed lands (**Map 1**).

Federal public lands comprise approximately 29% of the lands in Unit 26B and consist of 23% FWS managed lands, 4% Bureau of Land Management (BLM) managed lands, and 3% National Park Service (NPS) managed lands (**Map 1**).

**Closure Last Reviewed:** 2012 – WCR12-31

**Justification for Original Closure (ANILCA Section 815 (3) criteria):**

*Nothing in this title shall be construed as – (3) authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on public lands (other than national parks and monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law...*

The combination of low moose numbers and low recruitment were direct indicators of a continuing conservation concern. The analysis for Proposal WP04-86 (OSM 2004a, b) also considered ANILCA Section 804 issues (restricting subsistence use by implementing a priority of a limited resource such as moose) limiting the moose season, with a small quota, to only the residents of Kaktovik.

**Council Recommendation for Original Closure:**

The North Slope Subsistence Regional Advisory Council supported Proposal WP04-86b as submitted by the City of Kaktovik to allow only residents of Kaktovik to harvest moose because of the limited availability of moose within Unit 26C.

**State Recommendation for Original Closure:**

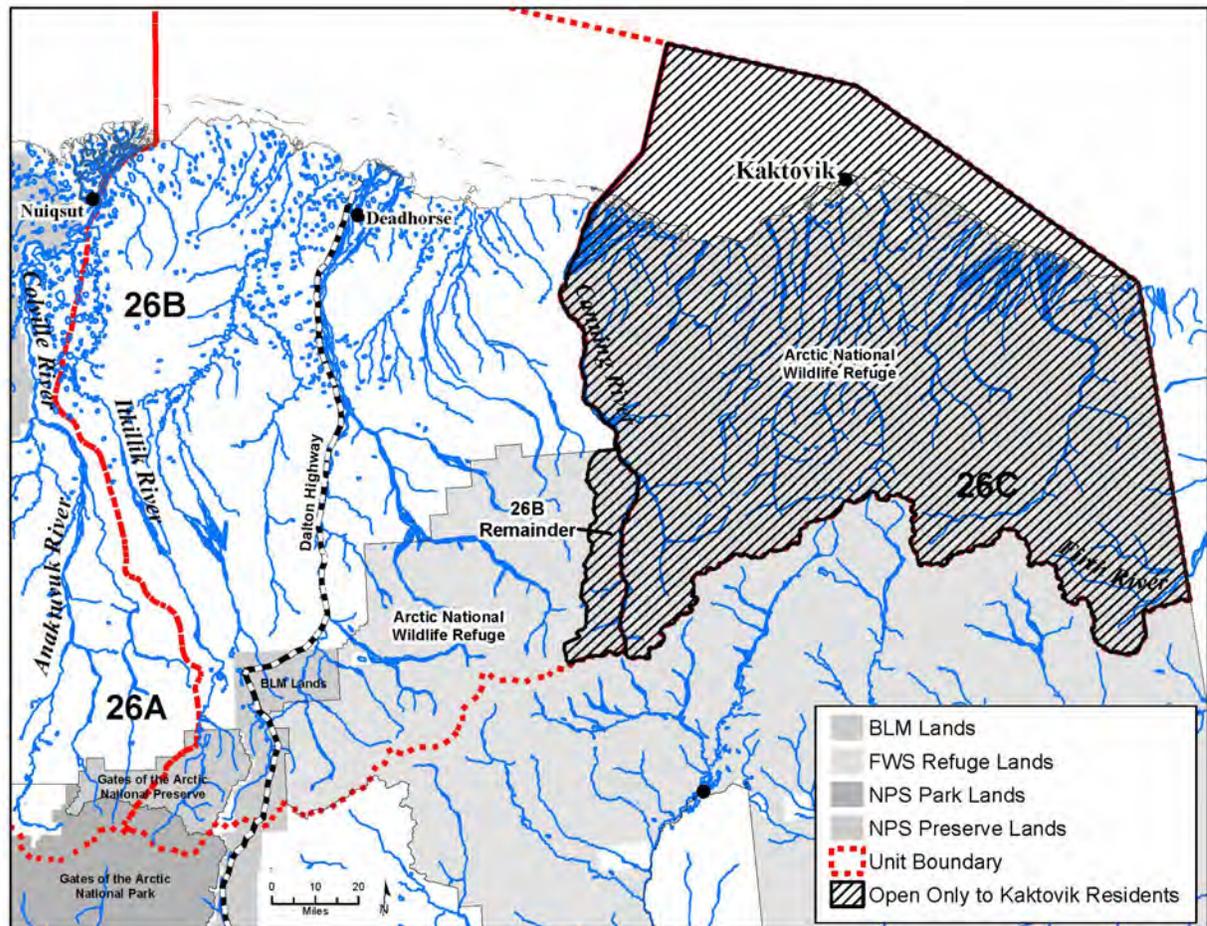
The State did not support Proposal WP04-86b due to conservation concerns regarding the Unit 26C moose population and the requested harvest quota of 5 moose (OSM 2004b). However, they did support a harvest of up to two moose in Unit 26C.

**Biological Background**

Unit 26C contains at least two distinct moose populations. The first population occurs on the coastal plain and foothills in the North Slope portion of Unit 26C (North Slope population), and the other population occurs in the Firth, Mancha, and Upper Kongakut river drainages (Old Crow Flats population) (**Map 1**) (Mauer 1998). A portion of the moose population in the eastern portion of Unit 26C, calves and spends the summer in Old Crow Flats in the Yukon and migrates to the Firth, Mancha, and Upper Kongakut river drainages in Unit 26C, and the Sheenjek, and Coleen river drainages in Unit 25A during the fall and winter. Some moose in the Old Crow Flats population move between drainages during the fall or spring migration (Mauer 1998, Cooley 2013, pers. comm.). The focus of this analysis is on the North Slope population in Unit 26C.

Moose in Unit 26B remainder and Unit 26C are at the northern limits of their range in Alaska. The lack of quality habitat severely limits the potential size of moose populations. Moose are generally

associated with narrow strips of shrub communities along drainages, except during calving and summer when some seasonal movement occurs away from riparian habitat (Lenart 2010). In winter, moose are limited almost entirely to the riparian shrub habitat. During surveys in the 1970s and 1980s, small numbers of moose were observed in the Sadlerochit, Hulahula, Okpilak, Okerokovik, Jago, Aichilik and Egaksrak river drainages and larger concentrations of moose were found on the Canning River and between the Sagavanirktok and Kavik rivers, west of the Canning River. The moose population in Units 26B and 26C peaked during the late 1980s at approximately 1,400 moose (Mauer and Akaran 1991; Lenart 2004, 2008), then declined in the early 1990s, and remained at approximately 700 animals throughout the remainder of the decade (Mauer 1998, Lenart 2008).



**Map 1.** Location of Federal public lands in Units 26B and 26C and lands open to Kaktovik residents.

Data from surveys conducted by the Alaska Department of Fish and Game (ADF&G) and the U.S. Fish and Wildlife Service (FWS) suggested that a significant decline in moose populations north of the Brooks Range occurred between 2012 and 2014. Survey results indicated that there had been approximately a 50% reduction of moose since 2011 in Unit 26A and in Unit 26B. The number of moose counted declined from approximately 400 moose in 2013 to 104 in 2015 in Unit

26A(ADF&G 2014b, Lenart 2015, pers. comm). Although Unit 26A is west of the area affected by this Wildlife Closure Review, it documents widespread declines in moose populations throughout the North Slope. In Unit 26B remainder the number of moose counted declined from 176 in 2013 to 57 in 2014 (no short yearlings – 10 to 11 month old calves) (Lenart 2012b). From 2014 to 2018 the moose population in Unit 26C increased to 94 moose, which is the largest number seen since 1984 (Churchwell 2018).

The migratory behavior of the North Slope moose population makes it difficult to estimate the total population size. The 2018 population count suggests that the population is slowly increasing but surveys in previous years may not have captured animals when they were at their peak in the survey area.

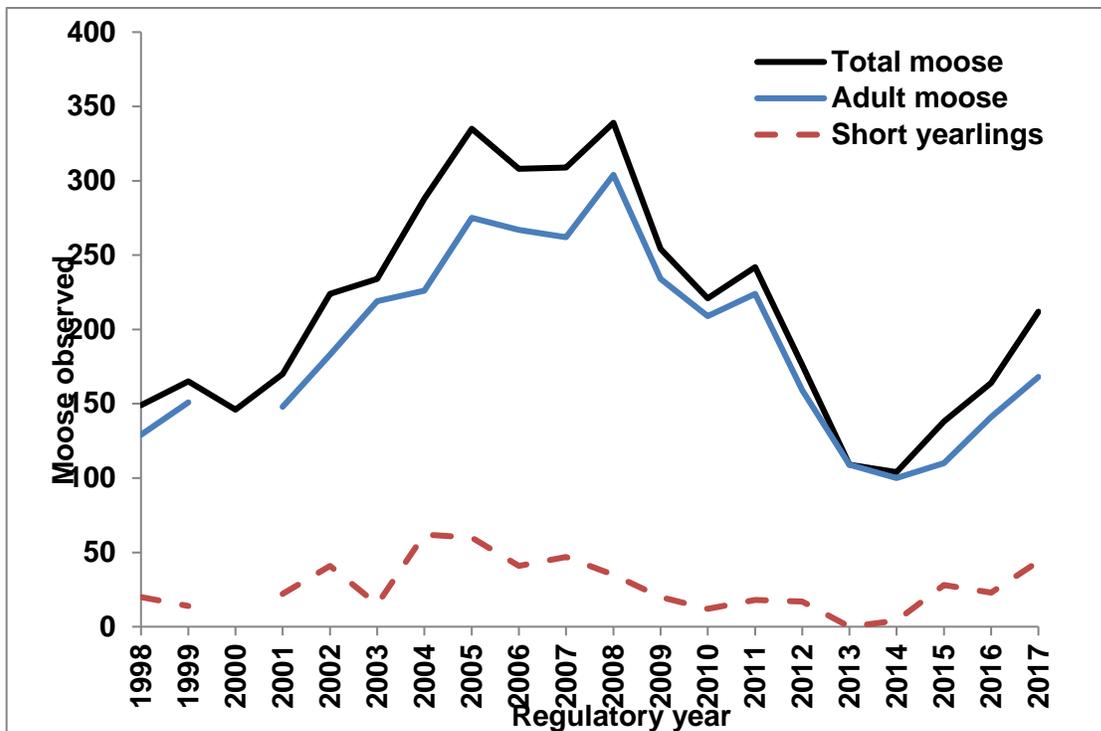
State management goals for moose in Units 26B and 26C are to maintain viable populations throughout their historic range in the region, to provide sustained moose harvest opportunity, and provide an opportunity for moose photography and viewing (Lenart 2010). Specific State management objectives for Unit 26B and Unit 26C are as follows (Lenart 2012a, b):

- Unit 26B – maintain a population of at least 300 moose with short yearlings (10 to 11 month old calves) comprising at least 15% (3-year average) of the population.
- Unit 26C – maintain a population of at least 150 moose with short yearlings comprising at least 15% (3-year average) of the population.
- Maintain bull:cow ratios of at least 35 bulls:100 cows when hunting seasons are open for Unit 26B and Unit 26C.

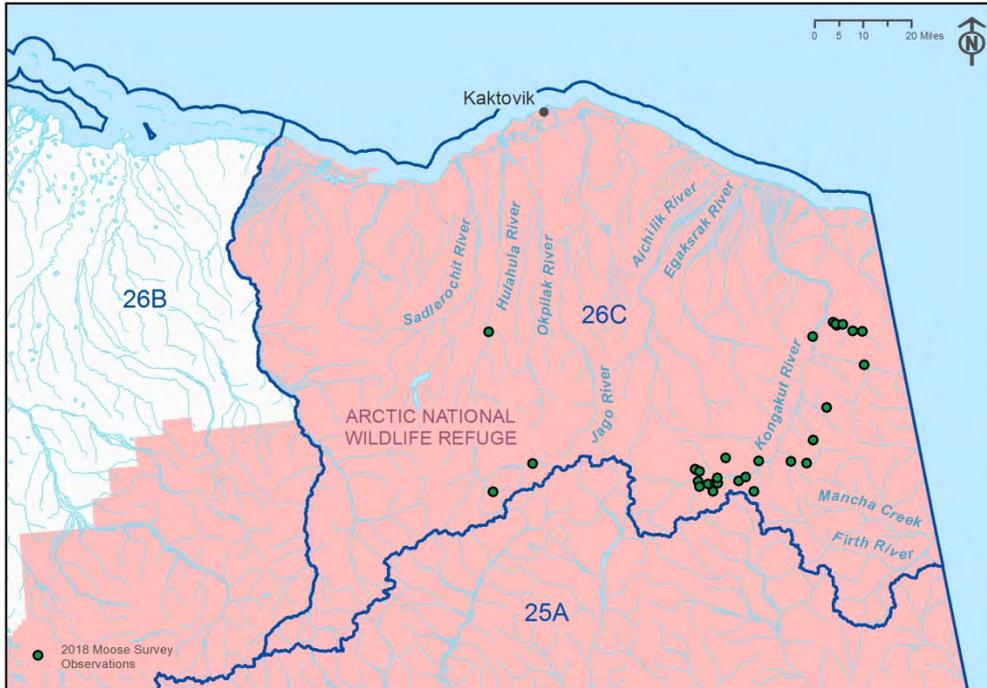
A comprehensive moose survey has not been conducted for Units 26B and 26C; however, smaller scale minimum counts have been conducted in areas where moose concentrate to assess population trends. These trend counts account for a large percentage of the moose in the units as habitat is limited in the region (Lenart 2012a).

The moose population in the eastern portion of Unit 26B, including the Canning River, rebounded from low levels of approximately 150 in 1998–2000 to 335 moose in 2005 (**Figure 1**). During that period, harvest was limited in Unit 26B due to State and Federal harvest closures enacted in 1996. A limited season for Kaktovik residents was opened under Federal regulations in 2004. The harvest closure on Federal public lands in Unit 26B was lifted in 2007, except for the Canning River drainage which remained open only to Kaktovik residents. The moose population in eastern Unit 26B has subsequently declined to 104 moose in 2015 following peak counts in 2005–2008 (**Figure 1**). Since 2016 the population has been increasing slowly (**Figure 1**). The estimated total population observed in 2016, 2017, and 2018 was 138, 164, and 212 moose respectively (Lenart 2015, pers. comm., Lenart 2018, pers. comm.). The composition of short yearlings, which represents a measure of recruitment in the population, averaged 16% from 2005 to 2008, 9% from 2009 to 2012, 0% in 2014, 4% in 2015, 20% in 2016, 14% in 2017, and 21% in 2018 (Lenart 2015, pers. comm., Lenart 2018, pers. comm.).

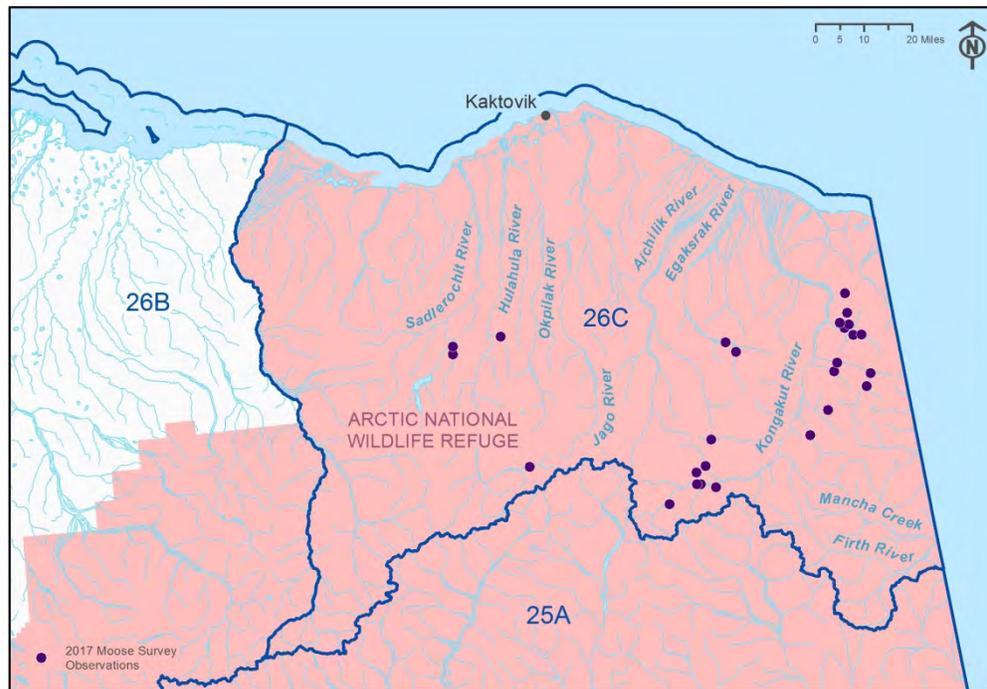
The North Slope population in Unit 26C was surveyed every two years between 2003 and 2018 by Arctic National Wildlife Refuge staff (Wald 2014, ANWR 2017a, b). This population occurs on the Coastal Plain from the Canadian border to the Canning River and from the Beaufort Sea coast to the foothills of the Brooks Range. Moose are usually concentrated in the drainages of the Sadlerochit, Hulahula, Okpilak, Okpirourak, Jago, Aichilik, Egaksrak, Ekaluakat, and the lower part of the Kongakut rivers (Wald 2014) (**Map 2**). Twenty three adults and no short-yearlings were observed during surveys conducted in April, 2014. In 2015, 36 moose were observed; 28 in the Kongakut drainage, 3 in the Egaksrak drainage, 3 in the Sadlerochit drainage, and 2 in the Hulahula drainage (Wald 2015, pers. comm.). During April 2017, FWS conducted a moose survey of the North Slope Population in in Unit 26C (**Map 2**) and found 61 adult moose, including nine short yearlings (11 month olds), which is above the 10 year average of 48 since 2003 (Wald 2014, ANWR 2017b). In 2017, 49 moose were seen in the Kongakut River drainage, five in the Sadlerochit River dariange, five in the Hulahula River drainage, and two in the Egaksrak River drainage (ANWR 2017b). During April 2018, FWS conducted a moose survey of the North Slope Population in in Unit 26C (**Map 3**) and found 80 adult moose, including 14 short yearlings (11 month olds) (Churchwell 2018). Similar to 2017 most of the moose were in the Kongakut drainage (Wald 2017, pers.comm.; Churchwell 2018). In April 2019, the FWS staff observed a total of 155 moose which included 124 adults and and 31 calves. Most of the moose were located in the Kongakut drainage (146) and an additional 8 adult moose were seen along the Hulahula River and one solitary calf along the Okpirourak River. Seven set of twins were seen in the Kongakut which was a substantial increase from 2015, 2017, and 2018 when only one set of twins were observed (ANWR 2019).



**Figure 1.** Aerial composition survey counts of moose in Unit 26B, east of the Sagavanirktok River and including the Canning River. Surveys were conducted in regulatory years 1998/1999 to 2013/2014 and moose presented as adults or short yearlings (11-month olds) (Lenart 2012a).

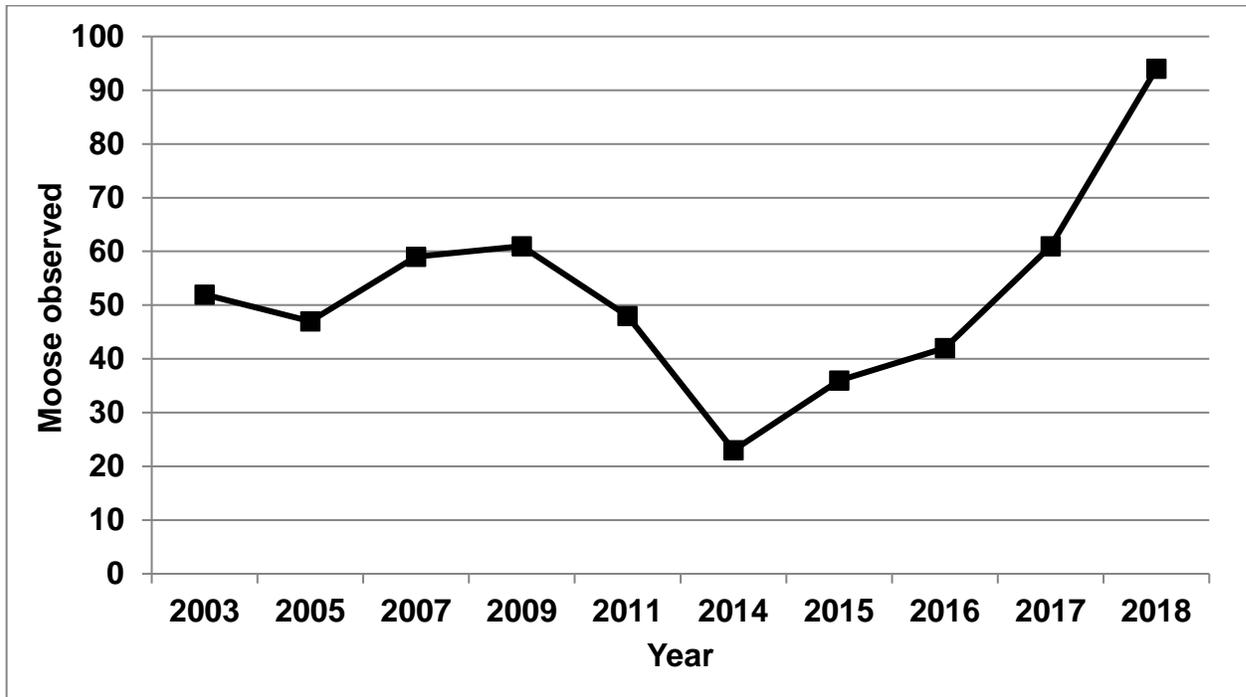


**Map 2.** Moose survey observations Unit 26C, April 2017 (Arthur 2018, pers. comm.).



**Map 3.** Moose survey observations Unit 26C, April 2018 (Arthur 2018, pers. comm.).

The calf or short-yearling survival has increased from 0 in 2014, to 5 in 2015, to 9 in 2017. Based on trend counts between 2003 and 2017, the North Slope population reached a low of 23 in 2014 and has since increased to 94 in 2018 (**Figure 2**), which is the largest number since 1984.



**Figure 2.** Moose observed during aerial surveys of trend count areas, conducted every other year by the U.S. Fish and Wildlife Service, for the North Slope Population in Unit 26C, 2003–2018 (Wald 2011, 2014, ANWR 2017a, b).

### Harvest History

Harvest quotas for North Slope moose populations are currently determined using a 3% harvest rate (Lenart 2017, pers. comm., Wald 2013, pers. comm.). Moose harvest on the affected Federal public lands in Units 26B and 26C has been limited to residents of Kaktovik since 2004, with up to three permits issued annually and a combined harvest quota for Units 26B remainder and 26C of 3 moose. Since 2004, 10 bull moose have been reported harvested, with an average of 1 moose harvested per year (**Table 1**). No additional moose were taken by Kaktovik residents in Unit 26B remainder during the two week extension under Emergency Special Action WSA12-12. No moose were taken from 2013 to 2016. Two permits for bull moose in the Kongakut River Drainage were issued by the Arctic National Wildlife Refuge in 2016/2017 and one bull moose was harvested. Five permits were issued during the 2017/2018 and 2018/2019 but no moose were harvested.

**Table 1.** Federal moose registration permits issued to Kaktovik residents and harvest for Units 26B and 26C from 2004 to 2017 (Twitchell 2013, pers. comm., Wald 2015, ANWR 2017a, b, ANWR 2019).

Year	Permits issued	Permits used	Harvest
2004/2005	3	1	1
2005/2006	3	2	2
2006/2007	3	2	2
2007/2008	3	- <sup>a</sup>	- <sup>a</sup>
2008/2009	3	2	1
2009/2010	3	2	- <sup>a</sup>
2010/2011	2	1	1
2011/2012	3	2	0
2012/2013	2	2	2
2013/2014	2	0	0
2014/2015	- <sup>a</sup>	- <sup>a</sup>	- <sup>a</sup>
2015/2016	0	0	0
2016/2017	2	1	1
2017-2018	2	*	0
2018/2019	3	*	0

<sup>a</sup> Data not available for the report.

#### OSM Conclusion:

- maintain status quo**  
 **modify or eliminate the closure**

#### Justification

The North Slope moose population in Unit 26C has increased in recent years and is now above 50 animals, which has been the long-term average for this marginal population. Most of the population increase has been in the Kongakut River drainage and remains low elsewhere in the Arctic coastal plain. As of 2018, the moose population and recruitment in Unit 26B remainder continues to be low. The current regulations allow management flexibility by the Refuge Manager of the Arctic National Wildlife Refuge to determine sustainable harvest levels based on the status and health of the small moose populations north of the Brooks Range in Units 26B and 26C. Continuing to limit the moose hunt to Federally qualified users in Kaktovik only is recommended given the small North Slope population.



## LITERATURE CITED

- ADF&G 2013. Emergency Special Order 03-03-13. Issued March 27, 2013. ADF&G. Fairbanks, AK 2pp.
- ADF&G 2014a. Emergency Special Order 05-05-14. Issued March 15, 2014. ADF&G. Fairbanks, AK 4pp.
- ADF&G 2014b. ADF&G News Release May 12, 2014. ADF&G closes moose hunts in Unit 26A and 26B for fall 2014. ADF&G. Fairbanks, AK. 2pp.
- ANWR. 2017a. Summary of activities of the Arctic National Wildlife Refuge for the North Slope Regional Advisory Council, November 2017. 17 pp.
- ANWR. 2017b. Summary of activities of the Arctic National Wildlife Refuge for the North Slope Regional Advisory Council, March 2017. 17 pp.
- ANWR. 2019. Summary of activities of the Arctic National Wildlife Refuge for the North Slope Regional Advisory Council, October 2019. 20 pp.
- Arthur, S. 2018. Wildlife Biologist. Personal communication. email. Arctic National Wildlife Refuge, USFWS, Fairbanks, AK.
- Churchwell, R. 2018. Trip Report: Arctic National Wildlife Refuge, North Slope Brooks Range moose trend survey. Arctic National Wildlife Refuge, USFWS, Fairbanks, AK. 4 pp.
- Cooley, D. 2013. Harvest coordinator. Personal communication: email. Environment Yukon, Whitehorse, Yukon Territories, Canada.
- FSB. 2006. Transcripts of Federal Subsistence Board proceedings, May 17, 2006. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 2007. Transcripts of Federal Subsistence Board proceedings, May 2, 2007. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 2008. Transcripts of Federal Subsistence Board proceedings, May 1, 2008. Office of Subsistence Management, FWS. Anchorage, AK.
- FSB. 2014. Transcripts of Federal Subsistence Board proceedings, April 17, 2014. Office of Subsistence Management, FWS. Anchorage, AK.
- Lenart, E. A. 2004. Units 26B and 26C moose. Pages 613-628 *in* C. Brown, editor. Moose management report of survey and inventory activities 1 July 2003–30 June 2005. ADF&G. Project 1.0. Juneau, AK.
- Lenart, E. A. 2008. Units 26B and 26C moose. Pages 668-687 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2005–30 June 2007. ADF&G. Project 1.0. Juneau, AK.
- Lenart, E. A. 2010. Units 26B and 26C moose. Pages 666-684 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. ADF&G. Project 1.0. Juneau, AK.

Lenart, E. A. 2012a. Units 26B and 26C moose. Pages 677-693 *in* P. Harper, editor. Moose management report of survey and inventory activities 1 July 2009–30 June 2011. ADF&G, Species Management Report ADF&G/DWC/SMR-2012-5, Juneau, AK.

Lenart, E. A. 2012b. Units 26B and 26C moose. Pages 36-1 through 36-20 *in* P. Harper and L.A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011–30 June 2013. ADF&G, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau, AK.

Lenart, E.A. 2015. Northeast Alaska Area Wildlife Biologist. Personal communication. email, phone. ADF&G. Fairbanks, AK.

Lenart, E.A. 2017. Northeast Alaska Area Wildlife Biologist. Personal communication. email, phone. ADF&G. Fairbanks, AK.

Lenart, E.A. 2018. Northeast Alaska Area Wildlife Biologist. Personal communication. email. ADF&G. Fairbanks, AK.

Mauer , F. J. 1997. Moose surveys on the north slope of the Arctic National Wildlife Refuge. Progress Report FY97-01. USFWS, Fairbanks, AK.

Mauer, F. J. 1998. Moose migration: northeastern Alaska to northwestern Yukon Territory, Canada. *Alces* 34:75-81.

Mauer, F.J. and J. Akaran. 1991. Moose surveys in the Arctic National Wildlife Refuge, 1991. Arctic National Wildlife Refuge Progress Report, No. FY91-02, Fairbanks, AK. 17pp.

OSM. 2003. Staff analysis WSA03-04. Office of Subsistence Management, FWS. Anchorage, AK. 17 pp.

OSM. 2004a. Staff analysis WP04-86b. Pages 833–849 *in* Federal Subsistence Board Meeting Materials May 18–May 21, 2004. Office of Subsistence Management, FWS. Anchorage, AK. 1041 pp.

OSM. 2004b. Staff analysis WP04-86a. Pages 820–832 *in* Federal Subsistence Board Meeting Materials May 18–May 21, 2004. Office of Subsistence Management, FWS. Anchorage, AK. 1041 pp.

OSM. 2006. Staff analysis WP06-67a,b. Pages 542–560 *in* Federal Subsistence Board Meeting Materials May 16–May 18, 2006. Office of Subsistence Management, FWS. Anchorage, AK. 579 pp.

OSM. 2007. Staff analysis WP07-63. Pages 584–593 *in* Federal Subsistence Board Meeting Materials April 30–May 2, 2008. Office of Subsistence Management, FWS. Anchorage, AK. 643 pp.

OSM. 2008. Staff analysis WP08-54. Pages 587–598 *in* Federal Subsistence Board Meeting Materials April 29–May 1, 2008. Office of Subsistence Management, FWS. Anchorage, AK. 599 pp.

OSM. 2013. Staff analysis WSA12-12. Office of Subsistence Management, FWS. Anchorage, AK. 9 pp.

OSM. 2014a. Staff analysis WP14-55. Pages 192–208 *in* Federal Subsistence Board Meeting Materials April 29–May 1, 2008. Office of Subsistence Management, FWS. Anchorage, AK. 680 pp.

- OSM. 2014b. Staff analysis WP14-54. Pages 174–191 *in* Federal Subsistence Board Meeting Materials April 29–May 1, 2008. Office of Subsistence Management, FWS. Anchorage, AK. 680 pp.
- OSM. 2014c. Staff analysis WSA14-02. Office of Subsistence Management, FWS. Anchorage, AK. 13 pp.
- OSM. 2015. Staff analysis WSA15-08. Office of Subsistence Management, FWS. Anchorage, AK. 12 pp.
- OSM. 2016. Staff analysis WP16-65. Pages 371–389 *in* Federal Subsistence Board Meeting Materials April 12–14, 2016. Office of Subsistence Management, FWS. Anchorage, AK. 948 pp.
- OSM. 2018. Harvest database. Office of Subsistence Management, FWS. Anchorage, AK.
- Twitchell, H. 2013. Assistant Refuge Manager. Personal communication. email. Arctic National Wildlife Refuge, USFWS. Fairbanks, AK.
- Wald, E. 2011. North Slope Moose Survey, April 2011. Arctic National Wildlife Refuge, USFWS. Fairbanks, AK.
- Wald, E. 2013. Wildlife Biologist. Personal communication. email, phone. Arctic National Wildlife Refuge, USFWS. Fairbanks, AK.
- Wald, E. 2014. North Slope Moose/Muskoxen Survey, April 2014. Arctic National Wildlife Refuge, USFWS. Fairbanks, AK. 13pp.
- Wald, E. 2015. Wildlife Biologist. Personal communication. email, phone. Arctic National Wildlife Refuge, U.S. Fish and Wildlife Service. Fairbanks, AK.
- Wald, E. 2017. Wildlife Biologist. Personal communication. email, phone. Arctic National Wildlife Refuge, U.S. Fish and Wildlife Service. Fairbanks, AK.

## **SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATION**

### **North Slope Subsistence Regional Advisory Council**

**Maintain status quo** for WCR20-31 but establish a harvest quota of 1 bull moose by Federal registration permit (FM2606) for Unit 26B remainder and 4 bull moose in Unit 26C for Kaktovik residents only. The Arctic National Wildlife Refuge manager will set the opening and closing dates and as needed set the annual harvest quotas and limits through consultation with the community of Kaktovik and the process outlined in the Delegation of Authority letter.

Federal public lands are closed to the taking of moose except by a Kaktovik resident holding a Federal registration permit and hunting under these regulations.

Currently the subsistence needs of Kaktovik are not being met. Food security is extremely important and the communities' needs should be a main consideration in the subsistence management decision making process. While there is not an exact number of how many moose the community of Kaktovik needs, it was estimated that 30-50 moose would be needed to sustain Kaktovik annually. More moose would be needed if access to other food resources, such as caribou, is limited. The Council noted that the community should be able to harvest the maximum sustained yield of the moose population. The Council would like the Federal subsistence managers to better understand the subsistence economy, sharing and traditional trade practices. These moose are very important to share within the community and may be traded for other subsistence foods.

The Council supports the flexibility provided by the Delegation of Authority process and would like to see the relationship with the Refuge Manager and the community of Kaktovik continue to grow through ongoing consultation. The Council requests that the Arctic National Wildlife Refuge conduct additional moose surveys in the summer and fall to better understand population fluctuations and document movements of the moose in Units 26C and 26B remainder.

Kaktovik Council member, Edward Rexford, Sr. shared feedback from the community that moose hunts in the Kongakut River drainage are a long way from Kaktovik and outside of the communities traditional harvest areas. Subsistence activities require a lot of resources including gas, snow machines, sleds, tents, camping gear, and food. In addition they are dependent upon the weather, hunter availability, snow conditions, location and ease of access of the moose. A long trip to the Kongakut River requires lots of gas which is very expensive in remote communities. Some communities need to pool resources just to conduct an extended hunt and they may have only one chance to harvest a moose. The Council requests a comprehensive subsistence needs assessment for the community of Kaktovik to ensure that rural subsistence priority is being met.

The Council wanted to be able to harvest moose throughout the year and not just during April when the moose were skinny. The community would like more flexibility for the timing of the hunt when the bull moose are fat in the fall and the ability to harvest moose opportunistically when and if they move closer to the Kaktovik.

Currently the moose season is closed in Unit 26B and 26C under State regulations. If the State opens a moose season in Unit 26B remainder and 26C, the Council would recommend aligning State and Federal regulations to support Federally qualified users and to ensure rural subsistence priority.

**INTERAGENCY STAFF COMMITTEE COMMENTS**

The Interagency Staff Committee found the staff analysis to be a thorough and accurate evaluation of the proposal and that it provides sufficient basis for the Regional Advisory Council recommendation and Federal Subsistence Board action on the proposal.

**ALASKA DEPARTMENT OF FISH AND GAME COMMENTS**

No comments.

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**RFR15-01****REQUEST FOR RECONSIDERATION OF  
FEDERAL SUBSISTENCE BOARD FISH PROPOSAL FP15-10****INTRODUCTION**

There were 739 requests for reconsideration (RFRs) submitted to the Federal Subsistence Management Program asking the Federal Subsistence Board (Board) to reconsider and rescind its January 22, 2015 decision on Fisheries Proposal 15-10 (FP15-10). Through Proposal FP15-10, the Board created a Federal subsistence fishery authorizing the use of a community gillnet for the residents of Ninilchik in the Kenai River. The fishery specifically targets Sockeye and Coho salmon, but also allows the retention of other incidentally caught species, except for rainbow trout and Dolly Varden 18 inches in length or longer. The majority of RFR correspondence was in one of two form letter formats with some degree of personalization. Of the RFRs received, 237 were in Form Letter 1 format, 472 were in Form Letter 2 format, and the remaining 21 were unique requests. A list of the RFR proponents is provided in **Appendix 1**.

The Office of Subsistence Management (OSM) collected, organized, and reviewed each request to identify substantive claims that may meet the criteria outlined in 36 CFR 242.20(d) and 50 CFR 100.20(d). The three criteria (**Appendix 2**) are: (1) provides information not previously considered by the Board, (2) demonstrates that existing information used by the Board is incorrect, or (3) demonstrates that the Board's interpretation of information, applicable law, or regulations is in error or contrary to existing law.

To efficiently address the RFRs, relevant claims were summarized from all requests and analyzed in a single threshold analysis. A total of 37 substantive claims were identified and summarized in relation to the community gillnet fishery in the Kenai River (**Appendix 3**). A total of four substantive claims were identified under Criteria 1, one substantive claim was identified under Criteria 2, and thirty-two substantive claims were received under Criteria 3.

**BOARD ACTION ON THRESHOLD ANALYSIS**

OSM staff presented the threshold analysis to the Board on January 12, 2017. The OSM conclusion was to support the request to reconsider Proposal FP15-10, as four claims (1.4, 3.12, 3.13, and 3.32) may have merit. Claim 1.4 expressed concern that the gillnet posed a navigational hazard for boat traffic, presenting new information the Board did not consider during its deliberation of Proposal FP15-10. Claims 3.12 and 3.13 expressed concerns based on the mortality of incidentally caught trout and char 18 inches or longer, arguing that adoption of Proposal FP15-10 was contrary to existing regulation. Claim 3.32 expressed concerns about the harvest of early-run Chinook Salmon, alleging that adoption of Proposal FP15-10 was contrary to existing regulation.

The Board took action on the RFR15-01 threshold analysis, taking into consideration only information up to the time of the 2015 adoption of Proposal FP15-10, and found potential merit with claims 3.12, 3.13, and 3.32. The Board directed OSM staff to initiate work on a full analysis of the three claims following completion of additional regulatory changes agreed to (at the same regulatory meeting) for the Kenai River community gillnet fishery, as shown in the Pathway Table for implementation of the *Agreement (Appendix 4)*. The regulatory changes were made through modification of Proposal FP17-10, which was adopted at the January 2017 Board meeting, and through the Cook Inlet Final Rule, which was published in the Federal Register on August 9, 2019 (84 FR 39188).

The Board chose not to move forward with Claim 1.4 when deliberating the RFR Threshold Analysis at the January 12, 2017 Board meeting. Board members noted during the discussion of the topic that all subsistence activities have some inherent safety risks associated with them, and typically the Board does not bring them up during its deliberations because there are rules in place to address those concerns. The Board's motion on RFR15-01 included a statement that navigation concerns associated with the fishery could be handled through permit stipulations.

#### **CLAIMS AND GROUNDS FOR RECONSIDERATION**

**Claims 3.12 and 3.13 – Gillnets are incompatible with the release of any incidentally harvested 18 inch or larger trout/char; Incidental harvest of trout/char longer than 18 inches could lead to a high rate of mortality.**

Claims 3.12 and 3.13 both express concerns about the mortality of Rainbow Trout and Dolly Varden (char) 18 inches or longer incidentally caught in the community gillnet fishery. Following presentation of the RFR Threshold Analysis on January 12, 2017, the Board thought that there was possible merit to these claims that the adoption of Proposal FP15-10 was contrary to applicable law. This is because applicable Federal subsistence regulations for the Kenai River require the live release of Rainbow Trout and Dolly Varden 18 inches or longer, and some amount of mortality will occur when these species (in this size range) are captured in the gillnet fishery.

#### Current Status of Claim(s):

The Board, through adoption of Proposal FP17-10 and the Cook Inlet Final Rule, implemented changes to the community gillnet fishery regulations that alleviate the regulatory conflict identified in Claims 3.12 and 3.13. The regulations for the Kenai River gillnet fishery now allow for retention of Rainbow Trout or Dolly Varden that die while in the net while requiring the release of live incidentally caught fish. Additionally, the regulations now include a provision that closes the fishery for the season once 100 Rainbow Trout or 150 Dolly Varden have been released or retained. In light of these regulatory changes, Claims 3.12 and 3.13 have been rendered moot.



**Claim 3.32 – There is no adequate window of opportunity between the early- and late-run Chinook Salmon on the Kenai to allow for safe harvest.**

Claim 3.32 expresses concern about the allowable harvest of Chinook Salmon in the community gillnet prior to July 16. Following presentation of the RFR Threshold analysis on January 12, 2017, the Board found potential merit to the claim that adoption of Proposal FP15-10 was contrary to applicable regulation. The start of the fishing season for Chinook Salmon under relevant Federal subsistence fishing regulations begins on July 16, and the fishery season put in place through adoption of Proposal FP15-10 extended from June 15 through August 15.

Current Status of Claim(s):

The Board, through adoption of Proposal FP17-10 and the Cook Inlet Final Rule, implemented changes to the Community gillnet fishery regulations that alleviate the regulatory conflict identified in Claim 3.32. The regulations for the Kenai River gillnet fishery now contain a specific season and harvest limit established for early-run Chinook Salmon. The gillnet fishery now starts on July 1, and allows for retention of early-run Chinook Salmon between July 1 and 15 under certain circumstances. Early-run Chinook Salmon may only be retained if they are less than 46 inches in length or greater than 55 inches in length, and only if the preseason forecast from the Alaska Department of Fish and Game projects the in-river run to be within or above the optimal escapement range. If fishing is allowed, the subsistence gillnet fishery will close prior to July 16 if 50 early-run Chinook Salmon have been released or retained by Niniilchik residents using the gillnet. If closed for either reason, the fishery will reopen on July 16.

**OSM CONCLUSION**

The initial adoption of FP15-10 by the Board created new regulations that were in conflict with certain regulations in effect at that time. However, the changes made to Federal subsistence regulations by the Board through the passage of both Proposal FP17-10 and the Cook Inlet Final Rule have removed those regulatory conflicts. For this reason, all of the claims previously identified by the Board as having potential merit have been rendered moot and there is no need for additional Board action related to RFR15-01.

**FINAL PROCESS STEPS**

OSM staff will draft a news release to notify the public of the outcome of the request for reconsideration. Staff will also draft letters to the proponents to explain the Board's decision. All documents associated with the request for reconsideration will be available to interested parties.

**INTERAGENCY STAFF COMMITTEE COMMENT**

The Interagency Staff Committee agrees that all claims requesting the Federal Subsistence Board's reconsideration of its action on Fisheries Proposal 15-10 (RFR 15-01) have been rendered moot and no additional Board action is needed.

**APPENDIX 1: List of Requests for Reconsideration RFR15-01**

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
1	Abrams, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
2	Adams, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
3	Addendum RFR Kenai Gillnets - State of AK RFR	17-Jul-15	Kenai	State of AK
4	Adelmann, T	7-Jul-15	Kenai, Kasilof	
5	Allange, R	14-Jun-15	Kenai, Kasilof	
6	Alamandinger, R	5-May-15	Kenai, Kasilof	
7	Almanrode, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
8	Amos, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
9	Anderson, D	13-May-15	Kenai, Kasilof	
10	Anderson, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
11	Anderson, J	5-Jun-15	Kenai, Kasilof	
12	Anderson, J	11-Jul-15	Kenai, Kasilof	
13	Anderson, J	19-Jun-15	Kenai, Kasilof	
14	Appling, S	5-Jul-15	Kenai, Kasilof	
15	Ash, C	27-Jun-15	Kenai, Kasilof	
16	Askren, J	8-Jun-15	Kenai, Kasilof	
17	Atkmisa, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
18	Augustine, R	2-Jul-15	Kenai, Kasilof	
19	Baird, D	8-Jun-15	Kenai, Kasilof	
20	Baker, J	3-Jul-15	Kenai, Kasilof	
21	Baker, J	27-Jun-15	Kenai, Kasilof	
22	Bakic, M	10-Jun-15	Kenai, Kasilof	
23	Bakic, N	10-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
24	Barchers, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
25	Barrett, M	13-May-15	Kenai, Kasilof	
26	Barron, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
27	Barry, K	13-May-15	Kenai, Kasilof	
28	Barry, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
29	Bartholomew, C	20-May-15	Kenai, Kasilof	
30	Bartlett, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
31	Basinger, R	2-Jul-15	Kenai, Kasilof	
32	Bauer, B	12-Jun-15	Kenai, Kasilof	
33	Bauer, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
34	Bauer, T	13-Jul-15	Kenai, Kasilof	
35	Baur, S	8-Jun-15	Kenai, Kasilof	
36	Baxter, R	11-May-15	Kenai, Kasilof	
37	Bear, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
38	Bear, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
39	Becker, R	2-Jul-15	Kenai, Kasilof	
40	Bellanger, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
41	Bellinger, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
42	Bencik, R	3-Jul-15	Kenai, Kasilof	
43	Benkert, J	19-May-15	Kenai, Kasilof	
44	Benkert, J	13-May-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
45	Benson, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
46	Bentley, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
47	Binder, R	16-May-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
48	Binder, R	19-May-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
49	Birch, B	3-Jul-15	Kenai, Kasilof	
50	Bishop, J	2-Jul-15	Kenai, Kasilof	
51	Black, J	2-Jul-15	Kenai, Kasilof	
52	Blaine, J	26-Jan-15	Kenai	
53	Blevins, B	11-May-15	Kenai, Kasilof	
54	Blough, C	16-Jun-15	Kenai, Kasilof	
55	Blubaugh, J	14-May-15	Kenai, Kasilof	
56	Bond, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
57	Booton, E	29-Jan-15	Kenai	
58	Borchers, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
59	Boswell, D	2-Jul-15	Kenai, Kasilof	
60	Bowman, C	2-Jul-15	Kenai, Kasilof	
61	Bowman, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
62	Bowman, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
63	Boyer, R	13-May-15	Kenai, Kasilof	
64	Braden, A	18-Jun-15	Kenai, Kasilof	
65	Brantley, B	2-Jul-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
66	Bray, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
67	Brennan, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
68	Heim, G	21-May-15	Kenai, Kasilof	Cooper Landing Advisory Committee
69	Balfany, M	2-Jul-15	Kenai, Kasilof	
70	Brewer, R	5-Jun-15	Kenai, Kasilof	
71	Bromiley, P	11-Jul-15	Kenai, Kasilof	
72	Bronga, T	16-Jun-15	Kenai, Kasilof	
73	Brooks, J	2-Jul-15	Kenai, Kasilof	
74	Brooks, J	17-May-15	Kenai, Kasilof	
75	Broom,D	5-Jul-15	Kenai, Kasilof	
76	Brophy, J	16-May-15	Kenai, Kasilof	
77	Brophy, K	16-May-15	Kenai, Kasilof	
78	Brown, B	19-May-15	Kenai, Kasilof	
79	Brown, J	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
80	Brown, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
81	Bruce, D	6-Jul-15	Kenai, Kasilof	
82	Bryant, T	14-May-15	Kenai, Kasilof	
83	Bucy, D	22-May-15	Kenai, Kasilof	
84	Bucy, R	5-Jun-15	Kenai, Kasilof	
85	Bundalo, N	2-Jul-15	Kenai, Kasilof	
86	Bureau, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
87	Burgin, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
88	Burlingame, R	21-May-15	Kenai, Kasilof	
89	Burton, R	14-May-15	Kenai, Kasilof	
90	Bussen, A	14-May-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
91	Butler, D	7-Jun-15	Kenai, Kasilof	
92	Calip, L	13-Jun-15	Kenai, Kasilof	
93	Carlson, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
94	Carlson, D	10-Jun-15	Kenai, Kasilof	
95	Carlson, W.	13-May-15	Kenai, Kasilof	
96	Carroll, H	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
97	Carter, P.	21-May-15	Kenai	
98	Cavallo, A.	4-Jul-15	Kenai, Kasilof	
99	Chadwick, A	16-May-15	Kenai, Kasilof	
100	Chapman, P	17-May-15	Kenai, Kasilof	
101	Cho, J	21-May-15	Kenai, Kasilof	
102	Ciapponi, B	2-Jul-15	Kenai, Kasilof	
103	Coburn, J	7-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
104	Coburn, J	12-Jul-15	Kenai, Kasilof	
105	Coe, T.	13-May-15	Kenai, Kasilof	
106	Cooper Landing	30-May-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
107	Corbey, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
108	Corbey, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
109	Corbey, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
110	Corp, L	23-Jun-15	Kenai, Kasilof	
111	Cosgrove, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
112	Cosgrove, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
113	Cotton, S	20-Jul-15	Kenai	ADF&G
114	Cowan, T	12-Jul-15	Kenai, Kasilof	
115	Cox, S	21-May-15	Kenai, Kasilof	
116	Crim, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
117	Cross, P	2-Jul-15	Kenai, Kasilof	
118	Crowell, D	2-Jul-15	Kenai, Kasilof	
119	Crumrine, B	2-Jul-15	Kenai, Kasilof	
120	Cunningham, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
121	Cummins, B	2-Jul-15	Kenai, Kasilof	
122	Cunningham, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
123	Curry, J	17-May-15	Kenai, Kasilof, Makhnati	United Fishermen of Alaska
124	France, D	27-Jan-15	Kenai	
125	Daberkow, R	2-Jul-15	Kenai, Kasilof	
126	Dandrاند, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
127	Dandrاند, A	13-May-15	Kenai, Kasilof	
128	Davenport, M	2-Jul-15	Kenai, Kasilof	
129	Davidson, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
130	Davis, S	2-Feb-15	Kenai, Kasilof	
131	Davis, F	2-Jul-15	Kenai, Kasilof	
132	Davis, J	12-Jun-15	Kenai, Kasilof	
133	Dawson, D	10-Jul-15	Kenai, Kasilof	
134	Dawson, T	13-May-15	Kenai, Kasilof	
135	Defrance, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community



<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
136	Degernes, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
137	Delarm, T	5-Jun-15	Kenai, Kasilof	
138	Deliman, S	5-Jun-15	Kenai, Kasilof	
139	Demattia, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
140	Demattia, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
141	Dennis, J	19-May-15	Kenai, Kasilof	
142	Dicken, J	5-Jun-15	Kenai, Kasilof	
143	Dickinson, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
144	Dickinson, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
145	Dietzel, D	21-May-15	Kenai, Kasilof	
146	Dingle, J	5-Jun-15	Kenai, Kasilof	
147	Diument, J	14-Jun-15	Kenai, Kasilof	
148	Dixon, G	21-May-15	Kenai, Kasilof	
149	Donahue, C	5-Jun-15	Kenai, Kasilof	
150	Donahue, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
151	Donahue, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
152	Pitts, D	18-Jun-15	Kenai, Kasilof	
153	Ventrice, D	2-Jul-15	Kenai, Kasilof	
154	Donelson, P	5-May-15	Kenai, Kasilof	
155	Donnally, J	20-Jun-15	Kenai, Kasilof	
156	Doroff, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
157	Douglass, S	2-Jul-15	Kenai, Kasilof	
158	Dragseth, J	8-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
159	Drake, D	20-May-15	Kenai, Kasilof	
160	Drath, J	20-May-15	Kenai, Kasilof	
161	Drath, JJ	20-May-15	Kenai, Kasilof	
162	Dreifuerst, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
163	Dreifuerst, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
164	Drummer, M	2-Jul-15	Kenai, Kasilof	
165	Duarte, A	2-Jul-15	Kenai, Kasilof	
166	Dugan, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
167	Ecklund, C	8-Jun-15	Kenai, Kasilof	
168	Eckroth, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
169	Eichelberger, D	11-Jun-15	Kenai, Kasilof	
170	Elicerio, A	16-Jun-15	Kenai, Kasilof	
171	Elie, K	6-Jul-15	Kenai	
172	Elkins, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
173	Ellison, Z	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
174	Engoars, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
175	Ennis, S	20-May-15	Kenai, Kasilof	
176	Erickson, J	13-May-15	Kenai, Kasilof	
177	Erickson, J	14-Jun-15	Kenai, Kasilof	
178	Erickson, M	13-May-15	Kenai, Kasilof	
179	Erkeneff, R	20-May-15	Kenai, Kasilof	
180	Erni, J	2-Jul-15	Kenai, Kasilof	
181	Everingham, C	5-Jun-15	Kenai, Kasilof	
182	Fagnani, M	9-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
183	Farrington, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
184	Farrington, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
185	Faust, M	17-May-15	Kenai, Kasilof	
186	Feichtiroger, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
187	Ferry, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
188	Ferguson, S	2-Jul-15	Kenai, Kasilof	
189	Fetko, M	14-Jun-15	Kenai, Kasilof	
190	Field-Sloan, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
191	Field-Sloan, S	10-Jun-15	Kenai, Kasilof	
192	Fischer, S	22-May-15	Kenai, Kasilof	
193	Fish, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
194	Fish, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
195	Fishbach, R	16-May-15	Kenai, Kasilof	
196	Fiske, R	2-Jul-15	Kenai, Kasilof	
197	Fitzgerald, G	21-May-15	Kenai, Kasilof	
198	Fiutem, C	2-Jul-15	Kenai, Kasilof	
199	Fleetwood, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
200	Flothe, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
201	Flothe, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
202	Fluke, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
203	Fontana, M	3-Jul-15	Kenai, Kasilof	
204	Forbush, C	11-Jun-15	Kenai, Kasilof	
205	Fortin, S	5-Jun-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
206	Foster, A	14-May-15	Kenai, Kasilof	
207	Foster, B	6-Jun-15	Kenai, Kasilof	
208	Fowler, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
209	Fowler, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
210	Fowler, J	5-Jul-15	Kenai, Kasilof	
211	Francisco, D	6-Jun-15	Kenai	
212	Frawner, E	8-Jun-15	Kenai, Kasilof	
213	Fritts, J	10-Jul-15	Kenai, Kasilof	
214	Frygier, E	3-Jul-15	Kenai, Kasilof	
215	Fugere, J	13-Jul-15	Kenai, Kasilof	
216	Furtin, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
217	Galbozaith, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
218	Galbraith, Y	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
219	Gales, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
220	Gales, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
221	Gall, L	6-Jun-15	Kenai, Kasilof	
222	Gall, T	5-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
223	Gambini, Y	26-Jun-15	Kenai, Kasilof	
224	Gonzales, O	22-Jun-15	Kenai, Kasilof	
225	Gara, L	26-Jan-15	Kenai	Alaska State Legislature
226	Gaskins, M	2-Jul-15	Kenai, Kasilof	
227	Gaston, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
228	Gease, R	5-May-15	Kenai, Kasilof	
229	Geeson, R	11-Jun-15	Kenai, Kasilof	
230	Geppert, D	9-May-15	Kenai, Kasilof	
231	Gerace, C	17-May-15	Kenai, Kasilof	
232	Gillam, G	20-May-15	Kenai, Kasilof	
233	Gleadon, J	19-Jun-15	Kenai, Kasilof	
234	Glenboski, D	2-Jul-15	Kenai, Kasilof	
235	Glover, S	5-Jun-15	Kenai, Kasilof	
236	Glover, S	7-Jun-15	Kenai, Kasilof	
237	Gonzales, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
238	Good, K	11-Jul-15	Kenai, Kasilof	
239	Gordon, W	6-Jul-15	Kenai, Kasilof	
240	Gottfredson, T	21-May-15	Kenai, Kasilof	
241	Gottfredson, T	21-May-15	Kenai, Kasilof	
242	Graham, B	17-May-15	Kenai, Kasilof	
243	Graham, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
244	Graham, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
245	Graham, T	17-May-15	Kenai, Kasilof	
246	Gravenhorst, M	6-Jul-15	Kenai	
247	Gravenhorst, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
248	Graves, W	3-Jul-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
249	Gravenhorst, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
250	Green, J	2-Jul-15	Kenai, Kasilof	
251	Green, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
252	Green, P	8-Jun-15	Kenai, Kasilof	
253	Green, Rebecca	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
254	Green, Rudy	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
255	Greenman, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
256	Griesbaum, M	8-Jun-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
257	Griess, B	22-May-15	Kenai, Kasilof	
258	Grimes, J	2-Jul-15	Kenai, Kasilof	
259	Grimmond, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
260	Groeneweg, B	5-Jun-15	Kenai, Kasilof	
261	Groeneweg, G	21-May-15	Kenai, Kasilof	
262	Groves, C	14-Jun-15	Kenai, Kasilof	
263	Gruenberg, M	2-Feb-15	Kenai, Kasilof	Alaska State Legislature
264	Gullicks, G	13-May-15	Kenai, Kasilof	
265	Gvant, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
266	Haesche, D	9-Jun-15	Kenai, Kasilof	
267	Hall, D	12-Jun-15	Kenai, Kasilof	
268	Hall, K	21-May-15	Kenai, Kasilof	
269	Hankle, K	21-May-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
270	Hanson, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
271	Hanson, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
272	Hanson, L	2-Jul-15	Kenai, Kasilof	
273	Harpe, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
274	Harpe, J	13-May-15	Kenai, Kasilof	
275	Harpe, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
276	Harris, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
277	Harrison, H	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
278	Hart, T	5-Jun-15	Kenai, Kasilof	
279	Hartig, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
280	Hartig, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
281	Hastings, J	16-May-15	Kenai, Kasilof	
282	Hawley, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
283	Heinen, Z	13-May-15	Kenai, Kasilof	
284	Heiskell, J	13-May-15	Kenai, Kasilof	
285	Hellingson, C	2-Jul-15	Kenai, Kasilof	
286	Helm, J	2-Jul-15	Kenai, Kasilof	
287	Helms, S	20-May-15	Kenai, Kasilof	
288	Helyn, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
289	Henley, C	22-May-15	Kenai, Kasilof	
290	Henley, C	22-May-15	Kenai, Kasilof	
291	Herbert, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
292	Herrod, J	13-May-15	Kenai, Kasilof	
293	Hidalgo, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
294	Higginbotham, B	2-Jul-15	Kenai, Kasilof	
295	Hilbrunel, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
296	Hillyer, J	18-May-15	Kenai, Kasilof	
297	Hilty, T	12-Jul-15	Kenai, Kasilof	
298	Hiner, T	21-May-15	Kenai, Kasilof	
299	Hippert, D	13-May-15	Kenai, Kasilof	
300	Hite, P	22-May-15	Kenai, Kasilof	
301	Hodges, D	7-Jun-15	Kenai, Kasilof	
302	Hogate, A	2-Jul-15	Kenai, Kasilof	
303	Holbrook, W	6-Jun-15	Kenai, Kasilof	
304	Holladay, J	6-Jun-15	Kenai, Kasilof	
305	Holland, D	16-Jun-15	Kenai, Kasilof	
306	Holley, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
307	Hollstein, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
308	Holsten, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
309	Holsten, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
310	Hood, S	2-Jul-15	Kenai, Kasilof	
311	Hopley, M	5-Jun-15	Kenai, Kasilof	
312	Homer, B	7-Jun-15	Kenai, Kasilof	



<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
313	Hoy, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
314	Hudson, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
315	Huginin, G	19-May-15	Kenai, Kasilof	
316	Hull, D	6-Jun-15	Kenai, Kasilof	
317	Humphreys, T	7-Jun-15	Kenai, Kasilof	
318	Huston, M	20-May-15	Kenai, Kasilof	
319	Inman, R	21-Jun-15	Kenai, Kasilof	
320	Ismael, D	22-May-15	Kenai, Kasilof	
321	Ivy, E	18-Jun-15	Kenai, Kasilof	
322	Iwinski, T	18-Jun-15	Kenai, Kasilof	
323	Jackson, M	13-May-15	Kenai, Kasilof	
324	Jackson, M	13-May-15	Kenai, Kasilof	
325	James, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
326	James, K	7-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
327	James, O	8-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
328	James, W	2-Jul-15	Kenai, Kasilof	
329	Janes, R	8-May-15	Kenai, Kasilof	
330	Jeffords, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
331	Jenkins, M	10-Jun-15	Kenai, Kasilof	
332	Jensen, A	14-May-15	Kenai, Kasilof	
333	Jensen, J	13-May-15	Kenai, Kasilof	
334	Jensen, J	18-May-15	Kenai, Kasilof	
335	Joe, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
336	Johnson, B	9-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
337	Johnson, Donald	21-May-15	Kenai, Kasilof	
338	Johnson, Dennis	5-Jun-15	Kenai, Kasilof	
339	Johnson, Donald	5-Jun-15	Kenai, Kasilof	
340	Johnson, J	9-Jun-15	Kenai, Kasilof	
341	Johnson, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
342	Johnston, R	22-Jun-15	Kenai, Kasilof	
343	Jones, D	2-Jul-15	Kenai, Kasilof	
344	Jordan, T	4-Jul-15	Kenai, Kasilof	
345	Joyce, C	5-Jun-15	Kenai, Kasilof	
346	Junker, J	25-May-15	Kenai, Kasilof	
347	Kamp, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
348	Karpik, D	30-Jan-15	Kenai, Kasilof	
349	Kaup, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
350	Kenworthy, J	1-Jun-15	Kenai, Kasilof	
351	Kerr, G	12-Jul-15	Kenai, Kasilof	
352	Kiffmeyer, R	2-Jul-15	Kenai, Kasilof	
353	Kiball, K	13-May-15	Kenai, Kasilof	
354	King, J	22-May-15	Kenai, Kasilof	
355	King, W	17-May-15	Kenai, Kasilof	
356	Kirr, B	13-May-15	Kenai, Kasilof	
357	Kirr, V	13-May-15	Kenai, Kasilof	
358	Kiser, K	10-Jul-15	Kenai, Kasilof	
359	Kittle, C	10-Jun-15	Kenai, Kasilof	
360				Removed at the request of the proponent prior to Board action on the RFR
361	Knlock, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
362	Knustson, A	2-Jul-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
363	Koecher, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
364	Kogstad, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
365	Komperda, M	11-Jul-15	Kenai, Kasilof	
366	Kondra, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
367	Konopasek, D	13-May-15	Kenai, Kasilof	
368	Koppert, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
369	Koskovich, R	6-Jun-15	Kenai, Kasilof	
370	Kramer, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
371	Kramer, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
372	Kramer, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
373	Krammen, M	4-Jul-15	Kenai, Kasilof	
374	Kreitel, C	20-May-15	Kenai, Kasilof	
375	Kroll, H	5-May-15	Kenai, Kasilof	
376	Krumm, G	9-Jun-15	Kenai, Kasilof	
377	Labrec, G	20-May-15	Kenai, Kasilof	
378	Lamberson, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
379	Lannet, S	16-May-15	Kenai, Kasilof	
380	LaRock, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
381	LaRock, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
382	Larsen, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
383	Larson, F	18-May-15	Kenai, Kasilof	
384	Latschaw, C	6-Jun-15	Kenai, Kasilof	
385	LaVon, G	5-Jun-15	Kenai, Kasilof	
386	Leaders, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
387	Leaders, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
388	Lee, R	6-Jun-15	Kenai, Kasilof	
389	LeMieux, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
390	LeMieux, N	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
391	LeMieux, V	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
392	Leonard, R	11-Jun-15	Kenai, Kasilof	
393	Lesmeister, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
394	Lessard, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
395	Lewallen, M	9-Jun-15	Kenai, Kasilof	
396	Lewis, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
397	Libbey, R	1-Feb-15	Kenai	
398	Liepitz, G	22-Jun-15	Kenai, Kasilof	
399	Ling, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
400	Linn, M	7-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
401	Lisonbee, D	11-Jul-15	Kenai, Kasilof	
402	Little, J	22-May-15	Kenai, Kasilof	
403	Locker, P	7-Jun-15	Kenai, Kasilof	
404	Long, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
405	Longley, G	2-Jul-15	Kenai, Kasilof	
406	Longworth, J	13-May-15	Kenai, Kasilof	
407	Lorantas, R	6-Jun-15	Kenai, Kasilof	
408	Lowe, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
409	Lowe, D	19-May-15	Kenai, Kasilof	
410	Lowery, G	20-May-15	Kenai, Kasilof	
411	Lujan, J	7-Jun-15	Kenai, Kasilof	
412	Lund, M	13-May-15	Kenai, Kasilof	
413	Lupo, M	2-Jul-15	Kenai, Kasilof	
414	Mackie, V	25-May-15	Kenai, Kasilof	
415	Mader, T	26-Jan-15	Kenai, Kasilof	
416	Malindzak, S	2-Jul-15	Kenai, Kasilof	
417	Malone, P	5-Jun-15	Kenai, Kasilof	
418	Malone, P	16-May-15	Kenai, Kasilof	
419	Mangum, R	14-May-15	Kenai, Kasilof	
420	Manning, K	29-Jan-15	Kenai, Kasilof	
421	Manning, K	20-May-15	Kenai, Kasilof	
422	Montey, K	21-May-15	Kenai, Kasilof	
423	Marinucci, C	11-Jun-15	Kenai, Kasilof	
424	Markkey, J	2-Jul-15	Kenai, Kasilof	
425	Masneri, S	8-Jun-15	Kenai, Kasilof	
426	Mazzolini, D	8-Jun-15	Kenai, Kasilof	
427	Mazzolini, N	18-Jun-15	Kenai, Kasilof	
428	McCabe, G	10-Jul-15	Kenai, Kasilof	
429	McCall, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
430	McCartney, A	10-Jun-15	Kenai, Kasilof	
431	McCormick, P	11-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
432	McCormick, P	5-Jun-15	Kenai, Kasilof	
433	McDaniel, M	12-Jul-15	Kenai, Kasilof	
434	McDaniel, T	10-Jul-15	Kenai, Kasilof	
435	McDonald, v	28-Jan-15	Kenai, Kasilof	
436	McDonald, C	11-Jun-15	Kenai, Kasilof	
437	McDonald, F	2-Jul-15	Kenai, Kasilof	
438	McFarlin, K	3-Jul-15	Kenai, Kasilof	
439	Mcglahn, T	5-Jun-15	Kenai, Kasilof	
440	McMaster, J	15-Jun-15	Kenai, Kasilof	
441	McNeal, J	22-May-15	Kenai, Kasilof	
442	McReynolds, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
443	Medrma, T	15-May-15	Kenai, Kasilof	
444	Mei, S	5-May-15	Kenai, Kasilof	
445	Meinkoth, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
446	Mendieta, v	2-Jul-15	Kenai, Kasilof	
447	Meredith, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
448	Merritt, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
449	Metz, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
450	Micciche Dunleavy	6-Feb-15	Kenai	Alaska State Legislature
451	Michels, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
452	Middleton, S	9-Jun-15	Kenai, Kasilof	
453	Mikoleit, J	14-May-15	Kenai, Kasilof	
454	Miller, M	29-Jan-15	Kenai, Kasilof	Department of Fish and Game
455	Miller, K	5-Jul-15	Kenai, Kasilof	
456	Miller,, M	8-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
457	Millikin, C	2-Jul-15	Kenai, Kasilof	
458	Milliron, J	13-May-15	Kenai, Kasilof	
459	Milne, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
460	Milne, R	2-Jul-15	Kenai, Kasilof	
461	Mincher, B	21-May-15	Kenai, Kasilof	
462	Miner, S	13-May-15	Kenai, Kasilof	
463	Mitcher, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
464	Mitchell, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
465	Mitchell, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
466	Mitchell, W	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
467	Montana, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
468	Montoya, D	2-Jul-15	Kenai, Kasilof	
469	Moore, M	21-May-15	Kenai, Kasilof	
470	Morales, S	14-May-15	Kenai, Kasilof	
471	Morgan, B	5-May-15	Kenai, Kasilof	
472	Morgan, C	14-May-15	Kenai, Kasilof	
473	Morris, C	13-May-15	Kenai, Kasilof	
474	Morrissey, S	13-May-15	Kenai, Kasilof	
475	Moseley, E	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
476	Moubray, M	2-Jul-15	Kenai, Kasilof	
477	Moyer, N	13-May-15	Kenai, Kasilof	
478	Mundy, T	24-Jun-15	Kenai, Kasilof	
479	Murdoch, T	18-May-15	Kenai, Kasilof	
480	Myhell, L	8-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
481	Navarre, M	17-Jul-15	Kenai, Kasilof	Kenai Peninsula Borough
482	Neal, M	8-Jun-15	Kenai, Kasilof	
483	Neal, M	8-Jun-15	Kenai, Kasilof	
484	Neeno, B	14-Jun-15	Kenai, Kasilof	
485	Neeser, K	18-Jun-15	Kenai, Kasilof	
486	Neis, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
487	Nelson, C	21-May-15	Kenai, Kasilof	
488	Nelson, D	7-May-15	Kenai, Kasilof	
489	Nelson, M	6-Jun-15	Kenai, Kasilof	
490	Neuberger, P	21-Jun-15	Kenai, Kasilof	
491	Newhouse, J	10-Jul-15	Kenai, Kasilof	
492	Newman, D	12-Jul-15	Kenai, Kasilof	
493	Newman, M	5-Jul-15	Kenai, Kasilof	
494	Nguyen, C	13-Jun-15	Kenai, Kasilof	
495	Nichols, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
496	Nichols, N	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
497	Niederhauser, W	21-May-15	Kenai, Kasilof	
498	Niederhauser, J	13-May-15	Kenai, Kasilof	
499	Nierenberg, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
500	Nievenberg, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
501	Nobles, W	2-Jul-15	Kenai, Kasilof	
502	Noethlick, D	5-Jun-15	Kenai, Kasilof	
503	Norberg, R	26-Jun-15	Kenai, Kasilof	
504	Norman, S	6-Jun-15	Kenai, Kasilof	
505	Norris, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community



<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
506	Norris, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
507	Norris, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
508	Norhtrop, J	18-Jun-15	Kenai, Kasilof	
509	Nuttall, C	14-Jul-15	Kenai, Kasilof	
510	Nyman, J	5-Jun-15	Kenai, Kasilof	
511	Oakes, A	2-Jul-15	Kenai, Kasilof	
512	Odgers, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
513	Ogan, W	19-Jun-15	Kenai, Kasilof	
514	Ogilvie, E	2-Jul-15	Kenai, Kasilof	
515	O'Hara, S	20-May-15	Kenai, Kasilof	
516	Ohnemus, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
517	Oiye, T	22-Jun-15	Kenai, Kasilof	
518	Okamoto, C	31-May-15	Kenai, Kasilof	
519	Olmstead, D	12-Jul-15	Kenai, Kasilof	
520	Olmstead, D	18-May-15	Kenai, Kasilof	
521	Olness, P	9-May-15	Kenai, Kasilof	
522	Olthois, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
523	Opalenik, C	2-Jul-15	Kenai, Kasilof	
524	Orr, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
525	Osborn, D	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
526	O'shea, V	2-Jul-15	Kenai, Kasilof	
527	Osowiecki, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
528	Osterman, D	12-Jun-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
529	Ott, E	9-Jun-15	Kenai, Kasilof	
530	Otto, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
531	Owens C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
532	Paddock, R	22-May-15	Kenai, Kasilof	
533	Painter, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
534	Panetta, J	2-Jul-15	Kenai, Kasilof	
535	Parnakian, T	2-Jul-15	Kenai, Kasilof	
536	Parsons, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
537	Parsons, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
538	Parsons, W	3-Jul-15	Kenai, Kasilof	
539	Patrick, J	2-Jul-15	Kenai, Kasilof	
540	Pearce, D	21-May-15	Kenai, Kasilof	
541	Pearcy, C	21-Jun-15	Kenai, Kasilof	
542	Pearson, H	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
543	Pederson, T	2-Jul-15	Kenai, Kasilof	
544	Pennell, J	13-May-15	Kenai, Kasilof	
545	Perkerson, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
546	Peterson, A	8-Jun-15	Kenai, Kasilof	
547	Peterson, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
548	Peterson, G	7-Jun-15	Kenai, Kasilof	
549	Peterson, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
550	Phelps, D	12-Jun-15	Kenai, Kasilof	
551	Phoenix, J	20-Jun-15	Kenai, Kasilof	
552	Pierce, E	5-Jun-15	Kenai, Kasilof	
553	Plummer, C	2-Jul-15	Kenai, Kasilof	
554	Podgorski, M	2-Jul-15	Kenai, Kasilof	
555	Polonowski, J	18-Jun-15	Kenai, Kasilof	
556	Prause, B	2-Jul-15	Kenai, Kasilof	
557	Pride, J	8-Jun-15	Kenai, Kasilof	
558	Prophet, J	14-May-15	Kenai, Kasilof	
559	Quinn, D	14-May-15	Kenai, Kasilof	
560	Rainey, E	21-May-15	Kenai, Kasilof	
561	Raiskums, P	21-May-15	Kenai, Kasilof	
562	Rand, D	21-May-15	Kenai, Kasilof	
563	Randall, S	13-Jul-15	Kenai, Kasilof	
564	Rankins, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
565	Rash, J	19-Jun-15	Kenai, Kasilof	
566	Rasmussen, M	2-Jul-15	Kenai, Kasilof	
567	Rauchenstein, D	14-May-15	Kenai, Kasilof	
568	Recken, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
569	Reger, L	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
570	Reid, P	21-Jun-15	Kenai, Kasilof	
571	Reins, D	4-Jul-15	Kenai, Kasilof	
572	Sackett, I	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
573	Reischach, S	18-May-15	Kenai, Kasilof	
574	Renck, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
575	Repasky, D	27-Jan-15	Kenai, Kasilof	
576	Reynoldson, P	9-Jun-15	Kenai, Kasilof	
577	Rice, J	14-May-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
578	Richardson, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
579	Richardson, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
580	Ridderman, E	23-Jun-15	Kenai, Kasilof	
581	Robinson, R	15-Jun-15	Kenai, Kasilof	
582	Robinson, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
583	Roebuck, A	2-Jul-15	Kenai, Kasilof	
584	Rogers, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
585	Rogers, Julie	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
586	Rogers, M	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
587	Roggenbuck, R	26-Jan-15	Kenai, Kasilof	
588	Romig, H	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
589	Rounsaville, L	2-Jul-15	Kenai, Kasilof	
590	Rouise, J	13-May-15	Kenai, Kasilof	
591	Route, C	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
592	Route, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
593	Ruggio, C	5-Jun-15	Kenai, Kasilof	
594	Rumph, J	5-Jun-15	Kenai, Kasilof	
595	Russ, A	5-May-15	Kenai, Kasilof	
596	Ryan, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
597	Salazar, A	21-Jun-15	Kenai, Kasilof	
598	Saniat, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
599	Saniat, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
600	Scarborough, D	16-Jun-15	Kenai, Kasilof	
601	Schelske, D	2-Jul-15	Kenai, Kasilof	
602	Schelske, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
603	Schilling, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
604	Schlieve, B	7-Jun-15	Kenai, Kasilof	
605	Schneider, J	2-Jul-15	Kenai, Kasilof	
606	Schofield, R	5-Jun-15	Kenai, Kasilof	
607	Scott, B	2-Jul-15	Kenai, Kasilof	
608	Scott, P	23-Apr-15	Kenai, Kasilof	
609	Sears, G	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
610	Sellers, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
611	Service, B	28-Jun-15	Kenai, Kasilof	
612	Sether, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
613	Sevamur, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
614	Shontz, D	20-May-15	Kenai, Kasilof	
615	Short, M	2-Jul-15	Kenai, Kasilof	
616	Shower, M	5-Jun-15	Kenai, Kasilof	
617	Simpson, S	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
618	Sims, N	6-Jun-15	Kenai, Kasilof	
619	Simsek, D	3-Jul-15	Kenai, Kasilof	
620	Singer, E	22-Jun-15	Kenai, Kasilof	
621	Sjogren, J	13-May-15	Kenai, Kasilof	
622	Skaaren, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
623	Skagstad, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
624	Skye, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
625	Sloan, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
626	Smart, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
627	Smith, J	8-Jun-15	Kenai, Kasilof	
628	Smith, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
629	Smith, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
630	Smith, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
631	Sparrow, N	7-Jun-15	Kenai, Kasilof	
632	Stabile, P	12-Jul-15	Kenai, Kasilof	
633	Stancil, D	20-May-15	Kenai, Kasilof	
634	Stanton, T	14-May-15	Kenai, Kasilof	
635	Stearing, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
636	Stehn, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
637	Stevens, G	2-Jul-15	Kenai, Kasilof	
638	Stevens, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
639	Stevens, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
640	Stewart, J	9-Jun-15	Kenai, Kasilof	
641	Stoney, M	13-May-15	Kenai, Kasilof	
642	Story, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
643	Story, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
644	Strawn, T	5-Jun-15	Kenai, Kasilof	
645	Strobbe, L	8-May-15	Kenai, Kasilof	
646	Stroh, T	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
647	Stroll, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
648	Stromstad, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
649	Stubbs, J	5-May-15	Kenai, Kasilof	
650	Sturm, M	17-Jun-15	Kenai, Kasilof	
651	Stutzenburg, D	5-Jul-15	Kenai, Kasilof	
652	Sullivan, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
653	Sullivan, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
654	Sutherlin, J	14-May-15	Kenai, Kasilof	
655	Sweeney, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
656	Tappan, A	20-May-15	Kenai, Kasilof	
657	Tappan, B	20-May-15	Kenai, Kasilof	
658	Taylor, J	5-Jun-15	Kenai, Kasilof	
659	Terlingo, J	2-Jul-15	Kenai, Kasilof	
660	Terry, L	16-Jun-15	Kenai, Kasilof	
661	Tewle, L	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
662	Thomas, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
663	thomas, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
664	Thomas, K	5-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
665	Thomas-Wolf, M	24-Jun-15	Kenai, Kasilof	
666	Thompson, M	19-May-15	Kenai, Kasilof	
667	Thompson, R	8-Jun-15	Kenai, Kasilof	
668	Thompson, S	19-May-15	Kenai, Kasilof	
669	Toms, K	5-Jun-15	Kenai, Kasilof	
670	Tonione, J	6-Jun-15	Kenai, Kasilof	
671	Torchick, J	2-Jul-15	Kenai, Kasilof	
672	Trafican, J	2-Jul-15	Kenai, Kasilof	
673	Travers-Smyre, N	13-May-15	Kenai, Kasilof	
674	Troy	21-Jun-15	Kenai, Kasilof	
675	Trueblood, C	12-May-15	Kenai, Kasilof	
676	Trueblood, S	13-May-15	Kenai, Kasilof	
677	Trupiano, J	2-Jul-15	Kenai, Kasilof	
678	VanderHoff, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
679	Vandusen, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community



<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
680	Vandusen, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
681	VanKooten, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
682	Venot, C	16-Jun-15	Kenai, Kasilof	
683	Verman, B	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
684	Vermillion, D	18-May-15	Kenai, Kasilof	
685	Vilwock, A	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
686	Vohs, R	18-Jun-15	Kenai, Kasilof	
687	Vos, J	14-May-15	Kenai, Kasilof	
688	Waack, L	13-May-15	Kenai, Kasilof	
689	Wait, E	13-May-15	Kenai, Kasilof	
690	Walker, M	2-Jul-15	Kenai, Kasilof	
691	Wallick, R	5-Jun-15	Kenai, Kasilof	
692	Wallin, G	6-Jun-15	Kenai, Kasilof	
693	Wallin, G	10-Jul-15	Kenai, Kasilof	
694	Walters, Z	15-May-15	Kenai, Kasilof	
695	Ward, A	9-Jun-15	Kenai, Kasilof	
696	Waters, D	13-May-15	Kenai, Kasilof	
697	Waters, D	14-May-15	Kenai, Kasilof	
698	Watt, J	21-May-15	Kenai, Kasilof	
699	Weber, M	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
700	Weber, P	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
701	Weis, S	29-Jan-15	Kenai, Kasilof	
702	Weisberg, R	2-Jul-15	Kenai, Kasilof	
703	Weldin, L	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
704	Wellman, T	20-May-15	Kenai, Kasilof	
705	Wellman, T	26-Feb-15	Kenai, Kasilof	
706	Wells, R	13-May-15	Kenai, Kasilof	
707	Wells, R	14-May-15	Kenai, Kasilof	
708	Wereda, B	8-Jun-15	Kenai, Kasilof	
709	Ereda, B	8-Jun-15	Kenai, Kasilof	
710	Gles, S	2-Jul-15	Kenai, Kasilof	
711	Tern, D	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
712	Wheat, A	10-Jul-15	Kenai, Kasilof	
713	White, C	20-Jun-15	Kenai, Kasilof	
714	White, J	4-Jul-15	Kenai, Kasilof	
715	White, M	8-Jun-15	Kenai, Kasilof	
716	White, W	8-Jun-15	Kenai, Kasilof	
717	Wielechowski, B	10-Mar-15	Kenai	Alaska State Legislature
718	Wight, J	2-Jul-15	Kenai, Kasilof	
719	Wilkes, R	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
720	Willems, D	2-Jul-15	Kenai, Kasilof	
721	Williams, J	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
722	Williams, R	2-Jul-15	Kenai, Kasilof	
723	Willumsen, S	17-May-15	Kenai, Kasilof	
724	Wilmoth, S	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
725	Wilson, D	26-Jun-15	Kenai, Kasilof	
726	Wilson, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
727	Winkle, K	13-May-15	Kenai, Kasilof	
728	Wisdorf, g	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
729	Witman, M	12-Jul-15	Kenai, Kasilof	

<b>File #</b>	<b>Name</b>	<b>Date</b>	<b>Subject</b>	<b>Organization</b>
730	Woods, R	5-Jun-15	Kenai, Kasilof	
731	Yates, K	6-Jul-15	Kenai	Cooper Landing and Hope Federal Subsistence Community
732	Young, C	27-Jun-15	Kenai, Kasilof	
733	Young, G	2-Jul-15	Kenai, Kasilof	
734	Young, P	5-Jun-15	Kenai, Kasilof	
735	Zervas, G	2-Jul-15	Kenai, Kasilof	
736	Zimmerman, J	16-May-15	Kenai, Kasilof	
737	Zirkle, J	13-May-15	Kenai, Kasilof	
738	Ziv, J	22-May-15	Kenai, Kasilof	
739	ZumBrunnen, S	12-Jul-15	Kenai, Kasilof	
740	Zurba, N	24-Jun-15	Kenai, Kasilof	

**APPENDIX 2. Requests for Reconsideration regulatory language.**

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Subsistence management regulations at 36 CFR Part 242 and 50 CFR Part 100 state the following regarding requests for reconsideration.

§ \_\_\_\_\_.20 *Request for reconsideration.*

- (a) *Regulations in subparts C and D of this part published in the Federal Register are subject to requests for reconsideration.*
- (b) *Any aggrieved person may file a request for reconsideration with the Board.*
- (c) *To file a request for reconsideration, you must notify the Board in writing within sixty (60) days of the effective date or date of publication of the notice, whichever is earlier, for which reconsideration is requested.*
- (d) *It is your responsibility to provide the Board with sufficient narrative evidence and argument to show why the action by the Board should be reconsidered. The Board will accept a request for reconsideration only if it is based upon information not previously considered by the Board, demonstrates that the existing information used by the Board is incorrect, or demonstrates that the Board's interpretation of information, applicable law, or regulation is in error or contrary to existing law. You must include the following information in your request for reconsideration:*
  - (1) *Your name, and mailing address;*
  - (2) *The action which you request be reconsidered and the date of Federal Register publication of that action;*
  - (3) *A detailed statement of how you are adversely affected by the action;*
  - (4) *A detailed statement of the facts of the dispute, the issues raised by the request, and specific references to any law, regulation, or policy that you believe to be violated and your reason for such allegation;*
  - (5) *A statement of how you would like the action changed.*
- (e) *Upon receipt of a request for reconsideration, the Board shall transmit a copy of such request to any appropriate Regional Council and the Alaska Department of Fish and Game (ADFG) for review and recommendation. The Board shall consider any Regional Council and ADFG recommendations in making a final decision.*
- (f) *If the request is justified, the Board shall implement a final decision on a request for reconsideration after compliance with 5 U.S.C. 551–559 (APA).*
- (g) *If the request is denied, the decision of the Board represents the final administrative action.*

**APPENDIX 3. List of Summarized Claims relevant to the Kenai River.**

<b>Analysis Claim</b>	<b>Claim</b>	<b>Criterion</b>	<b>Criterion</b>	<b>Criterion</b>
<b>Claim</b>	<b>Description</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Number</b>	<b>Description</b>	<b>1</b>	<b>2</b>	<b>3</b>
1.1	The Board was not informed that the Federally qualified subsistence users of Hope and Cooper Landing did not support FP15-10. This information may have changed the Boards' determination had it been available during deliberations.	X		
1.2	Combining State and Federal fishery data indicates that the annual harvest limit of 4,000 sockeye for Hope, Cooper Landing, and Ninilchik is being exceeded.	X		
1.3	Staff did not provide the Board with enough information on fisheries management and conservation issues on the Kenai River to make an informed decision.	X		
1.4	Gillnetting will pose a serious safety hazard for boat traffic.	X		
2.1	The Board utilized incorrect information provided by public testimony.		X	
3.1	The comment period on FP15-10 was not adequate.			X
3.2	The Board failed to cooperate with or provide adequate notice to the public.			X
3.3	The Board ignored staff and agency (ADF&G, USFWS) recommendations presented at the Federal Subsistence Board meeting.			X
3.4	Long time professional and local consensus is that gillnets should not be used on Kenai/Kasilof Rivers because they are non-selective.			X
3.5	Non-selective nature of gillnet harvest is wasteful.			X
3.6	The gillnetting regulation increases the conservation concern for Chinook on the Kenai River.			X
3.7	Incidental harvest of Chinook could lead to high rate of mortality.			X
3.8	Gillnetting of Chinook will harvest larger and more fecund breeders.			X

<b>Analysis Claim</b>	<b>Claim</b>	<b>Criterion</b>	<b>Criterion</b>	<b>Criterion</b>
<b>Claim Number</b>	<b>Description</b>	<b>1</b>	<b>2</b>	<b>3</b>
3.9	Gillnetting will be detrimental to salmon spawning beds & habitat.			X
3.10	The gillnetting regulation increases the conservation concern for trout and char on the Kenai River.			X
3.11	Gillnets are incompatible with the required release of any incidentally harvested 18 inch or larger trout/char.			X
3.12	Incidental harvest of trout/char longer than 18 inches could lead to a high rate of mortality.			X
3.13	A gillnet in the Kenai River in combination with sport fishery harvest levels will result in the over-harvest of trout/char			X
3.14	Gillnetting will be detrimental to long-term subsistence and non-subsistence uses.			X
3.15	There already exists sufficient opportunity for subsistence harvest of salmon that is selective including dipnet on the Kenai River and dipnet and fishwheel on the Kasilof River.			X
3.16	Gillnetting is not traditional and customary or a “long-time continuous use” on the Kenai and Kasilof Rivers – the Board has no authority to create a “new” method.			X
3.17	There is no shortage of red salmon – ANILCA 804(a) does not apply.			X
3.18	FP 15-10 adversely affects the subsistence priority of, and does not extend the same subsistence opportunity to, the subsistence users from the communities of Cooper Landing and Hope.			X
3.19	The Board did not comply with ANILCA Section 804 because it failed to apply appropriate limitations on Chinook Salmon caught in this fishery.			X
3.20	The Board passed proposals without an EIS, in violation of CFR 100.18.			X
3.21	The proposed regulation did not have required NEPA and Clean Water Act reviews.			X

<b>Analysis Claim</b>	<b>Claim</b>	<b>Criterion</b>	<b>Criterion</b>	<b>Criterion</b>
<b>Claim Number</b>	<b>Description</b>	<b>1</b>	<b>2</b>	<b>3</b>
3.22	Section 802 – decisions be consistent with sound management principals and the conservation of healthy populations of fish and wildlife.			X
3.23	Section 815 – The Board permitted a level of subsistence uses within a conservation unit inconsistent with the conservation of healthy fish and wildlife populations.			X
3.24	Other communities with Customary and Traditional use determinations for subsistence salmon, Hope and Cooper Landing, did not receive adequate notice to provide meaningful input.			X
3.25	The Board based support for the proposal only on proponent testimony.			X
3.26	Comparisons between the subsistence gillnet and ADF&G gillnet are invalid given that both are employed for different purposes (harvest vs capture & release).			X
3.27	The Board violated the APA and ANILCA.			X
3.28	The Board did not establish a sufficient record to support its decision.			X
3.29	The Board should not defer to a Regional Advisory Council when the recommendation is not supported by substantial evidence or violates principals of conservation.			X
3.30	The Board is allowing nets that are far too big and far too lethal.			X
3.31	Regulations should not include the harvest of Kenai Chinook Salmon.			X
3.32	There is no adequate window of opportunity between early and late run Chinook on the Kenai to allow for safe harvest.			X

**APPENDIX 4. Pathway Table for implementation of the Agreement**

<b>Specific Requests from Agreement</b>	<b>2018 Season and Beyond Implementation</b>
1. 10 fathom gillnet length	Already in regulation at § ____,27(e)(10)(iv)(J)(1)
2. Single gillnet permitted	Already in regulation at § ____,27(e)(10)(iv)(J)(1)
3. Fishery to take place in Moose Range Meadows	Already in regulation at § ____,27(e)(10)(iv)(J)
4. Fishery dates (7/1-8/15, 9/10-9/30)	FP17-10
5. Reporting daily catches within 72 hours	FP17-10
6. Remove operational plan requirement	FP17-10
7. Live release of all Rainbow Trout and Dolly Varden	FP17-10
8. Salmon taken in the gillnet fishery included as part of the dipnet/rod and reel fishery annual household limits only	FP17-10
9. Gillnet must have mesh size no larger than 5.25 inches	FP17-10 (permit stipulation)
10. Submission of an annual report to the Federal fishery manager	FP17-10 (permit stipulation)
11. Collection of samples from all harvested Chinook Salmon for genetic testing	FP17-10 (permit stipulation)
12. Anchor point and buoy (any color but red)	FP17-10 (permit stipulation)
13. Eliminate annual total harvest limit for late-run Chinook Salmon	Rulemaking
14. Eliminate annual total harvest limit for Sockeye, Coho and Pink salmon	Rulemaking
15. Early-run Chinook season (7/1-7/15), harvest/encounter limit, closure until 7/16 once limit is met	Rulemaking
16. Establish late-run Chinook harvest limit associated with time period (7/16-8/15), and closure of gillnet fishery until 9/10 if limit is reached	Rulemaking
17. Establish specific limits and select time periods for Chinook Salmon harvest	Rulemaking
18. Establish early-run Chinook Salmon household limit	Rulemaking
19. Resident fish encounter limits (100 Rainbow, 150 Dolly Varden), closure of fishery for season if limits reached, retention of fish that die in net	Rulemaking
20. Retention of all incidental mortalities regardless of species or length. Retentions count towards encounter and harvest totals for specified species	Rulemaking
21. Retention of jack Chinook Salmon (less than 20 inches in length), which does not count towards encounter or harvest totals	Rulemaking
22. Remove language adopting State seasonal riverbank closures from Federal subsistence regulations.	Rulemaking



# FORTY MILE CARIBOU HERD HARVEST PLAN 2019–2023



*Photo by Robert Gingue, ADF&G*

This plan was developed by the Harvest Management Coalition consisting of members of the Anchorage, Central, Delta, Eagle, Fairbanks, and Upper Tanana Fortymile advisory committees, Eastern Interior Regional Subsistence Advisory Council, Yukon Fish and Wildlife Management Board, Tr'ondëk Hwëch'in, and Dawson District Renewable Resource Council, in cooperation with the Bureau of Land Management, the Alaska Department of Fish and Game and Yukon Department of Environment. (See Appendix A for further information about the composition of the Harvest Management Coalition)

Endorsed by the Board of Game and the Federal Subsistence Board in **LEFT BLANK**  
**INTENTIONALLY**



This document should be cited as:

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- Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240.

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- (FAX) 907-465-6078

For information on questions on this publication, please contact ADF&G/DWC, 1300 College Road, Fairbanks, AK 99701-1551; telephone 907-459-7206.

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## INTRODUCTION

This *Fortymile Caribou Herd Harvest Plan 2019–2023* (“2019 Harvest Plan”) covers regulatory years<sup>1</sup> (RY) 2019–2023. It was developed by the Harvest Management Coalition (HMC) to provide recommendations to the management agencies in Alaska and Yukon to 1) guide harvest management of the Fortymile Caribou Herd (FCH) in Alaska, and 2) for allocation of an annual allowable harvest between Alaska and Yukon.

The following are changes in the 2019 Harvest Plan:

- Updated harvest recommendations, including expanded season and bag limit options to provide managers with additional tools to harvest more caribou from this increasing herd
- Provided recommendations for monitoring population dynamics used to assess the ability of habitat to support the herd
- Provided recommendations for harvest management under varying herd health and population trend scenarios

## BACKGROUND

### HARVEST MANAGEMENT PLAN HISTORY

Dedicated Canadian and Alaskan hunters and concerned citizens have contributed, compromised, and sacrificed to allow the FCH to grow while still allowing some harvest. Since 1995 when the first plan was put in place, the herd grew from approximately 20,000 caribou to a minimum of 73,009 caribou in 2017. The primary goal of all plans is to restore the FCH to its former range and abundance.

- *Fortymile Caribou Herd Management Plan 1995*
  - Plan covered RY96—RY00
  - Addressed aspects of herd management including allocation between Alaska and Yukon
  - Provisions were included to reduce caribou mortality
    - decreased harvest to a limit of 150 bulls per year under state-federal registration permit hunt
    - implemented nonlethal wolf management in Alaska
  - Simplify state-federal dual management by having a joint registration permit
- *Fortymile Caribou Herd Harvest Plan 2001–2006*

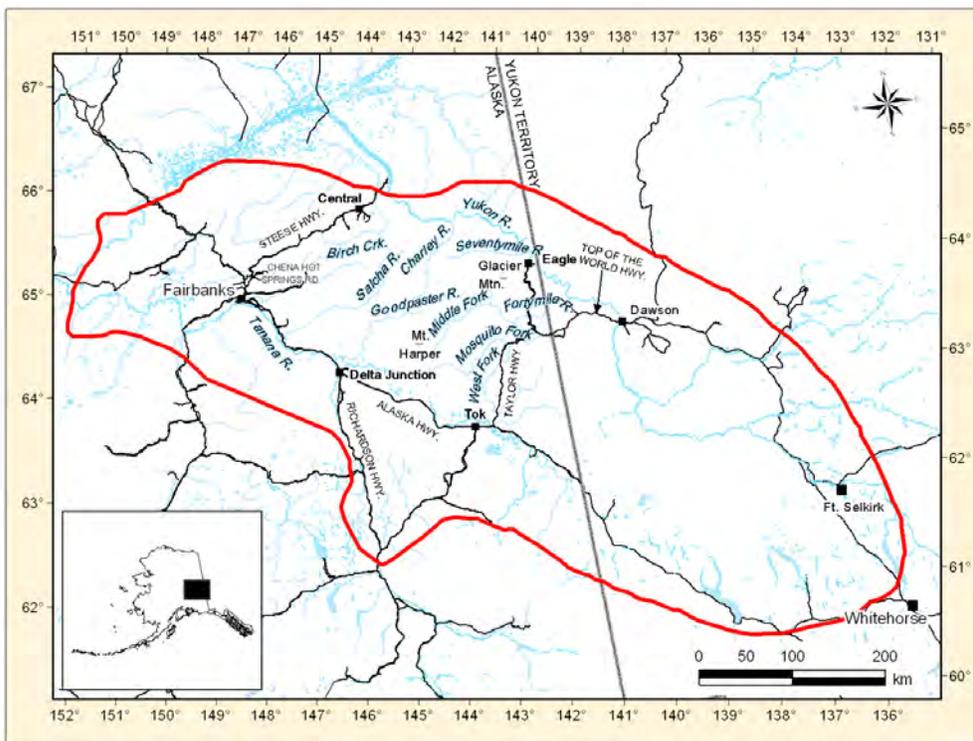
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<sup>1</sup> The state regulatory year (RY) begins 1 July and ends 30 June of the following year. For example, RY19 = 1 July 2019–30 June 2020.

- Herd size increased, and a framework was created to expand hunting opportunities
- Herd-wide allowable harvest of 2–3% of the estimated population size
- Allowed for annual harvest allocation increases if the herd grew by 10% or more in the previous year
- Harvest allocated 65% to Alaska and 35% to Yukon
- Ended nonlethal wolf management program in 2001
- *Fortymile Caribou Herd Harvest Plan 2006–2012*
  - Added secondary goal to the plan of increasing harvest as the herd grew
  - Implemented lethal wolf management program to benefit Fortymile caribou in 2005
- *Fortymile Caribou Herd Harvest Plan 2012–2018 (2012 Harvest Plan)*
  - Group name changed from “Fortymile Caribou Herd Planning Team” to “Harvest Management Coalition”

**HERD HISTORIC RANGE AND POPULATION INFORMATION**

The record of the FCH historic range indicates the herds range may have encompassed as much as 101,000 square miles in the past, extending from Whitehorse in Yukon to the White Mountains, north of Fairbanks in Alaska (Murie 1935) (Fig. 1).

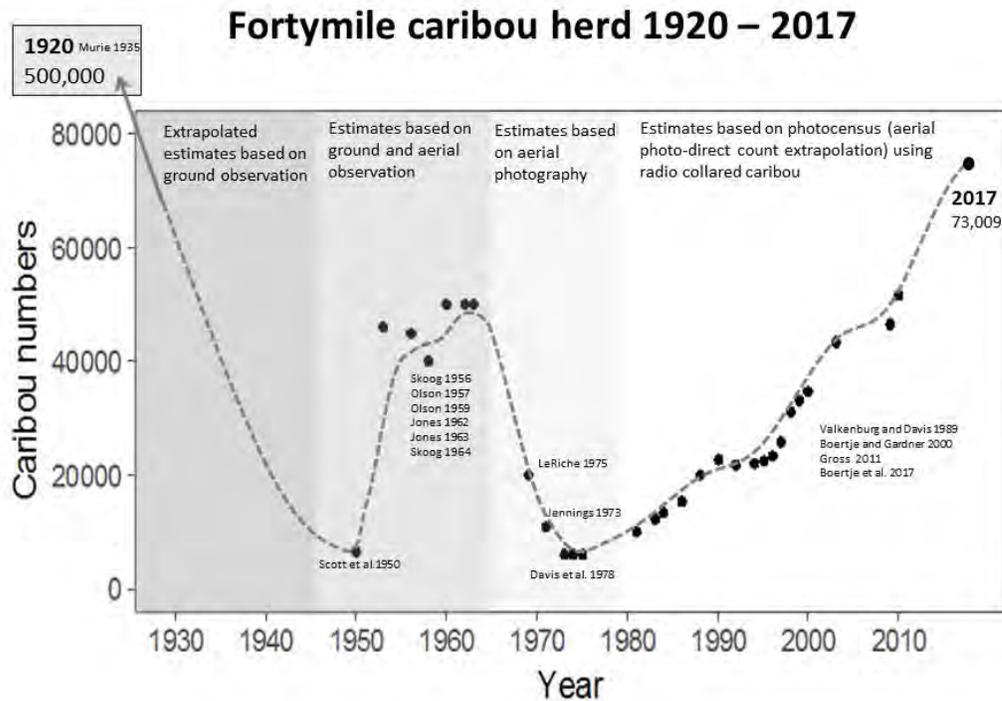


**Figure 1. Historic range of the Fortymile Caribou Herd.**

Methods for quantifying population estimates have varied through time from anecdotal evidence from historic written and oral resources through quantitative population estimates based on population models and rigorous field surveys.

- Population estimates in the 1920s were between 260,000 and 568,000 caribou (Fig. 2)
  - It should be noted that the estimates were not developed using scientific census methods employed during later population estimation efforts
- Population estimates from around 1950 indicated there were at least 46,000 caribou based on ground and aerial survey and observation efforts
- Population estimates from the early 1970s indicated that the population declined to an estimated low of 5,000 caribou based on aerial photography
- The population grew slowly between 1974 and 1990 to approximately 23,000 caribou based on aerial photography and modern photocensus techniques (which have been used in all population surveys since 1990)
- The population remained around 23,000 caribou until 1995, primarily due to low calf survival
- The population increased to a minimum of 43,375 caribou by 2003
  - The increase was attributed to the combination of an intensive private wolf trapping effort, nonlethal predator management in Alaska, favorable weather conditions, and reduced hunter harvest
  - During 2004–2010, the herd continued to increase by an average of 2–3% annually concurrent with lethal wolf removal in Alaska conducted by permitted members of the public (beginning in January 2005) and ADF&G staff (beginning in March 2009)
- The 2010 minimum herd size was 51,675 caribou based on results of a successful summer photocensus
- The next successful photocensus was completed in 2017, with a minimum herd size of 73,009 caribou
  - Population modeling using the Rivest et al. (1998) method resulted in a 2017 modeled estimate of 83,659 caribou, with a 95% confidence interval of 78,138 – 89,180 caribou [SE=2713.6, 95%,  $t(df=34-1)=2.345$ ]





**Figure 2. Fortymile caribou herd population estimates 1920–2017.**

### HARVEST HISTORY SINCE 1950

During the 1950s and 1960s harvest of the FCH was concentrated along the Steese, Taylor, and Top of the World highways, and along the Yukon River near Dawson City.

From the mid-1970s through the mid-1990s, FCH hunting regulations in Alaska were designed to benefit local hunters and to prevent harvest from limiting herd growth by utilizing bag limits, harvest quotas, and season openings. Hunting seasons were deliberately scheduled to avoid the period when road crossings were likely; harvest shifted to trail systems, rivers, and small airstrips scattered throughout the herd's range.

In 1994 a consensus-based planning effort was initiated by partners in Alaska and Yukon, which resulted in the 1995 Management Plan (RY96–RY00) that mandated an Alaska harvest quota of 150 bulls per year, while Yukon voluntarily suspended all harvest of the herd to encourage herd growth.

The 2001 and 2006 Harvest Plans for RY01–RY11 recommended a conservative annual harvest rate of 2–3% of the herd size.

- Harvest was allocated with 65% going to Alaska and 35% to Yukon
- No licensed hunting was allowed by the Yukon Department of Environment and First Nations in Yukon chose to forgo harvest of the herd and put its harvest allocation toward herd growth

- The Alaska harvest quota was divided between seasons, with 75% going to the fall hunt and 25% to the winter hunt. This harvest allocation was based on traditional harvest patterns

Beginning in RY04, the department began issuing one fall and one winter registration permit for all three zones to reduce confusion and the additional burden of having to issue multiple permits to hunters planning to hunt in more than one zone throughout the season.

During RY05–RY09, the FCH became increasingly available along Alaska road systems resulting in fall harvest quotas being reached or exceeded in 1–10 days. The extremely short seasons lead to concern over reasonable opportunity being provided for subsistence users, concentration of hunters and harvest along highways and the adjacent trail systems, “flock-shooting,” excessive wounding loss, safety issues, and concerns about the quality of the hunting experience.

In October 2009 Alaska members of the coalition met several times with ADF&G and federal managers to discuss interim solutions to the hunt issues that had developed over the previous 5 years. Starting in RY10, the opening date of the fall state hunt in the road accessible Zones 1 & 3 was changed from August 10<sup>th</sup> to August 29<sup>th</sup> and the bag limit for both the state and federal hunts was changed (bulls only). These changes were made to slow harvest to keep from exceeding the quota in a short period of time (1–3 days) and reduce the incidence of wounding loss associated with “flock shooting”.

## **RECOMMENDATIONS FOR HARVEST PLAN 2019–2023**

In October 2017, the HMC met in Tok where they were provided input on the current status of the herd based on data collected during the summer 2017 photocensus as well as nutritional information since 2010. The coalition reconvened in Fairbanks in January 2018 and in Tok in February 2019 to review and update the 2019 Harvest Plan. Consensus was reached on the following goals and objectives, which have been slightly modified from previous plans.

### **GOALS**

*Goal 1:* Promote continued sustainable growth and restore the herd to its historic range in both Alaska and Yukon.

*Goal 2:* Increase the allowable harvest of the FCH as the herd grows and as the herd can sustain harvest within the constraints of Goal 1.

*Goal 3:* Provide reasonable opportunity for Alaska subsistence uses.

*Goal 4:* Manage Alaska hunts to allow opportunity for non–subsistence hunters while staying within the constraints of all other goals.

## **HERD HEALTH AND HABITAT MONITORING**

The HMC recognizes that the FCH may reach a population greater than the habitat can support. Monitoring of caribou herd dynamics will continue to be used to assess the ability of habitat to support the herd.

Monitoring will include:

- Population size and growth rate
- Age and sex specific mortality rates
- Weights of 4-month-old caribou
- Birthrates of 3-year-old caribou
- Birthrates of other caribou
- Weather patterns
- Range quality
- Other

Data from a multi-year period should be used to signal when nutrition is compromised enough to require increasing harvest and stabilizing or reducing the population. For example, Boertje et al. (2012) suggested that if the 5-year average birthrate of 3-year-olds declines below 55% and adverse weather is not a factor, then managers should consider stabilizing the herd to conserve the habitat.

## **OBJECTIVES**

The HMC recommends the following objectives to achieve harvest management goals:

- Manage for a population of 50,000–100,000
- Determine annual harvest based on the most recent pre-hunt modeled population estimates
- Manage for desired population trend based on herd nutritional status using the following alternatives:
  - a. Slow growth alternative (preferred):
    - If the herd size is greater than 70,000, set harvest levels to attempt to maintain a growth rate of 1-2%
  - b. Stabilize population alternative:
    - Set harvest to stop herd growth and maintain population size
  - c. Deliberate population reduction alternative:
    - Set harvest and implement other management tools to reduce population size determined by biological analysis and consultation.

If the population declines naturally, set harvest and implement other management tools to stop or slow decline caused by poor health and nutritional stress.

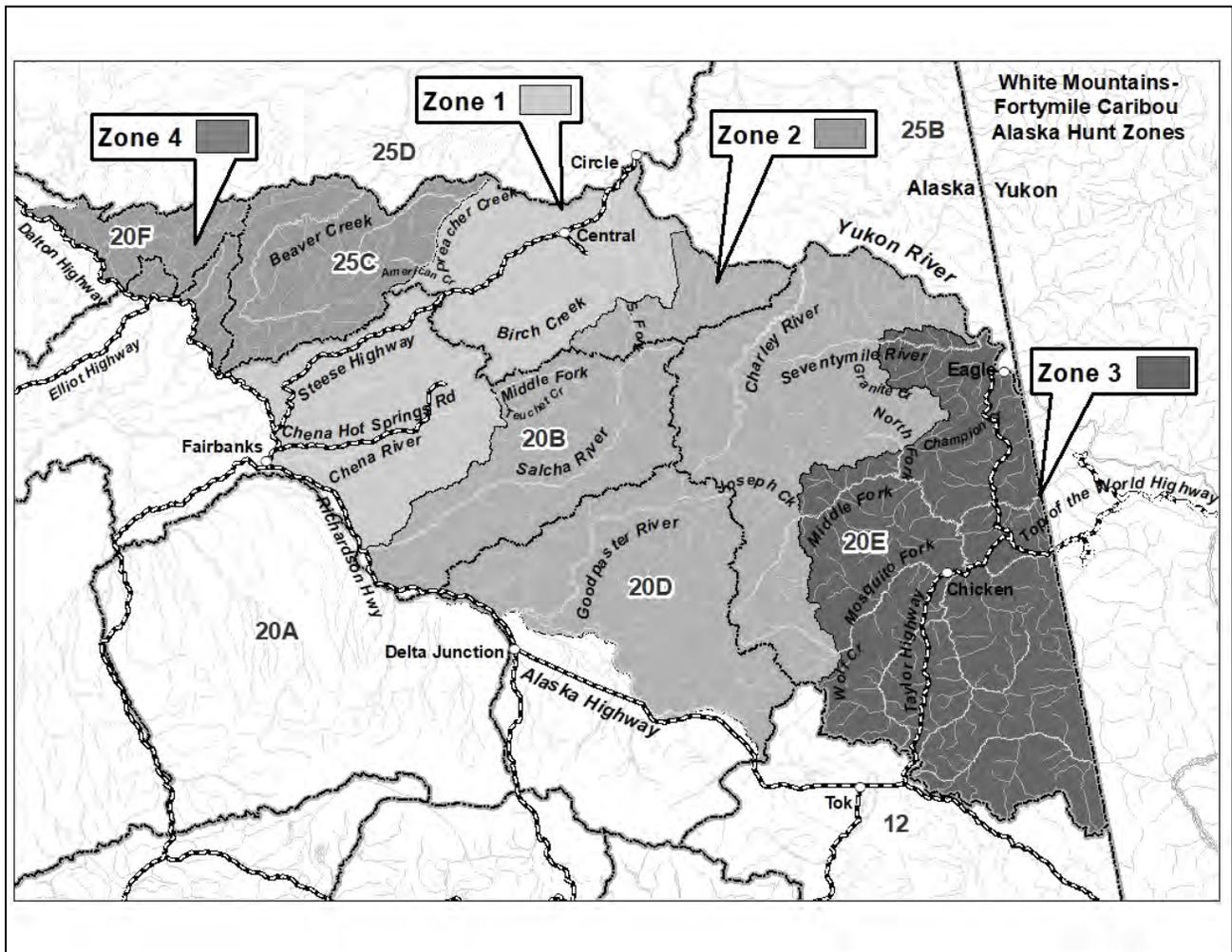
### ALLOCATION OF HARVEST BETWEEN ALASKA AND YUKON

Harvest allocation should remain the same, with 65% of allowable harvest going to Alaska and 35% going to Yukon. Caribou will not be reallocated between Alaska and the Yukon. Untaken quota may be reassigned after consultation between Alaska and Yukon.

### ALASKA HARVEST MANAGEMENT

#### Alaska Harvest Management Zones

The FCH hunt area should continue to be divided into hunt zones in Alaska to help manage and distribute harvest.



**FIGURE 3. White Mountains-Fortymile caribou herd hunt management zones in Alaska for regulatory years 2019–2023. See Appendix B for a detailed description of zones.**

### *Alaska Allocation*

The following Alaska allocations are recommended:

- Fall quota: Seventy-five percent of the Alaska annual harvest quota will be allocated to the fall hunt
  - Zone 2 – up to 300 caribou
  - Zones 1 & 4 – 40% of the remaining quota
  - Zone 3 – 60% of the remaining quota
- Winter quota: Twenty-five percent of the annual harvest quota and any surplus from the fall quota
  - Harvest in Zones 2 & 4 will be applied to the overall winter quota and will remain open until the end of the season
  - Sixty percent will be allocated to the road accessible Zone 1 or 3 where the majority of the herd is located immediately prior to the opening of the winter season
  - The remaining 40% of the quota will be assigned to the remaining road accessible zone
  - If the quota will not be met in one zone, 75% of remaining quota may be reassigned to the other zone

### *Additional Alaska Recommendations*

The HMC recommends the following:

- Use a single joint state-federal registration permit and coordinate seasons
- Use a mandatory short reporting period;
  - For successful hunters, 3 days after harvest
  - For unsuccessful hunters, 15 days from the close of the season
- Coordinate state and federal season openings and closures based upon reaching quotas, harvest reports, field observations, and reasonable opportunity for subsistence needs
- Monitor in-season harvest and movements and distribution to minimize heavy roadside harvest and to prevent harvest quotas from being exceeded
- Do not allow proxy hunting
- Allow up to 3 caribou to be taken by residents between the fall and winter seasons
- Managers should try to keep annual harvest as close to the annual quota as possible but may tolerate up to a 15% variation in a single year. If the quota is either not reached or exceeded in one year, harvest allocation normally will not be adjusted the following year to compensate

The HMC supports providing reasonable opportunity for subsistence hunters while continuing to support herd growth. The HMC stated during the 2012 Harvest Plan meetings that “In consideration of the fall and winter hunts being open to all Alaska residents through unlimited registration permits and provisions recommended for ADF&G to use discretionary permit authority to ensure that harvest is controlled and seasons are not cut unreasonably short by

emergency orders, the HMC recommends the Board of Game continue to find that reasonable subsistence opportunity, as required by state law, will be provided by implementing the harvest management guidelines included in the 2019 Harvest Plan. Further, the HMC recommends to the Federal Subsistence Board that they continue to find the 2019 Harvest Plan provides opportunity for subsistence uses by rural residents of Alaska in accordance with public land law (ANILCA Title VIII).”

### **SEASONS AND BAG LIMITS**

The hunting season for the FCH should continue to be split between a fall hunt and a winter hunt.

#### *Fall Season:*

- Registration hunt (RC860), all hunters, all zones
  - Up to 3 caribou by joint state-federal registration permit
  - 10 August–30 September
    - If 10 August falls on a Thursday – Saturday, opening day will be postponed to the following Sunday
- Youth drawing hunt (YC831), all hunters, Zones 1 & 3
  - One caribou per lifetime
  - 1–21 August

#### *Winter Season:*

- Registration hunt (RC867), resident hunters only, all zones
  - Up to 3 caribou by joint state-federal registration permit
  - 21 October–31 March

To offer fall hunting opportunity in the Eagle area, this plan recommends that ADF&G has the authority to announce a 1- to 3-day season for resident hunters to harvest caribou on state managed lands in the American Summit area between 20 October and 30 November. Registration permits will only be available in Eagle. This season will be opened if 1) there has been insufficient local opportunity in September to harvest caribou, and 2) Fortymile caribou are present in the area. This will be a state registration permit hunt, and every effort will be made to maintain the harvest at no more than 30 caribou. The animals harvested will be counted toward caribou harvested under the winter quota for Zone 3. This hunt is intended to accommodate residents of Eagle, but would be open to all Alaska residents. If excessive harvest occurs or other problems develop, it should be permanently suspended.

#### *Recommendations for Road Crossings*

- Temporary closures in road corridors or specific drainages
- Use targeted hunts to provide additional hunting opportunity if necessary to help meet winter harvest quotas
- Add a provision to the hunt conditions that hunters must remove all viscera from drivable surface due to the appearance as well as predators being attracted to roadways.

## **INFORMATION AND EDUCATION**

Education and outreach should continue to be an integral part of the success of managing the FCH and can be found online and at local ADF&G offices.

### *Current Efforts:*

- Newsletter *The Comeback Trail* (ADF&G)
- Brochure on caribou sex identification (ADF&G)
- Adding removal of viscera from drivable surfaces of roadways to permit hunt conditions
- Hunting ethics project in progress (EIRAC)
- Communicate with hunters about meat condition of October bulls

## **YUKON HARVEST MANAGEMENT**

Currently under development.

## **WOLF AND GRIZZLY BEAR MANAGEMENT**

The HMC recognizes that predator management in Alaska has been a vital aspect of increasing the size of the herd and maintaining high levels of harvest by people. Predator management tools in Alaska should remain available, even if they are not used continuously.

In Yukon, wolf management actions will be guided by the *Yukon Wolf Conservation and Management Plan* and by hunting and trapping regulations. Grizzly bear management actions will be guided by the *Yukon Grizzly Bear Conservation Plan* and by hunting regulations.

## **REFERENCES**

- BOERTJE, R. D., and C. L. GARDNER. 2000. The Fortymile caribou herd: novel proposed management and relevant biology, 1992–1997. *Rangifer*, Special Issue 12:17–37.
- BOERTJE, R. D., C. L. GARDNER, K. A. KELLIE, B. D. TARAS. 2012. Fortymile Caribou Herd: Increasing Numbers, Declining Nutrition, and Expanding Range. Alaska Department of Fish and Game, Wildlife Technical Bulletin 14, Juneau, Alaska.
- BOERTJE et al. 2017. Demography of an Increasing Caribou Herd With Restricted Wolf Control. *Journal of Wildlife Management* 81(3):429–448.
- DAVIS, J. L., C. A. Grauvogel, and P. Valkenburg. 1985. Changes in subsistence harvest of Alaska's Western Arctic caribou herd, 1940–1984. Pages 105–118 [In] T. C. Meredith, and A. M. Martell, editors. *Proceedings of 2<sup>nd</sup> North American Caribou Workshop*, Val Morin, Quebec, 17–20 October 1984. McGill Subarctic Research Station, McGill Subarctic Research Paper No. 40, Schefferville, Quebec, Canada.
- GOVERNMENT OF YUKON. 2012. Yukon Wolf Conservation and Management Plan. Department of Environment, Whitehorse, Yukon, 24 pp
- GOVERNMENT OF YUKON. 2018. Yukon Grizzly Bear Conservation Plan. Department of Environment, Whitehorse, Yukon, 49 pp

- GROSS, J. A. 2011. Units 20B, 20C, 20D, 20E, and 25C caribou. Pages 143– 170 [In] P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2008–30 June 2010. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 3.0, Juneau, Alaska, USA.
- JENNINGS. L. B. 1973. Caribou survey-inventory report, 1971. Pages 13–16 [In] D. E. McKnight, (ed.). Annual Report of Survey–Inventory Activities, Part II . Alaska Dep. Fish and Game. Fed. Aid in Wildl. Restor. Proj. W-17-4. Juneau.
- JONES. F. 1962. Steese–Fortymile caribou studies: movements, distribution, and numbers. Alaska Dep. Fish and Game. Fed. Aid in Wildl. Restor. Prog. Rep. Proj. W-6-R-2. Juneau pp. 91–101.
- JONES. F. 1963. Steese–Fortymile caribou studies: movements, distribution, and numbers. Alaska Dep. Fish and Game. Fed. Aid in Wildl. Resto. Prog. Rep. Proj. W-6-R-3. Juneau pp. 64–79.
- LERICHE. R. E. 1975. The international herds: present knowledge of the Fortymile and Porcupine caribou herds. Pages 127–139 [In]. R. Luick et al., (eds). First Intl. Reindeer/Caribou Symp. Univ. Alaska, Fairbanks. Biol. Pap., Spec. Rep. No. 1.
- MURIE, O. J. 1935. Alaska-Yukon caribou. North American Fauna 54. U.S. Department of Agriculture, Washington, D.C.
- OLSON. S. T. 1957. Management studies of Alaska caribou movements, distribution, and numbers. Pages 45-54 in: Alaska Wildl. Invest. Caribou Management Studies. Fed. Aid in Wildl. Restor. Proj. W-J-R. USFWS. Juneau.
- OLSON. S. T. 1958. Management studies of Alaska caribou movements, distribution, and numbers. Pages 41-51 in: Alaska Wildl. Invest. Caribou Management Studies. Fed. Aid in Wildl. Restor. Proj. W J-R. USFWS. Juneau.
- SKOOG. R. O. 1956. Range, movements, population, and food habits of the Steese-Fortymile Caribou Herd. M. S. Thesis, Univ. Alaska, Fairbanks. 145 pp.
- SKOOG. R. O. 1964. Caribou report, 1963. Alaska Dep. Fish and Game. Fed. Aid in Wildl. Restor. Prag. Rep. Proj. W-6-R-5. Juneau. 17 pp.
- VALKENBURG P. & Davis, J. L. 1989. Status, movements, range use patterns, and limiting factors of the Fortymile Caribou Herd. Alaska Dep. Fish and Game. Fed. Aid in Wildl. Restor. Final Rep. Proj. W- 23-1. Juneau. 33 pp.



**APPENDIX A.** Composition of the Harvest Management Coalition.

Membership of the Harvest Management Coalition (HMC) has evolved over the years. Since the 2001 Harvest Plan, the state advisory committee membership of the HMC has been from the Eagle, Central, Fairbanks, Delta, and Upper Tanana–Fortymile committees. For the 2006, 2012, and 2019 harvest plans the Eastern Interior Regional Advisory Council (EIRAC), and members of the Yukon contingent were added to the HMC. The Anchorage and Matanuska Valley AC expressed strong interest in joining the HMC and were added in 2012. No Matanuska Valley AC representative attended the planning meetings for the 2019 Harvest Plan.

As a result of growth of the Fortymile herd and expanding harvest opportunities, hunters who live outside of its immediate range want to have a voice in how harvest is managed. The HMC agreed that its Alaska membership should expand. The members agreed that even though the coalition should expand, it must not become so large that meetings would be difficult to manage. Furthermore, they expressed the desire that the five original local advisory committees should always hold a majority, and the EIRAC and Yukon contingent should always have representation. Beyond those members there should be two other Alaska seats, not necessarily always Anchorage and Matanuska Valley advisory committees, but people who would represent user groups and appropriate interests.

If others would like to join the HMC, they should come to the coalition, present their case, and request membership.

HMC members:

October 25–26, 2017:

Frank Neumann; Anchorage Fish & Game Advisory Committee  
Bill Glanz; Central Fish and Game Advisory Committee  
Daniel Reynolds; Dawson District Renewable Resource Council  
Mark Wierda; Dawson District Renewable Resource Council  
Vern Aiton; Delta Fish & Game Advisory Committee  
Andrew Bassich; Eagle Fish and Game Advisory Committee  
Don Woodruff; Eastern Interior Regional Advisory Council  
Mike Tinker; Fairbanks Fish & Game Advisory Committee  
Natasha Ayoub; Tr’ondëk Hwëch’in  
Frank Entsminger; Upper Tanana–Fortymile Fish & Game Advisory Committee  
Graham Van Tighem; Yukon Fish & Wildlife Management Board  
Ron Chambers; Yukon Fish & Wildlife Management Board  
Matt Clarke; Yukon Government, Department of Environment

January 23–24, 2018

Phillip Calhoun; Anchorage Fish & Game Advisory Committee  
Bill Glanz; Central Fish and Game Advisory Committee  
Daniel Reynolds; Dawson District Renewable Resource Council  
Mark Wierda; Dawson District Renewable Resource Council  
Vern Aiton; Delta Fish & Game Advisory Committee  
Andrew Bassich; Eagle Fish and Game Advisory Committee  
Don Woodruff; Eastern Interior Regional Advisory Council

Al Barrette; Fairbanks Fish & Game Advisory Committee  
Art Christensen; Tr'ondëk Hwëch'in  
Natasha Ayoub; Tr'ondëk Hwëch'in  
Frank Entsminger; Upper Tanana–Fortymile Fish & Game Advisory Committee  
Matt Clarke; Yukon Government, Department of Environment

February 5–6, 2019

Phillip Calhoun; Anchorage Fish & Game Advisory Committee  
Bill Glanz; Central Fish and Game Advisory Committee  
Mark Wierda; Dawson District Renewable Resource Council  
Vern Aiton; Delta Fish & Game Advisory Committee  
Don Woodruff; Eagle Fish and Game Advisory Committee  
Michael Koelher; Eastern Interior Regional Advisory Council  
Mike Tinker; Fairbanks Fish & Game Advisory Committee  
Darren Taylor; Tr'ondëk Hwëch'in  
Jacob Combs; Upper Tanana–Fortymile Fish & Game Advisory Committee  
Graham Van Tighem; Yukon Fish & Wildlife Management Board  
Matt Clarke; Yukon Government, Department of Environment

**APPENDIX B.** Hunt zone descriptions.

Note: Federal seasons are managed by game management unit (unit), not zones. Federal lands used for harvest of FCH are in Units 25C, 20E, and 20F.

**ZONE 1**

Unit 20B, that portion within the Chatanika River drainage north and east of the Steese Highway, and that portion south and east of the Steese Highway, except the middle fork of the Chena River drainage upstream from and including the Teuchet Creek drainage and except the Salcha River drainage.

Unit 25C, that portion east of the east bank of the mainstem of Preacher Creek to its confluence with American Creek, then east of the east bank of American Creek, excluding that portion within the drainage of the south fork of Birch Creek and excluding that portion within the Yukon–Charley Rivers National Preserve.

**ZONE 2**

Unit 20B, that portion south and east of the Steese Highway within the middle fork of the Chena River drainage upstream from and including the Teuchet Creek drainage and the Salcha River drainage.

Unit 20D, that portion north of the south bank of the Tanana River.

Unit 20E, that portion within the Charley River drainage, the Seventymile River drainage upstream from and including the Granite Creek drainage, the North Fork Fortymile River drainage upstream from, but not including the Champion Creek drainage, the Middle Fork Fortymile River drainage upstream from and including the Joseph Creek drainage, the Mosquito Fork of the Fortymile River drainage upstream from and including the Wolf Creek drainage, and the drainages flowing into the Yukon River downstream from the confluence of the Seventymile and Yukon rivers.

Unit 25C, that portion within the drainage of South Fork Birch Creek and that portion within the Yukon–Charley Rivers National Preserve.

**ZONE 3**

Unit 20E, remainder (the road and trail accessible portion of the herd’s range in the vicinity of the Taylor Highway).

**ZONE 4**

Unit 20B and Unit 20F those portions north and west of the Steese Highway, north and east of the Elliot Highway to its intersection with the Dalton Highway, then east of the Dalton Highway and south of the Yukon River, excluding the Chatanika River drainage.

Unit 25C, that portion west of the east bank of the mainstem of Preacher Creek to its confluence with American Creek, then west of the east bank of American Creek.

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