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**Winter 2022 Fisheries Report**  
**Dave Sarafin, Fisheries Biologist**

**FISHERIES RESEARCH AND MONITORING PROJECTS**

***Tanada Creek Salmon Weir and Upper Yukon Burbot Assessments***

The Wrangell-St. Elias National Park and Preserve (WRST) Fisheries Program plans to perform work on two projects funded through the Fisheries Resource Monitoring Program (FRMP); the Tanada Creek salmon weir and a Burbot population assessment in Ptarmigan Lake of the Upper Yukon River Drainage. However, neither of these projects operated during 2020 or 2021, as both projects were impacted by both the Covid-19 pandemic and hiring difficulties. The level of continuing impact on project operation during 2022 is uncertain at this time.

One particular challenge we had during both years was recruiting qualified local residents to operate the Tanada Creek weir. This project is based out of Slana, which has typically provided a very limited pool of applicants interested in these seasonal positions. For the 2022 season we will again attempt to recruit locally, however we may need to consider applicants from outside of the local community. Please help inform any potential applicants of these upcoming employment opportunities; local hire announcements should be posted on the park website this winter.



**Photo of Tanada Creek weir site**

***Copper River Sockeye Salmon Research Projects***

WRST has recently collaborated with researchers of other agencies in the development of successfully funded proposals for Copper River salmon research. These projects seek to gain scientific information which may be applied to management decision making for long-term sustainability. Some of this work is scheduled to begin in 2022. Additional details of these studies are provided in the WRST Resource Stewardship and Science Report of the meeting materials.

***Tracing Mercury in Lake Trout Food Webs***

As part of a collaborative project between NPS and the U.S. Geological Survey (USGS), the WRST Fisheries Program plans to assist with field activities in support of a study tracing Mercury (Hg) in Lake Trout food webs. However, this project was postponed in 2021 due to Covid-19 safety guidelines. This

study was prompted by findings of elevated Hg levels in muscle tissue of Lake Trout residing in certain lakes of Alaska parks. Field sampling on this project is tentatively scheduled to begin June 2022.

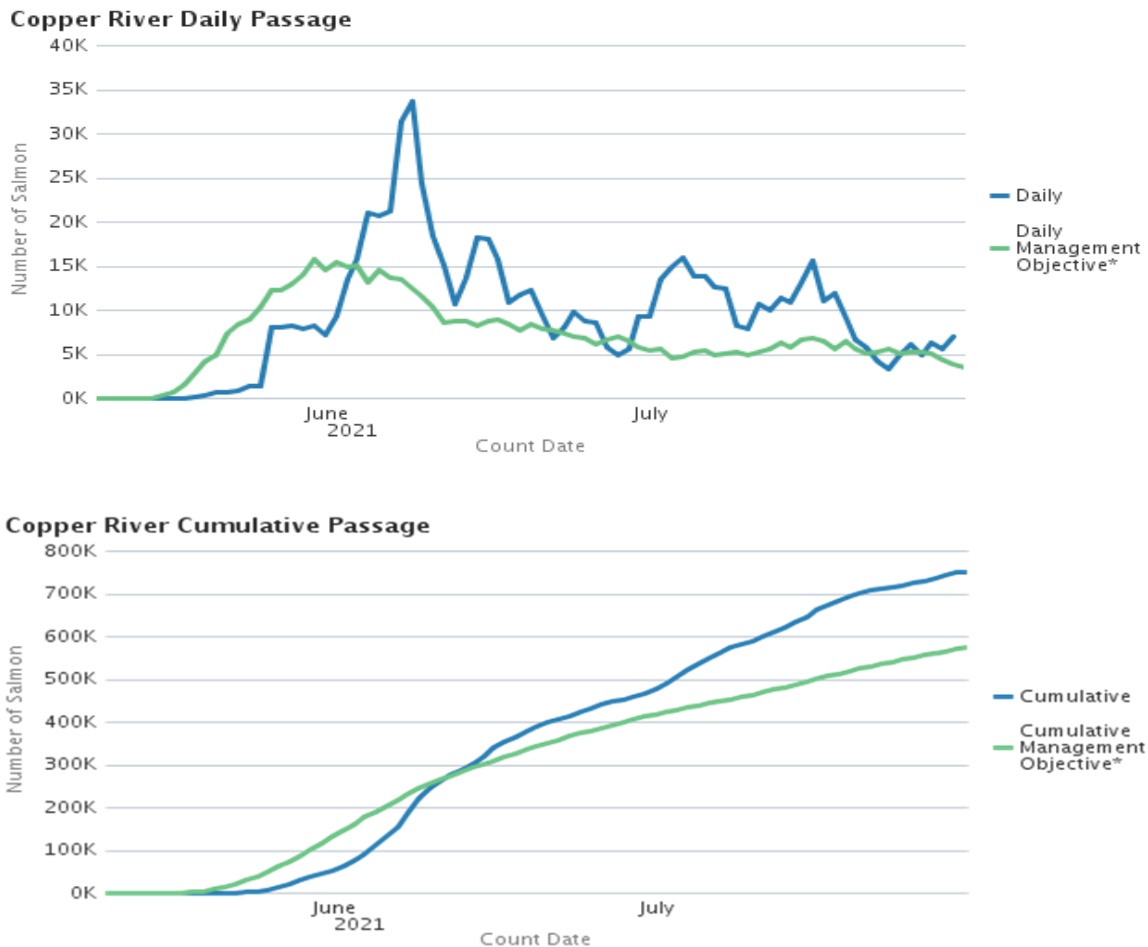
## UPPER COPPER RIVER FISHERIES

### *2021 Copper River Salmon Run Strength and Management Actions*

Management actions of the Alaska Department of Fish and Game (ADFG) limited early season commercial fishing opportunities in the Copper River District in response to low numbers of returning salmon at the start of the season. The season total commercial harvest for the Copper River District is reported to include 397,747 Sockeye Salmon and 6,955 Chinook Salmon. ADFG reports commercial harvest of Sockeye Salmon be the 9<sup>th</sup> lowest in the last 50 years and of Chinook Salmon to be the 2<sup>nd</sup> lowest since statehood.

The ADFG sonar at Miles Lake (located just downstream of the Million Dollar Bridge in the Copper River) recorded inriver salmon passage from May 12 through July 28; providing a season total estimate of 751,262 salmon migrating upstream. This estimate is 31% above the cumulative management objective of 575,297 salmon passing the sonar and exceeds the 2021 season total inriver goal of 605,057 by 146,205 salmon.

### **2021 Copper River Salmon Passage at Miles Lake Sonar**



\*Management objectives are based on historical run-timing to achieve the inriver goal.

Source: [http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareacopperriver.salmon\\_escapement](http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareacopperriver.salmon_escapement)

Inriver sonar salmon passage estimates provide the primary assessment of the Sockeye Salmon return into the Copper River. After a relatively slow start, sonar passage improved substantially by early June and the overall assessment of inriver Sockeye Salmon run strength exceeded ADFG management objectives for the season. These objectives are designed to provide harvest opportunities to both Federal subsistence and other State upriver users, as well as to achieve the sustainable escapement goal (SEG) for Sockeye Salmon.

As with Sockeye Salmon, fisheries managers also monitor the Chinook Salmon run strength; the primary inseason indicator are data from the Chinook Salmon inriver abundance project operated by the Native Village of Eyak. Additional insight is gained from the recent application of updated technology at the Miles Lake sonar site to provide species apportionment data. The preliminary abundance estimate of inriver Chinook Salmon is reported as 21,656 fish. This indicates that the Chinook Salmon SEG of 24,000 fish was likely not met. This will be the 4<sup>th</sup> season in the past 10 years that the goal was not met.

In response to the weak Chinook Salmon return, the ADFG closed all State fisheries of the Upper Copper River drainage to the retention of Chinook Salmon by late-June; including the personal use fishery of the Chitina Subdistrict, the sport fisheries, and the subsistence fishery of the Glennallen Subdistrict. Concurrent with these closures, including that of the upper river subsistence fishery, the ADFG continued to authorize routine openings of the commercial and subsistence fisheries of the Copper River District since the Chinook Salmon entry to the Copper River is historically nearly complete by early July.

The Chinook Salmon closures did not affect those fishing under Federal subsistence regulations. Once enough information was available to indicate the likelihood of not meeting the SEG, harvest by Federal users through the remainder of the season was not expected to be high enough to have a significant impact on the sustainability of the stocks. No Federal Special Action was issued by the inseason manager to restrict the harvest of Chinook Salmon, or for any other purpose, in the fisheries of the Upper Copper River. Federal managers monitored run strength indices throughout the season to evaluate the need for appropriate fisheries management actions in the Federal waters of the Copper River Drainage.

Although Federal actions were not taken, WRST prepared and distributed an advisory announcement intended to inform subsistence users of the present concerns for Copper River Chinook Salmon. This announcement was sent to all Upper Copper River District Federal subsistence fishing permit holders with email addresses on record. In the announcement, WRST requested that users consider voluntarily releasing healthy Chinook Salmon that may be beyond their subsistence needs.

### ***2021 Federal Subsistence Fishing Permits and Historical Harvests***

The Federal subsistence salmon fisheries of the upper Copper River were open from May 15 through September 30. Through the Office of Subsistence Management (OSM) Federal subsistence permit website 194 Chitina Subdistrict permits, 354 Glennallen Subdistrict permits, and 1 Batzulnetas area permits were issued. Tables 1 through 4 (located at the end of this report) show historical reported and expanded harvests for the Federal subsistence fisheries in each subdistrict.

### ***2022 Recent State Regulatory Actions Affecting Copper River Subsistence Salmon Fisheries***

During the recent regulatory meeting of the Alaska Board of Fisheries (BOF) in Cordova, only one proposal was adopted in the State subsistence salmon fisheries of the Upper Copper River District. This was Proposal #7 which was adopted with modification to prohibit professional guide services to assist subsistence fishermen fishing from a vessel in the Glennallen Subdistrict.

Proposal #5, although requested to be withdrawn by the proponent, was addressed by the BOF as originally proposed to change the Copper River Chinook Salmon escapement goal from a lower bound SEG of 24,000 fish to an Optimum Escapement Goal range of 24,000 to 40,000 fish. This proposal failed to carry. However, an ADFG revision to the escapement goal is scheduled to take effect beginning the

2022 season that will change the SEG from a lower bound of 24,000 fish to a range of 21,000 to 31,000 fish.

Related to Proposal #5 and the ADFG recommended Chinook Salmon escapement goal revision, the WRST Superintendent, submitted both an Agenda Change Request (ACR) to address an apparent error of inconsistent escapement goals found in two Copper River salmon management plans and a separate comment letter to both support maintaining the 24,000 Chinook Salmon SEG and to re-emphasize the inconsistency between the plans. Concerns expressed in the comment letter regarding the reduction of the escapement goal as recommended by ADFG were referenced by the BOF in discussion, but did not impact the end result of a 3,000 fish reduction in the minimal bound of the Chinook Salmon SEG for the Copper River. The apparent error of inconsistent escapement goals of the management plans was not addressed or acknowledged during BOF discussion at the meeting.

### ***2022 Preseason Copper River Salmon Forecast***

The Alaska Department of Fish and Game forecast was not available at the time of preparing this report.

### ***2022 Early Season Management Strategy for Federal Subsistence Fisheries***

Unless in-season run assessments prompt concerns of meeting salmon escapement goals, we anticipate all Federal subsistence salmon fisheries of the Upper Copper River to be open continuously from May 15 through September 30.

**Table 1. Federal Subsistence Expanded Fish Harvests<sup>1</sup> in the Upper Copper River District, including Harvests by Gear Type<sup>1</sup>**

Year	Expanded Harvest Estimates <sup>2</sup>						All Species, Approximate Harvest by Gear Type					
	Sockeye	Chinook	Coho	Steelhead /Rainbow Trout	Other Species	Total Harvest	Fish Wheel %	Fish Wheel Total	Dip Net %	Dip Net Total	Rod and Reel %	Rod and Reel Total
2002	10,644	745	100	77	N.A.	11,567						
2003	17,220	687	268	16	N.A.	18,191						
2004	24,035	815	216	15	N.A.	25,082						
2005	24,781	412	55	7	37	25,292						
2006	20,737	507	55	17	37	21,353						
2007	19,107	704	85	7	25	19,928						
2008	14,864	892	268	21	54	16,099						
2009	14,821	590	52	22	36	15,521						
2010	17,050	362	111	46	25	17,594	90.3%	15,882	9.6%	1,687	0.1%	25
2011	18,201	814	70	6	283	19,373	88.4%	17,130	11.4%	2,205	0.2%	39
2012	17,146	410	93	45	113	17,806	90.4%	16,092	9.4%	1,670	0.3%	45
2013	19,988	391	36	8	81	20,503	85.9%	17,614	14.1%	2,889	0.0%	0
2014	25,513	456	97	14	57	26,138	89.3%	23,328	10.8%	2,810	0.0%	3
2015	29,157	430	29	15	218	29,849	90.1%	26,900	9.7%	2,883	0.2%	66
2016	21,106	465	52	6	406	22,035	90.0%	19,820	10.0%	2,197	0.1%	18
2017	20,243	483	10	8	549	21,294	96.2%	20,478	3.7%	794	0.1%	19
2018	20,166	2,763	31	4	45	23,008	83.4%	19,189	16.5%	3,801	0.1%	18
2019	22,177	1,029	22	3	59	23,291	79.0%	18,390	21.0%	4,884	0.1%	16
2020	16,418	845	26	7	60	17,356	75.9%	13,166	24.1%	4,181	0.1%	9
2021	20,606	635	4	4	39	21,288	69.0%	14,689	31.0%	6,589	0.0%	0
5-yr. Avg. 2016- 2020	20,022	1,117	28	6	224	21,397	84.9%	18,209	15.1%	3,171	0.1%	16
10-yr. Avg. 2011- 2020	21,011	809	47	12	187	22,065	86.8%	19,211	13.1%	2,831	0.1%	23

<sup>1</sup> This table reflects entries to the online database from 2011 through **01/03/2021**. Data prior to 2011 relies on NPS records. Data for all years subject to changes resulting from entry error corrections.

<sup>2</sup> Expanded Harvest estimate derived from a basic, direct ratio expansion based on the percentage of permits that reported.

**Table 2. Glennallen Subdistrict Federal Reported and Expanded Subsistence Fishery Harvests<sup>1</sup>**

Year	Percentage		Sockeye		Chinook		Coho		Steelhead/Rainbow Trout		Other Species		All Species
	Permits Issued	of Permits Reported	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Total Harvest
													Estimate <sup>2</sup>
2002	201	80.6	7,944	9,856	564	700	81	100	62	77	35	43	10,777
2003	221	83.3	13,616	16,346	554	665	152	182	13	16	20	24	17,233
2004	261	78.9	17,704	22,439	636	806	152	193	12	15	12	15	23,468
2005	267	85.8	19,973	23,279	331	386	47	55	6	7	32	37	23,763
2006	254	87.4	16,711	19,120	430	492	28	32	15	17	32	37	19,698
2007	281	84.3	15,225	18,060	569	675	34	40	6	7	21	25	18,808
2008	269	81.4	11,347	13,940	705	866	148	182	17	21	44	54	15,063
2009	274	85.0	11,836	13,925	494	581	34	40	19	22	31	36	14,605
2010	269	87.7	12,849	14,651	300	342	64	73	39	44	22	25	15,136
2011	277	87.7	14,163	16,145	701	799	53	60	5	6	248	283	17,293
2012	275	92.0	14,461	15,718	371	403	78	85	40	43	104	113	16,363
2013	273	89.0	15,834	17,789	331	372	24	27	6	7	62	70	18,264
2014	315	90.5	21,603	23,877	399	441	23	25	10	11	52	57	24,412
2015	325	92.3	24,695	26,753	384	416	13	14	7	8	201	218	27,408
2016	320	82.8	15,884	19,181	369	446	9	11	5	6	332	401	20,044
2017	338	85.2	15,691	18,415	399	468	1	1	7	8	468	549	19,442
2018	335	91.3	15,287	16,736	2,432	2,662	0	0	4	4	41	45	19,448
2019	343	89.8	15,873	17,677	849	945	0	0	3	3	53	59	18,685
2020	376	89.9	11,456	12,744	682	759	0	0	6	7	54	60	13,569
2021	354	72.3	10,863	15,021	371	513	0	0	3	4	28	39	15,577
5-yr. Avg. 2016- 2020	342	87.8	14,838	16,950	946	1,056	2	2	5	6	190	223	18,238
10-yr. Avg. 2011- 2020	318	89.1	16,495	18,503	692	771	20	22	9	10	162	185	19,493

<sup>1</sup> This table reflects entries to the online database from 2011 through **01/03/2022**. Data prior to 2011 relies on NPS records. Data for all years subject to changes resulting from entry error corrections.

<sup>2</sup> Expanded Harvest estimate derived from a basic, direct ratio expansion based on the percentage of permits that reported.

**Table 3. Chitina Subdistrict Federal Reported and Expanded Subsistence Fishery Harvests<sup>1</sup>**

Year	Sockeye		Chinook		Coho		Steelhead/Rainbow Trout		Other Species		All Species		
	Permits Issued	Percentage of Permits Reported	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Total Harvest Estimate <sup>2</sup>
		Reported	Harvest	Estimate <sup>2</sup>	Harvest	Estimate <sup>2</sup>	Harvest	Estimate <sup>2</sup>	Harvest	Estimate <sup>2</sup>	Harvest	Estimate <sup>2</sup>	Estimate <sup>2</sup>
2002	122	73.0	575	788	33	45	0	0	0	0	N.A.	N.A.	833
2003	100	82.0	717	874	18	22	70	85	0	0	N.A.	N.A.	982
2004	109	76.1	1,215	1,597	7	9	18	24	0	0	N.A.	N.A.	1,629
2005	76	84.2	1,265	1,502	22	26	0	0	0	0	0	0	1,529
2006	75	85.3	1,379	1,617	13	15	20	23	0	0	0	0	1,655
2007	98	88.8	929	1,046	26	29	40	45	0	0	0	0	1,120
2008	82	85.4	789	924	22	26	74	87	0	0	0	0	1,036
2009	68	91.2	817	896	8	9	11	12	0	0	0	0	917
2010	92	85.9	2,061	2,399	17	20	33	38	1	1	0	0	2,459
2011	85	85.9	1,766	2,056	13	15	8	9	0	0	0	0	2,081
2012	89	93.3	1,332	1,427	6	6	8	9	1	1	0	0	1,443
2013	99	90.9	1,999	2,199	17	19	8	9	1	1	10	11	2,239
2014	113	94.7	1,549	1,636	14	15	68	72	3	3	0	0	1,726
2015	111	92.8	2,231	2,404	13	14	14	15	7	8	0	0	2,441
2016	128	80.5	1,549	1,925	16	20	33	41	0	0	4	5	1,991
2017	132	79.5	1,454	1,828	12	15	7	9	0	0	0	0	1,852
2018	132	91.7	3,144	3,430	92	100	28	31	0	0	0	0	3,561
2019	181	90.1	4,053	4,501	75	83	20	22	0	0	0	0	4,606
2020	216	88.4	3,249	3,674	76	86	23	26	0	0	0	0	3,786
2021	194	79.4	4,433	5,584	97	122	3	4	0	0	0	0	5,710
5-yr. Avg. 2016-2020	158	86.0	2,690	3,072	54	61	22	26	0	0	1	1	3,159
10-yr. Avg. 2011-2020	129	88.8	2,233	2,508	33	37	22	24	1	1	1	2	2,572

<sup>1</sup> This table reflects entries to the online database from 2011 through 01/03/2022. Data prior to 2011 relies on NPS records. Data for all years subject to changes resulting from entry error corrections.

<sup>2</sup> Expanded Harvest estimate derived from a basic, direct ratio expansion based on the percentage of permits that reported.

**Table 4. Batzulnetas Federal Reported and Expanded Subsistence Fishery Harvests<sup>1</sup>**

Year	Percentage		Sockeye		Chinook		Other Species	
	Permits Issued	of Permits Reported	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>	Reported Harvest	Harvest Estimate <sup>2</sup>
2002	1	100.0	208	208	0	0	0	0
2003	1	100.0	164	164	0	0	0	0
2004	1	100.0	182	182	0	0	0	0
2005	1	100.0	0	0	0	0	0	0
2006	0	N.A.	0	0	0	0	0	0
2007	1	100.0	1	1	0	0	0	0
2008	1	100.0	1	1	0	0	0	0
2009	0	N.A.	0	0	0	0	0	0
2010	3	100.0	106	106	0	0	0	0
2011	3	66.7	9	14	0	0	0	0
2012	3	66.7	101	152	0	0	0	0
2013	3	100.0	862	862	5	5	12	12
2014	2	100.0	146	146	0	0	0	0
2015	4	100.0	0	0	0	0	0	0
2016	0	N.A.	0	0	0	0	0	0
2017	1	100.0	254	254	2	2	0	0
2018	1	100.0	468	468	0	0	0	0
2019	1	100.0	209	209	0	0	0	0
2020	1	100.0	67	67	0	0	0	0
2021	1	100.0	120	120	0	0	0	0
5-yr. Avg. 2016- 2020	1	100.0	200	200	0	0	0	0
10-yr. Avg. 2011- 2020	2	92.6	212	217	1	1	1	1

<sup>1</sup> This table reflects entries to the online database from 2011 through **01/03/2022**. Data prior to 2011 relies on NPS records. Data for all years subject to changes resulting from entry error corrections.

<sup>2</sup> Expanded Harvest estimate derived from a basic, direct ratio expansion based on the percentage of permits that reported.