

Fishery Data Series No. 24-01

**Subsistence and Personal Use Salmon Harvests in the
Alaska Portion of the Yukon River Drainage, 2020**

by

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and

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March 2024

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, χ^2 , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient (multiple)	R
milliliter	mL	west	W	correlation coefficient (simple)	r
millimeter	mm	copyright	©	covariance	cov
		corporate suffixes:		degree (angular)	$^\circ$
Weights and measures (English)		Company	Co.	degrees of freedom	df
cubic feet per second	ft ³ /s	Corporation	Corp.	expected value	E
foot	ft	Incorporated	Inc.	greater than	>
gallon	gal	Limited	Ltd.	greater than or equal to	\geq
inch	in	District of Columbia	D.C.	harvest per unit effort	HPUE
mile	mi	et alii (and others)	et al.	less than	<
nautical mile	nmi	et cetera (and so forth)	etc.	less than or equal to	\leq
ounce	oz	exempli gratia (for example)	e.g.	logarithm (natural)	ln
pound	lb	Federal Information Code	FIC	logarithm (base 10)	log
quart	qt	id est (that is)	i.e.	logarithm (specify base)	log ₂ , etc.
yard	yd	latitude or longitude	lat or long	minute (angular)	'
		monetary symbols (U.S.)	\$, ¢	not significant	NS
Time and temperature		months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	H_0
day	d	registered trademark	®	percent	%
degrees Celsius	°C	trademark	™	probability	P
degrees Fahrenheit	°F	United States (adjective)	U.S.	probability of a type I error (rejection of the null hypothesis when true)	α
degrees kelvin	K	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	β
hour	h	U.S.C.	United States Code	second (angular)	"
minute	min	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
second	s			standard error	SE
				variance	
Physics and chemistry				population sample	Var var
all atomic symbols					
alternating current	AC				
ampere	A				
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

FISHERY DATA SERIES NO. 24-01

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ALASKA PORTION OF THE YUKON RIVER DRAINAGE, 2020**

by

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ABSTRACT

This annual report contains estimates of subsistence and personal use salmon and nonsalmon fish harvests within the Alaska portion of the Yukon River drainage for the 2020 season. Most Yukon Area communities have no regulatory requirements to report their subsistence salmon harvest. Harvest information was collected through voluntary postseason telephone interviews, follow-up telephone interviews, postal questionnaires, and harvest calendars. Due to the COVID-19 pandemic, surveys were not conducted in person and all households were attempted to be surveyed. In 2020, a total of 1,302 households were surveyed in 33 communities. Data from surveyed households were expanded to estimate the total harvest including that of unsurveyed households. In road accessible portions of the Yukon Area, fishery participants were required to document their harvest on a subsistence or personal use permit. In 2020, 808 subsistence and personal use permits were issued, of which 97% were returned. Of these returned permits, 370 reported fishing. The total subsistence and personal use harvest throughout the Yukon Area was estimated to be 21,826 Chinook (*Oncorhynchus tshawytscha*), 41,808 summer chum (*O. keta*), 5,765 fall chum (*O. keta*), 2,409 coho (*O. kisutch*), and 5,390 pink (*O. gorbuscha*) salmon. The primary fishing gear types used were set gillnets (53%), drift gillnets (39%), dip nets and other gear types (5%), and fish wheels (3%). Most salmon were harvested for human consumption; however, an estimated 7,013 whole salmon were fed to dogs.

Keywords: Chinook *Oncorhynchus tshawytscha*, chum *O. keta*, coho *O. kisutch*, and pink *O. gorbuscha* salmon, northern pike *Esox lucius*, inconnu *Stenodus leucichthys*, sheefish, whitefish *Coregonus* spp., harvest, personal use, subsistence, Tanana River, Yukon River

INTRODUCTION

The Yukon River is the largest river in Alaska and the fifth largest drainage in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska, and flows over 3,190 km (1,980 mi) through Yukon Territory, Canada, and Alaska, United States, before emptying into the Bering Sea at the Yukon–Kuskokwim Delta. The Division of Commercial Fisheries of the Alaska Department of Fish and Game (ADF&G) is responsible for the management of subsistence, personal use, and commercial fisheries in the Yukon Area including all waters of the Yukon River drainage in Alaska and all coastal waters of Alaska from Point Romanof southward to the Naskonat Peninsula. Details about fisheries management in the Canadian portion of the Yukon River drainage can be found in annual Yukon River Panel Joint Technical Committee (JTC) reports (e.g., JTC 2023 and 2021).

Since 1961, the Alaska Department of Fish and Game (ADF&G) has collected subsistence salmon harvest information within the Alaska portion of the Yukon River drainage (Yukon Area 5 AAC 05.100). Annual subsistence harvest estimates provide a record of harvest over time that can be used to observe trends. Documentation of the subsistence salmon harvest was used in conjunction with commercial, sport, and personal use harvests and escapement estimates (U.S. and Canada) to calculate annual total run size in the Yukon Area. Harvest and escapement information, combined with age composition data, was used to construct brood tables, which estimate productivity or the number of returning offspring per spawner for some stocks, and contribute to forecasts or preseason outlooks for fisheries management (JTC 2021).

The Yukon River drainage supports 5 species of Pacific salmon that contribute to subsistence and personal use harvest: Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), pink (*O. gorbuscha*), and sockeye (*O. nerka*) salmon. Most of the subsistence and personal use salmon harvests are made up of Chinook, chum, and coho salmon. The chum salmon return consists of 2 temporally and genetically distinct stocks: summer chum and fall chum salmon. Chinook and summer chum salmon enter the Yukon River first (peaking in June) followed by the fall chum (early August) and coho salmon (mid to late August). Pink salmon peak in mid-July and are much more abundant in even-numbered years and are typically only present and available for

harvest in the coastal, lower, and middle portion of the Yukon River up to the community of Anvik (river mile 315). Sockeye salmon are available in small numbers in the Yukon River with an average subsistence harvest of less than 400 fish per year (Jallen et al. 2017a).

Many nonsalmon fish species including resident and anadromous species are also present in the Yukon River. Some of those species important for subsistence use include whitefish (*Coregonus* spp. and *Prosopium cylindraceum*), inconnu (*Stenodus leucichthys*: commonly referred to as sheefish), burbot (*Lota lota*), northern pike (*Esox lucius*), Alaska blackfish (*Dallia pectoralis*), Arctic grayling (*Thymallus arcticus*), Arctic lamprey (*Lethenteron camtschaticum*), saffron cod (*Eleginus gracilis*: locally referred to as tomcod), and Pacific herring (*Clupea pallasii*).

The 2020 State of Alaska census indicated the population of rural Yukon Area was approximately 21,875 people. This included the Denali Borough, Southeast Fairbanks, Yukon-Koyukuk, and Kusilvak census areas. The average rural population in the Yukon Area has remained stable and the number of people in 2020 was nearly equal to the 2015–2019 average of approximately 22,365 people (Howell 2021).

Yukon Area families have long traditions of harvesting salmon for subsistence use. Subsistence salmon fishing activities in the Yukon Area typically begin in late May and continue through early October. Salmon fishing in May and October is highly dependent upon river ice conditions. Extended family groups, representing 2 or more households, often work together to harvest, cut, and preserve salmon for subsistence uses. Often fishing is based out of a fish camp or a home community within the drainage (Figure 1). Some households from Yukon River tributary communities, such as Shageluk and Venetie, may operate or share in the operation of fish camps along the mainstem Yukon River. Subsistence salmon harvested for human consumption are commonly dried, smoked, canned, or frozen, and salmon harvested for dogs are typically dried or “cribbed” (i.e., whole fish air-frozen and stacked).

Subsistence and personal use fishery participants in the Yukon Area have primarily used drift gillnets, set gillnets, and fish wheels to harvest salmon. Set gillnets have been used to harvest salmon throughout the Yukon Area, whereas drift gillnets have only been allowed from the mouth of the Yukon River to river mile 530 (near the community of Tanana). State regulations in place during the 2020 season (5 AAC 01.220 and 5 AAC 77.717) were based on traditional practices. Although fish wheels were a legal gear type for subsistence fishing throughout the drainage, they were used only in the upper portion of the Yukon River drainage where driftwood for construction was available, and river morphology and fishing locations were more suitable.

Subsistence and personal use harvest estimates were derived from a voluntary harvest survey and required fishing permit reporting. Approximately two-thirds of the Yukon Area is not connected to the main Alaska road system. In this roadless area, voluntary household surveys were conducted in each community to estimate the subsistence harvest. Subsistence or personal use fishing permits were required in the remaining road accessible portion of the Yukon Area, including parts of the Koyukuk, Tanana, and upper Yukon Rivers (Figure 1). Participants in permit areas were required to submit their harvest records annually.

Personal use fishing permits and a resident sport fish license were required to fish within the Fairbanks Nonsubsistence Area established in 1992 (Figure 2). Nonsubsistence areas were defined as areas where subsistence was not a principal characteristic of the economy, culture, and way of life (Alaska Statute 16.05.258(c)). Since 1995, personal use fishing has been open in nonsubsistence areas to all Alaska residents regardless of where they reside. The Fairbanks

Nonsubsistence Area personal use fishery has a limit of 750 Chinook and 5,000 chum salmon taken through August 15, and 5,200 chum and coho salmon combined taken after August 16.

Alaska state law dictates that subsistence is the highest priority use of salmon and is a primary consideration in fishery management actions. As such, commercial, personal use, and sport harvests have lower priorities than subsistence fishing. In some parts of the Yukon Area, commercial fishing occurs alongside subsistence fishing openings and many locals participate in both fisheries. Commercial fishery participants are required to have a valid limited entry commercial fishing permit, but any Alaska state resident may participate in subsistence salmon fisheries. Income from commercial fishing is often used by households to help buy items associated with subsistence harvesting activities, including fuel and fishing equipment (Moncrieff 2007). Salmon harvested during subsistence openings cannot be legally bought or sold; however, commercially harvested salmon may be retained for subsistence use.

Subsistence-caught salmon are primarily used for human consumption; however, salmon fed to dogs make up a sizable proportion of the total number of salmon harvested for subsistence (Holder and Hamner 1991; Borba and Hamner 2001; Jallen et al. 2017b). During the active fishing season households throughout the Yukon Area feed scraps from salmon processing to dogs. Harvesting whole salmon for primary consumption by sled dogs is most common in the Upper Yukon Area (Figure 1), where larger numbers of sled dogs are used for recreation and transportation. The practice of keeping sled dogs is less common in the Lower Yukon Area; thus, few whole salmon are fed to dogs in this area. Information collected about dogs throughout the history of the household survey project has not been categorized by whether dogs were used for transportation or were kept as pets. Andersen and Scott (2010) found salmon account for 25% to 92% of all fish species fed to sled dogs among 6 Yukon River communities. However, because Chinook salmon are highly prized for human consumption, the Alaska Board of Fish adopted a regulation in 2001 stating that only Chinook salmon under 16 inches in length or unfit for human consumption may be fed to dogs (5 AAC 01.240(d)). Most of the subsistence salmon used for dog food are summer chum salmon, which are dried, and fall chum and coho salmon, which are usually cribbed. The average number of salmon fed to dogs has declined since the late 1990s (Holder and Hamner 1991; Borba and Hamner 2001; Jallen et al. 2017b). Reasons for this decline included poor chum salmon runs from 1998 to 2002, a reduction in carcasses left over from roe fisheries (pre-2002), the rise in cost of equipment (boat, motor, nets, fuel) needed to harvest fish for dog food, and less reliance on dogs for transportation (Andersen and Scott 2010).

The 2020 subsistence salmon harvest survey and permit programs collected quantitative information on salmon harvest by species. The primary method of estimating Yukon Area subsistence harvest was the annual postseason salmon harvest survey. In addition to salmon harvests, other information collected included gear types used to harvest salmon, harvest distribution, nonsalmon species harvest, number of dogs, and number of salmon fed to dogs. Qualitative information about salmon health and quality, subsistence fishing success, and fishery concerns was collected from households. Changes to the survey project have been made over time, such as the refinement of gear questions: estimating gear and mesh size-specific harvest of Chinook and summer chum. This report documents the estimated subsistence and personal use salmon and nonsalmon fish harvests within the Alaska portion of the Yukon River drainage during the 2020 season.

STUDY AREA

The study area included the Yukon Area, which includes all waters of Alaska within the Yukon River drainage and all coastal waters of Alaska from Point Romanof southward to the Naskonat Peninsula (Figure 1). Postseason harvest interviews were conducted in 33 communities located off the road system. Harvests from the road accessible communities on the Yukon (portions of District 5), upper Subdistrict 4-A in the Koyukuk River drainage, and all communities along the Tanana River (District 6) were documented through required fishing permits and excluded from the household surveys. The Lower Yukon Area consists of coastal waters and the Yukon River drainage from its mouth upstream to Old Paradise Village (river mile 301) including management Districts 1–3. The Upper Yukon Area consists of the Yukon River drainage upstream of Old Paradise Village to the U.S./Canada border (river mile 1,224) including management Districts 4–6. The Upper Yukon Area also includes 3 large tributaries where harvests occur: Koyukuk, Tanana, and Porcupine Rivers. The Coastal District includes the remainder of coastal Yukon Area waters not included in District 1 and includes the communities of Scammon Bay and Hooper Bay (Figure 1). The harvest from Coastal District communities may contain fish that are not necessarily Yukon River bound (Kerkvliet 1986). The communities of Chevak and Arctic Village were not included in this harvest survey based on their distance from the Yukon River mainstem and their very low historic harvests of Yukon River bound salmon. In this report, Yukon Area includes Districts 1–6 and the Coastal District.

OBJECTIVES

The objectives of the study were as follows:

1. Estimate and record the number of salmon harvested for subsistence and personal use by community, district, and subdistrict in the Yukon Area.
2. Document gear types used in subsistence and personal use fisheries and estimate the percentage of Chinook and summer chum salmon harvested by gear types in surveyed communities.
3. Document and estimate the number of dogs and salmon fed to dogs within Yukon Area communities.
4. Estimate and record the number of nonsalmon fish species harvested for subsistence and personal use purposes by community, district, and subdistrict.

METHODS

Total number of salmon harvested in subsistence and personal use fisheries was estimated using information collected from household surveys, subsistence and personal use permits, test fisheries (fish given away locally by assessment projects), subsistence harvest calendars (Appendix C1), and fish retained from commercial fisheries documented on fish tickets. In surveyed communities, information was collected from surveyed households and expanded to estimate the harvest of the entire community. For communities in permit areas, harvest totals reported on returned permits were summed up but not expanded.

COVID-19 METHOD MODIFICATIONS

Due to the COVID-19 pandemic, there emerged a genuine concern regarding the transmission of the virus to communities. In preparation for the survey season, all 33 communities were proactively contacted to ascertain the specific COVID-19 measures implemented for the months of September and October. It was subsequently determined that the diverse range of measures, encompassing testing, public masking, and travel restrictions, coupled with the potential role of surveyors as carriers between communities, necessitated a transition to remote operations. Consequently, the decision was made for surveyors to abstain from conducting in-person surveys and instead administer interviews via phone, mail, and online platforms.

As a result, necessary adjustments were made to the survey methods to accommodate the anticipated low response rates for telephone interviews (e.g., unavailability, incorrect numbers, lack of response) and mail surveys (e.g., incorrect addresses, non-responsiveness). To enhance response rates, a comprehensive approach was adopted, involving the attempt to survey all households.

To broaden the options for data collection, streamline operations, and minimize the potential for data entry errors, the development of digital survey forms was undertaken. Utilizing ArcGIS Survey123, a complete digital version of the survey was created, serving as the primary tool employed by surveyors during phone interactions. In addition, an online survey platform was established to enable households to independently complete the survey. For households unreachable by phone, a physical mail survey was sent, accompanied by a letter containing a hyperlink to the online survey and a unique survey ID for authentication. Furthermore, to maximize the reach of the web survey, the hyperlink was shared on the ADF&G Facebook page, thereby promoting its accessibility. The content of both the web survey and mail survey was strictly identical and represented a succinct version of the questions asked during the complete phone survey.

HOUSEHOLD SUBSISTENCE SURVEYS

Participation in the survey interviews was voluntary, and household harvest information was kept confidential. Survey interviews were conducted in the Coastal District and Lower Yukon Area up through Grayling in September. In communities upstream of Grayling, survey interviews occurred in October (Figure 1). Communities were surveyed in order from downriver to upriver after most households finished harvesting salmon for subsistence. To maintain consistency in administration of the survey, household survey interviews were primarily conducted by the same 2 ADF&G technicians throughout the season.

Household lists were updated with the assistance of local community members to reflect persons who had moved, were deceased, moved into another household, or constituted a new household. Additional sources used to ensure household names, addresses, phone numbers, etc. were up to date included: cooperation with other agencies (U.S. Fish and Wildlife Service); other divisions (Division of Subsistence, ADF&G); the Alaska Dispatch News and the Fairbanks News-Miner; Tanana Chiefs Conference phone book; United Utilities, Inc.'s Yukon Kuskokwim Telephone Directory; Tribal and corporation websites; and school district websites. Households that lived outside of the survey areas but traveled to the Yukon River to fish in or near a surveyed community were included on the household list in the community nearest their fishing location. For example, a household that lived in Anchorage most of the year but traveled to Emmonak to fish in the

summer would be included on the Emmonak household list and their information would also be used to produce harvest estimates for that community. The household lists for each community were updated based on information collected the previous year.

Survey Design

The household harvest survey methodology was based on a stratified sample design (Cochran 1977). In this design, a household within the community was the primary sampling unit. A household consisted of 1 or more people living together in a dwelling and who shared the same phone number or mailing address. Multiple generations living in 1 dwelling were considered 1 household. Individuals living in detached but physically related structures were considered part of a household if they participated as a unit in harvesting, processing, or distributing resources and shared contact information.

Under the survey design, each household was stratified into 1 of 5 harvest groups based on average combined total harvest of Chinook, summer chum, fall chum, and coho salmon during the most recent 2 surveys conducted within the previous 5 years. Pink salmon and sockeye salmon harvest was not considered when assigning households to a harvest group. When 2 recent years of harvest data were unavailable, the household's harvest group designation remained the same as the previous year. If subsistence restrictions were in place during the previous 5 years, a household may have been unable to harvest as many salmon as usual. Restrictions were in place during at least part of the 2015–2019 fishing seasons. As a result, 2020 households may have been moved from a lower harvest group to a higher harvest group but were not downgraded to a lower harvest group based on 2015–2019 harvest data.

The harvest groups and survey coverages (i.e., percentages of households selected to be surveyed within the group):

1. Unknown: Unknown harvest level; survey coverage 100%.
2. Do not fish: Households that do not harvest salmon; survey coverage 100%.
3. Light harvester: Harvest of 1–100 total salmon; survey coverage 100%.
4. Medium harvester: Harvest of 101–500 total salmon; survey coverage 100%.
5. Heavy harvester: Harvest of more than 500 total salmon; survey coverage 100%.

Pre-COVID sampling included the same 5 harvest groups; however, the survey coverages for do not fish and light harvester were different (Padilla et al. 2021)

The household stratification was updated prior to the survey and was not re-stratified during or after the survey, except for the unknown harvest group. New households (e.g., moved into the community, formation of households due to marriage, or independence) that were discovered prior to or during the survey were classified as unknown.

Survey Questionnaire

To maintain comparability of data between years, the subsistence survey questions have generally remained consistent from year to year (Appendices B2 and B3). In 2020, the survey was entered digitally using Survey123.

The total number of salmon harvested was determined by asking households about their group harvests, the harvest area, and the salmon they kept. Beginning in 2020, households were not directly asked if salmon were retained from a commercial fishery. Instead, they were asked to confirm all harvests, including salmon retained from commercial, fish fed to dogs, shared with

other families, or lost. If a household reported a portion of their subsistence catch as “lost,” the surveyor verified that these fish were included in the total harvest. If the fish were used as dog food, they were allocated to questions related to dog food, even if the original intention was different. Households were asked their primary gear (i.e., caught the most fish) and if they used a secondary gear type. If a household harvested Chinook or summer chum salmon, they were asked what gear types and mesh size were used to harvest each species (Appendix B3).

To determine the distribution of salmon within a community and cross-reference responses from related households, the survey included questions about group harvests and shared harvests. The survey also asked households about the number of salmon received from commercial, subsistence, or agency test fishery harvests to validate the accuracy of harvest reports between recipients and donors. Salmon received from agency test fishery projects were recorded to indicate that they were received but not harvested in the subsistence fishery.

Additional demographic and clarifying questions were asked, including the number of people in the household, number of dogs, as well as the harvest of nonsalmon species throughout the previous 12 months. For example, households reported Arctic lamprey harvested during October–December of 2019, or sheefish harvested in May 2020, during the survey interviews in September 2020. Reports of amounts of fish harvested in response to the herring question were entered as herring; however, this category included misidentified species such as rainbow smelt (*Osmerus mordax*) or capelin (*Mallotus villosus*). Only households in coastal and lower river communities were asked if they harvested herring roe on kelp. In 2020, due to the late subsistence fishing opportunities (Carroll 2020), households were asked if they still planned to fish for salmon. If the answer was yes, then surveyors made 3 attempts to contact households to determine if additional harvest occurred, and surveys were updated accordingly.

Survey Implementation

Household survey interviews were conducted in September and October when many salmon fishing activities had ended and they could still easily recall their harvest numbers. Surveyors attempted to contact all households via phone. A minimum of 3 attempts were made to contact unavailable households, after which mail surveys were sent. Questions on the mail surveys were succinct versions of the household survey. Mail surveys contained questions related to household harvest, but not group harvest.

Before conducting the interviews, surveyors were trained in interviewing techniques, which included learning the local names of fish species and various approaches to obtain the number of fish harvested. The surveyors were also briefed on current fishery issues and management actions related to the subsistence and commercial salmon fishing season. Surveyors were trained to ask questions consistently and foster a cooperative atmosphere such that interviewed household members were able to recall information as accurately as possible.

Community residents were employed by the Yukon River Drainage Fisheries Association to assist with reviewing and updating the household list and community information documents. When assistants were unavailable, surveyors worked with other sources of local information such as tribal administrators or school principals to gain contact information for household members.

After the interviews were conducted, digital survey data were edited for clarity and completion. When amounts were reported in alternative terms, such as the number of 5-gallon buckets, quart sized bags, gunny sacks, or pounds, a conversion sheet based on local approximate measures was

used to estimate the number of fish harvested. Follow-up calls were occasionally made for further clarification or to reconcile information among households that harvested or shared salmon with each other.

DATA ANALYSIS AND ESTIMATION METHODS

Denote that:

- i = individual household,
- j = harvest group ($j = 1 \dots 5$),
- k = community,
- l = harvest location,
- m = harvest gear, and
- a = specific attributes.

Survey responses were denoted by:

- y_{ijkl} = the number of fish (e.g., Chinook, chum, coho, pink, whitefish, sheefish, northern pike) harvested by sampled household (i) in harvest group (j) of community (k), at location (l);
- y_{ijkm} = the number of Chinook or summer chum salmon harvested by sampled household (i) in harvest group (j) of community (k) with fishing gear (m);
- y_{ijk} = response of sampled household (i) in harvest group (j) of community (k);
- n_{jk} = the number of sampled households in harvest group (j) of community (k);
- $n_{kj(a)}$ = the number of sampled households having a specific attribute (a) in harvest group (j) of community (k);
- N_{jk} = the total number of households in harvest group (j) of community (k); and
- N_k = the total number of households in surveyed community (k).

Estimates of Population and Harvests

The following equations were used to estimate populations (the number of people and dogs), harvests (the number of fish harvested by subsistence fisheries), and uses of salmon harvested (kept for household use, given away, or fed to dogs). In this method, total numbers for each community (Y_k) were estimated by expanding mean responses (\bar{y}_{jk}) (e.g., the number of people or harvest) of sampled households at each harvest group with total number of households in each harvest group (N_{jk}), and summing across the harvest groups as:

$$\hat{Y}_k = \sum_{j=1}^5 N_{jk} \bar{y}_{jk} \quad \text{where} \quad \bar{y}_{jk} = \frac{\sum_i y_{ijk}}{n_{jk}} \quad (1)$$

A 95% confidence interval (95%CI) for the population and harvest were calculated as:

$$95\%CI_k = t_{(0.025, df=n_k-1)} \cdot \sqrt{\hat{V}(\hat{Y}_k)} ,$$

$$\text{where } \hat{V}(\hat{Y}_k) = \sum_{j=1}^5 N_{jk}^2 V(\bar{y}_{jk}) \quad \text{and} \quad V(\bar{y}_{jk}) = \left(\frac{N_{jk} - n_{jk}}{n_{jk}} \right) \frac{\sum_j (y_{ijk} - \bar{y}_{jk})^2}{n_{jk}(n_{jk} - 1)} . \quad (2)$$

When responses of a harvest group(s) were not collected (e.g., no households were surveyed or all surveyed households declined to answer), response of the harvest group(s) of a community (\bar{y}_{jk}) was treated as missing. In this case, response of the missing harvest group was assumed to be an average of the rest of the harvest groups, so that the total response of the community (\hat{Y}_k) was calculated as:

$$\hat{Y}_k = \frac{N_k}{\sum_{j=1} N_{jk}} \sum_{j=1} N_{jk} \bar{y}_{jk} . \quad (3)$$

A 95% confidence interval (95%CI_k) for the total response of the community was calculated as:

$$95\%CI_k = t_{(0.025, df=n_k-1)} \cdot \sqrt{\hat{V}(\hat{Y}_k)} \quad \text{where} \quad \hat{V}(\hat{Y}_k) = \left(\frac{N_k}{\sum_{j=1} N_{jk}} \right)^2 \sum_{j=1} N_{jk}^2 V_{jk}(\bar{y}_{jk}) . \quad (4)$$

Because estimates of the responses in each community were independent and mutually exclusive, the estimate of survey wide total (\hat{Y}) was calculated as:

$$\hat{Y} = \sum_{k=1}^5 \hat{Y}_k . \quad (5)$$

A 95% confidence interval (95%CI) for the survey wide total was calculated as:

$$95\%CI = t_{(0.025, df=n-1)} \cdot \sqrt{\hat{V}(\hat{Y})} \quad \text{where} \quad \hat{V}(\hat{Y}) = \sum_{k=1} \hat{V}(\hat{Y}_k) . \quad (6)$$

Harvest estimates by harvest group were not presented for reasons of confidentiality.

Estimates of the Number of Households with a Specific Attribute

Equations 7 and 8 were used to estimate the number of households with the following specific attributes (*a*): subsistence fished, owned dogs, or fed whole salmon to their dogs. In this method, the number of households in a community with the above attribute ($\hat{N}_{k(a)}$) was estimated by expanding the proportion of sampled households having the above attribute $p_{jk(a)}$ with total number of households in each harvest group and summing across the harvest groups.

$$\hat{N}_{k(a)} = \sum_{j=1}^5 N_{jk} p_{jk(a)} \quad \text{where} \quad p_{jk(a)} = \frac{n_{jk(a)}}{n_{jk}} \quad (7)$$

A 95% confidence interval (95%CI_k) for the number of households with a specific attribute was calculated as:

$$95\%CI_k = t_{(0.025, df=n-1)} \cdot \sqrt{\hat{V}(\hat{N}_{k(a)})} \quad \text{where} \quad \hat{V}(\hat{N}_{k(a)}) = \sum_{j=1}^5 N_{jk}^2 V(p_{jk(a)}) \quad (8)$$

$$V(p_{jk(a)}) = \left(\frac{N_{jk} - n_{jk}}{N_{jk}} \right) \left(\frac{p_{jk(a)}(1 - p_{jk(a)})}{n_{jk} - 1} \right)$$

Correction for the missing harvest groups and total number of households with each characteristic in the survey wide ($\hat{N}_{(s)}$) and its 95% confidence interval (95%CI) were calculated using Equations 3, 4, 5, and 6.

Estimates of Primary Gear Type Usage by Community

Estimates of primary gear type usage were calculated using information from a subset of households that had the attribute subsistence fished (*s*). The number of households that used a specific primary gear (e.g., gillnet, fishwheel) for subsistence fishing was estimated by expanding the proportion of sampled households that used a specific gear type (*m*) for subsistence fishing $\hat{q}_{jkm(s)}$ with the proportion of households that subsistence fished $p_{jk(s)}$ by Equation 7 and total households in each harvest group and summing across the harvest groups,

$$\hat{N}_{km(s)} = \sum_j N_{jk} p_{jk(s)} q_{jkm(s)} \quad \text{where} \quad q_{jkm(s)} = \frac{n_{jkm(s)}}{n_{jk(s)}} \quad (9)$$

A 95% confidence interval (95%CI_k) for the number of households using a specific gear was estimated as:

$$95\%CI_k = t_{(0.025, df=n_k-1)} \cdot \sqrt{\hat{V}(\hat{N}_{km})} \quad (10)$$

$$\text{where} \quad \hat{V}(\hat{N}_{km(s)}) = \sum_{j=1}^5 N_{jk}^2 V(p_{jkm(s)})$$

Variance of proportion for households that subsistence fished was calculated following Goodman (1960):

$$V(p_{jkm(s)}) = (p_{jk(s)})^2 V(q_{jkm(s)}) + (q_{jkm(s)})^2 V(p_{jk(s)}) - V(q_{jkm(s)}) V(p_{jk(s)}) \quad (11)$$

$$\text{where} \quad V(q_{jkm(s)}) = \frac{q_{jkm(s)} \cdot (1 - q_{jkm(s)})}{n_{jk(s)} - 1}$$

Correction for the missing harvest groups and total number of households with each characteristic in the survey wide ($\hat{N}_{(s)}$) and its 95% confidence interval (95%CI) were calculated using Equations 3, 4, 5, and 6.

Estimates of Salmon Harvest by Gear Type or Location

The harvest of Chinook and summer chum salmon was further estimated by harvest gear or mesh size (e.g., 6-inch, 7.5-inch, fish wheel, etc.) and by fishing location (i.e., district, subdistricts, or river drainage where fish were caught). In these estimations l and m are interchangeable depending on which is being estimated. The number of salmon harvested at each community (\hat{Y}_{km}) was estimated by expanding the proportion of salmon harvested by sampled households (\hat{p}_{jkm}) with each gear type or location (m or l) within a harvest group (j) with mean harvest (\bar{y}_{jk}) estimated in Equation 1 and total number of households in each harvest group (N_{jk}), and summing across the harvest groups:

$$\hat{Y}_{km} = \sum_{j=1}^5 N_{jk} \bar{y}_{jkm} \quad (12)$$

where $\bar{y}_{jkm} = \bar{y}_{jk} p_{jkm}$, $p_{jkm} = \frac{\sum_i y_{ijkm}}{\sum_i \sum_m y_{ijkm}}$.

A 95% confidence interval (95%CI_k) for the gear or location-specific Chinook and summer chum salmon harvest was estimated as:

$$95\%CI_k = t_{(0.025, df=n_k-1)} \cdot \sqrt{\hat{V}(\hat{Y}_{km})} \quad (13)$$

where $\hat{V}(\hat{Y}_{km}) = \sum_{j=1}^5 N_{jk}^2 V(\bar{y}_{jkm})$.

Variance of mean harvest by gear type or location was calculated following Goodman (1960):

$$V(\bar{y}_{jkm}) = (\bar{y}_{jk})^2 V(p_{jkm}) + (p_{jkm})^2 V(\bar{y}_{jk}) - V(p_{jkm})V(\bar{y}_{jk}) \quad (14)$$

where $V(p_{jkm}) = \frac{p_{jkm} \cdot (1 - p_{jkm})}{\sum_i \sum_m y_{ijkm} - 1}$.

Correction for the missing harvest groups and total number of households with each characteristic in the surveywide (\hat{Y}_m) and its 95% confidence interval (95% CI) were calculated using Equations 3, 4, 5, and 6. Harvests by harvest group were not presented for reasons of confidentiality.

Unexpanded Totals

Reported harvests of Alaska blackfish, Arctic char, Arctic grayling, Arctic lamprey, burbot, Pacific herring, tomcod and saffron cod, and roe on kelp were not expanded because of limited harvest information and project design.

Confidentiality

Harvest from the communities Huslia and Hughes; Allakaket, Alatna and Bettles; Rampart and Stevens Village; Fort Yukon and Birch Creek; and Circle and Central were combined in part due to confidentiality of the smaller communities. Communities were grouped according to proximity

and similar fishing locations. Combined harvests and confidence intervals were calculated using the equations outlined in the *Data Analysis and Estimation Methods* section.

SUBSISTENCE HARVEST CALENDARS

Subsistence harvest calendars were sent to collect daily harvest information from the surveyed communities. Calendars were distributed to households in surveyed communities in the Yukon Area prior to the salmon fishing season. Additionally, calendars were sent to previously identified households outside of surveyed communities who engaged in subsistence fishing outside of permit areas. These calendars aimed to improve the accuracy of harvest reports and provide information on harvest timing.

In May 2020, calendars were mailed to households, excluding those categorized as *do not fish*. Before surveying communities, fliers were distributed to post offices, stores, schools, or city offices as reminders to have their harvest calendars ready during the household surveys. Households that returned a properly completed 2020 harvest calendar by January 1, 2021, had the opportunity to win 1 of 12 \$50 prizes. This process aimed to collect comprehensive harvest information from the surveyed communities.

PERMIT PROGRAM

Subsistence and personal use permits were issued at the ADF&G offices in Fairbanks, Delta Junction, and Tok. Permit applications were mailed with a postage paid return envelope to everyone that returned their permits from the previous year. Beginning in 2018, permits were available online through the ADF&G website.

Permit holders were required to record their daily fish harvest on the permit (Appendix B4) and return the permit to ADF&G (online or in person) within 10 days of the expiration date (i.e., October 15 for salmon, and December 31 for nonsalmon permits and Kantishna River salmon permits). Harvests on permits were summed but not expanded and attempts were made to get a return rate greater than 95%. A variety of methods were employed to encourage fishing permit returns by providing permit due date reminders, including advisory and radio announcements. Households that did not report their harvest by the expiration date were mailed up to 2 reminder letters. Further, households that did not respond to the reminder letters were contacted by telephone or email. After permits were received, follow-up phone calls were made as needed to clarify harvest, gear types, and locations of harvest by species.

Households that fished in more than 1 permit area were only counted once to produce the total number of fishing households. In addition, the total number of salmon fishing households excluded all households that received permits to harvest northern pike in the Tolovana River unless salmon were also harvested. The community of Stevens Village had traditionally been surveyed but is also near the Yukon River Bridge permit area. As such, Stevens Village was surveyed as part of the annual household harvest survey area and the permit information was used to supplement data collected from the household harvest survey.

Beginning in 2018, with the development of online permits, the 2 separate permits for the upper portion of Subdistrict 5-D were combined and daily fishing location was recorded as above or below the Eagle sonar project (Figure 1). This distinction was necessary because harvest above the sonar must be subtracted from the sonar estimate to determine U.S./Canada border passage of Chinook and fall chum salmon (JTC 2021). Similarly, permits for the northern pike fishery in the

Tolovana River drainage required a fishing location requirement, to designate fishing inside or outside of the Chatanika Harvest Area (5 AAC 01.244.(b)(2)(G)).

RESULTS

OVERALL ESTIMATION OF HARVEST

An estimated 21,826 Chinook, 41,808 summer chum, 5,765 fall chum, 2,409 coho, and 5,390 pink salmon were harvested by 1,272 households in the Yukon Area (Table 1). These overall totals included subsistence fishery (i.e., survey estimates, subsistence permits, and donations from test fisheries) and personal use fishery harvests.

The subsistence fishery harvests accounted for 99.6% of the total harvest, with an estimated number of 76,903 salmon caught. This included 21,714 Chinook, 41,741 summer chum, 5,728 fall chum, 2,330 coho salmon, and 5,390 pink salmon (Table 1, Figure 3, and Appendices C1–C5).

Less than 1% of the total harvest was attributed to personal use fisheries. The estimated number of salmon harvested in personal use fisheries was 295 fish, including 112 Chinook, 67 summer chum, 37 fall chum, and 79 coho salmon (Table 2).

Chinook salmon accounted for 28.3% of the total subsistence and personal use salmon harvest (excluding minor harvests of sockeye salmon), and summer chum salmon accounted for 54.2%, fall chum 7.5%, coho 3.1%, and pink salmon 7.0% (Figure 3, Appendix A2).

OVERALL GEAR USAGE

The number of households that reported primary gear types used to harvest all salmon species consisted of 668 set gillnets (52%), 501 drift gillnets (39%), 65 other gears, including dip nets, beach seines, or hook and line (5%), and 39 fish wheels (3%; Table 3). Within the subset of only surveyed communities, an estimated 12,454 (70%) of subsistence-caught Chinook salmon were harvested by 6-inch gillnets; 3,286 (18%) by 7.5-inch gillnets; 1,116 (6%) by fish wheels; 600 (3%) by dip nets, beach seines, or other gear types; and 445 (3%) by 4-inch gillnets (Appendix A4; not including commercial and test fishery donations). Within the subset of surveyed communities, 31,282 (81%) of subsistence-caught summer chum salmon were caught by 6-inch gillnets, and 3,171 (8%) were harvested by dip nets, beach seines, or other gear types; 2,315 (6%) by 7.5-inch gillnets; and 1,784 (5%) by 4-inch gillnets (Appendix A5). Of the 133 subsistence permit households, 112 (84%) used set gillnets, 14 (11%) used fish wheels, and 7 (5%) households used other gears (e.g., dip net; Table 3). Of the 33 households with personal use permits, 29 used set gillnets, 3 used other gears, and 1 used a fish wheel as their primary gear. These data do not include 191 households that fished in the Tolovana River northern pike fishery which primarily used jigging gear in winter or 11 households that fished in more than 1 permit area.

SALMON HARVEST FOR DOG FOOD

An estimated total of 7,013 summer chum, fall chum, and coho salmon were utilized for dog food by subsistence and personal use households combined (Table 4, Appendix C6). The number of salmon fed to dogs represented an estimated 10% of salmon harvested for subsistence in the Yukon Area (not including pink or sockeye salmon). Subsistence households owned an estimated 4,184 dogs (Appendix C6), and approximately 156 households reported feeding 7,006 subsistence caught salmon to their dogs (Table 4). Personal use permit households owned 359 dogs and 20 households

reported feeding 7 personal use caught salmon to their dogs. Dog-related information is not required on Tolovana River area northern pike permits.

SUBSISTENCE SURVEYS

All 2,617 households identified within the 33 Yukon Area communities were selected to be surveyed (Table 5). Division of Commercial Fisheries staff surveyed all the 33 communities between September 5 and October 30, 2020. Of the households surveyed, 63 households (1.5%) traveled to the Yukon River to fish in or near surveyed communities but resided outside surveyed communities. In total, information was collected from 1,302 households (~50% of the total identified households in the survey area; Table 5).

Approximately 50% of all households were successfully surveyed in 2020. Of the heavy harvester households, 67% were surveyed, and 67% of the medium harvester households were successfully surveyed. Of the unknown households, 41% were surveyed. Of the light harvester households in the sample, 47% were surveyed. Of the selected households identified as do not fish, 44% were surveyed. A portion of do not fish households are surveyed each year to accurately represent all types of households in the sample and to maintain accuracy in the household database and strata (Appendix A6). Based on responses to the survey questions, an estimated 1,102 households (in the roadless area) participated in the subsistence fishery in 2020 (Table 5).

Harvest by Location

Households did not always harvest fish in the district where their community was located. Therefore, the estimated total from a community's district did not always equal the total from the harvest district (Table 6). Households make this choice to take advantage of harvest opportunities for different salmon stocks or legal gear types. The greatest number of Chinook salmon were harvested in District 4 (4,654, 26%; sum of harvests from Subdistricts 4-A, 4-B, and 4-C). Most summer chum (16,481, 42%), pink (3,070, 57%), and coho salmon (550, 44%) were harvested in District 1. Most fall chum salmon (1,290, 27%) were harvested in District 5 (sum of harvests from Subdistricts 5-A, 5-B, 5-C, and 5-D). The largest tributary harvests of all salmon species combined were from the Koyukuk (3,991 salmon) and Teedriinjik (91 salmon) Rivers. Harvests from Subdistricts 4-C and 5-A are thought to include primarily salmon oriented to the Tanana River (Buklis 1981; Spearman and Miller 1997), and those harvests were estimated to be 908 Chinook, 56 fall chum, and 25 coho salmon (Table 6). The sum of community harvest by location may not match community harvest estimates presented in other tables due to estimate rounding. Salmon harvests by location were estimated with error (Appendix A7).

Test Fishery Donations

In addition to subsistence fishing, some households were able to receive salmon through other means. A total of 4 surveyed communities (Alakanuk, Emmonak, Mountain Village, and Pilot Station) received salmon from test fishery projects which were added to community harvest estimates. Test fishery donations totaled 575 Chinook, 2,878 summer chum, 1,642 fall chum, 425 coho, and 15 pink salmon (Appendix A2).

Salmon caught in test fisheries made up 3% of the total Chinook salmon subsistence harvest in surveyed communities but made up 8% of subsistence harvest of all salmon from communities that received test fishery donations. Summer chum, fall chum, coho, and pink salmon from 3 test fisheries made up 7%, 50%, 34%, and >1%, respectively, of subsistence harvest from surveyed communities (Appendix A2).

Nonsalmon Fish Species

The estimated subsistence harvest of other fish species in Yukon Area surveyed communities included 18,514 broad whitefish, 7,612 humpback whitefish, 20,996 small whitefish, 26,352 northern pike, and 9,165 sheefish. The majority of estimated sheefish (46%), broad whitefish (38%), and humpback whitefish (37%) were harvested by District 2 households. Small whitefish (35%) were mostly harvested by the Coastal District households. District 4 households accounted for the largest estimated harvest of northern pike (43%). In previous reports, broad and humpback whitefish were considered large whitefish; this report breaks out harvest by species. Small whitefish are least cisco, Bering cisco, and round whitefish (Table 7).

Unexpanded harvest estimates were produced for 3 resident, 2 marine, and 1 anadromous nonsalmon species. Resident freshwater species such as Alaska blackfish, burbot, and Arctic grayling were widely distributed, but they were not harvested throughout the drainage. Marine species such as Pacific herring and tomcod were only available to communities located near the coast, such as the Coastal District and Districts 1–2. In the Coastal District and District 1, 37 interviewed households also reported the harvest of 448 pounds of herring roe (Table 8).

Survey Comments

At the end of each survey, households had the opportunity to comment on any topic related to fishing they felt was important. The most numerous comments category (288 responses) were related to households not fishing and only receiving fish. The second largest group of comments (240 responses) discussed dissatisfaction with the size or timing of salmon runs. The third largest group of comments (163 responses) related to dissatisfaction with management, such as a desire to have longer openings for Chinook salmon and more commercial openings. The fourth largest group of comments (37 responses) commented on progress toward meeting subsistence needs. Comments discussing personal circumstances (30 responses) that affected an individual household's fishing effort such as health problems, work schedules, and time conflicts with other activities were the fifth largest group. Satisfaction with management actions (24 responses), was the sixth largest group of comments. River conditions, such as high water and driftwood, and poor weather affected several households (15 responses). Some households (7 responses) were concerned about conserving salmon, supported ADF&G conservation measures, or mentioned their efforts to conserve. Expenses were mentioned by 4 households. Disease found in harvested fish, such as tumors, or pus, or tapeworms, was mentioned by 2 households.

PERMITS

Subsistence Permits

The 2020 subsistence permit harvest information was based on permits returned by February 11, 2021 (Tables 8–10). Subsistence fishing permits were required in upper Subdistrict 4-A (Koyukuk River drainage), District 5 (Yukon River), and District 6 (Tanana River). Of the 698 subsistence permits issued, 676 (97%) were returned, and 335 reported subsistence fishing for salmon and nonsalmon (Table 8). Total subsistence harvests of 3,033 Chinook, 200 summer chum, 820 fall chum, and 651 coho salmon were reported. The total harvest of other fish species included 5,954 whitefish, 309 sheefish, 129 burbot, 2,718 northern pike, 168 longnose suckers, and 39 Arctic grayling (Table 9, Appendices C7–C11).

Personal Use Permits

In 2020, 109 of the 110 personal use permits issued were returned (Table 8). A total of 14 households were issued both subsistence and personal use permits, and 11 households were issued both types of personal use permits (salmon and nonsalmon). Harvest was reported on 35 personal use fishing permits, 30 of which were issued for salmon and 5 were issued for nonsalmon species. Personal use permit holders reported harvesting 112 Chinook salmon, 67 summer chum salmon, 37 fall chum salmon, 79 coho salmon, 75 whitefish, 5 sheefish, and 21 longnose suckers (Table 9, Appendix C12).

HARVEST TIMING FROM CALENDAR AND PERMIT DATA

Subsistence calendar and permits, where harvests were recorded by day, provided timing of harvests within portions of the Yukon Area. In 2020, households returned 118 subsistence harvest calendars (approximately 6% of total distributed). A total of 91 calendars (77% of those returned) documented salmon harvest information. The remaining households that returned harvest calendars in 2020 indicated they did not fish or returned a blank calendar (23%). In 2020, permit and calendar data combined suggested there was similarity in harvest timing among the Coastal District and Districts 1–3, with most reported harvests occurring from late May into July. Districts 4 and 5 reported similar harvest timing, with most effort occurring in July and reduced effort continuing throughout the fall months. In District 6, relatively consistent harvests were recorded throughout the May–October period, with indications of increased harvest effort in July (Figure 4).

DISCUSSION

In 2020, fishing restrictions were imposed in the Yukon Area to protect escapement of Chinook, summer chum, and fall chum salmon. These restrictions affected fishing time and gear usage (Carroll 2020). The overall subsistence salmon harvest in 2020 (including Chinook, chum, coho, and pink salmon) was lower, approximately 62% below the 2015–2019 average and 68% below the 2010–2014 average (Figure 3). These averages represent years with fishing restrictions, including the closures during the Chinook salmon run from 2011 to 2019 (Figures 3 and 5). Specifically, the 2020 Chinook salmon harvest in the Yukon River decreased by 26% compared to the 2015–2019 average and was 17% below the 2010–2014 average (Figure 3, Appendix C1). Furthermore, the 2020 summer chum, fall chum, and coho salmon harvests decreased by 47%, 93%, and 80% respectively, in comparison to their individual averages of 2015–2019 (Figure 3, Figures 6–8, and Appendices C2–C4). Additionally, the total pink salmon harvest in 2020 was below the average of even numbered years from 2010 to 2018 (Figure 9, Appendix C5).

AMOUNTS NECESSARY FOR SUBSISTENCE

The amounts necessary for subsistence (ANS) ranges for the Yukon Area are as follows: Chinook (45,500–66,704), summer chum (83,500–142,192), fall chum (89,500–167,900), coho (20,500–51,980), and pink salmon (2,100–9,700). These ANS ranges were established in 2001 for Chinook, summer and fall chum, and coho salmon based on subsistence harvest data from 1990 to 1999 (excluding 1993 and 1998 for fall season restrictions; ADF&G 2001). The ANS range for pink salmon was established in 2013 (Brown and Jallen 2012). Originally developed as an index to ensure reasonable opportunity in the subsistence fishery, the ANS ranges serve as a measure of subsistence fishery provision and did not include personal use harvests. In 2020, the harvest of

pink salmon fell within its ANS range (Figure 9). However, the subsistence harvests of Chinook, summer chum, fall chum, and coho salmon were well below their ANS ranges (Figures 5–8).

The subsistence harvest has traditionally included a significant portion of salmon, primarily used as dog food. The failure to meet ANS levels may be attributed in part to changes in the utilization of subsistence salmon harvests and a decrease in the number of dogs and salmon used for this purpose. Prior to the establishment of ANS ranges, an average of 190,612 chum and coho salmon were annually fed to dogs from 1992 to 1999 (Borba and Hamner 2001). In comparison, from 2015 to 2019, an average of 63,392 chum and coho salmon were fed to dogs annually (Appendix C6). Fluctuations in the number of salmon fed to dogs were probably influenced by owners providing alternative food sources to fluctuating dog populations, such as nonsalmon fish species, meat, or commercial dog food. The absence of large commercial salmon roe fisheries and the emergence of commercial users operating as catcher–sellers in District 6 have further affected the variation in harvest levels and patterns for summer and fall chum and coho salmon. These changes may warrant a review of ANS requirements (Brown and Jallen 2012).

NONSALMON FISH SPECIES

The harvest estimates of nonsalmon fish species derived from this project provide valuable insights, despite the likelihood of underestimation in the reported values. The data collected on nonsalmon species have contributed to documenting the locations of harvests and identifying the species that hold significance for communities in the Yukon Area. The combined total harvest of nonsalmon fish species from surveys and permits in 2020 was 13.6% lower than the 2015–2019 average (Appendix C13).

Historically, information about Pacific herring has been gathered through comments or separate mail-out surveys (Estensen et al. 2012). Since 2012, households in the Coastal District and Districts 1–2 have been queried about herring as part of the subsistence salmon survey interviews. Reports from households in Districts 1 and 2 indicate that the harvest of Pacific herring extends beyond coastal residents, demonstrating its significance in those areas.

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TABLES AND FIGURES

Table 1.—Subsistence and personal use salmon harvest estimates, including commercially related and test fishery harvests provided for subsistence use, Yukon Area, 2020.

Community	Number of fishing households ^a	Estimated salmon harvest				
		Chinook	Summer chum	Fall chum	Coho	Pink
Hooper Bay	115	436	3,450	407	150	1,758
Scammon Bay	65	1,040	3,929	245	189	2,259
Coastal District total	180	1,476	7,379	652	339	4,017
Nunam Iqua	19	381	1,071	16	19	592
Alakanuk ^b	91	1,394	3,924	108	123	143
Emmonak ^b	91	1,033	5,463	1,331	331	125
Kotlik	79	912	4,831	139	79	29
District 1 subtotal	280	3,720	15,289	1,594	552	889
Mountain Village ^b	71	1,025	3,180	259	126	292
Pitkas Point	13	249	478	72	10	11
St. Mary's	70	1,500	4,087	125	37	136
Pilot Station ^b	56	1,034	3,881	468	174	13
Marshall	49	924	2,009	13	147	2
District 2 subtotal	259	4,732	13,635	937	494	454
Russian Mission	33	432	574	0	7	0
Holy Cross	15	192	174	26	6	0
Shageluk	6	90	113	0	7	25
District 3 subtotal	54	714	861	26	20	25
Lower Yukon River total	593	9,166	29,785	2,557	1,066	1,368
Anvik	9	242	123	222	23	5
Grayling	18	264	58	54	52	0
Kaltag	28	577	228	0	0	0
Nulato	45	1,748	39	0	0	0
Koyukuk	18	268	24	0	0	0
Galena	50	695	58	19	13	0
Ruby	13	562	0	0	0	0
District 4 Yukon River subtotal	181	4,356	530	295	88	5
Huslia/ Hughes	20	186	1,804	28	45	0
Allakaket/Alatna/Bettles	15	176	1,705	42	5	0
Koyukuk River subtotal	35	362	3,509	70	50	0
District 4 subtotal	216	4,718	4,039	365	138	5

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Table 1.–Page 2 of 2.

Community	Number of fishing households ^a	Estimated salmon harvest				
		Chinook	Summer chum	Fall chum	Coho	Pink
Tanana	40	1,905	338	1,158	120	0
Rampart/Stevens Village ^{c,d}	10	485	3	20	12	0
Fairbanks (FNSB) ^{c,e}	52	1,623	65	568	32	0
Beaver	11	304	0	0	0	0
Fort Yukon/Birch Creek	48	757	0	133	0	0
Circle/Central ^c	7	175	0	9	0	0
Eagle ^c	11	280	0	0	0	0
Other District 5 ^{c,e}	16	368	17	21	16	0
District 5 Yukon River subtotal	195	5,897	423	1,909	180	0
Venetie/Chalkyitsik	8	32	0	43	16	0
Teedriinjik/Draanjik Rivers subtotal	8	32	0	43	16	0
District 5 subtotal	203	5,929	423	1,952	196	0
Manley ^c	6	33	7	172	330	0
Minto ^c	3	5	1	0	0	0
Nenana/Healy ^c	12	230	23	19	180	0
Fairbanks (FNSB) ^{c,e}	44	252	151	47	160	0
Other District 6 ^{c,f}	15	17	0	1	0	0
District 6 Tanana River subtotal	80	537	182	239	670	0
Upper Yukon River total	499	11,184	4,644	2,556	1,004	5
Alaska, Yukon Area total	1,272	21,826	41,808	5,765	2,409	5,390
AK, Yukon Area percentages of the total	NA	28.3%	54.2%	7.5%	3.1%	7.0%

Note: NA means not applicable because there were no households associated with the test fishery and commercial retained subtotals.

- ^a Did not include 191 households that fished with a Tolovana River northern pike permit, or 11 households that fished in more than 1 permit area.
- ^b Included salmon distributed from test fishery projects (added to community estimates).
- ^c Permit data from permits returned by February 11, 2021.
- ^d Fairbanks North Star Borough (FNSB) included Fairbanks, Ester, North Pole, Salcha, and Two Rivers.
- ^e Other District 5 included residents from Anchorage, Auke Bay, Central, Eagle River, Manley, Minto, Nenana, Northway, Soldotna, Tok, Wasilla, and Wiseman, who fished in a Yukon River required permit area.
- ^f Other District 6 permits included residents of Anchorage, Anderson, Lake Minchumina, Wasilla, and the Upper Tanana River drainage communities of Delta Junction, and Tok who fished in the Tanana River.

Table 2.—Reported subsistence and personal use fish harvested under the authority of a permit, listed by permit area, Yukon Area, 2020.

Permit fishing area	Permit ^a type	Number of		Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
		permits fished	Chinook									
Koyukuk Middle and South Fork Rivers	SF	1	0	0	0	0	0	0	0	0	0	5
Yukon River Rampart Area	SR	22	530	21	40	29	448	52	1	0	0	0
Yukon River near Haul Road Bridge ^b	SY	46	1,473	64	568	31	2,266	193	17	192	4	1
Yukon River near Circle and Eagle ^c	SE	19 7	385 220	0 0	10 0	0 0	2 1	8 0	2 0	0 0	0 0	0 28
Tanana River Subdistrict 6-A	SA	8	52	22	172	330	37	0	0	25	0	0
Tanana River Subdistrict 6-B	SB	25	372	88	29	261	295	1	0	92	40	0
Tanana River Upstream of Subdistrict 6-C	SU	15	1	4	0	0	1,159	0	76	294	88	5
Kantishna River Subdistrict 6-A	SK	1	0	0	1	0	970	2	31	110	36	0
Tolovana River northern pike Subdistrict 6-B	ST	186 5	0 0	0 1	0 0	0 0	0 776	0 53	0 2	965 1,040	0 0	0 0
Subsistence permit subtotals		335	3,033	200	820	651	5,954	309	129	2,718	168	39

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Table 2.–Page 2 of 2.

Personal use permit fishing area	Permit ^a type	Number of										
		permits fished	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
Tanana River salmon Subdistrict 6-C	PC	30	112	67	37	79	4	5	0	0	0	0
Tanana River whitefish upstream of Subdistrict 6-C	PW	5	0	0	0	0	71	0	0	0	21	0
Personal use permit subtotals		35	112	67	37	79	75	5	0	0	21	0
All permit totals		370	3,145	267	857	730	6,029	314	129	2,718	189	39

Note: The first letter of a permit type refers to the fishery type (S = subsistence or P = personal use), the second letter refers to a particular fishing area or targeted species (F = Middle and South Forks of Koyukuk River, R = Yukon River near Rampart, Y = Yukon River near Haul Road Bridge, E = Yukon River near Circle and Eagle, A = Tanana River Subdistrict 6-A, B = Tanana River Subdistrict 6-B, U = Tanana River upstream of Subdistrict 6-C, K = Kantishna River, T = Tolovana River northern pike permit, C = Tanana River Subdistrict 6-C, W = Tanana River whitefish and sucker permit. Permit area descriptions are officially described in Alaska State statutes. Did not include salmon retained from test fishery projects or commercial fisheries.

^a Permit data from permits returned by February 11, 2021.

^b Included salmon reported on permits issued to residents of Stevens Village.

^c Harvest occurred in the upper portion of the river between the mainstem Yukon River sonar project located near the community of Eagle and the U.S./Canada border.

Table 3.–Subsistence and personal use salmon gear estimates, Yukon Area, 2020.

Community	Primary gear used ^a			
	Gillnets		Fish wheel	Other
	Set	Drift		
Hooper Bay	108	7	0	0
Scammon Bay	41	0	0	24
Coastal District total	149	7	0	24
Nunam Iqua	18	0	0	2
Alakanuk	69	16	0	6
Emmonak	33	53	0	5
Kotlik	52	22	0	5
District 1 subtotal	172	91	0	18
Mountain Village	6	63	0	1
Pitkas Point	2	11	0	0
St. Mary's	3	64	0	3
Pilot Station	8	41	0	7
Marshall	7	42	0	0
District 2 subtotal	26	221	0	11
Russian Mission	15	18	0	0
Holy Cross	7	8	0	0
Shageluk	3	3	0	0
District 3 subtotal	25	29	0	0
Lower Yukon River total	223	341	0	29
Anvik	2	6	0	0
Grayling	0	18	0	0
Kaltag	2	26	0	0
Nulato	7	38	0	0
Koyukuk	5	13	0	0
Galena	15	36	0	0
Ruby	0	13	0	0
District 4 Yukon River subtotal	31	150	0	0
Huslia/ Hughes	18	0	0	2
Allakaket/Alatna/Bettles	15	0	0	0
Koyukuk River subtotal	33	0	0	2
District 4 subtotal	64	150	0	2

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Table 3.–Page 2 of 2.

Community	Primary gear used ^a			
	Gillnets		Fish wheels	Other
	Set	Drift		
Tanana	35	3	3	0
Rampart/Stevens Village ^{b,c}	9	0	1	0
Fairbanks (FNSB) ^{c,d}	51	0	1	0
Beaver	11	0	0	0
Fort Yukon/Birch Creek	28	0	20	0
Circle/Central ^c	4	0	3	0
Eagle ^c	8	0	3	0
Other District 5 ^{c,e}	15	0	1	0
District 5 Yukon River subtotal	161	3	32	0
Venetie/Chalkyitsik	8	0	0	0
Teedriinjik/Draanjik Rivers subtotal	8	0	0	0
District 5 subtotal	169	3	32	0
Manley ^c	5	0	1	0
Minto ^c	1	0	1	1
Nenana/Healy ^c	9	0	2	1
Fairbanks (FNSB) ^{c,d}	38	0	3	3
Other District 6 ^{c,f}	10	0	0	5
District 6 Tanana River subtotal	63	0	7	10
Upper Yukon River total	296	153	39	12
Alaska, Yukon Area total	668	501	39	65
AK, Yukon Area percentages of the total	52%	39%	3%	5%

^a Primary gear was the gear type used to harvest the largest number of salmon by each household. Other gear types included dip nets, fyke nets, jigging, spear, and beach seines. Discrepancies between gear and household totals were due to estimate rounding.

^b Included the community of Rampart permit data as was historically a survey community.

^c Permit data from permits returned by February 11, 2021.

^d Fairbanks North Star Borough (FNSB) included Fairbanks, Ester, North Pole, Salcha, and Two Rivers.

^e Other District 5 permits included residents from Anchorage, Auke Bay, Central, Eagle River, Manley, Minto, Nenana, Northway, Soldotna, Tok, Wasilla, and Wiseman, who fished in a Yukon River required permit area.

^f Other District 6 permits included residents from Anchorage, Anderson, Lake Minchumina, Wasilla, and the Upper Tanana River drainage communities of Delta Junction, and Tok who fished in the Tanana River.

Table 4.—Harvest of salmon for dogs from surveys and permits by community of residence, Yukon Area, 2020.

Community	Number of dogs		Households feeding salmon to dogs		Number salmon fed to dogs						Est total
	Est total	CI 95%	Est total	CI 95%	Summer chum		Fall chum		Coho		
					Est total	CI 95%	Est total	CI 95%	Est total	CI 95%	
Hooper Bay	360	49	3	1	30	50	0	0	0	0	30
Scammon Bay	131	34	0	0	0	0	0	0	0	0	0
Nunam Iqua	54	17	3	1	8	9	3	4	0	0	11
Alakanuk	208	70	2	1	0	0	0	0	0	0	0
Emmonak	171	35	2	0	9	12	0	0	0	0	9
Kotlik	161	39	9	2	66	69	0	0	0	0	66
Mountain Village	162	44	0	0	0	0	0	0	0	0	0
Pitkas Point	39	27	0	0	0	0	0	0	0	0	0
St. Mary's	114	35	2	0	9	13	0	0	0	0	9
Pilot Station	102	29	2	0	15	18	0	0	0	0	15
Marshall	176	50	1	0	0	0	0	0	194	236	194
Russian Mission	57	30	0	0	0	0	0	0	0	0	0
Holy Cross	23	9	0	0	0	0	0	0	0	0	0
Shageluk	53	29	0	0	0	0	0	0	0	0	0
Anvik	19	8	1	1	4	4	13	12	0	0	17
Grayling	38	26	0	0	0	0	0	0	0	0	0
Kaltag	61	20	6	2	214	224	0	0	0	0	214
Nulato	63	21	0	0	0	0	0	0	0	0	0
Koyukuk	28	14	0	0	0	0	0	0	0	0	0
Galena	96	21	1	1	0	0	0	0	0	0	0
Ruby	33	24	0	0	0	0	0	0	0	0	0
Huslia/Hughes	314	100	10	1	2,123	797	38	43	60	86	2,221
Allakaket/Alatna/Bettles	147	67	9	3	1,170	339	0	0	8	0	1,178

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Table 4.–Page 2 of 2.

Community	Number of dogs		Households feeding salmon to dogs		Number salmon fed to dogs						Est. total	
	Est. total	CI 95%	Est. total	CI 95%	Summer chum		Fall chum		Coho			
					Est. total	CI 95%	Est. total	CI 95%	Est. total	CI 95%		
Tanana	243	114	17	4	575	531	1,064	680	91	49	1,730	
Stevens Village/Rampart ^a	72	63	1	0	0	0	0	0	0	0	0	
Beaver	21	14	0	0	0	0	0	0	0	0	0	
Fort Yukon/Birch Creek	309	71	5	1	0	0	105	103	0	0	105	
Venetie/Chalkyitsik	141	57	0	0	0	0	0	0	0	0	0	
Survey Total	3,396	242	74	6	4,223	1,010	1,223	665	353	247	5,799	
Subsistence/personal use permits												
Fairbanks (FNSB) ^b	228	NA	16	NA	NA	NA	NA	NA	NA	NA	567	
Circle/Central	95	NA	4	NA	NA	NA	NA	NA	NA	NA	9	
Eagle	128	NA	10	NA	NA	NA	NA	NA	NA	NA	2	
Other District 5 ^c	52	NA	4	NA	NA	NA	NA	NA	NA	NA	35	
District 5 permit subtotal	503	NA	34	NA	NA	NA	NA	NA	NA	NA	613	
Manley	22	NA	3	NA	NA	NA	NA	NA	NA	NA	502	
Nenana/Healy	96	NA	16	NA	NA	NA	NA	NA	NA	NA	46	
Fairbanks (FNSB) ^b	415	NA	31	NA	NA	NA	NA	NA	NA	NA	51	
Other District 6 ^c	75	NA	16	NA	NA	NA	NA	NA	NA	NA	2	
District 6 permit subtotal	644	NA	68	NA	NA	NA	NA	NA	NA	NA	601	
Subsistence permit subtotal	788	NA	82	NA	NA	NA	NA	NA	NA	NA	1,207	
Total survey and permit	4,543	NA	176	NA	NA	NA	NA	NA	NA	NA	7,013	

Note: Information from permits returned as of February 11, 2021. Does not include pink salmon fed to dogs. NA means not applicable. Information about salmon fed to dogs by species was not collected on permits. Subsistence and personal use permits included unique households and the number of dogs. Did not include 66 households that were issued more than 1 permit type. Did not include permits from Stevens Village or Tolovana River.

^a Rampart permit data added to Stevens Village survey data for reasons of confidentiality. Total salmon fed to dogs included Rampart permit data which did not breakout fed to dogs by species.

^b Fairbanks North Star Borough (FNSB) may include Fairbanks, Fort Wainwright, Ester, North Pole, Salcha, and Two Rivers.

^c Household permits from other communities included residents from Anchorage, Anderson, Atkasuk, Bethel, Delta Junction, Eagle, Eagle River, Juneau, Ketchikan, Lake Minchumina, Palmer, Skagway, Sutton, Tok, and Wasilla.

Table 5.—Estimated total number of households, fished households, and people in surveyed communities, including community and district totals, Yukon Area, 2020.

Community	Total households				Total fished			Total people		
	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>	<i>n</i>	Est total	CI 95%	<i>np</i>	Est total	CI 95%
Hooper Bay	234	234	114	49	103	115	4	108	1,164	112
Scammon Bay	112	112	48	43	44	65	4	45	496	81
Coastal District	346	346	162	47	147	180	5	153	1,660	137
Nunam Iqua	42	42	26	62	23	19	3	26	156	26
Alakanuk	145	145	71	49	63	91	4	66	597	71
Emmonak	194	194	104	54	94	91	3	96	822	73
Kotlik	120	120	60	50	54	79	3	55	578	75
District 1	501	501	261	52	234	280	7	243	2,154	127
Mountain Village	163	163	84	52	79	71	3	80	680	77
Pitkas Point	24	24	19	79	16	13	2	19	77	17
St. Mary's	126	126	63	50	62	70	3	63	370	51
Pilot Station	130	130	61	47	58	56	4	61	579	73
Marshall	95	95	42	44	42	49	4	42	408	63
District 2	538	538	269	50	257	259	7	265	2,113	132
Russian Mission	73	73	29	40	26	33	6	29	326	69
Holy Cross	51	51	30	59	30	15	2	28	127	30
Shageluk	31	31	16	52	16	6	1	16	109	31
District 3	155	155	75	48	72	54	6	73	561	79
Anvik	26	26	19	73	19	9	1	19	75	7
Grayling	56	56	26	46	25	18	3	26	162	50
Kaltag	52	52	29	56	28	28	2	29	132	23
Nulato	76	76	43	57	39	45	2	43	171	26
Koyukuk	41	41	18	44	17	18	3	17	90	30
Galena	128	128	81	63	78	50	2	81	295	29
Ruby	47	47	16	34	16	13	5	16	124	34
Huslia	77	77	41	53	40	18	3	39	222	43
Hughes	34	34	13	38	13	1	0	13	86	40
Allakaket	57	57	29	51	27	15	3	27	152	39
Alatna	7	7	3	43	3	0	0	3	18	0
Bettles	19	19	11	58	10	0	0	10	32	13
District 4	620	620	329	53	315	215	14	323	1,558	103

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Table 5.–Page 2 of 2.

Community	Total households				Total fished			Total people		
	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>	<i>n</i>	Est. total	CI 95%	<i>np</i>	Est total	CI 95%
Tanana	94	94	42	45	37	40	3	42	170	27
Stevens Village	19	19	8	42	7	7	4	8	38	30
Birch Creek	15	15	5	33	5	1	0	5	53	9
Beaver	31	31	17	55	16	11	3	16	66	13
Fort Yukon	199	199	108	54	99	47	4	103	434	44
Venetie	72	72	15	21	15	8	5	15	184	53
Chalkyitsik	27	27	11	41	9	0	0	11	38	10
District 5	457	457	206	45	188	114	8	200	983	77
Survey totals	2,617	2,617	1,302	50	1,213	1,102	17	1,257	9,030	273

Note: The following notations were used in the above table: *N* = the total number of households, *S* = the number of households selected, *n* = the number of households contacted, and %*S* = the percent of the selected households that were contacted in each harvest group in surveyed communities. In most communities a smaller number of households provided information about the number of people (*np*) in their households. Estimated total households that fished, and number of people included a 95% confidence interval (CI 95%).

Table 6.—Estimated subsistence harvest of salmon species, not including test fish catch, by fishing location in surveyed districts, Yukon Area, 2020.

Species	Districts/Subdistricts ^a												River drainages					Total by district			
	District	Coastal	1	2	3	4A	4B	4C	5A	5B	5C	5D		6	Innoko	Koyukuk	Teedriinjik		Porcupine	Draanjik	
												down	up								
Chinook	Coastal	577	900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,477
	1	237	3,176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,413
	2	0	299	4,158	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,464
	3	0	0	0	624	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	714
	4	0	0	0	0	3,087	569	698	0	0	0	0	0	0	0	362	0	0	0	0	4,716
	5	0	0	0	0	0	0	210	0	1,695	0	1,057	315	0	0	0	32	24	0	0	3,333
Survey totals		814	4,375	4,158	631	3,177	569	908	0	1,695	0	1,057	315	0	0	362	32	24	0	0	18,117
Summer chum	Coastal	4,121	3,258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,379
	1	823	12,106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,929
	2	0	1,117	11,988	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13,118
	3	0	0	0	748	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	861
	4	0	0	0	0	472	58	0	0	0	0	0	0	0	0	3,509	0	0	0	0	4,039
	5	0	0	0	0	0	0	0	0	338	0	0	0	0	0	0	0	0	0	0	338
Survey totals		4,944	16,481	11,988	761	585	58	0	0	338	0	0	0	0	0	3,509	0	0	0	0	38,664

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Table 6.–Page 2 of 2.

Species	Districts/Subdistricts ^a											River drainages						Total by district		
	District	Coastal	5D											Innoko	Koyukuk	Teedriinjik	Porcupine		Draanjik	
			1	2	3	4A	4B	4C	5A	5B	5C	down	up							6
Fall chum	Coastal	438	213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	651
	1	0	605	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	605
	2	0	0	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
	3	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
	4	0	0	0	0	276	8	11	0	0	0	0	0	0	70	0	0	0	0	365
	5	0	0	0	0	0	0	0	45	1,113	0	99	33	0	0	0	43	0	0	1,333
Survey totals		438	818	285	26	276	8	11	45	1,113	0	99	33	0	0	70	43	0	0	3,265
Coho	Coastal	185	153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	338
	1	0	397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	397
	2	0	0	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	223
	3	0	0	0	13	7	0	0	0	0	0	0	0	0	0	0	0	0	0	20
	4	0	0	0	0	75	0	13	0	0	0	0	0	0	50	0	0	0	0	138
	5	0	0	0	0	0	0	0	12	108	0	0	0	0	0	16	0	0	0	136
Survey totals		185	550	223	13	82	0	13	12	108	0	0	0	0	50	16	0	0	0	1,252
Pink	Coastal	1,959	2,057	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,016
	1	0	886	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	886
	2	0	127	314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	441
	3	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25
	4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Survey totals		1,959	3,070	314	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	5,373

Note: Commercially related fish are salmon harvested during commercial fishing that were not sold but retained and used for subsistence purposes. Totals may not add in both directions due to estimate decimal rounding.

^a Harvest near Fort Yukon was divided according to whether harvest occurred downriver (5D-down) or upriver (5D-up) of the confluence of the Porcupine and Yukon Rivers.

Table 7.—Estimated subsistence harvest of whitefish, northern pike, and sheefish by surveyed communities, Yukon Area, 2020.

Community	Broad whitefish		Humpback whitefish		Small whitefish		Northern pike		Sheefish	
	Est total	CI 95%	Est total	CI 95%	Est total	CI 95%	Est total	CI 95%	Est total	CI 95%
Hooper Bay	1,513	1,412	1,303	919	4,892	2,075	1,176	727	38	30
Scammon Bay	363	306	188	201	2,543	2,620	4,172	1,907	68	50
Coastal District	1,876	1,432	1,491	933	7,435	3,289	5,348	1,998	106	57
Nunam Iqua	183	222	214	338	1,021	937	37	46	441	248
Alakanuk	201	130	10	16	1,699	1,012	363	225	547	232
Emmonak	636	382	82	142	1,889	1,073	1,709	946	811	462
Kotlik	562	400	80	97	1,855	762	705	304	1,146	557
District 1	1,582	593	386	353	6,464	1,862	2,814	1,010	2,945	784
Mountain Village	1,315	538	326	364	380	303	1,545	617	582	368
Pitkas Point	878	603	404	522	9	13	294	114	190	73
St. Mary's	2,648	1,152	1,292	796	42	45	932	391	647	288
Pilot Station	1,020	430	498	629	91	149	213	132	252	128
Marshall	1,179	1,163	328	410	103	101	2,455	1,957	2,576	2,144
District 2	7,040	1,811	2,848	1,201	625	350	5,439	2,039	4,247	2,137
Russian Mission	179	164	13	23	29	54	437	272	23	29
Holy Cross	206	242	45	88	0	0	146	109	38	34
Shageluk	289	352	0	0	0	0	16	19	0	0
District 3	674	424	58	84	29	52	599	283	61	43
Anvik	220	35	72	25	0	0	214	71	48	15
Grayling	202	270	94	174	0	0	47	39	165	86
Kaltag	286	270	174	195	0	0	5	6	137	102
Nulato	204	248	0	0	0	0	0	0	17	29
Koyukuk	182	287	0	0	0	0	220	7	0	0
Galena	137	82	41	37	0	0	7	10	91	55
Ruby	0	0	0	0	0	0	9	18	0	0
Huslia/Hughes	2,509	2,386	1,008	662	30	50	10,743	13,344	398	211
Allakaket/Alatna/Bettles	744	214	100	0	100	0	113	17	277	285
District 4	4,484	2,369	1,489	684	130	48	11,358	12,948	1,133	370

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Table 7.–Page 2 of 2.

Community	Broad whitefish		Humpback whitefish		Small whitefish		Northern pike		Sheefish	
	Est total	CI 95%	Est total	CI 95%	Est total	CI 95%	Est total	CI 95%	Est total	CI 95%
Tanana	2,480	1,846	1,318	953	6,313	6,727	113	54	426	379
Stevens Village/Rampart	0	0	0	0	0	0	101	226	0	0
Beaver	32	59	0	0	0	0	28	36	13	20
Fort Yukon/Birch Creek	346	232	22	29	0	0	533	249	234	165
Venetie/Chalkyitsik	0	0	0	0	0	0	19	33	0	0
District 5	2,858	1,808	1,340	922	6,313	6,533	794	310	673	403
Survey totals	18,514	3,813	7,612	1,922	20,996	7,504	26,352	13,252	9,165	2,332

Note: Estimates included 95% confidence interval, (CI 95%). Confidence intervals were based on survey estimates and do not include test fishery catch. In previous reports, broad and humpback whitefish were considered large whitefish. Small whitefish include least cisco, Bering cisco, and round whitefish.

Table 8.—Reported subsistence harvest of nonsalmon fish species, by surveyed communities, Yukon Area, 2020.

Community	Alaska blackfish	Arctic grayling	Arctic lamprey	Burbot	Pacific herring	Tomcod
Hooper Bay	10,735	0	0	51	4,155	992
Scammon Bay ^a	7,770	0	0	17	810	765
Coastal District	18,505	0	0	68	4,965	1,757
Nunam Iqua	0	0	0	42	0	10
Alakanuk	0	0	0	14	2,600	0
Emmonak	60	0	0	8	0	5
Kotlik ^a	700	6	0	20	467	100
District 1	760	6	0	84	3,067	115
Mountain Village	1,980	0	0	121	0	0
Pitkas Point	1,550	0	0	68	0	0
St. Mary's	5,628	0	0	150	0	0
Pilot Station	700	0	0	4	0	0
Marshall	1,260	0	0	67	0	0
District 2	11,118	0	0	410	0	0
Russian Mission	0	0	0	25	0	0
Holy Cross	0	0	0	0	0	0
Shageluk	0	0	0	0	0	0
District 3	0	0	0	25	0	0
Anvik	0	5	0	2	0	0
Grayling	0	10	0	14	0	0
Kaltag	0	35	0	2	0	0
Nulato	0	76	0	0	0	0
Koyukuk	0	0	0	0	0	0
Galena	0	9	0	9	0	0
Ruby	0	0	0	0	0	0
Huslia	0	0	0	6	0	0
Hughes	0	47	0	103	0	0
District 4	0	182	0	136	0	0
Tanana	0	3	0	33	0	0
Stevens Village/Rampart	0	0	0	0	0	0
Beaver	0	0	0	0	0	0
Fort Yukon/Birch Creek	0	22	0	56	0	0
Venetie/Chalkyitsik	0	15	0	0	0	0
District 5	0	40	0	89	0	0
Survey totals	30,383	228	0	812	8,032	1,872

^a A total of 8 households from 2 communities reported harvesting 448 pounds of herring roe.

Table 9.—Number of permits issued, returned, and fished listed by permit area, Yukon Area, 2020.

Permit fishing area	Permit ^a			Percent returned	Location	Number of permits fished ^c
	Type	Issued ^b	Returned			
Koyukuk Middle and South Fork Rivers	SF	18	17	94%	NA	1
Yukon River Rampart Area	SR	29	29	100%	NA	22
Yukon River near Haul Road Bridge ^d	SY	98	95	97%	NA	46
Yukon River near Circle and Eagle	SE	59	57	97%	Below sonar Above sonar	19 7
Tanana River Subdistrict 6-A	SA	28	27	96%	NA	8
Tanana River Subdistrict 6-B	SB	67	65	97%	NA	25
Tanana River Upstream of Subdistrict 6-C	SU	44	41	93%	NA	15
Kantishna River Subdistrict 6-A	SK	26	22	85%	NA	1
Tolovana River northern pike Subdistrict 6-B	ST	329	323	98%	Within CHA ^e Outside CHA	186 5
Subsistence permit subtotals		698	676	97%		335

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Table 9.–Page 2 of 2.

Personal use permit fishing area	Permit ^a			Percent returned	Location	Number of permits fished ^c
	Type	Issued ^b	Returned			
Tanana River salmon Subdistrict 6-C	PC	82	81	99%	NA	30
Tanana River whitefish upstream of Subdistrict 6-C	PW	28	28	100%	NA	5
Personal use permit subtotals		110	109	99%	NA	35
All permit totals		808	785	97%	NA	370

Note: The first letter of a permit type refers to the fishery type (S = subsistence or P = personal use), the second letter refers to a particular fishing area or targeted species (F = Middle and South Forks of Koyukuk River, R = Yukon River near Rampart, Y = Yukon River near Haul Road Bridge, E = Yukon River near Circle and Eagle, A = Tanana River Subdistrict 6-A, B = Tanana River Subdistrict 6-B, U = Tanana River upstream of subdistrict 6-C, K = Kantishna River, T = Tolovana River northern pike permit, C = Tanana River Subdistrict 6-C, W = Tanana River whitefish or sucker permit. CHA means Chatanika Harvest Area. NA means not applicable. Permit area descriptions are officially described in Alaska State statutes. Did not include salmon retained from test fishery projects or commercial fisheries.

^a Permit data from permits returned by February 11, 2021.

^b Included 66 households that were issued permits for more than 1 area.

^c Included 11 households that fished in 2 different permit areas.

^d Included permits issued to residents of Stevens Village.

^e Harvest occurred in the upper portion of the river between the mainstem Yukon River sonar project located near the community of Eagle and the U.S./Canada border.

Table 10.—Estimated subsistence and personal use harvest of salmon species by fishing location in permit districts, Yukon Area, 2020.

Species	Community district	Harvest subdistrict/districts				River drainages		Total by district
		5C	5D ^a		6	Tolovana	Kantishna	
			Below sonar	Above sonar				
Chinook	5	2,003	385	220	0	0	0	2,608
	6	0	0	0	537	0	0	537
	Permit totals	2,003	385	220	537	0	0	3,145
Summer chum	5	85	0	0	0	0	0	85
	6	0	0	0	181	1	0	182
	Permit totals	85	0	0	181	1	0	267
Fall chum	5	608	10	0	0	0	0	618
	6	0	0	0	238	0	1	239
	Permit totals	608	10	0	238	0	1	857
Coho	5	60	0	0	0	0	0	60
	6	0	0	0	670	0	0	670
	Permit totals	60	0	0	670	0	0	730

^a Harvest subdistrict was divided by downstream (5D-Below sonar) or upstream (5D-Above sonar) of the Yukon River sonar near the community of Eagle.

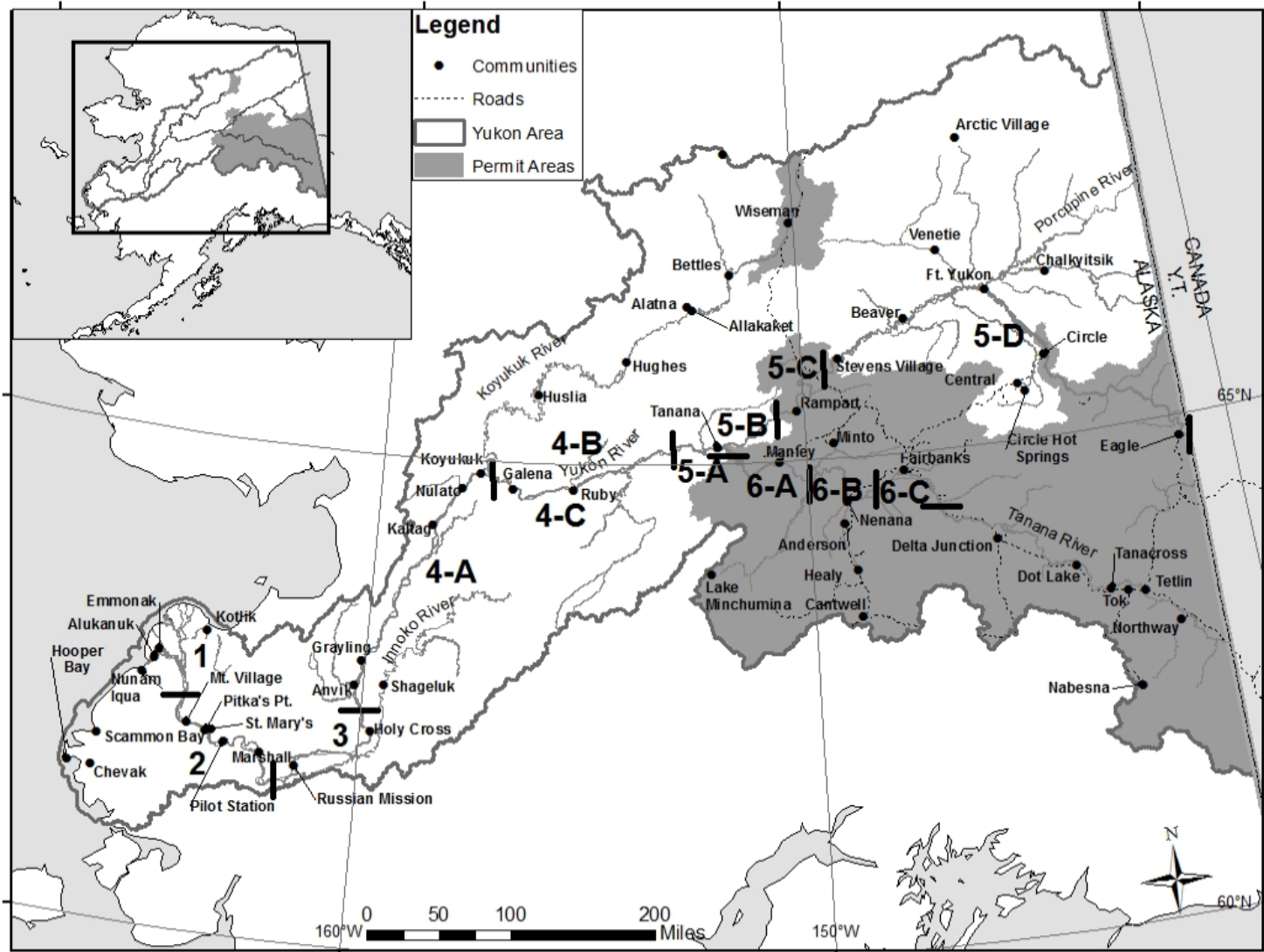


Figure 1.—Map of Alaska portion of the Yukon River drainage showing communities and subsistence and personal use permit areas.

Note: Subsistence and personal use permit areas are shaded.

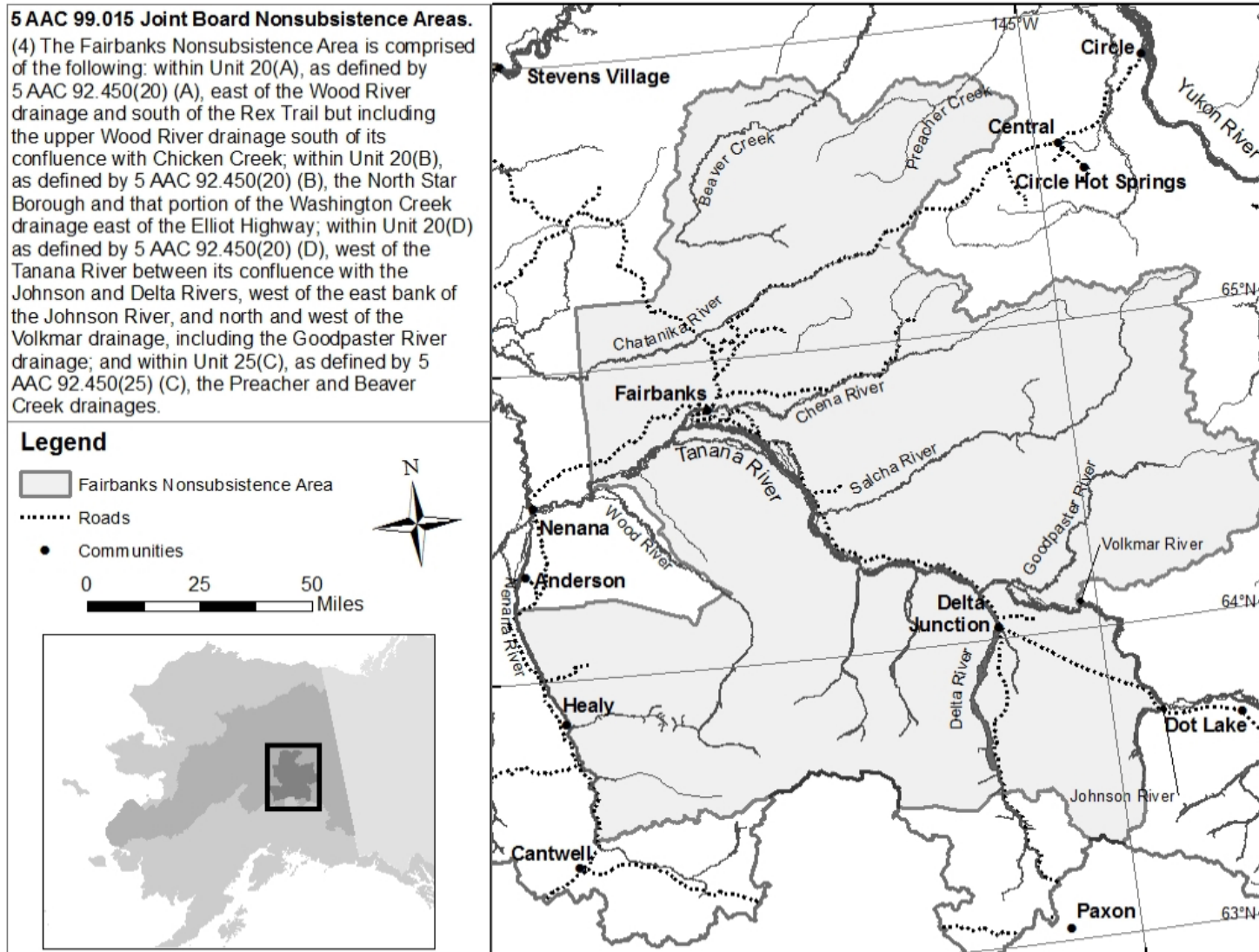


Figure 2.—Map of the Fairbanks Nonsubsistence Area.

Note: Households must have a personal use permit and sport fish license to fish in the Nonsubsistence Area.

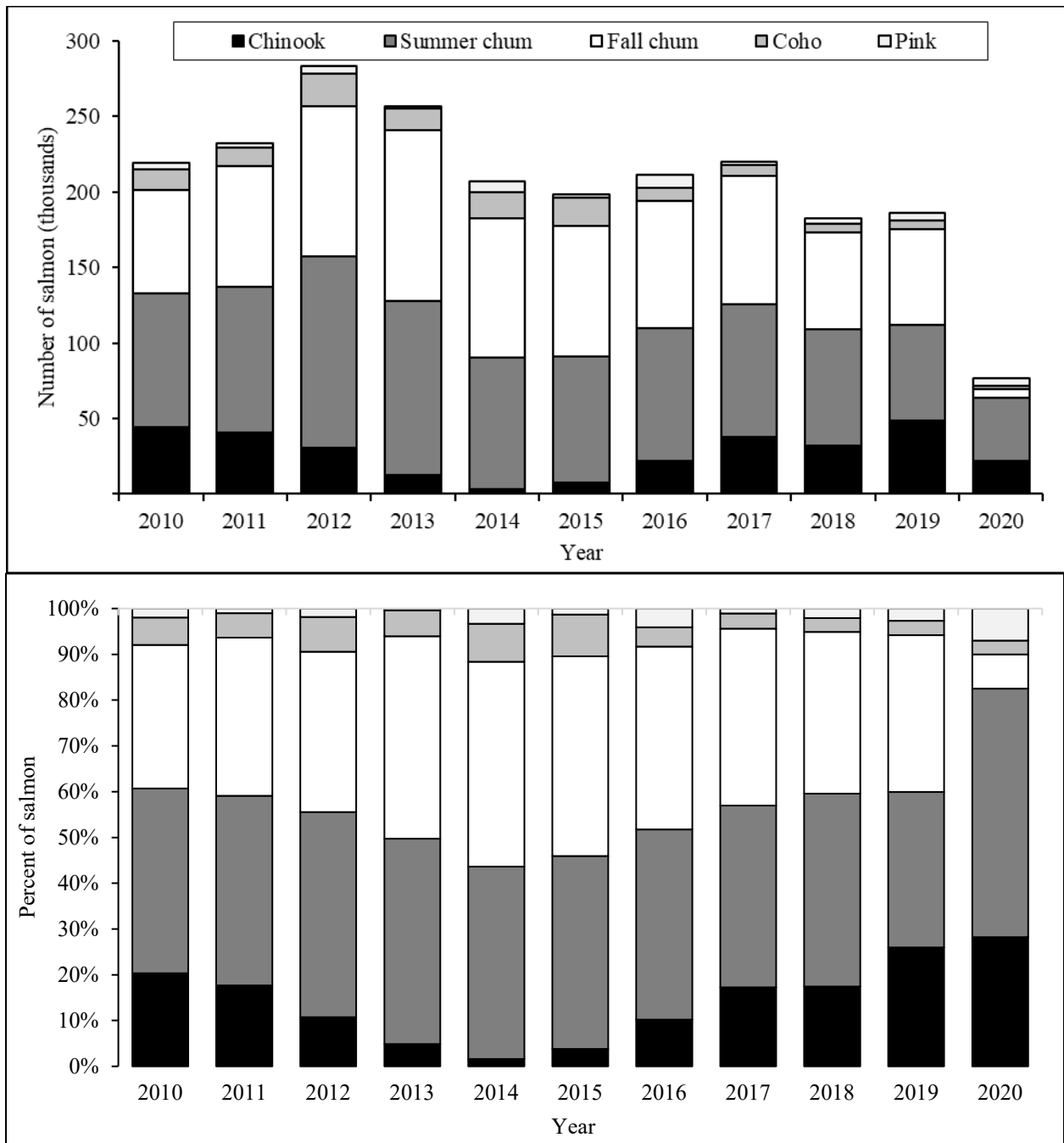


Figure 3.—Estimated total subsistence salmon harvest by species, Yukon Area, 2010–2020.

Note: Harvest of salmon species by number (top) and proportion (bottom). Totals include survey, permit, test fishery and retained from commercial. Does not include salmon caught in the personal use fishery.

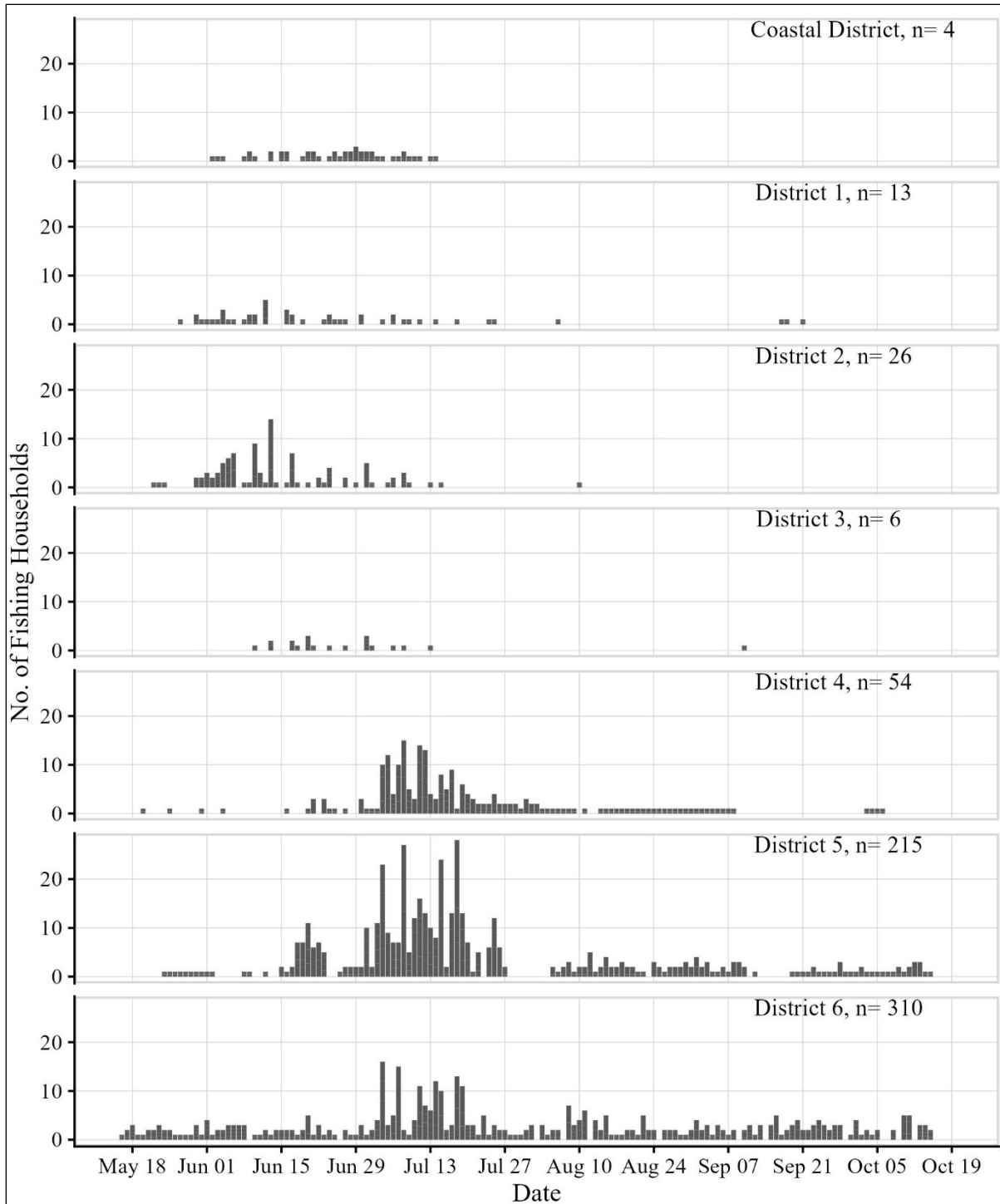


Figure 4.—Number of fishing households reporting harvest on calendars or permits by day and by district, 2020.

Note: Bars represent the number of fishing households in each district that recorded harvest by day on calendars and permits. Does not include permit types primarily issued in District 6 for the harvest of nonsalmon species such as whitefish or northern pike.

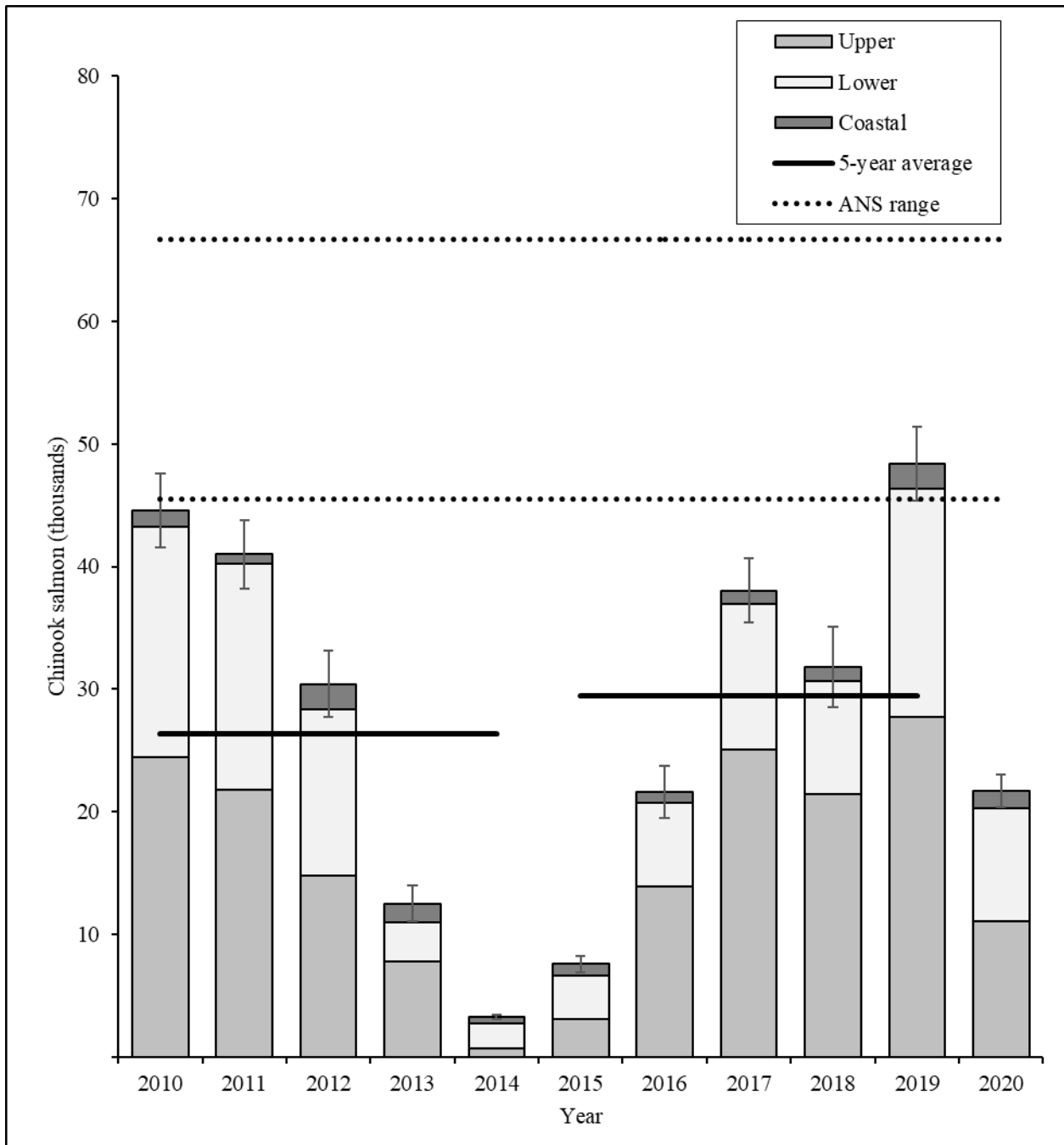


Figure 5.—Estimated Chinook salmon subsistence harvest, Yukon Area, 2010–2020.

Note: Harvest estimates and 95% confidence interval were provided. In 2001, the Alaska Board of Fisheries defined the amount necessary for subsistence (ANS) as 45,500–66,704 Chinook salmon. ANS ranges were based on 1990–1999 subsistence harvest amounts and did not include salmon from personal use fisheries. Subsistence fisheries were restricted by time and/or gear type during the summer season in 2011–2020 to protect Chinook salmon.

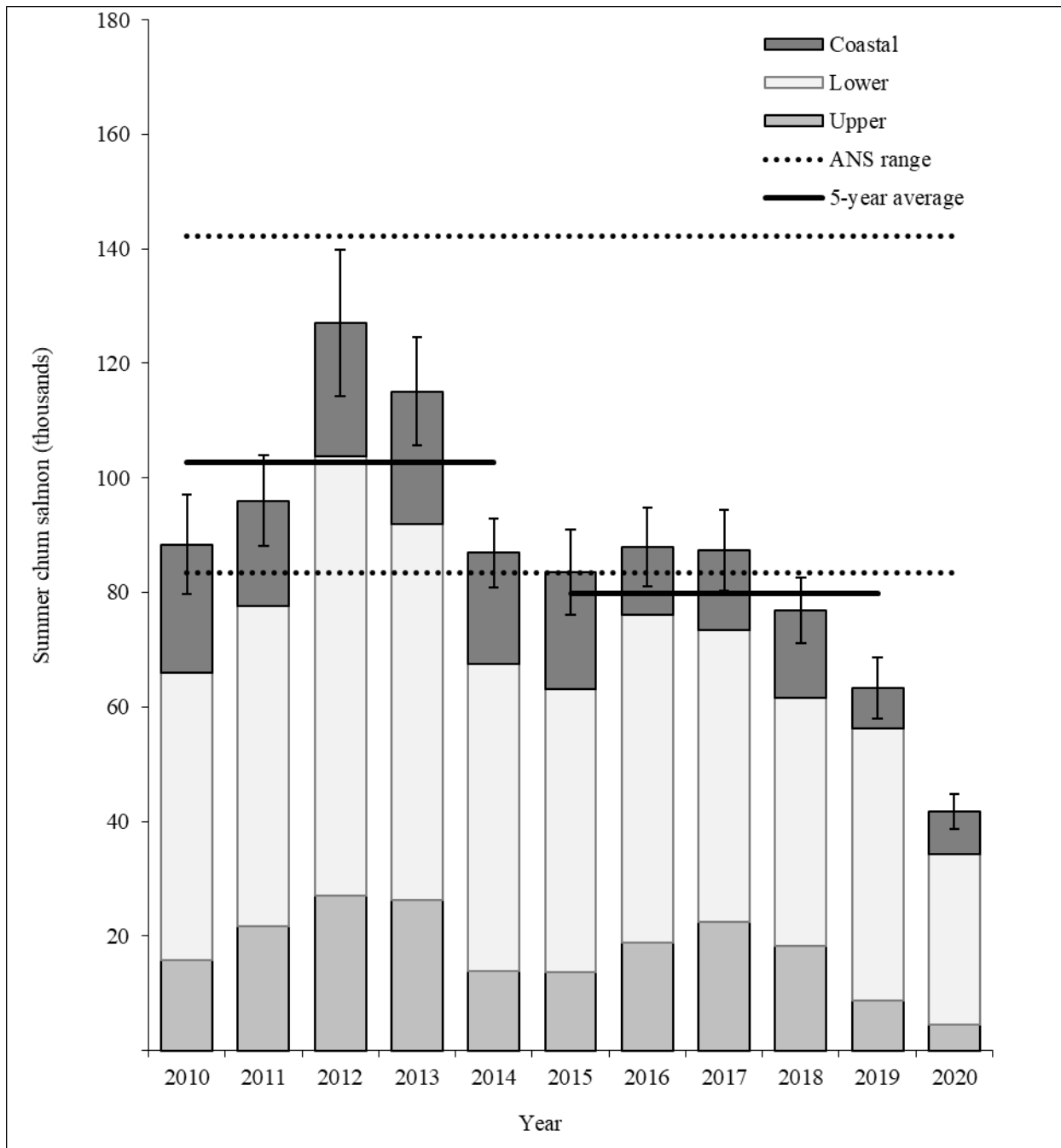


Figure 6.—Estimated summer chum salmon subsistence harvest, Yukon Area, 2010–2020.

Note: Harvest estimates and 95% confidence interval were provided. In 2001 the Alaska Board of Fisheries defined the amount necessary for subsistence (ANS) as 83,500–142,192 summer chum salmon. ANS ranges were based on 1990–1999 subsistence harvest amounts and did not include salmon from personal use fisheries. Subsistence fisheries were restricted by time and/or gear type during the summer season in 2011–2020 to protect Chinook salmon.

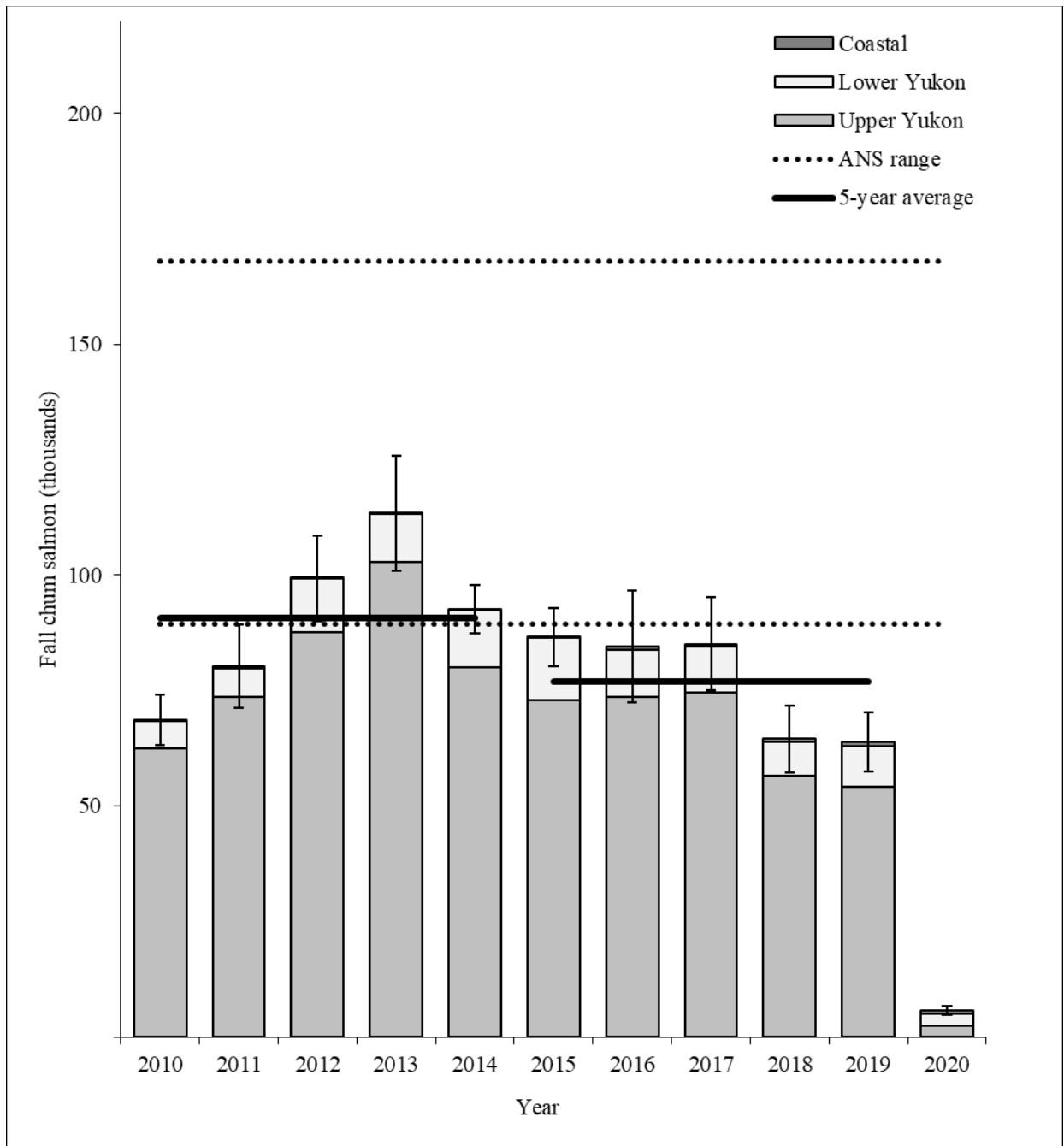


Figure 7.—Estimated fall chum salmon subsistence harvest, Yukon Area, 2010–2020.

Note: Harvest estimates and 95% confidence interval were provided. In 2001, the Alaska Board of Fisheries defined the amount necessary for subsistence (ANS) as 89,500–167,900 fall chum salmon. ANS ranges were based on 1990–1999 subsistence harvest amounts (excluding 1993 and 1998 due to restrictions) and did not include salmon from personal use fisheries.

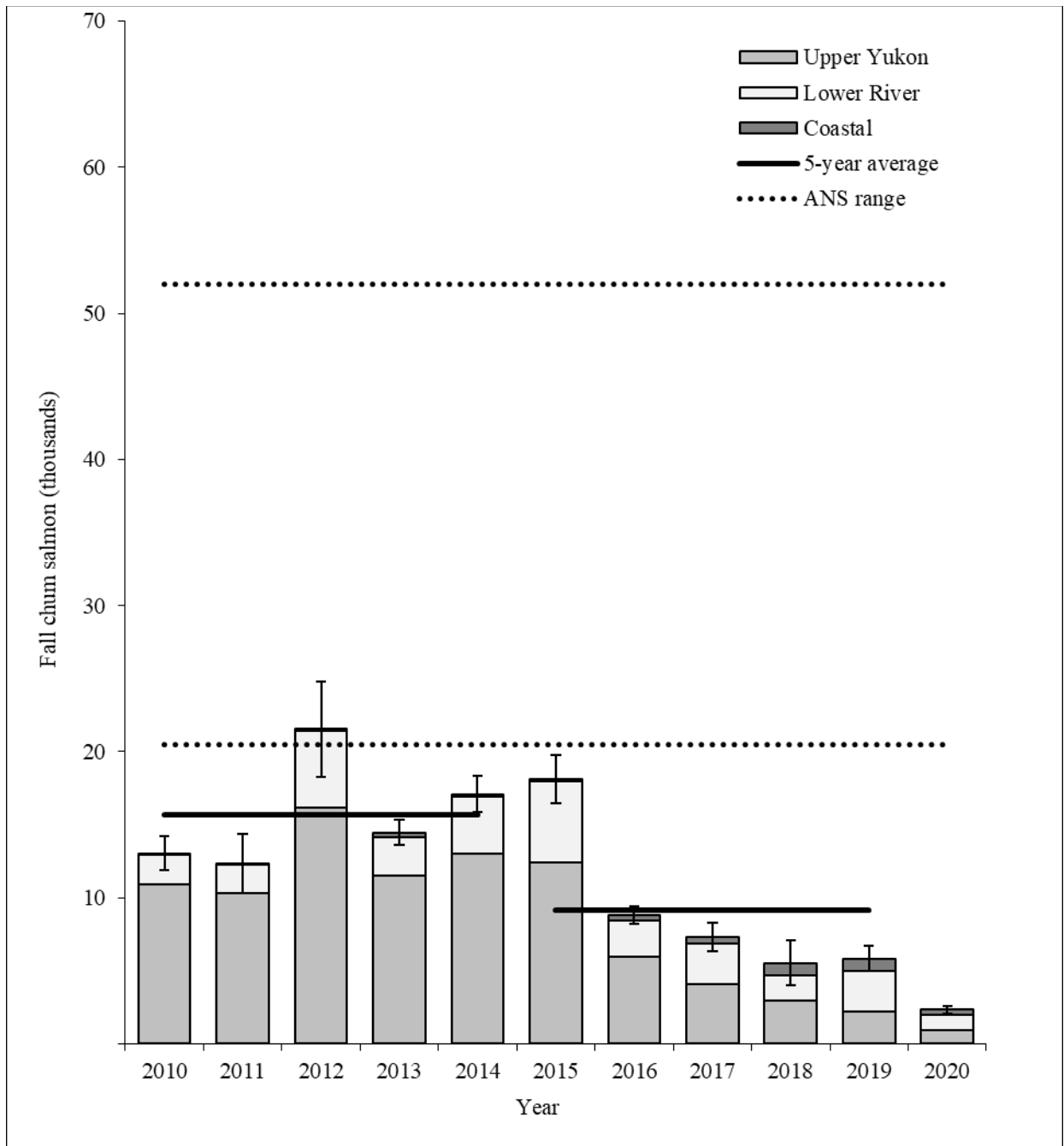


Figure 8.—Estimated fall chum salmon subsistence harvest, Yukon Area, 2010–2020.

Note: Harvest estimates and 95% confidence interval were provided. In 2001, the Alaska Board of Fisheries defined the amount necessary for subsistence (ANS) as 89,500–167,900 fall chum salmon. ANS ranges were based on 1990–1999 subsistence harvest amounts (excluding 1993 and 1998 due to restrictions) and did not include salmon from personal use fisheries.

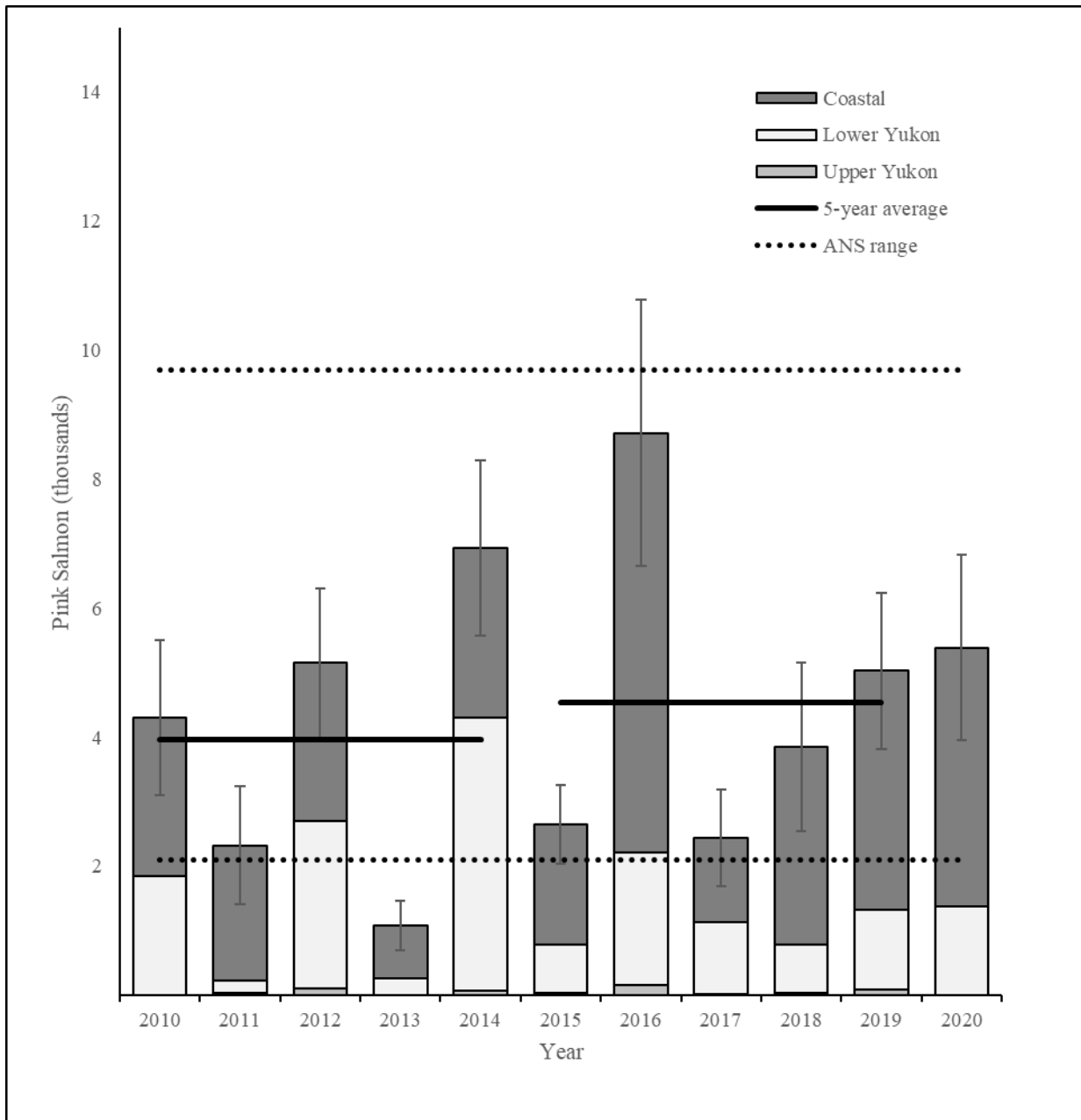


Figure 9.—Estimated pink salmon subsistence harvest, Yukon Area, 2010–2020.

Note: Harvest estimates and 95% confidence interval were provided. In 2013, the Alaska Board of Fisheries defined the amount necessary for subsistence (ANS) as 2,100–9,700 pink salmon. ANS ranges were based on 2002–2011 subsistence harvest amounts and did not include salmon from personal use fisheries. Even and odd year averages were calculated based on 2005–2014 harvest totals.

APPENDIX A: 2020 HARVEST INFORMATION

Appendix A1.–Estimated (Est) subsistence harvest of salmon and 95% confidence interval (CI) in surveyed communities, including community and district totals, Yukon Area, 2020.

Community	Chinook		Summer chum		Fall chum		Coho		Pink	
	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI
Hooper Bay	436	112	3,450	949	407	204	150	105	1,758	596
Scammon Bay	1,040	342	3,929	947	245	103	189	86	2,259	1,247
Coastal District total	1,476	353	7,379	1,325	651	227	338	134	4,016	1,360
Nunam Iqua	381	142	1,071	421	16	13	19	4	592	406
Alakanuk	1,303	442	2,988	721	76	66	123	118	143	114
Emmonak	817	256	4,039	1,031	373	243	176	88	123	159
Kotlik	912	220	4,831	1,078	139	150	79	48	29	29
District 1 total	3,413	565	12,929	1,683	605	290	397	153	886	432
Mountain Village	1,024	232	3,180	724	32	39	22	15	292	178
Pitkas Point	249	138	478	209	72	100	10	5	11	16
St. Mary's	1,500	382	4,087	1,006	125	124	37	49	136	119
Pilot Station	767	213	3,363	1,277	43	60	8	12	0	0
Marshall	924	260	2,009	805	13	13	147	135	2	3
District 2 total	4,464	564	13,118	1,929	285	169	223	141	441	212
Russian Mission	432	171	574	260	0	0	7	12	0	0
Holy Cross	192	109	174	112	26	20	6	7	0	0
Shageluk	90	52	113	89	0	0	7	9	25	26
District 3 total	714	203	861	287	26	20	20	16	25	25
Anvik	242	110	123	66	222	99	23	14	5	5
Grayling	264	118	58	48	54	65	52	83	0	0
Kaltag	577	178	228	191	0	0	0	0	0	0
Nulato	1,748	510	39	16	0	0	0	0	0	0
Koyukuk	268	97	24	21	0	0	0	0	0	0
Galena	695	174	58	31	19	14	13	11	0	0
Ruby	562	301	0	0	0	0	0	0	0	0
Huslia/Hughes	186	34	1,804	676	28	26	45	52	0	0
Allakaket/Alatna/Bettles	176	169	1,705	392	42	0	5	0	0	0
District 4 total	4,717	664	4,038	790	366	115	138	96	5	5
Rampart/Stevens Village	335	375	0	0	0	0	0	0	0	0
Beaver	304	297	0	0	0	0	0	0	0	0
Fort Yukon/Birch Creek	757	261	0	0	133	131	0	0	0	0
Venetie/Chalkyitsik	32	52	0	0	43	72	16	31	0	0
District 5 total	3,333	762	338	238	1,334	766	136	65	0	0
Survey total	18,117	1,344	38,663	2,998	3,266	869	1,252	273	5,373	1,433

Note: The number of salmon harvested was estimated using the total number of households, the maximum number of households contacted, and includes 95% confidence interval (CI).

Appendix A2.—Estimated number of salmon provided to communities for subsistence use by test fishery programs, Yukon Area, 2020.

Yukon River test fishery sites	Community	Chinook	Summer chum	Fall chum	Coho	Pink ^a	Total
Lower Yukon test fishery (LYTF)	Alakanuk	91	936	32	0	0	1,059
	Emmonak	216	1,424	958	155	2	2,755
LYTF project subtotal:		307	2,360	990	155	2	3,814
Mountain Village test fishery	Mountain Village	1	0	227	104	0	332
Pilot Station sonar test fishery	Pilot Station	267	518	425	166	13	1,389
Other projects subtotal		268	518	652	270	13	1,721
Test fishery totals		575	2,878	1,642	425	15	5,535

^a Pink salmon harvested and distributed from test fishery projects were not always recorded. Harvest shown here is a minimum.

Appendix A3.–Estimated number (Est) of primary gear and 95% confidence interval (CI) in surveyed communities, Yukon Area, 2020.

Community	Setnet		Driftnet		Fish wheel		Dip net		Hook & Line	
	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI
Hooper Bay	108	7	7	1	0	0	0	0	0	0
Scammon Bay	41	8	0	0	0	0	24	6	0	0
Coastal District total	149	11	7	1	0	0	24	6	0	0
Nunam Iqua	18	4	0	0	0	0	2	1	0	0
Alakanuk	69	11	16	2	0	0	6	1	0	0
Emmonak	33	6	53	9	0	0	5	1	0	0
Kotlik	52	9	22	5	0	0	0	0	5	2
District 1 total	171	15	92	10	0	0	12	1	5	2
Mountain Village	6	1	63	7	0	0	1	0	0	0
Pitkas Point	2	1	11	3	0	0	0	0	0	0
St. Mary's	3	0	64	5	0	0	3	0	0	0
Pilot Station	8	2	41	7	0	0	7	1	0	0
Marshall	7	2	42	8	0	0	0	0	0	0
District 2 total	25	3	221	14	0	0	11	1	0	0
Russian Mission	15	7	18	7	0	0	0	0	0	0
Holy Cross	7	3	8	3	0	0	0	0	0	0
Shageluk	3	2	3	2	0	0	0	0	0	0
District 3 total	25	8	29	8	0	0	0	0	0	0
Anvik	2	1	6	2	0	0	0	0	0	0
Grayling	0	0	18	3	0	0	0	0	0	0
Kaltag	2	1	26	4	0	0	0	0	0	0
Nulato	7	1	38	6	0	0	0	0	0	0
Koyukuk	5	3	13	4	0	0	0	0	0	0
Galena	15	3	36	6	0	0	0	0	0	0
Ruby	0	0	13	5	0	0	0	0	0	0
Huslia/Hughes	18	2	0	0	0	0	0	0	0	0
Allakaket/Alatna/Bettles	15	3	0	0	0	0	0	0	0	0
District 4 total	62	5	153	12	0	0	0	0	0	0
Tanana	35	5	3	2	3	1	0	0	0	0
Rampart/Stevens Village	7	4	0	0	0	0	0	0	0	0
Beaver	11	3	0	0	0	0	0	0	0	0
Fort Yukon/Birch Creek	28	6	0	0	20	5	0	0	0	0
Venetie/Chalkyitsik	8	5	0	0	0	0	0	0	0	0
District 5 total	89	10	3	2	22	5	0	0	0	0
Survey total	522	23	504	22	22	5	47	6	5	2

Appendix A4.—Estimated number (Est) of Chinook salmon harvested and 95% confidence interval (CI) by gear type in surveyed communities, Yukon Area, 2020.

Community	Gillnet mesh size													
	4-inch or less		6-inch		7.5-inch		Fish wheel		Dip net		Beach seine		Other gear	
	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI
Hooper Bay	71	19	253	66	113	32	0	0	0	0	0	0	0	0
Scammon Bay	0	0	768	258	0	0	0	0	272	89	0	0	0	0
Coastal District total	71	19	1,020	262	113	32	0	0	272	87	0	0	0	0
Nunam Iqua	15	11	283	77	60	47	0	0	6	4	0	0	0	0
Alakanuk	0	0	1,206	398	65	48	0	0	33	10	0	0	0	0
Emmonak	0	0	621	194	188	64	0	0	0	0	0	0	0	0
Kotlik	0	0	888	211	25	13	0	0	0	0	0	0	0	0
District 1 total	15	11	2,998	490	338	92	0	0	39	10	0	0	0	0
Mountain Village	0	0	880	198	144	68	0	0	0	0	0	0	0	0
Pitkas Point	2	1	115	62	120	75	0	0	13	10	0	0	0	0
St. Mary's	0	0	1,009	265	448	106	0	0	43	15	0	0	0	0
Pilot Station	0	0	657	184	69	22	0	0	13	3	0	0	28	12
Marshall	112	31	504	127	308	148	0	0	0	0	0	0	0	0
District 2 total	114	30	3,166	398	1,088	204	0	0	68	18	0	0	28	11
Russian Mission	0	0	292	118	134	54	0	0	0	0	0	0	6	2
Holy Cross	0	0	71	51	121	59	0	0	0	0	0	0	0	0
Shageluk	4	3	76	46	9	6	0	0	0	0	0	0	0	0
District 3 total	4	3	439	131	265	78	0	0	0	0	0	0	6	2
Anvik	0	0	190	84	52	25	0	0	0	0	0	0	0	0
Grayling	0	0	99	54	165	102	0	0	0	0	0	0	0	0
Kaltag	0	0	215	79	361	110	0	0	0	0	0	0	0	0
Nulato	88	28	1,552	469	90	37	0	0	0	0	0	0	18	7
Koyukuk	84	0	148	90	35	27	0	0	0	0	0	0	0	0
Galena	0	0	374	115	321	79	0	0	0	0	0	0	0	0
Ruby	0	0	412	145	0	0	0	0	0	0	0	0	11	9
Huslia/Hughes	0	0	22	13	0	0	0	0	0	0	130	0	19	25
Allakaket/Alatna/Bettles	3	3	164	158	0	0	0	0	0	0	0	0	9	9
District 4 total	175	28	3,176	533	1,024	171	0	0	0	0	130	0	57	28

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Community	Gillnet mesh size													
	4-inch or less		6-inch		7.5-inch		Fish wheel		Dip net		Beach seine		Other gear	
	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI
Tanana	39	26	822	483	454	102	589	238	0	0	0	0	0	0
Stevens Village	0	0	335	375	0	0	0	0	0	0	0	0	0	0
Beaver	0	0	304	297	0	0	0	0	0	0	0	0	0	0
Fort Yukon/Birch Creek	26	13	194	93	0	0	527	192	0	0	0	0	0	0
Venetie/Chalkyitsik	0	0	0	0	5	7	0	0	0	0	0	0	0	0
District 5 total	66	28	1,655	633	459	99	1,116	300	0	0	0	0	0	0
Survey total	445	54	12,454	1,075	3,286	309	1,116	298	379	89	130	0	91	30

Note: Estimates include only those fish harvested for subsistence purposes in surveyed communities and do not include fish retained from commercial, test fishery donations, or harvests from permit areas.

Appendix A5.—Estimated number of summer chum salmon harvested and 95% confidence intervals (CI) by gear type in surveyed communities, Yukon Area, 2020.

Community	Gillnet mesh size																	
	4-inch or less						6-inch		7.5-inch		Fish wheel		Dip net		Beach seine		Other gear	
	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI		
Hooper Bay	460	133	2,153	772	837	305	0	0	0	0	0	0	0	0	0	0		
Scammon Bay	0	0	2,210	549	0	0	0	0	1,719	405	0	0	0	0	0	0		
Coastal District total	460	132	4,363	939	837	303	0	0	1,719	397	0	0	0	0	0	0		
Nunam Iqua	0	0	921	333	150	89	0	0	0	0	0	0	0	0	0	0		
Alakanuk	44	33	2,769	675	0	0	0	0	176	90	0	0	0	0	0	0		
Emmonak	76	66	3,532	929	242	96	0	0	89	31	0	0	0	0	0	0		
Kotlik	0	0	4,831	1,078	0	0	0	0	0	0	0	0	0	0	0	0		
District 1 total	120	73	12,052	1,586	392	127	0	0	264	94	0	0	0	0	0	0		
Mountain Village	0	0	3,009	695	171	44	0	0	0	0	0	0	0	0	0	0		
Pitkas Point	14	11	335	150	11	6	0	0	118	56	0	0	0	0	0	0		
St. Mary's	0	0	3,558	873	218	80	0	0	311	82	0	0	0	0	0	0		
Pilot Station	0	0	3,301	1,246	15	11	0	0	20	14	0	0	27	12				
Marshall	135	47	1,495	723	380	136	0	0	0	0	0	0	0	0	0	0		
District 2 total	149	47	11,698	1,796	795	161	0	0	449	97	0	0	27	12				
Russian Mission	49	20	387	173	126	85	0	0	0	0	0	0	11	9				
Holy Cross	0	0	117	90	58	26	0	0	0	0	0	0	0	0	0	0		
Shageluk	0	0	97	88	16	7	0	0	0	0	0	0	0	0	0	0		
District 3 total	49	19	601	205	200	86	0	0	0	0	0	0	11	9				
Anvik	0	0	107	54	16	13	0	0	0	0	0	0	0	0	0	0		
Grayling	0	0	54	47	4	3	0	0	0	0	0	0	0	0	0	0		
Kaltag	0	0	169	142	59	48	0	0	0	0	0	0	0	0	0	0		
Nulato	0	0	39	16	0	0	0	0	0	0	0	0	0	0	0	0		
Koyukuk	0	0	14	13	0	0	0	0	0	0	0	0	0	0	0	0		
Galena	0	0	44	29	14	5	0	0	0	0	0	0	0	0	0	0		
Ruby	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Huslia/Hughes	751	473	366	187	0	0	0	0	0	0	567	0	120	179				
Allakaket/Alatna/Bettles	13	11	1,678	375	0	0	0	0	0	0	0	0	14	9				
District 4 total	765	463	2,471	437	92	47	0	0	0	0	567	0	134	176				

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Community	Gillnet mesh size													
	4-inch or less		6-inch		7.5-inch		Fish wheel		Dipnet		Beach seine		Other gear	
	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI	Est	CI
Tanana	241	196	97	57	0	0	0	0	0	0	0	0	0	0
Stevens Village	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Yukon/Birch Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Venetie/Chalkyitsik	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District 5 total	241	190	97	55	0	0	0	0	0	0	0	0	0	0
Survey total	1,784	523	31,282	2,607	2,315	377	0	0	2,432	416	567	0	172	176

Note: Estimates include only those fish harvested for subsistence purposes in surveyed communities and do not include fish retained from commercial, test fishery donations, or harvests from permit areas.

Appendix A6.—Estimated total number of households in surveyed communities, by harvest level, including community and district totals, Yukon Area, 2020.

Community	Unknown				Do not fish				Light harvester				Medium harvester				Heavy harvester			
	N	S	n	%S	N	S	n	%S	N	S	n	%S	N	S	n	%S	N	S	n	%S
Hooper Bay	44	44	21	48	53	53	18	34	70	70	26	37	66	66	48	73	1	1	1	73
Scammon Bay	19	19	7	37	17	17	3	18	39	39	11	28	37	37	27	73	–	–	–	73
Coastal District	63	63	28	44	70	70	21	30	109	109	37	34	103	103	75	73	1	1	1	73
Nunam Iqua	8	8	3	38	9	9	5	56	10	10	7	70	15	15	11	73	–	–	–	73
Alakanuk	29	29	14	48	27	27	12	44	46	46	19	41	42	42	25	60	1	1	1	60
Emmonak	44	44	21	48	42	42	19	45	50	50	26	52	57	57	37	65	1	1	1	65
Kotlik	19	19	10	53	15	15	7	47	46	46	21	46	40	40	22	55	–	–	–	55
District 1	100	100	48	48	93	93	43	46	152	152	73	48	154	154	95	62	2	2	2	62
Mountain Village	30	30	15	50	34	34	13	38	52	52	23	44	47	47	33	70	–	–	–	70
Pitkas Point	1	1	1	100	3	3	3	100	9	9	9	100	11	11	6	55	–	–	–	55
St. Mary's	27	27	12	44	18	18	8	44	38	38	14	37	41	41	28	68	2	2	1	68
Pilot Station	27	27	9	33	30	30	11	37	43	43	20	47	29	29	21	72	1	1	0	72
Marshall	18	18	8	44	16	16	3	19	32	32	9	28	28	28	21	75	1	1	1	75
District 2	103	103	45	44	101	101	38	38	174	174	75	43	156	156	109	70	4	4	2	70
Russian Mission	8	8	2	25	13	13	4	31	39	39	13	33	13	13	10	77	–	–	–	77
Holy Cross	2	2	0	0	15	15	10	67	21	21	11	52	13	13	9	69	–	–	–	69
Shageluk	13	13	4	31	8	8	6	75	6	6	3	50	3	3	3	100	1	1	0	100
District 3	23	23	6	26	36	36	20	56	66	66	27	41	29	29	22	76	1	1	0	76
Anvik	4	4	1	25	6	6	6	100	10	10	8	80	5	5	4	80	1	1	0	80
Grayling	8	8	4	50	8	8	2	25	26	26	10	38	14	14	10	71	–	–	–	71
Kaltag	7	7	4	57	10	10	5	50	24	24	11	46	11	11	9	82	–	–	–	82
Nulato	16	16	10	62	11	11	7	64	37	37	19	51	12	12	7	58	–	–	–	58
Koyukuk	3	3	1	33	10	10	4	40	20	20	9	45	6	6	3	50	2	2	1	50
Galena	20	20	14	70	43	43	25	58	51	51	33	65	11	11	9	82	3	3	0	82
Ruby	–	–	–	–	27	27	10	37	13	13	3	23	6	6	2	33	1	1	1	33
Huslia	9	9	3	33	40	40	18	45	18	18	14	78	6	6	3	50	4	4	3	50
Hughes	10	10	0	0	11	11	4	36	10	10	6	60	2	2	2	100	1	1	1	100
Allakaket	13	13	4	31	24	24	11	46	13	13	9	69	5	5	3	60	2	2	2	60
Alatna	2	2	1	50	3	3	1	33	1	1	1	100	1	1	0	0	–	–	–	0
Bettles	2	2	0	0	17	17	11	65	–	–	–	–	–	–	–	–	–	–	–	–
District 4	94	94	42	45	210	210	104	50	223	223	123	55	79	79	52	66	14	14	8	66

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Community	Unknown				Do not fish				Light harvester				Medium harvester				Heavy harvester			
	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>	<i>N</i>	<i>S</i>	<i>n</i>	% <i>S</i>
Tanana	22	22	10	45	21	21	5	24	33	33	16	48	9	9	3	33	9	9	8	33
Stevens Village	12	12	5	42	1	1	0	0	2	2	0	0	1	1	1	100	3	3	2	100
Birch Creek	5	5	1	20	8	8	2	25	2	2	2	100	–	–	–	–	–	–	–	–
Beaver	13	13	4	31	4	4	3	75	13	13	9	69	1	1	1	100	–	–	–	100
Fort Yukon	25	25	8	32	103	103	52	50	43	43	27	63	18	18	15	83	10	10	6	83
Venetie	22	22	5	23	32	32	6	19	9	9	1	11	7	7	3	43	2	2	0	43
Chalkyitsik	9	9	1	11	15	15	9	60	2	2	1	50	1	1	0	0	–	–	–	0
District 5	108	108	34	31	184	184	77	42	104	104	56	54	37	37	23	62	24	24	16	62
Survey totals	491	491	203	41	694	694	303	44	828	828	391	47	558	558	376	67	46	46	29	67

Note: The following notations were used in the above table: *N* = the total number of households, *S* = the number of households selected, *n* = the number of households contacted, and %*S* = the percent of the selected households that were contacted in each harvest group in surveyed communities. Dashes indicate indefinable values. Estimated total number of people includes a 95% confidence interval (CI).

Appendix A7.—Estimated 95% CI (in parentheses) of subsistence harvest of salmon species by fishing location in surveyed districts, Yukon Area, 2020.

Species	Districts/Subdistricts ^a													River drainages				Total by district				
	District	Coastal	1	2	3	4A	4B	4C	5A	5B	5C	5D		6	Innoko	Koyukuk	Teedriinjik		Porcupine	Draanjik		
Chinook	Coastal	(190)	(348)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(396)	
	1	(140)	(578)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(595)
	2	0	(106)	(572)	(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(582)
	3	0	0	0	(197)	(49)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(203)
	4	0	0	0	0	(562)	(176)	(285)	0	0	0	0	0	0	0	0	(171)	0	0	0	0	(676)
	5	0	0	0	0	0	0	(77)	0	(590)	0	(464)	(169)	0	0	0	0	(50)	(15)	0	0	(775)
Survey totals		(236)	(683)	(572)	(197)	(564)	(176)	(295)	0	(590)	0	(464)	(169)	0	0	(171)	(50)	(15)	0	0	(1,396)	
Summer chum	Coastal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(1,326)
	1	(313)	(1,643)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(1,672)
	2	0	(260)	(1,883)	(4)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(1,901)
	3	0	0	0	(275)	(83)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(287)
	4	0	0	0	0	(203)	(31)	0	0	0	0	0	0	0	0	0	(776)	0	0	0	0	(803)
	5	0	0	0	0	0	0	0	0	(242)	0	0	0	0	0	0	0	0	0	0	0	(242)
Survey totals		(1,062)	(1,870)	(1,883)	(275)	(220)	(31)	0	0	(242)	0	0	0	0	0	(776)	0	0	0	0	0	(2,993)

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Species	District	Districts/Subdistricts ^a											River drainages				Total by district			
		Coastal	1	2	3	4A	4B	4C	5A	5B	5C	5D		6	Innoko	Koyukuk		Teedriinjik	Porcupine	Draanjik
											down	up								
Fall chum	Coastal	(209)	(142)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(253)
	1	0	(295)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(295)
	2	0	0	(172)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(172)
	3	0	0	0	(20)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(20)
	4	0	0	0	0	(113)	(17)	(17)	0	0	0	0	0	0	0	(26)	0	0	0	(119)
	5	0	0	0	0	0	0	0	(73)	(758)	0	(125)	(42)	0	0	0	(70)	0	0	(776)
	Survey totals	(209)	(327)	(172)	(20)	(113)	(17)	(17)	(73)	(758)	0	(125)	(42)	0	0	(26)	(70)	0	0	(893)
Coho	Coastal	(144)	(66)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(158)
	1	0	(156)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(156)
	2	0	0	(143)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(143)
	3	0	0	0	(14)	(8)	0	0	0	0	0	0	0	0	0	0	0	0	0	(16)
	4	0	0	0	0	(82)	0	(11)	0	0	0	0	0	0	0	(52)	0	0	0	(97)
	5	0	0	0	0	0	0	0	(20)	(55)	0	0	0	0	0	0	(30)	0	0	(66)
	Survey totals	(144)	(169)	(143)	(14)	(82)	0	(11)	(20)	(55)	0	0	0	0	0	(52)	(30)	0	0	(290)
Pink	Coastal	(621)	(1,222)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(1,371)
	1	0	(439)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(439)
	2	0	(103)	(175)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(203)
	3	0	0	0	0	(25)	0	0	0	0	0	0	0	0	0	0	0	0	0	(25)
	4	0	0	0	0	(5)	0	0	0	0	0	0	0	0	0	0	0	0	0	(5)
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Survey totals	(621)	(1,302)	(175)	0	(25)	0	0	0	0	0	0	0	0	0	0	0	0	0	(1,453)

^a Harvest near Fort Yukon was divided according to whether harvest occurred downriver (5D-down) or upriver (5D-up) of the confluence of the Porcupine and Yukon Rivers.

APPENDIX B: 2020 DATA COLLECTION INSTRUMENTS

ADF&G Annual Subsistence Salmon Harvest Survey

This survey is CONFIDENTIAL and is used to estimate salmon harvests in your community

The estimate is used to understand the Yukon River salmon population, amounts needed for subsistence and to reconstruct the run for future Outlooks.

Your Information (Please update if necessary)

Name: _____

Address: Po Box XXX
TOWN, STATE, ZIP

Phone Number: _____

1. How many people live in your household?

2. Did anyone in your household subsistence fish or cut salmon this year? Yes | No

If NO skip to question 7.

3. How many salmon did your household harvest? Please include in this total number:

- Salmon cut for your family
- Salmon cut for dogs
- Kept from commercial fishing
- Shared with other families
- Lost (to flies, birds, weather or disease)

Chinook:

King, Taryakvak, Lluk Choo, Tagayukpuk _____

Summer Chum:

Teggmaarluk, Qalugruaq, Iqalluk _____

Fall Chum: Silvers

Teggmaarluk, Qalugruaq, Iqalluk _____

Coho: Qakiiyaq, Needlii, Qalugruaq _____

Pink Salmon:

Cuapeq, Amaqtuq, Neeghan _____

4. What gear(s) did you use to harvest salmon?

- Set Net Drift Net Fishwheel
 Dipnet Beach Seine
 Hook and Line Other _____

ADF&G Annual Subsistence Salmon Harvest Survey

5. What mesh size did you use?

- Whitefish net (4 inch or smaller)
 Chum net (bigger than 4 inch up to 6 inch)
 King net (bigger than 6 inch up to 7.5 inch)
 I don't know

6. Where do you fish?

- Coastal Area District 1 District 2
 District 3 Subdistrict 4A Subdistrict 4B
 Subdistrict 4C Subdistrict 5A Subdistrict 5B
 Subdistrict 5C
 Subdistrict 5D-downstream of Ft. Yukon
 Subdistrict 5D-upstream of Ft. Yukon
 Innoko River Koyukuk River
 Porcupine River Black River(Chalkyitsik)
 Tanana River Near my community
 Other _____

7. Do you have any dogs?

Yes | No

If NO, skip to comments Question 9.

- How many dogs do you own? _____

Did you feed any salmon to your dogs?

- Yes, Whole fish Only scraps
 No, none at all

8. How many salmon did you feed to your dogs?

Please do not include salmon given to you to feed your dogs.

- Chinook _____
- Summer Chum _____
- Fall Chum _____
- Coho _____
- Pink _____

-continued-

Appendix B3.–Yukon Area postseason subsistence salmon harvest survey questions from electronic app, 2020.

Primary question	Level 1 relevant question	Level 2 relevant question
Is your address and phone number still...? How many people live in your household?		
Did anyone in your household subsistence fish or cut salmon this year?	How many households helped to catch these fish? How many total salmon did you or your fishing GROUP catch? What District/Area did you fish? How many fish did you keep for your household? What is our household's main fishing GEAR? Secondary fishing GEAR?	Enter number of household harvest by species.
	Of the X number of Chinook you harvested, what gear did you use? Of the X number of summer chum you harvested, what gear did you use?	Enter Chinook harvest by gear type. Enter summer chum harvest by gear type.
	Of your household harvest did you share any salmon with family or friends outside your household? Or did you lose any whole salmon?	Enter number of shared salmon by species. Enter number of lost salmon by species.
Was your household GIVEN any salmon from a subsistence or commercial fisherman, or ADF&G test fish?	Subsistence received Commercial received ADF&G received	Enter number of subsistence salmon received. Enter number of commercial salmon received. Enter number of test fishery salmon received.

-continued-


Appendix B3.–Page 2 of 2.

Primary question	Level 1 relevant question	Level 2 relevant question
Did your household catch any OTHER FISH besides salmon?	Select all that apply (Asked each species and surveyor selects harvested species)	Enter number of other fish harvest by species.
Does your household have any dogs?	How many dogs does your household own? Does your household feed any WHOLE salmon to dogs?	How many WHOLE salmon did your household feed to dogs?
Comments and/or concerns	Do you plan on fishing for more salmon this year? How was fishing this year? Do you have any questions or concerns about the salmon fishery? Would you like a fishery manager/biologist to contact you regarding your questions or concerns?	

Household Application

Yukon Area Subsistence and Personal Use Fishing

Alaska Department of Fish and Game, Division of Commercial Fisheries
1300 College Road, Fairbanks, AK 99701 Telephone (907) 459-7274



Issuing officer use only

Permit Number: _____

Date Issued: _____

Issuing Officer: _____

Alaska Residents Only

First Name: _____ Middle Initial: _____ Last Name: _____ Suffix: _____

Date of Birth: _____ Driver's License State: _____ Number: _____ Gender: _____
(mm/dd/yyyy)

What month and year did Alaska Residency begin? _____ Or Nonresident Military (Y/N): _____

Telephone: _____ Email: _____

Mailing Address: _____

Same as mailing address City State Zipcode

Physical Address: _____

City State Zipcode

Total Household Member(s): _____ Names of Other Household Member(s): _____
(Include yourself) (Names of other household members authorized to fish this permit)

Select permit area (check one box):

Tanana River

SA- Subsistence, Manley

SB- Subsistence, Minto, Nenana

SK- Subsistence, Kantishna River

PC- Personal Use, Fairbanks, North Pole

PC requires Alaska Sport Fish License Number: _____

Yukon River

SR- Subsistence, Rampart*

SY- Subsistence, Bridge Area*

SE- Subsistence, Circle to Canadian border*

**contact Fairbanks office if fishing year-round (salmon and non-salmon)*

Number of dogs in household: _____ Do you feed whole salmon to dogs? (Y/N): _____

Primary Fishing Gear (check one box):

Set gillnet greater than 2 to 4 inch mesh

Set gillnet greater than 4 to 6 inch mesh (chum)

Set gillnet greater than 6 and up to 7.5 inch mesh (king)

Fish wheel

Secondary Fishing Gear (check one box):

Set gillnet greater than 2 to 4 inch mesh

Set gillnet greater than 4 to 6 inch mesh (chum)

Set gillnet greater than 6 and up to 7.5 inch mesh (king)

Fish wheel

Select permit area (check one box):

ST- Subsistence, Tolovana River drainage Pike (Minto, lower Chatanika)

SU- Subsistence, Upper Tanana River drainage (Tok area)

Number of dogs in household: _____ Do you feed whole salmon to dogs? (Y/N): _____

SF- Subsistence, Koyukuk (South, Middle forks)

Number of dogs in household: _____ Do you feed whole salmon to dogs? (Y/N): _____

PW- Personal Use Whitefish and Sucker, Tanana River drainage (Fairbanks, North Pole, Delta Junction) *not available online, contact Fairbanks office for application*

Primary Fishing Gear (check one box):

Set gillnet 2 inch mesh or less

Set gillnet greater than 2 to 4 inch mesh

Fyke nets (hoop traps)

Jigging gear – ice fishing only

Dip net

Fish wheel

Other: _____

Secondary Fishing Gear (check one box):

Set gillnet 2 inch mesh or less

Set gillnet greater than 2 to 4 inch mesh

Fyke nets (hoop traps)

Jigging gear – ice fishing only


Dip net

Fish wheel

Other: _____


Submit a permit application to ADF&G office in Fairbanks, Tok, Delta, or Anchorage to receive a permit. Permits are also available online at the Fish and Game Online Store at www.adfg.alaska.gov/Store . Household permits are free of charge and available to Alaska Residents.

-continued-



Alaska Department of Fish & Game
2020 Household Subsistence Fishing Permit
Upper Tanana River Drainage

This permit is valid through
December 31st, 2020

Permit Number

1 2 3 4 5 6

Alaska Resident

Last Name First Name M.I. Sport Fishing License #
(Required for Personal Use or Proxy Fishing)

Mailing Address

City State Zip Code Phone Number Driver's License # - State

E-Mail Address

Names of other household members authorized to fish this permit:

Subsistence Permit Area: Under authority of this permit, fish may be taken in that segment of the upper Tanana River drainage from the mouth of the Volkmar River, including the Volkmar River drainage, on the north bank (right bank) of the Tanana River to the Johnson River, east of the east bank of the Johnson River, and upstream to the Tanana River drainage headwaters. This includes the communities of Delta Junction, Dot Lake, Tanacross, Tok, Northway, and Nabesna. This permit area includes the upper Delta River drainage outside the Fairbanks Non-Subsistence Area. See closed waters listed in regulation.

Fishing Schedule Hotline: 459-7387 (in Fairbanks) or 1-866-479-7387 (Toll free)

Fishermen must abide by the current fishing schedule and allowable gear. Advisory Announcements are available at the Fairbanks office or at www.cfnews.adfg.alaska.gov, or you can sign up to receive announcements by email at this website.

Permit Conditions:

- All regulations pertaining to subsistence fishing in the area must be followed. See regulation summary.
- Anyone fishing this household's gear must be named above and carry this permit on their person during any fishing activity. Household members participating in fishing must be Alaska Residents.
- Fish taken under authority of this permit must be recorded on the catch form provided before leaving the fishing site on the same day the fish are landed.

Permit expires December 31. Final harvest must be reported within 10 days after expiration. Even if you did not fish, you must complete a report. Reporting can be completed by returning permit to ADF&G 1300 College Road, Fairbanks, AK 99701. You may also visit www.adfg.alaska.gov/harvest to report final harvest or select 'I am done fishing this permit' button if you did not fish. Failure to report this household's harvest information may result in denial of a household permit next year and the Alaska Wildlife Troopers will be notified.

For questions, call the Fairbanks office (907) 459-7274

This permit is not valid unless signed and dated. By completing this permit application I am agreeing to allow ADF&G to publish the number of fish reported using this permit. No names or addresses will be published.

I hereby claim I am a resident of Alaska and that the information I have provided on this permit is true as witnessed by my signature. I have read and will abide by all conditions of this permit.

Signature of Permittee

Date

Revised 12/2019 RECORD CATCH ON PAGE 2

APPENDIX C: HARVEST INFORMATION

Appendix C1.–Chinook salmon subsistence harvest totals by fishing district and community of residence, and personal use harvest total for District 6, Yukon Area, 2010–2020.

Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2010–2014	2015–2019
												Average	Average
Hooper Bay	584	252	1,090	1,210	455	534	284	314	456	784	436	718	474
Scammon Bay	716	517	1,014	332	108	432	602	747	666	1,233	1,040	537	736
Coastal District total	1,300	769	2,104	1,542	563	966	886	1,061	1,122	2,017	1,476	1,256	1,210
Nunam Iqua	404	250	195	12	62	210	190	235	78	470	381	185	237
Alakanuk	944	1,464	1,081	275	214	436	465	838	414	1,818	1,394	796	794
Emmonak	2,194	2,172	1,864	553	463	612	939	1,731	1,203	2,419	1,033	1,449	1,381
Kotlik	2,314	2,369	1,173	794	617	661	1,158	1,767	1,556	2,333	912	1,453	1,495
District 1 subtotal	5,856	6,255	4,313	1,634	1,356	1,919	2,752	4,571	3,251	7,040	3,720	3,883	3,907
Mountain Village	1,601	2,063	1,789	266	178	370	809	1,060	1,021	1,238	1,025	1,179	900
Pitkas Point	580	246	261	37	79	44	156	492	365	1,096	249	241	431
St. Mary's	2,800	1,734	2,344	215	68	261	1,032	919	1,172	2,735	1,500	1,432	1,224
Pilot Station	1,585	1,340	1,078	258	163	382	652	818	581	1,919	1,034	885	870
Marshall	2,110	2,686	1,409	328	128	128	512	1,554	914	1,261	924	1,332	874
District 2 subtotal	8,676	8,069	6,881	1,104	616	1,185	3,161	4,843	4,053	8,249	4,732	5,069	4,298
Russian Mission	924	1,550	1,711	236	16	365	321	1,368	1,043	1,561	432	887	932
Holy Cross	3,098	2,231	576	204	0	68	557	822	580	1,483	192	1,222	702
Shageluk	277	353	75	4	32	14	23	86	181	262	90	148	113
District 3 subtotal	4,299	4,134	2,362	444	48	447	901	2,276	1,804	3,306	714	2,257	1,747
Lower Yukon River total	18,831	18,458	13,556	3,182	2,020	3,551	6,814	11,690	9,108	18,595	9,166	11,209	9,952
Anvik	1,069	1,052	435	121	0	58	241	709	566	655	242	535	446
Grayling	2,122	1,374	1,081	226	3	22	370	749	888	1,446	264	961	695
Kaltag	3,191	2,488	1,346	348	10	119	1,358	1,959	570	1,225	577	1,477	1,046
Nulato	2,989	1,538	1,955	602	0	33	1,957	2,132	1,260	2,396	1,748	1,417	1,556
Koyukuk	867	1,349	614	898	52	26	612	648	859	1,088	268	756	647
Galena	1,357	1,434	742	275	1	372	993	2,224	1,262	2,895	695	762	1,549
Ruby	1,102	482	1,316	357	6	68	344	568	1,126	1,036	562	653	628
District 4 subtotal	12,697	9,717	7,489	2,827	72	698	5,875	8,989	6,531	10,741	4,356	6,560	6,567
Huslia/Hughes	128	131	165	68	51	38	94	454	170	871	186	109	325
Allakaket/Alatna/Bettles	63	45	8	6	9	35	46	31	48	134	176	26	59
Koyukuk River subtotal	191	176	173	74	60	73	140	485	218	1,005	362	135	384
District 4 total (incl. Koyukuk R.)	12,888	9,893	7,662	2,901	132	771	6,015	9,474	6,749	11,746	4,718	6,695	6,951

-continued-

Appendix C1.–Page 2 of 2.

Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2010–2014	2015–2019
												Average	Average
Tanana	3,215	2,936	2,100	1,200	88	141	2,129	2,961	5,108	3,408	1,905	1,908	2,749
Rampart/Stevens Village	731	616	520	274	0	1	228	155	284	446	485	428	223
Fairbanks (FNSB) ^a	1,670	2,186	558	610	14	263	1,318	2,521	1,475	2,479	1,623	1,008	1,611
Beaver	198	356	71	107	0	69	165	585	332	1,413	304	146	513
Fort Yukon/Birch Creek	1,756	2,521	2,141	1,561	93	480	1,225	4,224	4,704	4,563	757	1,614	3,039
Circle/Central	414	363	346	178	0	185	260	744	683	694	175	260	513
Eagle	867	728	167	175	76	395	864	1,730	1,011	790	280	403	958
Other District 5 ^b	779	777	477	125	0	7	306	830	474	944	368	432	512
District 5 subtotal	9,630	10,483	6,380	4,230	271	1,541	6,495	13,750	14,071	14,737	5,897	6,199	10,119
Venetie/Chalkyitsik	767	10	86	311	17	308	586	780	443	660	32	238	555
Teedriinjik/Draanjik R. subtotal	767	10	86	311	17	308	586	780	443	660	32	238	555
District 5 total ^c	10,397	10,493	6,466	4,541	288	1,849	7,081	14,530	14,514	15,397	5,929	6,437	10,674
Manley	337	287	174	165	92	121	230	103	210	94	33	211	152
Minto	43	61	99	60	0	23	35	101	NA	35	5	53	49
Nenana/Healy	660	681	296	87	139	263	464	309	181	404	230	373	324
Fairbanks (FNSB) ^d	91	330	58	49	41	33	87	144	53	82	140	114	80
Other District 6 ^e	12	8	0	6	11	0	0	0	49	9	17	7	12
District 6 Tanana R. total	1,143	1,367	627	367	283	440	816	657	493	624	425	757	606
Upper Yukon River total	24,428	21,753	14,755	7,809	703	3,060	13,912	24,661	21,756	27,767	11,072	13,890	18,231
Yukon Area total ^f	44,559	40,980	30,415	12,533	3,286	7,577	21,612	37,412	31,986	48,379	21,714	26,355	29,393
Personal Use (District 6) ^g	162	89	71	42	1	5	57	125	206	244	112	73	127
Yukon Area total with personal use	44,721	41,069	30,486	12,575	3,287	7,582	21,669	37,537	32,192	48,623	21,826	26,428	29,521

Note: Subsistence harvest data were estimated from postseason survey, returned permits and test fishery projects. NA indicates not available.

^a Harvests by subsistence permit holders who resided in Fairbanks North Star Borough (FNSB) and fished in District 5 near the Yukon River bridge crossing.

^b Other permit holders who fished in District 5 but did not reside in the communities listed.

^c Included Teedriinjik (formerly Chandalar River) and Draanjik (formerly Black River).

^d Harvests by subsistence permit holders who resided in FNSB and fished in the Tanana River.

^e Other permit holders who fished in District 6 but did not reside in the communities listed, or harvests from communities with less than 3 participants.

^f Area total includes Coastal District, historically Yukon River total consisted of Lower and Upper Yukon Areas, that were used in assessing border passage objectives under the Yukon Salmon Agreement.

^g Harvest from the personal use fishing area on the Tanana River near Fairbanks. Not included in communities or totals above.

Appendix C2.—Summer chum salmon subsistence harvest totals by fishing district and community of residence, and personal use harvest total for District 6, Yukon Area, 2010–2020.

Community												2010–2014 2015–2019	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Average
Hooper Bay	17,020	13,460	15,799	13,629	13,236	11,870	6,324	7,818	8,346	2,999	3,450	14,629	7,471
Scammon Bay	5,405	4,845	7,442	9,506	6,068	8,598	5,520	6,033	6,850	4,037	3,929	6,653	6,208
Coastal District total	22,425	18,305	23,241	23,135	19,304	20,468	11,844	13,851	15,196	7,036	7,379	21,282	13,679
Nunam Iqua	2,267	2,077	1,977	2,651	2,010	2,239	2,130	1,759	1,549	1,105	1,071	2,196	1,756
Alakanuk	7,722	7,447	9,012	7,520	9,120	4,469	6,527	4,993	5,448	6,276	3,924	8,164	5,543
Emmonak	10,918	12,468	15,829	8,209	7,143	9,973	8,976	6,933	7,036	8,404	5,463	10,913	8,264
Kotlik	4,265	6,598	8,552	10,136	5,621	4,960	8,925	8,776	7,007	6,994	4,831	7,034	7,332
District 1 subtotal	25,172	28,590	35,370	28,516	23,894	21,641	26,558	22,461	21,040	22,779	15,289	28,308	22,896
Mountain Village	7,071	9,355	9,031	11,861	7,059	6,063	8,782	7,230	5,414	4,320	3,180	8,875	6,362
Pitkas Point	633	585	1,153	2,186	1,588	1,225	1,485	1,489	1,390	1,103	478	1,229	1,338
St. Mary's	7,443	6,760	10,763	9,167	5,570	8,216	7,379	4,967	4,486	7,349	4,087	7,941	6,479
Pilot Station	6,196	4,182	5,716	5,299	5,728	4,702	4,796	4,952	4,015	6,871	3,881	5,424	5,067
Marshall	2,395	3,810	5,903	3,986	6,189	4,351	5,180	5,166	3,311	2,703	2,009	4,457	4,142
District 2 subtotal	23,738	24,692	32,566	32,499	26,134	24,557	27,622	23,804	18,616	22,346	13,635	27,926	23,389
Russian Mission	528	1,225	2,508	3,967	3,181	2,626	1,798	2,645	2,245	1,483	574	2,282	2,159
Holy Cross	463	363	1,147	262	97	421	991	242	306	199	174	466	432
Shageluk	350	1,145	5,035	463	470	80	275	804	495	673	113	1,493	465
District 3 subtotal	1,341	2,733	8,690	4,692	3,748	3,127	3,064	3,691	3,046	2,355	861	4,241	3,057
Lower Yukon River total	50,251	56,015	76,626	65,707	53,776	49,325	57,244	49,956	42,702	47,480	29,785	60,475	49,341
Anvik	451	220	1,371	830	2,052	777	1,117	330	437	223	123	985	577
Grayling	1,612	838	2,616	618	1,617	509	878	738	779	879	58	1,460	757
Kaltag	102	163	186	67	954	216	467	185	25	180	228	294	215
Nulato	416	246	254	401	158	6	1,001	1,588	241	157	39	295	599
Koyukuk	352	890	828	4,459	300	0	119	96	150	21	24	1,366	77
Galena	1,702	3,414	718	179	377	1,059	1,689	1,228	349	1,223	58	1,278	1,110
Ruby	1,971	775	3,891	681	29	88	678	107	970	464	0	1,469	461
District 4 subtotal	6,606	6,546	9,864	7,235	5,487	2,655	5,949	4,272	2,951	3,147	530	7,148	3,795
Huslia/Hughes	2,227	4,120	7,734	4,070	3,214	4,609	4,764	9,295	4,726	3,915	1,804	4,273	5,462
Allakaket/Alatna/Bettles	2,887	2,500	3,957	2,456	1,280	2,513	3,015	2,857	4,844	472	1,705	2,616	2,740
Koyukuk River subtotal	5,114	6,620	11,691	6,526	4,494	7,122	7,779	12,152	9,570	4,387	3,509	6,889	8,202
District 4 total (incl. Koyukuk R.)	11,720	13,166	21,555	13,761	9,981	9,777	13,728	16,424	12,521	7,534	4,039	14,037	11,997

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Appendix C2.–Page 2 of 2.

Community	2010–2014											2015–2019	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Average
Tanana	1,856	4,381	4,333	9,565	2,612	3,162	3,685	3,086	2,733	530	338	4,549	2,639
Rampart/Stevens Village	189	110	259	55	70	0	629	10	1	0	3	137	128
Fairbanks (FNSB) ^a	427	688	172	1,350	300	575	461	1,413	521	179	65	587	630
Beaver	22	393	27	12	0	0	23	98	8	27	0	91	31
Fort Yukon/Birch Creek	722	1,297	0	225	19	0	12	98	44	12	0	453	33
Circle/Central	37	48	0	66	0	0	0	0	0	0	0	30	0
Eagle	25	2	0	50	0	0	0	0	0	0	0	15	0
Other District 5 ^b	144	790	101	94	91	8	180	321	37	55	17	244	120
District 5 subtotal	3,422	7,709	4,892	11,417	3,092	3,745	4,990	5,026	3,344	803	423	6,106	3,582
Venetie/Chalkyitsik	133	0	0	0	16	0	0	0	114	0	0	30	23
Teedriinjik/Draanjik R. subtotal	133	0	0	0	16	0	0	0	114	0	0	30	23
District 5 total ^c	3,555	7,709	4,892	11,417	3,108	3,745	4,990	5,026	3,458	803	423	6,136	3,604
Manley	102	142	58	45	182	9	32	16	78	3	7	106	28
Minto	8	27	64	258	24	0	4	234	NA	0	1	76	60
Nenana/Healy	113	471	370	642	275	60	19	603	440	409	23	374	306
Fairbanks (FNSB) ^d	183	185	114	143	237	183	41	271	82	31	84	172	122
Other District 6 ^e	16	0	72	6	13	0	0	7	5	0	0	21	2
District 6 Tanana R. total	422	825	678	1,094	731	252	96	1,131	605	443	115	750	505
Upper Yukon River total	15,697	21,700	27,125	26,272	13,820	13,774	18,814	22,581	16,584	8,780	4,577	20,923	16,107
Yukon Area total ^f	88,373	96,020	126,992	115,114	86,900	83,567	87,902	86,388	74,482	63,296	41,741	102,680	79,127
Personal use (District 6) ^g	319	439	321	138	235	220	176	438	515	294	67	290	329
Yukon Area total with personal use	88,692	96,459	127,313	115,252	87,135	83,787	88,078	86,826	74,997	63,590	41,808	102,970	79,456

Note: Subsistence harvest data were estimated from postseason survey, returned permits and test fishery projects. NA indicates not available.

^a Harvests by subsistence permit holders who resided in Fairbanks North Star Borough (FNSB) and fished in District 5 near the Yukon River bridge crossing.

^b Other permit holders who fished in District 5 but did not reside in the communities listed.

^c Included Teedriinjik (formerly Chandalar River) and Draanjik (formerly Black River).

^d Harvests by subsistence permit holders who resided in FNSB and fished in the Tanana River.

^e Other permit holders who fished in District 6 but did not reside in the communities listed.

^f Area total includes Coastal District.

^g Harvest from the personal use fishing area on the Tanana River near Fairbanks. Not included in communities or totals above.

Appendix C3.–Fall chum salmon subsistence harvest totals by fishing district and community of residence, and personal use harvest total for District 6, Yukon Area, 2010–2020.

Community												2010–2014 2015–2019	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Average
Hooper Bay	116	267	1	91	137	79	105	137	158	210	407	122	138
Scammon Bay	70	48	10	58	115	119	657	416	364	605	245	60	432
Coastal District total	186	315	11	149	252	198	762	553	522	815	652	183	570
Nunam Iqua	143	51	210	93	128	210	111	52	188	102	16	125	133
Alakanuk	860	881	449	328	593	1067	743	424	510	352	108	622	619
Emmonak	1,718	1,540	5,890	2,165	2,465	3,244	2,501	2,735	2,208	1,868	1,331	2,756	2,511
Kotlik	481	962	1,073	1,087	886	1,356	1,217	1,370	759	1,929	139	898	1,326
District 1 subtotal	3,202	3,434	7,622	3,673	4,072	5,877	4,572	4,581	3,665	4,251	1,594	4,401	4,589
Mountain Village	133	800	685	2,174	1,484	1,398	1,210	1,560	872	1,180	259	1,055	1,244
Pitkas Point	10	30	9	65	400	172	232	172	112	139	72	103	165
St. Mary's	387	611	1,423	1,009	2,037	1,611	1,088	753	470	844	125	1,093	953
Pilot Station	833	575	1,031	777	796	1,346	903	1,065	1,116	997	468	802	1,085
Marshall	56	562	184	853	1,100	1,731	1,106	532	415	644	13	551	886
District 2 subtotal	1,419	2,578	3,332	4,878	5,817	6,258	4,539	4,082	2,985	3,804	937	3,605	4,334
Russian Mission	104	11	282	804	365	449	235	671	349	469	0	313	435
Holy Cross	21	94	339	855	1,840	763	583	324	176	171	26	630	403
Shageluk	1,200	249	16	105	252	176	179	289	174	114	0	364	186
District 3 subtotal	1,325	354	637	1,764	2,457	1,388	997	1,284	699	754	26	1,307	1,024
Lower Yukon River total	5,946	6,366	11,591	10,315	12,346	13,523	10,108	9,947	7,349	8,809	2,557	9,313	9,947
Anvik	169	202	569	763	1,028	680	527	296	500	45	222	546	410
Grayling	202	1,152	804	471	1,451	1,184	499	272	750	45	54	816	550
Kaltag	658	196	2,830	583	2,828	1,255	680	142	66	103	0	1,419	449
Nulato	1,049	652	2,729	2,995	3,839	2,248	2,681	1,762	869	662	0	2,253	1,644
Koyukuk	792	1,388	1,331	5,308	998	2,838	297	166	295	287	0	1,963	777
Galena	1,968	2,739	2,947	602	3,368	2,542	3,319	4,760	1,401	1,129	19	2,325	2,630
Ruby	1,026	592	4,408	2,505	972	713	526	97	842	242	0	1,901	484
District 4 subtotal	5,864	6,921	15,618	13,227	14,484	11,460	8,529	7,495	4,723	2,513	295	11,223	6,944
Huslia/Hughes	403	247	1,911	1,257	927	1,226	954	543	859	420	28	949	800
Allakaket/Alatna/Bettles	521	92	526	707	525	588	551	1,535	362	1,299	42	474	867
Koyukuk River subtotal	924	339	2,437	1,964	1,452	1,814	1,505	2,078	1,221	1,719	70	1,423	1,667
District 4 total (incl. Koyukuk R.)	6,788	7,260	18,055	15,191	15,936	13,274	10,034	9,573	5,944	4,232	365	12,646	8,611

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Community	2010–2014											2015–2019	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Average
Tanana	14,984	21,728	20,465	31,546	14,131	19,627	21,261	21,952	16,731	12,039	1,158	20,571	18,322
Rampart/Stevens Village	3,441	1,251	467	940	6,700	186	4,500	0	1,417	98	20	2,560	1,240
Fairbanks (FNSB) ^a	822	1,696	793	1,160	1,406	2,454	2,143	3,075	2,077	4,104	568	1,175	2,771
Beaver	37	122	174	21	323	76	228	0	141	17	0	135	92
Fort Yukon/Birch Creek	6,006	7,188	12,659	16,453	8,025	6,257	7,728	4,523	3,487	7,153	133	10,066	5,830
Circle/Central	927	299	161	1,397	1,277	1,652	1,306	2,182	2,877	2,069	9	812	2,017
Eagle	15,008	17,455	18,731	18,871	17,450	17,185	15,765	19,126	16,539	16,738	0	17,503	17,071
Other District 5 ^b	120	208	443	121	222	229	17	12	175	52	21	223	97
District 5 subtotal	41,345	49,947	53,893	70,509	49,534	47,666	52,948	50,870	43,444	42,270	1,909	53,046	47,440
Venetie/Chalkyitsik	2,989	1,938	457	5,589	1,663	2,594	5,883	10,574	2,544	2,804	43	2,527	4,880
Teedriinjik/Draanjik R. subtotal	2,989	1,938	457	5,589	1,663	2,594	5,883	10,574	2,544	2,804	43	2,527	4,880
District 5 total ^c	44,334	51,885	54,350	76,098	51,197	50,260	58,831	61,444	45,988	45,074	1,952	55,573	52,319
Manley	2,696	2,333	2,164	1,539	2,579	1,697	414	809	3,645	2,457	172	2,262	1,804
Minto	70	1,500	2	593	472	140	40	18	NA	13	0	527	53
Nenana/Healy	7,870	6,218	9,260	3,852	4,545	3,981	3,544	2,640	4,937	1,801	19	6,349	3,381
Fairbanks (FNSB) ^d	678	4,317	3,876	5,651	5,190	3,496	884	1,137	822	658	10	3,942	1,399
Other District 6 ^e	77	8	0	5	12	31	0	18	0	3	1	20	10
District 6 Tanana R. total	11,391	14,376	15,302	11,640	12,798	9,345	4,882	4,622	9,404	4,932	202	13,101	6,637
Upper Yukon River total	62,513	73,521	87,707	102,929	79,931	72,879	73,747	75,639	61,336	54,238	2,519	81,320	67,568
Yukon Area total ^f	68,645	80,202	99,309	113,393	92,529	86,600	84,617	86,139	69,207	63,862	5,728	90,816	78,085
Personal use (District 6) ^g	3,209	347	410	383	278	80	283	626	505	408	37	925	380
Yukon Area total with personal use	71,854	80,549	99,719	113,776	92,807	86,680	84,900	86,765	69,712	64,270	5,765	91,741	78,465

Note: Subsistence harvest data were estimated from postseason survey, returned permits and test fishery projects. NA indicates not available.

^a Harvests by subsistence permit holders who resided in Fairbanks North Star Borough (FNSB) and fished in District 5 near the Yukon River bridge crossing.

^b Other permit holders who fished in District 5 but did not reside in the communities listed.

^c Included Teedriinjik (formerly Chandalar River) and Draanjik (formerly Black River).

^d Harvests by subsistence permit holders who resided in FNSB and fished in the Tanana River.

^e Other permit holders who fished in District 6 but did not reside in the communities listed.

^f Area total includes Coastal District, historically Yukon River total consisted of Lower and Upper Yukon Areas that were used in assessing border passage objectives under the Yukon Salmon Agreement.

^g Harvest from the personal use fishing area on the Tanana River near Fairbanks. Not included in communities or totals above.

Appendix C4.—Coho salmon subsistence harvest totals by fishing district and community of residence, and personal use harvest total for District 6, Yukon Area, 2010–2020.

Community	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2010–2014 2015–2019	
												Average	Average
Hooper Bay	45	0	7	73	118	95	121	218	119	342	150	31	134
Scammon Bay	79	55	86	214	86	79	234	206	746	462	189	109	270
Coastal District total	124	55	93	287	204	174	355	424	865	804	339	140	404
Nunam Iqua	73	23	18	83	153	229	58	20	184	21	19	49	129
Alakanuk	449	431	252	167	443	581	183	199	190	380	123	325	319
Emmonak	362	472	2,660	517	613	852	717	723	329	379	331	1,003	647
Kotlik	238	201	420	457	573	438	273	102	264	1,182	79	329	330
District 1 subtotal	1,122	1,127	3,350	1,224	1,782	2,100	1,231	1,044	967	1,962	552	1,706	1,425
Mountain Village	127	261	256	271	202	723	436	729	267	273	126	229	471
Pitkas Point	116	37	53	41	123	72	22	224	54	0	10	62	99
St. Mary's	92	230	141	124	408	391	128	213	37	10	37	147	235
Pilot Station	189	145	329	136	568	305	136	91	121	147	174	200	244
Marshall	33	150	567	508	468	1511	409	139	112	212	147	315	528
District 2 subtotal	557	823	1,346	1,080	1,769	3,002	1,131	1,396	591	642	494	952	1,578
Russian Mission	300	0	319	152	124	154	6	483	123	104	7	193	178
Holy Cross	0	0	237	0	103	246	134	0	23	63	6	59	101
Shageluk	53	36	0	219	113	28	0	14	8	65	7	77	33
District 3 subtotal	353	36	556	371	340	428	140	497	154	232	20	329	312
Lower Yukon River total	2,032	1,986	5,252	2,675	3,891	5,530	2,502	2,937	1,712	2,836	1,066	2,986	3,314
Anvik	28	19	214	97	197	46	184	11	15	55	23	90	91
Grayling	132	119	26	34	403	212	35	0	0	75	52	78	130
Kaltag	0	258	928	306	514	18	53	3	34	1	0	373	124
Nulato	242	118	41	125	454	48	0	85	220	27	0	132	161
Koyukuk	254	137	62	3,267	50	416	1	6	22	38	0	930	99
Galena	549	1,013	276	170	718	654	201	136	216	120	13	502	385
Ruby	148	312	1,806	345	335	185	226	22	26	32	0	653	159
District 4 subtotal	1,353	1,976	3,353	4,344	2,671	1,579	700	263	533	348	88	2,757	1,149
Huslia/Hughes	289	83	165	360	282	310	93	171	1020	80	45	224	375
Allakaket/Alatna/Bettles	88	13	38	236	109	52	33	92	27	69	5	94	63
Koyukuk River subtotal	377	96	203	596	391	362	126	263	1,047	149	50	318	438
District 4 total (incl. Koyukuk R.)	1,730	2,072	3,556	4,940	3,062	1,941	826	526	1,580	497	138	3,075	1,587

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Community	2010–2014											2015–2019	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Average
Tanana	2,314	312	3,060	1,135	1,788	2,434	639	874	1,355	82	120	1,705	1,418
Rampart/Stevens Village	452	0	0	0	0	2	52	0	11	7	12	113	13
Fairbanks (FNSB) ^a	2	2	0	0	0	0	101	112	72	506	32	1	57
Beaver	1	0	2	0	2	0	0	0	0	0	0	1	0
Fort Yukon/Birch Creek	244	1,040	4	7	201	2	1	7	0	4	0	324	42
Circle/Central	164	0	5	150	0	0	38	0	0	0	0	80	8
Eagle	1	1	0	0	1	0	0	0	0	0	0	1	0
Other District 5 ^b	0	0	21	0	0	0	0	1	11	1	16	5	2
District 5 subtotal	3,178	1,355	3,092	1,292	1,992	2,438	831	994	1,449	600	180	2,229	1,541
Venetie/Chalkyitsik	426	34	0	6	38	24	30	18	0	12	16	117	22
Teedriinjik/Draanjik R. subtotal	426	34	0	6	38	24	30	18	0	12	16	117	22
District 5 total ^c	3,604	1,389	3,092	1,298	2,030	2,462	861	1,012	1,449	612	196	2,346	1,563
Manley	1,832	1,482	1,374	447	1,177	1,263	323	750	918	381	330	1,284	886
Minto	0	0	0	266	37	270	0	0	NA	0	0	67	77
Nenana/Healy	3,511	4,248	6,664	1,962	3,002	3,359	2,970	1,392	1,622	475	180	4,096	2,469
Fairbanks (FNSB) ^d	212	1,109	1,502	2,576	3,689	3,108	978	362	121	213	81	1,350	1,652
Other District 6 ^e	0	3	0	6	6	0	0	11	0	0	0	2	3
District 6 Tanana R. total	5,555	6,842	9,540	5,257	7,911	8,000	4,271	2,515	2,661	1,069	591	6,799	5,072
Upper Yukon River total	10,889	10,303	16,188	11,495	13,003	12,403	5,958	4,053	5,690	2,178	925	12,219	8,221
Yukon Area total ^f	13,045	12,344	21,533	14,457	17,098	18,107	8,815	7,414	8,267	5,818	2,330	15,345	11,940
Personal Use (District 6) ^g	1,062	232	100	109	174	145	266	200	131	68	79	376	183
Yukon Area total with Personal Use	14,107	12,576	21,633	14,566	17,272	18,252	9,081	7,614	8,398	5,886	2,409	15,721	12,123

Note: Subsistence harvest data were estimated from postseason survey, returned permits and test fishery projects. NA indicates not available.

^a Harvests by subsistence permit holders who resided in Fairbanks North Star Borough (FNSB) and fished in District 5 near the Yukon River bridge crossing.

^b Other permit holders who fished in District 5 but did not reside in the communities listed.

^c Included Teedriinjik (formerly Chandalar River) and Draanjik (formerly Black River).

^d Harvests by subsistence permit holders who resided in FNSB and fished in the Tanana River.

^e Other permit holders who fished in District 6 but did not reside in the communities listed.

^f Area total includes Coastal District.

^g Harvest from the personal use fishing area on the Tanana River near Fairbanks. Not included in communities or totals above.

Appendix C5.—Estimated pink salmon subsistence harvest by residents of surveyed communities, with community and district totals, Yukon Area, 2010–2020.

Community	2010	2011	2012	2013 ^a	2014	2015 ^a	2016	2017	2018	2019	2020	Even years Average	Odd years Average	All years Average
Hooper Bay	219	210	1,101	302	712	451	4,007	315	635	2,393	1,758	1,335	734	1,035
Scammon Bay	2,245	1,888	1,343	507	1,923	1,414	2,490	988	2,427	1,322	2,259	2,086	1,224	1,655
Coastal District total	2,464	2,098	2,444	809	2,635	1,865	6,497	1,303	3,062	3,715	4,017	3,420	1,958	2,689
Nunam Iqua	306	8	1,051	0	670	352	352	484	377	269	592	551	223	387
Alakanuk	151	13	174	92	970	15	713	99	7	190	143	403	82	242
Emmonak	206	0	199	0	588	7	228	0	31	23	125	250	6	128
Kotlik	124	32	195	23	1,064	14	502	159	29	398	29	383	125	254
District 1 subtotal	787	53	1,619	115	3,292	388	1,795	742	444	880	889	1,587	436	1,012
Mountain Village	217	24	207	0	233	57	93	152	92	270	292	168	101	135
Pitkas Point	143	0	2	2	45	288	48	0	122	0	11	72	58	65
St. Mary's	543	1	643	0	614	18	104	171	35	80	136	388	54	221
Pilot Station	125	34	23	131	27	0	8	5	0	1	13	37	34	35
Marshall	21	66	5	7	1	0	5	44	53	1	2	17	24	20
District 2 subtotal	1,049	125	880	140	920	363	258	372	302	352	454	682	270	476
Russian Mission	2	0	76	12	8	0	0	0	0	0	0	17	2	10
Holy Cross	0	0	0	0	0	0	2	1	0	0	0	0	0	0
Shageluk	0	9	24	0	3	0	9	1	0	2	25	7	2	5
District 3 subtotal	2	9	100	12	11	0	11	2	0	2	25	25	5	15
Lower Yukon River total	1,838	187	2,599	267	4,223	751	2,064	1,116	746	1,234	1,368	2,294	711	1,503
Anvik	0	0	0	0	0	0	0	0	0	0	5	0	0	0
Grayling	0	40	0	0	39	0	33	0	16	0	0	18	8	13
Kaltag	0	0	0	0	0	0	73	0	0	0	0	15	0	7
Nulato	0	0	0	0	8	0	0	0	0	0	0	2	0	1
Koyukuk	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Galena	0	0	3	0	6	16	11	8	0	0	0	4	5	4
Ruby	0	0	0	0	13	0	0	0	0	0	0	3	0	1
District 4 subtotal	0	40	3	0	66	16	117	8	16	0	5	40	13	27
Hughes/Huslia	0	0	101	0	0	0	0	5	20	82	0	24	17	21
Allakaket/Alatna/Bettles	0	0	0	0	0	0	0	0	5	0	0	1	0	1
Koyukuk River subtotal	0	0	101	0	0	0	0	5	25	82	0	25	17	21
District 4 total (incl. Koyukuk R.)	0	40	104	0	66	16	117	13	41	82	5	66	30	48

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Community	2010	2011	2012	2013 ^a	2014	2015 ^a	2016	2017	2018	2019	2020	Estimated total		
												Even years Average	Odd years Average	All years Average
Tanana	0	0	3	0	8	13	34	0	0	0	0	9	3	6
Rampart/Stevens Village	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaver	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fort Yukon/Birch Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Venetie/Chalkyitsik	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District 5 total	0	0	3	0	8	13	34	0	0	0	0	9	3	6
Survey totals	4,302	2,325	5,150	1,076	6,932	2,645	8,712	2,432	3,849	5,031	5,390	5,789	2,702	4,245
CI (95%)	1,209	918	1,155	387	1,356	612	2,064	748	1,299	1,210	1,433	1,417	775	1,096
Test fishery ^b	103	34	216	0	120	0	9	8	65	2	15	103	9	56

Note: CI (95%) is the annual survey total 95% confidence interval.

^a Included test fishery catch. Confidence intervals were calculated from subsistence estimates and did not include donations of test fishery to communities. Pink salmon harvested and distributed from test fishery projects were not always recorded.

^b Number from test fishery catch added to community harvest estimates.

Appendix C6.—Households with dogs, number of dogs, and salmon fed to dogs, as estimated in surveyed communities or reported in permit areas, Yukon Area, 2010–2020.

Year	Number of households with dogs	Number of dogs	Salmon fed to dogs				Total
			Summer chum	Fall chum	Coho	Unknown species ^a	
2010	1,752	5,064	8,363	23,779	3,089	25,718	60,949
2011	1,727	5,353	17,265	33,662	2,421	30,899	84,247
2012	1,655	6,171	28,054	37,302	2,572	30,970	98,898
2013	1,770	5,007	18,890	51,427	4,257	24,873	99,447
2014	1,759	5,388	5,105	28,218	1,946	31,419	66,688
2015	1,795	5,175	7,848	24,184	3,654	29,259	64,945
2016	2,058	5,371	9,241	36,286	1,027	19,021	65,575
2017	1,965	5,615	18,071	32,162	1,241	24,039	75,513
2018	1,918	5,318	12,095	24,500	2,217	21,318	60,130
2019	1,870	4,906	3,724	23,180	51	23,843	50,798
2020	1,557	4,543	4,223	1,223	353	1,214	7,013
5-year average							
2010–2014	1,733	5,397	15,535	34,878	2,857	28,776	82,046
5-year average							
2015–2019	1,921	5,277	10,196	28,062	1,638	23,496	63,392

Note: The estimated number of salmon included those retained from subsistence and commercial related harvests. Duplicate permit household information removed. Typically Districts 4–6 harvest ~98% of total salmon fed to dogs.

^a Permit area only reported combined salmon species (summer and fall chum and coho salmon) fed to dogs.

Appendix C7.—Subsistence harvests taken under authority of a permit in the Rampart Area and Yukon River Bridge Area of District 5, Yukon Area, 2010–2020.

Yukon River Rampart Area subsistence salmon fishery ^a													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	28	27	23	1,344	304	1,235	24	162	1	5	20	0	1
2011	29	29	24	1,586	429	768	1	76	1	0	11	0	0
2012	32	32	29	635	397	1,411	21	395	2	13	7	11	0
2013	23	23	18	474	579	300	0	27	2	0	0	0	5
2014	18	18	9	11	240	797	0	398	60	0	6	0	0
2015	17	17	8	73	104	629	2	66	36	3	4	0	0
2016	24	24	18	557	252	659	2	213	1	0	0	0	0
2017	23	23	19	1,015	155	650	0	85	1	0	1	0	0
2018	21	21	19	463	23	465	21	54	0	0	1	0	0
2019	36	34	23	1,300	42	196	7	66	1	10	0	0	50
2020	29	29	22	530	21	40	29	448	52	1	0	0	0
2010–2014 Average	26	26	21	810	390	902	9	212	13	4	9	2	1
2015–2019 Average	24	24	17	682	115	520	6	97	8	3	1	0	10

Yukon River Bridge Area subsistence fishery ^b													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	85	81	43	1,300	448	422	2	67	10	0	12	0	0
2011	74	73	43	1,552	1,139	1,828	1	315	5	12	36	20	1
2012	63	62	26	629	147	259	0	75	35	3	19	0	0
2013	47	47	21	359	1,020	1,055	0	56	5	4	16	0	0
2014	42	42	21	3	221	798	0	142	16	2	27	0	0
2015	39	39	16	158	466	2,212	0	281	85	5	51	0	0
2016	62	62	40	996	518	1,449	101	329	15	3	42	1	0
2017	63	63	46	2,392	1,605	1,803	113	565	83	15	50	0	0
2018	82	81	59	1,627	600	2,088	73	646	53	32	38	3	0
2019	90	87	46	2,440	182	3,961	507	927	35	12	66	6	1
2020	98	95	46	1,473	64	568	31	2,266	193	17	192	4	1
2010–2014 Average	62	61	31	769	595	872	1	131	14	4	22	4	0
2015–2019 Average	67	66	41	1,523	674	2,303	159	550	54	13	49	2	0

^a That portion of the Yukon River drainage from Garnett Island to Hess Creek.

^b That portion of the Yukon River drainage from Hess Creek to Dall River.

Appendix C8.—Subsistence fish harvests taken under authority of a permit in the Circle–Eagle Area of District 5, Yukon Area, 2010–2020.

Subsistence salmon fishery below mainstem Yukon sonar project near Eagle ^a													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	67	63	36	811	0	4,722	27	148	33	10	40	32	144
2011	60	59	31	768	0	5,425	0	180	42	3	56	108	348
2012	42	42	18	454	0	7,215	5	66	19	4	3	0	28
2013	30	27	16	198	0	7,718	150	130	22	3	7	1	70
2014	24	22	11	8	0	5,185	0	87	16	1	2	0	2
2015	30	29	17	220	0	6,338	0	69	11	4	19	0	31
2016	36	36	25	520	0	4,108	38	71	5	3	7	0	3
2017	31	31	26	1,117	0	7,832	0	126	19	4	1	4	17
2018 ^b	61	61	46	967	0	7,824	0	115	15	5	0	0	17
2019 ^b	62	61	41	875	0	8,140	0	285	13	4	5	4	22
2020 ^b	59	57	19	385	0	10	0	2	8	2	0	0	0
2010–2014 Average	45	43	22	448	0	6,053	36	122	26	4	22	28	118
2015–2019 Average	44	44	31	740	0	6,848	8	133	13	4	6	2	18
Subsistence salmon fishery above mainstem Yukon sonar project near Eagle ^c													
2010	26	26	21	604	3	11,429	1	106	25	7	1	8	12
2011	28	28	19	413	0	12,477	1	127	22	2	15	12	1
2012	26	24	12	91	0	11,681	0	166	44	1	2	7	16
2013	21	20	15	152	50	12,642	0	64	8	2	0	13	7
2014	15	15	11	55	0	13,575	1	102	109	2	2	2	47
2015	19	19	13	341	0	12,540	0	67	11	2	2	7	33
2016	23	23	17	762	0	13,015	0	53	32	3	3	8	33
2017	38	38	28	1,498	0	14,110	0	91	11	0	1	2	25
2018	–	–	46	602	0	11,715	0	86	22	1	3	2	20
2019	–	–	41	742	0	10,631	0	125	19	0	5	2	8
2020	–	–	7	220	0	0	0	1	0	0	0	0	28
2010–2014 Average	–	–	16	263	11	12,361	1	113	42	3	4	8	17
2015–2019 Average	–	–	29	789	0	12,402	0	84	19	1	3	4	24

-continued-

Note: Lower table is used to show harvest above mainstem Yukon sonar project operated near Eagle for determining border passage. The number of permits includes multiple permits issued to households that fished both above and below the sonar site. An en dash indicates the values are not comparable to prior years data, due to changes in permits reporting by location.

- ^a That portion of the Yukon River drainage from Twenty-Two Mile Slough, located downstream of the community of Circle, to the mainstem Yukon sonar project near Eagle.
- ^b The number of permits issued and returned included households that fished above and below the sonar site.
- ^c Harvest occurred between the Yukon River mainstem sonar site located downstream from the community of Eagle and the U.S./Canada border.
- ^d Beginning in 2018, permits in the Circle-Eagle area were combined into 1 permit with 2 fishing locations: (1) Upstream of Eagle sonar and (2) Downstream of Eagle sonar. Number of permits issued and returned are not reported by fishing location.

Appendix C9.—Harvest from permits in Subdistrict 6-A of the Tanana River and the Kantishna River, Yukon Area, 2010–2020.

Subdistrict 6-A subsistence salmon fishery ^a													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	22	22	11	360	106	3,094	1,963	69	6	0	3	0	0
2011	24	24	16	330	98	4,565	1,435	236	4	6	5	0	0
2012	23	22	11	228	58	2,166	1,374	77	2	14	5	0	2
2013	19	19	11	218	88	1,478	421	18	2	1	6	0	0
2014	22	22	16	104	179	3,450	1,420	100	3	1	1	0	0
2015	17	17	9	136	9	1,656	1,151	12	2	0	3	0	0
2016	17	16	10	264	36	593	486	24	0	0	1	0	0
2017	13	13	8	105	34	865	784	8	0	0	10	0	0
2018	24	23	12	210	78	3,872	1,076	135	1	4	2	0	0
2019	28	28	10	101	56	2,639	547	18	0	4	26	0	0
2020	28	27	8	52	22	172	330	37	0	0	25	0	0
2010–2014 Average	22	22	13	248	106	2,951	1,323	100	3	4	4	0	0
2015–2019 Average	20	19	10	163	43	1,925	809	39	1	2	8	0	0
Kantishna River subsistence fishery ^b													
2010	4	4	3	1	0	82	23	3	0	3	28	0	0
2011	6	6	3	1	49	698	105	28	1	9	33	28	0
2012	3	3	3	0	0	285	51	2	0	1	4	1	0
2013	3	3	2	0	0	314	144	13	0	0	0	0	0
2014	5	5	3	0	0	70	129	10	0	0	6	0	0
2015	2	2	1	0	0	127	11	0	0	1	2	3	1
2016	3	3	1	0	0	115	67	20	0	2	5	0	1
2017	2	2	1	0	0	20	3	0	0	0	0	0	0
2018	8	8	1	0	0	0	0	0	0	0	0	0	0
2019	24	24	0	0	0	0	0	0	0	0	0	0	0
2020	26	22	1	0	0	1	0	970	2	31	110	36	0
2010–2014 Average	4	4	3	0	10	290	90	11	0	3	14	6	0
2015–2019 Average	8	8	1	0	0	52	16	4	0	1	1	1	0

^a Portion of the Tanana River drainage from Yukon River confluence to the upstream edge of Kantishna River confluence.

^b Kantishna River drainage upstream of Tanana River confluence.

Appendix C10.–Harvest from permits in Subdistrict 6-B and the Tolovana River drainage, Yukon Area, 2010–2020.

Subdistrict 6-B subsistence salmon fishery ^a													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	93	86	34	593	336	7,625	3,429	543	46	6	18	34	1
2011	86	83	42	684	678	7,463	4,584	641	27	13	4	12	1
2012	85	79	39	375	436	10,428	6,674	550	37	16	62	44	12
2013	92	87	38	148	1,006	9,573	4,583	1,026	7	28	10	11	2
2014	81	78	38	168	533	8,381	5,977	1,241	8	15	64	28	16
2015	71	71	30	220	225	7,457	6,652	880	17	6	28	13	0
2016	66	62	25	372	60	2,992	2,495	586	16	3	18	8	0
2017	69	69	35	552	700	3,524	1,727	353	8	7	47	7	0
2018	83	82	31	283	228	5,361	1,585	433	5	2	0	0	0
2019	76	72	33	519	329	2,059	522	376	47	1	11	5	0
2020	67	65	25	372	88	29	261	295	1	0	92	40	0
2010–2014 Average	87	83	38	394	598	8,694	5,049	800	25	16	32	26	6
2015–2019 Average	73	71	31	389	308	4,279	2,596	526	19	4	21	7	0
Tolovana River drainage subsistence fishery ^b													
2010	96	91	41	0	0	0	0	181	39	0	125	9	0
2011	70	70	29	0	0	0	0	36	0	70	110	0	0
2012	73	68	35	0	0	2	0	130	8	6	525	0	0
2013	77	74	44	0	0	60	42	15	1	3	231	9	0
2014	106	105	57	0	0	1	0	3	0	0	478	1	0
2015	120	119	66	0	0	0	0	48	2	0	765	0	0
2016	201	196	129	0	0	0	0	10	0	1	1,020	0	0
2017	93	93	41	0	0	0	0	133	5	0	137	0	0
2018	175	175	103	0	0	0	0	14	3	0	1,040	0	0
2019	245	243	155	4	0	2	0	1,088	48	4	1,633	0	0
2020	329	323	191	0	1	0	0	776	53	2	2,005	0	0
2010–2014 Average	84	82	41	0	0	13	8	73	10	16	294	4	0
2015–2019 Average	167	165	99	1	0	0	0	259	12	1	919	0	0

^a Portion of the Tanana River drainage from the mouth of the Kantishna River upstream to the mouth of the Wood River, including the Wood River drainage.

^b Includes the Tolovana River drainage outside of the Fairbanks Nonsubsistence Area.

Appendix C11.–Harvest from permits in the upper Tanana River drainage and Koyukuk River, Yukon Area, Yukon Area, 2010–2020.

Upper Tanana River drainage subsistence fishery ^a													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	41	36	21	10	0	12	0	1,777	0	11	13	21	38
2011	41	40	24	0	0	0	0	3,181	0	24	58	78	79
2012	58	49	21	0	0	0	0	2,522	0	10	199	97	31
2013	52	46	17	0	0	0	0	1,314	0	20	130	170	98
2014	15	15	10	0	0	0	0	1,510	0	3	62	62	0
2015	38	38	14	0	0	33	1	2,064	1	2	16	12	33
2016	24	24	16	0	0	1	0	1,980	0	28	87	15	0
2017	22	22	7	0	0	10	1	899	0	5	30	1	0
2018	23	23	11	0	0	0	0	1,014	0	25	72	31	19
2019	31	29	11	0	0	4	0	621	0	2	199	8	23
2020	44	41	15	1	4	0	0	1,159	0	76	294	88	5
2010–2014 Average	41	37	19	2	0	2	0	2,061	0	14	92	86	49
2015–2019 Average	28	27	12	0	0	10	0	1,316	0	12	81	13	15
Upper south and middle forks of the Koyukuk River subsistence fishery permit area ^b													
2010	1	1	1	0	0	0	0	8	0	0	0	0	0
2011	1	1	1	0	0	0	0	25	0	0	1	20	45
2012	1	1	1	0	0	0	0	11	0	0	1	3	15
2013	1	1	1	0	0	0	0	8	0	6	0	25	25
2014	1	1	1	0	0	0	0	9	0	3	0	8	18
2014	1	1	1	0	0	0	0	9	0	3	0	8	18
2015	1	1	1	0	0	0	0	4	0	0	0	0	32
2016	1	1	1	0	0	0	0	5	0	0	0	1	19
2017	1	1	1	0	0	0	0	17	0	0	1	10	23
2018	1	1	1	0	0	0	0	15	0	0	1	8	20
2019	1	1	1	0	0	0	0	15	0	2	1	16	28
2020	1	1	1	0	0	0	0	12	0	2	0	11	21
2010–2014 Average	1	1	1	0	0	0	0	10	0	1	0	5	22
2015–2019 Average	1	1	1	0	0	0	0	9	0	2	0	9	22

^a That portion of the Tanana River drainage from the mouth of the Volkmar River, including the Volkmar River drainage, and the mouth of the Johnson River, including the Johnson River drainage, upstream to the Tanana River drainage headwaters.

^b That portion of the South Fork of the Koyukuk River drainage upstream from the mouth of the Jim River and the Middle Fork of the Koyukuk River drainage upstream from the mouth of the North Fork River. A waiver is on file to report the harvest of less than 3 participants in the fishery.

Appendix C12.–Harvest from personal use permit areas in the Tanana River drainage, Yukon Area, 2010–2020.

Subdistrict 6-C Personal Use salmon fishery ^a													
Year	Number of permits issued	Number of permits returned	Number reporting harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2010	67	67	39	162	319	3,208	1,062	192	0	3	6	9	5
2011	67	65	34	98	439	354	249	20	1	1	0	0	0
2012	60	59	29	71	321	410	100	3	0	0	0	0	0
2013	53	52	29	42	138	363	124	24	1	0	0	0	3
2014	50	50	23	1	235	278	174	39	3	0	0	0	0
2015	42	42	15	5	220	80	145	26	1	0	1	1	0
2016	57	57	29	57	176	273	265	12	1	0	3	0	0
2017	82	82	40	125	438	626	200	6	1	1	4	1	0
2018	99	99	57	206	515	505	131	7	0	0	0	0	1
2019	92	90	49	244	294	408	68	88	10	0	73	66	0
2020	82	81	30	112	67	37	79	4	5	0	0	0	0
2010–2014 Average	59	59	31	75	290	923	342	56	1	1	1	2	2
2015–2019 Average	74	74	38	127	329	378	162	28	3	0	16	14	0
Upper Tanana River Personal Use whitefish/sucker fishery ^b													
2010	8	6	3	0	0	1	0	14	1	0	1	57	0
2011	7	7	5	0	0	0	0	42	0	0	0	142	0
2012	12	11	3	0	0	0	0	19	0	0	0	233	0
2013	14	14	7	0	0	20	8	65	0	1	3	118	0
2014	21	21	10	0	0	0	0	106	0	0	0	270	0
2015	22	22	13	0	0	0	0	254	0	0	0	322	1
2016	21	21	10	0	0	10	1	259	0	0	4	181	6
2017	14	14	9	0	0	0	0	111	0	0	0	164	0
2018	16	16	9	0	0	0	0	93	0	0	0	113	0
2019	15	14	2	0	0	0	0	11	0	0	0	38	0
2020	28	28	5	0	0	0	0	71	0	0	0	21	0
2010–2014 Average	12	12	6	0	0	4	2	49	0	0	1	164	0
2015–2019 Average	18	17	9	0	0	2	0	146	0	0	1	164	1

^a Portion of the Tanana River drainage from the upstream edge of the mouth of the Wood River, not including the Wood River drainage, to the upstream edge of the mouth of the Salcha River, including the Salcha River drainage.

^b Portion of the Tanana River drainage from the upstream edge of the mouth of the Wood River, not including the Wood River drainage, to the mouth of the Volkmar River on the north bank of the Tanana River and upstream to the Johnson River on the south bank of the Tanana River. This permit is issued for the harvest of whitefish species and longnose suckers but requires reporting incidental fish harvests and live release of non-permitted species if gear allows.

Appendix C13.—Estimated and reported subsistence and personal use harvest of miscellaneous fish species, Yukon Area, 2010–2020.

Reporting groups	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2010–2014 Average	2015–2019 Average
Survey estimates ^a													
Northern pike	14,086	14,270	18,450	11,264	14,852	20,109	24,580	22,060	20,776	15,703	26,352	14,518	20,475
Sheefish	9,231	10,139	17,094	15,553	12,583	12,828	14,451	12,768	11,728	14,838	9,165	13,004	12,872
Whitefish ^b	50,232	44,890	70,486	64,766	84,889	79,740	69,578	64,202	57,780	66,074	47,122	57,594	71,238
Survey reported ^c													
Alaska blackfish	68,873	87,064	62,731	63,235	92,080	97,586	90,207	109,888	61,896	88,009	30,383	70,476	90,331
Arctic grayling	1,571	1,273	2,674	1,435	1,772	1,832	1,518	1,572	1,833	744	228	1,738	1,705
Arctic lamprey ^d	13,611	10,574	1,657	2,608	19,888	42,237	17,609	19,357	1,027	4	0	7,113	20,024
Burbot	2,743	2,477	2,422	2,115	2,016	3,364	2,501	2,811	2,975	1,946	812	2,439	2,733
Herring ^e	–	–	10,449	9,082	17,164	24,591	15,959	16,508	28,907	12,267	8,032	9,766	20,626
Tomcod	3,978	6,797	4,023	5,221	10,020	4,697	5,795	6,741	5,243	10,006	1,872	5,005	6,499
Permit reported													
Arctic grayling	201	475	104	210	83	131	62	49	62	100	39	248	77
Burbot	45	140	68	68	27	23	43	32	69	22	129	80	39
Longnose suckers	170	420	396	347	371	358	214	179	149	38	189	333	254
Northern pike	267	329	827	403	648	891	1,190	281	1,156	2,010	2,718	457	833
Sheefish	160	103	147	48	215	166	70	128	99	127	314	115	136
Whitefish ^b	3,112	4,907	4,016	2,766	3,747	3,771	3,562	2,380	2,547	3,588	6,029	3,700	3,201
Total harvest of species from survey and permits													
Arctic grayling	1,772	1,748	2,778	1,645	1,855	1,963	1,580	1,621	1,895	844	267	1,772	1,998
Burbot	2,788	2,617	2,490	2,183	2,043	3,387	2,544	2,843	3,044	1,968	941	2,788	2,544
Northern pike	14,353	14,599	19,277	11,667	15,500	21,000	25,770	22,341	21,932	17,713	29,070	14,353	16,409
Sheefish	9,391	10,242	17,241	15,601	12,798	12,994	14,521	12,896	11,827	14,965	9,479	9,391	13,775
Whitefish ^b	53,344	49,797	74,502	67,532	88,636	83,511	73,140	66,582	60,327	69,662	53,151	53,344	72,796
Total	81,648	79,003	116,288	98,628	120,832	122,855	117,555	106,283	99,025	105,152	92,908	81,648	107,521

Note: Dashes indicated information was not collected. Due to the nature of nonsalmon harvest and the timing of the survey, this table included fish harvest 12 months prior to the survey (e.g., 2020 is harvest from winter 2019 to fall 2020).

^a Subsistence harvests of northern pike, sheefish, and whitefish from surveyed communities were estimated with methods developed for salmon harvest estimates.

^b Included various *Coregonus* species and round whitefish (*Prosopium cylindraceum*). Categories of large (greater than 4 pounds) and small (less than 4 pounds) whitefish were combined. See individual annual reports for the breakdown of large and small whitefish.

^c Total number of each species reported by households in surveyed communities. Harvest totals for these species are not expanded to estimate for all households.

^d Harvest of Arctic lamprey reported in each year occurred from October–December of the previous year. Harvests from 2010–2015 included Arctic lamprey reported on postcards. Household surveys were compared to avoid double counting.

^e Households in the Coastal District and District 1 were asked about their harvest of herring starting in 2012. Reports of smelt were included in herring harvest.