STAFF ANALYSIS
TEMPORARY SPECIAL ACTION
WSA19-05

ISSUES

Temporary Special Action Request WSA19-05, 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 for the fall 2019 and 2020 season (Aug. 15-Oct. 15), for the residents of False Pass only.

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.

The applicable Federal regulations are found in 36 CFR 242.19(b) and 50 CFR 100.19(b) (Temporary Special Actions) and state that:

> *. . . After adequate notice and public hearing, the Board may temporarily close or open public lands for the taking of fish and wildlife for subsistence uses, or modify the requirements for subsistence take, or close public lands for the taking of fish and wildlife for nonsubsistence uses, or restrict take for nonsubsistence uses.*

Note: WSA19-05 addresses the Aug. 15 to Oct 15, 2019 season. Wildlife Proposal WP20-25 will address the fall 2020 season when the Federal Subsistence Board (Board) takes action on it at its April 2020 regulatory meeting.

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. Up to 10 permits would be issued by the Izembek National Wildlife Refuge Manager.***	***Aug. 15-Oct. 15, 2019 and 2020***

Existing State Regulation

Unit 10−Caribou

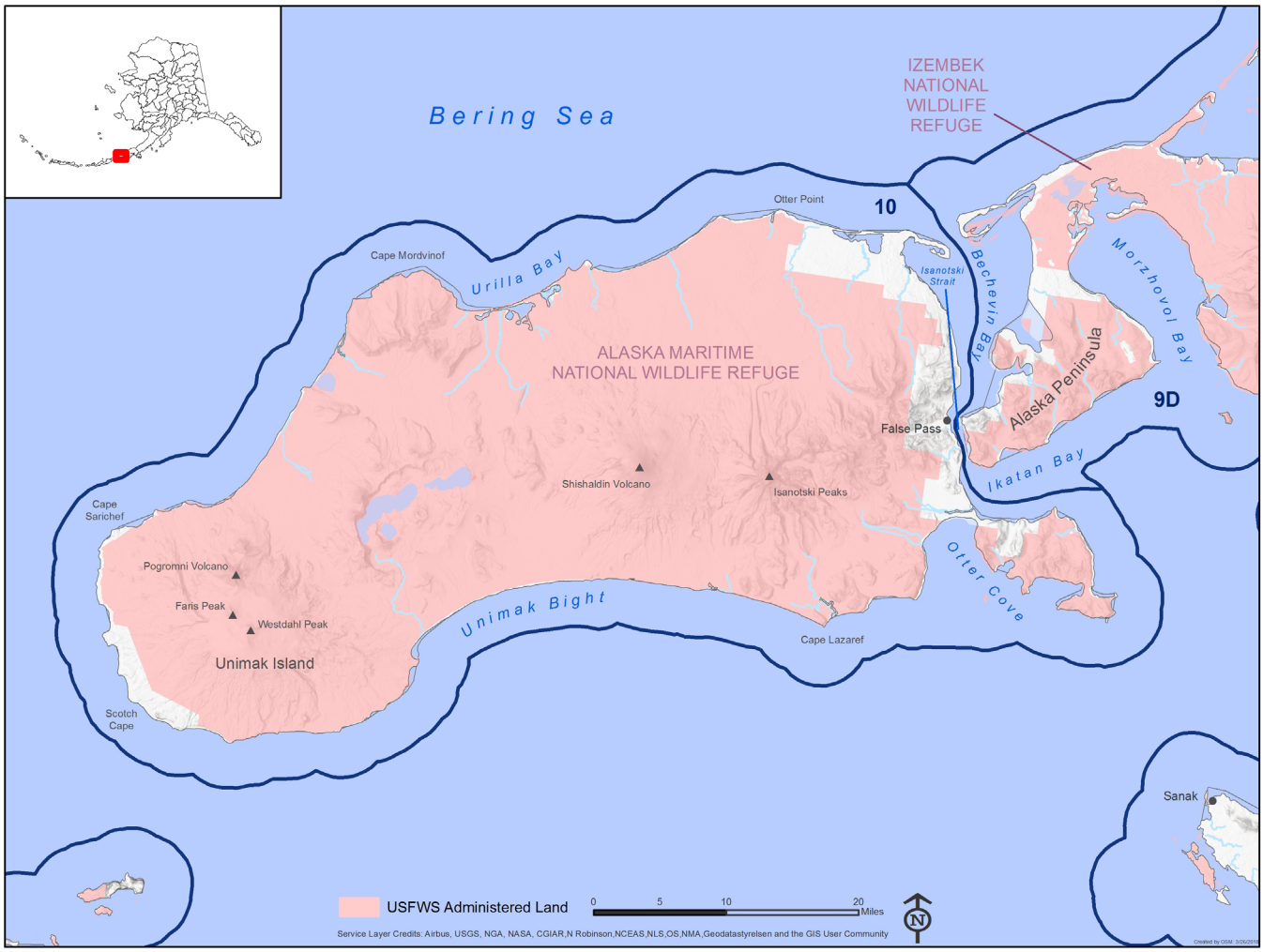
Umnak and Unimak islands	*Residents and Nonresidents*	*No open season*

Extent of Federal Public Lands

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**). Unimak Island is within the Alaska Maritime National Wildlife Refuge but is managed by Izembek National Wildlife Refuge (Izembek NWR).

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**).

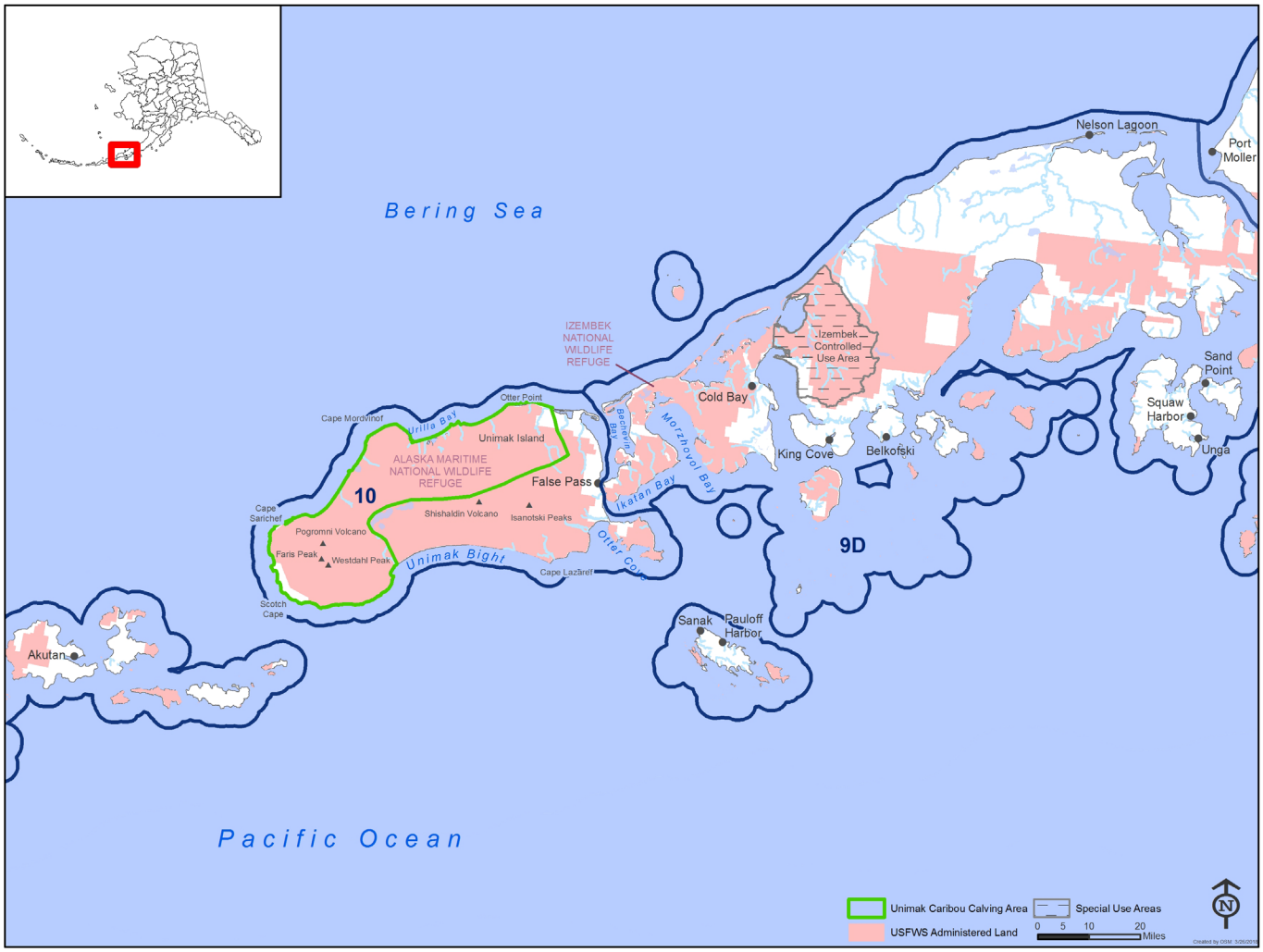


Map 1. Unimak Island

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 the 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 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).



Map 2. Unimak Island including the communities with customary and traditional Use for caribou - Akutan, False Pass, King Cove, and Sand Point.

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 Sept. 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-Sept. 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-Sept. 30 or Nov. 15-Mar. 31 and allowed nonresidents one caribou from Sept. 1-Sept. 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-Sept. 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 to 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-Sept. 29 (OSM 2009a) and authorized Temporary Special Action WSA09-07 on November 10, 2009 to close the winter season (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 caribou were harvested under WSA18-01.

Current Events

The Council (the proponent for WSA19-05) also submitted Wildlife Proposal 20-25, which closely mirrors this special action request and has the same intention of providing a harvest for the residents of False Pass.

A public hearing was held on June 5, 2019 via teleconference to provide members of the public an opportunity to comment on Temporary Special Action WSA19-05 to open a limited fall caribou hunt for residents of False Pass only for the 2019-2020 season. No residents from False Pass provided testimony, although the City Administrator from False Pass noted that the community was in support of the WSA19-05. No public testimony was given at the public hearing but one written comment was received from the State of Alaska which opposed the Special Action because the UCH population is still well below the population objective. Their recommendation was that the hunt remain closed until a minimum of 500 caribou are observed during the fall composition surveys and the bull:cow ratio remains above 35 bulls:100 cows (**Appendix 1**).

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 Straight, 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 Isanotski 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 the 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, the Izembek NWR 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 by 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. 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).

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 ≤ 0.08; males ≤ 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**).

Table1. Unimak Caribou Herd spring and winter minimum population counts and fall composition counts in Unit 10 from 1996–2016 (Butler 2005, 2007, 2010; Crowley 2015, 2016; USFWS 2018a, 2018b, ADF&G 2019).

Regulatory Year	Total bulls: 100 cows	Calves: 100 cows	Total Calves	Total Cows	Total bulls	Composition Sample size[a]	Estimate of herd size
1996-1997							603[b]
1997-1998							
1998-1999							
1999-2000		46				126	
2000-2001	40	21	13	62	25	406	983[c]
2001-2002							
2002-2003	54	31	17	54	29	392	1,262[b]
2003-2004							
2004-2005							1,006[b]
2005-2006	45	7	5	66	29	730	1,009[b]
2006-2007							806[b]
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[b]
2010-2011	8	8	7	86	7	284	
2011-2012	6	7	6	89	8	117	224[d]
2012-2013	10	3	2	89	8	85	
2013-2014	10	19	15	78	8	67	192[e]
2014-2015	15	22				127	230[b]
2015-2016							334[b]
2016-2017	33	40	60	149	49	258	
2017-2018							190[d]
2018-2019	80	44					413[f]

[a] Estimates based on October composition surveys
[b] Estimates based on winter (January and April) counts by Izembek NWR staff.
[c] Estimates based on July post calving counts and the proportion of the radio collared caribou encountered
[d] May parturition survey by ADF&G
[e] October census of entire island by Izembek NWR staff
[f] Minimum count conducted by ADF&G

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). Both Federal and State hunting seasons 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. The yearly average of the number of calves: 100 cows from 2005-2012 was 5.7 calves: 100 cows. 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).

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.

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 FWS 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 Draft Southern Alaska Peninsula Caribou Herd Operational Draft Plan, provide a framework for the population management objectives of the UCH. The Draft Southern Alaska Peninsula Caribou Herd operational management plan objectives are 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 FWS 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 the Unimak Island is designated as a wilderness. The village of False Pass, located across the mainland on Isanotski 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 a 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 on the north side of the island consists of a gently sloping plain and is characterized by dense vegetation and numerous lakes, streams, marshes and hills (Sekora 1971). The mean annual temperature is 38^{o}F (range -10^{o}F to 70.0^{o}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). A majority of the caribou take 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 1997-2018 for the Unimak Island Caribou Herd (USFWS 2010, Crowley 2015, ADF&G 2018, USFWS 2018a, 2018b, WinfoNet 2018, Fitzmorris 2019).

Year	Federal Registration Permits			State Harvest Tickets			Total Reported Harvest[a]
	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

Year	Federal Registration Permits			State Harvest Tickets			Total Reported Harvest[a]
	Permits Issued	Bulls Harvested	Cows Harvested	Permits issued	Bulls Harvested	Cows Harvested	
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

[a] 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 in 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 (see **Unit 9 Map** and **Unit 10 Map**). **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
Akutan *(Unit 10)	589 (88)	713 (75)	1027 (90)	40
False Pass (Unit 10)	148	64	35	15
King Cove (Unit 9D)	677	792	938	181
Sand Point (Unit 9D)	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 this 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 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 and 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 lb 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. Cumulative 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 1997-2009 hunting seasons, a total of 224 individual harvest reports indicated successful harvest of caribou on Unimak Island during this time period. 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 1997-2007, 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 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. 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. False Pass residents also use Off Road Vehicles (ORVS) to access caribou on the island. 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 a harvestable surplus of bulls is now available (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 southern-most 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, 2) attempted to harvest a resource, and 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 (2012) 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).

Table 5. Large land mammal harvest and use by households within each community (ADF&G 2018)

Species	% used	% attempt	% harvest	# animals	Total lbs	Lbs per capita
Akutan, 2008 (pop. 82, hh 40)						
Bison	0	0	0	0	0	0
Brown Bear	0	0	0	0	0	0
Caribou	8.3	0	0	0	0	0
Deer	2.8	2.8	2.8	1	43.2	0.6
Feral Cattle	52.8	2.8	2.8	3	1050	14.2
Moose	13.9	0	0	0	0	0
False Pass, 1988 (pop. 69 hh 22)						
Bison	0	0	0	0	0	0
Brown Bear	0	0	0	0	0	0
Caribou	90	50	35	31	4650	73.8
Deer	0	0	0	0	0	0
Feral Cattle	15	5	5	1	350	5.6
Moose	10	5	0	0	0	0
King Cove, 1992 (pop. 560 hh 158)						
Bison	4	0	0	0	0	0
Brown Bear	1.3	1.3	1.3	1	0	0
Caribou	64	29.3	25.3	34	5100	19.7
Deer	16	0	0	0	0	0
Feral Cattle	25.3	13.3	13.3	15	5250	19.7
Moose	0	0	0	0	0	0
Sand Point, 1992 (pop.606 hh 204)						
Bison	54.8	8.7	7.7	8	3600	11.7
Brown Bear	1	0	0	0	0	0
Caribou	51	15.4	11.5	20	3000	9.7
Deer	1	0	0	0	0	0
Feral Cattle	15.4	3.8	3.8	4	1400	4.5
Moose	23.1	2.9	1	1	540	1.8

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.

Effects of the Proposal

If approved, this special action would provide a limited bull caribou harvest for the residents of False Pass. A small harvest of caribou would be significant to the residents of False Pass in terms of nutrition and by providing a meaningful experience that allows for the transfer of knowledge between generations. The Izembek NWR Manager would have regulatory flexibility to issue permits based on health of the UCH. The most recent minimum count of 413 in 2018 suggests that the UCH population is increasing and for the first time in many years the 2016/17 bull:cow (33: 100 cows) and calf:cow (40: 100 cows) 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. 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.

OSM CONCLUSION

Support Temporary Special Action WSA19-05 **with modification** to allow the Izembek National Wildlife Refuge Manager set the quota, and season closure date for the harvest of up to four bull caribou between August 15-October 15, 2019 for residents of False Pass only.

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. Up to 4 caribou may be harvested. Season closure date will be announced by the Izembek National Wildlife Refuge Manager.*** ***Federal public lands are closed to the taking of caribou except by residents of False Pass***	***Aug. 15-Oct. 15, 2019***

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. Given the difficulty of accessing the area frequented by the herd, harvest is anticipated to remain low.

In 2016, the last UCH population estimate was approximately 334 animals, which is about 30% of the lower threshold of 1,000 animals recommended by the State for this island population of caribou. The slight increase in the number of caribou counted during the parturition surveys and minimum count of 413 animals in 2018 indicate the population is between 400-500 caribou. The UCH population appears to have stabilized and may be increasing slightly. Given that the UCH has experienced wide population fluctuations in the past and given their susceptibility to extirpation by a stochastic event, the harvest quota should not exceed 4 bulls, or approximately 1% of the population. Furthermore, registration hunts do not generally limit the number of permits issued, as was requested by the proponent, so allowing for a quota of up to 4 bull caribou to be harvested rather than setting the number of permits should allow for maximum hunting opportunity.

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Appendix 1

THE STATE of ALASKA
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MEMORANDUM

TO:	Anthony Christensen, Chair, Federal Subsistence Board	DATE:	May 31, 2019
		PHONE:	267-2190
FROM	Ben Mulligan BSM Deputy Commissioner	SUBJECT:	Wildlife Special Action Request 19-05

The Alaska Department of Fish and Game (ADF&G), respectfully recommends that the board does not open a hunt for Unimak caribou as requested by Wildlife Special Action (WSA) 19-05: Temporary Special Action Request, which was submitted by the Kodiak/Aleutians Subsistence Regional Advisory Council. The WSA requests the Federal Subsistence Board to open a limited bull caribou hunt in Unit 10-Unimak Island only (August 15–October 15) with quotas determined by the Izembek National Wildlife Refuge Manager, based on the health and status of the Unimak Caribou Herd population and in consultation with the Alaska Department of Fish and Game. The proponent also requests that this hunt be open only to residents of False Pass, which would require a Section 804 subsistence user prioritization analysis.

Background

Caribou numbers on Unimak Island have cycled widely over the decades as have the Northern and Southern Alaska Peninsula (SAP) caribou herds. Although there are historical accounts of caribou moving between Unimak Island and the mainland, and the Unimak caribou herd (UCH) was once considered part of the SAP, more recent evidence including fidelity to calving grounds, prolonged genetic isolation, and long-term radio collar data provided enough distinction between island and mainland caribou to classify these as two different herds. The Alaska Board of Game has made a positive customary and traditional subsistence use finding for the SAP herd when it included caribou in Units 9D and 10-Unimak Island, and found that 100–150 SAP caribou are reasonably necessary for subsistence uses. The Board of Game has not yet considered separate subsistence uses of the now-distinct Unimak herd.

Following a precipitous decline in the late 1970s and early 1980s the UCH population again reversed its course and began increasing. By 1997 the herd had grown to at least 600 caribou and by 2000 to approximately 1,000

animals. The population was relatively stable until 2005 (or possibly earlier, prior to commencement of annual surveys) when fall composition surveys began indicating low annual calf-to-cow ratios. This decline continued through 2012 when it reached 3 calves:100 cows. Population size and bull-to-cow ratios declined correspondingly, and predation on calves was suspected to be the cause of poor calf survival.

State and federal hunts were closed by emergency order in 1993 when the then-combined SAP and UCH herds declined below 2,500 caribou. The federal subsistence season reopened in regulatory year (RY) 2000 when the UCH reached 1,000 animals and herd management was officially separated from SAP. The state general season reopened in RY01. State and federal UCH hunts were once again closed in RY09 following the most recent decline. A Unimak Caribou Herd Operational Plan was developed in 2008 as a joint plan of the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service (USFWS) to manage the herd. Under the plan:

> Managing the UCH, Guideline 2:
>
> c. There will be no harvest when the bull:cow ratio falls below 35 bulls:100 cows for 3 consecutive years or the allowable harvest is less than 10 bulls for 2 consecutive years. Bull harvest will be managed to maintain the minimum sex ratio regardless of herd status.

Although the herd did not meet the agreed-upon minimum criteria for harvest, a federal season for up to 10 bulls was initiated in 2018. Three permits were issued, and there was no harvest.

Due to the apparent poor calf survival unrelated to nutrition, the Department of Fish and Game lobbied to reduce the effects of predation on the island. The USFWS commissioned an environmental assessment evaluating many *Management Alternatives for the Unimak Island Caribou Herd* in 2010 and proceeded with Alternative A - no action which relied on the caribou population to recover without any intervention. Unimak caribou are still well under the population objective and there is some uncertainty if bull:cow ratios have met objectives for three consecutive years as prescribed in the cooperative management plan.

Discussion

The last minimum count conducted by Izembek National Wildlife Refuge (INWR) staff in 2015 located 230 caribou. ADF&G conducted a minimum count in October 2018 and observed 413 caribou. Both counts were below the population objective of 1,000 caribou for the island. The estimate of the bull-to-cow ratio was 80:100, a substantial improvement over the previous composition count in 2016 (33:100 cows). This could be biased somewhat high because we failed to locate 15% of our collared cows.

The pregnancy rate for the UCH in spring of 2018 was 69% based on an evaluation of 97 cows that were two years of age and older, out of a total 287 caribou observed. Low pregnancy rate is typical for Unimak cows and is a contributing factor to slow population growth on the island. Mortality of radio-collared cows was 23% from June to October 2018. The relatively high mortality rate may be due to deaths of the older cows that survived the last decline in herd population and contributed to the high bull-to-cow ratio observed on the composition survey.

Assuming a population of 413 caribou, 36% of which are bulls (148 bulls), a harvest of 10 bulls is approximately 7% of the bulls in the herd. This harvest rate is high based on the management objectives;

however, given the reported harvest history of False Pass residents, we expect harvest to be closer to zero on Unimak Island. We recommend that the hunt remain closed until at least 500 caribou are observed during fall composition surveys or spring parturition surveys and bull-to-cow ratio remains above 35 as per the operational plan. We urge False Pass hunters to hunt the Southern Alaska Peninsula caribou herd (SAP) where the bag limit and seasons are liberal. We also recommend that Izembek NWR issue unlimited federal permits to False Pass residents for the SAP in order to take advantage of the designated hunter regulations. Reported harvest on the SAP during the last 3 years ranged from 42 to 49 caribou.

The Subsistence Regional Advisory Council suggests that using boats for hunting is prohibitively expensive, yet harvest records indicate successful hunters from False Pass used boats almost exclusively except for one who reported using an airplane. Based on our routine surveys and radiocollared animals, caribou do not often occur in the False Pass drainage. This is especially true for bulls. Residents use boats to access parts of the island where caribou occur. Additionally, between 1998 and 2000, six hunters from False Pass reported using boats to hunt caribou on the SAP. False Pass residents have reported no recent hunting activity on the SAP herd in state hunts, which have been opened since 2013.

While harvesting a very limited harvest of bulls on Unimak does not pose an immediate conservation concern, ADF&G believes that the guidelines in the Cooperative Management Plan should be adhered to. Subsistence users will be best served by allowing the Unimak caribou herd additional time to recover before reestablishing a hunting season, and that hunters should be provided additional opportunity to hunt the SAP under more liberal designated hunter regulations.

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