

**STAFF ANALYSIS**  
**TEMPORARY SPECIAL ACTION REQUESTS**  
**FSA22-01/02/03/04**

**ISSUES**

Fisheries Special Action Requests FSA22-01/02/03/04, submitted by a resident of Rampart, Holy Cross Tribe, Native Village of Eagle, and a resident of Huslia, request the Federal Subsistence Board (Board) to close the Federal public waters of the Yukon River drainage to the harvest of Chinook and summer and fall Chum Salmon except by Federally qualified subsistence users and to reduce the pool of eligible harvesters based on an Alaska National Interest Lands Conservation Act (ANILCA) Section 804 analysis.

**DISCUSSION**

Proponents are asking the Board to uphold the conservation and priority consumptive uses provisions under Titles III and VIII of ANILCA by assuming management of Yukon River drainage Chinook and summer and fall Chum Salmon throughout the 2022 season. In the requests, the proponents write:

Significant changes have occurred since the Board last considered Yukon River drainage salmon special action requests in 2015. Yukon Chinook and Chum Salmon populations have suffered catastrophic declines in abundance in recent years, culminating in the 2021 season providing no harvest opportunities and creating significant food security concerns among Yukon River tribes and residents. The current Yukon River salmon management system—wherein the State manages the Chinook and Chum Salmon fisheries with passive consent but no direct intervention by the Federal in-season managers for over a decade—is not working and has repeatedly failed to uphold the provisions of ANILCA. Over the past decade, this pattern of passive and ineffective Federal oversight of State management has allowed: (1) other uses, including commercial fishing, to have priority over subsistence harvest by Federally qualified subsistence users, including during years when our long-term average customary harvest amounts of Chinook Salmon were not achieved; (2) escapement goals necessary for conservation and rebuilding our declined Chinook Salmon run have not been met in a number of years, including a failure to meet escapement goals to Canada in 2007, 2008, 2010, 2011, 2019, 2020 and 2021; and (3) inequity of harvest, wherein some portions of the Yukon River drainage were open for Chinook Salmon harvest while other portions were arbitrarily closed to harvest.

Proponents finish by stating:

Federal management is necessary to ensure the healthy conservation of Chinook and Chum Salmon stocks as required by ANILCA in order to support future subsistence harvests. Without Federal management, when a sustainable harvest of Chinook and Chum Salmon is available in the future, Federally qualified users will not be ensured the priority and opportunity for customary and traditional uses of the Yukon Chinook and

Chum Salmon that is required by Title VIII of ANILCA. Our customary and traditional subsistence uses will be compromised by other regulatory regimes that do not prioritize subsistence uses.

### **Existing Federal Regulation**

#### **50 CFR 100.27(e)(3) Subsistence taking of fish—Yukon-Northern Area**

*(ii) For the Yukon River drainage, Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060 [Emergency Orders]), unless superseded by a Federal Special Action.*

### **Proposed Federal Regulation**

#### **50 CFR 100.27(e)(3) Subsistence taking of fish—Yukon-Northern Area**

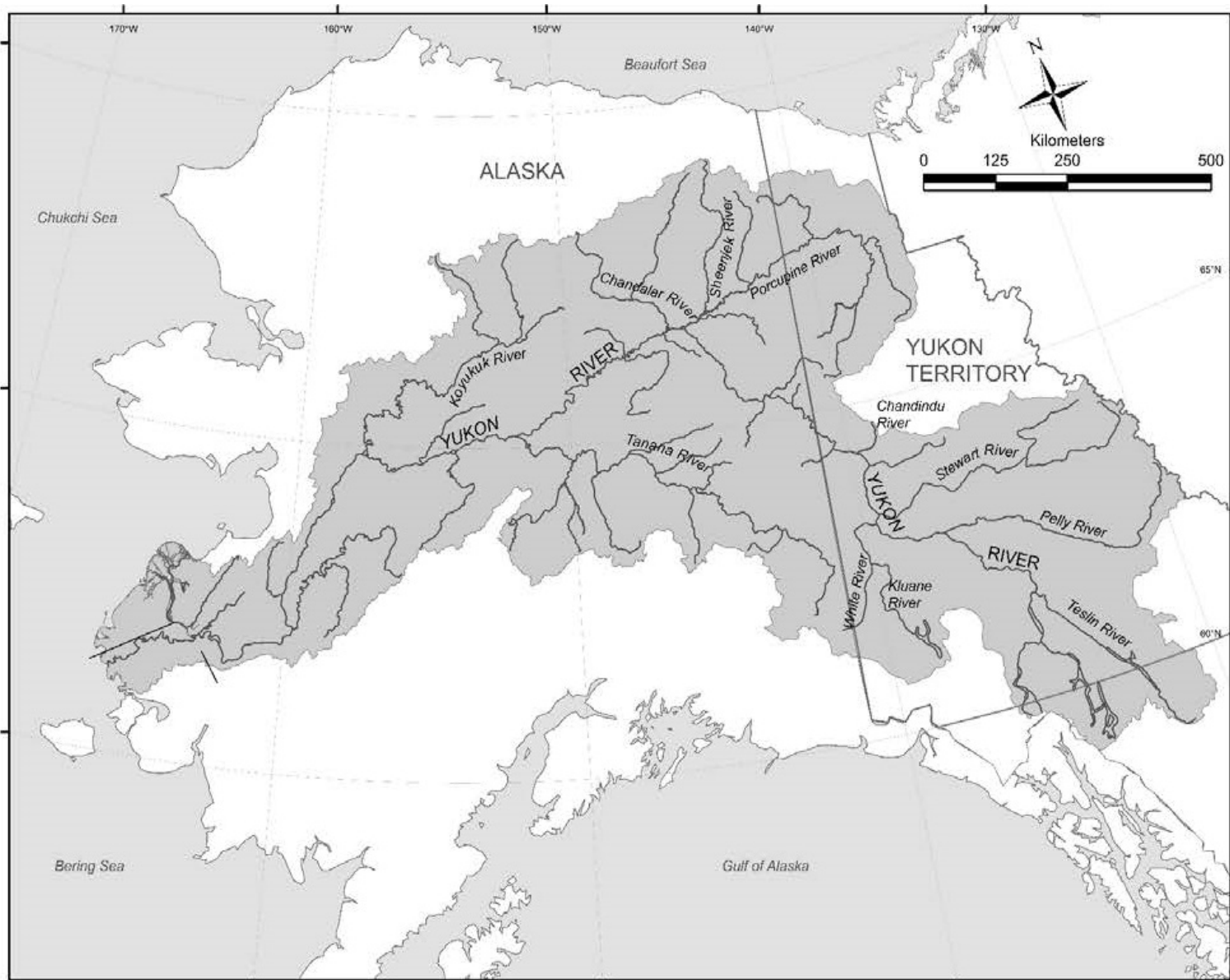
*(ii) For the Yukon River drainage, Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060 [Emergency Orders]), unless superseded by a Federal Special Action.*

***Federal public waters of the Yukon River drainage are closed to the harvest of Chinook and summer and fall Chum Salmon except by Federally qualified subsistence users identified in the Section 804 analysis, effective on June 1, 2022, through September 30, 2022. Federal subsistence fishing schedules, openings, closures, and fishing methods will be determined by the Federal Fisheries Manager.***

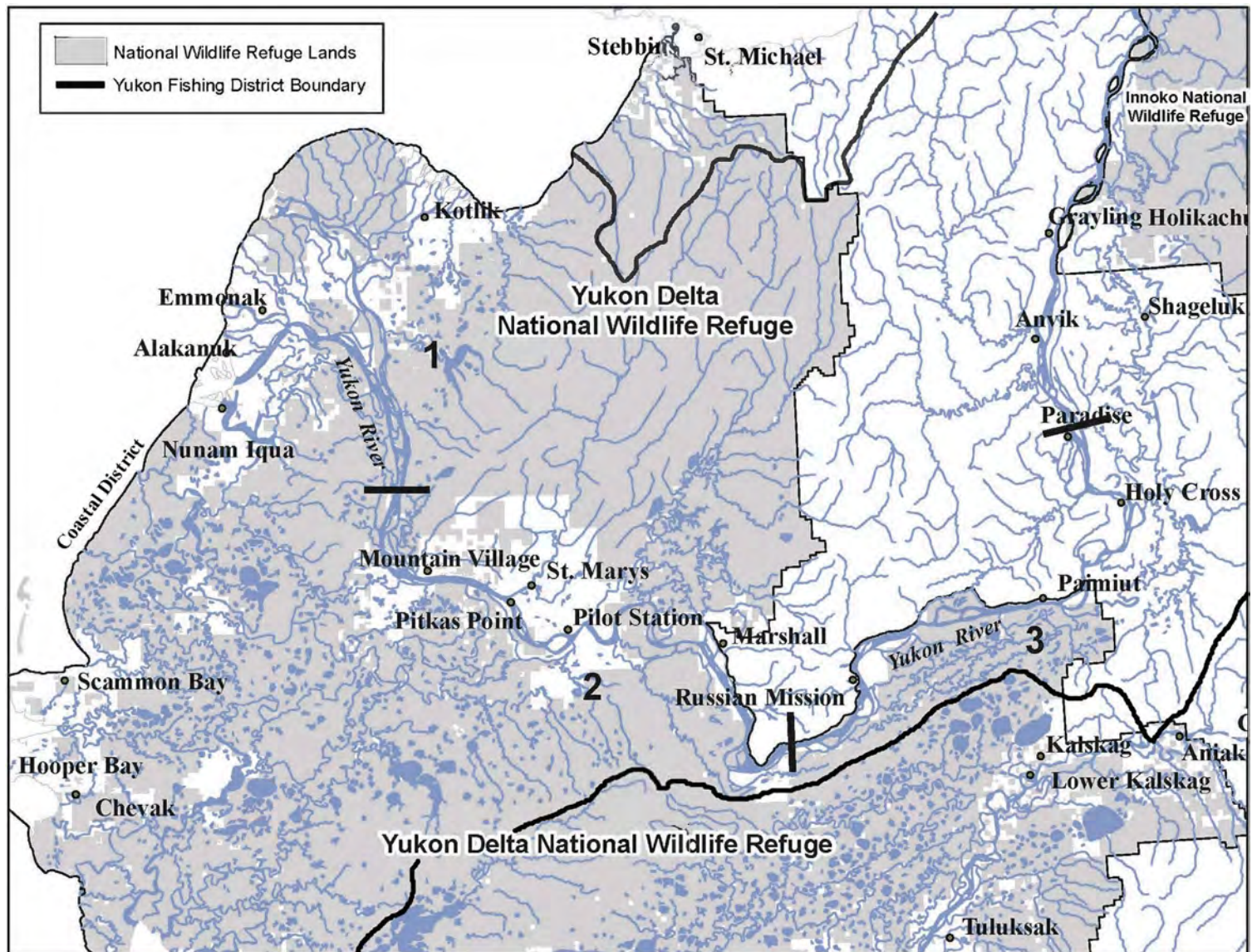
### **Federal Public Waters**

For purposes of this discussion, the phrase “Federal public waters” is defined as those waters described under 50 CFR 100.3. Federal public waters in the Yukon River drainage include all navigable and non-navigable freshwaters located within and adjacent to the exterior boundaries of the following Federal conservation units (**Figures 1–4**):

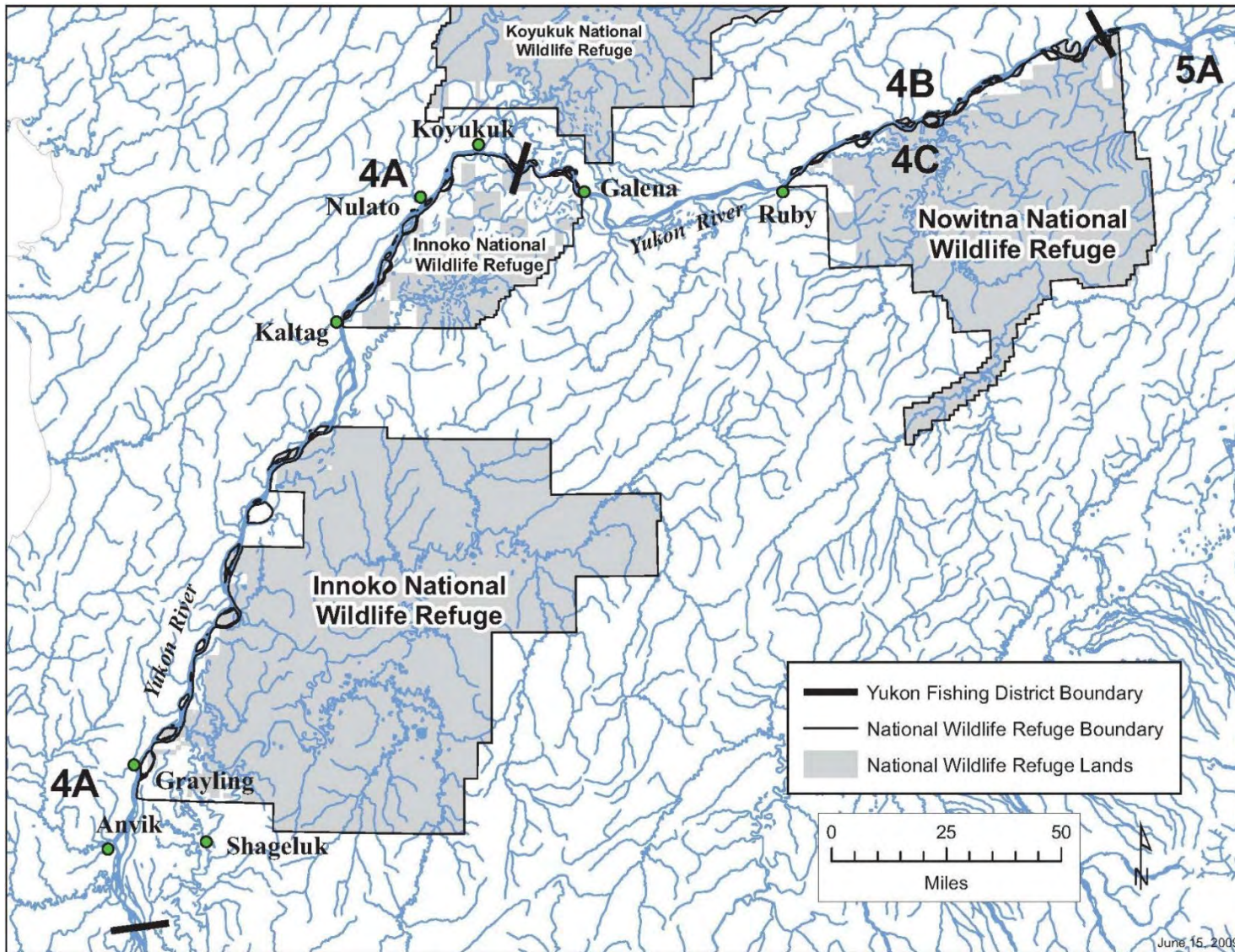
- Arctic, Innoko, Kanuti, Koyukuk, Nowitna, Tetlin, Yukon Delta, and Yukon Flats National Wildlife Refuges
- Yukon-Charley Rivers National Preserve, Gates of the Arctic National Park and Preserve, and Wrangell St. Elias National Park and Preserve
- Steese National Conservation Area
- White Mountains National Recreation Area



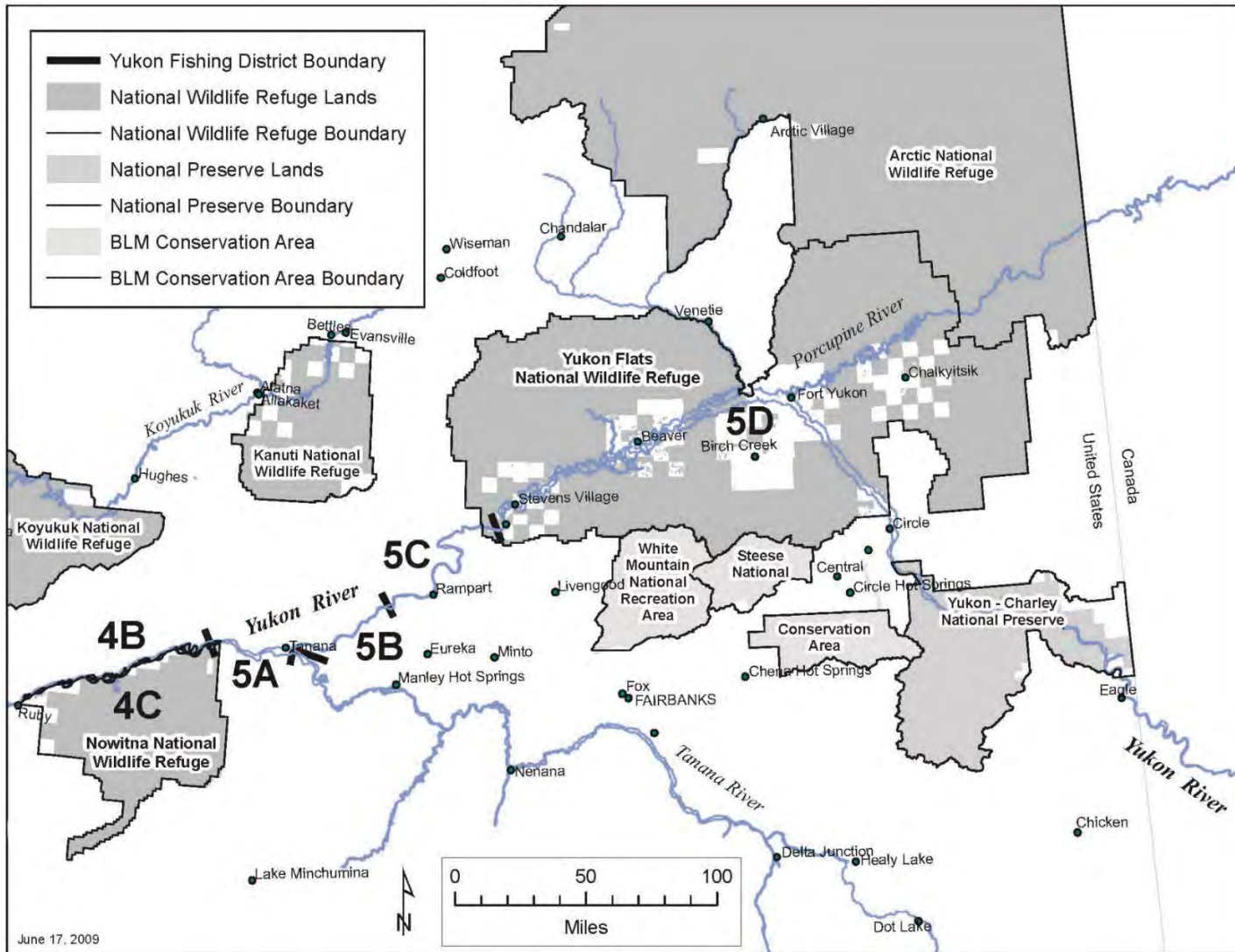
**Figure 1.** Map of the Yukon River drainage (source: Estensen et al. 2018).



**Figure 2.** Map showing the exterior boundaries of Yukon Delta and Innoko National Wildlife Refuges. Federal public waters include all navigable and non-navigable freshwaters located within and adjacent to the exterior boundaries.



**Figure 3.** Map showing the exterior boundaries of the Innoko, Koyukuk, and Nowitna National Wildlife Refuges. Federal public waters include all navigable and non-navigable freshwaters located within and adjacent to the exterior boundaries.



**Figure 4.** Map showing the exterior boundaries of the Koyukuk, Nowitna, Kanuti, Yukon Flats, and Arctic National Wildlife Refuges, the White Mountain National Recreation Area, and the Steese National Conservation Area. Federal public waters include all navigable and non-navigable freshwaters located within and adjacent to the exterior boundaries.

Federal public waters also include those segments of Beaver Creek, Birch Creek, Delta River, and Fortymile River National Wild and Scenic River systems located outside the boundaries of the other listed Federal conservation units, described above (see **Yukon-Northern Area Upper Yukon River Map**).

Federal public waters also include all freshwaters flowing into the Bering Sea from Point Romanof southward to the Naskonat Peninsula (see **Yukon-Northern Area Lower Yukon River Map**).

### **Customary and Traditional Use Determination**

For fall Chum Salmon, Federally qualified subsistence users are the permanent rural residents of the Yukon River drainage and the communities of Stebbins, Chevak, Hooper Bay, and Scammon Bay, which are situated outside of the drainage. This excludes residents of the Fairbanks North Star Borough, which is a Nonrural Area. For Chinook, summer Chum, and Coho Salmon, Federally qualified subsistence users are permanent rural residents of the Yukon River drainage and the community of Stebbins. This excludes residents of the Fairbanks North Star Borough, which is a Nonrural Area. The area includes over 60 communities described in **Table 1**.

### **Background**

Since the beginning of the 20<sup>th</sup> century, the Yukon River drainage has experienced varying levels of demographic, social, and economic change. The more than 60 rural communities of the Yukon River drainage are located on the traditional lands of *Yup'ik* and *Deg Hit'an*, *Doy Hit'an*, *Holikachuk*, *Denaakk'e* (Koyukon), *Gwich'in*, *Han*, Tanana, Tanacross, and Upper Tanana Athabaskan people, and most residents identify with one or more of these ethnic groups. Settlement patterns since 1900 have been characterized by movement from nomadism to permanent settlements at locations where people could access both modern institutions such as trading posts and schools and traditionally important harvesting sites. Others immigrated from outside the area to these communities for work in industries including education, government, mining, and trade (Clark 1981; Hosley 1981; Slobodin 1981; VanStone and Goddard 1981; Nelson 1983; Fienup-Riordan 1984, 1986; VanStone 1984; Mishler and Simeone 2004; Haynes and Simeone 2007; Wolfe and Scott 2010).

In general, there has been an increase in population and salmon harvesting in the region. The population of the entire area has more than doubled in the 60 years between 1960 and 2020. In 2020, an estimated 22,324 people were described by the U.S. Bureau of the Census as permanent residents of rural communities in the Yukon River drainage (ADCCED 2022; **Table 1**). In addition to population growth, social and economic changes have affected salmon harvesting in the Yukon River drainage. One subsistence activity that impacted salmon harvesting levels was the use of salmon to feed sled dogs described below.

The period from 1900 to 1940 encompasses the peak sled dog era in the Yukon River drainage . . . virtually every family maintained a small number of sled dogs . . . . In the 1930s airplanes began to replace commercial dog teams for the movement of freight and mail but sled dogs continued to provide the bulk of winter transportation for

individuals and families throughout the Yukon River drainage (Andersen and Scott 2010:2–5).

By the 1970s snowmobiles had largely replaced the family dog team although some people continue to keep dogs. In 2016, the most recent year for which data are available, an estimated 61,427 salmon were harvested for dog food by rural communities in the upper Yukon River drainage (Districts 5 and 6). The majority was fall Chum Salmon. Smaller amounts of summer Chum Salmon and Coho Salmon were also harvested to feed dogs. In the middle Yukon River drainage (District 4), an estimated 7,070 salmon were harvested for dog food. The majority was summer Chum Salmon. Smaller amounts of fall Chum Salmon and Coho Salmon were harvested to feed dogs. In the lower Yukon River drainage, an estimated 1,078 salmon were harvested for dog food. The majority was summer Chum Salmon. Smaller amounts of fall Chum and Coho Salmon were also harvested to feed dogs (Padilla et al. 2021).

Although the drainage has experienced much change over the last century, the changes have varied by subregion. The lower and middle subregions of the Yukon River drainage have experienced significant population growth but have retained much of their identity. In the lower Yukon River drainage Districts 1, 2, and 3, the population more than doubled in the 60 years between 1960 and 2020; in 2020, an estimated 5,579 people were permanent rural residents (ADCCED 2022). Residents are primarily of the Yup'ik cultural tradition (Fienup-Riordan 1986).

In the middle Yukon River drainage District 4, the population has increased by about 25% in the 60 years between 1960 and 2020 (ADCCED 2022); the population peaked in 1990 and has since declined to an estimated 2,041 people in 2020. Villages are generally described as culturally affiliated with Deg Hit'an, Doy Hit'an, Holikachuk, Denaakk'e (Koyukon) Athabascans and Inupiat (Hosley 1981, VanStone and Goddard 1981).

In the upper Yukon River drainage, the population has remained relatively stable but has experienced social and economic change. The population in the upper Yukon River drainage in District 5 peaked in 2000 and has since declined; the population has increased by only 1% in the 60 years between 1960 and 2020 (ADCCED 2022). Villages are generally described as culturally affiliated with Koyukon, Gwich'in, and Han Athabascans (Clark 1981, Hosley 1981, Slobodin 1981, VanStone and Goddard 1981; Nelson 1983, Mishler and Simeone 2004, Wolfe and Scott 2010). For centuries, caribou comprised a large part of the harvest of wild resources for food. Large numbers of migratory caribou were available from the Porcupine and Fortymile caribou herds. The collapse of the Fortymile caribou herd between 1950 and 1970 had an enormous effect on the ability of many villages to harvest caribou and the loss of a significant resource available in the area (Van Lanen et al. 2012). For some Gwich'in and Han people, the enforcement of the U.S-Canada boundary since the 1940s has cut them off from much of their hunting and trapping areas in



**Table 1.** The estimated number of people in the customary and traditional use determination for Chinook and Chum Salmon in the Yukon River drainage, by community and Fishery Management District, 1960–2020, based on the U.S. Census (CDP=Census Designated Place, blank cell=information not available, Source: ADCCED 2022).

Community	1960	1970	1980	1990	2000	2010	2020
Stebbins city	158	231	331	400	547	556	634
<b>Outside Yukon Area subtotal</b>	<b>158</b>	<b>231</b>	<b>331</b>	<b>400</b>	<b>547</b>	<b>556</b>	<b>634</b>
Scammon Bay city*	115	166	250	343	465	474	600
Hooper Bay city*	460	490	627	845	1,014	1,093	1,375
Chevak city*	315	387	466	598	765	938	951
<b>Coastal District subtotal</b>	<b>890</b>	<b>1,043</b>	<b>1,343</b>	<b>1,786</b>	<b>2,244</b>	<b>2,505</b>	<b>2,926</b>
Alakanuk city	278	265	522	544	652	677	756
Nunam Iqua city	125	125	103	109	164	187	217
Emmonak city	358	439	567	642	767	762	825
Kotlik city	57	228	293	461	591	577	655
<b>District 1 subtotal</b>	<b>818</b>	<b>1,057</b>	<b>1,485</b>	<b>1,756</b>	<b>2,174</b>	<b>2,203</b>	<b>2,453</b>
Mountain Village city	300	419	583	674	755	813	621
Pitkas Point CDP	28	70	88	135	125	109	120
Saint Marys city	260	384	382	441	500	507	599
Pilot Station city	219	290	325	463	550	568	615
Marshall city	166	175	262	273	349	414	492
<b>District 2 subtotal</b>	<b>973</b>	<b>1,338</b>	<b>1,640</b>	<b>1,986</b>	<b>2,279</b>	<b>2,411</b>	<b>2,447</b>
Russian Mission city	102	146	169	246	296	312	421
Holy Cross city	256	199	241	277	227	178	176
Shageluk city	155	167	131	139	129	83	100
<b>District 3 subtotal</b>	<b>513</b>	<b>512</b>	<b>541</b>	<b>662</b>	<b>652</b>	<b>573</b>	<b>697</b>
Anvik city	120	83	114	82	104	85	70
Grayling city	0	139	209	208	194	194	210
Kaltag city	165	206	247	240	230	190	158
Nulato CDP	183	308	350	359	336	264	239
Koyukuk city	128	124	98	126	101	96	98
Huslia city	168	159	188	207	293	275	304
Hughes city	69	85	73	54	78	77	85
Allakaket city	115	174	163	170	97	105	177
Alatna CDP				31	35	37	15
Bettles city	77	57	49	36	43	12	23
Evansville CDP	77	57	45	33	28	15	12
Wiseman CDP	0	0	8	33	21	14	5
Coldfoot CDP					13	10	34
Galena city	261	302	765	833	675	470	472
Ruby city	179	145	197	170	188	166	139
<b>District 4 subtotal</b>	<b>1,542</b>	<b>1,839</b>	<b>2,506</b>	<b>2,582</b>	<b>2,436</b>	<b>2,010</b>	<b>2,041</b>

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**Table 1.** *Continued from previous page*

<b>Community</b>	<b>1960</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>
Tanana city	349	120	388	345	308	246	246
Rampart CDP	49	36	50	68	45	24	57
Stevens Village CDP	102	74	96	102	87	78	37
Beaver CDP	101	101	66	103	84	84	48
Fort Yukon city	701	448	619	580	595	583	428
Chalkyitsik CDP	57	130	100	90	83	69	56
Arctic Village CDP	110	85	111	96	152	152	151
Venetie CDP	107	112	132	182	202	166	205
Birch Creek CDP	32	45	32	42	28	33	35
Circle CDP	41	54	81	73	100	104	91
Chicken CDP	0	0	0	0	17	7	12
Central CDP	28	26	36	52	134	96	66
Eagle Village CDP	0	0	54	35	68	67	53
Eagle city	92	36	110	168	129	86	83
<b>District 5 subtotal</b>	<b>1,769</b>	<b>1,267</b>	<b>1,875</b>	<b>1,936</b>	<b>2,032</b>	<b>1,795</b>	<b>1,568</b>
Livengood CDP					29	13	16
Manley CDP	72	34	61	96	72	89	169
Minto CDP	161	168	153	218	258	210	150
Whitestone CDP						97	71
Nenana city	286	362	470	393	402	378	358
Four Mile Road CDP					38	49	18
Healy CDP	67	79	334	487	1,000	1,021	966
McKinley/Denali Park CDP	0	0	60	171	142	185	163
Anderson city	341	362	517	628	367	246	177
Ferry CDP				56	29	33	17
Lake Minchumina CDP	0	0	22	32	32	13	30
Cantwell CDP	85	62	89	147	222	219	200
Delta Junction city	0	703	945	652	840	958	918
Fort Greely/Deltana CDP	0	1,820	1,635	1,299	2,031	2,790	2,668
Healy Lake CDP	0	0	33	47	37	13	24
Big Delta CDP	0	0	285	400	749	591	444
Dry Creek CDP	0	0	0	106	128	94	61
Dot Lake CDP	56	42	67	70	19	13	21
Dot Lake Village CDP					38	62	23
Tanacross CDP	102	84	117	106	140	136	144
Tetlin CDP	122	114	107	87	117	127	126
Tok CDP	129	214	589	935	1,393	1,258	1,243
Northway Jct/Village CDP	196	40	73	211	167	223	251
Alcan border CDP	0	0	0	27	21	33	36
Nabesna CDP						5	2
<b>District 6 subtotal</b>	<b>1,617</b>	<b>4,084</b>	<b>5,557</b>	<b>6,168</b>	<b>8,271</b>	<b>8,856</b>	<b>9,558</b>
<b>Total</b>	<b>8,280</b>	<b>11,371</b>	<b>15,278</b>	<b>17,276</b>	<b>20,635</b>	<b>20,909</b>	<b>22,324</b>

\*Customary and traditional use determination for fall Chum Salmon only

Canada. Eagle City, Chicken, and Central were established as gold mining supply sites; however, most miners had left the area by 1910. Native and non-Natives worked on steamboats, in mines, and in wood chopping camps, as well as on traplines. In the 1970s land auctions attracted new residents to Eagle City. Gold miners continue to return to the area seasonally.

A significant factor affecting the management of salmon fisheries in the upper Yukon River drainage is the three highway access points. Roads have linked Eagle with the Alaska Highway since the 1950s, the Steese Highway connected Central with Fairbanks in 1927, and the Dalton Highway (Haul Road) from Fairbanks crosses the Yukon River between the communities of Rampart and Stevens Village (Crow and Obley 1981, Hosley 1981). None of them cross Federal public waters. As such, the harvest of Chinook and Chum Salmon by non-Federally qualified users at these points would not be affected by the closure asked for by the Federal special action requests that are the focus of this analysis.

The population of the Tanana River drainage District 6 has increased more than fivefold in the 60 years between 1960 and 2020; in 2020, an estimated 9,558 people were permanent rural residents (ADCCED 2022). Only four rural communities are included in the State's salmon harvest monitoring: Minto, Manley, Nenana, and Healy. These communities are situated in the lower Tanana River and affiliated with the Tanana Athabascan cultural tradition (Hosley 1981, VanStone and Goddard 1981, Haynes and Simeone 2007). These four communities are connected to the Alaska Highway System. Fewer salmon are observed further up the Tanana River.

There are four coastal communities south of the Yukon River drainage with customary and use determinations for Yukon River salmon. The combined population of these communities, Stebbins, Scammon Bay, Hooper Bay, and Chevak, has more than tripled in the 60 years between 1960 and 2020; in 2020, an estimated 3,560 people were permanent rural residents (ADCCED 2022). Only two of these communities are included in the State's salmon harvest monitoring: Scammon Bay and Hooper Bay. Three of these communities, Scammon Bay, Hooper Bay, and Chevak, have a customary and traditional use determination for only fall Chum Salmon in the Yukon River drainage. Residents are primarily of the Yup'ik cultural tradition (Fienup-Riordan 1986). Residents of Stebbins have direct ties to Nelson Island that is situated in the lower Kuskokwim Area. People were initially drawn to the Stebbins area in the early 1900s by the fur trade, and current residents have a customary and traditional use determination for all Yukon salmon (Wolfe 1981; Braem et al. 2017).

## **Regulatory History**

### Management and Assessment

Salmon management on the Yukon River is divided into two distinct seasons that generally coincide with the run timing and abundance of salmon species. During the summer season, which runs from early May through July 15 in District 1, management and assessment focus on Chinook and summer Chum Salmon. Management transitions to the fall season beginning on July 16 in District 1 and assessment programs in the lower river shift their focus to fall Chum and Coho Salmon. Management in upriver districts transitions to the fall season based on the migration timing of fall Chum Salmon.

Management of Canadian-origin Yukon River salmon stocks is subject to conditions found in the Yukon River Salmon Agreement. The agreement, which was signed in 2002, outlines the steps needed for the conservation and management of Canadian-origin Yukon River salmon. Under the agreement, interim management objectives (i.e., escapement goals for Canadian-origin Yukon River salmon) are reviewed and agreed upon annually prior to the start of the season. Since 2010, the interim management escapement goal into Canada has been 42,500–55,000 Chinook Salmon and 70,000–104,000 mainstem fall Chum Salmon. In 2022, the U.S./Canada Joint Technical Committee (JTC) recommended a new escapement goal for Canadian-origin Chinook Salmon of 52,500 (acceptable range: 42,500–62,500; JTC 2022). No changes were recommended for fall Chum Salmon goals. In addition, harvestable surpluses of the transboundary stocks must be shared with Canada. Therefore, international treaty obligations must be considered while making in-season management decisions and providing harvest opportunities.

Prior to the fishing season, preseason forecasts are developed and used to shape management strategy. Federal and State managers work with the JTC, which is composed of biologists from multiple agencies, to devise, review, and approve forecasts. Forecasts are then reviewed by the Yukon River Panel and made available to the public. The final forecasts provide the first indication regarding run strength and if restrictions will be needed to meet escapement goals.

Management is conservative during the early part of the fishing season until in-season data indicate harvestable surpluses are available. The Federal Manager's in-season management decisions are informed by data collected at a variety of run assessment projects. Test fisheries operated in District 1 of the lower river provide run timing, relative abundance, and age composition information (Estensen et al. 2018). The Pilot Station sonar, which is in District 2 of the lower river, provides fish passage and stock composition estimates for Chinook and summer and fall Chum Salmon. Passage estimates are also provided for Coho Salmon at the Pilot Station sonar, but the counts are considered incomplete due to the late run timing of the species. Run sizes are projected as the runs progress past the Pilot Station sonar (becoming more accurate midway through each run) and harvestable surpluses are determined for each species. If harvestable surpluses are expected, harvest opportunity is planned throughout the drainage. Run timing, known community and area harvest amounts, and other factors (e.g., preferred gear types, fish distribution and quality, and incidental harvest of other species) are considered when planning harvest opportunities. The Federal management team incorporates years of learning from traditional and local knowledge holders and input from fishermen and Tribal Governments regarding preferred fishing schedules, gears, and practices to the extent practicable when making management decisions.

The Eagle sonar, an upriver management tool, is located near the U.S. and Canadian border (upper Subdistrict 5-D) and is used to estimate Chinook and fall Chum Salmon escapement into Canada and assess if treaty goals are met. Because this project is upriver of most U.S. fisheries, it is not useful for in-season management in most districts. However, if the projected escapements from the Eagle sonar are lower than expected based on the Pilot Station sonar counts, harvest opportunity in the upper part of District 5 may be reduced in order to achieve treaty objectives.

One of the greatest sources of uncertainty for management of Yukon River salmon escapement goals stems from projecting salmon runs in-season. For example, in 2019 and 2020, the Pilot Station sonar

projections of Canadian-origin Chinook Salmon indicated a harvestable surplus was available. However, the number of fish escaping to the border as identified by the Eagle sonar was significantly lower than expected, which led to Alaska exceeding the U.S. harvest share (JTC 2022). The cause of the discrepancy between the projections at Pilot Station sonar and the number of fish escaping to Canada is unknown but could result from assessment errors in passage estimation projects, harvest estimation projects, or in-river mortality of fish due to environmental factors. It is unlikely that the data uncertainty is the result of unaccounted for harvests.

### Management Collaboration

The Federal in-season manager for the Yukon River works collaboratively with the State of Alaska to manage Yukon River salmon runs. Federal and State managers review all assessment data, forecasting tools, and in-season run projections. Management strategies, harvest opportunities, and management actions are decided by consensus. The collaborative approach has allowed as much subsistence fishing opportunity as possible given the recent run sizes. In addition, collaborative management has made the distribution of fishery information, rationale for management actions, and explanations about the restrictions and opportunities consistent for all areas of the river (Carroll 2022, pers. comm.).

### Federal Special Actions

As set forth in 50 CFR 100.27(e)(3)(ii), Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for subsistence taking of fish under Alaska Statutes, unless superseded by a Federal special action. The Federal Subsistence Board and Federal managers have issued Yukon salmon special actions on a number of occasions since Federal subsistence fishery management went into effect in 1999.

At their January 2001 meeting, the Alaska Board of Fisheries identified Yukon Chinook and summer and fall Chum Salmon as stocks of concern and for the first time implemented a reduced subsistence fishing schedule to increase the quality of escapement, spread the harvest throughout the run, and spread subsistence opportunity among users. In addition, ADF&G indicated that any commercial fishing periods were highly unlikely and that they would close the sport fishery for Chinook Salmon if the runs were weak. Alaska Department of Fish and Game and U.S. Fish and Wildlife Service staff conducted public meetings, produced information posters, and published news articles to let local users know about concerns regarding the expected low salmon returns and advised them regarding the restrictions and closures to protect spawning escapement (66 FR 55093, November 1, 2001).

On May 10, 2001, the Federal Subsistence Board approved an emergency special action request and closed the Chinook and summer Chum Salmon fisheries on all Federal public waters in the Yukon River drainage for 60 days from June 1 through July 30, 2001, to all users except Federally qualified subsistence users (66 FR 55094, November 1, 2001).

From May 31 through September 10, 2001, the Federal Fisheries Manager, through delegated authority from the Board, in concert with State managers, implemented sequentially upriver a set of Federal

subsistence fisheries closures in the form of reduced fishing schedules and gear restrictions in order to prohibit directed salmon harvests (66 FR 55094, November 1, 2001).

The Board stated “These regulatory actions were necessary to assure continued viability of the chinook and chum salmon runs and provide a long-term subsistence priority during a period of limited harvest opportunity. These reduced subsistence fishing schedules brought the Federal subsistence fishing regulations in line with the similar State action for unified management and minimized confusion under dual management system” (66 FR 55094, November 1, 2001).

In 2002, OSM submitted Fisheries Special Action Request FSA02-01 to the Board requesting “Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Emergency Orders (ACC 16.05.060), unless superseded by a Federal Special Action” in the Yukon and Kuskokwim river drainages during the 2002 fishing season (OSM 2002). The Board approved Special Action Request FSA02-01.

In 2003, Proposal FP03-28 was submitted by OSM and requested that statewide for all fish “Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060 [Emergency Orders]), unless superseded by a Federal Special Action” (OSM 2002:Tab B Page 171). The Yukon-Kuskokwim Delta Council recommended the Board adopt the proposal; Bristol Bay, Seward Peninsula, Western Interior Alaska, and Eastern Interior Alaska Councils recommended the Board adopt the proposal with modifications; Southcentral Alaska, Kodiak Aleutians, Northwest Arctic, and North Slope Councils had no recommendations for the Board. The Board adopted the Interagency Staff Committee’s recommendation and modified the proposal to apply the regulations only to the Yukon River drainage and Kuskokwim Area. This modification was consistent with the recommendations of the Yukon Kuskokwim Delta, Western Interior Alaska, and Eastern Interior Alaska Councils (OSM 2003; 68 FR 29 7277, 7286 February 12, 2003). The Interagency Staff Committee further added in its justification that this would “allow the current Federal/State in-season protocol effort to develop operating guidelines and recommendations for the statewide implementation” (OSM 2002: Tab B Page 173).

In 2008, the Federal Subsistence Board, Alaska Boards of Fisheries and Game, and ADF&G signed a Memorandum of Understanding to provide the basis for coordinated Federal-State fisheries management and subsistence use on Federal public lands in Alaska. It expired in November 2014, and no subsequent Memorandum of Agreement has been signed by the parties.

In 2009, after much outreach and consultations, the Federal Manager closed the Yukon River drainage Districts 1–5 to the harvest of salmon by all users sequentially upriver from June 3 through August 24 to prohibit directed salmon harvests (2-KS-01-09, 2-KS-02-09, and 2-KS-03-09). His justification read, in part:

In 2008, management agencies in Alaska and Canada did not provide any directed commercial harvesting opportunities for Yukon River Chinook salmon. Further, both countries restricted or closed sport fishing and restricted or reduced subsistence/aboriginal fishing opportunities. In spite of these restrictive measures, less

than adequate escapements occurred. Management agencies are therefore planning to begin the 2009 season with additional conservation measures in place, rather than waiting to see if similar actions are necessary inseason when it may be too late to conserve fish needed for escapement (Emergency Special Action 2-KS-01-09).

In 2014, Fisheries Special Action Request FSA14-07, submitted by the Native Village of Marshall, requested the Board adopt an ANILCA Section 804 determination for the community of Marshall and allow residents of Marshall some opportunity to harvest Chinook Salmon in 2014. Fisheries Special Action Request FSA14-08, submitted by the Iqurmiut Traditional Council at Russian Mission, requested the Board to allow some opportunity to harvest Yukon Chinook Salmon in 2014. The Board received the requests in June 2014. Based on the timing of the requests and the number of communities involved, OSM staff determined that they did not have the time required to appropriately conduct the ANILCA Section 804 analysis and instead deferred the requests (OSM 2015).

In 2015, Fisheries Special Action Requests FSA14-07 and 08 were combined with new requests FSA15-01, 04, 06, 09 and 10, which were submitted by the Algaaciq Tribal Government representing the Algaaciq Native Village at St. Mary's, the Holy Cross Tribe representing the Holy Cross Native Village, the Kaltag Tribal Council representing Kaltag Village, the Marshall Traditional Council representing the Native Village of Marshall, and the Anvik Tribal Council. All requested the Board close the Yukon River drainage to the harvest of salmon except by Federally qualified subsistence users, reduce the pool of eligible harvesters based on an Alaska National Interest Lands Conservation Act (ANILCA) Section 804 analysis, and implement an allocation strategy between eligible users.

The Board rejected the request with the following justification:

The Board considered the closure aspect of the special action unnecessary as the in-season manager already has the authority to open and close Federal public waters of the Yukon River drainage to the harvest of salmon by non-Federally qualified users. Additionally, the Board determined that given the complexity of the Yukon River fisheries management, including the health of multiple Chinook Salmon stocks, the size of the area, and the patchwork of jurisdictions, it would be difficult to equitably provide opportunity for the harvest of Chinook Salmon (FSB 2015).

## **Biological Background**

### Species Overview

The Yukon River drainage supports all five species of North American Pacific Salmon (Estensen et al. 2018). Of the five species, Chinook, Chum, and Coho Salmon are the predominant salmon species harvested in subsistence fisheries within the drainage. Chinook and the summer and fall runs of Chum Salmon are the focus of the Federal Special Action Requests, while Coho Salmon have been mentioned as an additional species of concern by some of the Regional Advisory Councils in relation to these requests.

Chinook Salmon are distributed throughout much of the Yukon River drainage and have the earliest run timing of the five salmon species. Their documented spawning range extends from the Archuelinguk River (District 2) to the headwaters of the drainage in Canada. An estimated 40% of Yukon River Chinook Salmon are Canadian-origin fish. Chinook Salmon enter the Yukon River in late May/early June through mid-July with the bulk of the run entering the river in June (Estensen et al. 2018).

Chum Salmon stocks in the Yukon River drainage are comprised of two genetically distinct runs, summer and fall, which differ in their distribution, run timing, and abundance. Summer Chum Salmon are distributed within the Alaska portion of the drainage typically as far upstream as District 5A, while fall Chum Salmon primarily spawn in the upper portion of the drainage on both sides of the U.S.-Canada border (Estensen et al. 2018). Summer Chum Salmon enter the Yukon River in late May/early June through mid-July and their run timing overlaps with Chinook Salmon. In contrast, fall Chum Salmon have a later run timing and enter the Yukon River from mid-July through early September. Summer Chum Salmon tend to have larger run sizes than fall Chum Salmon.

Coho Salmon have a transboundary distribution and late run timing. While Coho Salmon's distribution extends into Canada, they are most abundant in the Yukon River drainage up to and including the Tanana River drainage. Coho Salmon enter the Yukon River from late July through September and their run timing overlaps with the second half of the fall Chum Salmon run.

### Run Size

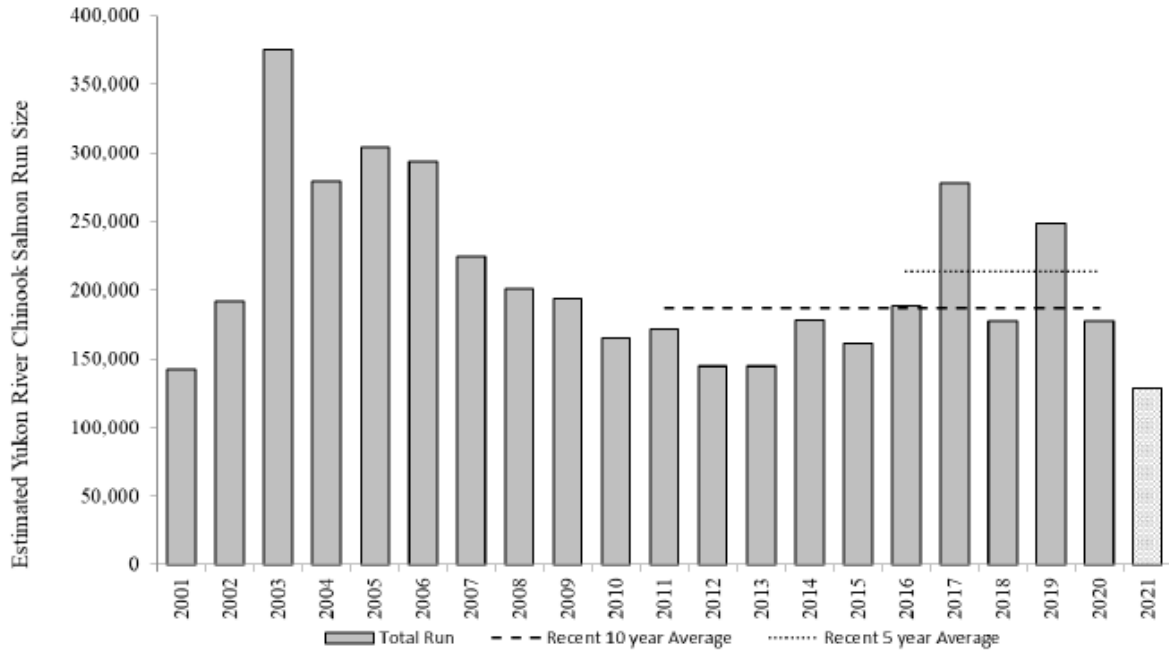
Estimates of drainage-wide run size are produced postseason using abundance estimates from the Pilot Station and Eagle sonars, harvest estimates, and spawning escapements.

The run strength of Chinook Salmon has varied throughout the past 20 years with peaks around 300,000–375,000 fish and valleys below 150,000 fish (ADF&G 2021a; **Figure 5**). Chinook Salmon run sizes were relatively high in 2017 and 2019 before declining in subsequent years. In 2021, the preliminary total drainage-wide run size of Chinook Salmon was approximately 129,000 fish, which was below the recent 5- and 10-year averages and among the lowest on record (**Figure 5**).

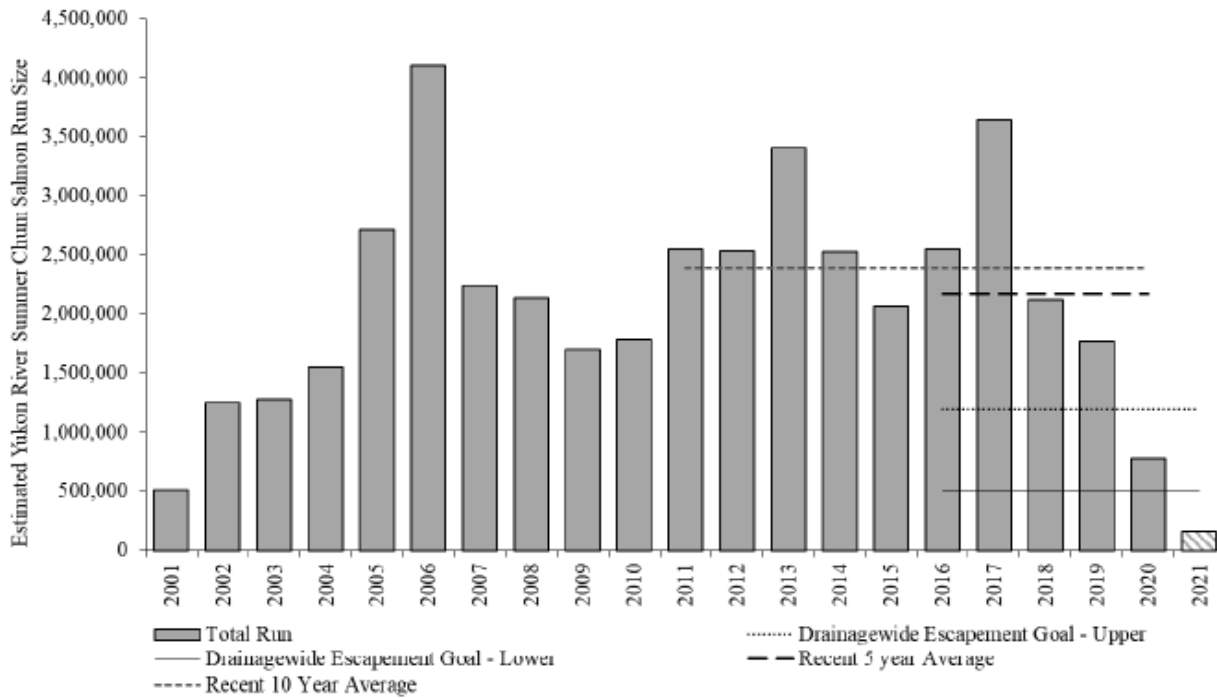
Over the previous 20 years, the run size of summer Chum Salmon has ranged from approximately 500,000 fish in 2001 to over 4,000,000 fish in 2006 (ADF&G 2021a; **Figure 6**). In general, summer Chum Salmon run sizes have been good to excellent over this period. The last peak occurred in 2017 when approximately 3,500,000 summer Chum Salmon returned to the Yukon River. Following the last peak, summer Chum Salmon run sizes have declined annually before reaching a record low of 154,000 fish in 2021 (**Figure 6**). The 2021 summer Chum Salmon run size was 93% smaller than the 1978–2020 average of 2,500,000 fish (JTC 2022).

The drainage-wide run of fall Chum Salmon has been variable since the mid-1970s with peak run sizes around 2,000,000–2,700,000 fish and valleys of approximately 250,000 fish (ADF&G 2021b; **Figure 7**). Fall Chum Salmon runs have been good to excellent during most years since 2003. The last peak occurred in 2017, when over 2,000,000 fall Chum returned to the Yukon River drainage. Run sizes declined in 2018 and 2019 before reaching record lows in consecutive years (**Figure 7**). The preliminary total

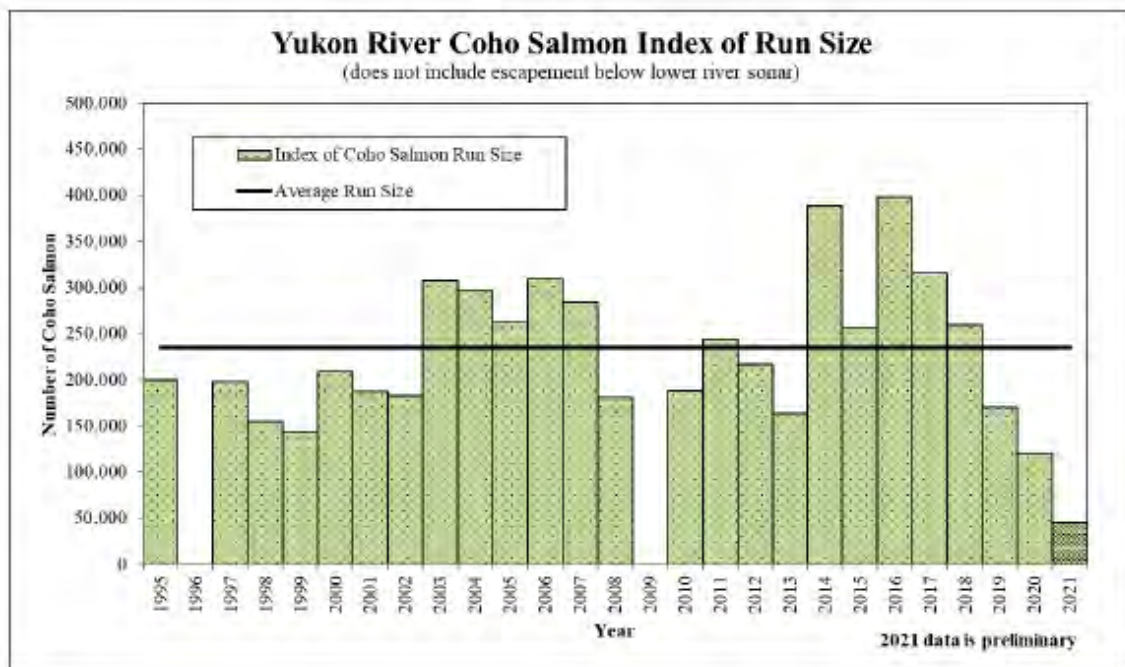
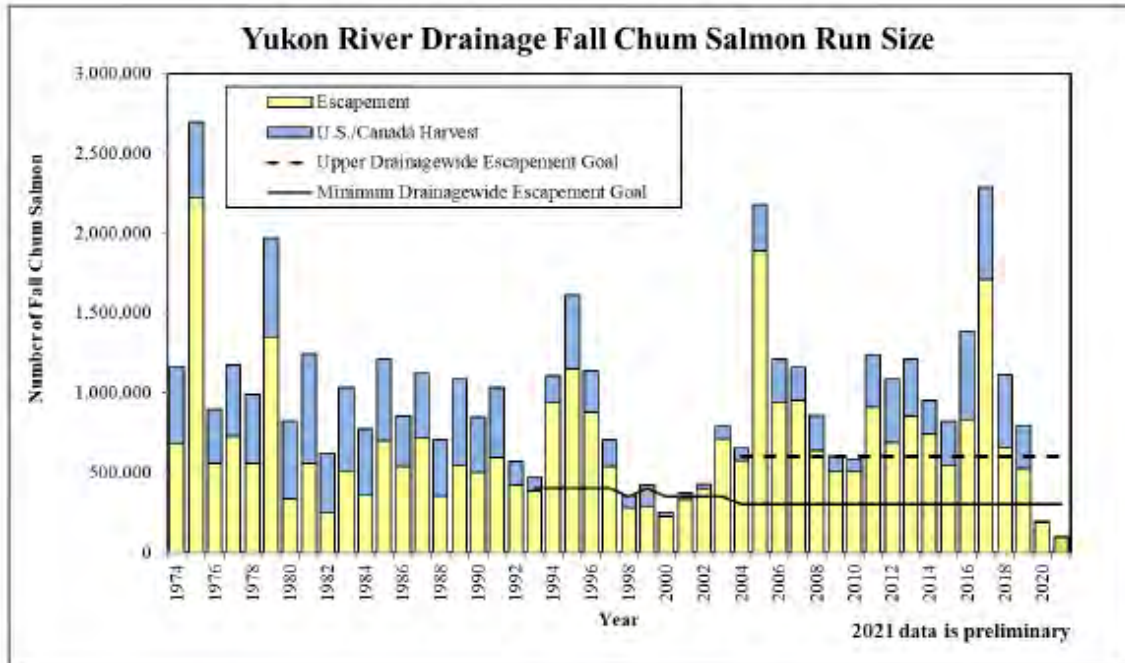




**Figure 5.** Estimated Yukon River Chinook Salmon run size. Run size from 2021 incorporates the escapement estimates into the Andreafsky River and a preliminary estimate of harvest based on years with fishing closures. Figure produced by ADF&G and published in ADF&G 2021a.



**Figure 6.** Estimated Yukon River summer Chum Salmon run size. Run size from 2021 incorporates the escapement estimates into the Andreafsky River and a preliminary estimate of harvest based on years with fishing closures. Figure produced by ADF&G and published in ADF&G 2021a.



**Figure 7.** Estimated drainage-wide run size of fall Chum Salmon (top) and index of run size of Coho Salmon (bottom) in the Yukon Area. Figure produced by ADF&G and published in ADF&G 2021b.

drainage-wide run size of fall Chum Salmon in 2021 was 102,000 fish, which is approximately 10 percent of the average run size of one million fish (ADF&G 2021b).

The Coho Salmon run size index has generally been strong since 1995, ranging from lows of approximately 125,000 fish to highs of around 400,000 fish (ADF&G 2021b; **Figure 7**). Following the last peak, which occurred in 2016, the run size index declined annually until reaching a record low of 45,500 fish in 2021 (**Figure 7**).

### Escapement

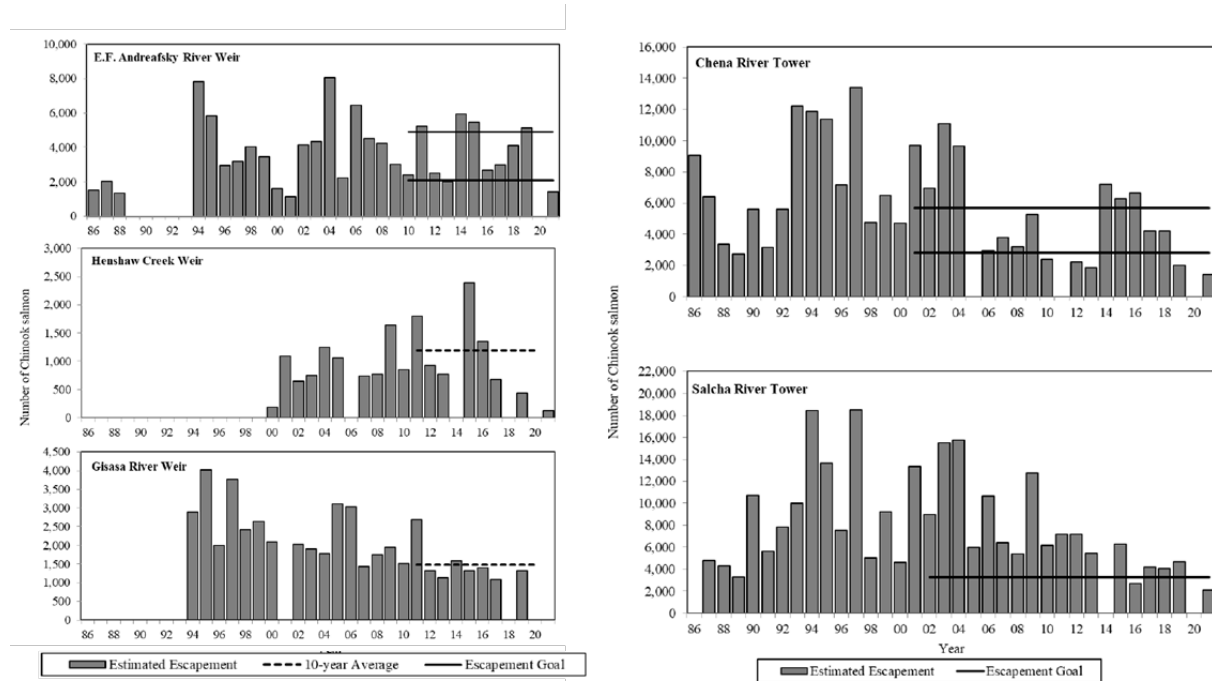
Spawning escapements are monitored throughout the Yukon River drainage using a variety of escapement projects and gear types. Data from these projects are used to determine if escapement goals were met and evaluate in-season management actions.

In the U.S. portion of the drainage, Chinook Salmon have established escapement goals in three tributaries that are monitored by aerial surveys (Anvik, Nulato, West Fork Andreafsky) and three tributaries that are monitored by ground-based assessment projects (Chena, East Fork Andreafsky, Salcha). In addition, Chinook Salmon have an Interim Management Escapement Goal (IMEG) that is assessed using Eagle sonar passage and harvest estimates in U.S. waters upstream of the sonar. Aerial surveys were not conducted in 2021 due to inclement weather during the early August survey dates (ADF&G 2021a). Escapement estimates from the ground-based assessment projects indicate that escapement goals have been met in most years (**Figure 8**). However, goals were not met in 2021, and escapements were below historical averages (**Table 2**). The passage estimate of Chinook Salmon at the Eagle sonar was 31,796 fish, also well below the historical average (**Table 2**). While some harvest may have occurred between the sonar project and the border with Canada, the lower end of the IMEG (42,500) was not met for a third consecutive year (JTC 2022). The IMEG was also not achieved in 2007, 2008, 2010, 2012, and 2013 (**Figure 9**).

Summer Chum Salmon have three established escapement goals within the drainage: drainage-wide, East Fork Andreafsky River, and Anvik River. None of the goals were met in 2021 (**Table 3**). Similar to Chinook Salmon, aerial surveys that monitor summer Chum Salmon escapement were not conducted due to poor weather. Escapement of summer Chum Salmon in all monitored systems within the drainage in 2021 was far below historical medians, with escapement counts at the East Fork Andreafsky weir and the Anvik sonar coming in at less than 10% of their escapement goals (**Table 3**). However, with the exception of 2020 and 2021, summer Chum Salmon runs have exceeded the upper end of the drainage-wide escapement goal since 2002 (**Figure 6**).

Fall Chum Salmon have three established escapement goals in the U.S. portion of the drainage: drainage-wide, Teedriinjik (Chandalar) River, and Delta River. While these escapement goals have been achieved during most years, none of these goals were met in 2021 and record low escapements were observed in each system (ADF&G 2021b; **Figures 10 and 11; Table 4**). In monitored systems without escapement goals, escapements were far below average and were record or near record lows (ADF&G 2021b; **Table 4**). Similar to Chinook Salmon, fall Chum Salmon have an IMEG that is assessed using Eagle sonar passage and harvest estimates in U.S. waters upstream of the sonar. The IMEG was not achieved in 2020

or 2021 (ADF&G 2021b; **Figure 12; Table 4**). However, with the exception of the last two years, the lower end of the IMEG has been achieved annually since 2002 (**Figure 12**).



**Figure 8.** Chinook Salmon ground-based escapement estimates for selected tributaries in the U.S. (Alaska) portion of the Yukon River drainage, 1986–2021. Figure produced by the JTC and published in the Yukon River Salmon 2021 Season Summary and 2022 Season Outlook (JTC 2022).

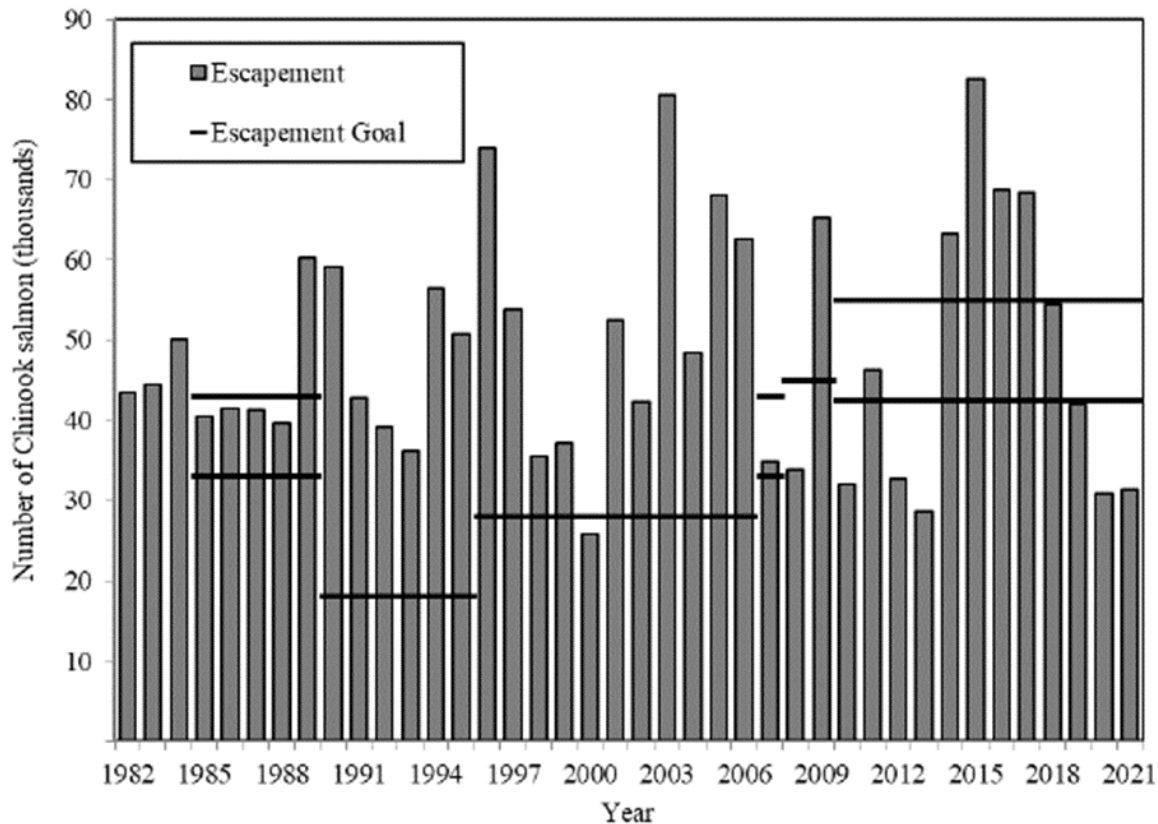
**Table 2.** Escapement goals and preliminary passage estimates for Chinook Salmon at selected Yukon River tributaries, 2021. Table produced by ADF&G and published in ADF&G 2021a.

Project	Current Goal	Type of Goal	Historical Average <sup>a</sup>	2021 Escapement
Eagle Sonar	42,500–55,000	IMEG	55,433	31,631 <sup>b</sup>
East Fork Andreafsky Weir	2,100–4,900	SEG	3,928	1,418
Henshaw Creek Weir	–	–	1,057	130
Chena River Tower	2,800–5,700	BEG	6,138	1,416
Salcha River Tower	3,300–6,500	BEG	8,413	2,081

*Note:* En dash indicates no goal at the project. Due to high water and poor visibility in August, aerial surveys were not flown in 2021. Biological Escapement Goals (BEGs) and Sustainable Escapement Goals (SEGs) are determined through ADF&G research programs.

<sup>a</sup>Historical averages include all years the projects operated with the exclusion of years the projects operated poorly.

<sup>b</sup>Passage estimate at Eagle Sonar is not an escapement estimate. Some harvest may have occurred between the project and the border, and in Canada.



**Figure 9.** Estimated spawning escapement estimates and escapement goals (minimum or range) for Canadian-origin Yukon River mainstem Chinook Salmon, 1982–2021. Figure produced by the JTC and published in the Yukon River Salmon 2021 Season Summary and 2022 Season Outlook (JTC 2022).

Coho Salmon have relatively few escapement monitoring projects in the drainage due to their late run timing and inclement weather during periods of peak spawning. The Delta Clearwater River has the only established escapement goal for this species. This goal has not been met since 2017 (JTC 2022). Escapement of Coho Salmon in all monitored systems in 2021 was far below average (**Table 5**).

### Age Composition

Chinook Salmon returning to the Yukon River drainage usually complete their spawning migrations between the ages of 4 and 7, with the majority returning at ages 5 and 6 (JTC 2022). At Pilot Station in 2021, above average percentages of age-6, age-7, and age-8 and below average percentages of age-3, age-4, and age-5 Chinook Salmon were observed compared to the recent 10-year average (2011–2020; ADF&G 2021a). Similarly, at the Eagle sonar, percentages of age-5 and age-7 Chinook Salmon were above average, and percentages of age-4 fish were below average compared to the recent 10-year average (2011–2020; ADF&G 2021a). These data suggest that while returns were low, the run had good quality of escapement and no missing age classes.

Both summer and fall Chum Salmon predominately return at age-4 and age-5 within the Yukon River drainage (JTC 2022). For summer Chum Salmon, the recent 10-year average percentages of age-4 and age-5 fish at the Lower Yukon Test Fishery were 47% and 50%, respectively (ADF&G 2021a). However, in 2021 the age-4 components were well above average (84%) and age-5 components were well below average (11%; ADF&G 2021a). Similar results were observed for fall Chum Salmon at the Lower Yukon Test Fishery, with an above average component of age-4 fish (87%) and below average component of age-5 fish (9%; ADF&G 2021b). The low returns of age-4 summer and fall Chum Salmon in 2020 and age-5 fish in 2021 suggest poor survival of the 2016 brood year. The factors driving the low survival of this brood year are currently unknown.

Coho Salmon predominantly return as age-4 fish (JTC 2022). Therefore, the age composition of Coho Salmon is not determined in Yukon River assessment programs.

**Table 3.** Escapement goals and preliminary passage estimates for summer Chum Salmon at selected Yukon River tributaries, 2021. Table produced by ADF&G and published in ADF&G 2021a.

Project	Current Goal	Type of Goal	Historical Median <sup>a</sup>	2021 Escapement
Drainage-wide	500,000–1,200,000	BEG	1,626,239 <sup>b</sup>	153,497 <sup>c</sup>
East Fork Andreafsky Weir	>40,000	SEG	55,265	2,531
Anvik Sonar	350,000–700,000	BEG	457,457	18,812
Henshaw Creek Weir	–	–	140,947	3,729 <sup>d</sup>
Chena River Tower	–	–	8,462	578 <sup>e</sup>
Salcha River Tower	–	–	21,057	2,193 <sup>e</sup>

*Note:* En dash indicates no escapement goal at the project.

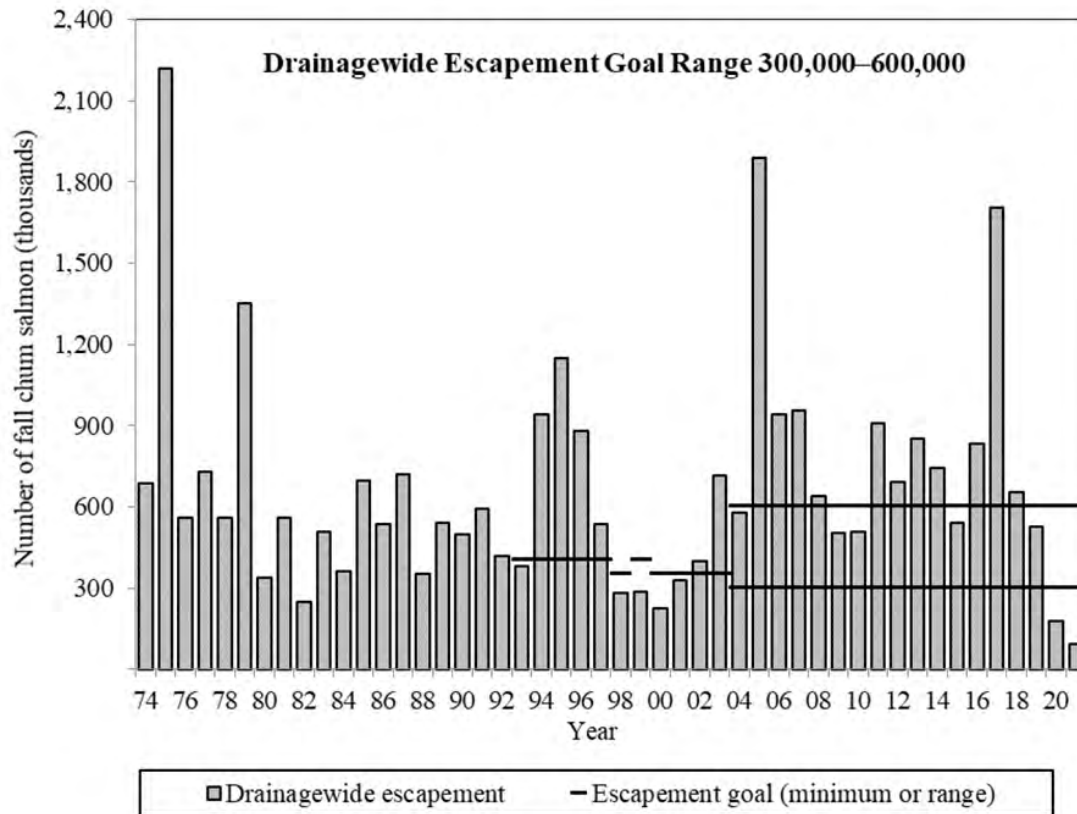
<sup>a</sup>Historical median include all years the projects operated with the exclusion of years the projects operated poorly.

<sup>b</sup>Historical median from years with late run timing. The historical median from all years is 1.8 million summer Chum Salmon.

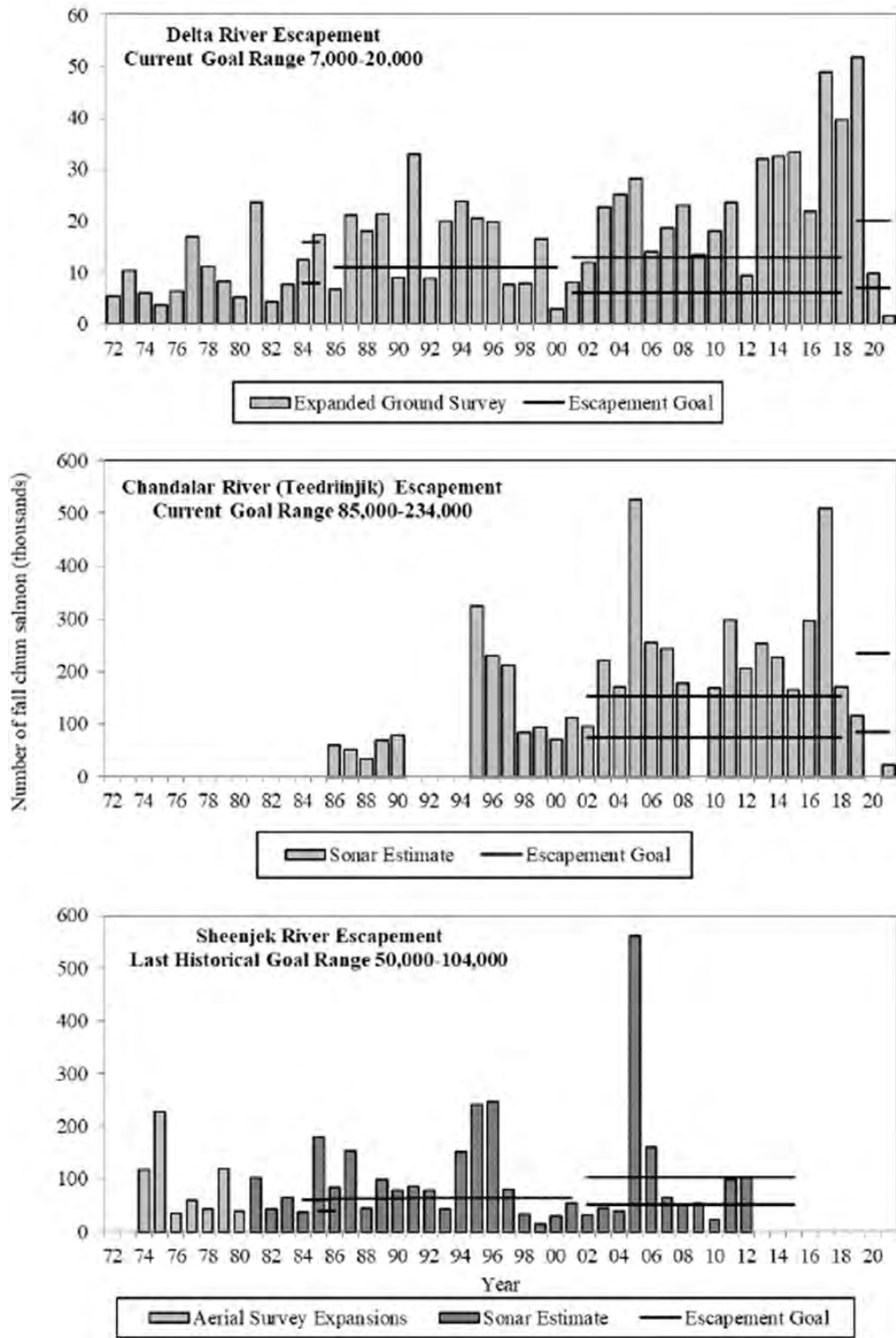
<sup>c</sup>Estimate of abundance at the Pilot Station sonar. Salmon fishing was closed above and below the sonar for the whole season, however small numbers of summer Chum Salmon were harvested in nonsalmon gear and test fisheries. After accounting for harvest and escapements below the sonar, the lower end of the drainage-wide goal will not be met.

<sup>d</sup>Counts ended on July 29 due to high water.

<sup>e</sup>Incomplete and partial estimate due to run timing.



**Figure 10.** Estimated drainage-wide escapement of fall Chum Salmon, Yukon River, 1974–2021. Figure produced by the JTC and published in the Yukon River Salmon 2021 Season Summary and 2022 Season Outlook (JTC 2022).



**Figure 11.** Fall Chum Salmon escapement estimates for selected spawning areas in the U.S. (Alaska) portion of the Yukon River drainage, 1972–2021. Figure produced by the JTC and published in the Yukon River Salmon 2021 Season Summary and 2022 Season Outlook (JTC 2022).



**Table 4.** Fall Chum Salmon passage or escapement estimates for selected spawning areas, Yukon River drainage, 2001–2021. Adapted from table produced by ADF&G and published in ADF&G 2021b.

Project	Current Goal	Type of Goal	Historical Average: 2011–2020	Historical Average: 2016–2020	2021 Escapement
Yukon River mainstem (Pilot) sonar estimate <sup>a</sup>	300,000–600,000 <sup>g</sup>	SEG	875,128 <sup>j</sup>	971,567	146,172
Delta River <sup>b</sup>	7,000–20,000 <sup>h</sup>	SEG	30,279	34,388	1,613
Tanana River estimate <sup>b</sup>	–		231,074	259,610	42,818 <sup>k</sup>
Teedriinjik (Chandalar) River <sup>c</sup>	85,000–234,000 <sup>h</sup>	SEG	248,724	272,704	21,162
Sheenjek River <sup>d</sup>	–		116,631	150,500	13,000 <sup>l</sup>
Yukon River mainstem (Eagle) passage estimate <sup>e</sup>	–		177,808	177,140	23,170
Mainstem escapement estimate (Canada) <sup>f</sup>	70,000–104,000 <sup>i</sup>	IMEG	163,402	164,846	23,170

Note: En dash indicates no data were collected or calculated. Yukon River mainstem sonar historical estimates were revised in 2016, using updated selectivity parameters.

<sup>a</sup>Fall Chum Salmon passage estimate based on mark-recapture projects operated from 1995–2007 on the upper Tanana River and from 1999–2007 on the Kantishna River minus harvests, unless otherwise noted.

<sup>b</sup>Population estimate generated from replicate foot surveys and stream life data using AUC (area-under-curve) method unless otherwise indicated.

<sup>c</sup>Split beam sonar estimate (1995–2006). DIDSON sonar (2007–present). Includes expansions to the beginning end of the run.

<sup>d</sup>Single beam sonar estimate (2000–2002), split beam sonar estimate (2003–2004), DIDSON sonar (2005–2012).

<sup>e</sup>Sonar estimates include an expansion for fish that may have passed after operations ceased through October 18, except 2018 was expanded through October 23 for an extremely late run.

<sup>f</sup>Estimated mainstem Canadian escapement derived from mark-recapture project minus Canadian mainstem harvest and excluding Canadian Porcupine River drainage escapement, unless otherwise noted.

<sup>g</sup>Yukon River drainage-wide sustainable escapement goal is assessed inseason using Pilot Station sonar estimates minus upstream estimated harvests.

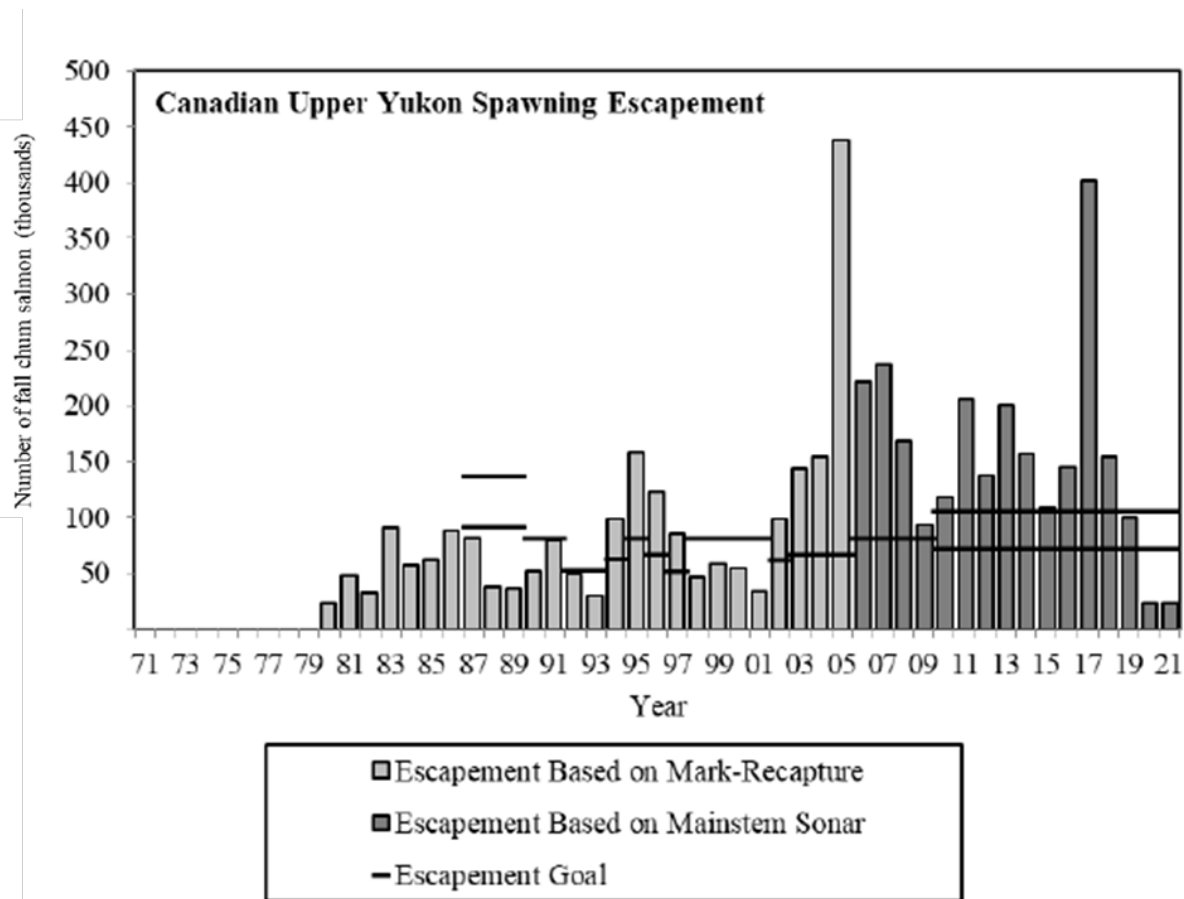
<sup>h</sup>Escapement goal revised to a sustainable escapement goal in 2019 based on percentile method.

<sup>i</sup>Interim Management Escapement Goal (IMEG) range of 70,000 to 104,000 was established for 2010 to present is based on Canadian stock Ricker model.

<sup>j</sup>Extreme low water levels were experienced in 2009, affecting species apportionment, therefore passage estimates are not used.

<sup>k</sup>Preliminary estimate based on mixed stock analysis minus harvest in the Tanana River.

<sup>l</sup>Preliminary estimate based on regression of Fishing Branch River weir counts (1985–2012) to Sheenjek estimates from two bank operations in 1985–1987, 2005 to 2009, and 2011 to 2012 and remaining years were expanded using average 36% for second bank operations.



**Figure 12.** Estimated spawning escapement and escapement goals for Canadian-origin fall Chum Salmon for the mainstem Yukon River, 1972–2021. Figure produced by the JTC and published in the Yukon River Salmon 2021 Season Summary and 2022 Season Outlook (JTC 2022).

### 2022 Forecasts

Preseason forecasts are used by managers to set expectations and guide preseason planning. While forecasts are inherently uncertain, they provide the best available information before in-season run data become available. The methods used for forecasts within the Yukon River drainage vary by species and are described in detail in the Season Summary/Season Outlook reports produced by the JTC (JTC 2022).

Low run sizes are predicted for Yukon River Chinook Salmon in 2022. The drainage-wide Chinook Salmon forecast is 99,000–150,000 fish (ADF&G 2022a). Run sizes of this magnitude (<150,000 Chinook Salmon) generally do not meet escapement goals (ADF&G 2022a). The 2022 Canadian-origin Chinook Salmon forecast is 51,000 fish (80% credible interval: 41,000–62,000 fish; JTC 2022). Run sizes at the low end of the forecast would be among record lows and may not exceed the lower bound of the IMEG (42,500 Chinook Salmon). In contrast, run sizes at the upper end of the forecast would fall within the IMEG but would be smaller than the recent 10-year average of 64,000 Chinook Salmon (JTC 2022). Unless the Chinook Salmon run exceeds expectations, there may be no harvestable surplus in 2022.

**Table 5.** Coho Salmon passage or escapement estimates for selected spawning areas, Yukon River drainage, 2001–2021. Adapted from table produced by ADF&G and published in ADF&G 2021b.

Project	Current Goal	Type of Goal	Historical Average: 2011–2020	Historical Average: 2016–2020	2021 Escapement <sup>e</sup>
Mainstem Sonar Estimate <sup>a</sup>	–	–	146,044 <sup>d</sup>	133,009	37,257
Lost Slough (h)	–	–	641	866	126
Nenana Mainstem <sup>b</sup> (h)	–	–	751	748	104
Wood Creek (h)	–	–	781	826	226
Seventeen Mile Slough (h)	–	–	1,248	1,193	213
Delta Clearwater River <sup>c</sup> (b)	5,200–17,000	SEG <sup>f</sup>	6,533	4,776	913
Clearwater Lake and Outlet (h)	–	–	1,235	1,089	130
Richardson Clearwater River (h)	–	–	1,169	775	17

*Note:* Only peak counts presented. Survey rating is fair to good, unless otherwise noted. Denotations of survey methods include: (b)=boat, and (h)=helicopter. En dash indicates no data available.

<sup>a</sup>Passage estimates for Coho Salmon are incomplete. The sonar project is terminated prior to the end of the Coho Salmon run. Yukon River mainstem sonar historical estimates were revised in 2016, using updated selectivity parameters.

<sup>b</sup>Index area includes mainstem Nenana River between confluences of Lost Slough and Teklanika River.

<sup>c</sup>Index area is lower 17.5 miles of system.

<sup>d</sup>Extreme low water levels were experienced in 2009, affecting species apportionment, therefore passage estimates are not used.

<sup>e</sup>Data are preliminary.

<sup>f</sup>Sustainable escapement goal (SEG) established January 2004, (replaces BEG of greater than 9,000 fish established March 1993) based on boat survey counts of Coho Salmon in the lower 17.5 river miles during the period October 21 through 27.

The forecast for Yukon River summer Chum Salmon in 2022 is poor. The forecast model predicts a run size of 330,000 summer Chum Salmon (80% confidence interval: 160,000–540,000), which would be among the lowest on record (JTC 2022). Summer Chum would need to return near the upper end of the forecast to meet the drainage-wide escapement goal (500,000–1,200,000). The poor forecast indicates there may be no harvestable surplus of summer Chum Salmon in 2022.

The 2022 fall Chum Salmon drainage-wide and Canadian-origin run sizes are forecasted to be among the lowest on record. The drainage-wide fall Chum Salmon preliminary forecast is 110,000 fish with a range of 78,100–148,000 (JTC 2022). The point estimate is approximately the same size as last year’s record low run of 102,000 fish. The outlook range for Canadian-origin fall Chum Salmon in 2022 is 20,000–37,000 fish (JTC 2022). Both forecasts suggest drainage-wide (300,000–600,000) and IMEG (70,000–104,000) escapement goals will not be met and there will be no harvestable surplus of fall Chum Salmon in 2022.

The outlooks produced for Coho Salmon are informal and uncertain. In 2022, the Coho Salmon outlook predicts a below average run (average is 235,000; ADF&G 2022b, JTC 2022). The high uncertainty of the outlook makes it difficult to determine the likelihood of a harvestable surplus of Coho Salmon in 2022.

## **Harvest History**

### Commercial Harvest

Management of commercial salmon fisheries in the U.S. portion of the Yukon River drainage is in accordance with State of Alaska management plans (Estensen et al. 2018). There are currently approximately 400 commercial salmon permit holders, nearly all of whom are residents of Yukon River communities. Before commercial opportunity is provided, a harvestable surplus must be projected above what is needed for escapement goals, applicable treaty objectives, and subsistence harvest which is the priority use. Because of overlap in run timing and species distributions, there may be restrictions on harvest for one species, such as Chinook Salmon, while commercial harvest is allowed for other species (e.g., Chum Salmon). When commercial opportunity is provided, harvest is driven by market interest.

Chinook Salmon have been targeted in Yukon River commercial fisheries in the past, but not since 2007. From 1997 to 2007, the commercial harvest of Chinook Salmon ranged from approximately 8,500 to 114,000 fish (**Table 6**). Since 2007, directed commercial fisheries for Chinook Salmon have not been allowed in the drainage due to conservation concerns and low run sizes (Estensen et al. 2018; ADF&G 2021a). However, Chinook Salmon may be caught incidentally in Chum Salmon commercial fisheries. Incidentally caught Chinook Salmon may be retained for subsistence uses or sold when authorized by emergency order if Chinook Salmon escapement goals are projected to be met and if subsistence fishing is not restricted (5 AAC 05.360(i)).

Since 2001, the commercial harvest of summer Chum Salmon ranged from 10,685 fish in 2003 to 576,700 fish in 2018 (**Table 7**). Commercial harvests of summer Chum Salmon were low (~10,000–50,000 fish) in the early 2000s compared to the mid-to-late 2010s when harvests commonly exceeded 500,000 fish. In general, commercial harvest of summer Chum Salmon is highest in Districts 1 and 2; however, in some years commercial harvests in Subdistrict 4-A exceed those in District 2. In 2021, there were no commercial openings for summer Chum Salmon in the Yukon River due to low run sizes and subsistence fisheries closures (ADF&G 2021a).

The commercial harvest of fall Chum Salmon has varied throughout the past 20 years from lows of around 2,500 fish to highs of approximately 490,000 fish (**Table 8**). The 10-year average of total commercial harvests of fall Chum Salmon increased approximately 300% from 2001–2010 to 2011–2020 (**Table 8**). Similar to summer Chum Salmon, commercial catches of fall Chum Salmon are concentrated in districts in the lower Yukon River (**Table 8**). Due to low run sizes and subsistence fisheries closures, no commercial fishing opportunities were provided for fall Chum Salmon in 2020 or 2021 (ADF&G 2020, ADF&G 2021b; **Table 8**).

**Table 6.** Chinook Salmon commercial harvest totals by district, 1997–2017. Adapted from table produced by ADF&G and published in Estensen et al. 2018.

Year	District 1	District 2	District 3	Subtotal (Districts 1–3)	District 4	District 5	District 6	Subtotal (Districts 4–6)	Alaska Total
1997	66,384	39,363	–	105,747	1,457	3,678	2,728	7,863	113,610
1998	25,413	16,806	0	42,219	–	517	963	1,480	43,699
1999	37,161	27,133	538	64,832	1,437	2,604	689	4,730	69,562
2000	4,735	3,783	–	8,518	–	–	–	–	8,518
2001	–	–	–	–	–	–	–	–	–
2002	11,089	11,440	–	22,529	–	771	1,066	1,837	24,366
2003	22,709	14,220	–	36,929	562	1,134	1,813	3,509	40,438
2004	28,403	24,145	–	52,548	–	1,546	2,057	3,603	56,151
2005	16,694	13,413	–	30,107	–	1,469	453	1,922	32,029
2006	23,748	19,843	315	43,906	–	1,839	84	1,923	45,829
2007	18,616	13,306	190	32,112	0	1,241	281	1,522	33,634
2008	2,530	2,111	–	4,641	0	–	0	0	4,641
2009	90	226	–	316	0	–	0	0	316
2010	5,744	4,153	–	9,897	0	–	0	0	9,897
2011	36	46	–	82	–	–	0	0	82
2012	0	0	–	0	0	–	0	0	0
2013	0	0	–	0	0	–	0	0	0
2014	0	0	–	0	0	–	0	0	0
2015	0	0	–	0	0	–	0	0	0
2016	0	0	–	0	–	–	0	0	0
2017	168	0	–	168	–	–	0	0	168

Note: En dash indicates no commercial fishing activity occurred.

**Table 7.** Summer Chum Salmon commercial harvest totals by district, 2001–2021. Adapted from tables produced by ADF&G and published in Estensen et al. 2018 and ADF&G 2021a.

Year	District 1	District 2	Subtotal (Districts 1–2)	Subdistrict 4-A	District 6	Total Districts 1–6
2001	–	–	–	–	–	–
2002	6,327	4,027	10,354	–	3,218	13,578
2003	3,579	2,583	6,162	62	4,461	10,685
2004	13,993	5,782	19,775	–	6,610	26,410
2005	23,965	8,313	32,278	–	8,986	41,264
2006	21,816	25,543	47,359	–	44,621	92,116
2007	106,790	69,432	176,222	7,304	14,674	198,201
2008	67,459	58,139	125,598	23,746	1,842	151,186
2009	71,335	86,571	157,906	4,589	7,777	170,272
2010	102,267	80,948	183,215	44,207	5,466	232,888
2011	163,439	103,071	266,510	–	8,651	275,161
2012	150,800	57,049	207,849	108,222	3,504	319,575
2013	207,871	171,272	379,143	100,507	5,937	485,587
2014	198,240	229,107	427,347	96,385	6,912	530,644
2015	172,639	181,447	354,086	–	4,770	358,856
2016	293,522	228,267	521,789	–	4,020	525,809
2017	345,395	47,770	393,165	159,051	4,300	556,516
2018	250,958	195,423	446,381	126,892	3,427	576,700
2019	183,658	41,835	225,493	–	1,596	227,089
2020	9,613	4,355	13,968	–	–	13,968
2021	–	–	–	–	–	–
Average: 2001–2010	46,392	37,926	84,319	15,982	10,851	104,067
Average: 2011–2020	197,614	125,960	323,573	118,211	4,791	386,991
Average: 2016–2020	216,629	103,530	320,159	142,972	3,336	380,016

*Note:* En dash indicates no fishery occurred. Commercial harvest only includes summer Chum Salmon sold in the round.

**Table 8.** Fall Chum Salmon commercial harvest by district, Yukon Area, 2001–2021. Adapted from table produced by ADF&G and published in ADF&G 2021b.

Year <sup>a</sup>	District 1	District 2	District 3	Subtotal (Districts 1–3)	District 4 <sup>b</sup>	District 5 <sup>b</sup>	District 6 <sup>b</sup>	Subtotal (Districts 4–6)	Yukon Total
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	5,586	–	–	5,586	1,315	–	4,095	5,410	10,996
2004	660	–	–	660	–	–	3,450	3,450	4,110
2005	130,525	–	–	130,525	–	–	49,637	49,637	180,162
2006	101,254	39,905	–	141,159	–	1,667	23,353	25,020	166,179
2007	38,852	35,826	–	74,678	–	427	15,572	15,999	90,677
2008	67,704	41,270	–	108,974	–	4,556	5,967	10,523	119,497
2009	11,911	12,072	–	23,983	–	–	1,893	1,893	25,876
2010	545	270	–	815	–	–	1,735	1,735	2,550
2011	127,735	100,731	–	228,466	–	1,246	10,917	12,163	240,629
2012	139,842	129,284	–	269,126	811	2,419	17,336	20,566	289,692
2013	106,588	106,274	–	212,862	–	1,041	24,148	25,189	238,051
2014	51,829	59,138	–	110,967	–	1,264	3,368	4,632	115,599
2015	100,562	74,214	–	174,776	–	1,048	15,646	16,694	191,470
2016	226,576	213,225	–	439,801	–	7,542	18,053	25,595	465,396
2017	328,410	134,668	–	463,078	1,402	1,952	23,270	26,624	489,702
2018	198,950	170,645	–	369,595	596	896	16,698	18,190	387,785
2019	145,692	106,141	–	251,833	–	900	15,627	16,527	268,360
2020	–	–	–	–	–	–	–	–	–
2021	–	–	–	–	–	–	–	–	–
Average: 2001–2010	44,630	25,869	–	60,798	1,315	2,217	13,213	14,208	75,006
Average: 2011–2020	158,465	121,591	–	280,056	936	2,034	16,118	18,464	298,520
Average: 2016–2020	224,907	156,170	–	381,077	999	2,823	18,412	21,734	402,811

Note: En dash indicates no commercial fishing occurred.

<sup>a</sup>Numbers of fish harvested are based on reports from the State TIX, Zephyr, and OceanAK programs.

<sup>b</sup>Estimated harvest is the number of fish sold in the round plus the estimated number of females to produce the roe sold.

Coho Salmon tend to be harvested incidentally in fall Chum Salmon commercial fisheries, but the State may provide directed opportunities for this species (Estensen et al. 2018). Since 2001, the commercial harvest of Coho Salmon has ranged from 3,750 fish in 2010 to 201,482 fish in 2016 (**Table 9**). While commercial harvest of Coho Salmon has fluctuated, there has generally been higher harvests in recent years (**Table 9**). The majority of commercially caught Coho Salmon are harvested in lower river districts (**Table 9**). No commercial opportunities were provided for Coho Salmon in 2020 or 2021 (ADF&G 2020, ADF&G 2021b; **Table 9**).

**Table 9.** Coho Salmon commercial harvest by district, Yukon Area, 2001–2021. Adapted from table produced by ADF&G and published in ADF&G 2021b.

Year <sup>a</sup>	District 1	District 2	District 3	Subtotal (Districts 1–3)	District 4 <sup>b</sup>	District 5 <sup>b</sup>	District 6 <sup>b</sup>	Subtotal (Districts 4–6)	Yukon Total
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	9,757	–	–	9,757	–	–	15,119	15,119	24,876
2004	1,583	–	–	1,583	–	–	18,649	18,649	20,232
2005	36,533	–	–	36,533	–	–	21,778	21,778	58,311
2006	39,323	14,482	–	53,805	–	–	11,137	11,137	64,942
2007	21,720	21,487	–	43,207	–	–	1,368	1,368	44,575
2008	13,946	19,248	–	33,194	–	91	2,408	2,499	35,693
2009	5,992	1,577	–	7,569	–	–	742	742	8,311
2010	1,027	1,023	–	2,050	–	–	1,700	1,700	3,750
2011	45,335	24,184	–	69,519	–	–	7,502	7,502	77,021
2012	39,757	29,063	–	68,820	0	634	5,335	5,969	74,789
2013	27,304	31,456	–	58,760	–	0	7,439	7,439	66,199
2014	54,804	48,602	–	103,406	–	0	1,286	1,286	104,692
2015	66,029	54,860	–	120,889	–	0	8,811	8,811	129,700
2016	113,669	67,208	–	180,877	–	54	20,551	20,605	201,482
2017	95,982	33,277	–	129,259	0	0	9,656	9,656	138,915
2018	65,431	40,845	–	106,276	0	0	4,314	4,314	110,590
2019	40,621	15,622	–	56,243	–	0	2,348	2,348	58,591
2020	–	–	–	–	–	–	–	–	–
2021	–	–	–	–	–	–	–	–	–
Average: 2001–2010	16,235	11,563	–	23,462	–	91	9,113	9,124	32,586
Average: 2011–2020	60,992	38,346	–	99,339	–	86	7,471	7,548	106,887
Average: 2016–2020	78,926	39,238	–	118,164	–	14	9,217	9,231	127,395

Note: En dash indicates no commercial fishing occurred.

<sup>a</sup>Numbers of fish harvested are based on reports from the State TIX, Zephyr, and OceanAK programs.

<sup>b</sup>Estimated harvest is the number of fish sold in the round plus the estimated number of females to produce the roe sold.



## Subsistence Harvest

The Alaska Department of Fish and Game estimates the harvest of salmon for subsistence purposes by Federally qualified subsistence users in the Alaska portion of the Yukon River drainage based on postseason harvest surveys, returned permits, and test fishery projects. Harvest estimates from 2006 through 2020 are provided in **Tables 10–13** (ADF&G 2022c). Community salmon harvest compositions typically reflect the salmon species that are most abundant locally although other factors such as run timing, flesh quality, food preferences, and number of dogs also contribute to harvest patterns (Brown et al. *in prep*). Even though communities tend to harvest certain species of salmon more than others, the harvest of a mix of salmon species is a drainage-wide pattern and an important fishing strategy, particularly in years when certain species have low abundance but others are prevalent.

No directed salmon subsistence fishing opportunity was provided in 2021. Opportunity to harvest nonsalmon fish was provided with 4-inch and smaller mesh gillnets. Incidental harvests of salmon can occur using these gillnets, but it is very limited (Carroll 2022, pers. comm.). Therefore, salmon harvests for subsistence by Federally qualified subsistence users for all salmon species were the lowest on record for the Yukon with preliminary harvest estimates of 1,555 Chinook Salmon, 905 summer Chum Salmon, 698 fall Chum Salmon, and 216 Coho Salmon (ADF&G 2022c). These harvests include mortalities from local test fisheries that are donated within the community and make up the majority of the Chinook and Chum Salmon totals here (Carroll 2022, pers. comm.).

For comparison, the recent 5-year average (2016–2020) estimated harvests were 29,215 Chinook Salmon, 68,638 summer Chum Salmon, 59,899 fall Chum Salmon, and 5,608 Coho Salmon (**Tables 10–13**). Overall, 159,983 fewer salmon were harvested in 2021 than in the recent 5-year average.

### **Section 804 Analysis**

Section 804 of ANILCA mandates that the taking on Federal public lands of fish and wildlife for nonwasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Section 804 further requires that whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue subsistence uses, such a priority shall be implemented through appropriate limitations based on the application of three criteria. The three criteria are: (1) customary and direct dependence upon the populations as the mainstay of livelihood, (2) local residency, and (3) the availability of alternative resources. In other words, an analysis based on Section 804 of ANILCA identifies which residents of communities or areas have a priority for the take of the resource.

**Table 10.** Chinook Salmon: Estimated harvest for subsistence by communities with a customary and traditional use determination 2006–2020, 2011–2015 average, and 2016–2020 average, based on postseason survey, returned permits, and test fishery projects (Source: ADF&G 2022c; 2019 and 2020 preliminary data).

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2011-2015 ave	2016-2020 ave
Alakanuk	690	1,257	1,238	634	944	1,464	1,081	275	214	436	465	846	424	1,818	1,324	694	975
Emmonak	2,311	2,326	2,696	1,634	2,194	2,172	1,864	553	463	612	939	1,732	1,211	2,419	1,093	1,133	1,479
Kotlik	1,750	1,569	2,066	1,657	2,314	2,369	1,173	794	617	661	1,158	1,767	1,556	2,333	895	1,123	1,542
Nunam Iqua	371	907	163	200	404	250	195	12	62	210	190	235	78	470	368	146	268
District 1 total	5,122	6,059	6,163	4,125	5,856	6,255	4,313	1,634	1,356	1,919	2,752	4,580	3,269	7,040	3,680	3,095	4,264
Marshall	1,897	2,555	3,284	1,201	2,110	2,686	1,409	328	128	128	512	1,612	914	1,261	1,000	936	1,060
Mt Village	1,659	2,077	1,645	1,482	1,601	2,063	1,789	266	178	370	809	1,118	1,030	1,247	1,002	933	1,041
Pilot Station	1,976	2,028	1,597	1,258	1,585	1,340	1,078	258	163	382	652	825	659	1,919	1,059	644	1,023
Pitkas Point	274	320	544	265	580	246	261	37	79	44	156	507	365	1,096	272	133	479
St. Mary's	2,233	3,573	1,756	1,929	2,800	1,734	2,344	215	68	261	1,032	961	1,180	2,735	1,140	924	1,410
District 2 total	8,039	10,553	8,826	6,135	8,676	8,069	6,881	1,104	616	1,185	3,161	5,023	4,148	8,258	4,473	3,571	5,013
Holy Cross	3,165	2,902	2,509	1,745	3,098	2,231	576	204	0	68	557	836	562	1,483	221	616	732
Russian Miss	1,851	1,301	2,949	978	924	1,550	1,711	236	16	365	321	1,368	1,043	1,561	375	776	934
Shageluk	358	448	397	201	277	353	75	4	32	14	23	92	198	262	90	96	133
District 3 total	5,374	4,651	5,855	2,924	4,299	4,134	2,362	444	48	447	901	2,296	1,803	3,306	686	1,487	1,798
Allak/Alat/Bet	37	53	74	100	63	45	8	6	9	35	46	35	49	134	173	21	87
Anvik	958	1,321	1,433	796	1,069	1,052	435	121	0	58	241	731	566	655	280	333	495
Galena	2,380	2,511	2,232	1,370	1,357	1,434	742	275	1	372	993	2,246	1,254	2,895	616	565	1,601
Grayling	1,702	1,500	1,761	1,133	2,122	1,374	1,081	226	3	22	370	751	911	1,446	264	541	748
Huslia/Huslia	266	154	316	1,070	128	131	165	68	51	38	94	462	150	871	167	91	349
Kaltag	2,833	1,456	2,403	1,970	3,191	2,488	1,346	348	10	119	1,358	2,048	570	1,225	494	862	1,139
Koyukuk	835	811	513	982	867	1,349	614	898	52	26	612	648	864	1,088	220	588	686
Nulato	2,707	2,431	1,250	1,551	2,989	1,538	1,955	602	0	33	1,957	2,269	1,282	2,396	1,103	826	1,801
Ruby/Kokrines	304	1,594	637	542	1,102	482	1,316	357	6	68	344	593	1,137	1,036	432	446	708
District 4 total	12,022	11,831	10,619	9,514	12,888	9,893	7,662	2,901	132	771	6,015	9,783	6,783	11,746	3,749	4,272	7,615
Beaver	830	1,244	546	516	198	356	71	107	0	69	165	609	328	1,413	297	121	562
Circle/Central	824	1,391	567	539	414	363	346	178	0	185	260	714	575	694	133	214	475
Eagle	2,303	1,999	1,068	446	867	728	167	175	76	395	864	1,730	1,007	790	280	308	934
Ft Yuk/BirchCr	3,318	4,189	2,023	861	1,756	2,521	2,141	1,561	93	480	1,225	4,302	4,547	4,563	735	1,359	3,074
Ram/Stevens	1,674	860	889	933	731	616	520	274	0	1	228	155	178	446	409	282	283
Tanana	3,794	5,498	3,981	2,950	3,215	2,936	2,100	1,200	88	141	2,129	2,962	5,253	3,408	4,510	1,293	3,652
Venetie/Chalk	667	1,002	292	622	767	10	86	311	17	308	586	670	443	678	5	146	476
District 5 total	15,924	19,165	11,626	8,917	10,397	10,493	6,466	4,541	288	1,849	7,081	12,002	12,331	11,992	6,369	4,727	9,955
Manley	361	333	106	345	337	287	174	165	92	121	230	103	190	94	33	168	130
Minto	31	82	12	0	43	61	99	60	0	23	35	101	0	31		49	42
Nenana/Healy	712	893	335	473	660	681	296	87	139	263	464	493	323	404	258	293	388
District 6 total	1,229	1,717	605	1,285	1,143	1,367	627	367	283	440	816	697	513	529	291	617	569
<b>Grand Total</b>	<b>47,710</b>	<b>53,976</b>	<b>43,694</b>	<b>32,900</b>	<b>43,259</b>	<b>40,211</b>	<b>28,311</b>	<b>10,991</b>	<b>2,723</b>	<b>6,611</b>	<b>20,726</b>	<b>34,381</b>	<b>28,847</b>	<b>42,871</b>	<b>19,248</b>	<b>17,769</b>	<b>29,215</b>

**Table 11.** Summer Chum Salmon: Estimated harvest for subsistence by communities with a customary and traditional use determination 2006–2020, 2011–2015 average, and 2016–2020 average, based on postseason survey, returned permits, and test fishery projects (Source: ADF&G 2022c; 2019 and 2020 preliminary data).

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2011-2015 ave	2016-2020 ave
Alakanuk	7,790	7,611	6,881	5,152	7,722	7,447	9,012	7,520	9,120	4,469	6,527	5,035	5,632	6,276	3,749	7,514	5,444
Emmonak	11,899	9,256	9,646	9,038	10,918	12,468	15,829	8,209	7,143	9,973	8,976	6,937	7,094	8,404	5,609	10,724	7,404
Kotlik	5,289	5,017	4,291	7,528	4,265	6,598	8,552	10,136	5,621	4,960	8,925	8,776	7,007	6,994	4,762	7,173	7,293
Nunam Iqua	2,903	2,325	1,949	2,280	2,267	2,077	1,977	2,651	2,010	2,239	2,130	1,759	1,549	1,105	995	2,191	1,508
District 1 total	27,881	24,209	22,767	23,998	25,172	28,590	35,370	28,516	23,894	21,641	26,558	22,507	21,282	22,779	15,115	27,602	21,648
Marshall	4,392	3,070	3,023	2,172	2,395	3,810	5,903	3,986	6,189	4,351	5,180	5,300	3,311	2,703	2,253	4,848	3,749
Mt Village	13,119	8,104	7,559	7,204	7,071	9,355	9,031	11,861	7,059	6,063	8,782	7,593	5,347	4,342	3,382	8,674	5,889
Pilot Station	6,070	3,711	6,012	4,888	6,196	4,182	5,716	5,299	5,728	4,702	4,796	5,031	4,401	6,871	3,781	5,125	4,976
Pitkas Point	680	515	1,246	994	633	585	1,153	2,186	1,588	1,225	1,485	1,623	1,390	1,103	564	1,347	1,233
St. Mary's	7,394	8,107	6,451	5,831	7,443	6,760	10,763	9,167	5,570	8,216	7,379	5,147	4,586	7,349	3,025	8,095	5,497
District 2 total	31,655	23,507	24,291	21,089	23,738	24,692	32,566	32,499	26,134	24,557	27,622	24,694	19,035	22,368	13,005	28,090	21,345
Holy Cross	825	320	441	194	463	363	1,147	262	97	421	991	245	303	199	202	458	388
Russian Miss	1,328	759	2,400	849	528	1,225	2,508	3,967	3,181	2,626	1,798	2,645	2,245	1,483	528	2,701	1,740
Shageluk	1,381	977	130	103	350	1,145	5,035	463	470	80	275	870	506	673	157	1,439	496
District 3 total	3,534	2,056	2,971	1,146	1,341	2,733	8,690	4,692	3,748	3,127	3,064	3,760	3,054	2,355	887	4,598	2,624
Allak/Alat/Bet	5,280	3,462	3,295	5,093	2,887	2,500	3,957	2,456	1,280	2,513	3,015	2,872	4,820	472	1,432	2,541	2,522
Anvik	387	5,250	340	277	451	220	1,371	830	2,052	777	1,117	330	437	223	188	1,050	459
Galena	1,205	571	758	1,718	1,702	3,414	718	179	377	1,059	1,689	1,229	303	1,223	52	1,149	899
Grayling	644	641	660	1,429	1,612	838	2,616	618	1,617	509	878	738	792	879	75	1,240	672
Huslia/Huslia	4,376	4,456	5,321	4,277	2,227	4,120	7,734	4,070	3,214	4,609	4,764	9,540	3,726	3,915	1,819	4,749	4,753
Kaltag	159	109	916	50	102	163	186	67	954	216	467	193	25	180	188	317	211
Koyukuk	394	995	1,104	1,378	352	890	828	4,459	300	0	119	96	150	21	22	1,295	82
Nulato	838	356	468	133	416	246	254	401	158	6	1,001	1,414	248	157	16	213	567
Ruby/Kokrines	1,714	416	655	603	1,971	775	3,891	681	29	88	678	115	993	464	0	1,093	450
District 4 total	14,997	16,256	13,517	14,958	11,720	13,166	21,555	13,761	9,981	9,777	13,728	16,527	11,494	7,534	3,792	13,648	10,615
Beaver	117	41	27	22	22	393	27	12	0	0	23	102	8	27	0	86	32
Circle/Central	60	200	5	2	37	48	0	66	0	0	0	0	0	0	0	23	0
Eagle	974	15	14	0	25	2	0	50	0	0	0	0	0	0	0	10	0
Ft Yuk/BirchCr	2,165	2,365	230	275	722	1,297	0	225	19	0	12	101	0	12	0	308	25
Ram/Stevens	1,107	279	190	118	189	110	259	55	70	0	629	10	2	0	3	99	129
Tanana	5,474	5,229	2,877	4,665	1,856	4,381	4,333	9,565	2,612	3,162	3,685	3,086	5,892	530	1,633	4,811	2,965
Venetie/Chalk	475	107	50	143	133	0	0	0	16	0	0	0	114	0	5	3	24
District 5 total	11,830	8,881	3,537	5,298	3,555	7,709	4,892	11,417	3,108	3,745	4,990	5,033	6,493	569	1,641	6,174	3,745
Manley	89	140	144	367	102	142	58	45	182	9	32	16	70	3	7	87	26
Minto	460	82	9	1	8	27	64	258	24	0	4	234	0	0	0	75	60
Nenana/Healy	388	1,419	753	508	113	471	370	642	275	60	19	385	108	409	23	364	189
District 6 total	1,010	1,896	1,311	1,253	422	825	678	1,094	731	252	96	1,349	178	412	30	716	413
<b>Grand Total</b>	<b>115,078</b>	<b>92,926</b>	<b>86,514</b>	<b>80,539</b>	<b>88,373</b>	<b>96,020</b>	<b>126,992</b>	<b>115,114</b>	<b>86,900</b>	<b>83,567</b>	<b>87,902</b>	<b>87,875</b>	<b>76,926</b>	<b>56,017</b>	<b>34,470</b>	<b>101,719</b>	<b>68,638</b>

**Table 12.** Fall Chum Salmon: Estimated harvest for subsistence by communities with a customary and traditional use determination 2006–2020, 2011–2015 average, and 2016–2020 average, based on postseason survey, returned permits, and test fishery projects (Source: ADF&G 2022c; 2019 and 2020 preliminary data).

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2011-2015	2016-2020
Hooper Bay	26	64	329	41	116	267	1	91	137	79	105	139	158	210	636	115	250
Scammon Bay	84	170	57	117	70	48	10	58	115	119	657	422	367	605	417	70	494
CoastDist total	110	234	386	158	186	315	11	149	252	198	762	561	525	815	1,053	185	743
Alakanuk	857	1,348	423	116	860	881	449	328	593	1,067	743	426	520	352	166	664	441
Emmonak	2,056	2,360	1,670	1,589	1,718	1,540	5,890	2,165	2,465	3,244	2,501	2,739	2,213	1,868	1,593	3,061	2,183
Kotlik	487	530	671	171	481	962	1,073	1,087	886	1,356	1,217	1,370	759	1,929	149	1,073	1,085
Nunam Iqua	92	152	59	41	143	51	210	93	128	210	111	52	188	102	30	138	97
District 1 total	3,902	4,390	2,823	1,917	3,202	3,434	7,622	3,673	4,072	5,877	4,572	4,587	3,680	4,251	1,938	4,936	3,806
Marshall	410	789	748	190	56	562	184	853	1,100	1,731	1,106	536	415	644	28	886	546
Mt Village	2,398	1,073	926	926	133	800	685	2,174	1,484	1,398	1,210	1,617	875	1,185	270	1,308	1,031
Pilot Station	785	741	917	265	833	575	1,031	777	796	1,346	903	1,070	1,127	997	508	905	921
Pitkas Point	5	44	101	76	10	30	9	65	400	172	232	172	112	139	141	135	159
St. Mary's	417	825	830	106	387	611	1,423	1,009	2,037	1,611	1,088	780	475	844	224	1,338	682
District 2 total	4,015	3,472	3,522	1,563	1,419	2,578	3,332	4,878	5,817	6,258	4,539	4,175	3,004	3,809	1,171	4,573	3,340
Holy Cross	224	248	920	627	21	94	339	855	1,840	763	583	329	174	171	41	778	260
Russian Miss	251	530	578	205	104	11	282	804	365	449	235	671	349	469	0	382	345
Shageluk	5	147	323	105	1,200	249	16	105	252	176	179	304	183	114	0	160	156
District 3 total	480	925	1,821	937	1,325	354	637	1,764	2,457	1,388	997	1,304	706	754	41	1,320	760
Allak/Alat/Bet	393	946	1,345	572	521	92	526	707	525	588	551	1,495	362	1,299	0	488	741
Anvik	118	429	317	176	169	202	569	763	1,028	680	527	296	500	45	356	648	345
Galena	1,632	1,471	1,364	4,306	1,968	2,739	2,947	602	3,368	2,542	3,319	4,774	1,393	1,129	42	2,440	2,131
Grayling	691	317	1,012	490	202	1,152	804	471	1,451	1,184	499	272	774	45	73	1,012	333
Huslia/Huslia	553	272	191	374	403	247	1,911	1,257	927	1,226	954	552	659	420	38	1,114	525
Kaltag	823	910	620	200	658	196	2,830	583	2,828	1,255	680	149	66	103	0	1,538	200
Koyukuk	1,147	927	1,177	578	792	1,388	1,331	5,308	998	2,838	297	166	301	287	0	2,373	210
Nulato	751	1,345	729	552	1,049	652	2,729	2,995	3,839	2,248	2,681	1,748	882	662	0	2,493	1,195
Ruby/Kokrines	227	1,959	657	134	1,026	592	4,408	2,505	972	713	526	104	842	242	0	1,838	343
District 4 total	6,335	8,576	7,412	7,382	6,788	7,260	18,055	15,191	15,936	13,274	10,034	9,609	5,779	4,232	509	13,943	6,033
Beaver	0	354	13	120	37	122	174	21	323	76	228	0	142	17	0	143	77
Circle/Central	664	1,286	3,198	110	927	299	161	1,397	1,277	1,652	1,306	2,182	1,278	2,069	9	957	1,369
Eagle	16,801	18,676	15,269	10,941	15,008	17,455	18,731	18,871	17,450	17,185	15,765	19,126	16,807	16,738	0	17,938	13,687
Ft Yuk/BirchCr	5,178	8,264	14,252	2,829	6,006	7,188	12,659	16,453	8,025	6,257	7,728	3,696	3,105	7,153	0	10,116	4,336
Ram/Stevens	300	449	1,643	1,770	3,441	1,251	467	940	6,700	186	4,500	0	1,417	98	20	1,909	1,207
Tanana	23,167	21,596	17,478	19,595	14,984	21,728	20,465	31,546	14,131	19,627	21,261	21,957	17,451	12,039	696	21,499	14,681
Venetie/Chalk	735	934	1,563	2,418	2,989	1,938	457	5,589	1,663	2,594	5,883	10,390	2,544	2,792	0	2,448	4,322
District 5 total	52,158	53,731	57,258	38,083	44,334	51,885	54,350	76,098	51,197	50,260	58,831	60,438	45,532	40,906	725	56,758	41,286
Manley	3,374	3,419	2,490	4,126	2,696	2,333	2,164	1,539	2,579	1,697	414	809	2,365	2,457	172	2,062	1,243
Minto	242	155	28	0	70	1,500	2	593	472	140	40	18	0	11		541	17
Nenana/Healy	10,530	21,863	7,615	8,396	7,870	6,218	9,260	3,852	4,545	3,981	3,544	2,460	2,779	1,801	19	5,571	2,121
District 6 total	16,925	29,893	16,135	16,079	11,391	14,376	15,302	11,640	12,798	9,345	4,882	5,045	5,144	4,269	191	12,692	3,906
<b>Grand Total</b>	<b>83,925</b>	<b>101,221</b>	<b>89,357</b>	<b>66,119</b>	<b>68,645</b>	<b>80,202</b>	<b>99,309</b>	<b>113,393</b>	<b>92,529</b>	<b>86,600</b>	<b>84,617</b>	<b>85,719</b>	<b>64,494</b>	<b>59,036</b>	<b>5,628</b>	<b>94,407</b>	<b>59,899</b>

**Table 13.** Coho Salmon: Estimated harvest for subsistence by communities with a customary and traditional use determination 2006–2020, 2011–2015 average, and 2016–2020 average, based on postseason survey, returned permits, and test fishery projects (Source: ADF&G 2022c; 2019 and 2020 preliminary data).

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2011-2015 ave	2016-2020 ave
Alakanuk	101	857	157	194	449	431	252	167	443	581	183	201	330	380	111	375	241
Emmonak	450	1,032	717	401	362	472	2,660	517	613	852	717	723	264	379	446	1,023	506
Kotlik	234	284	313	181	238	201	420	457	573	438	273	102	184	1182	169	418	382
Nunam Iqua	392	92	24	71	73	23	18	83	153	229	58	20	188	21	21	101	62
District 1 total	1,177	2,265	1,211	847	1,122	1,127	3,350	1,224	1,782	2,100	1,231	1,046	966	1,962	747	1,917	1,190
Marshall	191	922	490	245	33	150	567	508	468	1,511	409	140	112	212	283	641	231
Mt Village	1,856	1,027	518	413	127	261	256	271	202	723	436	769	270	274	147	343	379
Pilot Station	225	263	268	203	189	145	329	136	568	305	136	91	122	147	180	297	135
Pitkas Point	16	38	130	45	116	37	53	41	123	72	22	40	54	0	13	65	26
St. Mary's	171	97	591	151	92	230	141	124	408	391	128	223	37	10	14	259	82
District 2 total	2,459	2,347	1,997	1,057	557	823	1,346	1,080	1,769	3,002	1,131	1,263	595	643	637	1,604	854
Holy Cross	16	213	38	120	0	0	237	0	103	246	134	0	23	63	12	117	46
Russian Miss	19	259	372	96	300	0	319	152	124	154	6	483	123	104	13	150	146
Shageluk	48	267	0	105	53	36	0	219	113	28	0	14	8	65	12	79	20
District 3 total	83	739	410	321	353	36	556	371	340	428	140	497	154	232	37	346	212
Allak/Alat/Bet	25	66	152	43	88	13	38	236	109	52	33	92	27	69	10	90	46
Anvik	0	807	40	137	28	19	214	97	197	46	184	11	15	55	35	115	60
Galena	137	425	558	2,353	549	1,013	276	170	718	654	201	136	216	120	31	566	141
Grayling	224	271	25	318	132	119	26	34	403	212	35	0	0	75	59	159	34
Huslia/Huslia	255	692	100	412	289	83	165	360	282	310	93	174	980	80	60	240	277
Kaltag	106	204	45	40	0	258	928	306	514	18	53	4	34	1	0	405	18
Koyukuk	330	189	84	198	254	137	62	3,267	50	416	1	6	24	38	0	786	14
Nulato	214	130	195	171	242	118	41	125	454	48	0	82	223	27	0	157	66
Ruby/Kokrines	11	168	291	314	148	312	1,806	345	335	185	226	24	26	32	0	597	62
District 4 total	1,302	2,952	1,490	3,986	1,730	2,072	3,556	4,940	3,062	1,941	826	529	1,545	497	195	3,114	718
Beaver	0	354	6	0	1	0	2	0	2	0	0	0	0	0	0	1	0
Circle/Central	22	0	0	13	164	0	5	150	0	0	38	0	0	0	0	31	8
Eagle	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0
Ft Yuk/BirchCr	35	567	1,618	2	244	1,040	4	7	201	2	1	4	0	4	0	251	2
Ram/Stevens	0	50	0	90	452	0	0	0	0	2	52	0	0	7	12	0	14
Tanana	3,619	2,369	1,511	2,373	2,314	312	3,060	1,135	1,788	2,434	639	874	1,343	82	114	1,746	610
Venetie/Chalk	24	0	0	0	426	34	0	6	38	24	30	16	0	12	0	20	12
District 5 total	3,779	3,366	3,203	2,498	3,604	1,389	3,092	1,298	2,030	2,462	861	1,007	1,396	105	126	2,054	699
Manley	1,671	1,126	1,901	2,308	1,832	1,482	1,374	447	1,177	1,263	323	750	0	381	330	1,149	357
Minto	14	155	0	0	0	0	0	266	37	270	0	0	0	0	0	115	0
Nenana/Healy	8,141	5,950	3,880	4,166	3,511	4,248	6,664	1,962	3,002	3,359	2,970	1,413	0	475	180	3,847	1,008
District 6 total	10,571	7,845	8,428	7,051	5,555	6,842	9,540	5,257	7,911	8,000	4,271	2,736	0	856	510	7,510	1,675
<b>Grand Total</b>	<b>19,371</b>	<b>19,514</b>	<b>16,739</b>	<b>15,760</b>	<b>12,921</b>	<b>12,289</b>	<b>21,440</b>	<b>14,170</b>	<b>16,894</b>	<b>17,933</b>	<b>8,460</b>	<b>7,513</b>	<b>5,527</b>	<b>4,295</b>	<b>2,252</b>	<b>16,545</b>	<b>5,609</b>

In this case, these Temporary Special Action Requests ask the Federal Subsistence Board to reduce the pool of Federally qualified subsistence users. The front end of the fishing season for Yukon Chinook and summer Chum Salmon is projected to be closed to all users, including both Federally qualified subsistence users and non-Federally qualified users and uses. When subsistence fishing opportunity is provided, the harvestable surplus of Chinook and summer and fall Chum Salmon may not be sufficient to provide for all those with a customary and traditional use determination. Application of ANILCA Section 804 criteria is required to establish priority among those with a customary and traditional use determination for Chinook and fall and summer Chum Salmon.

The following section addresses these criteria as they relate to rural residents with a customary and traditional use determination for Chinook and summer and fall Chum Salmon in the Yukon River drainage, which includes residents of over 60 communities, described in **Table 1**.

#### Criterion 1: Customary and Direct Dependence upon the Population as the Mainstay of Livelihood

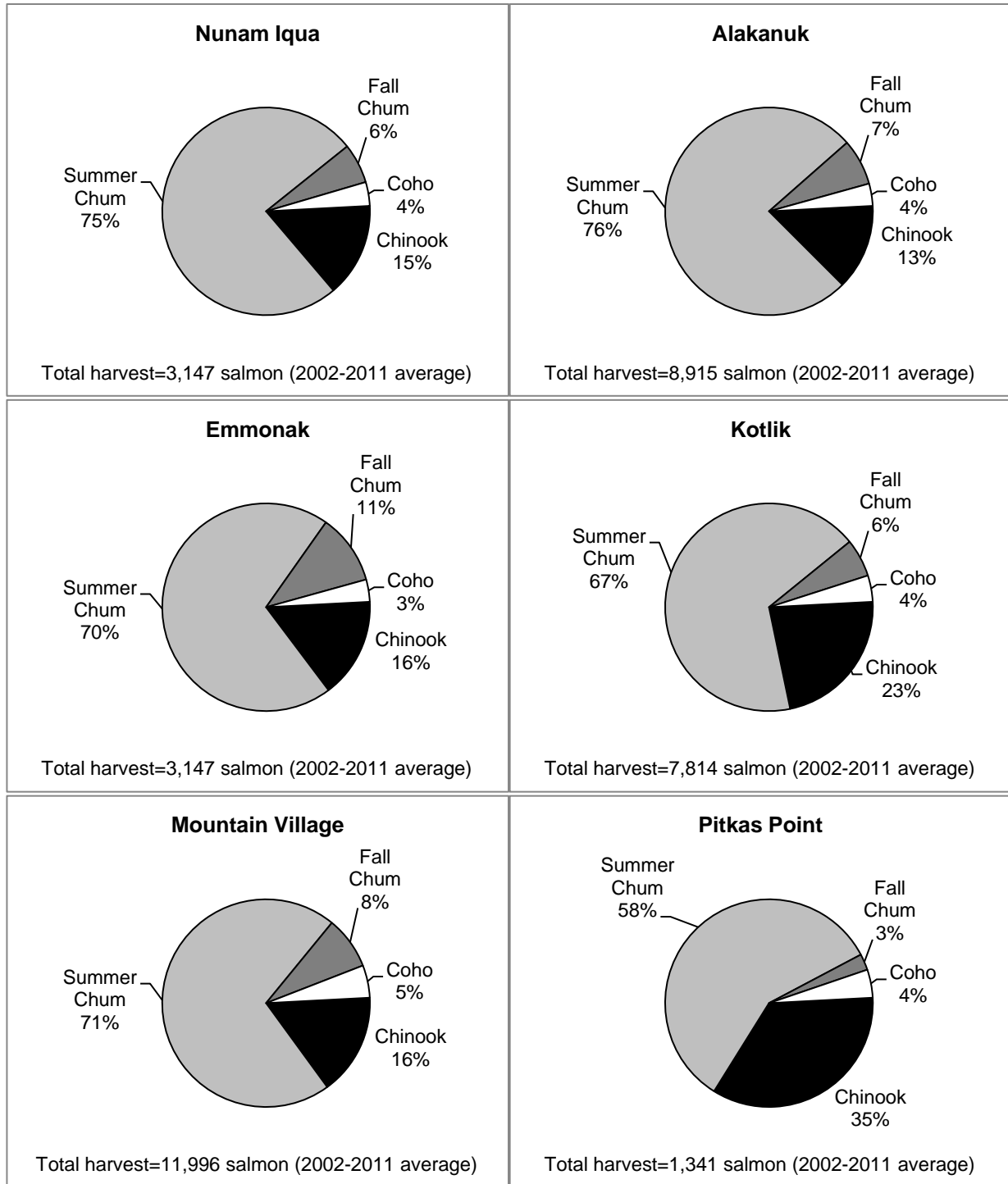
Primary sources of information include the ADF&G Salmon Community Harvest Survey (ADF&G 2022c) and the ADF&G Division of Subsistence Community Subsistence Information System (ADF&G 2022d).

Residents of most communities throughout the drainage have a demonstrated reliance on Yukon Chinook and summer and fall Chum Salmon as a mainstay of livelihood. Reports on the harvest of wild resources by communities demonstrate that salmon is a primary subsistence resource in most communities (ADF&G 2022d). In these communities, salmon was either the first or second largest resource harvested by edible weight when compared to nonsalmon fish, land mammals (moose, caribou), marine mammals (seals), birds and eggs, marine invertebrates (shellfish, crab), and vegetation (berries). High harvest efforts have persisted in these communities even though the harvest of salmon has been affected by substantially reduced fishing opportunity since 2011 (**Tables 11–13**). In 2012, a fishing schedule was implemented chronologically with the upriver migration of Chinook Salmon. Additional fishing closures on the first and second pulses of Chinook Salmon, gear restrictions, and low run sizes have combined to significantly reduce the harvest of salmon since then (Estensen et al. 2013).

People generally harvest salmon close to home. People living in the lower Yukon River drainage Districts 1 and 2 harvest more summer Chum Salmon than other species of salmon (**Figure 13**). Moving further upriver into Districts 3 and 4, Chinook Salmon harvests begin to become a more prominent proportion of total harvest in mainstem river communities, often exceeding harvests of Chum Salmon. Beginning in District 4 in the community of Kaltag and moving upriver on the mainstem, fall Chum Salmon are typically harvested in greater proportions than summer Chum Salmon (**Figure 14**).

In the Innoko and Koyukuk River drainages, summer Chum Salmon have the greatest relative abundance, especially in the Koyukuk River where large numbers of migrating summer Chum Salmon spawn. People living in these drainages, in the community of Shageluk in District 2 and in the communities of Huslia,

### Lower Yukon River Drainage Districts 1, 2, and 3



**Figure 13.** The percentage of each salmon species harvested by communities in the lower Yukon River drainage Districts 1, 2, and 3, based on annual average estimated harvests from 2002 through 2011 (ADF&G 2022c). *Continued on next page.*

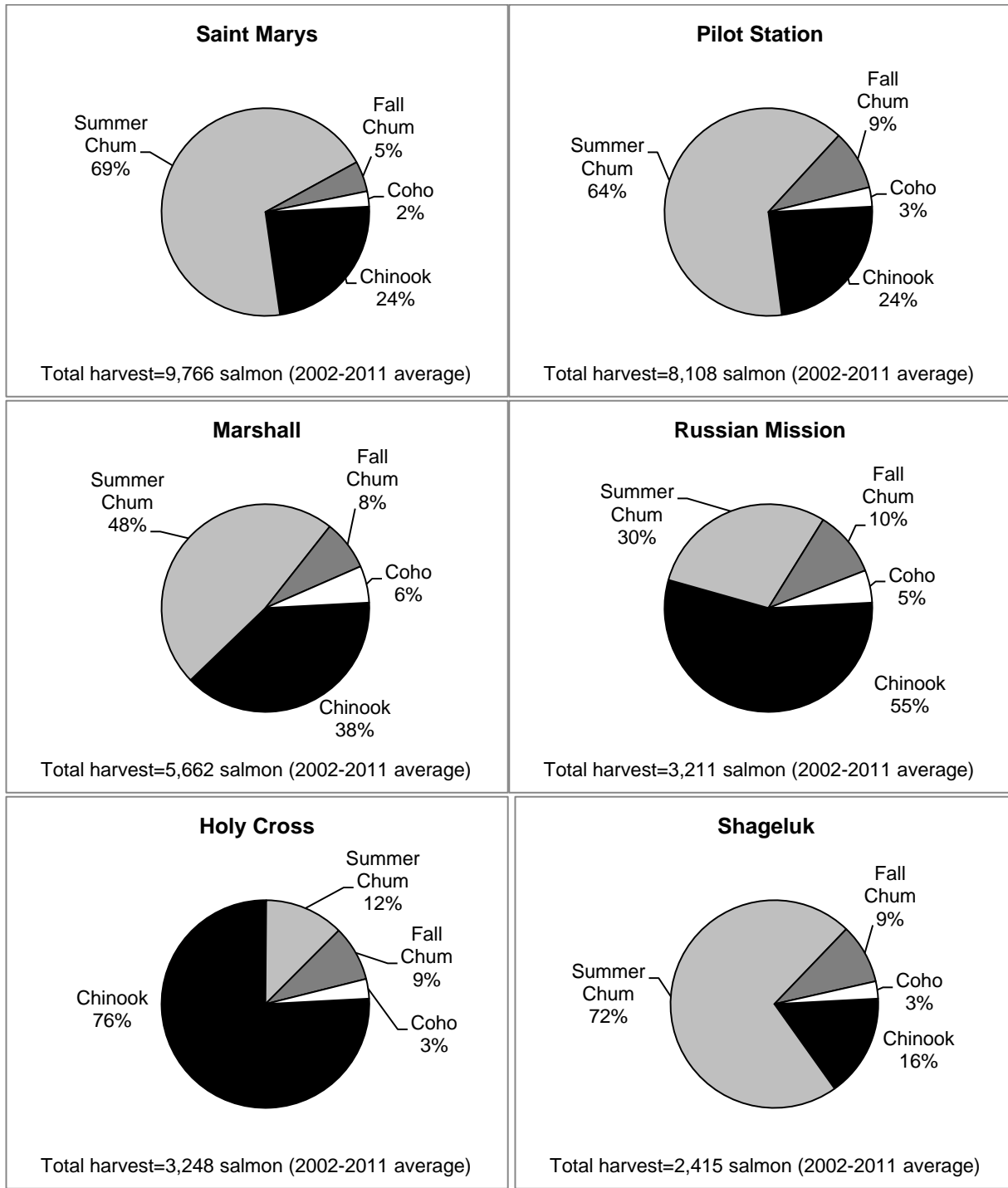
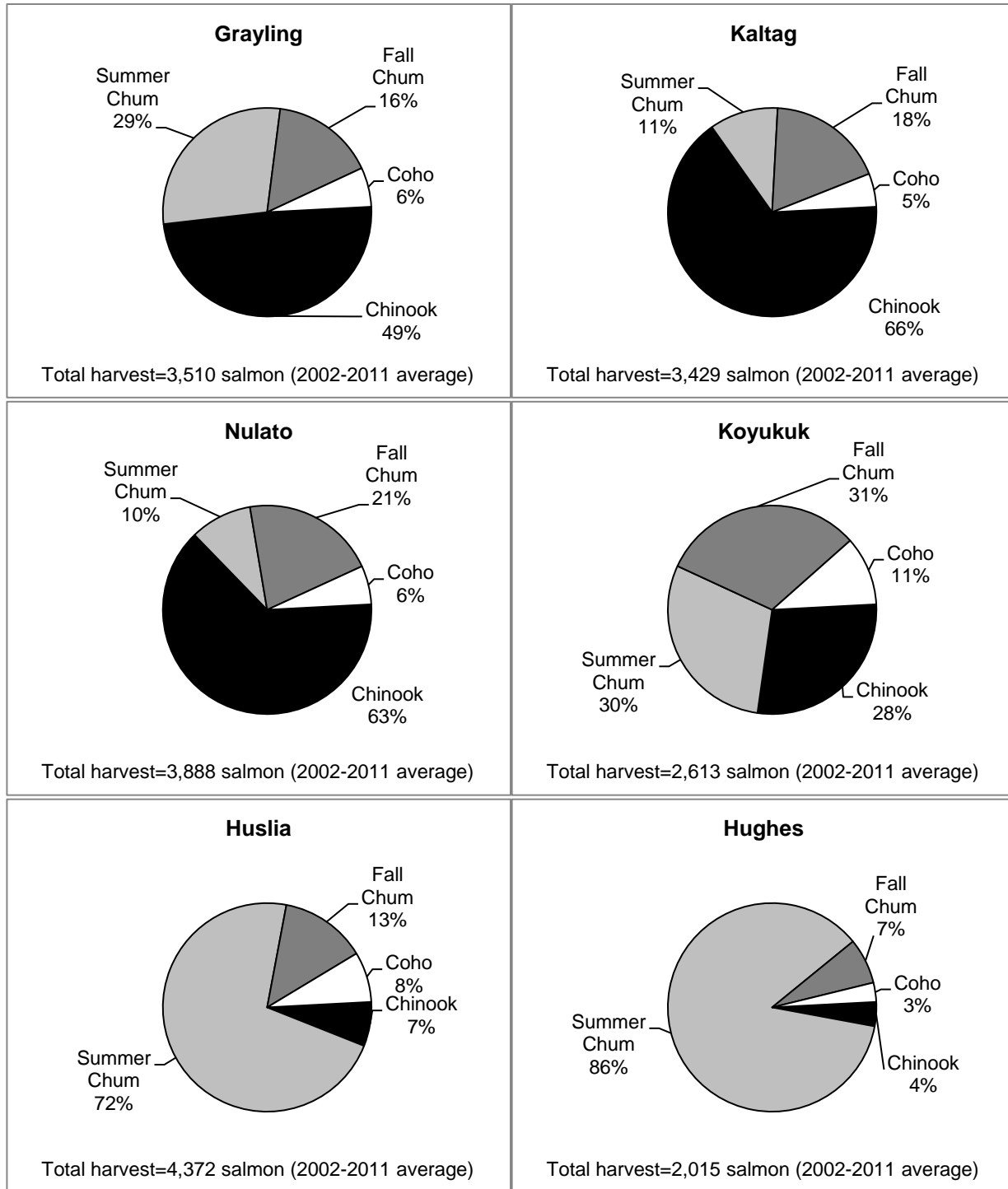


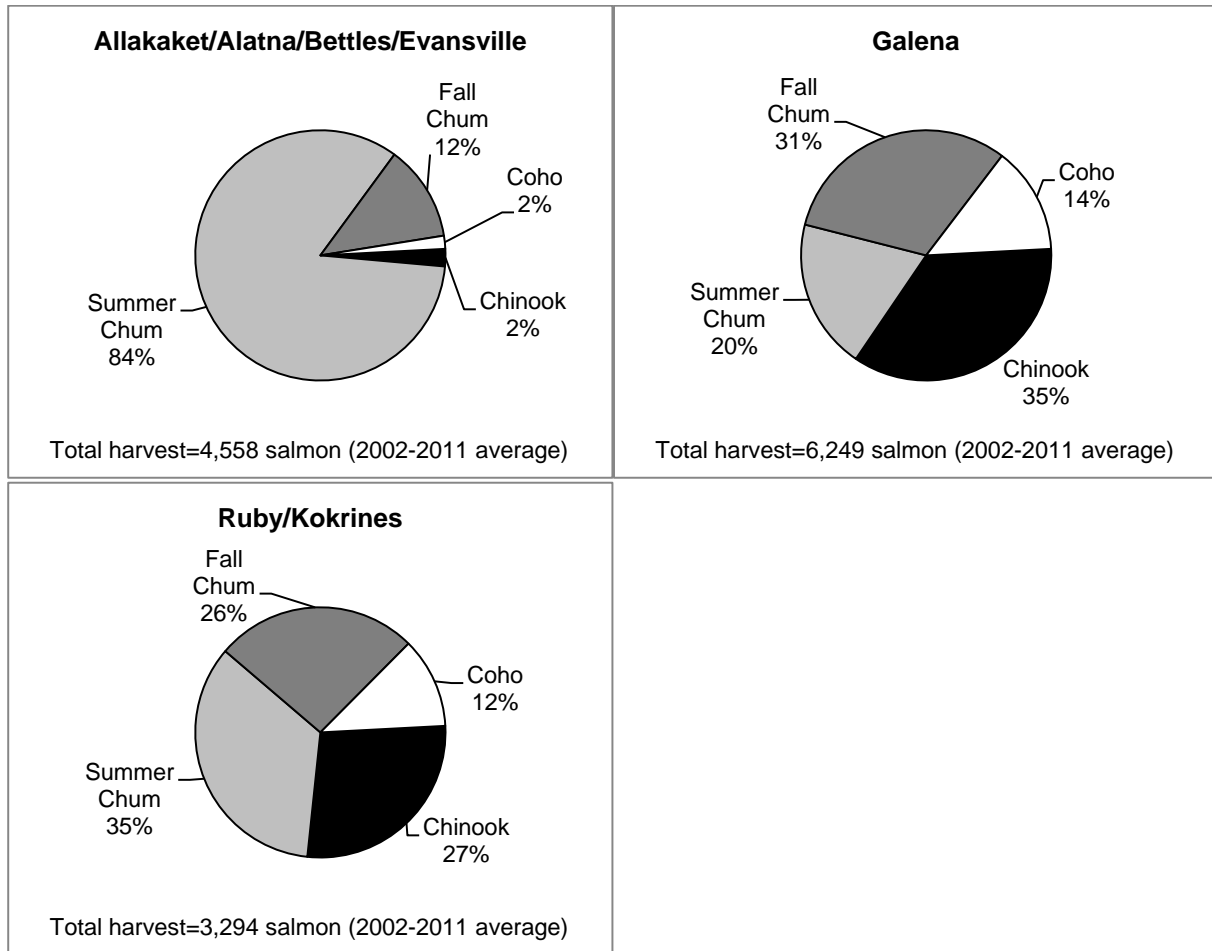
Figure 13. Continued from previous page.



### Middle Yukon River Drainage District 4



**Figure 14.** The percentage of each salmon species harvested by communities in the middle Yukon River drainage District 4, based on annual average estimated harvests from 2002 through 2011 (ADF&G 2022c). *Continued on next page.*



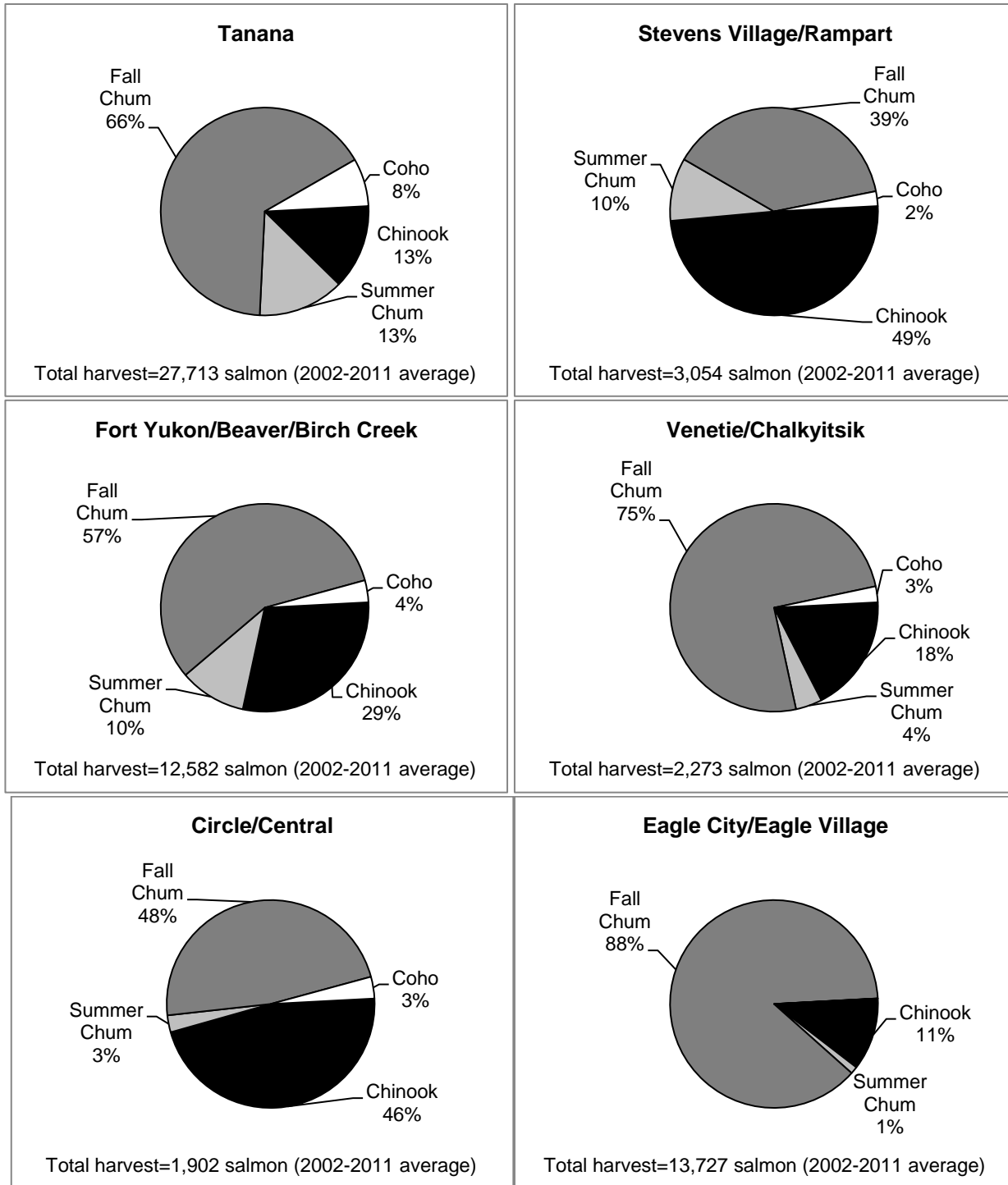
**Figure 14.** *Continued from previous page.*

Hughes, Alakaket, Alatna, Bettles, and Evansville in District 4, harvest more summer Chum Salmon than other species of salmon (**Figures 13 and 14**). Few salmon are observed in the upper reaches of the Koyukuk River where the communities of Wiseman and Coldfoot are situated. Community members there still depend on salmon for their diet and culture and harvest them when available (ADF&G 2022c, 2022d).

People living in the upper Yukon River drainage District 5 harvest more of the abundant fall Chum Salmon than other species of salmon (**Figure 15**).

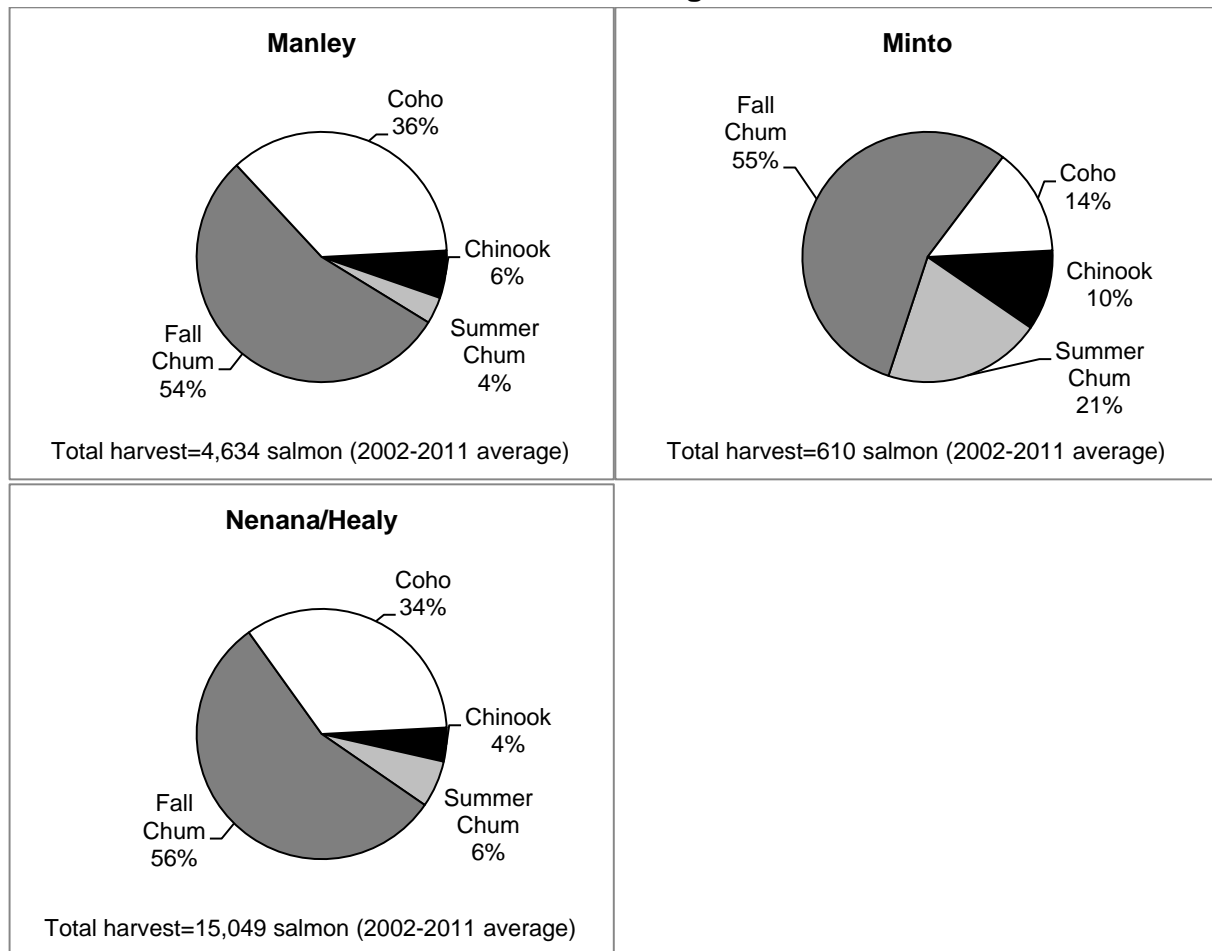
People living in the lower Tanana River drainage District 6 in the communities of Manley, Minto, and Nenana harvest more fall Chum Salmon than other species of salmon (**Figure 16**). The proportion of total harvest comprised of Coho Salmon is greater in these District 6 communities than in other communities situated in the Yukon River drainage. Fewer salmon migrate up the Tanana River drainage past the mouth of the Goodpaster River. Consequently, people living in the middle and upper reaches of the Tanana River drainage harvest more salmon from the Copper River than from the Tanana River (Marcotte 1992, Brown et al. 2016, Brown and Kostick 2017, Baker and Cold *in publication*).

## Upper Yukon River Drainage District 5



**Figure 15.** The percentage of each salmon species harvested by communities in the upper Yukon River drainage District 5, based on annual average estimated harvests from 2002 through 2011 (ADF&G 2022c).

## Tanana River Drainage District 6



**Figure 16.** The percentage of each species of Yukon salmon harvested by communities in the Tanana River drainage District 6, based on annual average estimated harvests from 2002 through 2011 (ADF&G 2022c).

People living in the coastal communities of Hooper Bay, Chevak, and Scammon Bay harvest salmon from marine waters, from inside the mouths of the Yukon River, as well as from the freshwater streams flowing into the Bering Sea. Scammon Bay and Stebbins residents travel to the mouth of the Yukon River to participate in salmon commercial and subsistence fisheries there (Wolfe 1981, 1982; Fienup-Riordan 1986; Crawford and Lingnau 2004; Ikuta et al. 2016; Braem et al. 2017). People living in Scammon Bay, Hooper Bay, and Chevak that harvest salmon locally may be harvesting salmon that are not bound for the Yukon River (Kerkvliet 1986 in Padilla et al. 2021)

Published subsistence studies of the communities that have a customary and traditional use determination for Chinook and summer and fall Chum Salmon in the Yukon River drainage include: Nelson 1973, 1983; Wolfe 1981, 1982; Caulfield 1983; Marcotte and Haynes 1985; Fienup-Riordan 1986; Marcotte 1986, 1990; Pete 1986; Sumida 1986; Wheeler 1987; Case and Halpin 1990; Moncrieff and Klein 2003;

Anderson et al. 2004; Gustafson 2004; Wolfe et al. 2007; Wolfe and Scott 2010; Fall et al. 2012; Holen et al. 2012; Brown et al. 2014; Mikow 2014; Retherford and Brown 2014; Trainor 2014; Brown et al. 2015; Brown et al. 2016; Ikuta et al. 2016; Wilson and Kostick 2016; Braem et al. 2017; Runfola et al. 2018; Brown and Jallen. 2019; McDavid and Cunningham 2020; Park et al. 2020; and Trainor et al. 2020.

### Criterion 2: Local Residency

Over 60 communities are situated in the Yukon River drainage (**Table 1**). The community of Stebbins is situated outside of the Yukon River Management Area and is situated along the coast of the Bering Sea 25 miles north of the boundary. The communities of Scammon Bay, Hooper Bay, and Chevak are situated south of the mouth of the Yukon River along the Bering Sea coast. Scammon Bay is 53 miles south of the mouth of the river and Hooper Bay is several miles further. Chevak, the furthest from the Yukon River, is 22 miles south from Scammon Bay.

### Criterion 3. Availability of Alternative Resources

These rural communities are subsistence-based communities. Residents depend on a variety of resources as part of a regular pattern of subsistence harvesting. Subsistence resources vary somewhat according to geographic location, but residents generally harvest fishes, , birds, caribou, moose, beavers, lynx, martens, otters, wolves, wolverines, foxes, and hares (ADF&G 2022d). Those in coastal communities also harvest seals and herring (ADF&G 2022d).

Most communities in the area are isolated and do not have access to the road system, commercial centers, healthcare, and other public services. In the upper and middle Tanana River drainage, larger communities that are situation on the Alaska road system, such as Fort Greely/Deltana area (population 2,668) and the Tok area (population 1,243), provide opportunities for employment, commerce, healthcare, and other services (ADF&G 2022d). Household members earn incomes by providing services and through employment in construction and the public sector. (ADF&G 2022d). Part-time employment is more common than full-time positions. Most other communities in the region are small and isolated without access to the road system and its services (ADCCED 2022; Table 1).

### Conclusion of ANILCA Section 804 Analysis

When considering the three criteria in ANILCA Section 804, these rural communities are all located within or near the Yukon River drainage, and all have access to alternative resources depending upon the location in the drainage. Additionally, the level of dependence by all these communities has been demonstrated to have been affected mainly by run strength of the different salmon species. None of these Federally qualified subsistence users should be eliminated from the pool of eligible users of Yukon Chinook and summer and fall Chum Salmon

## **Current Events**

### Summary of Public Hearings

The Office of Subsistence Management held a public hearing to solicit comments on Special Action Requests FSA22-01/02/03/04 on March 29, 2022, from 3:00 pm to 6:00 pm by teleconference. Four people gave comments on Special Action Requests FSA22-01/02/03/04. Other comments concerned the customary and traditional use determination for salmon for the coastal communities of Hooper Bay, Chevak, and Scammon Bay. Three comments were in opposition to these Special Action Requests and one comment supported them. One commenter in opposition said Federal and State co-management produced the best results, and another said our treaty with Canada stipulates that the State must be in management control of Yukon River fisheries. A commenter in support said relying on State management is not working, more tribal consultation is needed, creating change in a broken system is necessary to protect subsistence uses by future generations, and low salmon run sizes have impacted all communities in the drainage including those in Canada.

The Office of Subsistence Management held a second public hearing to solicit comments on Special Action Requests FSA22-01/02/03/04 on March 31, 2022, from 6 pm to 9 pm by teleconference. Sixteen people provided comments. Fourteen commenters opposed and one supported the Special Action Requests. One commenter did not state their support or opposition for the requests but asked if the bottom trawl fishery has been put on hold to see if that makes a difference. The individual who supported the requests did so because they would protect subsistence resources on the Yukon River. One commenter opposed the requests because they would pit users against each other, the current management system is not causing the declines, and the individual would not be able to fish because they moved away for medical reasons. Another commenter echoed these sentiments and added that the Federal Government should reduce bycatch of salmon. A commenter opposed the requests because they are not fair and their family lives outside of the drainage. One commenter opposed the requests because they already have nothing, it will hurt their families, and Native peoples share with and take care of each other. One commenter opposed the requests because they have lived on the river their entire lives and have seen regulations that were not good. The commenter added that we share our food with Elders. A commenter opposed the requests because we only take what we need, we are not causing the declines, and the requests are not backed by most communities or Tribal entities on the river. One commenter was worried that the requests would burden elderly subsistence users who rely on family that comes back to the area to help harvest fish. Another commenter was concerned about family that no longer lives in the area but still depends on fish in the winter. The commenter added that we help each other and these requests would cause hardship and animosity between Native peoples. One commenter did not think this is the proper action because subsistence users are not causing the declines and it would hurt those forced to leave the area due to economic reasons. Another commenter was opposed to the requests because people who left the area to work and feed their families need to be able to come back and feed their souls. The commenter added that we rely on the resource and should not reduce the pool of users. A commenter was opposed because False Pass and Area M fisheries are intercepting the fish and should be restricted, not Yukon fishers who are struggling with high costs and are just trying to feed their families. A commenter stated that the treaty needs to be upheld and these requests could harm the relationship with Canada. The

commenter was also concerned these actions would cause user confusion. Because there are no lines on the river delineating Federal waters, and subsistence users may get fined if they make a mistake. The final commenter was opposed to the requests because they go against rural traditions, label individuals, and create tension among users. They added that the actions will make the fishery exclusive to those residing in rural Alaska which will hurt people who have moved away for economic or educational opportunities or because of medical reasons; they should not be penalized for their current health or trying to gain employment or an education outside of the Yukon River drainage area.

#### Tribal and ANCSA Corporation Consultations

A summary of the Tribal and ANCSA Corporation consultations will be provided in a separate document.

#### **Other Alternatives Considered**

Recommending that the Board approve the requests as modified by the Yukon-Kuskokwim Delta Subsistence Regional Advisory Council to exclude the Black River drainage from the closure was considered and rejected. When the Council recommended this modification, Federal staff at the meeting did not understand that the requested closure would affect all freshwaters flowing into the Bering Sea from Point Romanof southward to the Naskonat Peninsula. Residents of the three coastal communities, with a customary and traditional use determination for fall Chum Salmon only, will be excluded from harvesting Chinook, summer Chum, and Coho Salmon from all these freshwaters of which the Black River drainage is only a small part.

#### **Effects of the Proposal**

If these Special Action Requests were approved, the Board would close Federal public waters of the Yukon River drainage to the harvest of Chinook and summer and fall Chum Salmon except by Federally qualified subsistence users from June 1 through September 30, 2022. State of Alaska sport, commercial, and subsistence fisheries that target Chinook and summer and fall Chum Salmon would not be allowed in Federal public waters during the Federal closure. Federal subsistence fishing schedules, openings, closures, and fishing methods would be determined by the Federal Fisheries Manager. The Federal Fisheries Manager would open a Federal subsistence fishery for Chinook Salmon, summer Chum Salmon, or fall Chum Salmon by emergency special action only if run sizes justify harvest. Any special actions being considered would be coordinated with the Chair or alternate of affected Regional Advisory Councils, local ADF&G managers, and other affected Federal conservation unit managers, per the delegation of authority letter. Only Federally qualified subsistence users who are permanent rural residents of the Yukon River drainage and Stebbins (and Scammon Bay, Chevak, and Hooper Bay for fall Chum Salmon) would be eligible to harvest salmon in Federal public waters. Residents of the Fairbanks North Star Borough are not rural residents and therefore are not eligible to harvest salmon under Federal regulations at any time.

If these Special Action Requests were not approved, the State and Federal Fisheries Managers would continue to work in partnership to manage the Yukon River drainage and would likely close the Yukon River drainage to the harvest of all salmon in early June based on preseason forecasts and other

management considerations. They would not likely allow directed Chinook and summer and fall Chum Salmon harvest during the 2022 season, unless returns exceed expectations.

## **OSM CONCLUSION**

**Support** FSA22-01/02/03/04 as **modified** by the Western Interior Alaska, Seward Peninsula, and Eastern Interior Alaska Subsistence Regional Advisory Councils to include Coho Salmon in the closure.

The modified regulation should read:

### **50 CFR 100.27(e)(3) Subsistence taking of fish—Yukon-Northern Area**

*(ii) For the Yukon River drainage, Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060 [Emergency Orders]), unless superseded by a Federal Special Action.*

*Federal public waters of the Yukon River drainage are closed to the harvest of Chinook, summer and fall Chum, and Coho Salmon except by Federal qualified subsistence users, effective on June 1, 2022, through September 30, 2022. Federal subsistence fishing schedules, openings, closures, and fishing methods will be determined by the Federal Fisheries Manager.*

## **Justification**

Unprecedented low run sizes were observed for salmon in the Yukon River drainage in 2021. The run size of Chinook Salmon was among the lowest on record and was below the recent 5- and 10-year averages. Record low run sizes were observed for both runs of Chum Salmon as well as Coho Salmon. The low run sizes were insufficient to allow sport, commercial, or subsistence fisheries throughout the entire season. The lack of Federal subsistence opportunity precluded subsistence uses from occurring and resulted in extreme hardships along the river. Even with the complete sport, commercial, and subsistence fisheries closures, escapement goals were not met. In addition, international treaty obligations (i.e., escapement goals for Canadian-origin Yukon River salmon) were not achieved for fall Chum Salmon and Chinook Salmon for the second and third consecutive years, respectively.

Based on preseason forecasts, it is likely that the 2022 Chinook and summer and fall Chum Salmon runs into the Yukon River will not provide a significant harvestable surplus, and the subsistence fisheries will be closed for part, if not all, of the season. The negative impacts that low run sizes and limited harvests have on food security and traditional ways of life for subsistence users justify a closure to the harvest of Chinook, Chum, and Coho Salmon by non-Federally qualified users and uses, based on ANILCA Section 815. This closure is necessary for the conservation of healthy populations of Yukon Chinook, summer and fall Chum Salmon, and Coho Salmon and to continue subsistence uses of these resources.

In addition, none of these residents of rural communities and areas should be eliminated from the pool of eligible users of Yukon salmon. When considering the three criteria in ANILCA Section 804, residents of these rural communities and areas are all located within or near the Yukon River drainage, and all have



access to alternative resources depending upon the location in the drainage. Further, the level of dependence by all these communities has been demonstrated to have been affected mainly by run strength of the different species. All should continue to be considered Federally qualified subsistence users of Yukon salmon.

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## SUBSISTENCE REGIONAL ADVISORY COUNCIL RECOMMENDATIONS

### Yukon-Kuskokwim Delta Subsistence Regional Advisory Council

**Support** FSA22-01, 02, and 03 with **modification** to allow the area of the Black River drainage (situated south of the mouth of the Yukon River) to remain open to the harvest of Chinook and summer and fall Chum Salmon by non-Federally qualified users. The Council discussed that the Yukon River has been experiencing low Chinook Salmon runs for the last twenty years and now the Chum Salmon runs have declined at an alarming rate. The Council supports continuing conservation efforts to help the Chinook and Chum Salmon stocks rebound. Everyone needs to be at the table to help conserve these fish. The Council stressed that people can't just keep fishing until the salmon are fished out. However, subsistence communities have been suffering for the lack of salmon so if there were enough salmon to allow some harvest then the Federally qualified subsistence users would have priority under Federal management. This special action request is just for the 2022 fishing season which would allow opportunity to evaluate the effects.

The Council is concerned that the coastal communities of Chevak, Scammon Bay, and Hooper Bay do not currently have a customary and traditional use determination for Yukon River Chinook and summer Chum Salmon. The Council understands that the Office of Subsistence Management will assist these communities in submitting a proposal to address this. In the meantime for 2022 under this Special Action request, the Council requests that the Black River area be omitted from Federal management so that these communities would not be excluded from this traditional salmon harvest area if there were to be a salmon fishing opportunity under Federal management. The Council took action on these special action requests before FSA22-04 was received.

The modified regulation should read:

#### **50 CFR 100.27(e)(3) Subsistence taking of fish—Yukon-Northern Area**

*(ii) For the Yukon River drainage, Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060 [Emergency Orders]), unless superseded by a Federal Special Action.*

*Federal public waters of the Yukon River drainage, except the Black River drainage, are closed to the harvest of Chinook and summer and fall Chum Salmon except by Federally qualified subsistence users identified in the Section 804 analysis, effective on June 1, 2022, through September 30, 2022. Federal subsistence fishing schedules, openings, closures, and fishing methods will be determined by the Federal Fisheries Manager.*

### Western Interior Alaska Subsistence Regional Advisory Council

**Support** FSA22-01 with **modification** to add Coho Salmon in the closure to the harvest of Chinook and summer and fall Chum Salmon by non-Federally qualified users. The Council took action on this special action requests before FSA22-02, 03, and 04 were received. Members have seen the benefits of Federal management on the Kuskokwim River, and something needs to be done to provide as much opportunity

for Federally qualified subsistence users. The Council discussed concerns about limiting family participation, when some family members, who might be residing in an urban center and are no longer Federally qualified subsistence users, come to assist rural users. It is unclear to the Council what level of assistance, if any, nonrural family members can provide.

The modified regulation should read:

**50 CFR 100.27(e)(3) Subsistence taking of fish—Yukon-Northern Area**

*(ii) For the Yukon River drainage, Federal subsistence fishing schedules, openings, closings, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060 [Emergency Orders]), unless superseded by a Federal Special Action.*

*Federal public waters of the Yukon River drainage are closed to the harvest of Chinook, summer and fall Chum, and Coho Salmon except by Federally qualified subsistence users identified in the Section 804 analysis, effective on June 1, 2022, through September 30, 2022. Federal subsistence fishing schedules, openings, closures, and fishing methods will be determined by the Federal Fisheries Manager.*

**Seward Peninsula Subsistence Regional Advisory Council**

**Support** FSA22-01, 02, 03, and 04 as **modified** by Yukon-Kuskokwim Delta and Western Interior Alaska Councils. The Council supported the requestors as well as the other Councils' modifications.

**Eastern Interior Alaska Subsistence Regional Advisory Council**

**Support** FSA22-01, 02, 03, and 04 as **modified** by Yukon-Kuskokwim Delta and Western Interior Alaska Councils. The Council supports this special action request due to on-going concerns about Yukon River salmon abundance. Low run sizes have resulted in fishing restrictions in recent years, and in 2021, a complete closure of the subsistence salmon fishery on the Yukon River. This has created extreme hardship for rural residents of the region to meet their subsistence needs. This special action request will help ensure a subsistence priority if there is a harvestable surplus for salmon. The Council also supports the effort of this special action request to bring attention to the current issues surrounding Yukon River salmon management and to try and bring about change.

The Council supports the modifications suggested by other Regional Advisory Councils to include Coho Salmon, since it is also an important subsistence salmon species, and to exclude the Black River because that drainage is used for subsistence salmon fishing by coastal community residents who do not yet have a customary and traditional use determination for Chinook and summer Chum Salmon.



## STATE OF ALASKA COMMENTS



THE STATE  
of ALASKA  
GOVERNOR MICHAEL J. DUNLEAVY

### Department of Fish and Game

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## MEMORANDUM

TO: Anthony Christianson, Chair  
Federal Subsistence Board

DATE: March 28, 2022

PHONE: (907) 267-2190

FROM: Ben Mulligan <sup>BJM</sup>  
Deputy Commissioner

SUBJECT: FSA22-01/02/03/04

The Alaska Department of Fish and Game (ADF&G) has reviewed Fisheries Special Actions (FSA) 22-01/02/03/04 and **OPPOSES** these proposals. FSA22-01/02/03/04 requests the federal government close those portions of the Yukon River flowing through or adjacent to federal land to the harvest of Chinook and chum salmon except by federally qualified users (FQU) and further reduce the pool of eligible harvesters based on an ANILCA 804 subsistence use prioritization analysis.

The Yukon River Salmon Agreement (Agreement), Chapter 8 under the Pacific Salmon Treaty, ratified in 2002 directs fisheries management between the U.S. and Canada for Yukon River transboundary salmon stocks. Each country designates a lead fishery management entity that is responsible for implementation of the Agreement in their respective countries. Under the Yukon River Salmon Act, ADF&G is designated as the Responsible Management Entity for the United States in management of Yukon River transboundary salmon stocks.

Yukon River salmon fisheries management is driven first and foremost by U.S. obligations to achieve annual border escapement and harvest sharing objectives for Canadian-origin stocks as defined under the Agreement. Although only a portion of total annual Yukon River Chinook and fall chum salmon runs are Canadian-origin, annual timing and abundance of these runs as they migrate through the Alaskan portion of the drainage fully overlaps and mixes with Alaskan-origin Yukon River Chinook, summer chum, pink, fall chum, and coho salmon runs. As a result, it is not possible to explicitly manage for Canadian-origin transboundary stocks. They must be managed simultaneously with overlapping Alaskan-origin stocks. As the responsible management entity for the U.S. (16 USC 5724), it is ADF&G's responsibility to manage Yukon River salmon fisheries to achieve annual Canadian border escapement and harvest sharing objectives for Canadian-origin stocks. Because of the overlapping and mixed nature of Alaskan-origin stocks, this authority and responsibility extends to management of overall Yukon River salmon stocks. If this special action request is approved, the United States Fish and Wildlife Service (USFWS) inseason managers would still need to seek approval for any management actions they recommend that would impact the obligations ADF&G has under the Pacific Salmon Treaty as the responsible management entity to manage for the objectives for Canadian-origin stocks.

As well as its obligations under the Pacific Salmon Treaty, the State of Alaska has a constitutional mandate to manage for sustainable salmon runs and provide for reasonable subsistence opportunity when there is a harvestable surplus. ADF&G is capable of conserving Chinook and chum salmon and providing for subsistence salmon fishing opportunities in the Yukon River. The Yukon River King Salmon Management Plan (5 AAC 05.360) includes regulatory closures during the first pulse of Chinook salmon when the preseason forecast indicates insufficient abundance to meet escapement goal objectives and subsistence harvest needs. If inseason run assessment information indicates sufficient abundance of Chinook, summer chum, or fall chum salmon to meet escapement objectives, subsistence salmon fishing opportunity would be provided on expected harvestable surpluses. Yukon River subsistence salmon fisheries would open based on schedules implemented chronologically consistent with migratory timing as the salmon runs progress upstream. Subsistence fishing periods may be altered if it is determined that preseason or inseason run assessment indicates it is necessary for conservation purposes. If the Chinook or chum salmon runs are projected to meet escapement goals within a district, subdistrict, or portion of a district or subdistrict, subsistence fishing may be opened. During times of Chinook or chum salmon conservation, fishing openings may have gear limitations including reduced gillnet mesh size and length and selective gear types such as live release fish wheels, dip nets, beach seines, and hook line. These gear types allow for a subsistence harvest of nonsalmon or pink, sockeye, and coho salmon while conserving Chinook and chum salmon.

#### **Background**

In the recent 5-year period, Chinook salmon runs as monitored at the Pilot Station sonar have been low compared to historic averages but were sufficient to meet some escapement goals on select tributaries and provide for limited harvest from 2017-2019. However, in 2020 and 2021, no Chinook salmon escapement goals were met. In addition, a forecast based on juvenile abundance models indicates run sizes will decline at least through 2022. The Chinook salmon runs on the Yukon River are typically dominated by age-5 and age-6 fish. The brood years producing these age classes in 2022 are 2016 (age-6) and 2017 (age-5). The Canadian-origin Yukon River Chinook salmon spawning escapement in 2016 of 68,798 fish and 2017 escapement of 68,315 fish were above the 1982–2014 average escapement of 47,000 fish. Unfortunately, the age-4 (725) and age-5 (1,493) estimated returns in 2021 were below the long-term average brood year return of 5,683 and 32,020 fish respectively and the age-4 return was the lowest on record.

Summer chum and fall chum salmon in the Yukon River have been productive in recent years prior to 2020, allowing for subsistence salmon fishing with few restrictions. However, starting in 2020, chum salmon stocks across Western Alaska and the North Pacific Ocean experienced unexpected declines. In 2020, age-4 chum salmon, a dominant age class of Yukon chum salmon, experienced dramatic failures across Arctic-Yukon-Kuskokwim watersheds. Fall chum salmon returned at a record low run size in 2020 in the Yukon River, leading to severe subsistence salmon closures and no commercial or personal use fishing. Summer chum salmon, although low in 2020, returned at a critically low run size in 2021. The fall chum salmon run size was lower in 2021 than 2020, resulting in a second consecutive year of record low fall chum salmon run abundance. Of note, the parent years contributing to the poor 2020 and 2021 Yukon River chum salmon returns achieved or exceeded escapement goals except for one tributary goal for fall chum salmon in 2015. With poor returns of Chinook, summer chum, and fall chum salmon in 2021, subsistence salmon fishing was closed for the duration of the season throughout the Yukon River. (Tables 1, 2, and 3)

Subsistence salmon harvests in 2020 and 2021 were low compared to prior years. In cooperation with the United States Fish and Wildlife Service (USFWS), ADF&G implemented severe fishing restrictions during the last two years due to extremely low run sizes of Chinook, summer chum, and fall chum salmon in the Yukon River. The resulting harvest of Chinook salmon during the last two years was attributed to incidental harvest while subsistence fishermen targeted nonsalmon or summer chum

salmon, and from the ADF&G test fisheries where they were made available to the public. During the last two years, fall chum salmon harvests can be attributed to subsistence salmon fishing periods in the lower Yukon River districts in 2020 prior to subsistence salmon closures in early August, incidental harvest of fall chum salmon while using nonsalmon gear, and the ADF&G test fisheries where they were made available to the public. In 2020, the summer chum salmon run size was large enough to provide subsistence salmon fishing opportunities with selective gear types for conservation purposes, while requiring the release of incidentally caught Chinook salmon with selective gear for conservation purposes. However, in 2021 subsistence salmon fishing for summer chum salmon was closed due to the poor run size, therefore subsistence harvest was attributed to incidental harvest while subsistence fishermen target nonsalmon and from the ADF&G test fisheries. (Table 4)

### **Discussion**

Setting aside the legal implications of a federal takeover of Yukon River salmon management, this federal special action is unnecessary given the poor outlooks for all three salmon species in 2022, described in detail below. It is anticipated, in agreement with USFWS Yukon River fishery managers, that subsistence salmon fishing will be closed to begin the season in 2022. Similar to 2021, managers will likely provide harvest opportunity for nonsalmon and other salmon species through nonsalmon gear and selective gear for conservation. Some incidental harvest of Chinook, summer chum, and fall chum salmon is anticipated with legal nonsalmon gear. Coho, sockeye, and pink salmon may have a harvestable surplus to provide subsistence fishing opportunities in 2022. It is critical to subsistence fishermen during years of low salmon runs of certain species to implement these conservation measures on the weak runs while allowing subsistence harvest opportunity on nonsalmon and other salmon species with adequate run sizes.

ADF&G and USFWS fishery managers have cooperatively managed the Chinook, summer chum, and fall chum salmon runs in the Yukon River by focusing on the common mandate to manage salmon fishing to meet escapement goals. Both entities work to prioritize subsistence fishing above other uses, as mandated by our respective laws and regulations. Prior to the fishing season, ADF&G and USFWS fishery managers meet with fishermen to discuss preferred preseason management options based on the outlooks and recent performance of the salmon runs. These meetings are crucial to gain public trust along the entire Yukon River and understanding of complex salmon management. Once the salmon season begins management meetings often occur daily.

If this federal special action is implemented in the 2022 fishing season, there are anticipated negative impacts to subsistence fishermen in the Yukon River. The last federal special action on the Yukon River occurred in 2009 during a low run of Chinook salmon and only FQUs were able to participate in the Chinook salmon fishery. During this action, managers heard frustrations from fishermen, particularly elders, due to the exclusion of family or friends living in non-rural areas from assisting with fishing activities in rural areas. Subsistence fishing along the Yukon River is often a group effort with multiple generations working together to accomplish fishing tasks. It also excluded stand-alone urban families that previously lived in a rural-qualified area from participating in salmon fishing in federal waters, creating a loss of traditional and cultural subsistence salmon fishing activities. If approved, this 2022 federal special action will likely lead to similar issues from the previous special action, causing divisions among fishing groups and users in 55 Yukon River communities, and unnecessary management complexity in an already sustainably managed and equitable subsistence salmon fishery. This action may also cause an increase in unnecessary enforcement actions on subsistence fishermen due to confusion by the public.

The Board of Fisheries has determined that 45,500–66,704 Chinook salmon, 83,500-142,192 summer chum salmon, and 89,500-167,900 fall chum salmon are reasonably necessary for subsistence uses. This is known as an “amount reasonably necessary for subsistence” (ANS) and is one way to determine if the

regulations are providing a normally diligent fisherman a reasonable opportunity to harvest salmon for subsistence uses.

If implemented, the proposed special action will prevent non-federally qualified users (NFQU) from fishing for Chinook and chum salmon in federal waters of the Yukon River. This includes preventing subsistence users from outside those areas as well as relatives of Yukon Area residents who do not currently live in those portions of the Yukon Area from “taking” fish; they cannot pursue, trap, net, capture, collect, or kill fish. Throughout the Yukon Area, the Yukon River, and tributaries flow through discontinuous areas of federal waters, including wildlife refuges, national parks and preserves, recreational and conservation areas, and wild and scenic rivers (Figure 1). Some communities are located within federal waters, while a neighboring community may be in state waters. Only users prioritized under the ANILCA Section 804 analysis will be allowed to take fish in the subsistence fishery within federal waters.

Regulatory changes have improved the ability to conservatively manage the Yukon River Chinook and chum salmon subsistence fisheries. Major regulatory changes to conserve salmon or provide fishing opportunity while protecting a salmon species include implementing selective gear while requiring the immediate release of a salmon species; reduction of maximum mesh size for salmon fishing; first pulse protection during low Chinook salmon run sizes. In 2016, ADF&G developed a drainage-wide escapement goal for summer chum salmon to improve the sustainable use of salmon among user groups. ADF&G and USFWS have consistently implemented these measures to subsistence, personal use, and commercial salmon fisheries in the Yukon River. While the USFWS do not actively manage the Yukon River personal use and commercial fisheries, managers have collaborated to conservatively manage salmon for all uses in the Yukon River. These efforts have led to a unified movement to conserve salmon, while prioritizing subsistence fishing opportunity.

An official Yukon Panel Joint Technical Committee (JTC) forecast has not been released and is unavailable at this time. Preliminary expectations, however, are for a run size similar to or smaller than last year’s estimated run size of 130,000 fish based of the Juvenile forecast alone. The preliminary Canadian-origin based juvenile 2022 season forecast for Chinook salmon is 42,000 fish, with a range of 25,000-59,000 fish and a drainage-wide forecast of 131,000, with a range of 87,000-174,000 which is comparable to the 2021 run size. There is no drainage-wide escapement goal, but the projected run size is well below average, and the point estimates of the Canadian origin forecast is below the lower end of the Canadian-origin escapement goal range of 42,500 to 55,000. Escapement goals, including the border passage goal for Canadian-origin Chinook salmon were not met in 2021.

The preliminary 2022 outlook for summer chum salmon is for a run size of 330,000 fish, with a range of 162,000–542,000 fish. Fishing will remain closed if the projected run size is less than the drainage-wide escapement goal of 500,000–1.2 million fish, as required by the Yukon River Summer Chum Salmon Management Plan. While this projection is larger than last year’s record low run of 160,000 fish, it is still likely to be below the drainage-wide escapement goal. The summer chum salmon run will be monitored inseason. Subsistence fisheries with selective gear may be opened for nonsalmon or salmon. Nonsalmon subsistence fishing gear will remain open.

The preliminary 2022 season outlook of 110,000 fall chum salmon, with a range of 78,100 to 148,000 fish, is expected to be similar to last year’s record low salmon run of 95,000 fall chum salmon and well below the long-term average (1998–2021) of 877,750 fish. If the run materializes as expected similar to 2021, even at the upper end of the outlook, escapement goals and treaty objectives are not expected to be met and all salmon fishing will remain closed in accordance with the Yukon River Fall Chum Salmon Management Plan. ADF&G will reevaluate the fall chum salmon forecast in mid-July to determine a preseason projection based on the historic relationship of the summer chum salmon run sizes. Salmon

fishing will remain closed if the preseason projection is less than the escapement goals or treaty objectives. The fall chum salmon run will continue to be monitored to determine an inseason projection based on assessment projects.

Cc: Sam Rabung, Director, Commercial Fisheries  
 Dave Rutz, Director, Sport Fish  
 Lisa Olson, Operations Manager, Subsistence  
 Aaron Peterson, Assistant Attorney General, Department of Law

Table 1. Total run size of Yukon River drainage salmon.

Year	Chinook	Summer chum	Fall chum
2017	278,166	3,649,578	2,288,000
2018	177,679	2,124,653	1,113,000
2019	248,855	1,768,333	802,000
2020	178,000	781,000	184,000
2021	129,166	159,929	95,000

Table 2. Yukon Salmon Treaty Interim management escapement goals of Yukon River drainage salmon.

Year	Chinook <sup>a</sup>	Fall chum <sup>b</sup>	Fall chum <sup>c</sup>
2017	71,815	404,989	48,524
2018	57,264	157,083	10,151
2019	44,816	102,497	18,171
2020	33,330	23,512	4,795
2021	31,758	23,170	2,413

Note: Tributary escapement goals are not included in this table.

<sup>a</sup> Yukon River mainstem 42,500-55,000 fish, plus total allowable catch

<sup>b</sup> Yukon River mainstem 70,000-104,000 fish, plus total allowable catch

<sup>c</sup> Fishing Branch River 22,000-49,000 fish

Table 3. Drainage-wide spawning escapement of Yukon River drainage salmon.

Year	Chinook	Summer chum <sup>a</sup>	Fall chum <sup>b</sup>
2017	235,637	3,003,182	1,706,000
2018	142,418	1,469,290	654,300
2019	194,018	1,477,381	528,000
2020	152,677	724,261	178,400
2021	126,942	158,676	94,500

Note: Tributary escapement goals are not included in this table.

<sup>a</sup> Drainage-wide biological escapement goal 500,000-1,200,000 fish

<sup>b</sup> Drainage-wide sustainable escapement goal 300,000-600,000 fish

Table 4. Subsistence harvest of Yukon River drainage salmon.

Year	Chinook	Summer chum	Fall chum
2017	38,036	87,437	85,093
2018	31,812	76,926	64,494
2019	48,379	63,303	63,862
2020	22,668	42,597	6,207
2021	1,945	1,253	703

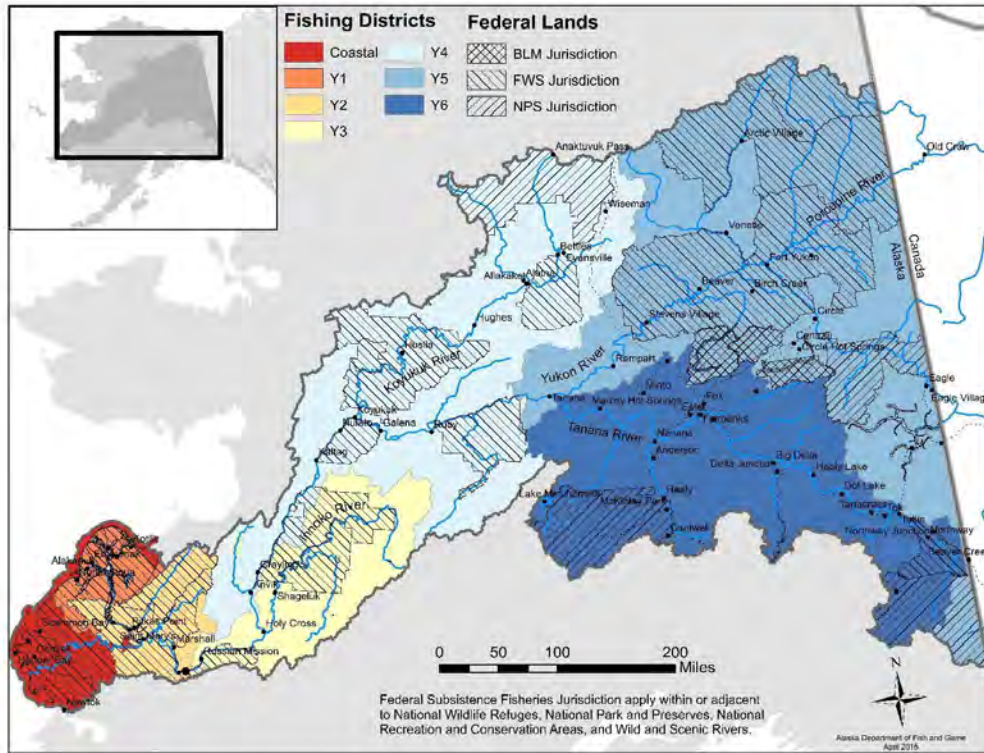


Figure 1. Map of federal and state land jurisdiction in the Yukon River drainage.