

Kuskokwim River Salmon Management Working Group

1 (800) 315-6338 (MEET) Code: 58756# (KUSKO)

ADF&G Bethel toll free: 1 (855) 933-2433

Meeting Agenda

Date: November 10, 2021 Time: 9:00am

Place: Teleconference

Time Called to Order:

Chair:

Time Adjourned:

ROLL CALL TO ESTABLISH QUORUM:

Upriver Elder:
Downriver Elder:
Commercial Fisher:
Lower River Subsistence:
Middle River Subsistence:
Upper River Subsistence:
Headwaters Subsistence:

QUORUM MET? Yes / No

Member at Large:
2nd Member at Large:
Sport Fisher:
Western Interior RAC:
Y-K Delta RAC:
KRITFC:
ADF&G:

INTRODUCTIONS:

INVOCATION:

APPROVAL OF AGENDA: *the agenda may be amended at this time.*

APPROVAL OF MINUTES: *Optional. ADF&G does not prepare official meeting minutes*

PEOPLE TO BE HEARD: *Non-Working Group Members*

CONTINUING BUSINESS

- **End of Season Subsistence Reports: Lowest River, Lower River, Middle River, Upper River, Headwaters**
- **2021 Preliminary Kuskokwim River Season Summary (ADF&G)**
 - **Assessment Overview and Three-System Index**
 - **Subsistence Overview**
- **2022/2023 Board of Fish Update**
 - **Proposal Deadline: April 11, 2022 for Bristol Bay; Arctic, Yukon, Kuskokwim; Alaska Peninsula, Aleutian Islands, Bering Sea, Chignik; and Statewide finfish management areas**
 - **AYK Regular Meeting: January 14-18, 2023 in Anchorage**
 - **PWS Finfish Meeting November 30-Dec 6, 2021.**
 - **Proposal 279: Kuskokwim River King Permits sunset date extension**

WORKING GROUP BUSINESS:

- **Response to KRSMWG letter to Governor**
 - **Need for updated genetics from Area M to the Working Group**
- **KRITFC written comments to NPFMC**

NEXT MEETING DATE: _____ **Time:** _____ **Place:** _____

Informational Packet

Information Packets *ARE*:

- **Intended to help inform Working Group discussions.**
- **To be viewed and used in context with Working Group meetings only.**

Packets *ARE NOT*:

- **To be viewed as standalone documents.**
- **A final say on fisheries management decisions.**

Please use this information responsibly:

Packet information is an incomplete snapshot of an ongoing discussion and changing conditions. Packet information should not be reproduced for any purpose other than to describe Working Group meeting discussions.

Misuse of Packet information can contribute to misunderstandings that can **cause harm to salmon users** and potentially **damage salmon resources**.

Ask Questions: ADF&G staff will be happy to answer biology and management questions. Please call **1-855-933-2433** to reach ADF&G Kuskokwim Area staff.

Attend Meetings: Each Working Group meeting is announced at least 48 hours prior to time and date of meeting. In addition, each meeting is recorded. Recordings can be found here:
http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarea_kuskokwim.kswg

Viewing the information packet while listening to meetings/recordings will provide a better understanding of the information presented in this packet.

**Thank you,
Nick Smith and Ben Gray
Working Group Coordinators**



Advisory Announcement

For Immediate Release: November 4, 2021

Time: 4:00 p.m.

CONTACT: Nick Smith and Ben Gray
Kuskokwim Area Management Biologists
(907) 267-2379

Kuskokwim River Salmon Fishery Announcement #14

2021 Preliminary Kuskokwim Area Season Summary

This is an announcement from the Alaska Department of Fish and Game (department) for fishers in the Kuskokwim Area.

Kuskokwim Area Management

Kuskokwim River salmon fisheries were managed according to the *Kuskokwim River Salmon Management Plan* (5 AAC 07.365). The Kuskokwim Bay salmon fisheries were managed according to the *Districts 4 and 5 Salmon Management Plan* (5 AAC 07.367).

Kuskokwim River

Preseason Forecast

The 2021 Kuskokwim River Chinook salmon forecast was for a range of 94,000–155,000 fish. The drainage-wide Chinook salmon escapement goal is 65,000–120,000 fish. If the run came back as projected, the drainage-wide and tributary escapement goals were expected to be achieved with a limited subsistence harvest. The 2021 season was managed in accordance with the *Kuskokwim River Salmon Management Plan* (5 AAC 07.365) with input from the Kuskokwim River Salmon Management Working Group (Working Group). It was the intent of the department to manage all Kuskokwim River salmon stocks in a conservative manner, consistent with the *Policy for the Management of Sustainable Salmon Fisheries* under 5 AAC 39.222, to meet escapement goals and the subsistence priority.

Inseason Subsistence Management

Preseason management actions that were intended to achieve escapement goals included early season subsistence fishing closures, tributary closures, time and area restrictions, gillnet mesh size and length restrictions, and live-release requirements.

An early season gillnet subsistence fishing closure (i.e., “front-end closure”) began on June 1, 2021, from the Yukon Delta National Wildlife Refuge (YDNWR) boundary at the mouth of the Kuskokwim River upriver to the Yukon Delta Refuge Boundary at Aniak; June 9 from the Yukon Delta boundary at Aniak up to the Holitna River mouth; and upstream of Holitna River mouth beginning June 11. With the closure came additional restrictions, including tributary closures and required live release of Chinook salmon captured in selective gears. During the front-end closure, there were three 16-hour set gillnet opportunities with 6-inch or less mesh to allow subsistence fishers time to harvest non-salmon species. These openings occurred on June 2, 5, and 9.

Between June 1 and July 22, a Federal Special Action (FSA) closed the Kuskokwim River gillnet fishery to non-Federally qualified users within the boundary of the YDNWR (Subsistence Sections 1–3). During the FSA, USFWS offered 6-inch setnet opportunities running concurrently to the 6-inch opportunities offered by the department on June 2, 5, and 9. Additionally, USFWS offered six 12-hour gillnet fishing periods on June 12, 15, 19 and July 2, 9, and 16 with 6-inch or less mesh, 25 fathoms in length above the Johnson River mouth and 50

fathoms in length below the Johnson River mouth. USFWS offered two 48-hour set gillnet fishing periods on July 10 and 17. On June 19, USFWS opened those waters between the Kalskag Bluffs to the YDNWR boundary at Aniak to subsistence fishing until further notice with 6-inch or less mesh, 25 fathoms in length gillnets. The department concurrently offered the same management actions within Subsistence Sections 1–3 with an additional opportunity provided on June 28, 2021. A 16-hour gillnet fishing period was provided on July 23 and a 50-hour setnet period was provided July 23–25 after the FSA was rescinded.

Chum salmon abundance was assessed to be extremely low based on Bethel Test Fishery catches, subsistence harvest reports, and Kuskokwim River Sonar passage, while sockeye salmon abundance was estimated to be average to above average. Given the poor chum salmon run, continued fishing restrictions and gillnet closures in July were needed for chum salmon protection. Beginning July 2, 2021, the release of chum salmon captured in fish wheels and beach seines was required throughout the Kuskokwim River drainage.

Beginning June 12, 2021, subsistence fishing with the subsistence king salmon permit was implemented in Subsistence Sections 4 and 5 (YDNWR boundary at Aniak upstream to the headwaters of the Kuskokwim River). On June 16, Section 5 (Holitna River mouth to headwaters) was opened to subsistence fishing until further notice with 6-inch or less mesh, 25 fathoms in length gillnets and all selective gear types. At that time, subsistence king permits were no longer required to subsistence fish in Subsistence Section 5. On June 19, Subsistence Section 4 (from the refuge boundary at Aniak to the Holitna River mouth) was opened to subsistence fishing until further notice with 6-inch or less mesh, 25 fathoms in length gillnets and subsistence king permits were no longer required to subsistence fish.

Most salmon fishing restrictions were lifted at the end of July. On July 31, after an average of 99–100% of the king salmon run, 99–100% of the sockeye salmon run, and 96–98% of the chum salmon run passed Bethel, the entire Kuskokwim River was opened to subsistence fishing with gillnets and most mainstem gear restrictions were rescinded. Tributary restrictions were rescinded August 31. The tributary restrictions were kept in place beyond the mainstem restrictions for the purpose of conservation while Chinook and chum salmon were on their spawning grounds.

Postseason subsistence harvest surveys are presently being conducted. An assessment of subsistence salmon harvest in 2021 will not be available until after postseason harvest surveys have been completed, data have been analyzed, and preliminary harvest estimates are produced. Final subsistence harvest estimates will be available in Spring 2022.

2021 District 1 Commercial Fishery

There were no commercial buyers or processors operating in the Kuskokwim River districts. Therefore, commercial fishing opportunities were limited to individuals registered with the department as catcher/sellers who had secured their own markets. A single catcher/seller applied for and received a commissioner's permit to harvest sockeye salmon with dipnet gear. This experimental fishery was intended to provide an opportunity to harvest abundant sockeye salmon while allowing live release of chum and Chinook salmon. Stipulations of the commissioner's permit required that all Chinook and chum salmon captured during dipnet fishing periods must be returned to the water unharmed. Between July 10–24, a total of ten 14-hour commercial dipnet periods were provided in District 1 of the Kuskokwim River. No fish were harvested during the dipnet fishing periods. A total of five commercial gillnet fishing periods (directed at coho salmon) were provided in District 1 of the Kuskokwim River between August 12–20 for a single catcher/seller. Due to the small number of participants in these gillnet fishing periods, salmon harvest was well below the historical average and State of Alaska confidentiality requirements prohibits release of the harvest data.

Inseason Assessment Overview

In addition to recommendations and input from the Working Group, the department mainly utilized two lower Kuskokwim River assessment projects to inform inseason management decisions: the Bethel Test Fishery (BTF) and Kuskokwim River Sonar. The BTF provided information about salmon species catch-per-unit-effort (CPUE), species ratios, and run timing, while the sonar provided daily passage estimates for salmon and other species.

Bethel Test Fishery

BTF operated May 26–31 (early season) and June 1–August 24 (regular season). An hour after each posted high tide, a series of drifts were conducted to determine daily CPUE of salmon species. The area fished has not changed since its inception in 1984; however, gillnet mesh material changed beginning 2008. From the start of the early season to July 15, BTF used 8” and 5 3/8” mesh gillnets (each 50 fathoms in length) for assessment purposes. After July 15, only the 5 3/8” mesh gillnet was used because most of the Chinook salmon run had migrated upriver past the project site and the primary focus of assessment shifted to sockeye, chum, and coho salmon.

Kuskokwim River Sonar

The Kuskokwim River Sonar operated from June 1–August 26. The sonar provides timely information about the abundance of salmon and whitefish species as they migrate up the Kuskokwim River. The Kuskokwim River Sonar program operates a test fishery for species apportionment using a series of six gillnets (8 1/2”, 7 1/2”, 6 1/2”, 5 1/4”, 4”, and 2 3/4” mesh). The sonar program generates daily species-specific passage estimates using species apportionment and sonar counts. The sonar does not provide total abundance or escapement estimates since some escapement occurs below the sonar and harvest occurs both downriver and upriver from the sonar.

CPUE, Run Timing, and Passage Estimates

Chinook Salmon

The cumulative Chinook salmon CPUE at the BTF was 532, which was similar to the 2008–2020 average of 568. The estimated midpoint of the Chinook salmon run was June 25 (3 days later than average).

The cumulative Chinook salmon passage estimate at the sonar was 102,552 fish (95% CI = 84,436–120,668 fish).

Sockeye Salmon

The cumulative sockeye salmon CPUE at the BTF was 1,694, which was slightly below the 2008–2020 average of 1,779. The estimated midpoint of the sockeye salmon run was July 6 (7 days later than average).

The cumulative sockeye salmon passage estimate at the sonar was 745,037 fish (95% CI = 696,236–793,838).

Chum Salmon

The cumulative chum salmon CPUE at the BTF was 327, which was the lowest on record and well below the 2008–2020 average of 5,980. The estimated midpoint of the chum salmon run was July 11 (6 days later than average).

The cumulative chum salmon passage estimate at the sonar was 25,689 fish (95% CI = 14,549–36,829).

Coho Salmon

Cumulative BTF CPUE and sonar passage estimates are incomplete because the coho salmon run was still progressing after BTF and Kuskokwim River Sonar ceased operations on August 24 and August 26, respectively. Escapements at weir projects provides a more complete picture of coho salmon run strength than the BTF or Kuskokwim River Sonar. That in mind, as of August 24, the cumulative CPUE for coho salmon at BTF was 1,696, which was below the 2008–2020 average of 3,289.

The cumulative coho salmon passage estimate at the sonar was 237,285 fish (95% CI = 209,317–265,253). This was the second year that the Kuskokwim River Sonar operated into late August. Prior year operations ended in late July.

Whitefish

Five species of whitefish were captured by the sonar’s test fishery nets (least and Bering cisco, broad and humpback whitefish, and sheefish). The cumulative cisco (least and Bering) passage estimate at the Kuskokwim River Sonar was 823,091 fish (95% CI = 728,039–918,143). The cumulative broad whitefish passage estimate at the sonar was 22,859 fish (95% CI = 8,646–37,072). The cumulative humpback whitefish passage estimate at the sonar was 667,285 fish (95% CI 570,108–764,462). The cumulative sheefish passage estimate at the sonar was 20,731 fish (95% CI = 9,350–32,112).

Salmon Escapement – Kuskokwim River Drainage

Chinook Salmon

A run reconstruction model was used to estimate the preliminary total run and escapement for Chinook salmon in 2021. The preliminary Kuskokwim River total run estimate is 129,000 Chinook salmon (95% CI = 94,000–178,000) and an estimated 101,000 Chinook salmon (95% CI = 66,000–150,000) escaped Kuskokwim River fisheries, which met the drainage-wide Sustainable Escapement Goal (SEG) range of 65,000–120,000 fish. All weir-based escapement goals for Chinook salmon assessed in 2021 were met within the Kuskokwim River drainage (Table 1). The established SEG range of 4,800–8,800 fish at Kogrukluk River weir was met (6,969 fish), as was the SEG range of 1,800–3,300 fish at George River (2,920 fish). Aerial surveys were not conducted in 2021 due to weather and pilot availability (see Table 2 for historical data).

Sockeye Salmon

Sockeye salmon escapement was mixed throughout the drainage with above average lake-type sockeye escapement and near average to slightly below average river-type sockeye salmon escapement (Table 3). The preliminary Kogrukluk River weir escapement of 13,534 sockeye salmon met the established SEG range of 4,400–17,000 fish. The Telaquana River weir observed the fifth highest escapement of sockeye salmon since the project was established in 2010 with a count of 123,958 fish (Table 3).

Chum Salmon

Chum salmon escapement at all weir projects were the lowest on record (Table 4). The preliminary escapement count of 4,153 fish at the Kogrukluk River weir did not meet the established SEG range of 15,000–49,000 fish, and passage at all other weir projects was well below average.

Coho Salmon

Coho salmon escapement was evaluated at two middle Kuskokwim River weirs in 2021. The George River weir coho salmon escapement of 31,491 fish was above the most recent 10-year average (2011–2020) of 22,462 fish (Table 5). At the Kogrukluk River weir, 14,373 coho salmon were counted, which met the SEG range of 13,000–28,000 fish (Table 5).

Kuskokwim Bay

District 4 (Quinhagak)

The 2021 District 4 commercial fishing season began on July 2 and ended on August 13. There were 24 commercial fishing periods (Table 6). The commercial fishing season was delayed from the normal start of June 15 to allow for Chinook salmon escapement. Additionally, for the first five periods (Table 6), area restrictions were enacted near the mouth of the Kanektok River to allow for Chinook salmon escapement.

Since 1987, an average of 223 permit holders (range 67–408) fished per year in District 4. Participation in 2021 was the second lowest on record (2020 was lowest) with a total of 74 individual permit holders making at least one recorded landing in the commercial fishery (Table 7). On average, 29 permit holders participated per period (range 1–54; Table 6).

A total of 2,468 Chinook, 78,462 sockeye, 13,012 coho, and 5,310 chum salmon were commercially harvested in District 4 (Table 7). Catch rates for sockeye salmon ranked second highest on record (2020 was highest) compared to available standardized catch rate data: 1981 to 2020. Sockeye salmon catch rates during the first five periods were highest on record since 1981. These catch rates remained above average for the following nine periods and then alternated between above-to-below average for the duration of the season. Chinook and chum salmon catch rates were mostly below average the entire season, while coho salmon catch rates were below average for all except one period (August 6). Sockeye salmon harvest was the eighth highest since 1960 and approximately 5,000 fish greater the most recent 10-year harvest average (2007–2020; *Note, 2007–2020 data used for most recent 10-year average comparisons because there was no fishery during 2016–2019*; Table 7). Chinook, chum, and coho salmon harvests were below the most recent 10-year averages (2007–2020). Chinook salmon harvest ranked third lowest since 1968, while chum salmon harvest was the lowest observed since 1967. Coho salmon harvest was the

lowest observed since 1999. A total of 29 pink salmon were purchased during 2021 in District 4; these were the first pink salmon purchased since 2005.

Chinook, sockeye, coho, chum, and pink salmon were purchased for \$0.80, \$0.60, \$0.50, \$0.15, and \$0.05 per pound, respectively. Total exvessel value of the fishery was \$357,273, approximately \$482,000 below the most recent 10-year average (2007–2020; Table 7).

District 4 Salmon Escapement

An aerial survey was flown for the Kanektok River on July 25 (Table 8). Although within the standardized peak spawning abundance date range of July 17 to August 5, this survey was deemed early as both Chinook and sockeye salmon were not in full spawning colorations and fewer redds were noticeable than expected. Therefore, counts reported here are considered minimum estimates of spawning escapement. Additionally, intense wind and glare in Kagati Lake created poor visibility, meaning sockeye salmon were undoubtedly missed. For this reason, the sockeye salmon survey was rated as poor. Although poor, 53,690 sockeye salmon were counted, which exceeded the aerial survey SEG range of 15,300–41,000 fish. The Chinook salmon survey was rated as fair because wind and glare was not as intense in the river reaches where they spawn. The Chinook salmon aerial survey SEG (range 3,900–12,000 fish) was achieved with a count of 4,115 fish.

District 5 (Goodnews Bay)

The 2021 District 5 commercial fishing season began on July 2 and ended on August 13. There were 32 commercial fishing periods (Table 9). The commercial fishing season was delayed from the normal start of June 15 to allow for Chinook salmon escapement.

The 2021 season saw the fewest permits fished in District 5 on record. Since 1980, an average of 61 permit holders (range 17–125) fished per year in District 5. During the 2021 season, a total of 13 individual permit holders made at least one recorded landing in the commercial fishery. On average, six permit holders participated per period (range 1–12; Table 9).

A total of 114 Chinook, 35,963 sockeye, 1,192 coho, and 535 chum salmon were commercially harvested in District 5 (Table 10). Catch rates for sockeye salmon during the 2021 season ranked highest on record compared to available standardized catch rate data from 1981–2020. Chinook, coho, and chum salmon catch rates were below their historical averages. Sockeye salmon harvest was the thirteenth highest since 1968 and approximately 4,000 fish greater than the most recent 10-year harvest average (2007–2020; Table 10). Numbers of Chinook, coho, and chum salmon harvested were below the most recent 10-year averages (2007–2020). Chinook salmon harvests were the lowest on record since 1968, while chum and coho salmon harvests were the second lowest on record during the same period.

Chinook, sockeye, coho, and chum salmon were purchased for \$0.80, \$0.60, \$0.50, and \$0.15 per pound, respectively. Total exvessel value of the fishery was \$136,186, which was approximately \$198,000 below the most recent 10-year average (2007–2020; Table 10).

District 5 Salmon Escapement

The North Fork Goodnews River aerial survey was flown on July 24 and weather conditions were optimal, thus the survey was rated as good. Although flown within the standardized peak spawning abundance date range of July 17 to August 5, this survey was deemed early as both Chinook and sockeye salmon were not in full spawning colorations. Therefore, counts reported here are considered minimum estimates of spawning escapement. The Chinook salmon aerial SEG range of 640–3,300 fish was met with a count of 2,273 fish. The sockeye salmon SEG of 9,600–18,000 was exceeded with 95,020 fish counted (Table 11).

For additional information concerning this advisory announcement:
ADF&G: Nicholas Smith 907-267-2379 or Ben Gray 907-267-2303

Table 1.—Chinook salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area 2011–2021.

Year	Chinook Salmon Escapement					Salmon (Pitka)
	Kwethluk	Salmon (Aniak)	George	Kogrukluk	Takotna	
2011	4,056	a	1,605	6,926	149	a
2012	b	b	2,362	b	238	a
2013	b	711	1,267	1,919	104	a
2014	3,191	1,722	2,988	3,726	a	a
2015	8,163	2,401	2,301	8,333	a	7,156
2016	b	b	2,218	7,034	a	6,371
2017	7,207	2,611	3,669	7,787	318	8,298
2018	b	2,252	3,322	6,292	205	5,354
2019	8,505	a	3,828	10,301	554	4,823
2020	a	1,228	2,418	5,645	357	4,854
2021	^c a	1,303	2,920	6,969	233	4,014
SEG	4,100– 7,500		1,800– 3,300	4,800– 8,800		
Average 2011–2020	6,224	1,747	2,627	6,493	270	5,839

^a Weir did not operate.

^b Historical run timing indicates that more than 40% of the run was missed; annual escapement was not determined.

^c Preliminary numbers subject to change.

Table 2.—Chinook salmon spawning aerial survey index estimates, Kuskokwim River Drainage, Kuskokwim Management Area, 2011–2021.

Year	Kuskokwim River ^a												
	Lower		Middle						Upper				
	Kwethluk	Kisaralik	Aniak	Kipchuk	Salmon (Aniak)	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Bear (Pitka)	Salmon (Pitka)	Upper Pitka Fork
2011	b	534	b	116	79	20	26	b	96	249	145	767	85
2012	b	610	b	193	49	9	51	b	178	229	b	670	b
2013	1,165	597	754	261	154	29	38	670	74	138	64	475	b
2014	b	622	3,201	1,220	497	80	200	1,785	359	340	b	1,865	b
2015	b	709	b	917	810	77	b	662	19	b	1,381	2,016	b
2016	b	622	718	898	b	100	47	1,157	135	217	580	1,578	b
2017	b	b	1,781	889	423	140	136	676	453	660	492	687	234
2018	b	584	1,534	1,123	441	162	b	980	438	565	550	1,399	471
2019	b	1,063	3,160	1,344	950	719	638	1,377	760	1,345	542	1,918	330
2020	721	350	1,264	723	269	99	169	854	b	419	321	1,150	160
2021	b	b	b	b	b	b	b	b	b	b	b	b	b
Escapement Goal Range:		400– 1,200	1,200– 2,300		330– 1,200				300– 830	340– 1,300		470– 1,600	
Average 2011–2020	943	632	1,773	768	408	144	163	1,020	279	462	509	1,253	256

^a Estimates are from aerial surveys conducted during peak spawning periods under 'good' or 'fair' survey conditions.

^b Survey was either not flown or did not meet acceptable survey criteria.

Table 3.–Sockeye salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area 2011–2021.

Year	Sockeye Salmon Escapement				
	Kwethluk	Salmon (Aniak)	George	Kogrukluk	Telaquana
2011	1,541	^a	43	8,079	35,099
2012	^a	950	79	^a	23,002
2013	^a	966	150	7,793	28,058
2014	3,880	934	156	6,479	24,292
2015	8,998	1,504	159	6,647	95,570
2016	20,495	310	2,807	20,108	82,710
2017	28,806	^a	912	24,696	145,281
2018	^a	2,537	1,615	21,343	197,368
2019	42,212	^a	3,973	32,116	198,485
2020	^a	234	281	9,923	177,509
2021	^b	^a	907	937	13,534
SEG				4,400–17,000	
Average 2011–2020	17,655	1,062	1,018	15,243	100,737

^a Weir did not operate, or counts were incomplete.

^b Preliminary numbers subject to change.

Table 4.—Chum salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area 2011–2021.

Year	Chum Salmon Escapement				
	Kwethluk	Salmon (Aniak)	George	Kogrukuk	Takotna
2011	17,498	a	45,257	76,649	8,562
2012	a	a	33,277	a	6,039
2013	a	7,685	37,945	65,648	6,516
2014	17,942	2,777	17,183	30,697	a
2015	23,071	5,511	17,554	33,091	a
2016	22,914	1,691	19,469	45,234	a
2017	52,202	9,754	39,971	85,793	6,557
2018	a	18,770	48,915	52,937	6,007
2019	32,130	a	43,072	71,006	5,618
2020	a	1,995	8,943	19,032	a
2021	^b a	537	1,371	4,153	151 ^c
SEG				15,000– 49,000	
Average 2011–2020	27,626	6,883	31,159	53,343	6,550

^a Project did not operate, or counts were incomplete.

^b Preliminary numbers subject to change.

^c Observed escapement only. No estimate of missed passage included; therefore, the number presented is to be considered a minimum.

Table 5.—Coho salmon spawning weir escapement, Kuskokwim River drainage, Kuskokwim Management Area, 2011–2021.

Year	Coho Salmon Escapement		
	Kwethluk	George	Kogrukluk
2011	a	31,900	21,950
2012	20,627	14,844	13,462
2013	a	14,823	23,800
2014	48,478	35,771	54,001
2015	32,124	35,790	32,900
2016	28,852	a	a
2017	55,722	25,338	a
2018	a	8,993	8,169
2019	34,561	13,277	16,470
2020	a	21,426	9,856 ^c
2021 ^b	a	31,491	14,373
SEG	>19,000		13,000– 28,000
Average 2011–2020	36,727	22,462	24,393

^a Weir did not operate, or counts were incomplete.

^b Preliminary numbers subject to change.

^c Observed escapement only. No estimate of missed passage included; therefore, the number presented is to be considered a minimum.

Table 6.—Commercial harvest by period in the District 4, Kuskokwim Bay, 2021.

Date	Permits Fished	Hours Fished	Permit Hours	Chinook		Sockeye		Coho		Chum	
				Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
Jul 2	37	12	444	479	1.1	9,448	21.3	0	0.0	150	0.3
Jul 4	35	12	420	297	0.7	9,788	23.3	0	0.0	117	0.3
Jul 6	31	12	372	244	0.7	8,104	21.8	0	0.0	99	0.3
Jul 8	36	12	432	192	0.4	8,609	19.9	0	0.0	260	0.6
Jul 10	54	12	648	311	0.5	10,009	15.4	0	0.0	474	0.7
Jul 13	45	12	540	245	0.5	6,980	12.9	0	0.0	465	0.9
Jul 15	52	12	624	177	0.3	6,686	10.7	0	0.0	450	0.7
Jul 17	51	12	612	150	0.2	4,562	7.5	0	0.0	501	0.8
Jul 19	29	12	348	61	0.2	2,997	8.6	0	0.0	330	0.9
Jul 21	35	12	420	131	0.3	3,808	9.1	0	0.0	661	1.6
Jul 23	33	12	396	79	0.2	2,326	5.9	7	0.0	524	1.3
Jul 25	12	12	144	18	0.1	1,316	9.1	17	0.1	327	2.3
Jul 27	7	12	84	8	0.1	468	5.6	42	0.5	91	1.1
Jul 29 ^a	0	12	0	0	-	0	-	0	-	0	-
Jul 30	11	12	132	15	0.1	553	4.2	129	1.0	104	0.8
Jul 31	1	12	12	2	0.2	9	0.8	11	0.9	7	0.6
Aug 2	7	12	84	4	0.0	340	4.0	188	2.2	54	0.6
Aug 3	16	12	192	18	0.1	668	3.5	540	2.8	186	1.0
Aug 5	22	12	264	7	0.0	399	1.5	1,340	5.1	108	0.4
Aug 6	19	12	228	12	0.1	482	2.1	1,627	7.1	91	0.4
Aug 9	38	12	456	8	0.0	319	0.7	2,599	5.7	114	0.3
Aug 10	29	12	348	3	0.0	295	0.8	1,827	5.3	89	0.3
Aug 12	34	12	408	7	0.0	169	0.4	2,611	6.4	76	0.2
Aug 13	27	12	324	3	0.0	127	0.4	2,074	6.4	32	0.1

^a No permit holders participated in this period.

Table 7.—Commercial salmon harvest District 4, Quinhagak, Kuskokwim Bay, 2007–2021.

Year	Chinook	Sockeye	Coho	Chum	Pink	Value	Permits ^a
2007	19,573	109,343	34,710	61,228	0	\$660,865	125
2008	13,812	69,743	94,257	57,033	0	\$750,731	146
2009	13,920	112,153	48,115	91,158	0	\$747,325	179
2010	14,230	138,362	13,690	106,610	0	\$1,655,321	241
2011	15,387	38,543	30,457	104,959	0	\$1,176,436	219
2012	6,675	37,688	31,214	61,140	0	\$824,435	179
2013	2,054	26,393	58,079	21,126	0	\$761,537	197
2014	2,265	58,879	52,317	14,563	0	\$858,638	194
2015	7,547	30,269	76,285	16,051	0	\$489,564	189
2020	4,345	113,849	29,374	6,531	0	\$468,074	67
2021	2,468	78,462	13,012	5,310	29	\$357,273	74
<hr/>							
Average							
2007–2020	9,981	73,522	46,850	54,040	0	\$839,293	174

Note: No commercial fishery in Kuskokwim Area 2016 to 2019.

^a Number of permits that made at least one delivery.

Table 8.—Kanektok River salmon spawning escapement estimates, 2011–2021.

Year	Aerial Survey Escapement	
	Chinook	Sockeye
2011	a	a
2012	a	a
2013	2,277	53,002
2014	1,840	136,400
2015	4,919	39,970
2016	5,631	80,160
2017	a	a
2018	4,246	326,200
2019	7,212	349,073
2020	4,405 ^b	52,886 ^b
2021	4,115	53,690 ^c
SEG	3,900– 12,000	15,300– 41,000
Average 2011– 2020	4,361	148,242

^a Survey was either not flown or did not meet acceptable survey criteria.

^b Survey was flown outside (August 13) of the standardized peak spawning abundance date range of July 17 to August 5. Therefore, counts are underestimates of spawning escapement.

^c Survey was flown under poor weather conditions which hindered visibility in upper index regions. Therefore, counts are underestimates of spawning escapement.

Table 9.—Commercial harvest by period in the District 5, Kuskokwim Bay, 2021.

Date	Permits Fished	Hours Fished	Permit Hours	Chinook		Sockeye		Coho		Chum	
				Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
Jul 2	6	12	72	32	0.4	1,883	26.2	0	0.0	26	0.4
Jul 4	7	12	84	8	0.1	2,554	30.4	0	0.0	33	0.4
Jul 5	3	12	36	0	0.0	924	25.7	0	0.0	17	0.5
Jul 6	5	12	60	2	0.0	1,471	24.5	0	0.0	23	0.4
Jul 7	7	12	84	2	0.0	2,478	29.5	0	0.0	6	0.1
Jul 8	6	12	72	3	0.0	851	11.8	0	0.0	8	0.1
Jul 9	7	12	84	1	0.0	2,847	33.9	0	0.0	42	0.5
Jul 10	12	12	144	0	0.0	1,818	12.6	0	0.0	3	0.0
Jul 14	8	12	96	3	0.0	663	6.9	0	0.0	0	0.0
Jul 15	10	12	120	3	0.0	1,607	13.4	0	0.0	9	0.1
Jul 16	8	12	96	5	0.1	1,628	17.0	0	0.0	32	0.3
Jul 19	9	12	108	6	0.1	2,172	20.1	0	0.0	42	0.4
Jul 20	7	12	84	5	0.1	1,461	17.4	0	0.0	31	0.4
Jul 21	7	12	84	2	0.0	1,471	17.5	0	0.0	45	0.5
Jul 22	6	12	72	4	0.1	1,062	14.8	0	0.0	23	0.3
Jul 23	8	12	96	15	0.2	2,441	25.4	0	0.0	59	0.6
Jul 25	7	12	84	5	0.1	1,404	16.7	5	0.1	30	0.4
Jul 26	7	12	84	3	0.0	897	10.7	8	0.1	26	0.3
Jul 27	1	12	12	0	0.0	72	6.0	0	0.0	3	0.3
Jul 28	1	12	12	0	0.0	176	14.7	0	0.0	9	0.8
Jul 29 ^a	0	12	0	0	-	0	-	0	-	0	-
Jul 30	5	12	60	1	0.0	473	7.9	7	0.1	6	0.1
Aug 2 ^a	0	12	0	0	-	0	-	0	-	0	-
Aug 3	4	12	48	3	0.1	683	14.2	46	1.0	6	0.1
Aug 4	3	12	36	2	0.1	688	19.1	16	0.4	8	0.2
Aug 5	4	12	48	2	0.0	286	6.0	9	0.2	0	0.0
Aug 6	4	12	48	0	0.0	722	15.0	112	2.3	7	0.1
Aug 9	6	12	72	2	0.0	692	9.6	164	2.3	20	0.3
Aug 10	5	12	60	2	0.0	919	15.3	151	2.5	9	0.2
Aug 11	5	12	60	2	0.0	659	11.0	274	4.6	7	0.1
Aug 12	5	12	60	0	0.0	545	9.1	236	3.9	5	0.1
Aug 13	5	12	60	1	0.0	416	6.9	164	2.7	0	0.0

^a No permit holders participated in this period.

Table 10.—Commercial salmon harvests, District 5 Goodnews Bay, Kuskokwim Bay, 2007–2021.

Year	Chinook	Sockeye	Coho	Chum	Value	Permits ^a
2007	3,126	43,766	13,697	7,853	\$222,330	28
2008	1,281	27,237	22,547	10,408	\$198,070	25
2009	1,509	32,544	8,406	16,985	\$192,031	39
2010	1,759	41,074	4,900	26,914	\$470,661	48
2011	2,092	24,573	15,358	13,191	\$346,022	48
2012	1,536	50,647	25,515	24,487	\$617,765	58
2013	495	24,521	21,582	12,651	\$452,651	71
2014	205	20,515	52,158	3,403	\$584,654	61
2015	705	25,861	7,030	4,510	\$131,616	61
2020	442	28,859	10,928	3,037	\$128,196	17
2021	114	35,963	1,192	535	\$136,186	13
Average 2007–2020	1,315	31,960	18,212	12,344	\$334,400	46

Note: No commercial fishery in Kuskokwim Area 2016 to 2019.

^a Number of permits that made at least one delivery.

Table 11.—Salmon spawning escapement estimates, Goodnews River, Kuskokwim Bay, 2011–2021.

Year	Middle Fork Goodnews R. Weir Escapement				North Fork Goodnews R. Aerial Escapement		
	Chinook	Sockeye	Coho	Chum	Chinook	Sockeye	
2011	2,045	19,643	24,668	19,974	853	14,140	
2012	524	29,531	11,371	9,065	378	16,710	
2013	1,187	23,545	1,189	27,682	a	a	
2014	b	750	41,473	7,594	11,518	630	a
2015	b	1,494	57,809	15,084	11,517	991	38,390
2016	c	3,767	170,574		41,815	1,120	90,060
2017	c	6,881	179,897		54,799	a	a
2018	d					a	a
2019	c	6,421	167,105		38,177	2,462	162,930
2020	d					1,098	55,110
2021	d					2,273	95,020
SEG	1,500– 2,900	18,000– 40,000	>12,000	>12,000		640–3,300	9,600–18,000
Average 2011–2020	2,884	86,197	11,981	26,818		1,076	62,890

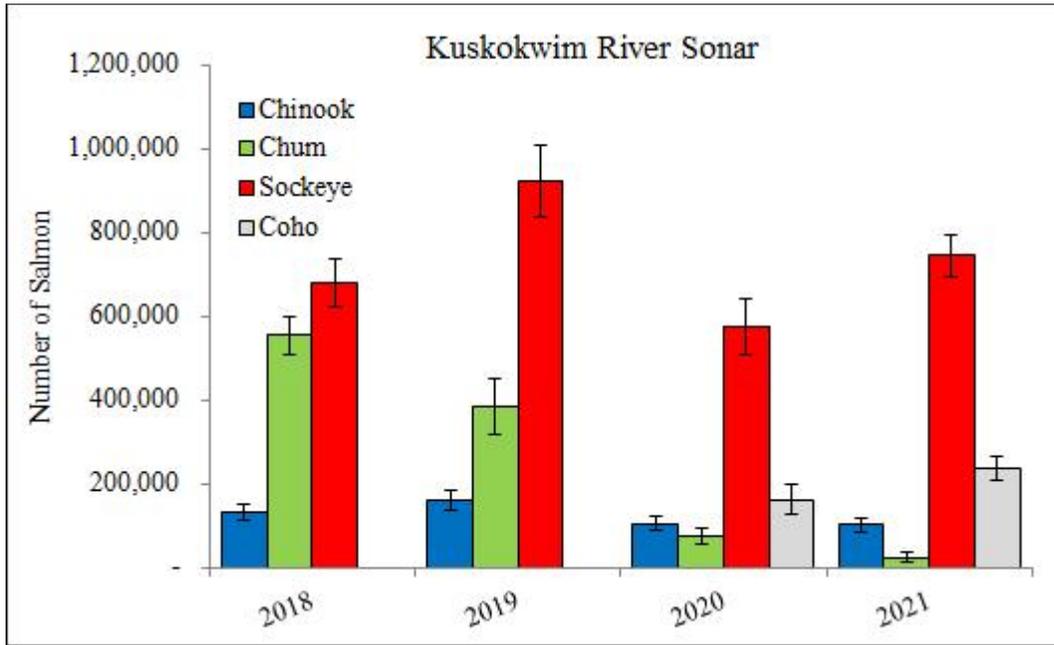
^a Survey was either not flown or did not meet acceptable survey criteria.

^b Weir operations ended Aug 31

^c Weir operation ended July 31.

^d Weir did not operate, or counts were incomplete.

-end-



Kuskokwim River Sonar 2021

Chinook: 102,552

Chum: 25,689

Sockeye: 745,037

Coho: 237,285



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

B5 2021 Chinook index letter

October 2021

Department of Fish and Game

Division of Commercial Fisheries
Headquarters Office

1255 West 8th Street
P.O. Box 115526
Juneau, Alaska 99811-5526
Main: 907.465.4210
Fax: 907.465.2604

September 22, 2021

Dr. James Balsiger, Administrator
NOAA Fisheries, Alaska Region
PO Box 21668
Juneau, Alaska 99802-1668

Dear Dr. Balsiger,

In April 2015, the North Pacific Fishery Management Council (Council) adopted an action that lowers Chinook salmon bycatch caps in the Bering Sea pollock fishery when Chinook salmon abundance in Western Alaska is at historically low levels.¹ The Council's action identifies historically low Western Alaskan Chinook salmon abundance using a three-system index of inriver adult Chinook salmon run sizes from the Unalakleet, Upper Yukon, and Kuskokwim rivers combined at or below the threshold level of 250,000 fish. The Council's action also specified a process by which the Alaska Department of Fish and Game (department) would provide postseason abundance estimates to the National Marine Fisheries Service (NMFS) by October 1, following the salmon season each year. If the threshold is not met, the performance standard and hard cap applicable to the Bering Sea pollock fishery would be lowered in the following year.

Methods and analyses used by the department to estimate the postseason run size for each of the three systems have been approved by the Council, and there were no changes to those methods in 2021. The methods used for the Unalakleet and Upper Yukon rivers are consistent with what is outlined in the Council's public review analysis.² Methods used for the Kuskokwim River were approved by the Council in June 2018³.

The 2021 three-system index of inriver adult Chinook salmon run sizes from the Unalakleet, Upper Yukon, and Kuskokwim rivers is 165,148 and is below the threshold level of 250,000.

The following details the preliminary total run estimates for each system:

Unalakleet River

The preliminary postseason run size estimate of Unalakleet River Chinook salmon is **2,892**, based on the sum of reported commercial harvest, expected subsistence harvest, and estimated total escapement. A total of seven Chinook salmon were commercially harvested in Norton Sound Subdistrict 6 (Unalakleet Subdistrict), and the total catch was assumed to be bound for the Unalakleet River. The department expects approximately 1,500 Unalakleet River Chinook salmon were harvested for subsistence uses in 2021. Subsistence harvest in 2021 is expected to be comparable or slightly smaller than the 2020 harvest (i.e., 1,778) given similarities in fishing opportunities combined with adverse weather conditions. The North River Tower and Unalakleet River weir operated successfully during much of the target operational period. The preliminary total escapement of Chinook salmon to the Unalakleet River was estimated to be 1,385 and is considered reliable (95% CI⁴: 977–1,793).

¹ <https://npfmc.legistar.com/LegislationDetail.aspx?ID=2237783&GUID=89E4DA9C-19B8-4BDE-8643-B19D68DD9EE3>

² Public Review draft Environmental Assessment/ Regulatory Impact Review/ Initial Regulatory Flexibility Analysis for Proposed Amendment to the Fishery Management Plan for Bering Sea Aleutian Islands Groundfish Bering Sea Chinook and Chum salmon bycatch management measures, March 2015.

³ <https://npfmc.legistar.com/LegislationDetail.aspx?ID=3486558&GUID=81056FD0-C9E8-4376-BD59-C2F6084C82E9&Options=ID|Text|&Search=Kuskokwim>

⁴ CI: confidence interval

Dr. James Balsiger

- 2 -

Upper Yukon River

The preliminary postseason run size estimate of Upper Yukon River Chinook salmon is **33,251**, based on the preliminary assessment of total passage into Canada and expectations of the total harvest in Alaska. Chinook salmon passage into Canada was based on a sonar project operated near the U.S./Canada border, downriver from Eagle, Alaska. The preliminary sonar count is 31,631 (90% CI: 31,289–31,973). The total harvest of Upper Yukon River Chinook salmon in Alaska is expected to be about 1,620. The potential for a very small Chinook salmon run was forecasted preseason, and inseason assessment indicated both the Chinook salmon and chum salmon runs were very weak. As such, conservation actions were implemented to protect both Chinook salmon and chum salmon which co-migrate throughout much of the Yukon River. There were no commercial salmon fisheries executed in the Yukon River in 2021, relevant sport fisheries were closed, and subsistence fishing was closed for all salmon beginning June 2 in the lower portion of the river. Limited harvest of Upper Yukon River Chinook salmon occurred in test fisheries operated by the department and in small-mesh gillnet opportunities directed at non-salmon species. The 2021 preliminary harvest expectation was informed by the 2014 total harvest (approximately 3,000), which resulted from heavy restrictions like those imposed in 2021, and the recent five-year average proportion of Canadian-origin Chinook salmon in Alaska fisheries (54%). The preliminary total run size of Upper Yukon River Chinook salmon was generally consistent with the lower end of the preseason run forecast (i.e., 80% CI: 42,000–77,000), but notably smaller than the lower end of the inseason run size estimate (i.e., 59,000) based on independent sonar and genetic stock identification programs.

Kuskokwim River

The preliminary postseason run size estimate of Kuskokwim River Chinook salmon is **129,005** fish (95% CI: 93,700–177,600), based on preliminary results of a maximum likelihood model. The total run estimate was informed by direct observations of escapement and an expectation of drainagewide harvest. The preliminary escapement estimate (101, 203) is uncertain (95% CI: 65,900–149,800) because the model was informed by only three weir projects. Poor weather conditions prevented the department from flying aerial surveys during the 2021 season, and those indices of escapement were not available to inform the model. The total harvest of Kuskokwim River Chinook salmon is expected to be 27,802. No commercial harvest of Kuskokwim River Chinook salmon occurred during the 2021 season. Nearly all harvest occurred in the subsistence fishery, and minimal harvest occurred in test fisheries operated by the department and collaborators. Subsistence fishing restrictions were implemented throughout the Chinook salmon run in 2021. U.S. Fish and Wildlife Service (USFWS) estimated that approximately 21,560 Chinook salmon were harvested within a portion of the Yukon Delta National Wildlife refuge during subsistence fishing openers announced by Federal Special Actions. A preliminary estimate of drainagewide subsistence harvest was generated using a five-year relationship between partial harvest estimates developed inseason by USFWS and drainagewide estimates developed postseason by the department. The preliminary total run size of Kuskokwim River Chinook salmon was within the preseason run forecast of 94,000–155,000 and is consistent with an independent partial run estimate of 102,525 (90% CI: 84,409–120,641) Chinook salmon, based on a sonar project operated near Bethel, Alaska.

Sincerely,



Sam Rabung
Director, Division of Commercial Fisheries

cc: Doug Vincent-Lang, Commissioner
Rachel Baker, Deputy Commissioner
Glenn Merrill, NMFS AKR
David Witherell, NPFMC

ADFG Subsistence Division Project Updates

Presentation to the Kuskokwim River Salmon Management Working Group

**Alida Trainor
November 10, 2021**



Western Region, Subsistence Division Staff



Aida Trainor
Research Coordinator - Interior
and Western Regions



Chris McDevitt
Subsistence Resource Specialist II



Jeff Park
Subsistence Resource Specialist I





Kuskokwim Management Area Postseason Salmon Harvest Survey Project

Funding Agency: USFWS Office of Subsistence Management (OSM)

Background: Data collection began in 1960, Division of Commercial Fisheries (DCF) surveyed Kuskokwim area fish camps in late July

ONC has partnered with ADF&G since 1999

Purpose: To estimate annual salmon harvest in Kuskokwim area communities

28 communities- Bay areas to headwaters



Kuskokwim Management Area Postseason Salmon Harvest Survey Project, continued

- **Contingency Planning:**
 - Based on 2020 plans
 - Align w/ Community health & safety guidelines
- **Methods:**
 - Typical year: Door to door in-person
 - 2020: phone, online, mail-in, in-person (BET)
 - 2021: in-person, phone, online, mail-in
- **Sampling:**
 - Typical year: Communities w/ 40 households or less = census, Communities w/ 41 or greater households = stratified sample
 - 2020 season: All communities (outside of BET) were censused
 - 2021 season:
 - In-Person: AKI, ANI, CHU, CKD, SLQ, SRV, LVD (stratified sample)
 - Phone: All lower river villages (excluding AKI), KWN, GNU and PTU (census)
 - BET = simple random sample of 25% of households





Lower Kuskokwim Tributaries

Funding Source: AKSSF funding through the State of Alaska

Study Period: June-July 2021 and 2022

Study Area:

- Gweek River
- Johnson River
- Tuntutuliak River
- Paillek Slough

Objective:

- Estimate subsistence salmon fishing effort and harvest on non-spawning tributaries
- Gain a better understanding of the importance of these harvests to LK community residents





Lower Kuskokwim Tributaries Continued

2021 Season Summary:

- Field research during the 2021 season yielded 7 harvest surveys and 0 ethnographic interviews
- Strict sampling design prevented researchers from acquiring adequate harvest data.

Moving Forward:

- Sampling methods should be altered to increase salmon harvest data.
- Field research in 2022 must focus on having conversations with fishers and gathering ethnographic information.



Lower Kuskokwim Tributaries Continued



Possible Methods Redesign:

- **Option A:** Focus solely on gathering quality TEK and other ethnographic information from fishermen who traditionally harvest in the non-spawning tributaries
- **Option B:** Gather TEK and other ethnographic information while also asking residents in lower Kuskokwim communities about their harvests in these tributaries *as part of the Kuskokwim Post Season Survey*

Consultation with Stakeholders:

- **WE WANT TO HEAR FROM YOU!!**
 - What are you interested in learning about harvest in these tributaries?
 - What approach would best answer those questions?



Questions?

Alida Trainor
ADF&G Subsistence
Division
(907) 328-6115
alida.trainor@alaska.gov



Thank you!

PROPOSAL 279

5 AAC 01.280. Subsistence fishing permits.

Extend Kuskokwim River subsistence salmon fishing permit sunset date one year, as follows:

5 AAC 01.280(2) is amended to read:

...

(2) the provisions of (1) of this section do not apply after December 31, 2022 [2021].

...

What is the issue you would like the board to address and why?

Since 2010, king salmon returns to the Kuskokwim River have been below historical averages and some of the lowest on record. These low returns have prompted management restrictions to the Kuskokwim River subsistence salmon fishery. At the August 2015 Kuskokwim Subsistence Salmon Panel meeting (panel) in Bethel, the panel heard testimony from panel members in support of a limited permit system that would allow for the harvest of king salmon during times of conservation.

The Alaska Board of Fisheries (board) met in Anchorage from March 20–24, 2017 to discuss proposals relating to subsistence fishing permits within the Kuskokwim River. The board adopted Proposal 276, establishing a limited permit system in Kuskokwim River waters from the Yukon Delta National Wildlife Refuge boundary at Aniak upstream to the headwaters of the Kuskokwim River. The proposal included a sunset date of December 31, 2021.

The COVID-19 global pandemic shifted the normal Arctic-Yukon-Kuskokwim Alaska Board of Fisheries finfish meeting from January 2022 to January 2023. Therefore, this permit system will expire prior to the regular board meeting, eliminating permits as a management option during years of low king salmon abundance.

PROPOSED BY: Alaska Department of Fish and Game. *(formerly known as ACR #3)*

Kuskokwim River Salmon Management Working Group

P.O. Box 1467 • Bethel, AK 99559 • 907-543-2433 • 907-543-2021 fax

July 23, 2021

Mike Dunleavy, Governor
Office of the Governor
P.O. Box 110001
Juneau, Alaska 99811-0001

Dear Governor Dunleavy,

The Kuskokwim River Salmon Management Working Group (KRSMWG) requested information regarding the interception of chum salmon bound for the Kuskokwim River in Area M commercial fisheries harvests at its meeting with Alaska Department of Fish and Game (ADF&G) staff on July 21, 2021. In short, we were told that we would have to reach out to ADF&G staff based in Kodiak ourselves to ask our questions as it was not fair to ask Kuskokwim Area staff to report on commercial fishing activities that occur elsewhere in Alaska, which is outside the scope of their job descriptions. To that end, we are writing to you to ask for your assistance in directing ADF&G to provide information regarding the interception of our Kuskokwim River chum salmon for commercial sales in the various fisheries that take place in Area M.

We understand that the Western Alaska Salmon Stock Identification Program (WASSIP) is no longer in operation, and that information resulting from that multi-partner effort is now quite dated. We understand that the South Unimak and Shumagin Islands June Salmon Management Plan (5 AAC 09.365) was designed by the Alaska Board of Fisheries to better manage the Area M commercial harvests of chum salmon bound for various spawning areas to mitigate the impacts of their interception to spawning tributaries such as the Kuskokwim River to avert chum salmon disasters that our river has experienced in the past. We understand that some of those original protections may no longer be in effect, or may have otherwise been revised to the extent that we are unsure as to what level our Kuskokwim River chum salmon may be intercepted by Area M commercial fishermen. We also understand that a decade or so ago, the abilities of the ADF&G Gene Conservation Laboratory to distinguish among Kuskokwim River chum salmon, Yukon River chum salmon, and other Western Alaska chum salmon stocks were limited. It is our hope that the significant funding that went into WASSIP has resulted in improvements in the State of Alaska's abilities to identify the specific chum salmon stocks being harvested for commercial purposes in Area M fisheries.

Now, that the Kuskokwim River and our neighbors in the Arctic-Yukon-Kuskokwim region are experiencing a second year of record low chum salmon returns, unprecedented salmon fishing restrictions, and compounded customary and traditional food security crises given the ongoing Chinook salmon conservation crises, our elder fishermen are raising significant concerns as to whether Area M or False Pass chum salmon interception could be contributing to the 2020 and 2021 disastrous returns to our river, as well as to our relatives and neighbors living on the Yukon River?

Kuskokwim River Salmon Management Working Group

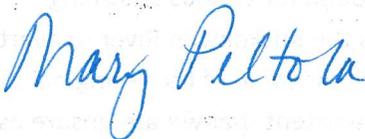
P.O. Box 1467 • Bethel, AK 99559 • 907-543-2433 • 907-543-2021 fax

We are also contacting the Governor's Office to request more information regarding the role and impact of the Bering Sea bycatch of our Kuskokwim River Chinook salmon and Kuskokwim River chum salmon. This is a recurring agenda item at our weekly KRSMWG meetings; however, Kuskokwim Area ADF&G Commercial Fisheries Division staff are only able to look at the Bering Sea bycatch reports on-line and share that information with us. While Chinook salmon bycatch is specifically reported, the available information does not provide us with specific bycatch numbers for chum salmon. Again, the KRSMWG wishes to better understand the effect of bycatch of our Kuskokwim River chum salmon in the Bering Sea pollock commercial fishery where our salmon are supposed to be prohibited species. Therefore, we also are requesting your assistance in directing necessary ADF&G and/or federal staff to meet with the KRSMWG to provide an overview of existing information, data trends, on ongoing efforts to evaluate the impact of these interceptions on the returns of Chinook and chum salmon to the Kuskokwim River watershed.

In closing, we are specifically asking that the Governor's Office direct state officials and staff to bring the requested expertise and information related to the commercial fishing interceptions of our Kuskokwim River Chinook salmon and chum salmon in state-managed Area M commercial fisheries and to federal-managed Bering Sea pollock commercial fisheries to a meeting of the KRSMWG. We are highly dependent on these species to meet our priority customary and traditional uses and our food security and subsistence needs are not being met.

This letter was discussed and voted upon at the July 28, 2021, KRSMWG meeting. A quorum was established with seven voting members present. The seven voting members unanimously supported this letter.

On Behalf of the Kuskokwim River Salmon Management Working Group,



Mary Peltola, KRSMWG Co-Chair



THE STATE
of
ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Fish and Game

OFFICE OF THE COMMISSIONER
Headquarters Office

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

August 23, 2021

Mary Peltola
KRSMWG Co-Chair
PO Box 1467
Bethel, AK 99559

Ms. Peltola,

The office of Governor Mike Dunleavy received the Kuskokwim River Salmon Management Working Group's July 23, 2021, letter voicing concern over management of the Alaska Peninsula Area commercial salmon fishery and salmon bycatch in Bering Sea groundfish fisheries and has asked me to reply on his behalf.

The Alaska Department of Fish and Game (department) is preparing an extensive frequently-asked-questions document covering many of the topics mentioned in your letter that will be available in fall 2021. In the meantime, I want to offer the following comments.

As far back as the 1920s people have known that salmon stocks originating from multiple locations on the Pacific Rim migrate along the Alaska Peninsula and are caught in the June commercial salmon fisheries occurring near the south side of Unimak Island, the Shumagin Islands, and Ikatán Peninsula.

To mitigate impact of this mixed stock salmon fishery on salmon fisheries occurring in more terminal areas, the Alaska Board of Fisheries (board) began adopting restrictive management regimes for the Alaska Peninsula fishery beginning in the early 1970s. From the mid-1970s through the 2000 fishing season the June South Unimak and Shumagin Islands fishery was managed with various guideline harvest levels and caps on sockeye and chum salmon harvests, gear restrictions, and restrictions on fishing time.

In 2001 the board made major changes to the *South Unimak and Shumagin Islands June Salmon Management Plan* (5 AAC 09.365). These changes included:

1. Elimination of the sockeye salmon guideline harvest levels;
2. Elimination of the chum salmon guideline harvest levels;
3. Limiting fishing time to no more than 16 hours per day by any gear group;
4. Limiting total fishing time by purse seine and drift gillnet gear to no more than 48 hours in a floating 7-day period with no more than two 16-hour periods on consecutive days in any 7-day period;
5. From June 10 through June 24 in the South Unimak and/or Shumagin Islands fisheries, set gillnet gear may fish on consecutive days for 16-hour periods if the set gillnet sockeye to chum salmon ratios in that fishery are equal to or greater than the recent 10-year average for that fishery. If the set gillnet sockeye to chum salmon ratio falls below the recent 10-year average in either fishery, that fishery will be closed for one period. From

June 10 through June 24, daily fishing periods for set gillnet gear will be from 6:00 AM until 10:00 p.m.;

6. Purse seine and drift gillnet fishing periods through June 24 will occur at the same time in the South Unimak and Shumagin Islands fisheries; and
7. After June 24, in either the South Unimak or Shumagin Islands fishery, if the ratio of sockeye to chum salmon by all gear combined is less than 2.0 on any day, the next fishing period shall be of 6 hours duration for all gear in that fishery. If the sockeye to chum salmon ratio is 2.0 or greater, a 6-hour fishing period can be extended to a maximum of 16 hours. The South Unimak or Shumagin Islands fishery shall close for all gear groups if the ratio of sockeye to chum salmon is less than 2.0 for two consecutive fishing periods.

In 2004 the board adopted additional, significant changes to the *South Unimak and Shumagin Islands June Salmon Management Plan* (5 AAC 09.365), including:

1. Fishery to begin at 6:00 AM on June 7;
2. Fishing periods are 88 hours in length separated by 32-hour closures. The fishery closes at 10:00 p.m. on June 29. The last fishing period is 64 hours in duration;
3. Concurrent fishing time for all gear types;
4. Areas open to fishing were expanded to include the entire Unimak and Southwestern districts, East and West Pavlof Bay, and Bechevin Bay and Shumagin Islands sections; and
5. Eliminated all sockeye to chum salmon harvest ratio restrictions.

The changes adopted in 2004 form the basis of the current *South Unimak and Shumagin Islands June Salmon Management Plan*.

Between 2004 and 2016 the board adopted only relatively minor changes the plan, but in 2016 the board adopted a new restriction for both the June and post-June fisheries. In 2016 the board voted to limit the number of sockeye salmon harvested in the Western Alaska Salmon Stock Identification Program (WASSIP) described “Dolgoi Island area” (statistical areas 283-15 through 283-26 and 284-36 through 284-42). From June 1 through July 25, there is a harvest limit of 191,000 sockeye salmon that can be harvested in these areas, based on fish ticket information. Once this harvest limit is reached, the portion of the West Pavlof Bay Section south of Black Point (statistical area 283-26) and waters of the Volcano Bay Section (statistical areas 284-37 through 284-39) will be closed to commercial salmon fishing through July 25. However, the portion of West Pavlof Bay Section south of Black Point (statistical area 283-26) may reopen to commercial salmon fishing on July 17.

Prior to 2006, efforts to identify origin of salmon caught along the Alaska Peninsula were focused on tagging studies and scale pattern analysis. WASSIP brought powerful genetic stock identification tools to bear in answering questions related to stock composition and harvest rate on salmon stocks from Chignik Bay to Kotzebue Sound.

Genetic techniques allowed for three Western Alaska chum salmon stock groups to be evaluated through WASSIP: Kotzebue Sound, Coastal Western Alaska (CWAK), and Upper Yukon (i.e., Yukon River fall chum salmon). The CWAK group includes chum salmon from Bristol Bay, Kuskokwim River, lower/middle Yukon River (summer chum salmon), and Norton Sound. Since WASSIP, additional genetic markers have been developed and tested to distinguish among stocks within the Coastal Western Alaska stock group. However, lower Yukon River, lower Kuskokwim River, and Bristol Bay stocks still cannot be distinguished from one another.

From 2007-2009, 57.7% of chum salmon caught in the June South Unimak and Shumagin Islands fishery were of CWAK origin, but harvest rate on CWAK chum salmon was low at 4.2%. This harvest rate is the percent of fish harvested in the fishery relative to total return of CWAK fish. The second largest contributor to June South Unimak and Shumagin Islands chum salmon harvest was the Asia reporting group (24.9% of chum salmon harvest).

There have not been any genetic stock identification programs focused on chum salmon caught in the Alaska Peninsula salmon fishery since 2009, so it is not possible to estimate stock composition of Alaska Peninsula chum salmon harvest during 2020 or 2021 or estimate the harvest of Kuskokwim River chum salmon in the Alaska Peninsula salmon fishery.

You also expressed concern for salmon caught in the Bering Sea groundfish fisheries. The incidental catch of salmon in groundfish fisheries is closely monitored. Every vessel in the Bering Sea/Aleutian Islands walleye pollock fishery is required to have 100% observer coverage and observers count every salmon caught. Representative samples are taken for genetic identification of the area of origin and salmon are also measured and scales samples are taken for aging. These data are used to estimate the 'adult equivalents' of the bycatch which answers the question, "how many of the bycaught salmon would have returned as adults to spawn?" By comparing the adult equivalent numbers with run size of fish returning to the various river systems, scientists can estimate the impact of salmon bycatch on a given river system such as the Yukon or Kuskokwim River. Chinook salmon bycatch in the Bering Sea is estimated to be less than 3% of the total returns to western Alaska river systems with less than 1% attributed to the middle/upper Yukon River systems. The most recent genetic information, from 2019, indicates that most of the chum salmon caught in the Bering Sea/Aleutian Islands walleye pollock fishery are hatchery-produced fish from Asia (57%) while a smaller percentage (16%) were estimated to have originated from Western Alaska. Based on an 'adult equivalent' analysis, chum salmon bycatch in the walleye pollock fishery is estimated to be less than 1% of the total returns to Western Alaska rivers.

In response to multiple years of historically low Chinook salmon abundance, which have resulted in significant restrictions for subsistence users in western Alaska, the North Pacific Fishery Management Council further reduces Chinook salmon bycatch limits at low levels of salmon abundance. When the post-season in-river Chinook salmon run size for the Kuskokwim, Unalakleet, and Upper Yukon River aggregate stock grouping is less than 250,000 Chinook salmon, the Chinook salmon bycatch limits are further reduced for the Bering Sea walleye pollock fishery in the following year. In 2020 the post-season in-river Chinook salmon run size for the three rivers was estimated below the 250,000 salmon threshold, so this year the Bering Sea walleye pollock fishery is operating under the lower bycatch limits which is expected to further reduce the impacts of the bycatch on adult salmon returning to western Alaska river systems.

The Bering Sea/Aleutian Islands walleye pollock fleet uses salmon bycatch excluders in pollock trawl nets and operates under "Incentive Plan Agreements" or IPAs to further avoid both Chinook and chum salmon bycatch. Chinook salmon avoidance is always the top priority, and the IPAs specify that the incentives to avoid chum salmon should not increase Chinook salmon bycatch. The primary tool used in the IPAs to reduce salmon bycatch are rolling hot spot closures where discrete areas with high salmon bycatch rates are closed to pollock fishing. Closure areas to minimize chum salmon bycatch primarily occur during the June – July period when the proportion of Western Alaska chum salmon in the bycatch tends to be higher.

Department staff are available to provide harvest information, descriptions of how management plans are implemented, and discuss WASSIP results. Specific questions on WASSIP may be directed to Chris Habicht, Gene Conservation Laboratory Director and the department's Principal Geneticist chris.habicht@alaska.gov. Questions on the Alaska Peninsula salmon fishery may be directed to Forrest R. Bowers, Deputy Director Division of Commercial Fisheries forrest.bowers@alaska.gov. The Bering Sea walleye pollock fishery is managed by the National Marine Fisheries Service and questions related to that fishery may be directed to Glenn Merrill, Assistant Regional Administrator Sustainable Fisheries Division, Alaska Region glenn.merrill@noaa.gov.

Respectively,



Doug Vincent-Lang
Commissioner

cc: Hans Rodvik, Governor's Office, State of Alaska
Ben Mulligan, Department of Fish and Game, State of Alaska
Sam Rabung, Department of Fish and Game, State of Alaska



KUSKOKWIM RIVER

INTER-TRIBAL FISH COMMISSION

OUR RIVER, OUR PEOPLE, OUR FISH

P.O. Box 190 Bethel, AK 99559-190 | (907) 545-6206 | info@kritfc.org | kuskosalmon.org

September 29, 2021

Mr. Simon Kinneen, Chair
Mr. David Witherell, Executive Director
North Pacific Fishery Management Council
1007 West Third, Suite 400
Anchorage, Alaska 99501

Dear Mr. Kinneen and Mr. Witherell,

The Kuskokwim River drainage is experiencing a salmon disaster and ecosystem collapse. Since at least 2010, Chinook salmon returns to the Kuskokwim have been in decline, with several of the past years showing some of the lowest returns on record. In 2020 and 2021, the Kuskokwim River chum salmon returns, typically abundant and critical for the food security of subsistence fishing families and biomass in the headwaters ecosystem, crash unexpectedly.

The drastic declines of Kuskokwim Chinook and chum salmon populations severely limit subsistence fishing opportunities, represent some of the lowest harvests on record for both species, and prevent in-river commercial fisheries for either species from taking place. Furthermore, the heavy regulation of Chinook and chum salmon curtails subsistence sockeye salmon fishing due to harvest restrictions during mixed stock run timing. Without strong Chinook and chum salmon populations on the Kuskokwim, the health of subsistence communities, Alaska Native Yupik and Athabascan cultures and spiritualities, subsistence economies, and ecosystems is immensely threatened.

The Kuskokwim River Inter-Tribal Fish Commission (KRITFC) writes this letter to urge the North Pacific Fishery Management Council (Council) to take immediate and thorough action to intervene in the unfolding collapse of our river and marine ecosystems. KRITFC represents the 33 Tribes of the Kuskokwim River drainage in fisheries management and monitoring. Since 2015, KRITFC has participated with federal, state, and Tribal managers and regional stakeholders to conserve and rebuild Kuskokwim salmon populations, specifically Chinook salmon and, more recently, chum salmon. In 2016, KRITFC signed a memorandum of understanding with the U.S. Fish and Wildlife Service at Yukon Delta National Wildlife Refuge to establish a formal federal collaborative management partnership.

TELIDA | NIKOLAI | TAKOTNA | MCGRATH | LIME VILLAGE | STONY RIVER | SLEETMUTE | RED DEVIL
GEORGETOWN | CROOKED CREEK | NAPAIMUTE | CHUATHBALUK | ANIAK | UPPER KALSKAG | LOWER KALSKAG | TULUKSAK
AKIAK | AKIACHAK | KWETHLUK | BETHEL | OSCARVILLE | NAPASKIAK | NAPAKIAK | KASIGLUK | ATMAUTLUAK
NUNAPITCHUK | TUNTUTULIAK | EEK | QUINHAGAK | KONGIGANAK | KWIGILLINGOK | KIPNUK | CHEFORNAK

Despite the sustainable fisheries management KRITFC has brought to the management table for the past seven years – such as managing to the high end of the drainage-wide Chinook salmon escapement goal range, incorporating Traditional Knowledge into fisheries management, and equitably managing salmon runs for the entire river ecosystem and fishing communities – Kuskokwim Chinook and chum salmon populations are not rebuilding. This is indicative of a larger, much more complex disaster unfolding in Western Alaskan and Bering Sea ecosystems. Undeniably, several factors in the Bering Sea marine environment are affecting Kuskokwim salmon populations and the many communities of fishermen/women, mammals, migratory birds, and flora who depend on them. These factors include but are not limited to salmon bycatch in the Bering Sea pollock fishery, changing marine temperatures, and marine debris. Moreover, these factors are causing unprecedented salmon declines in parts of Western Alaska other than the Kuskokwim River, notably in the Norton Sound and Yukon River systems.

To conserve and protect our Kuskokwim salmon, ecosystem, and subsistence ways of life, KRITFC urges the Council to consider the following actions:

- 1. The Council should take emergency action to limit Chinook and chum salmon bycatch to zero in 2022 in the Bering Sea pollock fishery.**
 - We are amid a multi-species salmon collapse within the Kuskokwim River watershed.
 - Chinook and chum salmon runs throughout the Artic-Yukon-Kuskokwim region were disastrous in 2020 and 2021. Chinook and chum salmon fisheries were completely shut down or severely limited.
 - People on the Kuskokwim have lost a critical source of food and a key component of their culture. Every possible action must be taken to protect salmon stocks and ensure a collapse does not happen again.
 - Given the current state of Chinook and chum salmon, and the lack of information about why this is happening, sustainable fishery management requires that the Council limit salmon bycatch in the Bering Sea pollock fishery to ensure that NO salmon are taken as bycatch in the Bering Sea pollock fishery in 2022.
- 2. Ensure Alaska Native Tribes have a seat at the decision-making table.**
 - Support amendment to the Magnuson-Stevens Act to add 2 Tribal seats to the NPFMC table.
 - Ensure Alaska Native Tribal representation on all Council bodies, including the AP, SSC, and plan teams.
- 3. Send a letter to NMFS supporting funding for disaster declarations and research, observation and monitoring by Tribal organizations and co-management organizations.**
- 4. Support and encourage NOAA to initiate Tribal Consultation on the issue of salmon bycatch so that both NOAA and the Council have the best available information.**

KRITFC has prepared a “Kuskokwim River Chinook and Chum Salmon Situation Report” with further details about this salmon disaster and its effects on subsistence fishing communities. In light of the four aforementioned action considerations, please review the following report and

consider its testimony in Council management deliberations. As the Kuskokwim River is interconnected with the Bering Sea, any action the Council chooses to take invariably affects our salmon, ecosystem, and communities.

If the Council wishes to speak further about the issues presented here, please contact Mary Peltola, KRITFC Executive Director, at (907) 545-6206 or marypeltola@kritfc.org.

Respectfully,

A handwritten signature in black ink, appearing to read "Mike Williams Sr.", with a stylized flourish at the end.

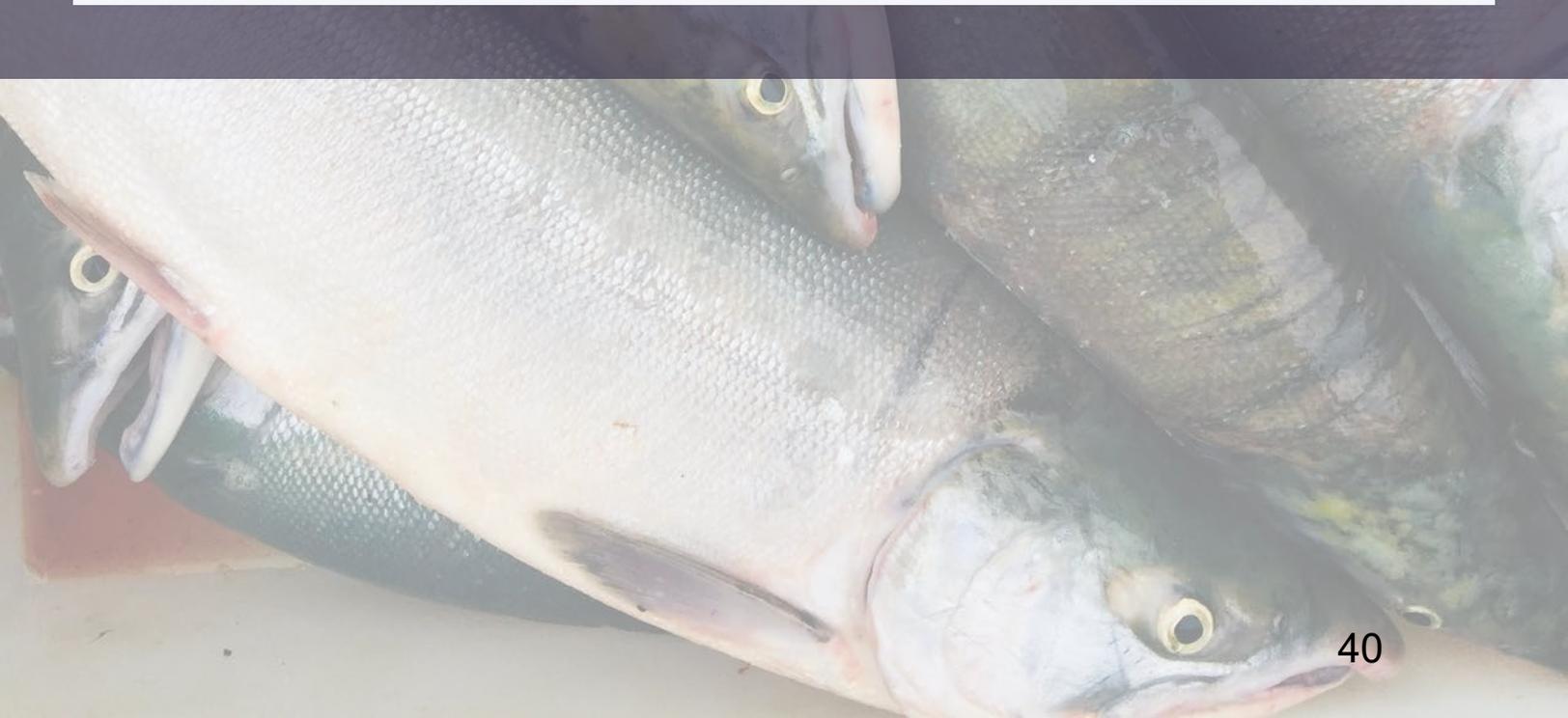
Mike Williams Sr.
Chair, KRITFC



KUSKOKWIM RIVER Salmon Situation Report

SEPTEMBER 2021

KUSKOKWIM RIVER
INTER-TRIBAL FISH COMMISSION



Prepared by the Kuskokwim River Inter-Tribal Fish Commission

P.O. Box 190, Bethel, Alaska 99559

(907) 545-6206

info@kritfc.org

This situation report documents the current Chinook and chum salmon disasters on the Kuskokwim River and its impacts on the 33 subsistence-dependent communities in its watershed. The aim of the Kuskokwim River Inter-Tribal Fish Commission (KRITFC) in this report is to communicate the magnitude of our subsistence salmon declines and articulate the critical need for new conservation-based and ecosystem-based management regimes, particularly in their marine environment. These catastrophic Chinook and chum salmon declines, threatening food, cultural, spiritual, and economic security in the Kuskokwim drainage, demand attention and immediate action by the North Pacific Fishery Management Council.

While this report focuses on the impacts of these salmon stock collapses in the Kuskokwim drainage, we are acutely aware that other parts of western and interior Alaska are experiencing the same declines. Recent record-low Chinook and chum salmon returns to the Yukon River have had a devastating impact on subsistence-dependent communities throughout its entire international drainage, and salmon returns to rivers in the Norton Sound region have been in steep decline for nearly two decades.

This situation report is not meant to be a complaint or to dismiss our gratitude for the fish we are able to harvest along the Kuskokwim. Rather, it is meant to be an honest documentation of the experiences of our communities during Chinook and chum salmon shortages so we can effectively and equitably act to maintain our fishing ways of life for future generations.

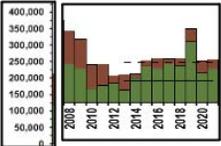
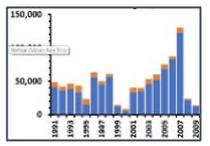
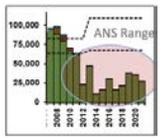
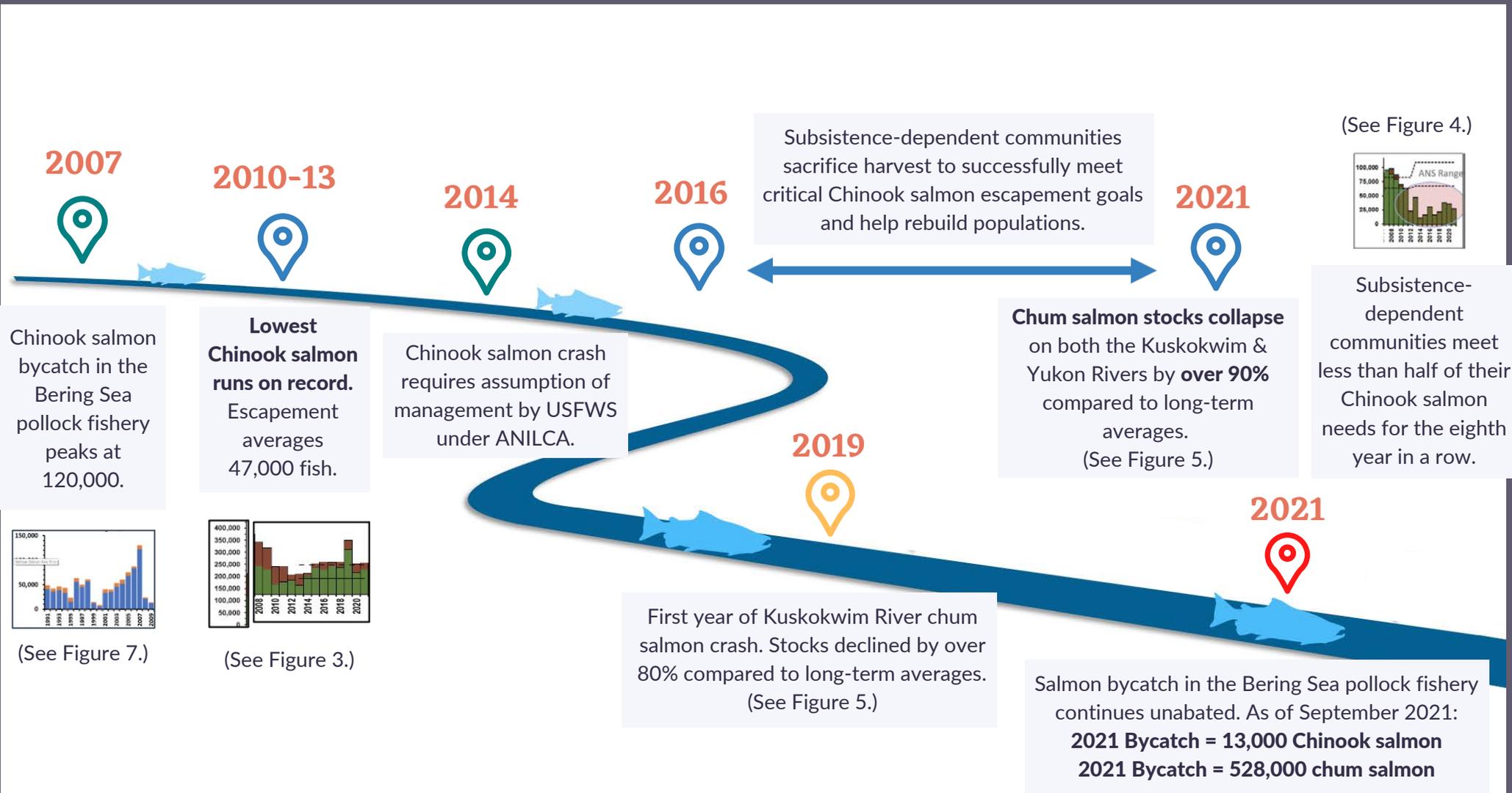
About the Kuskokwim River Inter-Tribal Fish Commission

KRITFC represents the interests of the 33 federally recognized Tribal governments in the Kuskokwim River (Figure 1) in fisheries assessment and sustainable fisheries management. Its 33 Tribally appointed Fish Commissioners, 7 Executive Council members, and 4 In-Season Managers combine Traditional Knowledge and western science to conservatively manage Kuskokwim fisheries according to Yupik and Athabascan Dené values, subsistence harvest needs, and escapement targets aimed at rebuilding depleted salmon populations.

The values at the core of KRITFC's work are social and environmental justice, equitable and sustainable salmon harvests throughout the watershed, and unity as one fishing people along the Kuskokwim River.

"The decline of chum and kings, they're really hurting us, but we're told to keep going through it with much effort, even [when] we're feeling bad about it. They told us we'll be reaching it, and do not complain too much. Do not complain too much about that. And it's hard not to complain, but we go through it."

Kuskokwim River Chinook and Chum Salmon: TIMELINE OF A SUBSISTENCE SALMON CATASTROPHE



Multi-Species Salmon Collapse Threatens Food Security and the Foundation of the Subsistence Economy in Kuskokwim River Communities

The Kuskokwim River has historically supported the largest subsistence salmon fishery in the state of Alaska, based on both the number of residents in the 33 villages (Figure 1) who participate in the fishery and the number of salmon harvested (Fall et al. 2011). With some of the lowest per capita monetary incomes in the state, this region is characterized by a high production of wild foods for local use (Wolfe and Walker 1987).

Over the past thirty years, village residents in the Kuskokwim region have annually harvested over 360 pounds of wild foods per person for human consumption, with fish comprising up to 85% of the total poundage of subsistence harvests, and salmon contributing up to 53% of subsistence harvests (Simon et



Figure 1: KRITFC represents the interests of 33 Tribal communities heavily dependent on salmon for food security and cultural vitality along the Kuskokwim River.

al. 2007; Wolfe et al. 2011). Residents harvest all five species of Pacific salmon: Chinook, chum, coho, pink, and sockeye. One out of every two Chinook salmon caught for subsistence in the state is harvested by Kuskokwim River communities. In other words, salmon-dependent communities in the Kuskokwim watershed utilize half of all Chinook salmon harvested for subsistence state-wide (Figure 2).

The importance of salmon, particularly Chinook salmon, to residents extends well beyond nutrition and economic values to include socio-cultural identities and a way of life (Ikuta et al. 2013).

Since at least 2009, subsistence-dependent communities in the Kuskokwim drainage have noticed and suffered because of significant and sudden drops in salmon populations, beginning with Chinook salmon and now including chum salmon. The Kuskokwim River is experiencing a catastrophic multi-species salmon decline not seen in living memory. This situation report continues with detailed impacts of this decline on Kuskokwim communities.

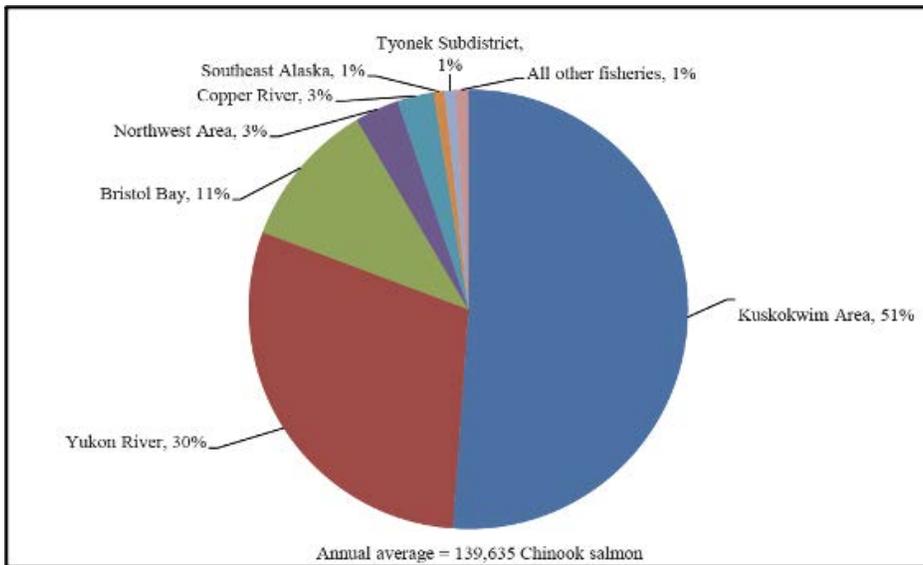


Figure 2: Percentage of average annual subsistence harvest of Chinook salmon by management area, 1994–2018. ADF&G 2020.

Impacts of the Prolonged Chinook Salmon Crash

Since 2009, the Chinook salmon (king salmon, *kiagtaq*, *taryaqvak*, *Oncorhynchus tshawytscha*) populations in the Kuskokwim River have crashed catastrophically and remain severely depressed through the 2021 season.

The 2021 Chinook salmon run was 47% below the long-term average (Figure 3). During the run, communities on the river were heavily regulated with very few limited harvest opportunities per

week and net size and gear restrictions to try to meet the critical escapement goals. Consequently, in 2021, residents of the Kuskokwim River met less than one-third of their long-term Chinook salmon

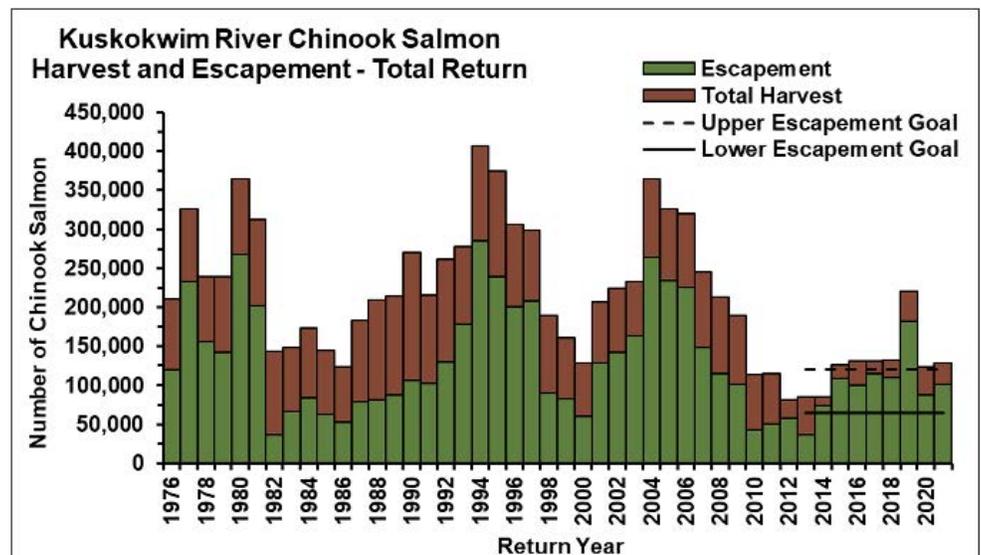


Figure 3: Kuskokwim River Chinook salmon escapement and total harvest by all user groups during 1976–2020. Source: Alaska Department of Fish & Game AYK Database. Note: The 2021 estimate of harvest and escapement is preliminary.

“The numbers say two things: lower quality and lower quantity. The kings, as we are experiencing all over the Delta, are not as big and not as many. The same can be said for here in Quinhagak. Not as many females were captured, but that’s fine because we don’t want to take the females. I’m hoping this means the big females are going up to spawn.”

JACQUELINE CLEVELAND | QUINHAGAK



harvest needs. Moreover, as the average size of Chinook salmon returning to the Kuskokwim has decreased from around 33 pounds per fish to 11 pounds per fish, subsistence fishers are not only harvesting fewer numbers of fish but fewer total pounds of fish. This compounds the food security crisis already unfolding with declined Chinook salmon stocks and restricted harvest opportunities.

Due to the steep declines and management actions required to meet critical escapement needs, only a fraction of the amount reasonably necessary for subsistence uses (ANS) (67,200-109,800 fish) was available for harvest for the past decade. Residents have not met their long-term harvest levels since 2010 (Figure 4). In the past decade, chum (dog) salmon, sockeye (red) salmon, and coho (silver) salmon have provided a critical supplement and source of food security during Chinook salmon declines; yet, recently, chum salmon returns have also crashed.

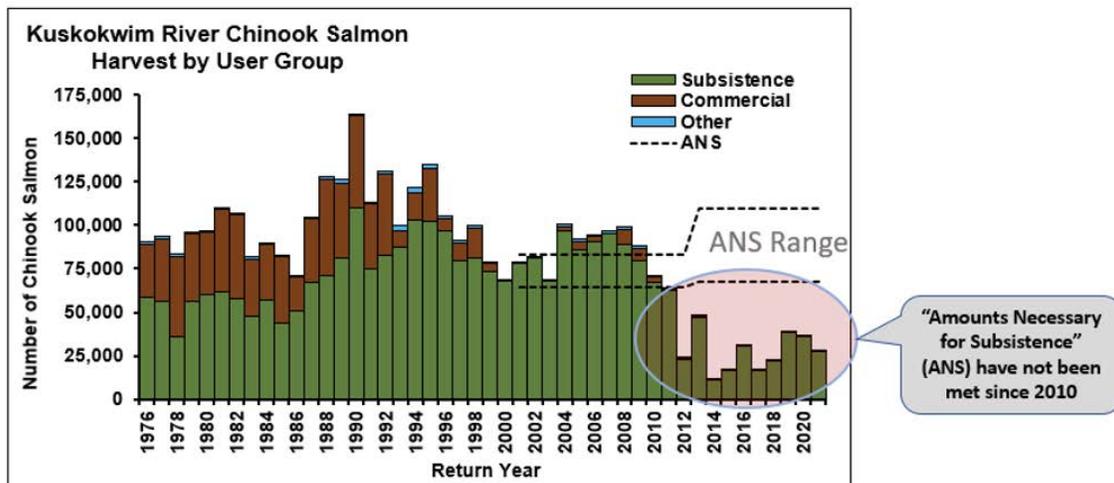


Figure 4: Kuskokwim River Chinook salmon harvest by user groups during 1976—2020, showing that long-term subsistence harvest needs in the watershed have not been met since 2010. Subsistence harvest needs are based on ANS as determined by the Alaska Board of Fish in 2013. Source: Kuskokwim River Salmon Management Working Group November 18, 2020, meeting packet, ADF&G.

Unprecedented Recent Chum Salmon Crash

Chum salmon (dog salmon, *aluyak*, *iqalluk*, *neqepik*, *O. keta*) are especially critical for food security during years of poor Chinook salmon returns. They also provide unique traditional foods that cannot be prepared with other salmon species. While chum salmon harvests have declined in recent decades resulting from changes in customary and traditional use patterns (e.g., fewer dog teams), they are highly sought for preparing traditional delicacies like *eggamarrlluk* (half-dried, half-smoked salmon) and for feeding Elders and other family members who cannot consume the high fat content of other salmon species.

However, in 2020 and 2021, Kuskokwim chum salmon returns crashed unexpectedly (Figure 5). The 2021 chum run is clearly the lowest on record with fewer chum than Chinook salmon counted in the lower river sonar, during a period of continually poor Chinook returns. Because 2021 in-season run assessment data

"With one fish, you can feed about 3 families, and maybe more. For a small family, like a person that is just starting out, if you have maybe 1 or 2 children, 20 kings will probably feed you all winter. That's the way it used to be. That's how it was; but not anymore. We're lucky we put away about 10 to 15 kings in the past 10 years now. And the size of the kings is smaller."

showed a poor chum salmon return, restricted management of chum management took place for the first time. Conservation closures, previously instituted to protect Chinook salmon and typically removed by the end of June as the Chinook salmon run wanes, continued through the end of July to protect depleted chum salmon.

As a result of this crash and the restriction of harvest to meet escapement needs, subsistence harvests of chum salmon in the Kuskokwim River in 2020 and 2021 have been well below the ANS range of 41,200-116,400 fish designated by the Alaska Board of Fisheries, representing some of the poorest harvests on record.

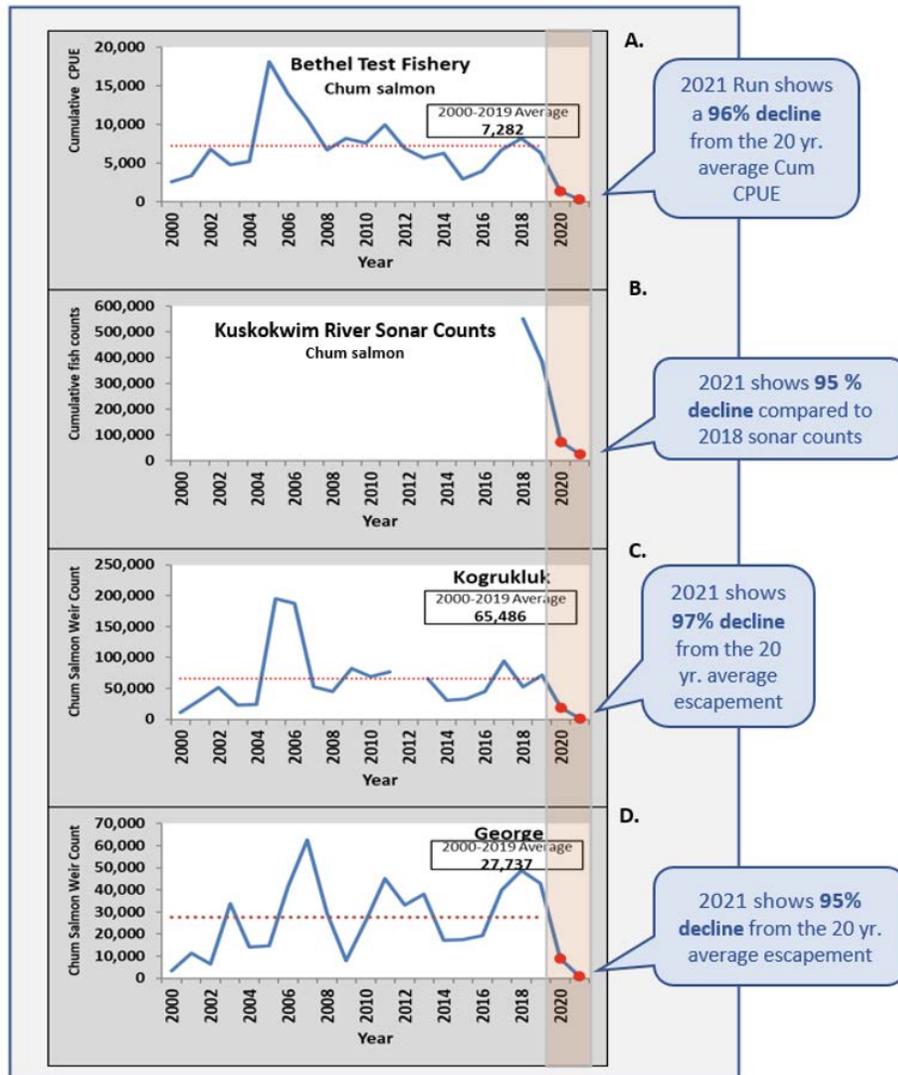


Figure 5: Evidence of catastrophically low 2020 and 2021 Kuskokwim River chum salmon abundance:

A. Cumulative end-of-season CPUE of chum salmon caught in the Bethel Test Fishery, 2000–2021.

B. Cumulative annual counts of chum salmon from the Kuskokwim River sonar project, 2018–2021.

C. Kogruluk river weir, 2000–2021.

D. George River weir, 2000–2021. Source: ADF&G (Alaska Department of Fish and Game), AYK Database Management System.

“I honestly have no idea what’s up with the chum. It was such a rapid decline. They were coming in the hundreds of thousands, millions, to the river to almost nothing. I don’t really know what happened to them.”

JONATHAN SAMUELSON | GEORGETOWN



Furthermore, the Chinook and chum salmon run failures have the potential to place increased harvest pressure on other limited fish stocks which could threaten the sustainability of those species. These failures and their associated in-river restrictions also limited subsistence-dependent communities from practicing their ways of life and passing on generations-old Traditional Knowledge to youth, especially the specialized food processing and preparation methods of cultural delicacies that are otherwise at risk of being lost. The collapse of both Chinook and chum salmon threatens the food and economic security and spiritual and cultural vitality of subsistence fishing communities on the Kuskokwim River.

"[In terms of chums,] there were none this year. That was different. I like to get chums for dryfish and for my half-dried. There just weren't any. I was having to harvest a lot more reds than I normally would for all of that other stuff...I think a lot more people were just getting a lot more reds. So, then that makes me concerned about the red numbers. If we have to keep doing this and hitting them hard, then maybe, is that going to negatively impact what's spawning, what comes back...? And that was the talk, too, a couple of years ago. I remember as we were having to harvest more chum, people were like, 'Well, you guys are going to have to start watching the chum numbers.' Same with whitefish, people were bringing that up. If we're having to harvest more whitefish, we're going to have to start thinking about watching those species. I guess it all has a ripple effect."

MEGAN LEARY | NAPAIMUTE



"I'm one of the fish campers...but I don't go to fish camp because of the fish closures. There's only maybe 5 in Tunt [who use their] fish camp right now. No, that's not that many."

ADOLPH LUPIE | TUNTUTULIAK

"We only had 2 chums in my fish rack all summer. That's unreal. I usually put up 2,000 chums for dogs...We put up a lot of reds, a healthy run of reds. I hope that all of us are hoping and praying that we would have enough returns on the kings, and that's unlikely."

MIKE WILLIAMS SR. | AKIAK



"I have not seen a dog salmon in long time. Even when I had nets out before, about a couple years ago, I didn't catch no dog salmon...Usually they're a pain in the butt, all over in your net. But no more, I guess not."

HELEN EVAN | MCGRATH



"There used to be [a lot of people from Eek who would commercially fish in Kuskokwim Bay], before all the restrictions and before the fish declined. It used to be almost the whole community going down, or most of the men from the community would go down and commercial fish in Quinhagak and Goodnews [Bay]. Now, it's just 3 or 4 boats that go down. Subsistence has been so slow that it's cutting into commercial fishing time. A lot of the guys are just focusing on subsistence fishing now."

JAMES HEAKIN | EEK

Bering Sea Chinook & Chum Salmon Bycatch Negatively Impacting Western Alaska Rivers

There are many potential factors affecting western Alaska salmon that cumulatively have caused declines in these populations (Figure 6). Though not the entire source of current poor salmon returns to the Kuskokwim, Yukon, and Norton Sound Rivers, it is undeniable that salmon bycatch in Bering Sea commercial fisheries is one such factor that has a negative impact on Chinook and chum salmon stocks in this region of the state. Humans can influence salmon bycatch levels and the effects of large-scale groundfish harvests through a variety of management actions, all of which are crucial during present-day collapses in subsistence salmon fisheries.

Moreover, the 33 Tribes of the Kuskokwim River all share Tribal rules associated with conservation of non-human relatives, namely taking only what one needs and can process and preserve properly without resulting in waste. Waste by humans offends these non-human relatives, resulting in resource collapses. As a result, Tribal ways of knowing clearly identify the wasteful harvest of prohibited salmon species as violating these Tribal rules and hold the North Pacific Fisheries Management Council culpable.

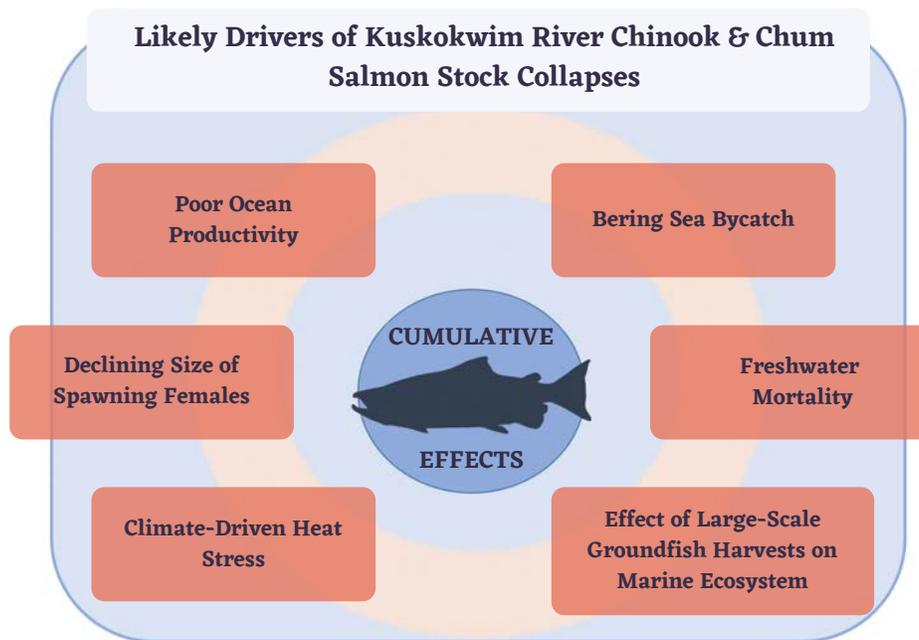


Figure 6: Potential factors that cumulatively work to cause salmon declines in the Kuskowkim River and other western Alaska rivers.

Overview of Bering Sea Salmon Bycatch

Kuskokwim River Chinook and chum salmon are caught as bycatch in the Bering Sea pollock fishery. Salmon are not the target species for the pollock fishery, and in fact are prohibited species. Chinook and chum salmon caught by the pollock fishery cannot be sold (so as not to create an incentive to catch them) and must either be discarded or donated. In the Bering Sea Aleutian Islands management area, the pollock trawl fishery is responsible for most chum salmon and Chinook salmon bycatch and accounted for

99% and 92% of 2020 chum and Chinook salmon bycatch, respectively (NMFS 2021). The pollock fishery is divided into two seasons: the A-season running January 20 extending into April, and the B-season running June 10 to November 1 annually.

Chinook Salmon Bycatch

Coastal Western Alaska Chinook stocks comprise the largest portion of Chinook salmon bycatch in the Bering Sea pollock fishery most years, especially during A-season. From 2008-2014, Coastal Western Alaska comprised over 40% of the estimated Chinook salmon bycatch (and greater than 60% of bycatch in many years). In 2019, Coastal Western Alaska and north Alaska Peninsula stocks accounted for approximately 40% and 15% of Chinook salmon bycatch, respectively (Figure 7).

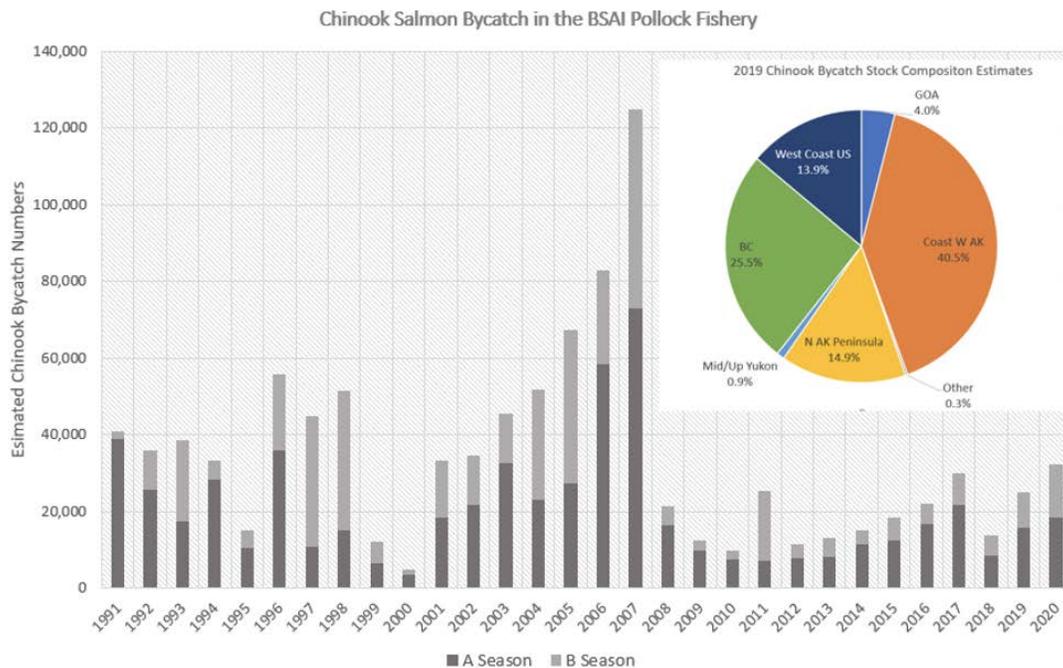


Figure 7: Chinook salmon bycatch in the BSAI pollock trawl fishery, 1991-2020 (NMFS 2021) and estimated Chinook stock composition for the 2019 pollock fishery (Guthrie et al. 2021).

Overall, 103,662 Chinook salmon from northern and western Alaskan rivers were caught as bycatch in the BSAI pollock trawl fishery between 2011 and 2019 (annual average 11,518 salmon). Estimates of Chinook salmon bycatch (numbers) have increased moderately in the Coastal Western Alaska and north Alaska Peninsula regions from 2012 to 2019 (Figure 8). While directed salmon fisheries are closed and subsistence use is exceedingly limited in western Alaska rivers, Chinook salmon bycatch continues with dire impacts to regional communities, including the 33 subsistence-dependent communities of the Kuskokwim River watershed.

"I don't like people that take advantage of something that we have eaten [for] subsistence all our lives."

SAM BERLIN | KASIGLUK

"If we are put on restrictions, how come the commercial fisheries and the deep sea trawlers are not bearing the burden like us[?]. The Kuskokwim, Yukon, and Norton Sound areas have less fish every year."

ANDREW MARTIN | BETHEL

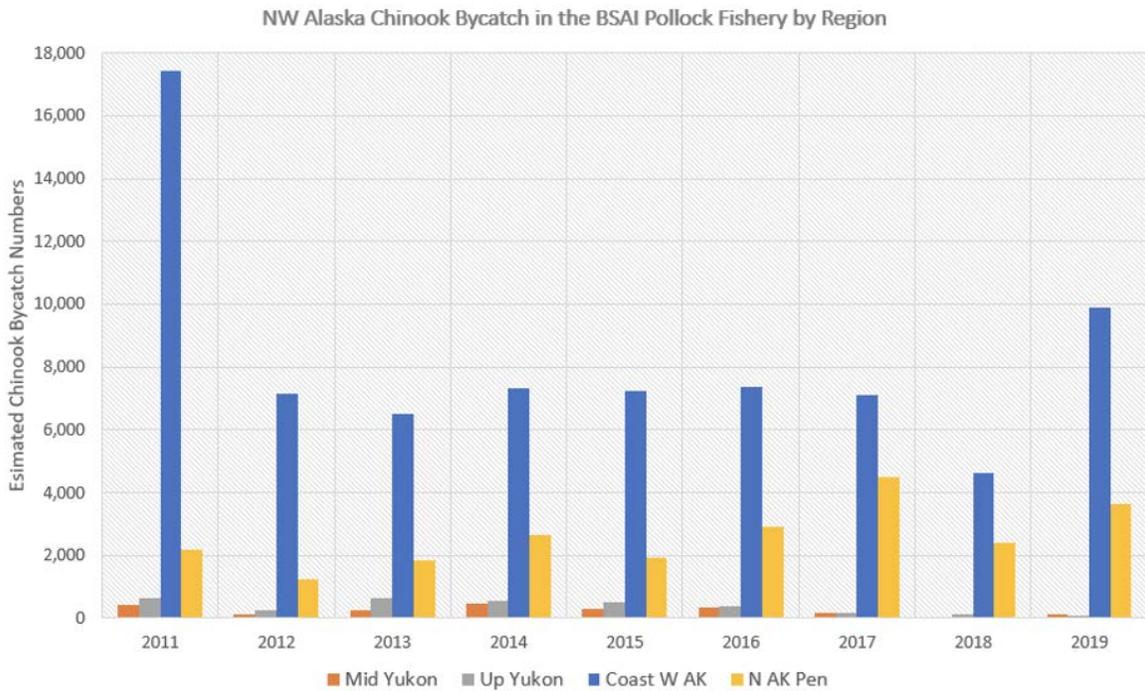


Figure 8: Estimated Chinook salmon bycatch numbers in the BSAI pollock fishery 2011-2019 by northwest Alaska region (Guthrie et al. 2021).

Chum Salmon Bycatch

Chum salmon bycatch in the Bering Sea increased dramatically from 2012-2021 (Figure 9). Chum salmon bycatch primarily occurs in the B-season BSAI pollock fishery. Western Alaskan rivers accounted for approximately 16% of chum incidentally caught in the 2019 BSAI B-season pollock fishery, and a total of 334,516 chum salmon (annual average 66,903 salmon) from Western Alaska and the Upper/Middle Yukon were caught as bycatch from 2014-2019 (Figure 10).

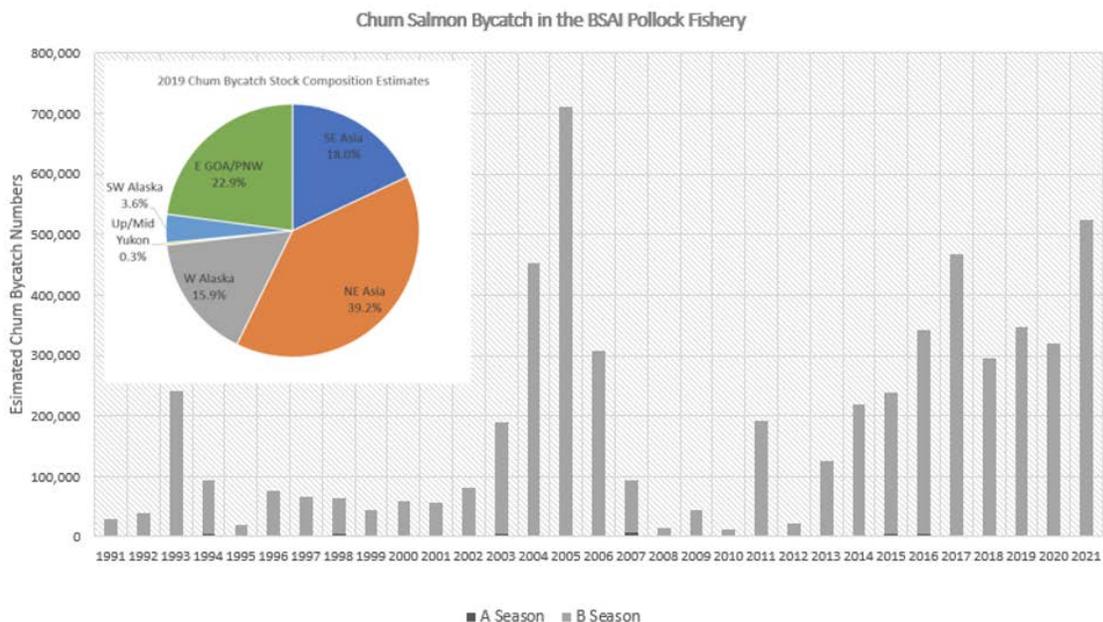


Figure 9: Chum salmon bycatch in the BSAI pollock trawl fishery, 1991-2021 (NMFS 2021) and estimated chum stock composition for the 2019 pollock fishery (Kondzela et al. 2021). Note: The 2021 values extend only through September.

Genetic analyses from recent years confirm that Western Alaska, Upper/Middle Yukon, and Southwest Alaska chum salmon stocks are heavily impacted by pollock trawl bycatch. A very low proportion of Upper/Middle Yukon chum were caught in BSAI B-season pollock bycatch in 2019, which may have been an early indicator that the Upper/Middle Yukon chum salmon are experiencing a decline in stock status.

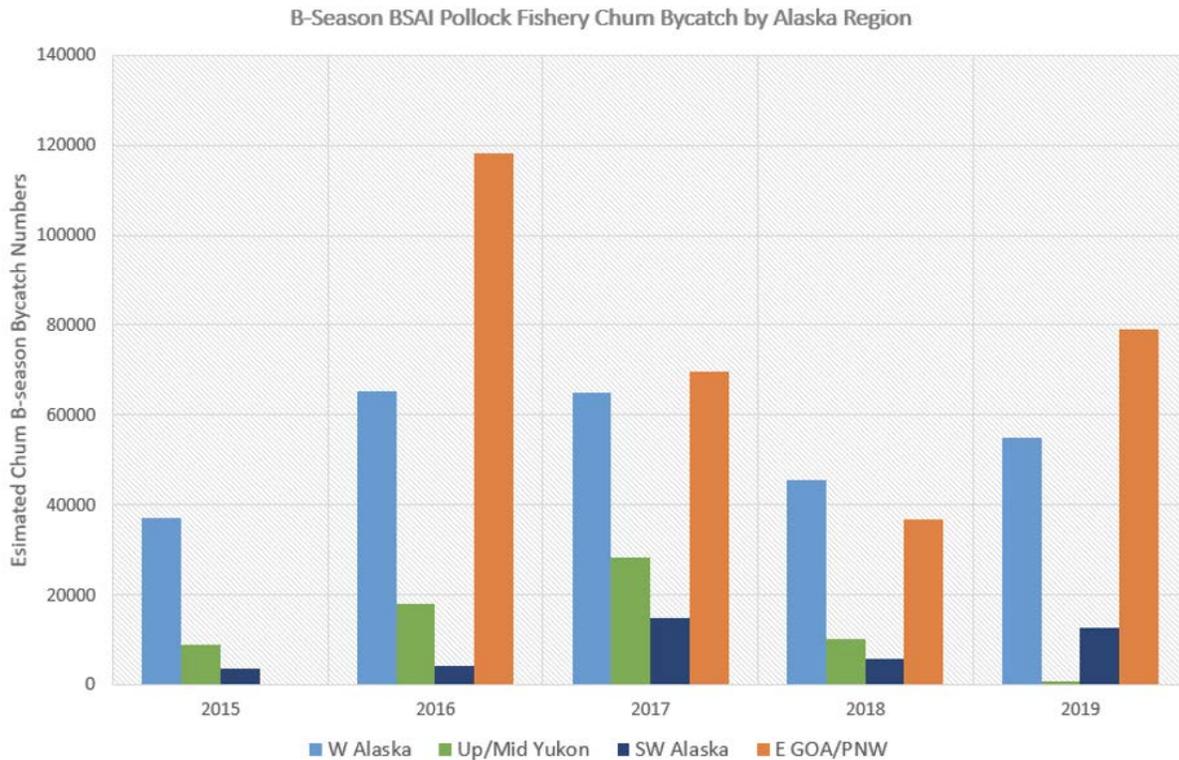


Figure 10: Estimated chum salmon bycatch numbers in the BSAI pollock fishery 2015-2019 by Alaska region (Kondzela et al. 2021).

Salmon Bycatch Management

Chum and Chinook salmon are managed as Prohibited Species Catch (PSC) in Alaska. In response to record-high chum and Chinook salmon bycatch levels in 2003-2007, the North Pacific Fishery Management Council (Council) implemented Amendment 91 in 2011, which established two Chinook salmon PSC limits for the pollock fishery: a 60,000 overall limit (fleetwide hard cap) and a 47,591-performance standard (sector specific performance target each year) for Chinook salmon. In 2016, the Council also implemented Amendment 110 in response to multiple years of historically low Chinook salmon abundance. Amendment 110 has two primary provisions: existing Incentive Plan Agreements (IPAs) were extended to include chum salmon, and a 3-System Index for western Alaska was developed based on the post-season in-river Chinook salmon run size for the Kuskokwim, Unalakleet, and Upper Yukon rivers. When this index is less than or equal to 250,000 Chinook salmon, NMFS applies a lower performance standard and low PSC limit for the following year (NPFMC 2021).

There is currently no cap or limit on the amount of chum salmon that can be caught as bycatch.

Asks of the North Pacific Fishery Management Council

While bycatch is one of numerous cumulative stressors linked with significant Chinook and chum declines in Western Alaska rivers (Figure 6), salmon bycatch is a known source of mortality over which we have control. Every Chinook and chum salmon matters to western Alaska subsistence fishing families that are unable to meet their food, cultural, spiritual, and economic security needs due to these declines. It is critical now more than ever that the Council institutes adaptive, inclusive, and ecosystem-wide sustainable management practices into the Bering Sea Aleutian Islands management area to protect these salmon stocks.

The Kuskokwim River Inter-Tribal Fish Commission has four priority asks of the North Pacific Fisheries Management Council:

(1) The Council should take emergency action to limit Chinook and chum salmon bycatch to zero in 2022 in the Bering Sea pollock fishery.

- We are amid a multi-species salmon collapse within the Kuskokwim River watershed.
- Chinook and chum salmon runs throughout the Artic-Yukon-Kuskokwim region were disastrous in 2020 and 2021. Chinook and chum salmon fisheries were completely shut down or severely limited.
- People on the Kuskokwim have lost a critical source of food and a key component of their culture. Every possible action must be taken to protect salmon stocks and ensure a collapse does not happen again.
- Given the current state of Chinook and chum salmon, and the lack of information about why this is happening, sustainable fishery management requires that the Council limit salmon bycatch in the Bering Sea pollock fishery to ensure that NO salmon are taken as bycatch in the Bering Sea pollock fishery in 2022.

(2) Ensure Alaska Native Tribes have a seat at the decision-making table.

- Support the amendment to the Magnuson-Stevens Act to add 2 Tribal seats to the NPFMC table.
- Ensure Alaska Native Tribal representation on all Council bodies, including the Advisory Panel (AP), Scientific and Statistical Committee (SSC), and plan teams.

(3) Send a letter to NMFS supporting funding for disaster declarations and research, observation and monitoring by Tribal organizations and co-management organizations.

(4) Support and encourage NOAA to initiate Tribal Consultation on the issue of salmon bycatch so that both NOAA and the Council have the best available information.

"In Yup'ik, the general word for food is neqa, which is also the word for fish. So if neqa is not how you view fish – if food is not the first thing you think of – then we come from different worlds. For us, we wouldn't exist without salmon. On the river, we coexist, salmon and people. And it's always been that way. We have this deep spiritual relationship that we have the obligation, but also the privilege, to maintain between fish and people."

JONATHAN SAMUELSON | GEORGETOWN



Literature Cited

ADF&G. 2020. The Chinook Salmon Research Initiative and Alaska's Subsistence Fisheries: What Did We Learn? Alaska Department of Fish and Game Division of Subsistence, Anchorage.

Fall, J.A., C. Brown, N. Braem, J.J. Simon, W.E. Simeone, D.L. Holen, L. Naves, L. Hutchinson-Scarborough, T. Lemons, and T.M. Krieg. 2011, revised. Alaska subsistence salmon fisheries 2008 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 359, Anchorage.

Guthrie III, C. M., Hv. T. Nguyen, K. Karpan, J. T. Watson, and W. A. Larson. 2021. Genetic stock composition analysis of Chinook salmon (*Oncorhynchus tshawytscha*) bycatch samples from the 2019 Bering Sea trawl pollock trawl fishery. U.S. Dep. Commer., NOAA Tech. Memo. NMFS/AFSC-418, 33 p. (available <https://repository.library.noaa.gov/view/noaa/29539>).

Ikuta, H., A.R. Brenner, and A. Godduhn. 2013. Socioeconomic patterns in subsistence salmon fisheries: historical and contemporary trends in five Kuskokwim River communities and overview of the 2012 season. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 382, Fairbanks.

Kondzela, J. A. Whittle, P. D. Barry, Hv. T. Nguyen, E. M. Yasumiishi, D. W. Nicolls, J. T. Watson, and W. A. Larson. 2021. Genetic stock composition analysis of chum salmon from the prohibited species catch of the 2019 Bering Sea walleye pollock trawl fishery. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-422, 69 p. (available <https://repository.library.noaa.gov/view/noaa/31530>).

Simon, J., T. Krauthoefer, D. Koster, and D. Caylor. 2007. Subsistence salmon harvest monitoring report, Kuskokwim Fisheries Management Area, Alaska, 2004. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 313. Juneau.

Wolfe, R.J., G. Knapp, W.R. Bechtol, D. Andersen, and C. Scott. 2011. Salmon harvests to the year 2050: a predictive model for the Yukon, Kuskokwim, and Norton Sound drainages in Alaska. Submitted to the Bering Sea Fishermen's Association on behalf of the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative, Project Final Product.

Wolfe, R.J., and R.J. Walker. 1987. Subsistence economies in Alaska: productivity, geography, and developmental impacts. *Arctic Anthropology* 24:56-81.



"Without my subsistence life, I don't know how I'd get through it. It's my therapy, being outdoors on the land and on the water. I'd hate to lose that, but we could possibly lose the fishery part, which is the most important part, if we're not proactive about this."