Fishery Management Report No. 21-10

Annual Management Report Yukon Area, 2018

by

Jeffrey L. Estensen

Holly C. Carroll

Sean D. Larson

Fred W. West

Christy M. Gleason

Bonnie M. Borba

Deena M. Jallen

Sam K. Decker

Andrew J. Padilla

and

Kristie M. Hilton

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Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

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

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat or long
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	″
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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Jeffrey L. Estensen, Fred W. West, Christy M. Gleason, Bonnie M. Borba, Sam K. Decker, Andrew J. Padilla, and Kristie M. Hilton,
Alaska Department of Fish and Game, Division of Commercial Fisheries, Fairbanks

and

Holly C. Carroll, Sean D. Larson, and Deena M. Jallen
Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

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Jeffrey L. Estensen, Fred W. West, Christy M. Gleason, Bonnie M. Borba, Sam K. Decker, Andrew J. Padilla, and Kristie M. Hilton
Alaska Department of Fish and Game, Division of Commercial Fisheries,
1300 College Road, Fairbanks, AK 99701 USA
and
Holly C. Carroll, Sean D. Larson, and Deena M. Jallen
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage, AK 99518 USA

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ABSTRACT

The 2018 Yukon Area management report summarizes management activities of the Alaska Department of Fish and Game, Division of Commercial Fisheries in the Yukon Area of Alaska. The report provides the Yukon Area status of salmon stocks in 2018 including historical data, presents an outlook for the 2019 fishing season, and provides data on the use of salmon species by commercial, subsistence (Aboriginal), personal use (domestic), and sport (recreational) fisheries. Alaska and Canadian fisheries are summarized because the Yukon River is a transboundary river. The report compiles summaries of selected Yukon River projects (complete documentation of these projects and results may appear in separate reports). Fisheries data in this report supersedes information presented in previous annual management reports. Some of the data presented are preliminary and may be presented with minor differences in future reports. The Yukon Area report is organized into the following sections: (1) *Salmon Fisheries* presents a description of the area, fishery resources, and fisheries management practices, along with a comprehensive report of the 2018 salmon fisheries, by summer and fall season, and compares 2018 runs with previous years; (2) *Other Marine and Freshwater Finfish Fisheries* presents a description of the fishery resources and freshwater finfish fisheries other than salmon (i.e., whitefish and lamprey), and (3) the *Cape Romanzof District Herring Fishery*.

Keywords: Chinook salmon, *Oncorhynchus tshawytscha*, chum salmon, *Oncorhynchus keta*, coho salmon, *Oncorhynchus kisutch*, Pacific herring, *Clupea pallasii*, whitefish, *Coregonus*, Arctic lamprey, *Lethenteron camtschaticum*, Yukon River Salmon Agreement escapement, commercial harvest, subsistence harvest, season outlook, Yukon River, Yukon Area

INTRODUCTION

The Division of Commercial Fisheries of the Alaska Department of Fish and Game (ADF&G) is responsible for the management of Alaska subsistence, personal use, and commercial fisheries in the Yukon Area. This annual management report details the activities of ADF&G in the Yukon Area during 2018.

The Yukon Area includes all waters of the Yukon River drainage in Alaska and all coastal waters of Alaska from Point Romanof southward to the Naskonat Peninsula (Figure 1).

SALMON FISHERIES

DESCRIPTION OF AREA AND DISTRICT BOUNDARIES

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. It drains an area of approximately 832,700 km^2 (321,500 mi^2) of which 195,200 mi^2 lies within Alaska. Except for a few fish taken in the adjacent coastal waters near the mouth, only salmon of Yukon River origin are harvested in the Yukon Area.

Excluding the greater Fairbanks area (an estimated 97,740 residents), there are nearly 22,380 rural residents in the Alaska portion of the drainage (Hunsinger 2018), the majority of whom reside in 43 small communities scattered along the coast and major river systems. Most of these people are dependent, to varying degrees, on fish and game resources for their livelihood.

Commercial salmon fishing is allowed along the entire 1,200-mile length of the mainstem Yukon River in Alaska, the lower 225 miles of the Tanana River, and the lower 12 miles of the Anvik River. The Yukon Area is divided into 7 districts and 10 subdistricts for management and regulatory purposes (Figure 2). The Coastal District, which is divided into Southern and Northern areas, is the area from Naskonat Peninsula to a point 1 mile south of the mouth of the

Black River and includes all waters extending 3 nautical miles from any grassland (Figure 3). The northern portion of the Coastal District is sometimes managed as part of District 1. The Set Gillnet Only Area is a fall season commercial fishing area in District 1, in which only set gillnets are allowed (Figure 4). For reporting purposes, the Lower Yukon Area includes the Coastal District and Districts 1, 2, and 3 (Figures 5, 6, and 7) to a point near Old Paradise Village at river mile 301. The Upper Yukon Area includes Districts 4, 5, and 6, and is that portion of the Yukon River drainage upstream of a point near Old Paradise Village at river mile 301 to the Canadian border (Figures 8, 9, and 10). Subdistrict 5-D is divided into 3 areas (lower, middle, upper) for management purposes (Figure 11). Additional fishing areas include the Fairbanks Nonsubsistence Area (Figure 12) and the Anvik River (Figure 13). The districts and subdistricts are further divided into 31 statistical areas for management and reporting purposes.

In addition to the U.S. fisheries, Aboriginal, commercial, sport, and domestic salmon fisheries occur in the Canadian portion of the Yukon River drainage. The Canadian Department of Fisheries and Oceans Canada (DFO) conducts the corresponding fishery management activities. Details about fisheries management in the Canadian portion of the Yukon River drainage can be found in the annual Yukon River Panel Joint Technical Committee (JTC) reports (e.g., JTC 2018).

FISHERY RESOURCES

Five species of Pacific salmon are found in the Yukon River drainage: Chinook salmon *Oncorhynchus tshawytscha*, chum salmon *O. keta*, coho salmon *O. kisutch*, pink salmon *O. gorbuscha*, and sockeye salmon *O. nerka*.

Yukon River Chinook salmon have the longest spawning migration of any salmon. Spawning populations of Chinook salmon have been documented throughout the Yukon River drainage from the Archuelinguk River, located approximately 80 miles from the mouth, to nearly 2,000 miles upstream at the headwaters of the drainage in Canada. Chinook salmon begin entering the mouth of the Yukon River after ice breakup in late May or early June and continue to migrate upriver through mid-July.

Chum salmon returns are made up of 2 genetically distinct runs: an early summer chum salmon run and a later fall chum salmon run. Summer chum salmon are characterized by earlier run timing (enter the Yukon River from early June to mid-July), rapid maturation in freshwater, and smaller body size (average weight is 6 to 7 pounds). Summer chum salmon spawn primarily in run-off streams in the lower 700 miles of the drainage and the Tanana River drainage. Fall chum salmon exhibit later run timing (entering Yukon River from mid-July to early September), a more robust body shape, and larger body size (average weight is 7 to 8 pounds). Fall chum salmon primarily spawn in the upper portion of the drainage in spring-fed streams. Major fall chum salmon spawning areas include the Tanana, Porcupine, and Chandalar River drainages, as well as various streams in Yukon Territory, Canada, including the mainstem Yukon River. Fall chum salmon run sizes are typically much smaller than that of summer chum salmon.

Coho salmon enter the Yukon River from early August through September. Coho salmon weigh on average about 7 pounds. Coho salmon spawn discontinuously throughout the Alaska portion of the drainage, primarily in tributaries in the lower 700 miles of the drainage and the Tanana River drainage. Major spawning populations of coho salmon have been documented in tributaries of the Tanana River and the Andreafsky River.

Pink salmon enter the lower river from late June to late July. Commercially caught pink salmon weigh an average of 2 to 3 pounds. They primarily spawn in the lower portion of the drainage, downstream of the community of Grayling (river mile 336). However, pink salmon have been caught in the mainstem Yukon River upstream as far upriver as Fort Yukon, which is located at river mile 1,002 (Busher et al. 2009). In the past decade, pink salmon have exhibited an abundance cycle alternating between high and low every 2 years, with high abundance typically observed during even-numbered years. Sockeye salmon are uncommon in the Yukon River drainage and only a few fish are caught each year. Sockeye salmon have been reported in the mainstem Yukon River upstream of Rampart (river mile 763). Observations of sockeye salmon have occurred in the Innoko (ADF&G 1986), Kantishna (Louis Barton, Commercial Fisheries Biologist, ADF&G, Fairbanks; personal communication), Tanana River upstream of the confluence with Kantishna River (Bonnie Borba, Commercial Fisheries Biologist, ADF&G, Fairbanks; personal communications), Anvik (Jody Lozori, Commercial Fisheries Biologist, ADF&G, Fairbanks; personal communication), and Gisasa (Carlson 2017) River drainages. Sockeye salmon are annually counted at the Andreafsky River weir (Conitz 2019).

FISHERIES OVERVIEW

Of the 5 species of Pacific salmon found in the Yukon Area, Chinook, chum, and coho salmon are predominantly harvested in the subsistence, commercial, personal use, and sport fisheries. Lamprey and whitefish are also commercially harvested. Other marine and freshwater finfish are harvested primarily for subsistence use (Appendix A1).

Chinook salmon is the most targeted subsistence species by number of fish harvesters. Subsistence fish harvesters target Chinook salmon throughout the Yukon River drainage and coastal waters. During years of high abundance, it was not necessary to intensively manage the subsistence fishery for Chinook salmon, and from 1998 to 2007, approximately 51,000 Chinook salmon were harvested annually in Alaska for subsistence purposes (Appendix A13). Beginning in 1998, Chinook salmon productivity began declining, and run sizes were considerably weaker; the most dramatic drop in run sizes began in 2007 (Appendix E20). Since 2008, restrictions to subsistence fishing for Chinook salmon have been necessary most years to meet escapement goals. Beginning in 2012, intensive subsistence fishery management included full fishing closures around pulses of fish, fishing time reductions, gear restrictions, and full fishing closures for Chinook salmon most of the summer season. Years with the lowest Chinook salmon harvests were 2014 (3,286) and 2015 (7,577; Appendix A13). Because the Chinook salmon run size began to rebound in 2016, 2017, and 2018, restrictions were relaxed later in the season and some Chinook salmon-directed subsistence harvest opportunities were provided. Harvests of Chinook salmon in 2018 (31,812) were almost double the 5-year average (Appendix A13), but this was probably due to better management precision, which allowed more harvest of available surplus than previous seasons.

Summer chum salmon provide the largest subsistence harvest of salmon in the Yukon Area (including the Coastal District), averaging about 90,000 fish harvested annually since 1998 (Appendix A14). Subsistence fish harvesters mainly target summer chum salmon in the Lower Yukon River. Although summer chum salmon are found as far upstream as the lower portion of Districts 5 and 6, upriver fish harvesters typically do not target them due to their poor quality. Harvest levels have been affected by subsistence fishing restrictions due to their overlap in run timing with Chinook salmon. During periods of low Chinook run abundance, beach seines, dip

nets, and fish-friendly fish wheels were required to allow the live release of Chinook salmon. Annual subsistence harvests of summer chum salmon (including those from the Coastal District) averaged about 92,000 fish from 2013 to 2017 (Appendix A14).

Fall chum salmon provide the second largest subsistence harvest and average about 75,000 (including the Coastal District) fish harvested annually since 1998 (Appendix A15). Subsistence fish harvesters target fall chum salmon throughout the Yukon River drainage, with most of the harvest occurring in the Upper Yukon River and Tanana River late in the season. Harvest generally coincides with freezing weather, which allows some dog mushers to "crib" for use as dog food (Andersen and Scott 2010). Production of fall chum salmon began a sharp decline beginning in 1998, although recovery occurred much faster. Subsistence fishing harvest levels increased due to low runs of Chinook salmon.

Coho salmon harvests generally occur incidentally while targeting fall chum salmon. The subsistence harvest has averaged about 17,000 fish annually since 1998 (Appendix A16). Much of the coho salmon harvest occurs in Districts 5 and 6, late in the season. Some dog mushers also "crib" coho salmon once freezing weather allows (Andersen and Scott 2010).

Pink salmon are harvested for subsistence primarily in the lower river districts. Pink salmon exhibit a cycle alternating between high and low abundance every 2 years, with high abundance typically observed during even-numbered years. The odd-numbered year subsistence harvests from 1999 to 2017 have averaged about 1,900 pink salmon. The even-numbered year subsistence harvests for the entire drainage from 1998 to 2016 have averaged about 6,800 pink salmon (Appendix A17).

Commercial Chinook salmon harvests in the Alaska portion of the Yukon River drainage between 1998 and 2007 averaged about 39,000 fish (Appendix A3). However, because of poor Chinook salmon runs, no Chinook salmon-directed commercial fishing has occurred in the Yukon Area since 2007. In most years since 2010, the sale of incidentally caught Chinook salmon in the chum salmon-directed commercial fisheries has not been allowed.

Commercial harvests of summer chum salmon fluctuated from 1998 through 2018. Limited market interest and low run sizes caused summer chum salmon harvests to be relatively low, with an average harvest of 31,000 from 1998 to 2006 (Appendix A4). The summer chum salmon run has rebounded, because of the introduction of selective gear that allows for commercial fishing for summer chum salmon while releasing Chinook salmon alive, and harvests have recently been some of the largest since 1996. The average harvest was 361,000 summer chum salmon for the period from 2008 to 2017 (Appendix A4). Commercial exploitation of summer chum salmon roe was renewed in Subdistrict 4-A; however, the redevelopment of this fishery has been hindered by management strategies taken to reduce incidental harvest of co-migrating Chinook salmon and inconsistent market interest. Since 2012, selective gear types, such as human-operated fish wheels, were implemented to allow the live release of Chinook salmon. This allowed for commercial harvest that coincided with above-average summer chum salmon run sizes; however, there was no buyer in 2015 and 2016 in Subdistrict 4-A (Table 1).

Commercial harvests of fall chum salmon from 1998 through 2017 have averaged about 166,000 fish (Appendix A5). Like summer chum, fall chum salmon experienced decreased market interest and low fall chum salmon returns from 1998 to 2004. A considerable amount of uncertainty has been associated with run forecasts, particularly in the last decade, because of unexpected run failures (1998 to 2002) followed by strong runs from 2003 through 2008.

Beginning in 2008, markets began to improve, but run sizes lacked consistency. Since 2013, both the market and run productivity has been steady, and commercial harvests have averaged about 300,000 fish (Appendix A5).

Although Chinook, summer chum, and fall chum salmon are targeted in the commercial fisheries, coho salmon are harvested incidentally during fall chum salmon-directed fisheries. The commercial harvest of coho salmon since 1998 has averaged about 53,000 fish (Appendix A6). Since 2009, ADF&G has had the flexibility to open late season coho salmon-directed commercial fishing if certain stipulations are met (such fisheries occurred in 2009–2011 and 2014–2017). Record coho salmon harvests were taken in 2014 and 2015, and the largest commercial harvest ever recorded was taken in 2016. Since 2013, the commercial harvest of coho salmon has averaged 128,000 fish (Appendix A6).

MANAGEMENT

The policy of ADF&G is to manage salmon runs to the extent possible for maximum sustainable yield unless otherwise directed by Alaska regulation (*Policy for the Management of Sustainable Salmon Fisheries* [SSFP; 5 AAC 39.222]). Over the past few decades, ADF&G has managed salmon fisheries in the Yukon Area with the dual goal of achieving desired escapements consistent with the SSFP while at the same time maintaining important fisheries. The Alaska State Legislature and the Alaska Board of Fisheries (BOF) have designated subsistence use as the highest priority among beneficial uses of the resource. To maintain the subsistence priority and provide for spawning escapements to ensure sustainable yields, Yukon River salmon fisheries must be managed conservatively.

For management purposes, the summer season refers to the fishing associated with the Chinook and summer chum salmon migrations, and fall season refers to the fishing associated with the fall chum and coho salmon migrations. Salmon fisheries within the Yukon River drainage may harvest stocks that are up to several weeks and over a thousand miles from their spawning grounds. Because the Yukon River subsistence and commercial fisheries are mixed stock fisheries, some tributary populations may be under or overexploited relative to their actual abundance. Based on current knowledge, it is not possible to manage individual stocks in most areas where fishing occurs. Fisheries within the Tanana and Anvik River drainages are managed as terminal areas.

Management of the Yukon River salmon fishery is complex due to overlapping multispecies salmon runs, increasing efficiency of the fishing fleet, allocation issues, and the immense geographic expanse of the Yukon River drainage. ADF&G uses an adaptive management strategy that evaluates run strength inseason to determine a harvestable surplus above escapement requirements and subsistence uses. The primary tools used by ADF&G to manage the salmon fisheries are management plans, guideline harvest ranges established by the BOF, and emergency order (EO) authority, which is used to implement time and area openings, closures, and gear restrictions. Guideline harvest ranges have been established for Chinook, summer chum, and fall chum salmon commercial fisheries throughout the Alaska portion of the drainage (Table 2). ADF&G attempts to manage the commercial salmon fisheries so the harvest in each district or subdistrict is proportional to the respective guideline harvest ranges. Typically, the majority of the coho salmon harvest is incidental to the fall chum salmon fishery and their management is conditional to the abundance of fall chum salmon. ADF&G does have the option to open late season coho salmon-directed commercial fishing if certain stipulations are met.

Likewise, most pink salmon commercially harvested is incidental to the summer and fall chum salmon-directed commercial fisheries. However, beginning in 2016, ADF&G was given the option to allow a pink salmon-directed commercial fishery in June and July.

During the fishing season, management is based on preseason projections and inseason run assessment. Inseason run assessment includes abundance indices from test fisheries, passage estimates from various sonar projects, and spawning escapement and harvest data. Since 1995, the mainstem sonar project near the community of Pilot Station (hereafter called Pilot Station sonar) has provided inseason estimates of salmon passage for fisheries management (Schumann et al. 2017). The level of subsistence, commercial, sport, and personal use harvests can be adjusted through EOs to control time and area of openings and closures, to restrict fishing gear, or any combination. News releases announcing EOs are broadcast on local radio stations, posted on the ADF&G website,[1] VHF radio if available, transmitted by fax, and emailed to select communities, processors, buyers, and fish harvesters. Most processors and buyers are notified of EOs by telephone.

In 2018, various government and non-government agencies operated projects in the Alaska and Canadian portions of the Yukon Area to obtain the biological information necessary for the management of salmon runs (Appendices A19 and A20). The types of monitoring projects operating in the Alaska portion of the drainage include the following:

1. *Catch and Effort Assessment*: The harvest and effort of commercial, subsistence, personal use, and sport salmon fisheries were assessed for the Alaska portion of the Yukon River drainage. Commercial salmon fishing was monitored from June through October using fish tickets of commercial sales of salmon. In the majority of the Yukon Area, there is no regulatory requirement for commercial fishing operators to report their subsistence salmon harvest. The subsistence salmon harvest from communities is estimated through a voluntary household survey program. In areas of the drainage with road access, commercial fishing operators must obtain subsistence or personal use household permits on which their daily harvest is recorded. Similarly, sport fishing harvest and effort were estimated by the Division of Sport Fish using mail-out questionnaires to sport fishing permit holders. Weekly teleconferences were held from June through August by the Yukon River Drainage Fisheries Association (YRDFA) as a forum for fishing operators along the Yukon River to interact with ADF&G and federal managers and for the dissemination of fisheries information.
2. *Test Fishing*: A test fishing project was operated in the Lower Yukon River at the South and Middle (Middle and North combined) Mouths. The project utilized set gillnets from late May through July 15 to index the Chinook salmon run relative abundance, drift gillnets from late May through July 15 to provide an index of Chinook and summer chum salmon run abundance, and drift gillnets from July 16 through mid-September for fall chum and coho salmon runs. The test fisheries also provided run timing and age composition information. A test fishery in Mountain Village was operated by the Asa'carsarmiut Traditional Council to index fall chum and coho salmon run timing and relative abundance using drift gillnets.

[1] Commercial fishery announcements: commercial, subsistence, and personal use. Alaska Department of Fish and Game. Juneau, AK. http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main (accessed December 22, 2021).

3. *Mainstem Sonar Projects*: Hydroacoustic equipment was operated in the mainstem Yukon River at 2 locations: near Pilot Station to obtain inseason salmon passage estimates by species and near Eagle to estimate the passage of Chinook and fall chum salmon into Canada. These projects include associated test gillnet fisheries for species apportionment applied to the sonar counts.
4. *Tributary Sonar Projects*: Hydroacoustic equipment was operated in the Anvik River to estimate summer chum salmon escapement, and in the Chandalar River to estimate fall chum salmon spawning escapements. Sonar operations also occurred in the Tanana River drainage on the Chena and Salcha Rivers to estimate Chinook and summer chum salmon escapement.
5. *Age, Sex, and Size Composition*: Data were collected from salmon harvested in commercial and subsistence fisheries, as well as test fisheries and escapement projects located throughout the Yukon River drainage. Samples were collected using gillnets, fish wheels, beach seines, weir traps, and carcass surveys. Scales were collected from salmon to determine the age composition of the runs. Chum salmon escapement sampling from carcasses uses vertebra for aging instead of scales because of resorption problems. The length was measured from mid eye to fork of tail. Sex was determined by examining internal reproductive organs or external characteristics. In 2018, ADF&G implemented a regional effort to evaluate the accuracy of external sex identification methods used at key assessment projects. Chinook, chum, and coho salmon were sampled at the Lower Yukon test fishery (LYTF) and only Chinook salmon were evaluated at Eagle sonar.
6. *Genetic Stock Identification:* Genetic samples were collected from Chinook and chum salmon caught in select test fisheries throughout the drainage. Analysis of Chinook and chum salmon were conducted to identify relative proportions of various stocks for inseason management purposes. Samples were also collected from subsistence-caught Chinook salmon in Districts 1–5.
7. *Aerial and Ground Surveys of Salmon Spawning Streams:* Aerial surveys were flown to monitor spawning escapement in major spawning tributaries throughout the Yukon River drainage. Surveys for Chinook and summer chum salmon were flown in late July. Fall chum salmon foot surveys were conducted at selected areas in the Tanana River drainage from October through early December. Aerial surveys were conducted in the Toklat (springs area), Nenana, and upper Tanana River drainages to estimate fall chum and coho salmon escapement in November.
8. *Tower Project*: Tower counting projects were used on the Chena and Salcha Rivers to estimate escapement of Chinook and summer chum salmon from July through August. The Chena and Salcha projects were also supplemented with sonar operations to determine passage estimates during high water events. A tower project was operated on the Goodpaster River in the Tanana River drainage to estimate Chinook salmon escapement during July and data was provided postseason.
9. *Weir Projects*: The East Fork Andreafsky River weir operated from June to August to estimate Chinook and summer chum salmon escapement; however, the Henshaw River weir did not operate in 2018 because of high water issues.
10. *Juvenile Studies*: Yukon Delta Smolt Project (National Oceanic and Atmospheric Administration-Alaska Fisheries Science Center [NOAA-AFSC], Spearfish Research, and Yukon Drainage Fisheries Development Association [YDFDA]): This project has been ongoing since 2014; however, new objectives were introduced in 2016. Net-

sampling methods were utilized in Yukon River tributaries and pro-delta habitats to catch juvenile salmon and other finfish species. The goals of this project are to determine the composition and spatiotemporal variation in prey species of juvenile Chinook salmon; determine the quality of dominant juvenile Chinook salmon prey; assess the relationship between prey quality and juvenile Chinook salmon size and condition during summer; evaluate juvenile Chinook salmon spatial distribution and habitat use in relation to prey communities in Yukon River tributaries and delta habitats; and evaluate spatiotemporal differences in juvenile Chinook salmon condition, size, and energy content.

The Pilot Station sonar is the primary project used to determine the abundance of fish passage as applied to the fishery management plans inseason. Updated selectivity parameters for all species were developed after the 2015 season and are used for producing passage estimates inseason at the project (Pfisterer et al. 2017). The daily passage estimates, by species, since 1995 have been updated with these improved selectivity parameters and can be obtained from the ADF&G, Division of Commercial Fisheries, Arctic–Yukon–Kuskokwim Database Management System (AYKDBMS).[2]

The Yukon River Chinook salmon run is managed according to the guidelines described in the *Yukon River King Salmon Management Plan* (5 AAC 05.360). The management plan provides escapement needs and subsistence uses while aiming to reestablish the historical range of harvest levels by other users. In response to guidelines established in the SSFP (5 AAC 39.222(f)(42)), the BOF classified Yukon River Chinook salmon as a stock of yield concern at its September 2000 work session. A stock of yield concern is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs; a yield concern is less severe than a management concern" (5 AAC 39.222(f)(42)). The SSFP defines chronic inability as "the continuing or anticipated inability to meet expected yields over a 4 to 5-year period". This determination as a stock of yield concern was originally based on low harvest levels from 1998–2000 and anticipated low harvest in 2001. The BOF continued the classification as a stock of yield concern in 2004, 2007, 2010, 2013, 2016, and 2019 (Carroll et al. 2018).

The Yukon River summer chum salmon run is managed according to the guidelines described in the *Yukon River Summer Chum Salmon Management Plan* (5 AAC 05.362). This plan intends to conservatively manage harvests to provide for escapement needs and subsistence use as a priority over other consumptive uses such as commercial, sport, and personal use fishing. Since 2001, this management plan has allowed for varying levels of harvest opportunity depending on the run size projection. The BOF modified the management plan in 2016. Directed summer chum salmon commercial opportunity has been provided in 2007 through 2018. Unfortunately, despite large run sizes from 2007 to 2018, full exploitation of harvestable surplus has been hindered by limited buyer capacity and conservative management strategies taken in response to poor Chinook salmon runs which co-migrate with summer chum salmon.

The *Anvik River Chum Salmon Fishery Management Plan* (5 AAC 05.368) allows the Anvik River to be opened to summer chum salmon commercial fishing if a surplus beyond the escapement goal of 500,000 fish is available. All Chinook salmon taken in the Anvik River

[2] Arctic–Yukon–Kuskokwim Database Management System (AYKDBMS). 2006– . Alaska Department of Fish and Game, Division of Commercial Fisheries. Juneau, AK. https://www.adfg.alaska.gov/CF_R3/external/sites/aykdbms_website/Default.aspx (accessed December 22, 2021).

during commercial fishing periods must be returned to the water alive. Summer chum salmon were harvested in this terminal area only during the years 1994–1997.

Fall chum salmon runs have been average to above average since 2005 and sufficient for meeting escapement and subsistence needs while providing for a limited commercial harvest (with the exceptions of 2009 and 2010). Management of the Yukon Area fall season commercial salmon fisheries follows the *Yukon River Drainage Fall Chum Salmon Management Plan* (5 ACC 01.249). The plan sets the threshold number of fall chum salmon needed to prosecute a commercial fishery at 550,000 fish and commercial fishing is allowed on the surplus above that level. The fall chum salmon plan incorporates the amount of fall chum salmon needed to meet U.S./Canada treaty objectives for border passage and provides guidelines necessary for escapement and prioritized uses. The plan aligns management objectives with the established escapement goals, provides flexibility in managing subsistence harvests when stocks are low, and bolsters salmon escapement as run abundance increases.

Coho salmon are primarily harvested incidentally during the fall chum salmon-directed commercial fishery. The *Yukon River Coho Salmon Management Plan* 5 ACC 05.369 allows a coho salmon-directed commercial fishery in the absence of achieving the threshold number of fall chum salmon if a harvestable surplus of coho salmon exists and if a commercial fishery will not have a significant effect on fall chum salmon escapement and allocation. Coho salmon run size has been above average since 2014, and subsistence fishing remained on full or liberalized schedules, but escapement has been variable and generally above average.

Finally, under the *Tanana River Salmon Management Plan* 5 AAC 05.367, commercial fishing in Subdistrict 5-A and District 6 is based on the assessment and timing of salmon stocks bound for the Tanana River drainage.

Since 2001, the subsistence fishery has been based on a schedule implemented chronologically by ADF&G and consistent with migratory timing as the Chinook salmon run progresses upstream. Beginning with ice-out, subsistence fishing is open 7 days per week until the schedule is established by EO. The objectives of the schedule are to (1) reduce harvest early in the run when there is a higher level of uncertainty in run assessment, (2) spread the harvest throughout the run to reduce harvest effects on any one component of the run, and (3) provide subsistence fishing opportunity among all user groups during years of low salmon runs (Table 3).

ALASKA BOARD OF FISHERIES ACTIONS

The BOF met in Anchorage in January 2019 and made several changes to the regulations of Yukon Area fisheries. The following is a summary of BOF actions at that meeting:

1. The use of hook and line as a legal subsistence gear was extended from Paimiut Slough (near Holy Cross) to the Nulato River (near the community of Nulato); in waters of the Yukon River drainage from the coast to the north bank of the mouth of the Nulato River (including the Nulato River drainage) hook and line may be used year-round as subsistence gear for salmon and nonsalmon species.
2. During times when it is necessary to conserve Chinook or chum salmon, fish wheels must be closely attended, and all Chinook or chum salmon must be immediately released to the water alive and may not enter any live box unless retention is allowed by EO.

3. Dip nets were added to the list of legal gear types subsistence fish harvesters may use for salmon. During times of Chinook salmon conservation, ADF&G may allow the retention of Chinook salmon from dip nets, beach seines, or fish wheels by EO.
4. ADF&G may reduce the 24-hour closure before the start of a commercial fishing season.
5. Removed the requirement to clip both tips (lobes) of the tail of subsistence-taken Chinook salmon in Districts 1–3 when there is no commercial fishery for Chinook salmon. However, if ADF&G anticipates the sale of Chinook salmon, fish harvesters will be required to remove the lobes to mark fish and prevent the illegal sale of subsistence-caught Chinook salmon.
6. The maximum amount of gear used in a portion of Subdistrict 5-C was modified. Between the ADF&G marker near Waldron Creek and Hess Creek, a set gillnet used by an individual for subsistence fishing may not exceed 150 feet in length.
7. In Subdistricts 5-A, 5-B, and 5-C, subsistence salmon fishing will be 7 days a week consistent with the migratory timing of the fall chum salmon fishery when the fall chum salmon inseason projection, based on the summer chum to fall chum salmon relationship, is for 700,000 or more fish. Fishing periods may be altered for the conservation of Chinook salmon.
8. Restricted dates for using drift gillnets for certain salmon species were removed for District 4. Drift gillnets may now be used for subsistence salmon fishing in District 4 but are limited to a maximum length of 150 feet.
9. ADF&G may close the fall chum and coho salmon commercial seasons by EO, instead of by a date set in regulation.
10. Added a size restriction to northern pike, which can be kept within the Chatanika River Harvest Area (from an ADF&G marker located 1 river mile upstream of the confluence of the Chatanika River and Goldstream Creek to an ADF&G marker at the boundary of the Fairbanks Nonsubsistence Area).

FEDERAL SUBSISTENCE MANAGEMENT

The Alaska National Interest Lands Conservation Act (ANILCA) of 1980 mandates that rural subsistence users have a priority over other users to take wildlife on federal public lands where recognized customary and traditional use patterns exist and required the creation of Regional Advisory Councils (RAC) to enable rural residents to have a meaningful role in federal subsistence management. On October 1, 1999, the Secretary of Interior and Secretary of Agriculture published regulations to expand federal management of subsistence fisheries to Alaska rivers, lakes, and limited marine waters within, and adjacent to, federal public lands. The Secretaries delegated their authority in Alaska to the Federal Subsistence Board (FSB) to manage fish and wildlife resources for subsistence uses on federal public land, including waters running through or next to these lands. Federal subsistence fishing regulations are adopted by the FSB. The RACs provide recommendations and information to the FSB, review policies and management plans, provide a public forum, and deal with other matters relating to subsistence uses. The FSB or U.S. Fish and Wildlife Service (USFWS) may close fishing for other uses in these waters and implement a priority for federally qualified rural subsistence users if it is determined that ADF&G-managed fishery management is causing subsistence or conservation

concerns (Ward and Horn 2003). Federal subsistence fishing schedules, openings, closures, and fishing methods are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060), unless superseded by a Federal Special Action (CFR 2017).

Federal Subsistence Management Actions

The Yukon Area federal management staff works closely with ADF&G Commercial Fisheries Division Yukon Area managers, sharing information and coordinating management actions. Many public fisheries-related meetings are attended throughout the year by both agencies jointly and individually that are preceded with considerable effort to provide consistent stock information, management strategy expectations, and rationale for management actions. ADF&G area managers are the lead agency staff with authority throughout the entire Yukon Area Federal management authority is primarily limited to overlapping waters adjacent to Federal Conservation Units. During the 2018 fishing season, federal managers issued 29 Streamlining Actions (20 summer; 9 fall) which aligned federal subsistence fishing regulations with Alaska regulations that were established through ADF&G's EO authority. Management of the Yukon Area commercial fishery by ADF&G prompted the issuance of 10 Federal Memorandums of Concurrence (6 during summer season; 4 during fall season). These memorandums documented federal consideration which resulted in concluding that ADF&G actions taken in regulating the commercial fishery provided adequate assurances for escapement and federal subsistence needs. No Federal Special Actions were issued during the 2018 season which would be used to implement changes in federal rules that differ from Alaska regulations.

The federal inseason subsistence fishery manager received a request for a cultural and educational Chinook salmon harvest permit, and 1 was issued allowing the harvest of up to 6 Chinook salmon by set gillnet with a mesh size of 6 inches or less between June 19 and June 21, 2018, in the federal public waters adjacent to the Nowitna National Wildlife Refuge. ADF&G and federal managers received and granted an additional funerary salmon harvest allowance for a family in Minto. This funerary allowance limited the harvest to a maximum of 10 Chinook salmon.

CANADIAN YUKON RIVER SALMON FISHERY

The Canadian portion of the Yukon River drainage maintains Aboriginal, domestic, commercial, and recreational fisheries for salmon. The Aboriginal and domestic fisheries are comparable to subsistence and personal use fisheries in Alaska, although the Aboriginal fishery is only open to Native people. All the commercial salmon harvests in Canada occur on the mainstem Yukon River. Canadian salmon harvests in the Porcupine River drainage consist only of an Aboriginal fishery.

Records indicate a Canadian commercial fishery occurred sporadically from 1903 to 1917 and continuously from 1918 to 1947. No harvest records are available from 1948 to 1957. Harvest records document the annual salmon harvest by species since 1958 and by user group since 1961. DFO has provided annual harvest data from the Canadian portion of the Yukon River drainage since 1962.

U.S./Canada Yukon River Salmon Panel and Treaty Negotiations

The U.S. and Canada initiated negotiations in 1985 regarding a Yukon River salmon treaty that would enhance the management coordination of salmon stocks spawning in the Canadian portion of the Yukon River drainage. Reaching a comprehensive long-term agreement posed a

formidable challenge through the mid-1990s. In February 1995, an agreement was formalized resulting in an interim Yukon River Salmon Agreement (YRSA). A Yukon River Panel (hereafter referred to as Panel), made up of delegates from the U.S. and Canada, was formed to implement the YRSA. The focus of the Panel was the salmon stocks that spawn in the Canadian portion of the Yukon River drainage.

In December 2002, the U.S. and Canada signed a formal YRSA that set harvest share target ranges based on a postseason run assessment for Chinook and fall chum salmon into the Canadian mainstem of the Yukon River. Under the YRSA, the Alaska and Canadian fisheries are managed consistent with conservation objectives that were jointly developed. The Panel meets semiannually and advises the U.S. and Canadian governments on the conservation and management of salmon originating in the Canadian portion of the Yukon River. In recognition of the changing dynamics of the fishery and the spirit of the agreement, interim management objectives are jointly reviewed and agreed upon each spring before the salmon returns. In addition to escapement needs, Alaska is obligated to share harvestable surpluses of the Canadian run component, with Canada receiving 20% to 26% of the available total allowable catch (TAC) for Canadian-bound Chinook salmon and 29% to 35% of the available TAC for Canadian-bound fall chum salmon.

Canadian Chinook Salmon

In 2010, the Panel adopted an interim management escapement goals (IMEG) range of 42,500–55,000 Chinook salmon. In the absence of a biological escapement goal, a goal based on a production or population model, the IMEG has been retained each year since then. At the April 2017 meeting, the Yukon River Panel took action to implement the current IMEG range of 42,500–55,000 for 3 years, 2017–2019 (JTC 2019). The success of achieving this escapement goal is assessed using the passage estimate from the mainstem sonar operated near Eagle, Alaska (hereafter referred to as Eagle sonar), minus catches from fisheries occurring upstream of the sonar (i.e., the U.S. subsistence catch near Eagle and the harvest from Canadian fisheries). The JTC is continuing to examine other data and approaches that may be used in recommending a revised, biologically based escapement goal for future years.

Canadian Fall Chum Salmon

The Upper Yukon River escapement goal specified within the YRSA is greater than 80,000 fall chum salmon. This goal was achieved 15 times during the period from 1982–2009 (28 years) and met 23 times through 2017. The DFO fall chum salmon mark–recapture program was conducted from 1982 to 2008 and the joint U.S./Canada sonar program operated near Eagle, Alaska, was conducted for fall chum salmon since 2006. The mark–recapture estimates generally agreed with mainstem Yukon River sonar estimates for fall chum salmon when the 2 programs were conducted concurrently (2006–2008). Therefore, the sonar project on the mainstem Yukon River became the primary assessment tool for the Canadian border passage and has been applied since 2006.

The Upper Yukon River escapement goal was reviewed in 2001 and after considerable analysis of the available data, a recommendation was made for a biological escapement goal (BEG) of 60,000 to 129,000 fall chum salmon (Eggers 2001). However, due to concerns over the quality of the data and analytical issues, the BEG recommendation was not accepted during a Pacific Scientific Advice Review Committee (PSARC) review (Tanasichuk 2002).

In 2018, the JTC recommended that the Upper Yukon River IMEG remain as established in 2010 as a range from 70,000 to 104,000 fall chum salmon. This range was developed as 0.8 to 1.2 times the estimated spawners at maximum sustained yield (86,600 fish), which was derived before the returns from the exceptional 2005 spawning escapement of over 437,498 fall chum salmon. Run size at the border has been assessed through the joint U.S./Canada sonar program near Eagle since 2006. The JTC recommended that the Canadian-origin mainstem Yukon IMEG remain as established in 2010 for the 2018 and 2019 seasons (JTC 2019).

Fishing Branch River Fall Chum Salmon

The escapement goal specified within the YRSA is a range of 50,000 to 120,000 fall chum salmon to the Fishing Branch River. This goal has been achieved only 10 times from 1974 to 2012 and only 4 times from 1985 to 2017 when the full season weir operation was the primary assessment project. The Fishing Branch River escapement goal was reviewed in 2001 and after a thorough analysis of the available data, a recommendation was made for a BEG of 27,000 to 56,000 fall chum salmon (Eggers 2001). However, because of concerns over the quality of the data and analytical issues, the BEG recommendation was also not accepted during a PSARC review (Tanasichuk 2002).

In April 2008, the Panel accepted the JTC recommendation to adopt an IMEG range of 22,000 to 49,000 fall chum salmon for the Fishing Branch River for the 2008 to 2010 period. The percentile method was used to determine the IMEG. The analysis used escapement contrast (i.e., ratio of maximum to minimum escapement) and harvest rate information to determine what percentile range of observed escapements is appropriate for the escapement goal range determination. In the Fishing Branch River fall chum salmon analysis, escapements from 1985 to 2007 (excluding 1990) were incorporated along with the high contrast ratio of 24:1. The escapement goal range reflects the 25th and 75th percentiles of 22 years of Fishing Branch River weir counts (Clark et al. 2014).

The use of this IMEG range has continued because no new data for analysis has become available. The 2012 and 2017 Fishing Branch weir counts and run size estimates did not provide any indication that the 2018 IMEG required revision. Some attempts were made in 2013–2014 to assess the Fishing Branch River escapement based on a combination of projects operated near the community of Old Crow, including sonar estimates of fall chum salmon and the proportion of Porcupine River chum salmon radio-tag recoveries upstream of the weir site. However, because there are concerns about the tagging portion of this study, comparing it to the weir goal is not substantiated. The Fishing Branch River weir was operated in both 2015 and 2018, concurrently with operations of the Porcupine River border sonar. Since 2016, the Fishing Branch River weir counts were supplemented by the sonar estimates which help during high water events. In 2018, high water did not allow for a fall chum salmon estimate from the Porcupine River sonar project, and the Fishing Branch River weir count of 10,151 fish the was below the IMEG (22,000–49,000 fish; Appendix E1).

For 2018, the Panel adopted the JTC recommendation that the Fishing Branch IMEG remain as established in 2008 as a range of 22,000–49,000 fall chum salmon for the 2017–2019 seasons (JTC 2018). This range has been extended for 3-year periods since 2008.

2018 SALMON OUTLOOK

Before each season, the salmon run sizes are forecasted using various methods and an outlook is created for each species. These preseason outlooks are shared with the public, along with a generalized management strategy that is produced on a flier that is mailed to all known Yukon Area fishing households. These outlooks guide the early management actions while inseason assessment is still uncertain as fish begin to enter the river. As inseason assessment data becomes more precise, management strategies are adapted inseason.

Chinook Salmon

The outlook for the 2018 drainagewide Yukon River Chinook salmon run was estimated by applying historical average proportions of Canadian-origin fish in the total run to the JTC-approved Canadian-origin run outlook, which was based on a combination of sibling and spawner-recruit forecast models, and also incorporated information from marine juvenile abundance forecast methods (JTC 2019). The 2005–2017 weighted average proportion of Canadian-origin fish (measured at Pilot Station sonar) was 41%. Therefore, for 2018, the Canadian-origin outlook of (71,000–103,000) was divided by 41% (JTC 2019). This created a drainagewide outlook of 173,000–251,000. A run of this size should provide for escapements and allow for subsistence harvest.

Summer Chum Salmon

The strength of the summer chum salmon run in 2018 was dependent on production from the 2014 (age-4 fish) and 2013 (age-5 fish) escapements because these age classes generally dominate the run. The total run during 2013 was estimated to be 3.4 million summer chum salmon, and nearly 2.5 million in 2014 (Appendix E21). The escapement goal on the Anvik River (350,000–750,000 fish) was met in both 2013 and 2014. The East Fork Andreafsky River goal (>40,000 fish) was met in 2013 but fell just short of the goal in 2014. Summer chum salmon generally exhibit strong run size correlations among adjacent years, and it was expected that the 2018 drainagewide run in the Yukon River would be approximately 2.5 million fish.

The 2018 summer chum salmon run was anticipated to provide for escapements, a normal subsistence harvest, and a surplus for commercial harvest. Summer chum salmon runs have provided for a harvestable surplus in each of the last 15 years (2003–2017). If inseason indicators of run strength suggested sufficient abundance exists to allow for a commercial fishery, the commercially harvestable surplus in Alaska could range from 1,200,000 to 1,900,000 summer chum salmon. Similar to the last 5 years, the commercial harvest of summer chum salmon in 2018 was affected by measures taken to protect the Chinook salmon from incidental harvest in chum salmon-directed fisheries.

Fall Chum Salmon

The 2018 run was made up of fish returning from the parent years 2012–2015. Estimates of returns per spawner (R/S), based on brood year return, were used to estimate production for 2012 and 2013. An autoregressive Ricker spawner-recruit model was used to predict returns from 2014 and 2015. The 2018 point projection used complete brood year returns applied on an odd/even maturity schedule for data from 1974–2011. The result was a point estimate of 1,682,000 fall chum salmon. The 2018 run size forecast was expressed as a range of

1,600,000–1,800,000 fall chum salmon. The forecasted run size was above average for an even-numbered year run (Appendix E10).

The contributing parent-year escapements from 2012 through 2014 all exceeded the upper end of the drainagewide escapement goal range of 300,000–600,000 fall chum salmon (Appendix E10). The major contributor to the 2018 fall chum salmon run was expected to be age-0.3 fish returning from the 2014 parent year (Appendix E10). The run was also expected to be strengthened by a large return of the age-0.4 component from the 2013 parent year that produced excellent returns as age-0.3.

Coho Salmon

Although there is little comprehensive escapement information for Yukon River drainage coho salmon, it is known that coho salmon primarily return as age-2.1 fish (4-year-old, age in European notation) and overlap in run timing with fall chum salmon. The major contributor to the 2018 coho salmon run was the age-4 fish returning from the 2014 parent year. Based on the run-reconstruction index (1995–2016, excluding 1996 and 2009), the 2014 escapement was estimated to be 264,000 coho salmon, which was the highest in the series and well above the median of 164,000 fish (Appendix E12).

Escapements are mostly monitored in the Tanana River drainage. The Delta Clearwater River (DCR) is a major producer of coho salmon in the upper Tanana River drainage with comparative escapement monitoring data since 1972. The parent-year escapement in the DCR of 4,285 fish in 2014 (Appendix E11) was below the lower end of the sustainable escapement goal (SEG) range of 5,200–17,000 coho salmon. Six additional locations in the Tanana River drainage were surveyed for coho salmon specifically; all of which were below average when compared to the 5-year average (Appendix E11). The coho salmon run outlook is based on parent year escapements assuming average survival. The high coho salmon returns of 2016–2018 indicated the run may be average (Appendix E12).

2018 Salmon Management and Harvests

Total Yukon Drainage Salmon Harvest

The total 2018 harvest of the Alaska portion of the Yukon River drainage, including the Coastal District, was 32,013 Chinook salmon, 655,163 summer chum, 453,703 fall chum, 116,165 coho, and 42,955 pink salmon (Table 4, Appendices A13–A17).

Alaska Commercial Fishery

A total of 10 salmon processors and/or catcher-sellers registered in the Alaska portion of the Yukon Area in 2018 (Table 1). The total 2018 commercial harvest for the Yukon Area in Alaska was 576,700 summer chum, 387,788 fall chum, 110,590 coho, 39,243 pink, and 0 (zero) Chinook salmon (Table 3). The commercial harvests of summer chum, fall chum, and pink salmon were above their 2013 through 2017 averages, whereas the coho salmon harvest was below average (Appendices A14–A17). A total of 498 permit holders participated in the 2018 commercial fishery which is above the 5-year average of 481 permit holders (Appendix A8). Yukon River commercial fishing operators in Alaska received an estimated $4.7 million for their salmon harvest in 2018 which was above the 5-year average of $3.8 million (Appendix A11).

Chinook and Summer Chum Salmon Assessment

ADF&G monitors a suite of assessment projects that provide critical salmon run timing, relative abundance, and stock composition information. Inseason run assessments included test fisheries; sonar passage estimates; commercial harvest data; subsistence and commercial fishing reports; and age, sex, and length (ASL) data. Additionally, genetic samples were collected and analyzed inseason from the Pilot Station sonar test fishery to determine stock contribution for both Chinook and summer chum salmon.

Initial assessment in the lower river is critical to implementing an inseason management plan throughout the drainage. Three projects on the Lower Yukon River provided timing information and inseason abundance. The LYTF project uses 8.5-inch set gillnets and an 8.25-inch drift gillnet to assess Chinook salmon run timing and relative abundance in the Middle and South Mouths of the Yukon River. The LYTF also includes a summer chum salmon-directed test fishery, which uses 5.5-inch mesh drift gillnets in the Middle and South Mouths of the Yukon River. The Pilot Station sonar provides abundance estimates and run timing information about Chinook and summer chum salmon in the Lower Yukon River. Given the anticipated below-average run size, efforts were made by ADF&G to reduce Chinook salmon mortality in test fisheries. Chinook salmon caught in drift and set nets that were deemed healthy were released alive immediately. Any Chinook salmon mortalities were delivered to Tribal Councils in various villages for distribution to elders or disabled individuals placed on a distribution list provided by the Councils.

Ice breakup at the mouth of the Yukon River occurred on May 18, which was about 3 days earlier than the average breakup date of May 21 (Appendix A21). The first Chinook and summer chum salmon of the year was caught in the subsistence fishery on May 27. These catches were 4 days earlier than the average date for Chinook salmon (May 31) and 6 days earlier than the average date for summer chum salmon (June 2; Appendix A21). ADF&G relied on subsistence harvest reports to guide initial management actions during the early portion of the salmon runs.

The LYTF was fully operational at the South Mouth (Big Eddy) drift gillnet site on May 29 and at the Middle Mouth and Big Eddy set gillnet sites on June 7. The first Chinook salmon caught in the test fishery was on June 2 in the South Mouth 8.25-inch drift gillnet. Early catch per unit effort (CPUE) was low due to very heavy debris loads in the river, hampering ideal set net operations. The LYTF set gillnets concluded operations on July 12 with a cumulative CPUE of 24.32, which was similar to the historical average CPUE of 24.44 (Appendix B7). The first quarter-point was on June 20, midpoint on June 24, and the third quarter-point was June 29. The 8.25-inch drift gillnet project for Chinook salmon operated in Big Eddy until July 15 and provided valuable supplemental run timing information for Chinook salmon entering the South Mouth of the Yukon River. This season, 538 Chinook salmon were released alive from the LYTF and 1,007 Chinook salmon were distributed to locals in mostly lower Yukon communities, with emphasis given to elders and people who are unable to fish. This fish donation program was coordinated with village tribal councils and with the assistance of the Yukon Delta Fisheries Development Association (Mick Leach, Commercial Fisheries Technician, ADF&G, Anchorage; personal communication).

The cumulative passage at the Pilot Station sonar was estimated at 161,800 Chinook salmon with a 90% confidence interval (CI) of ± 24,500 fish (Appendix E3). This final passage estimate was below the 10-year average of 166,200 fish (Appendix E3). Chinook salmon entered the river in

4 pulses consisting of 26,370 fish; 29,900 fish; 57,070 fish; and 25,030 fish. The first quarter-point was on June 19, the midpoint on June 26, and the third quarter-point on July 1 for the sonar project near Pilot Station. The 2018 Chinook salmon run timing was 2 days later than the 1995–2017 average run timing (AYKDBMS).

An estimated 1.6 million summer chum salmon passed the sonar project near Pilot Station (with 90% CI of ± 107,300 fish; Appendix E3), which was below the 10-year average of 2.0 million fish for the project. The first quarter-point was on June 21, the midpoint on June 29, and the third quarter-point on July 5, which is consistent with historical late run timing. Four pulses of summer chum salmon were detected at the sonar project, the largest pulse passed the sonar between July 2 and July 7 and was estimated to be 552,000 fish (AYKDBMS).

Summer Season Subsistence Fishery

Along with the regulatory schedule (Table 3), ADF&G implemented gear restrictions and additional closures as part of the subsistence fishery management actions during the summer season. ADF&G relied on subsistence harvest reports to guide initial management actions during the early portion of the salmon runs right after breakup. Fishing was open with 7.5-inch or smaller mesh gear as soon as breakup occurred. High water and large amounts of woody debris hampered early fishing efforts. In anticipation of a run size that would require limiting subsistence fishing for Chinook salmon, districts were put on a fishing schedule soon after the first fish were detected in the LYTF. District 1 and the North Coastal area (from 62° N lat to Point Romanof) were open for subsistence fishing for two 18-hour periods per week starting on June 9. The normal regulatory windows schedule in District 1 is for two 36-hour periods per week. Half regulatory schedules were used to reduce harvest opportunities equally across districts while providing longer closure periods to allow fish to move through the districts. Districts were placed on the half regulatory schedule as fish moved upriver (Table 5). The Innoko River, Koyukuk River, and South Coastal area, from the Naskonat Peninsula north to 62° N lat, including the communities of Hooper Bay and Scammon Bay, remained unrestricted. These areas harvest low numbers of Chinook salmon and do not target Canadian-origin Chinook salmon.

To further protect Chinook salmon, gillnet mesh size was restricted to 6-inch or less, subsistence periods were canceled, or both. Districts 1 through Subdistrict 4-A had 2 periods canceled and resulted in 2 weeks when fish harvesters only had 1 opportunity to harvest salmon. In Subdistricts 4-B and 4-C, only 1 period was canceled. In District 5, periods were not canceled because run assessment did not indicate the need by the time the fish reached the upper river; however, fishing was restricted to 6-inch or smaller mesh gillnets and remained on the half regulatory schedule most of the summer season. Because fish harvesters in District 5, above the confluence of the Tanana River, were mainly harvesting Canadian-origin salmon headed towards spawning grounds, the 6-inch restriction was used for an extended period. In the lower reaches of the river that experience a high abundance of summer chum salmon, this mesh size can overly reduce Chinook salmon harvest opportunity; however, above the confluence of the Tanana River, there is a relative absence of summer chum salmon, therefore, this mesh size can be an effective mesh to harvest Chinook salmon. Because the projected run size was toward the lower end of the forecast, managers decided that the prolonged use of 6-inch or smaller mesh gillnets in District 5 would have the added benefit of allowing more older, larger fish to escape to spawning grounds.

The 2018 Chinook salmon run was conservatively managed in the early part of the season when run assessment had higher uncertainty. Restrictions were relaxed once fishery managers were confident that the border escapement objective would be achieved (Table 5).

Summer Season Commercial Fishery

For the 11th consecutive year, no commercial periods targeting Chinook salmon were allowed in the mainstem Yukon River or the Tanana River during the summer season. Because Chinook salmon are encountered incidentally in the commercial summer chum salmon fishery, a suite of strategies were used to conservatively manage these fisheries to minimize the effect to the below-average Chinook salmon run.

A liberal commercial fishing opportunity was provided for summer chum salmon in Districts 1, 2, 4, and 6 because a large run of summer chum salmon was forecasted and there were 3 buyers in District 2 and 1 buyer in District 4 (Table 1).

Lower Yukon Districts

Commercial fishing for summer chum salmon using selective gear (dip nets and beach seines) began June 9 in District 1 and June 12 in District 2. The effect on Chinook salmon was expected to be minimal because commercial fishing operators were required to immediately release all incidentally caught Chinook salmon back to the water alive from these openings. Commercial fishing was open for 21 periods in District 1 and 18 periods in District 2 using selective gear; a total of 11,929 Chinook salmon were reported released alive. The combined harvest in Districts 1 and 2 with selective gear types was 243,811 summer chum salmon. A total of 342 permit holders fished selective gear commercial openings; most commercial fishing operators (over 98%) used dip net gear and 2% of fishing operators used beach seines. Beach seines accounted for less than 1% of the summer chum salmon harvest taken with selective gear types (Table 6).

The use of gillnets in the summer chum salmon commercial fishery was delayed until after the midpoint of the Chinook salmon run and the passage estimate at Pilot Station sonar was over 138,000 fish. Gillnet opportunity with 6-inch or smaller mesh was provided beginning July 4 in District 1. Commercial fishing with 6-inch or smaller mesh gillnets began July 7 in District 2 (Table 6).

The sale of incidentally caught Chinook salmon was prohibited for the eighth consecutive year in the summer season. Commercial fishing operators were required to report any Chinook salmon caught but not sold on fish tickets. A total of 3,042 Chinook salmon were recorded as kept for personal use in Districts 1 and 2 during the summer season commercial gillnet fishery. An additional 148 were retained during the fall chum salmon commercial gillnet fishery for a total of 3,190 Chinook salmon retained from Lower Yukon commercial openings (Table 6).

The cumulative summer chum salmon commercial harvest for Districts 1 and 2 for all gear types combined was 446,381 fish (Table 6, Appendix A4). A total of 39,226 pink salmon were sold during the summer season in Districts 1 and 2 (Table 6). The average weight of pink salmon sold in the Districts 1 and 2 commercial fishery in 2018 was 2.7 pounds which was below the 10-year average weight of 3.6 pounds (Appendix A12). An additional 17 pink salmon were sold during the fall season. The Lower Yukon summer chum salmon harvest was 17% above the 5-year average harvest of 415,106 fish (Appendix A4).

Upper Yukon Districts

Fishing opened in District 4 on June 26, with 36 periods offered through August 1 with live release fish wheels. Commercial fishing operators were required to continuously monitor fish wheels and immediately release any Chinook salmon alive. A reported 286 Chinook salmon were encountered and released alive in District 4 (Table 6). Due to different bank orientations, Chinook salmon are not typically found on the same bank as summer chum salmon in this area of the river and are not frequently caught in the commercial fish wheels. The District 4 summer chum salmon harvest of 126,892 fish was well above the 5-year average of 118,648 (Appendix A4).

A total of 6 commercial summer chum salmon fishing periods were announced in District 6, with the first period on July 13. Chinook salmon could not be sold but could be retained for personal use. The cumulative harvest was 3,427 summer chum and 143 Chinook salmon kept for personal use (Table 6). The 2017 District 6 commercial harvest was 34% below the 5-year average of 5,188 summer chum salmon (Appendix A4).

Summer Season Harvest, Effort, and Exvessel Value

The majority of commercial harvest occurred in the lower river districts (Tables 6, 7, and 8). The total commercial harvest for Districts 1, 2, 4, and 6 combined was 576,700 summer chum salmon, which was nearly 60% above the 10-year average harvest of 360,649 fish (Appendix A4), and was the largest harvest since 1989 when 955,806 summer chum salmon were harvested.

A total of 426 permit holders participated in the summer chum salmon fishery, above the 5-year average of 417 permit holders (Appendix A8). The Lower Yukon Area (Districts 1–3) and Upper Yukon Area (Districts 4–6) are separate Commercial Fisheries Entry Commission (CFEC) permit areas. A total of 417 permit holders fished in the Lower Yukon Area in 2018, which was above the 5-year average of 409 permits fished. In the Upper Yukon Area, 9 permit holders fished, which was above the 5-year average of 8 permits fished. (Appendix A8).

Lower Yukon Area commercial fishing operators in Alaska received $1.68 million for their summer chum salmon harvest in 2018, which was 5% above the 5-year average commercial harvest value of $1.60 million. Lower Yukon Area commercial fishing operators also received an additional $15,989 from the sale of pink salmon in the summer season (Appendix A11). In 2018, commercial fishing operators received $0.60 per pound for summer chum salmon and $0.15 per pound for pink salmon (Appendix A10).

In 2018, Upper Yukon Area commercial fishing operators received an average of $0.33 per pound for summer chum salmon sold in the round which was above the 5-year average of $0.28 per pound (Appendix A10). The Upper Yukon Area exvessel value for summer chum salmon was $217,064, which was well above the 5-year average of $119,389 (Appendix A11).

Summer Season Commercial Harvest Characteristics

A total of 788 summer chum salmon were sampled for ASL from commercial harvests in District 1. The summer chum salmon age composition from the District 1 dip net commercial fishery (n = 442) was 45.0% age-4, 52.0% age-5, and 2.9% age-6 fish. Females made up 41% of the samples. The summer chum salmon age composition from the District 1 gillnet commercial fishery (n = 312) was 1.0% age-3, 59.3% age-4, 37.2% age-5, and 2.6% age-6 fish. Females made up 42% of the samples. Sex determination of commercially caught fish was done with

visual exterior inspection only. The mean length of all summer chum salmon sampled in the District 1 commercial fishery was 557 mm (AYKDBMS).

Fall Chum and Coho Salmon Assessment

ADF&G monitored a suite of assessment projects in the lower river that provided salmon run timing, relative abundance, and stock composition information. Projects operated included 2 drift gillnet test fisheries that provided timing information and relative abundance, a mainstem Yukon River sonar located near Pilot Station that provided abundance estimates, and harvest information from both subsistence and commercial fisheries. Genetic samples collected from chum salmon at the Pilot Station sonar provided stock composition information. Escapement projects were operated in the Upper Yukon River tributaries and the upper mainstem of the Yukon River. Assessment projects operated in the upper river included a sonar in the mainstem Yukon River near the U.S./Canada border as well as in 2 tributaries (Chandalar and Upper Porcupine Rivers), and a weir on the Fishing Branch River (Porcupine River headwater). Data from these projects were analyzed collectively inseason, and were used to verify and corroborate assessment between projects and to project whether escapement goals would be achieved. ASL information was also collected at the Lower Yukon River test fisheries, District 1 commercial fishery, mainstem Yukon River sonar (Eagle), as well as Fishing Branch and Delta Rivers.

By regulation, the fall season began in the Lower Yukon River on July 16. Chum salmon caught in the Lower Yukon River drift gillnet test fishery (LYTF) after July 16 were considered fall chum salmon. Mountain Village drift gillnet test fishery (MVTF) began operating on July 18, and the mainstem Yukon River sonar operated near Pilot Station began counting fall chum salmon on July 19. The subsequent transition of upriver districts and subdistricts to the fall season was based on the migration timing of fall chum salmon. The LYTF completed operations on September 10 (Yukon Delta Fisheries Development Association conducted drifts in late August through the end of the season) and had a preliminary total cumulative catch per unit effort (CPUE) for fall chum salmon of 3,034, which is well above the historical median of 1,522. The MVTF ceased operations after September 12 with a cumulative CPUE for fall chum salmon of 3,025, which was above the historical median of 2,052. The mainstem Yukon River sonar near Pilot Station ceased operations after September 7. The preliminary fall chum salmon passage estimate at the Pilot Station sonar project was 928,664 fish, which was above the 1998–2017 average of 755,940 fish (Appendix E3).

The 2018 fall chum salmon run entered the Yukon River in 7 distinct pulses. The first pulse contained a high proportion of summer chum salmon and the transition date was delayed due to the late arrival of the fall chum salmon stocks. Each of the successive 5 pulses was larger than the last, except for the final pulse was the smallest of the season. The 4th and 5th pulses entered in short succession and the 6th pulse was the largest with 188,000 fall chum salmon passage at the mainstem sonar in 3 days peaking on August 30 (Appendix B11) despite the lower Yukon harvest of 88,000 in the commercial fishery for that same period

Cumulative fall chum salmon passage past the mainstem sonar tracked slightly below the historical median (1995, 1997–2008, 2010–2017; AYKDBMS) through the middle of August and exceeded the median after August 29 when the largest pulse entered the river. Based on harvest levels through mid-August, the inseason run projections followed the 550,000 fall chum salmon threshold necessary to allow fall chum salmon-directed commercial fishing. Once the

late large pulses arrived, the preseason projection was exceeded. Run timing for fall chum salmon was on average 7 days late over all the assessment projects (AYKDBMS).

The cumulative coho salmon passage past the mainstem sonar near Pilot Station was tracking well below the historical median (1995, 1997–2008, 2010–2017; AYKDBMS) throughout the season. The coho salmon sonar passage estimate was 136,347 fish which was below the historical median of 160,300 fish. Both the preliminary total cumulative CPUE for coho salmon at the LYTF and MVTF were well below their respective historical medians. The total run was below the historical median until August 31 when a large pulse of coho salmon entered the Yukon River. Run timing for coho salmon was on average 4 days late over all the lower river assessment projects (AYKDBMS)

Subsistence Fisheries

In anticipation that the fall chum salmon run size in 2018 would meet both escapement needs and provide for a commercial surplus, all districts and subdistricts were placed on their regulatory subsistence fishing schedules upon transitioning to fall season management. The transition date was based on the fall chum salmon migration timing upriver. Because of the strong run size and inseason run projections, ADF&G liberalized subsistence fishing schedules on the Yukon River mainstem. Upon transitioning to fall season management, subsistence fish harvesters could use gillnets up to 7.5-inch mesh size.

Subsistence salmon fishing in the mainstem Porcupine River was placed on a reduced schedule of one 96-hour period per week beginning September 6. Subsistence salmon fishing on Porcupine River tributaries, such as the Sheenjek and Black Rivers, remained open 7 days a week, 24 hours per day. The reduced schedule was an attempt to increase the number of fall chum salmon reaching the Canadian portion of the Porcupine River drainage. The fall chum salmon run into the upper Porcupine River continued to be poor, and both the Porcupine River sonar and Fishing Branch River weir were projecting to be below average. On October 3, a full subsistence salmon fishing closure was implemented in the U.S. portion of the Porcupine River mainstem when assessment at the Fishing Branch River indicated the escapement objective would not be met.

Fall Season Commercial Fisheries

Fall chum salmon-directed commercial fishing in Districts 1 and 2 was placed on a 2-period per week schedule to begin the fall season on July 16. There were 3 registered buyers for both districts combined; 1 operating in District 1 and all 3 operating in District 2 (although processing capacity was larger in District 1). Early inseason fall chum salmon run assessment, along with inseason run projections, indicated the fall chum salmon run was coming in near average and commercial fishing remained on the 2-period per week schedule through mid-August. After that, the inseason run assessment and run projections indicated the fall chum salmon run was strong enough to allow adjustments to the commercial fishing schedule. Adjustments included scheduling openings while pulses were moving through each district to increase fall chum salmon harvests, scheduling commercial periods concurrently in Districts 1 and 2 because pulses were present in both districts, and providing several short notice commercial periods in District 1 when pulses were entering the river.

In Subdistricts 5-B and 5-C, commercial fishing for fall chum salmon was open from August 7 through September 30, although the harvest of fall chum salmon was small. Finally, District 6

opened for commercial fishing for fall chum salmon on August 17 and remained on a schedule through September 30. Commercial fishing was open in Subdistrict 4-A for 1 day on August 1, and the harvest was small. Fall chum salmon catches were relatively small with 1 buyer and less than 5 commercial fishing operators (Table 1 and Appendix A8).

Coho salmon daily and cumulative passages at the Pilot Station sonar were mostly below historical medians throughout the run. A large pulse containing approximately 36,000 fish passed the mainstem sonar near Pilot Station on August 29. ADF&G determined that a commercial surplus, in addition to what was harvested during the fall chum salmon-directed fisheries, remained. As a result, 4 coho salmon-directed commercial openings from September 2 and September 10 were allowed in Districts 1 and 2 (Table 9). Coho salmon-directed commercial fishery also occurred in District 6 from October through October 31 (Table 9).

Fall Season Harvest, Effort and Exvessel Value

A total of 65 commercial periods were announced in 2018; most of the commercial fishing periods and harvest occurred in Districts 1 and 2 (Table 9). A regular schedule of commercial fishing periods was established in Subdistricts 5-B, 5-C, and 4-A, and District 6. Fishing effort was low, and harvests were relatively small because of limited markets.

The 2018 total commercial harvest for the Yukon River fall season in the Alaska portion of the drainage was 387,788 fall chum salmon (Tables 4 and 9, Appendix A5) and 110,590 coho salmon (Tables 4 and 9, Appendix A6). The commercial harvests of fall chum and coho salmon combined in 2018 were the fourth largest on record since 1961. The 5-year average commercial harvest is 300,044 fall chum and 128,198 coho salmon. All fall chum and coho salmon were sold in the round. The average weight of fall chum salmon caught commercially in Districts 1 and 2 was 7.4 pounds, which was above the 10-year average weight of 7.1 pounds (Appendix A12). The average weight of coho salmon caught commercially in Districts 1 and 2 was 6.4 pounds, which was above the 10-year average weight of 6.7 pounds (Appendix A12). The average price paid per pound in Districts 1 and 2 (Lower Yukon Area) was $0.78 for fall chum and $1.00 for coho salmon (Appendix A10). The fall chum salmon price was above the 5-year average of $0.68 and the coho salmon price was slightly above the 5-year average of $0.96. In Subdistricts 5-B, 5-C, and 4-A, and District 6 (Upper Yukon Area), the average price paid per pound was $0.13 for fall chum salmon and $0.15 for coho salmon (Appendix A10). Both prices were below their respective 5-year averages. The total exvessel value of the fall season harvest was the second highest on record at $2,812,284: $2,131,398 for fall chum and $680,879 for coho salmon (Appendix A11). A total of 458 individual permit holders participated in the 2018 fall chum and coho salmon fishery; 448 in Districts 1 and 2 combined and 10 in Districts 4, 5, and 6 combined (Appendix A8).

Fall Season Commercial Harvest Characteristics

Preliminary fall chum salmon age composition from the District 1 commercial harvest was 1.6% for age-3 and 1.0% for age-6, and the dominant age classes contained 66.0% age-4 and 31.4% age-5, estimated from a sample of 810 fish. Females made up 44.4% of the commercial harvest sample of fall chum salmon, which was below the 10-year average of 54.3%. The mean length of fall chum salmon in the commercial harvest sample was 570 mm, which was below the 10-year average of 586 mm (AYKDBMS).

Preliminary coho salmon sex composition from the commercial harvest in District 1 (n = 297) contained 43.8% females, which was below the 10-year average of 49.0%. The average length of coho salmon in the commercial harvest sample was 554 mm, which was below the 10-year average of 558 mm (AYKDBMS).

Yukon Area Subsistence and Personal Use Salmon Harvest

Subsistence salmon household harvest survey (survey) and permit programs collected quantitative information on salmon harvest by species, gear types used to harvest salmon, harvest distribution, miscellaneous species harvest, number of dogs, and whether salmon is harvested for dogs. Qualitative information was also collected from households about salmon health and quality, subsistence fishing success, and fishery concerns. Subsistence permits are required in portions of the Yukon Area that are road accessible, including the Tanana River drainage, segments of the Koyukuk River, and Upper Yukon River in District 5. Subsistence salmon harvest estimates were derived by adding survey estimates, subsistence permit data, test fishery donations, and commercially-retained salmon for personal use. The preliminary 2018 Yukon Area subsistence salmon harvest estimate (not including the personal use harvests from District 6-C) was 31,812 Chinook, 76,926 summer chum, 64,494 fall chum, and 5,527 coho salmon (Table 4). An estimated 1,580 households participated in the Yukon Area subsistence and personal use fisheries in 2018 with 43% of households using drift gillnets, 50% using set gillnets, and 6% using fish wheels as their primary gear types (Table 10). The remaining 1% of households used other gear types such as beach seines and dip nets. To conserve Chinook salmon, fishing closures and gear restrictions were enacted throughout the mainstem. Subsistence and personal use fishing during the fall chum and coho salmon runs were largely unrestricted and open according to regulatory schedules (Table 3).

Subsistence Survey

The survey employed a stratified random sampling technique to select Yukon Area households to be interviewed during 2018 (Cochran 1977). Harvest estimates were determined by sampled households and by the level of harvest (e.g., no harvest, medium, or heavy harvesters). Estimates were expanded to include households not interviewed for a more complete estimate of a community's harvest. Accordingly, survey estimates have associated errors (Jallen et al. 2017). A total of 1,373 households were surveyed from 33 communities. In 2018, the survey estimated 26,741 ± 3,424 Chinook; 75,575 ± 7,244 summer chum; 35,254 ± 7,411 fall chum; and 5,046 ± 1,529 coho salmon were harvested (Table 10). In addition to the survey estimates, 1,322 Chinook, 3,657 summer chum, 2,734 fall chum, and 428 coho salmon, distributed by test fishery projects, were added to the relevant communities. Test fishery donations do not have an associated error because they are considered exact reports.

During the survey, households had the opportunity to comment on any topic related to fishing they felt was important. The largest groups of comments were personal in nature and regarded circumstances that affected an individual household's fishing effort such as health problems, work schedules, and time conflicts with other activities (234 responses). The second most numerous comments said that they met their needs for salmon (198 responses). The third largest group (110) discussed management actions in a negative way. Lack of equipment (e.g., boats, motors, and nets) was reported as preventing fishing for 75 households. There were 36 comments which discussed management actions in a positive way and 34 mentioned positive run dynamics. River conditions, mainly high water comments, were discussed by 22 households; weather

related responses by 14 households. Thirteen or fewer comments mentioned expenses, animals, disease, conservation, or dogs.[3]

Subsistence Permits

Subsistence permits are used to assess harvest in the road accessible communities. A total of 487 subsistence permits were issued in 2018 for the harvest of salmon and nonsalmon species. As of December 5, 2018, 83% (317) of the subsistence permits issued were returned and 242 permits reported fishing harvest (Appendices D6 and D7). There is no error associated with estimates of permit harvest because they are considered exact reports. Stevens Village residents have both permit and non-permit (subsistence survey) fishing areas nearby and may choose to participate in either or both fisheries; to avoid double counting, salmon harvest from this community is primarily estimated using the survey (Jallen et al. 2017). Households that returned subsistence permits reported harvesting 3,808 Chinook, 857 summer chum, 26,196 fall chum, and 1,745 coho salmon (Appendices D6 and D7). Commercially harvested salmon (from the Tanana River fishery), which are retained for personal use are reported as such on fish tickets, and this harvest was added to the relevant community permit totals. In 2018, 143 Chinook, 0 summer chum, 114 fall chum, and 53 coho salmon were added to the community harvest totals of Nenana and Fairbanks (Table 10). The number of subsistence permits issued in 2018 was 24% above the 5-year average and 6% above the 10-year average.

Amounts Necessary for Subsistence and Historical Trends

One method for assessing the relative success of Yukon Area fish harvesters is to compare the annual estimated Yukon Area subsistence harvest (permits and surveys) to historical averages and to the "amounts (reasonably) necessary for subsistence" (ANS) harvest ranges established by the BOF (ADF&G 2001; Estensen et al. 2015). The ANS levels outlined in 5 AAC 01.236 are 45,500–66,704 Chinook; 83,500–142,192 summer chum; 89,500–167,900 fall chum; 20,500–51,980 coho; and 2,100–9,700 pink salmon. Except for the harvest of pink salmon, which were within their ANS ranges, subsistence harvests of each of the other salmon species in 2018 were below the lower level of their ANS ranges. When comparing to ANS, subsistence salmon harvest estimates do not include salmon harvested from personal use permits or salmon retained from commercial fisheries for personal use. The years of data included to derive ANS do not include years in which fishery restrictions for a species were enacted and current year management actions should be considered when comparing to ANS levels.

Subsistence salmon harvest estimates indicated the 2018 Chinook salmon subsistence harvest was 91% above the 5-year average and 18% below the 5-year average (Appendix D1). The summer chum salmon subsistence harvest was 17% below the 5-year average and 20% below the 2008–2012 average (Appendix D2). The harvest of fall chum salmon was 31% below the 5-year average and 21% below the 2008–2012 average (Appendix D3). Coho salmon harvest was 58% below the 2012–2016 average and 65% below the 2008–2012 average (Appendix D4). Overall, the 2018 Yukon Area subsistence salmon harvest of 178,759 Chinook, summer chum, fall chum, and coho salmon combined (Appendices D1–D4) was 17% below the 5-year average of 214,416 fish and 23% below the 2008–2012 average of 231,360 fish. This 10-year period includes years with very low harvests and added fishing restrictions, such as closures during the summer season

[3] Padilla, A. J., S. K. S. Decker, and T. Hamazaki. Unpublished draft. Subsistence and personal use salmon harvests in the Alaska portion of the Yukon River drainage, 2018. Alaska Department of Fish and Game, Anchorage.

to protect Chinook salmon from 2009 through 2017. The 2018 harvest of Chinook salmon was the second highest harvest since 2011. The reductions in fall chum and coho salmon harvests reported on permits in 2018 may have occurred due to a shift from subsistence harvests to the commercial market through an increase of catcher sellers operating in the Tanana River.

Personal Use Harvest

A household permit is required for personal use fishing in the portion of the Tanana River drainage within the Fairbanks Nonsubsistence Area, Subdistrict 6-C (Figure 12). Fish harvesters are required to document their daily personal use harvest of salmon and nonsalmon on household permits and return them to ADF&G at the end of the season. Like the subsistence fishing permits, demographics including numbers of fish harvesters, household members, primary gear type, number of dogs owned, and whether salmon was harvested for dogs were documented (Jallen et al. 2017).

In 2018, 115 personal use salmon permits were issued. As of December 5, 2018, 93% of personal use salmon permits were returned, and 61 reported harvest. The reported personal use harvest was 201 Chinook, 509 summer chum, 514 fall chum, and 132 coho salmon (Appendix D8). The number of personal use permits issued in 2018 was 31% above the 5-year average and 16% above the 10-year average. Most of the personal use nonsalmon harvests were from the directed whitefish and sucker fishery using various approved gear types in attempts to minimize salmon harvests (Appendix D8).

Sport Fishery

In 2018, the Chinook salmon sport fishery in the Yukon River drainage (excluding the Tanana River drainage) was closed, and the mainstem Porcupine River was closed to sport fishing for fall chum salmon on October 3. The Tanana River drainage remained open for sport fishing for all species of salmon in 2018; however, the annual limit for Chinook salmon was reduced to 1 fish. Alaska sport fishing effort and harvest are monitored annually through a postal survey. Harvest estimates are typically not available until approximately 1 calendar year after the fishing season. The 5-year average Yukon River drainage (including Tanana River drainage) sport salmon harvest was estimated at 43 Chinook, 526 chum, 735 coho, 19 sockeye, and 41 pink salmon (Klaus Wuttig, Sport Fisheries Biologist, ADF&G, Fairbanks; personal communication).

ENFORCEMENT

The primary enforcement authority for ADF&G subsistence, personal use, and commercial fishing regulations within the Yukon Area is the Division of Alaska Wildlife Troopers with the Department of Public Safety. However, in 2018, the USFWS Division of Refuge Law Enforcement, Bureau of Land Management, and Alaska Wildlife Troopers (AWT) were all involved in enforcement operations covering the entire length of the river for both the Chinook and summer chum salmon runs. The following is the postseason summary of 2018 enforcement, by agency.

Alaska Wildlife Troopers Summary

Enforcement patrols of the Lower Yukon River in 2018 focused on Districts 1 and 2 and the Coastal District during the Chinook and chum salmon runs. Staffing and logistics in 2018 were improved compared to that of recent years with AWT from McGrath, Aniak, Bethel, and Fairbanks participating in patrols. Four Troopers were based out of St. Mary's from June 17

through July 9, and conducted daily boat and aircraft patrols by contacting fish harvesters throughout both Districts 1 and 2. Patrols were conducted during both commercial and subsistence openings. In mid-August, AWT responded to specific complaints of commercial fishing operators fishing in closed areas in the Kotlik area. Finally, violations in the Black River area decreased substantially in 2018 compared to 2017 (Justin Rogers, Alaska Wildlife Trooper, Alaska Department of Public Safety, Fairbanks; personal communication).

A total of 37 citations were issued to commercial fishing operators in Districts Y-1 and Y-2 for violations that included commercial fishing in closed waters, unlawful possession of commercially caught salmon, failure to possess photo ID while commercial fishing, failure to possess crew license, employment of unlicensed crewmembers, failure to display vessel ID, the operation of unmarked commercial gillnets, and the operation of oversized gillnet mesh during subsistence period (resulting in the seizure of 17 Chinook salmon). In addition to the citations, a high number of warnings were given, especially for gear and vessel markings, which yielded visible corrections and compliance almost immediately (Justin Rogers, Alaska Wildlife Trooper, Alaska Department of Public Safety, Fairbanks; personal communication).

Fairbanks area AWT conducted multiple patrols in the upper Yukon River districts in 2018. The patrols were scheduled to follow the first pulse of Chinook salmon as it moved upriver. Boat and aircraft patrols were conducted between June 22 and June 28 from the community of Kaltag to the bridge area. Compliance with fish wheel and set gillnet regulations were observed although 1 warning was issued for fishing during a closed period, and 1 net with 8.25-inch mesh was seized although the user was not established. The Yukon River was also patrolled by aircraft on June 28, with no violations observed (Justin Rogers, Alaska Wildlife Trooper, Alaska Department of Public Safety, Fairbanks; personal communication).

On July 1, USFWS enforcement forwarded AWT an investigation concerning an unattended commercial fish wheel. AWT contacted the permit holder and a citation was issued. From July 5 to July 8, an AWT patrol was conducted from the Yukon River Bridge to Circle, contacting 21 commercial fishing operators from Stevens Village, Beaver, Fort Yukon, and Circle. Four warnings, 2 citations, and 2 misdemeanor summons were issued. Two nets were seized for oversized mesh. On July 12 AWT began a patrol from Eagle to Circle and returned to Eagle on July 15. AWT contacted 22 subsistence fish harvesters and issued 4 citations. Two citations were issued for oversized mesh: 1 for failing to identify gear and 1 for failing to record catch (Justin Rogers, Alaska Wildlife Trooper, Alaska Department of Public Safety, Fairbanks; personal communication).

Complaints were received during the 2018 season indicating there may have been commercial sales of subsistence-caught salmon during last season. Efforts during the 2019 season will, in part, focus on identifying and addressing these issues.

USFWS Law Enforcement Summary

Depending on the egregiousness of the violation, actions taken by federal officers ranged from warnings to citations, including net seizures. Officers traveled to communities between Marshall and Emmonak in mid-June to enforce early season management actions. During this trip over 200 contacts were made, and most fishing operators complied with regulations. In late June, officers traveled between Tanana and Kaltag in the middle portion of the river. Over 40 contacts were made. One commercial fishing violation was forwarded to the Alaska Wildlife Troopers. In early July, officers visited the area around Fort Yukon and traveled to Beaver and Circle.

Over 10 contacts were made (Fred Bue, Fisheries Biologist, USFWS, Fairbanks; personal communication).

Overall, officers visited 16 Yukon River communities and made nearly 250 contacts. Three nets were seized for fishing during a closed period, lack of marking, or oversized mesh. Three notices of violation were issued for fishing during closed periods or having unmarked gear. Verbal warnings were given for fishing during a fishery closure and for setting a net too close to another net. An officer spoke on the KZPA radio about fishing schedules and news releases (Fred Bue, Fisheries Biologist, USFWS, Fairbanks; personal communication).

In 2019, assuming a similar level of funding, USFWS officers will focus on similar boat-based patrols, which will allow for training of new officers and more contact with fish harvesters (Fred Bue, Fisheries Biologist, USFWS, Fairbanks; personal communication).

CANADIAN FISHERIES

A total of 3,098 Chinook salmon (which includes 308 Porcupine River Chinook salmon); 4,831 fall chum salmon; and 25 coho salmon were harvested in the 2018 Canadian commercial, Aboriginal, recreational, and domestic fisheries combined (Table 4; Appendices A13, A15, and A16).

Canadian Commercial Fishery

A total of 1,957 fall chum and 1 Chinook salmon were harvested in the Canadian Yukon River commercial fishery in 2018 (Appendices A13 and A15). No other salmon species were harvested for commercial purposes (Table 4).

Chinook Salmon Harvest

The lower Canadian commercial fishery area is located downstream of the Stewart River. The most intensive fishing activity and catch monitoring is conducted in this area.

The inseason Chinook salmon run status indicated that there would not be a sufficient run to support a commercial fishery. One Chinook salmon was accidentally caught and retained in the fall chum salmon commercial fishery in early September (JTC 2019).

Fall Chum Salmon Harvest

A strong return of fall chum salmon resulted in opportunities for commercial fishery openings throughout the fall season. A total of 1,957 fall chum salmon were harvested during commercial fishery openings (JTC 2018; Appendix A15). Since 1997, there has been a marked decrease in commercial catches of Upper Yukon River fall chum salmon because of a limited market as well as reduced fishing opportunities in some years due to below average run sizes.

The commercial harvest of coho salmon in the mainstem Yukon River in Canada is usually very small. This is thought to be a combination of low abundance and limited availability of this species to fisheries due to late migration timing. No coho salmon were harvested in the 2018 commercial fishery.

Aboriginal Fishery

Mainstem Yukon River Chinook Salmon

Catch estimates of salmon in the Aboriginal fishery on the Yukon and Porcupine Rivers are determined from locally conducted inseason and postseason interviews using a catch calendar and a voluntary recording system.

Based on a preseason outlook for a below average run of 71,000–103,000 Canadian-origin Yukon Chinook salmon, the Yukon Salmon Subcommittee recommended a conservative approach early in the 2018 fishing season. Inseason border escapement projections indicated that the run strength was toward the lower end of the preseason forecast, Yukon First Nation governments continued to follow conservative management plans throughout the 2018 season, resulting in a significantly reduced harvest compared to long-term historical averages (JTC 2019). The Upper Yukon River Aboriginal Chinook salmon catch was estimated to be 2,789 fish (Appendix A13). This is above the 5-year average of 1,854 fish and the 10-year average of 2,495 fish (Appendix A13).

Mainstem Yukon River Fall Chum Salmon

The preseason outlook for Canadian-origin fall chum salmon in 2018 indicated an above average run of 400,000–450,000 fish. The border passage estimate at this run projection would place Canadian management in the green zone and therefore no restrictions were expected in the First Nation fisheries. As inseason information became available, the First Nation fisheries proceeded without restrictions. The preliminary 2018 fall chum salmon harvest in the First Nation fisheries in the Canadian mainstem drainage was estimated to be 1,000 fish (Appendix A15).

Porcupine River Chinook, Fall Chum, and Coho Salmon

Vuntut Gwitchin First Nation (VGFN) reported a season total harvest of 308 Chinook salmon for 2018. The 10-year average was 227 Chinook salmon (Appendix A13).

A total of 1,874 fall chum salmon was harvested in the Old Crow-based VGFN fishery, which was 13% below the 10-year average harvest of 2,152 chum salmon (Appendix A15).

There were 25 coho salmon harvested on the Porcupine River in 2018, which is below the 10-year average of 50 fish (Appendix A16).

Domestic Fishery

The domestic fishery was closed during the Chinook salmon season. For fall chum salmon, there were openings (concurrent with the commercial fishery openings) during the season. There was no reported domestic catch of fall chum salmon in 2018. This compares to the 5-year average of 14 fish (Appendix A15).

Recreational Fishery

In 1999, the Salmon Subcommittee introduced a mandatory Yukon Salmon Conservation Catch Card to improve harvest estimates and to serve as a statistical base to ascertain the importance of salmon to the Yukon River recreational fishery. Anglers are required to report their catch and harvest by late fall. The information reported includes the number, species, fate (kept or released), sex, size, date, and location of all salmon caught.

From catch card information received as of this publication, no Chinook salmon were caught nor harvested in the Yukon River or its tributaries in the 2018 recreational fishery. Over the last 10 years, retention (harvest) of Chinook salmon in the recreational fishery was only permitted in 2009 and 2011. In 2018, the daily catch remained at 2, and the possession limit remained at 4 for fall chum salmon in the recreational fishery; no fall chum salmon were caught (JTC 2019).

SPAWNING ESCAPEMENT

An essential requirement for the management of the Yukon River salmon fisheries is documentation of annual salmon spawning escapements. Such documentation provides the following:

1. Determination of appropriate escapement levels or goals for selected spawning areas or management units.
2. Evaluation of escapement trends.
3. Evaluation of the effectiveness of the management program, which in turn forms the basis for proposing regulatory changes and management strategies.
4. Evaluation of stock status for use in projecting subsequent returns.

Escapement Goals

Escapement goals (EG) have been established for several Chinook, summer and fall chum, and coho salmon stocks or stock aggregates which spawn in Yukon River drainage streams or areas (Appendix E1). The underlying principle in establishing an EG is that it should allow for escapements necessary to conserve and sustain potential salmon production and be consistent with sustained yield (SSFP and *Policy for Statewide Salmon Escapement Goals* [5 AAC 39.223]). The EGs developed or modified through this process are primarily presented as ranges. EG ranges allow for uncertainty associated with observed variability in measurement, changes in climate and oceanographic conditions, and varying abundance within related populations of the salmon stock being measured. A BEG is defined as an escapement range that provides the highest potential to produce maximum sustained yield. An SEG is defined as a level of escapement, determined through an index or range of escapement estimates, that has provided a sustained yield over a 5- to 10-year period. Transboundary escapement goals for passage at the Alaska–Canada border were established by the provisions of the *Yukon River Salmon Agreement* for mainstem Chinook salmon and mainstem and Porcupine River (Fishing Branch) fall chum salmon (JTC 2010). These goals are referred to as IMEG because they were provisionally established until the 2 parties can agree upon a formal BEG analysis.

Most Arctic–Yukon–Kuskokwim (AYK) Region escapement goals were originally set in the late 1970s or early 1980s, and many have been subsequently revised in accordance with updated policies and newer information and analytical methods. Yukon area escapement goals were first documented by Buklis (1993), as required under ADF&G's original escapement goal policy, and signed in 1992. These early goals were generally established using a simple escapement averaging methodology based on aerial survey counts. Following the adoption of the new policies (SSFP and *Policy for Statewide Salmon Escapement Goals*), several new or revised BEGs were established (Appendix E1). These included BEGs for Chena and Salcha Rivers Chinook salmon (Evenson 2002), which were reanalyzed in subsequent review cycles but not changed (Liller and Savereide 2018); and Chinook salmon SEG goals on the East Fork Andreafsky (Volk et al. 2009), West Fork Andreafsky, Nulato, and Anvik Rivers, which were based on aerial surveys (ADF&G 2004).

An SEG was established for summer chum salmon on the Anvik River (Clark and Sandone 2001) and was revised in 2004 (ADF&G 2004). In 2001, an SEG was established for summer chum salmon on the Andreafsky River (Clark 2001) and was changed to a lower-bound SEG, based on a run-reconstruction and spawner-recruitment analysis using a newer Bayesian statistical analysis (Fleischman and Evenson 2010). A drainagewide summer chum salmon BEG of 500,000 to 1,200,000 was adopted in 2016 (Conitz et al. 2015). A spawner-recruit analysis for summer chum salmon was completed for the 2019 BOF cycle because of a change to the Pilot Station sonar historical passage numbers (Pfisterer et al. 2017). Results were consistent with the previous summer chum salmon drainagewide analysis and the goal remained unchanged (Liller and Savereide 2018).

In 2001, BEGs for Yukon River fall chum salmon were established for the Tanana, Delta, and Chandalar Rivers (Eggers 2001). In 2004, the SEG for coho salmon was revised to a range based on a boat survey for the DCR (ADF&G 2004; Conitz et al. 2012). The drainagewide BEG for fall chum salmon was reanalyzed based upon similar Bayesian methods with a new run reconstruction and was revised to an SEG with the same range (Fleischman and Borba 2009). These 2 revisions from BEG to SEG were not due to lack of information; in fact, the newer analyses were more rigorous and better statistically defined. However, practical management considerations in both cases limit options for maintaining escapements below an upper bound. The Toklat River fall chum salmon goal was discontinued in 2010 due to environmental changes that altered the ability to survey the index area (Volk et al. 2009); however, the escapement data are still used as a component of the drainagewide analysis. At the January 2016 BOF meeting, the elimination of the Sheenjek River fall chum salmon goal and the Upper Yukon River tributary aggregate fall chum salmon goals were presented (Conitz et al. 2015). ADF&G has no means to monitor the escapement into the Sheenjek River since 2012 and the Sheenjek River goal was a subset of the Upper Yukon Tributary goal, rendering both goals unnecessary.

ADF&G undertakes a triennial review of salmon escapement goals in conjunction with the BOF meeting cycle. Chinook, summer chum, fall chum, and coho salmon stocks were reviewed for the 2019 BOF cycle. Based on previous years' reviews and goals established during the previous BOF cycle, either no change was recommended, or a BEG or SEG was recommended for each stock (ADF&G 2004; Brannian et al. 2006; Volk et al. 2009; Conitz et al. 2012; Conitz et al. 2015; Liller and Savereide 2018). No changes to Chinook, summer chum, or coho salmon goals were recommended in 2019.

The BEG of 61,000–136,000 fall chum salmon for the Tanana River was recommended to be discontinued because there is no enumeration project to evaluate the goal. The Delta River, a tributary of the Tanana River, will be used as an index area for the Tanana River based on their historical relationship. The Chandalar and Delta Rivers goals were recommended to be revised from BEG to SEG ranges based on analysis of the updated escapement datasets using the percentile method (Clarke et al. 2014). An SEG range of 7,000–20,000 fall chum salmon was recommended for the Delta River using escapement data from 1974 to 2017. An SEG range of 85,000–234,000 fall chum salmon was recommended for the Chandalar River using sonar escapement data from 1995 to 2017.

Mixed Stock Analysis

Scale pattern analysis, age composition estimates, and geographic distribution were used by ADF&G on an annual basis from 1981 through 2003 to estimate the stock composition of

Chinook and chum salmon in Yukon River harvests and for estimation of total run abundance. In 2004, the feasibility of using genetic mixed stock analysis (MSA) in replacement of scale pattern analysis to assess Chinook salmon stock composition was first tested (JTC 2012). Since that time, the development of genetic methods and techniques for Chinook and chum salmon stock identification in the Yukon River drainage has been ongoing (Flannery et al. 2015). Identification of salmon stock composition using genetic techniques has been a useful tool for inseason fisheries management on the Yukon River.

Three stock groups have been identified for Chinook salmon within the Yukon River drainage. The lower and middle Yukon River stock groups spawn in Alaska, and the Upper Yukon River (Canadian-origin) stock group spawns in Canada (Appendix E23). Analysis of MSA of each "pulse" or stratum of fish as they enter the river and the weighted number of fish by stock in each stratum from 2005 to 2018 has helped refine the management of the Chinook salmon run (JTC 2019). For instance, although it was formerly assumed that the Canadian-origin stock represented half of the run, on average (2005–2018) it makes up 41% of the drainagewide run total (Appendix E23). It has also been reported that the first pulse often contained a higher proportion of Canadian-origin fish. Although this is most often true for odd-numbered years, the highest passage of Canadian-origin Chinook salmon typically occurs in the second or third pulse, or stratum (Appendix E23). This long series of observations has helped refine management strategies that more effectively spread harvest across the Chinook salmon run, to avoid overharvest of any one particular stock group.

In 2018, salmon tissues were taken in season for MSA from 557 Chinook salmon collected from the test fishery at the Pilot Station sonar project. Inseason analysis by strata indicated the 1st stratum sampled (June 1–June 13) was 53% Canadian-origin, the 2nd stratum sampled (June 14–24) was 47% Canadian-origin; the 3rd stratum sampled (June 25–July 3) was 41% Canadian-origin; and the final stratum (July 4–August 5) was 29% Canadian-origin (Appendix E23; JTC 2019). Genetic MSA on all samples, weighted for postseason passage, indicated that 42% of the samples were Canadian-origin Chinook salmon. These analyses were used in season, along with timing information, to project the size of the Canadian-origin run. These projections influence inseason management actions and have been very accurate for assessing whether or not border passage objectives will be achieved.

The samples collected at the Eagle sonar are used by DFO for their management of Canadian Chinook salmon stocks; however, the samples were not analyzed in 2018 due to budget constraints (JTC 2019). Tissue samples (n = 1,573) were also collected from fish in the Alaska subsistence harvest from 13 communities. Genetic MSA indicated that the subsistence Chinook salmon harvest in District 1 was 44% Canadian-origin, the harvest in District 2 was 38% Canadian-origin, the harvest in District 3 was 55% Canadian-origin, the harvest in District 4A Upper was 46% Canadian-origin, the harvest in District 4B was 44% Canadian-origin, the harvest in District 4C was 69% Canadian-origin, and the harvest in District 5 (community of Tanana only) was 72% Canadian-origin. Genetic MSA information is vital to produce brood tables and to forecast future returns of Chinook salmon to the Yukon River which are based on the spawning escapement and returns of the Canadian-origin stock.

Genetic sampling of chum salmon harvest for MSA within most of the Yukon River drainage fisheries is lacking due to funding. The summer chum salmon stock groups in the Yukon River are not well differentiated from other Western Alaska stocks such as Kuskokwim and Norton Sound (Eggers et al. 2011); however, fall chum salmon can be separated into distinct stock

groups, including a partition of Canadian-origin stocks which are important to meeting treaty obligations. Genetic MSA from Pilot Station sonar project test fishery samples are used in fall season fishery management with consideration for all chum salmon stocks entering the river after July 19. Genetic stock groups include summer, Tanana, U.S. border (Chandalar, Sheenjek, and Black Rivers), and total Canadian-origin stocks, which should not be used as separate Canadian mainstem and Porcupine River stocks (JTC 2019).

Chum salmon genetic tissue samples were collected between May 31 and September 7 (n = 2,843 in summer season and n = 2,437 in fall season) from the test fishery at Pilot Station sonar. Results from the MSA were reported for each pulse or time stratum and distributed by email to fishery managers to be considered during resource assessment (JTC 2019). For summer chum salmon, the lower river stock group made up 44% of the run, and the middle river stock group made up 19% of the run. The Tanana component of the middle river stock group made up 6% of the total summer chum salmon run and was the largest proportion (relative to other stocks) that occurred during the sampling period between July 19 and July 25. The run transition from summer to fall chum salmon occurred after July 19 and the mixture was made up of 18% fall chum salmon during the first fall strata (July 19–25). For fall chum salmon, 70% of the run was U.S. origin and 30% was Canadian-origin. The composition within the U.S. contributions was 61% Tanana stock and 39% border U.S. stock (Chandalar, Sheenjek, and Black Rivers). The composition within the Canadian contributions was 64% White River, 30% in other mainstem Yukon systems, and 6% upper Porcupine River stocks.

Aerial Survey Escapement Assessment Methods

The Yukon River drainage is too extensive for a complete assessment of all salmon spawning streams. Consequently, low-level aerial surveys from single-engine, fixed-wing aircraft form an integral component of the escapement assessment program. The greatest advantage of aerial surveys is the cost-effectiveness of obtaining escapement information throughout an extremely vast and remote area. Another advantage of aerial surveillance is that current or potential habitat-related problems arising from natural or human-induced causes can be identified. Among the disadvantages are that results may be highly variable. Recently, helicopters have been used more often to increase the accuracy of counts because of the aircraft's maneuverability, but they are also limited on range and are more costly.

Variability in aerial survey accuracy is dependent upon several factors such as weather, water turbidity, the timing of surveys to peak spawning, aircraft type, survey altitude, the experience of both pilot and observer, and species of salmon being assessed. It is recognized that aerial estimates are generally lower than actual stream abundance due to these factors. Further, peak abundance measured by aerial survey methods is significantly lower than total spawning abundance due to the die-off of early spawners and the arrival of fish after the survey. Aerial estimates in a given stream may demonstrate a wide range in the proportion of fish being estimated from year to year. To the extent that this variability can be controlled, peak aerial counts may serve as indices of relative abundance to examine annual trends in the escapement.

Aerial escapement estimates are obtained from as many spawning streams as possible within the confines of fiscal, personnel, and weather constraints. However, selected spawning streams or "index areas" which represent a larger geographic area have been identified and receive the highest priority. Index areas have been designated because of their importance as spawning areas, geographic proximity to other salmon spawning streams that cannot be surveyed, or both.

During the escapement goal review process during the 2019 BOF cycle, aerial survey reaches were reviewed and standardized for the Anvik, Nulato, and West Fork of the Andreafsky Rivers (Liller and Savereide 2018).

2018 Summer Season Escapement

Chinook Salmon Drainagewide Total Run

Calculating a drainagewide estimate of Chinook salmon abundance is an important part of estimating postseason success regarding the forecast's ability to predict actual run sizes. It is also an important postseason measure of the Chinook salmon that were available for escapement and harvest in the U.S. portion of the drainage, where a large portion of the run is made up of U.S.-bound stocks that do not travel to Canada to spawn. There are currently 2 rudimentary methods to calculate the drainagewide run for Chinook salmon.

Method 1: Use Canadian-origin run size and extrapolate based on the proportion of run. The Canadian-origin run size is a simple estimate derived postseason from the Eagle sonar passage estimate plus the estimated number of Canadian-origin fish harvested below the sonar (JTC 2019). Historically, the drainagewide run was calculated by assuming the Canadian-origin stock made up 50% of the run. To calculate the drainagewide run, the estimated total Canadian-origin run was simply multiplied by 2 to create the drainagewide estimate. However, genetic MSA from Chinook salmon tissues collected from the test fishery at Pilot Station sonar (2005–2018) indicated the weighted season total Canadian proportion has ranged between 34% and 52%, and the average run composition was 41% Canadian-origin (Appendix E23). Because these genetic methods began in 2005, it is not possible to know if there was a shift in the population that caused the Canadian-origin stock to decline from 50% to closer to 40%, or if the difference was a result of more accurate methods (DeCovich and Howard 2011).

Method 2: Use the season total Chinook salmon passage estimate derived at the Pilot Station sonar plus the harvest and escapement that occurs below the sonar. Harvests removed from fisheries below the sonar include Chinook salmon retained for personal use while commercial fishing and the subsistence harvest which is estimated by the subsistence harvest survey project postseason from the coast up to and including the community of Pilot Station (Appendix E19). For escapement below the Pilot Station sonar, the East Fork Andreafsky weir count is doubled (Total Andreafsky River) to account for passage into the West Fork Andreafsky River.

For years when the Pilot Station sonar was operational (1995, 1997–2018), the drainagewide run was estimated using Method 2. For years without sonar operations (1982–1994, 1996), there were no mainstem run abundance estimates, and the drainagewide run was based on Method 1. The 2018 drainagewide run size was 177,679 Chinook salmon, which is the sum of the 8,228 fish escapement below Pilot Station, 7,620 fish harvested, and the Pilot Station sonar count of 161,831 fish (Appendix E19).

Chinook Salmon Escapement

The 2018 Chinook salmon run of approximately 178,000 fish came in just above the lower end of the preseason outlook range of 173,000–251,000 fish. The Pilot Station sonar project is used to estimate the daily upstream passage of salmon in the Lower Yukon River. In 2018, the total Chinook salmon passage estimate at the Pilot Station sonar was 161,831 fish (Appendix E3). This passage estimate fell below the 1998–2017 average of 173,000 fish (Appendix E3). A drift gillnet test fishery operated as a component of the Pilot Station sonar project to monitor species

composition and to collect biological information including ASL and genetic samples from fish passing the sonar project site. Mesh sizes ranging from 2.75-inch to 8.5-inch were fished daily to collect samples. The estimated age composition of 512 Chinook salmon caught in the test fishery was 0.8% age-3, 12.1% age-4, 49.5% age-5, 37.0% age-6, and 0.6% age-7 fish. The sex composition of fish sampled was 48.4% female and 51.6% male; however, all sex identifications were done visually which are less accurate than internal sex identification methods (AYKDBMS).

One resistance board weir enumerated Chinook salmon passage in the Yukon River area during 2018. The East Fork Andreafsky River weir was operated by USFWS and had an estimated Chinook salmon passage of 4,114 fish. This passage fell within the SEG range of 2,100–4,900 fish. This goal has been met in each of the last 5 years (Appendix E5). ASL data were collected from 229 Chinook salmon caught in the weir trap. The estimated age composition at the East Fork Andreafsky River was <1% age-3, 36.2% age-4, 61.6% age-5, and 1.3% age-6 fish. The sex composition of fish sampled was 24.9% female and 75.1% male (JTC 2019). The Gisasa River weir did not operate in 2018 due to lack of funding and the Henshaw Creek weir did not operate due to high water preventing weir deployment (JTC 2019; Appendix E5). Chinook salmon escapements observed during aerial surveys conducted in 2018 were below average (Appendix E4).

Escapements on the Chena, Salcha, and Goodpaster Rivers were monitored using counting towers in 2018. On the Chena and Salcha Rivers, counts were supplemented using dual-identification sonar (DIDSON) during high water events. Chinook salmon escapements at the Chena and Salcha Rivers were affected by high water conditions throughout the season but counts were expanded for missed days using sonar estimates. An estimated 5,947 Chinook salmon were counted in the Chena River, which exceeded the escapement goal range of 2,800–5,700 (Appendix E5). An estimated 5,021 Chinook salmon were counted in the Salcha River, which met the escapement goal range of 3,300–6,500 Chinook salmon. The BEG for the Chena River has been met for the last 5 years. The BEG for the Salcha River has been met 4 of the last 5 years (Appendix E5). The Goodpaster River tower counted an estimated 2,480 Chinook salmon.

ASL information for Chinook salmon were collected from the Chena and Salcha Rivers using carcass surveys conducted by ADF&G. The estimated age composition of 323 Chinook salmon sampled in the Chena River was 6.8% age-4, 41.5% age-5, 51.4% age-6, and 0.3% age-7 fish. The sex composition was 54.8% female and 45.2% male. The estimated age composition of 484 Chinook salmon sampled in the Salcha River was 11.6% age-4, 39.3% age-5, 48.3% age-6, and 0.8% age-7 fish. The sex composition of fish sampled was 56.0% female and 44.0% male (AYKDBMS).

The Canadian border passage estimate for 2018 was 57,264 Chinook salmon (Appendix E6). This was calculated using the Eagle sonar project estimate of 57,893 minus an estimated 629 fish harvested by Alaskan subsistence fish harvesters upstream of the sonar project site. After subtracting the 2,790 fish harvested in Canada on the mainstem Yukon River, a total of 54,474 Chinook salmon were estimated to have reached Canadian spawning areas (Appendix E6). The spawning escapement was slightly below the upper end of the IMEG range of 42,500 to 55,000 set by the Yukon River Panel in 2010 (Appendix E1). A drift gillnet test fishery operated as a component of the Eagle sonar project to monitor species composition and to collect biological information including ASL and genetic samples from fish passing the sonar project site. Four

different mesh size gillnets (5.25, 6.5, 7.5, and 8.5 inches) were fished daily to collect samples. The estimated age composition of 700 Chinook salmon caught in the test fishery was 10.3% age-4, 43.1% age-5, 44.9% age-6, and 1.7% age-7 fish. The sex composition of fish sampled was 43.4% female and 56.6% male (JTC 2019).

In Canada, Chinook salmon were enumerated in the Big Salmon River using a long-range dual-frequency sonar located approximately 1.5 km upstream of its confluence with the Yukon River. The 2018 count of 5,159 Chinook salmon was slightly below the 10-year average passage of 5,414 Chinook salmon for the Big Salmon River (Appendix E6). The escapement of Chinook salmon to the Big Salmon River, based on sonar, represented 8.5% of the mainstem Yukon River sonar passage estimate near Eagle, Alaska. Carcass sampling yielded 201 Chinook salmon samples. Of the Chinook salmon sampled for ASL data, 64% were female and 36% were male. The mean mid eye to tail fork (METF) length of sampled females was 815 mm, and 778 mm for sampled males. Of the 154 samples which were successfully aged, 3.9% were age-4, 37.7% were age-5, 54.5% were age-6, and 3.9% were age-7 (JTC 2019).

Sonars were used to estimate Chinook salmon escapement to the Pelly River system between July 9 and August 25, 2018. Two SIMRAD EK60 split-beam sonar systems (1 on each bank) were operated at a site approximately 20 km upstream of the confluence of the Pelly and Yukon Rivers, at a site identified in the Selkirk First Nation's 2015 reconnaissance survey. In 2018, the estimated escapement in the Pelly River was 9,491 Chinook salmon (JTC 2019).

The Blind Creek weir project enumerated Chinook salmon escapement and obtained biological information from the stock in 2018. The weir was set up approximately 1 km upstream of the confluence with the Pelly River. From July 22 to August 18, a total of 612 Chinook salmon passed through the weir, which was 32% above the 10-year average of 480 fish. The peak daily count of 80 fish occurred on August 3, when 41% of the run had passed. Of the 394 Chinook salmon sampled for ASL data, 52% were female and 48% were male. The mean METF of females and males sampled was 778 mm and 657 mm, respectively. Of the 332 samples that were aged, 0.3% were age-3, 10.8% were age-4, 42.5% were age-5, 40.7% were age-6, and 5.7% were age-7 (JTC 2019).

The Whitehorse Rapids Fishway is a fish ladder that bypasses the Whitehorse dam. It has a viewing window and fish trap that allows for salmon counts without handling fish. Whitehorse Rapids Fishway staff counted 691 Chinook salmon in 2018 (Appendix E6). This escapement was below the 10-year average of 1,145 Chinook salmon. Of these salmon, 186 (27% of return) were of hatchery origin and 505 (73% of return) were wild origin. The hatchery component included 51 females and 135 males (27% female and 73% male fish, respectively). The wild component included 177 females and 328 males (35% female and 65% male fish, respectively). Female Chinook salmon made up 33% of the total return to the fishway (JTC 2019).

Summer Chum Salmon Escapement

The 2018 summer chum salmon drainagewide run size was approximately 2,125,000 fish (Appendices E21 and E22). In 2018, the total summer chum salmon passage estimate at the Pilot Station sonar was 1,612,688 fish (Appendix E3). This passage estimate fell below the 10-year average of 2,040,672 fish (Appendix E3). The sex composition of summer chum salmon sampled in the Pilot Station sonar test fishery was 49.1% female and 50.9% male.

Summer chum salmon escapement in the Alaska portion of the Yukon River drainage is monitored through a combination of weirs, towers, and sonar (Appendix E7). The East Fork Andreafsky River weir escapement estimate for chum salmon was 36,330, which was below the SEG of >40,000 fish and below the 10-year average of 54,981 fish (Appendix E7). ASL data were collected from 224 fish caught in the weir trap. The estimated age composition was 1.3% age-3, 59.8% age-4, 36.6% age-5, and 2.2% age-6. The sex composition of the fish sampled was 48.1% female and 51.9% male. The Anvik River sonar escapement count of 305,098 summer chum salmon fell below the BEG range of 350,000 to 700,000 fish and was below the 10-year average of 419,643 fish (Appendix E7). ASL was estimated for 679 summer chum salmon in the Anvik River. The estimated age composition was 0.6% age-3, 63.6% age-4, 32.8% age-5, and 2.9% age-6 fish. The sex composition of the fish sampled was 51.3% female and 48.7% male. The escapement estimate of summer chum salmon into the Chena River was 13,084, which was above the 10-year average of 11,467 fish (Appendix E7). The escapement estimate of summer chum salmon into the Salcha River was 39,996 fish, which was above the 10-year average of 30,448 fish (Appendix E7). The estimated age composition was 3.4% age-3, 52.7% age-4, 39.9% age-5, and 4.1% age-6 fish. The sex composition of the fish sampled was 49.3% female and 50.7% male.

2018 Fall Season Escapement

Fall Chum Salmon Escapement

Fall chum salmon are discrete spawners choosing areas of upwelling and relatively warmer water to incubate their eggs in a shorter time when compared to other species. Major fall chum salmon spawning areas are in the Tanana, Chandalar, and Porcupine River drainages and within the Canadian portion of the mainstem Yukon River drainage; monitoring projects concentrate on these areas (Appendices E2, E8, and E9). Drainagewide run size was determined based on coverage of spawner distribution (escapement estimates), age composition, and estimates of harvest (Appendix E10).

Current escapement goals for the Yukon River drainagewide and individual tributaries or stock groups were developed based on the analysis done by Eggers (2001) with a recent modification of the drainagewide goal from a BEG to an SEG based on Fleischman and Borba (2009). From 2000 through 2013, the postseason run reconstruction and resulting drainagewide escapement estimate was derived from the method of Eggers (2001). Since 2014, a Bayesian state-space model was used to determine the drainagewide escapement like that reported in Fleischman and Borba (2009). The drainagewide escapement estimate produced for 2018 was 642,600 fall chum salmon, which exceeded the SEG goal range of 300,000–600,000 fall chum salmon. The model utilized historical escapement data from the Toklat, Delta, Chandalar, Sheenjek, Fishing Branch, and Canadian mainstem Yukon Rivers, as well as mark–recapture estimates of abundance from the Kantishna and upper Tanana Rivers (Appendices E8 and E9). The model considers estimates from subdrainages in the dataset. Individually, the fall chum salmon escapements to Chandalar and Delta Rivers both exceeded the upper end of the individual escapement goals (Appendix E8). Adding the U.S. and Canadian harvests (458,000 fish) to the estimated escapement results in a total run size estimate slightly greater than 1,100,000 fall chum salmon.

The drainagewide escapement goal was not achieved from 1998 to 2000, even though restrictions to fisheries reduced exploitation to as low as 11%. Four even-numbered years

between 1976 and 1984 also had extremely low escapements (based on current measures) but were mostly caused by high harvests of fall chum salmon, with exploitation as high as 60%.

The historical (1974–2017) average drainagewide run size is 1,016,000 fall chum salmon and ranges between 252,000 fish in 2000 and 2,700,000 fish in 1975. From 1974 to 1991, fall chum salmon run sizes alternated consistently between lower even-numbered years, averaging 852,000 fish, and higher odd-numbered years averaging 1,400,000 fish. Since 1992, there appears to be a decadal cycle occurring where the fall chum salmon run peaked in 1995, 2005, and 2017, and was at lows in the cycles in 1992, 2000, and 2010. The record low (2000) and the second highest (2005) abundances occurred in the 2000–2010 decade. From 1974 to 2018, the largest fall chum salmon run occurred in 1975, the 2017 run is ranked the 2nd largest, and the 2005 run is now ranked 3rd largest. These recent 2 large fall chum salmon runs came from very different regimes, and 2005 resulted from the highest ever production off an extremely poor escapement. However, the 2017 run was produced with above-average returns per spawner from large escapements (Appendix E10).

The Tanana River produces the largest component of the drainagewide fall chum salmon run. Based on abundance estimates from mark–recapture studies conducted from 1995 to 2007 (Cleary and Hamazaki 2008), the Tanana River drainage contributes 21% to 41% of the overall run, averaging 32%. The estimated escapement in those years averaged 184,000 fall chum salmon with a range of 56,000 fish in 2000 to 373,000 fish in 2005. In 2018, there were no inseason assessment projects for fall chum salmon in the Tanana River drainage except for CPUE in the subsistence and commercial fisheries. Genetic results based on MSA suggested the estimate for the Tanana River was greater than 300,000 chum salmon and considering upriver harvests, the BEG range of 61,000 to 136,000 fall chum salmon was probably exceeded in the Tanana River.

Evaluation of the fall chum salmon run to the Delta River, an index tributary of the Tanana River, was based on 7 replicate foot surveys conducted between October 3 and November 29, 2018. The Delta River escapement was estimated to be 39,600 fall chum salmon (Table 11) based on the peak surveys from each of the 3 portions of the floodplain (West [November 1], East [November 7], and Middle [November 15]). This level of escapement was the second highest on record and exceeded the upper end of the BEG range of 6,000–13,000 fall chum salmon.

Chandalar River is the second largest component of the overall Yukon River drainage fall chum salmon run. Since 1995, the Chandalar River contribution of fall chum salmon has ranged from 23% to 41% and averaged 30%. The project has used various sonar types (split-beam 1995–2006 and DIDSON since 2007) to enumerate fall chum salmon passage (Melegari 2019). After applying the end of the season expansions to the historical data back to 1995, passage estimates of fall chum salmon have ranged from a low of 71,000 fish in 2000 to 527,000 fish in 2005. In 2018, the project operated from August 12 through September 28 and ended with a cumulative count of 143,163 fish. However, because the project was still passing 5,000 fish a day when the project ceased operation and overall the fall stocks were later than average, the expansion of passage through October 9 was extended through October 14. The resulting escapement estimate was 170,356 fall chum salmon (Table 11, Appendices E2 and E8) which was below the 5-year average of 259,000 fish. The 2018 estimate exceeded the upper end of the BEG of 74,000 to 152,000 fish. Since 1995, fall chum salmon passage has met or exceeded the BEG in all years except 2000.

In 2018, estimates of the Canadian component included the operation of the Fishing Branch River weir in combination with sonar at the weir site. Minimal estimates were made by sonar for the first 10 days (September 3–14) due to high water and the project was operated through October 24. The estimated passage of 10,151 fall chum salmon was well below the IMEG of 22,000–49,000 (Appendices E2 and E9). The sonar project located on the Porcupine River near the U.S./Canada border (downstream of Old Crow) was not able to produce a season estimate due to high water. Operations ceased at the end of September with a count of approximately 13,000; however, a significant late pulse that migrated to the Fishing Branch River weir was not enumerated at the border sonar site. The mainstem Yukon River border passage was assessed using sonars located downstream of Eagle Alaska in 2018. After the removal of U.S. and Canadian harvests, the 2018 escapement was estimated to be 154,000 fall chum salmon, which exceeded the upper end of the IMEG of 70,000–104,000. The low end of the goal has been achieved for the last 16 years (since 2002) and exceeded the upper end in all but 2 of those years (Appendix E9).

The Upper Yukon River tributary escapement goal of 152,000 to 312,000 fall chum salmon, representing a combination of Chandalar, Sheenjek, and Fishing Branch River escapements (Eggers 2001) was discontinued in 2016. Since 2012, the Sheenjek River escapements have not been monitored and the Fishing Branch River weir did not operate in 2013 and 2014. As a result, assessing whether the component goal was achieved was difficult. The Porcupine River systems, including the Sheenjek and Fishing Branch Rivers, have consistently been the weakest contributors to the overall drainagewide run. In years of high abundance (runs over 1 million fish and drainagewide escapements over 650,000 fish) the individual goals are generally met.

Coho Salmon Escapement

Assessment of coho salmon spawning escapement is constrained in the Yukon River drainage because of funding limitations and marginal survey conditions during periods of peak spawning. The Pilot Station sonar does not provide a complete estimate of coho salmon passage because the project ceases operations before the end of the run. The passage estimate of coho salmon at Pilot Station sonar was 136,347 fish through September 7, 2018 (Appendices E3 and E11). Tributary escapement estimate information was limited to portions of the Tanana River drainage. In 2018, escapements were below average in most areas of the Tanana River. The run reconstruction that included the Pilot Station sonar plus the harvests that occurred downstream indicated the run size was above average for the index; however, exploitation was near 50%.

Presently, only 1 escapement goal has been established for coho salmon in the Yukon River drainage. The DCR, in the Tanana River drainage, has an SEG range of 5,200 to 17,000 fish (ADF&G 2004). The DCR spawning count was 2,884 coho salmon (Table 11) and was conducted by boat survey on November 7, 2018. This escapement estimate was below the escapement goal range. All but 1 coho salmon escapement survey in the Nenana River and the upper Tanana River (evaluated by aerial surveys) were below average when compared to the 1972–2017 average and the 5-year average.

In recent years, a coho salmon run-reconstruction index has been developed that expands the Pilot Station sonar passage estimates by comparing the timing of the next closest monitoring project in the lower Yukon River (LYTF or Mountain Village) using the appropriate lag for travel time. Further, commercial and subsistence harvests below the sonar site are included to provide an index of coho salmon abundance for the Yukon River. Subsistence harvest in this area

is fairly stable, averaging 3,000 coho salmon annually. However, the commercial harvest can vary drastically (<1,000 to 177,000) depending on the management of the fall chum salmon fishery. This index does not include coho salmon spawning in tributaries below the sonar site. Currently, the data used for estimating an index of run size for coho salmon is based on the years 1995 and 1997 through 2018 (excluding 2009). This model results in a median run size of 217,000 coho salmon in the Yukon River (Appendix E12). An index of Yukon River drainagewide escapement is derived from the run reconstruction minus the total harvest of coho salmon. The average escapement using this dataset was 166,000 coho salmon. In 2018, the index of run size was estimated to be approximately 239,000 coho salmon with an estimated escapement of 122,000 fish (below average) after removal of an estimated harvest of approximately 116,000 fish (Appendix E12).

OTHER MARINE AND FRESHWATER FINFISH FISHERIES

SUBSISTENCE AND PERSONAL USE FISHERY

The estimated subsistence and personal use harvest of nonsalmon species in 2018 was 56,646 whitefish (*Coregonus* spp. and *Prosopium cylindraceum*), 21,982 northern pike (*Esox lucius*), and 11,922 inconnu, hereafter referred to as "sheefish" (*Stenodus leucichthys*; Appendix D9). Other species are only reported by total harvest because they are harvested in small amounts or do not occur during salmon season and include a total of 3,022 burbot (*Lota lota*), 5,143 tomcod (*Eleginus gracilis*), 1,870 Arctic grayling (*Thymallus arcticus*), 52 Arctic lamprey (*Lethenteron camtschaticum)*, 66 longnose suckers (*Catostomus catostomus*), 61,896 Alaska blackfish (*Dallia pectoralis*), 25,907 Pacific herring (*Clupea pallasii*; Appendix D9). Due to the harvest patterns of nonsalmon species, these estimates are based on harvests from the previous winter's harvest to the fall of the current year (e.g., 2018 estimates are based on the harvest from winter 2017 to fall 2018).

Nonsalmon species (e.g., pike, sheefish, whitefish, blackfish) are an important subsistence resource for people in most areas throughout the Yukon River drainage, largely because they are available for harvest all season (Andersen et al. 2004; Brown et al. 2005). Many subsistence users harvest marine and freshwater finfish other than salmon either as incidental bycatch while fishing for salmon or by directly targeting those species. Estimates of nonsalmon harvest are poorly understood at a species level throughout the Yukon River drainage, thus a comprehensive assessment of nonsalmon harvest and use by species has been identified as a research priority for the Yukon Area (Brown et al. 2011). Information about nonsalmon species is collected during the annual ADF&G postseason subsistence salmon harvest surveys but is ancillary to salmon-specific surveys. Recently ADF&G has endeavored to document harvest areas and gear types as well as to quantify the harvest and use levels of nonsalmon species in 6 lower Yukon River region communities (Runfola et al. 2018). Similar efforts are underway in 5 Bering Sea coastal communities (Godduhn et al. 2020). Lastly, a multiyear radiotelemetry project studying burbot was conducted throughout the Yukon River drainage (Stuby et al. *In prep*). The objectives of the project were to document spawning and migration patterns of burbot and the reliance on this species in culturally and geographically distinct regions.

A variety of fishing methods are used in the main rivers and coastal marine waters to harvest nonsalmon finfish. Beach seines are occasionally used near spawning grounds to capture salmon and other species of schooling fish. In the fall and winter months, various designs of fyke nets

and fish weirs are used to capture whitefish, blackfish, and burbot. In the winter and spring months, hand lines are used through the ice to take sheefish, northern pike, and "tomcod" (saffron cod). The majority of the sheefish are harvested as they co-migrate up the Yukon River with the Chinook salmon. In the spring and early summer, smelt are harvested in the Yukon River Delta area using dip nets. During the fall months, dip nets and "eel sticks" are used to harvest Arctic lamprey in the mainstem Yukon River downstream of Grayling. Whitefish and sheefish are also harvested in fish wheels located in the Upper Yukon River and Tanana River during salmon fishing.

COMMERCIAL FISHERY

Regulations allow ADF&G to issue Commissioner's permits for the commercial harvest of nonsalmon freshwater fish (e.g., whitefish, burbot, northern pike, blackfish, and Arctic lamprey) throughout the Yukon and Tanana River drainages. Commissioner's permits allow the commercial harvest of species not managed under existing commercial fishing regulations during discrete periods throughout the year. The issuance of a Commissioner's permit enables managers to collect and evaluate information relating to species composition of the commercial catch, the selectivity of the gear, and, to a lesser extent, population abundance. Each year, permit applications are reviewed by ADF&G. Requests for additional harvests and current biological information are considered before the permits are issued.

Whitefish Fishery Summary

ADF&G has issued Commissioner's permits for an experimental whitefish commercial fishery in the Lower Yukon River annually since 2005. In response to market preference, commercial permits were issued for the specific harvest of Bering cisco (*Coregonus laurettae*), and to a lesser extent least cisco (*Coregonus sardinella*), beginning in 2009. The exact dates of the fishery have varied each year in response to the seasonal movements of whitefish and river conditions; however, the commercial harvest generally occurs in September and October.

In 2018, 1 permit was issued to Kwik'pak Fisheries, LLC for the commercial harvest of Bering cisco and least cisco. The permit authorized a maximum harvest of 35,000 cisco (numbers of fish) in District 1 from September 1 to October 1, 2018. The permit end date was extended to December 31 at the request of the processor (data on file with ADF&G Division of Commercial Fisheries, Anchorage).

The permit stipulated that fishing gear was restricted to 1 set or drift gillnet up to 150 feet in length with a maximum stretch-mesh size of 4 inches, or 1 hand line (hook and line) per commercial fishing operator. The smaller mesh size would target cisco species while reducing the incidental harvest of sheefish and broad whitefish (*Coregonus nasus*). Commercial fishing operators were required to have a 2018 Commercial Freshwater permit (F04B) to participate in the fishery. Commercial fishing was prohibited in designated areas around the village of Kotlik to prevent commercial fishing from potentially affecting subsistence fishing.

The 2018 harvest quota was an increase of 10,000 fish over the amount authorized from 2014 to 2016 (Appendix F1). Fishery managers decided to set the quota at 35,000 for 3 years (2018–2020) to maintain consistent harvest levels. Results from a recent mark–recapture study conducted on the Bering cisco spawning grounds in the Yukon Flats area above the Porcupine River indicated that there appeared to be a large spawning population around 350,000–425,000 fish (Division of Sport Fish memorandum; Summary of 2017 Yukon River Bering cisco mark–

recapture abundance experiment; Savereide and Albert, December 21, 2017). Over the lifetime of the commercial fishery, the estimated annual subsistence harvests of small whitefish in the mainstem Yukon River, including Bering and least cisco, has remained fairly consistent around 27,000 fish per year. ADF&G has not heard widespread concerns about the availability of small whitefish from subsistence fish harvesters. The combination of commercial and subsistence catch data, traditional ecological knowledge (TEK), and biological sampling are used to inform future management decisions and direct the development of a sustainable whitefish commercial fishery.

Nineteen commercial fishing operators made 145 deliveries for a total harvest of 26,571 Bering cisco and 113 least cisco. Commercial fishing participation was below the 5-year average of 23 permits fished. The price paid to commercial fishing operators was $1.50 per pound, resulting in an estimated total value of $46,485. The average value per fish harvester was $2,447 (Appendix F1).

The commercial fishery occurred from September 13 until September 26 (Appendix F1). Bering cisco averaged 1.16 pounds which is slightly below the 5-year average of 1.18 pounds. Least cisco averaged 0.47 pounds which was the lowest average weight since the commercial fishery started in 2005; however, there were a small number of least cisco deliveries in 2018, and total pounds may have been recorded incorrectly on the fish tickets.

The Bering cisco harvest was above the 5-year average of 21,857 fish and the least cisco harvest was above the 5-year average of 52 fish (Appendix F1). Similar to recent years, most (82%) of the Bering cisco harvest occurred near the community of Kotlik.

In the Upper Yukon Area, commercial freshwater fisheries targeting whitefish occurred primarily through the 1970s. Since 1980, there have been sporadic small commercial harvests of whitefish in the upriver districts, and no commercial permits were issued in 2018. Permit authorization is not required for the sale of whitefish species taken incidentally during commercial salmon fishing in any district. In upriver districts, whitefish have been taken incidentally to the salmon harvest and sold since the late 1980s. In 2018, 516 whitefish were incidentally harvested and sold in District 6 during commercial salmon fishing (Appendix F3).

Harvest Sampling

Whitefish were collected from the commercial harvest at the processing facility in Emmonak before shipment to Anchorage. A total of 215 Bering cisco were sampled for sex. Length measurements and otoliths were collected from 175 fish; 40 fish could not be measured for length because their tail fins had broken off possibly due to the freezing method. Fork length (tip of snout to fork of tail) was measured to the nearest millimeter. The average and standard deviation of length were calculated by sex (data on file with ADF&G, Division of Commercial Fisheries, Anchorage).

An incision was made on the ventral side of each specimen to identify reproductive organs. The proportions of male and female Bering cisco were relatively equal (53% female and 47% male). Similar to previous years, females were larger than males (females 332 mm; males 323 mm). Otoliths were collected from 175 sampled fish and will be processed in the future for age classification (data on file with ADF&G, Division of Commercial Fisheries, Anchorage).

Arctic Lamprey Fishery Summary

Commissioner's permits have been issued annually since 2003, allowing for commercial harvest of Arctic lamprey (Appendix F2). The quota has varied over time, and the exact dates of the fishery have varied each year in response to run timing and ice conditions; however, the commercial harvest generally occurs in November and December.

Fishing Effort and Run Timing

The Arctic lamprey fishery was monitored by an ADF&G representative via phone and email communications for the entire commercial fishery. Community contacts were established with local subsistence and commercial fishing operators in the villages of Alakanuk, Emmonak, Pitka's Point, Mountain Village, Russian Mission, Holy Cross, Anvik, and Grayling. Information regarding subsistence fishing effort, commercial fishing, harvest rates, local weather, river conditions, and run timing was gathered. ADF&G representative also communicated with the processor for updates on harvest and quality.

From 2013 to 2018, local fishing participants have been contracted with the Yukon Delta Fisheries Development Association (YDFDA) to set up test fishing sites in Districts 1 and 2 to assess lamprey presence and run timing. Fish harvesters check the nets daily unless weather conditions are poor. Nets are usually pulled due to colder weather and the formation of slush and shore ice.

Test fishing in 2018 began on September 27 with the deployment of 6 fyke nets at areas around Flat Island, Munson Island, and near Alakanuk. A total of 5,913 lamprey were caught. In addition to lamprey, the fyke nets caught 902 smelt, 183 burbot, 49 whitefish, 47 tomcod, 22 flounders, and a small number of northern pike, salmon, and sculpin. Nets were pulled October 26–28 because slush and skim ice started to form on the river. Similar to 2015 and 2016, the largest number of lamprey were harvested in early October (October 6–9; data on file with ADF&G, Division of Commercial Fisheries, Anchorage).

Since 2015, additional sites have been fished between Alakanuk and Mountain Village, or near Mountain Village, to check for lamprey migrating upriver. In 2018, 2 fyke nets were set near Mountain Village. From October 5 to October 23, fyke nets captured 303 whitefish, 77 burbot, 41 northern pike, and 11 salmon. No lamprey catches were recorded. Test nets could not be redeployed in November because shore ice had formed along the beach (data on file with ADF&G, Division of Commercial Fisheries, Anchorage).

River ice conditions were more favorable in 2018 than in 2017, and fish harvesters reported subsistence and commercial fishing effort. However, ice conditions still hampered fishing near Grayling and Anvik; river ice conditions were unsafe for travel through late November in this area.

Subsistence lamprey harvest from 2018 will be assessed through postseason surveys that will occur in September 2019. Results from these surveys will be made available in an annual subsistence harvest report by ADF&G.

Commercial Fishery

In 2018, 1 freshwater commercial fishery permit was issued to Kwik'pak Fisheries, LLC allowing a harvest of up to 44,080 pounds (approximately 20 metric tons) of Arctic lamprey. The permit was valid from October 1 through December 15. The processor established buying

stations in Mountain Village and Grayling. To participate in the fishery, commercial fishing operators were required to have a 2018 Freshwater Commercial permit. Commercial fishing gear was restricted to 1 hand dip net, 1 "eel stick", 1 fyke net, or 1 hoop net per freshwater commercial permit holder (data on file with ADF&G, Division of Commercial Fisheries, Anchorage).

Five commercial freshwater permit holders delivered 4,091 pounds to the commercial processor. The price paid to commercial fishing operators was $1.50 per pound, resulting in an estimated total harvest value of $6,136.50, with an average price paid to each commercial fishing participant of $1,227. The 2018 commercial fishery harvest was the fourth lowest amount paid to fishery participants since the fishery began in 2003 (Appendix F2). No lamprey samples were collected in 2017 or 2018. In previous years, a sample of commercially harvested lamprey were measured for length, sex, and weight.

CAPE ROMANZOF HERRING FISHERY

The Cape Romanzof Herring District consists of all Alaska waters from Dall Point to 62° N lat (Appendix G1). Pacific herring are present in coastal waters of the Yukon Area during May and June. Spawning populations occur primarily in the Cape Romanzof area in Kokechik Bay and Scammon Bay where the spawning habitat consists of rocky beaches and rockweed *Fucus* sp. The arrival of herring on the spawning grounds is influenced by ocean water temperature and ice conditions. Typically, herring appear immediately after ice breakup. Spawning usually occurs between mid-May and mid-June.

Local residents harvest herring in Hooper Bay, Kokechik Bay, and Scammon Bay for subsistence purposes. A few fish harvesters in the Yukon River Delta report harvesting herring along the coast near Black River and Kwiguk Pass for subsistence use. It is speculated that these herring are migrating toward southern Norton Sound. Some Yukon River Delta residents harvest herring spawn-on-kelp (*Fucus* sp.) north of Stebbins in southern Norton Sound. Estensen et al. (2015) reported information regarding the commercial herring fisheries in the Cape Romanzof District since 1980.

Because of turbid water in the Cape Romanzof area, it is typically not possible to estimate herring biomass using aerial survey techniques. Herring biomass has been estimated using a combination of information from aerial surveys, test, and commercial catches, spawn deposition, and age composition. Qualitative spawn deposition surveys were conducted from 1992 through 2003 (Bue et al. 2011). Although these surveys were discontinued in 2004 because of budget limitations, ADF&G attempts to make periodic observations of herring biomass and spawn deposition. No observation flights were flown in 2018.

In previous years, the AYK region herring biomass projection was based on an age-structured assessment (ASA) model. The ASA model requires age composition information, harvest data, and good aerial survey biomass estimates from each of the northeastern Bering Sea stocks. Test fishing projects and aerial surveys were not conducted in any of the AYK herring districts in 2018, and these data have been severely limited since 2006. Data deficiencies make it impossible to continue using the ASA model to project herring biomass. The 2018 projected biomass was an average of the long-term (1981–2014) biomass estimates from "good" (rating 3 or higher) aerial surveys in AYK districts. The 2018 projected biomass for the Cape Romanzof District was forecasted to be 3,638 tons and the minimum biomass threshold is 1,500 tons. Based on the

Bering Sea Herring Fishery Management Plan (5AAC 27.060), the exploitation rate shall not exceed 20% of the estimated biomass. Therefore, the allowable harvest was 728 tons.

No registered buyers operated in the district in 2018, and there has not been any commercial harvest of herring since 2013 (Appendix G2)

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TABLES AND FIGURES

Table 1.–Salmon processors, buyers, catcher-sellers, and associated data, Yukon Area, 2018.

Commercial operation (processing location/buying station)	Product	District
Kwik'pak Fisheries LLC 2909 Arctic Blvd. Anchorage, AK 99503 (Emmonak/Mountain Village)	Fresh salmon Frozen salmon Salmon roe	1 and 2
International Seafoods of Alaska, Inc. P.O. Box 2997 Kodiak, AK 99615 (St Mary's)	Fresh salmon	1 and 2
Fish People Corporation 2540 NE MLK Jr Blvd. Portland, OR 97212 (St. Mary's)	Fresh salmon	2
Yukon River Gold LLC. 107 Fairside Dr. Lynden, WA 98264 (Kaltag)	Fresh salmon Frozen salmon Salmon roe	4
Interior Alaska Fish Processors 2400 Davis Rd. Fairbanks, AK 99701 (Fairbanks, Yukon Bridge, Nenana)	Fresh/frozen salmon Salmon roe Salted/brined salmon Smoked salmon	5 and 6
Neil Eklund P.O. Box 10987 Fairbanks, AK 99710 (Fairbanks)	Fresh salmon	5 and 6
David Dausel P.O. Box 80291 Fairbanks, AK 99708 (Fairbanks)	Fresh salmon	6
John Krieg 3641 Dubia Rd. North Pole, AK 99705 (Fairbanks)	Fresh salmon	6
Gregory Taylor 1477 Chena Point Ave. Fairbanks, AK 99709 (Fairbanks)	Fresh salmon	6
Edmund Lord P.O. Box 183 Nenana, AK 99760 (Nenana)	Fresh salmon	6

Table 2.–Guideline harvest ranges and midpoints for commercial harvest of Chinook, summer chum, and fall chum salmon, Yukon Area, Alaska, 2018.

Chinook salmon

District or subdistrict	Guideline harvest range [a] Lower Numbers	Lower Percent	Midpoint Numbers	Midpoint Percent	Upper Numbers	Upper Percent
1 and 2	60,000	89.1	90,000	91.6	120,000	92.9
3	1,800	2.7	2,000	2.0	2,200	1.7
4	2,250	3.3	2,550	2.6	2,850	2.2
5-B, 5-C	2,400	3.6	2,600	2.6	2,800	2.2
5-D	300	0.4	400	0.4	500	0.4
6	600	0.9	700	0.7	800	0.6
Total	67,350	100.0	98,250	100.0	129,150	100.0

Summer chum salmon

District or subdistrict	Guideline harvest range [b] Lower Numbers	Lower Percent	Midpoint Numbers	Midpoint Percent	Upper Numbers	Upper Percent
1 and 2	251,000	62.9	503,000	62.9	755,000	62.9
3	6,000	1.6	12,500	1.6	19,000	1.6
4-A [c]	113,000	28.2	225,500	28.2	338,000	28.2
4-B, 4-C	16,000	3.9	31,500	3.9	47,000	3.9
5-B, 5-C, 5-D	1,000	0.3	2,000	0.3	3,000	0.3
6	13,000	3.2	25,500	3.2	38,000	3.2
Total	400,000	100.0	800,000	100.0	1,200,000	100.0
Anvik River Management Area roe cap of 100,000 pounds. [d]						

Fall chum salmon

District or subdistrict	Guideline harvest range [e] Lower Numbers	Lower Percent	Midpoint Numbers	Midpoint Percent	Upper Numbers	Upper Percent
1, 2, and 3	60,000	82.5	140,000	71.2	220,000	68.6
4	5,000	6.9	22,500	11.4	40,000	12.5
5-B, 5-C	4,000	5.5	20,000	10.2	36,000	11.2
5-D	1,000	1.4	2,500	1.3	4,000	1.2
6	2,750	3.8	11,625	5.9	20,500	6.4
Total	72,750	100.0	196,625	100.0	320,500	100.0
Subdistrict 5-A range of 0–4,000 pounds of roe. [f]						

[a] The Chinook salmon guideline harvest ranges have been in effect since 1981.

[b] Summer chum salmon guideline harvest ranges were established in February 1990 based on the average harvest shares from 1975–1989.

[c] Or the equivalent roe poundage of 61,000 to 183,000 pounds or some combination of fish and pounds of roe.

[d] The current Anvik River Management Area roe cap was established in March 1996.

[e] The current fall chum salmon guideline harvest ranges were established in 1990.

[f] Subdistrict 5-A was removed from the guideline harvest ranges for Chinook and summer chum salmon and a separate guideline harvest range of 0–4,000 pounds of fall chum salmon roe was established in November 1998.

Table 3.–Yukon Area regulatory subsistence and personal use salmon fishing schedule.

Area	Regulatory fishing periods	Open fishing times
Coastal District	7 days per week	Monday–Sunday, 24 hours/day
District 1	Two 36-hour periods per week	Monday 8:00 PM to Wednesday 8:00 AM / Thursday 8:00 PM to Saturday 8:00 AM
District 2	Two 36-hour periods per week	Wednesday 8:00 PM to Friday 8:00 AM / Sunday 8:00 PM to Tuesday 8:00 AM
District 3	Two 36-hour periods per week	Wednesday 8:00 PM to Friday 8:00 AM / Sunday 8:00 PM to Tuesday 8:00 AM
District 4	Two 48-hour periods per week	Sunday 6:00 PM to Tuesday 6:00 PM / Wednesday 6:00 PM to Friday 6:00 PM
Koyukuk and Innoko Rivers	7 days per week	Monday–Sunday, 24 hours/day
Subdistricts 5-A, -B, -C	Two 48-hour periods per week	Tuesday 6:00 PM to Thursday 6:00 PM / Friday 6:00 PM to Sunday 6:00 PM
Subdistrict 5-D	7 days per week	Monday–Sunday, 24 hours/day
Subdistricts 6-A, -B	Two 42-hour periods per week	Monday 6:00 PM to Wednesday 12:00 PM / Friday 6:00 PM to Sunday 12:00 PM
Subdistrict 6-C (personal use)	Two 42-hour periods per week	Monday 6:00 PM to Wednesday 12:00 PM / Friday 6:00 PM to Sunday 12:00 PM
Old Minto Area	5 days per week	Friday 6:00 PM to Wednesday 6:00 PM

Note: This schedule was altered during the 2018 season based on Chinook salmon run strength.

Table 4.–Total utilization in numbers of salmon by district and country, Yukon River drainage, 2018.

District	Fishery	Chinook [a]	Summer chum [a]	Fall chum [a]	Coho [a]	Pink [a]
Coastal	Subsistence [b]	1,117	15,351	525	871	2,923
	Commercial	–	–	–	–	–
	Test fish sales	–	–	–	–	–
	Total	1,117	15,351	525	871	2,923
1	Subsistence [b]	3,269	21,282	3,680	966	444
	Commercial	0	250,958	198,950	65,431	38,456
	Test fish sales	0	1,028	907	48	1
	Total	3,269	273,268	203,537	66,445	38,901
2	Subsistence [b]	4,148	19,035	3,004	595	304
	Commercial	0	195,423	170,648	40,845	787
	Test fish sales	0	0	0	0	0
	Total	4,148	214,458	173,652	41,440	1,091
3	Subsistence [b]	1,803	3,054	706	154	0
	Commercial	–	–	–	–	–
	Total	1,803	3,054	706	154	0
Total	Subsistence [b]	10,337	58,722	7,915	2,586	3,671
Lower	Commercial	0	446,381	369,598	106,276	39,243
Yukon	Test fish sales	0	1,028	907	48	1
Area	Total	10,337	506,131	378,420	108,910	42,915
4	Subsistence [b]	6,783	11,494	5,779	1,545	41
	Commercial	0	126,892	596	0	0
	Total	6,783	138,386	6,375	1,545	41
5	Subsistence [b]	14,077	6,445	44,891	1,343	0
	Commercial	–	–	896	0	0
	Total	14,077	6,445	45,787	1,343	0
6	Subsistence [b]	615	265	5,909	53	0
	Commercial	0	3,427	16,698	4,314	0
	Personal use	201	509	514	0	0
	Total	816	4,201	23,121	4,367	0
Total	Subsistence [b]	21,475	18,204	56,579	2,941	41
Upper	Commercial	0	130,319	18,190	4,314	0
Yukon	Personal use	201	509	514	0	0
Area	Total	21,676	149,032	75,283	7,255	41
Total	Subsistence [b]	31,812	76,926	64,494	5,527	3,712
Yukon	Commercial	0	576,700	387,788	110,590	39,243
Area	Personal use	201	509	514	0	0
(Alaska)	Test fish sales	0	1,028	907	48	0
	Sport fish [c]					
	Total	32,013	655,163	453,703	116,165	42,955
Total	Domestic	–	0	0	0	0
Canada	Aboriginal (mainstem) [b]	2,789	0	1,000	0	0
	Test fish harvest	–	–	–	–	–
	Commercial	1	0	1,957	0	0
	Subtotal	2,790	0	2,957	0	0
	Porcupine Aboriginal	308	0	1,874	25	0
	Total	3,098	0	4,831	25	0
	Grand total	35,111	655,163	458,534	116,190	42,955

Note: En dashes indicate fishery did not occur.

[a] Commercial harvest includes fish sold in the round and headed and gutted.

[b] Data are preliminary.

[c] Data not available.

Table 5.–Summer season subsistence fishing openings and allowed gear, 2018.

District or subdistrict	Reduced schedule (half regulatory) with 7.5-inch	Reduced schedule (half regulatory) with 6-inch	Cancelled subsistence period	Regulatory schedule with 7.5-inch mesh
South Coastal	N/A	N/A	N/A	All season
District 1 and North Coastal	8-Jun	22-Jun	June 19 and June 26	July 8: Open except for commercial [a]
District 2	June 11 to 15; July 9 to 17	June 21 to July 7 (four periods)	June 18 and 28	July 18: Open except for commercial [a]
District 3	June 11 to July 10	June 24 and July 5	June 18 and 28	11-Jul
4-A	June 13 to July 8	June 24, July 4, and July 11	June 20 and June 27	15-Jul
4-BC	June 17 to July 8	July 4 and July 11	27-Jun	15-Jul
5-A, 5-B, 5-C	June 22 (one period)	June 26 to July 18	N/A	20-Jul
5-D Lower and Middle	N/A	July 1 to August 8	N/A	9-Aug
5-D Upper	N/A	July 8 to August 15	N/A	16-Aug
Koyukuk, Innoko R.	N/A	N/A	N/A	All season
District 6	N/A	June 24 to July 12 [b]	N/A	13-Jul

Note: N/A indicates an action did not take place in that district or subdistrict. Mesh size listed is the maximum allowable size; any smaller mesh gillnets could be used. Subsistence fishing for nonsalmon species with 4-inch or smaller mesh gillnets was allowed during closures. The use of fish wheels was allowed during all subsistence openings. Prior to the start of the management actions listed here, subsistence fishing was open 7 days per week except for personal use fishing in 6-C, which remains on schedule year round.

[a] Subsistence fishing was open 7 days per week with 7.5 inch or smaller mesh gillnets, except for closures before, during, and after commercial periods.

[b] Fishing time was increased from half regulatory schedule (two 21-hour periods per week) to two 24-hour periods per week.

Table 6.–Chinook and summer chum salmon commercial harvest by district, period, and gear type, for Districts 1, 2, 4, and 6, Yukon Area, 2018.

District 1														
									Chinook salmon		Summer chum salmon			Pink salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Gear type [a]	Mesh size	Number of fishery operators	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt (lb)	Number
1	2:00 PM	6/9	2:00 AM	6/10	12	BS/DN		70	89	0	2,089	13,184	6.3	0
2	2:00 PM	6/10	2:00 AM	6/11	12	BS/DN		44	56	0	1,366	8,670	6.3	0
3	2:00 PM	6/11	2:00 AM	6/12	12	BS/DN		22	68	0	1,085	6,956	6.4	0
4	12:00 PM	6/13	11:59 PM	6/13	12	BS/DN		77	321	0	6,290	41,046	6.5	0
5	12:00 PM	6/14	12:00 PM	6/15	24	BS/DN		85	792	0	15,959	102,486	6.4	0
6	12:00 PM	6/16	11:59 PM	6/16	12	BS/DN		17	52	0	1,107	7,047	6.4	0
7	12:00 AM	6/17	11:59 PM	6/17	24	BS/DN		77	384	0	14,324	90,486	6.3	0
8	12:00 AM	6/18	11:59 PM	6/18	24	BS/DN		87	480	0	13,328	84,860	6.4	0
9	12:00 AM	6/19	12:00 PM	6/19	12	BS/DN		67	542	0	11,540	73,332	6.4	0
10	12:01 AM	6/20	11:59 PM	6/20	24	BS/DN		73	401	0	10,301	65,546	6.4	0
11	12:01 AM	6/21	11:59 PM	6/21	24	BS/DN		56	260	0	3,676	22,772	6.2	0
12	12:01 AM	6/22	10:00 AM	6/22	10	BS/DN		31	166	0	2,381	14,650	6.2	0
13	12:00 PM	6/23	11:59 PM	6/23	12	BS/DN		79	261	0	4,960	30,036	6.1	0
14	12:00 PM	6/24	11:59 PM	6/24	12	BS/DN		67	349	0	4,418	26,727	6.0	0
15	12:00 PM	6/25	11:59 PM	6/25	12	BS/DN		27	66	0	391	2,312	5.9	58
16	12:00 PM	6/26	11:59 PM	6/26	12	BS/DN		72	310	0	3,890	23,259	6.0	709
17	12:00 PM	6/27	11:59 PM	6/27	12	BS/DN		59	256	0	3,394	20,996	6.2	1,015
18	12:00 PM	6/28	11:59 PM	6/28	12	BS/DN		54	129	0	946	5,610	5.9	376
19	12:00 PM	6/30	11:59 PM	6/30	12	BS/DN		74	189	0	2,971	17,409	5.9	1,633
20	12:00 PM	7/1	11:59 PM	7/1	12	BS/DN		117	304	0	9,399	56,234	6.0	5,059
21	12:00 PM	7/2	11:59 PM	7/2	12	BS/DN		109	384	0	14,391	86,367	6.0	5,809
22	6:00 PM	7/4	11:59 PM	7/4	6	DGN	6	154	0	424	10,229	65,272	6.4	2,437
23	6:00 PM	7/5	11:59 PM	7/5	6	DGN	6	121	0	196	3,541	22,574	6.4	3,476
24	6:00 PM	7/7	3:00 AM	7/8	9	DGN	6	115	0	188	9,250	59,646	6.4	5,142
25	6:00 PM	7/8	3:00 AM	7/9	9	DGN	6	170	0	216	37,797	246,259	6.5	3,897
26	6:00 PM	7/9	3:00 AM	7/10	9	DGN	6	151	0	210	25,092	164,320	6.5	41
27	6:00 PM	7/10	3:00 AM	7/11	9	DGN	6	95	0	99	5,093	32,916	6.5	0
28	6:00 PM	7/11	3:00 AM	7/12	9	DGN	6	39	0	20	1,753	11,276	6.4	0
29	6:00 PM	7/12	3:00 AM	7/13	9	DGN	6	125	0	75	10,112	63,498	6.3	0
30	6:00 PM	7/13	3:00 AM	7/14	9	DGN	6	98	0	75	12,307	76,050	6.2	4,122
31	6:00 PM	7/14	3:00 AM	7/15	9	DGN	6	117	0	92	7,578	48,553	6.4	4,665
District 1 subtotal:					394			264	5,860[b]	1,701[b]	250,958	1,590,349	6.3	38,439[b]
								FALL SEASON	1	106	–	–		17

-continued-

Table 6.–Page 2 of 4.

District 2														
									Chinook salmon		Summer chum salmon			Pink
Period	Starting time	Start date	Ending time	End date	Hours fished	Gear type [a]	Mesh size	Number of fishery operators	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt (lb)	salmon Number
1	2:00 PM	6/12	2:00 AM	6/13	12	BS/DN	0	45	151	0	2,781	17,228	6.2	0
2	2:00 PM	6/13	2:00 AM	6/14	12	BS/DN	0	33	85	0	1,352	8,410	6.2	0
3	12:00 PM	6/16	11:59 PM	6/16	12	BS/DN	0	63	301	0	5,555	34,682	6.2	0
4	12:00 PM	6/17	11:59 PM	6/17	12	BS/DN	0	68	361	0	5,389	33,109	6.1	0
5	12:00 PM	6/19	11:59 PM	6/19	12	BS/DN	0	81	581	0	8,275	51,730	6.3	0
6	12:00 PM	6/20	11:59 PM	6/20	12	BS/DN	0	94	516	0	9,926	62,192	6.3	0
7	12:00 PM	6/22	11:59 PM	6/22	12	BS/DN	0	73	371	0	6,265	38,259	6.1	0
8	12:00 PM	6/23	11:59 PM	6/23	12	BS/DN	0	66	307	0	3,590	21,774	6.1	0
9	12:00 PM	6/24	11:59 PM	6/24	12	BS/DN	0	42	215	0	2,354	14,463	6.1	0
10	12:00 PM	6/26	11:59 PM	6/26	12	BS/DN	0	87	672	0	8,335	50,370	6.0	0
11	12:00 PM	6/27	11:59 PM	6/27	12	BS/DN	0	70	433	0	5,747	34,951	6.1	0
12	12:00 PM	6/28	11:59 PM	6/28	12	BS/DN	0	81	601	0	8,713	52,782	6.1	4
13	12:00 PM	6/29	11:59 PM	6/29	12	BS/DN	0	78	461	0	6,677	39,908	6.0	19
14	12:00 PM	6/30	11:59 PM	6/30	12	BS/DN	0	40	206	0	3,249	19,075	5.9	3
15	12:00 PM	7/1	11:59 PM	7/1	12	BS/DN	0	29	99	0	2,180	13,004	6.0	25
16	10:00 AM	7/3	10:00 PM	7/3	12	BS/DN	0	98	277	0	14,717	87,163	5.9	80
17	10:00 AM	7/4	10:00 PM	7/4	12	BS/DN	0	74	252	0	13,524	81,219	6.0	33
18	10:00 AM	7/6	10:00 PM	7/6	12	BS/DN	0	47	180	0	6,976	40,558	5.8	8
19	4:00 PM	7/7	10:00 PM	7/7	6	DGN	6	63	0	249	8,846	55,549	6.3	38
20	4:00 PM	7/8	10:00 PM	7/8	6	DGN	6	29	0	105	2,710	17,200	6.3	62
21	12:00 PM	7/10	11:59 PM	7/10	12	DGN	6	98	0	397	18,911	120,882	6.4	0
22	12:00 PM	7/11	11:59 PM	7/11	12	DGN	6	103	0	297	12,628	81,141	6.4	0
23	12:00 PM	7/13	11:59 PM	7/13	12	DGN	6	51	0	143	7,287	44,284	6.1	0
24	12:00 PM	7/14	11:59 PM	7/14	12	DGN	6	57	0	83	6,281	39,351	6.3	214
25	12:00 PM	7/15	11:59 PM	7/15	12	DGN	6	43	0	60	4,305	27,166	6.3	301
26	12:00 PM	7/17	11:59 PM	7/17	12	DGN	6	67	0	54	11,708	75,349	6.4	0
27	3:00 PM	7/18	9:00 PM	7/18	6	DGN	6	69	0	59	7,142	46,947	6.6	0
District 2 subtotal:					108			167	6,069	1,489[b]	195,423	1,208,746	6.2	787
								FALL SEASON:	0	42	–	–	–	0
Lower Yukon Area, summer season, Districts 1 and 2 subtotal: [c]					502			417	11,928[b]	3,042[b]	446,381	2,799,095	6.3	39,226
Districts 1 and 2 summer and fall subtotal:									11,929	3,190	–	–	–	39,243

-continued-

Table 6.–Page 3 of 4.

Subdistrict 4-A														
					Hours				Chinook salmon		Summer chum salmon			Pink
Period	Starting time	Start date	Ending time	End date	fished 6-AB	Gear type	Mesh size	Number of fishery operators	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt (lb)	salmon Number
1	12:00 AM	6/26	11:59 PM	6/26	24	FW [d]		4	0	0	2,409	12,045	5.0	0
2	12:00 AM	6/27	11:59 PM	6/27	24	FW [d]		7	1	0	4,172	20,860	5.0	0
3	12:00 AM	6/28	11:59 PM	6/28	24	FW [d]		7	4	0	5,109	25,545	5.0	0
4	12:00 AM	6/29	11:59 PM	6/29	24	FW [d]		6	9	0	3,181	15,905	5.0	0
5	12:00 AM	6/30	11:59 PM	6/30	24	FW [d]		6	6	0	2,755	13,775	5.0	0
6	12:00 AM	7/1	11:59 PM	7/1	24	FW [d]		6	14	0	2,403	12,015	5.0	0
7	12:00 AM	7/2	11:59 PM	7/2	24	FW [d]		7	1	0	2,861	14,305	5.0	0
8	12:00 AM	7/3	9:00 AM	7/4	33	FW [d]		8	5	0	3,162	15,810	5.0	0
9	9:00 AM	7/4	9:00 AM	7/5	24	FW [d]		8	13	0	5,165	25,825	5.0	0
10	9:00 AM	7/5	9:00 AM	7/6	24	FW [d]		6	9	0	3,821	19,105	5.0	0
11	9:00 AM	7/6	9:00 AM	7/7	24	FW [d]		7	0	0	4,862	24,310	5.0	0
12	9:00 AM	7/7	9:00 AM	7/8	24	FW [d]		8	9	0	4,395	21,975	5.0	0
13	9:00 AM	7/8	9:00 AM	7/9	24	FW [d]		8	2	0	3,593	17,965	5.0	0
14	9:00 AM	7/9	9:00 AM	7/10	24	FW [d]		8	34	0	3,459	17,295	5.0	0
15	9:00 AM	7/10	9:00 AM	7/11	24	FW [d]		8	19	0	4,137	20,685	5.0	0
16	9:00 AM	7/11	9:00 AM	7/12	24	FW [d]		8	16	0	6,811	34,055	5.0	0
17	9:00 AM	7/12	9:00 AM	7/13	24	FW [d]		8	30	0	4,489	22,445	5.0	0
18	9:00 AM	7/13	9:00 AM	7/14	24	FW [d]		7	22	0	5,885	29,425	5.0	0
19	9:00 AM	7/14	9:00 AM	7/15	24	FW [d]		7	14	0	6,087	30,435	5.0	0
20	9:00 AM	7/15	9:00 AM	7/16	24	FW [d]		7	32	0	5,253	26,265	5.0	0
21	9:00 AM	7/16	9:00 AM	7/17	24	FW [d]		8	13	0	10,227	51,135	5.0	0
22	9:00 AM	7/17	9:00 AM	7/18	24	FW [d]		7	26	0	4,427	22,135	5.0	0
23	9:00 AM	7/18	9:00 AM	7/19	24	FW [d]		7	6	0	3,059	15,295	5.0	0
24	9:00 AM	7/19	9:00 AM	7/20	24	FW [d]		7	0	0	3,390	16,950	5.0	0
25	9:00 AM	7/20	9:00 AM	7/21	24	FW [d]		5	0	0	2,030	10,150	5.0	0
26	9:00 AM	7/21	9:00 AM	7/22	24	FW [d]		6	0	0	2,827	14,135	5.0	0
27	9:00 AM	7/22	9:00 AM	7/23	24	FW [d]		6	0	0	2,096	10,480	5.0	0
28	9:00 AM	7/23	9:00 AM	7/24	24	FW [d]		8	1	0	2,957	14,785	5.0	0
29	9:00 AM	7/24	9:00 AM	7/25	24	FW [d]		7	0	0	1,849	9,245	5.0	0
30	9:00 AM	7/25	9:00 AM	7/26	24	FW [d]		6	0	0	1,563	7,815	5.0	0
31	9:00 AM	7/26	9:00 AM	7/27	24	FW [d]		7	0	0	1,495	7,475	5.0	0
32	9:00 AM	7/27	9:00 AM	7/28	24	FW [d]		5	0	0	1,691	8,455	5.0	0
33	9:00 AM	7/28	9:00 AM	7/29	24	FW [d]		6	0	0	1,419	7,095	5.0	0
34	9:00 AM	7/29	9:00 AM	7/30	24	FW [d]		5	0	0	1,535	7,675	5.0	0
35	9:00 AM	7/30	9:00 AM	7/31	24	FW [d]		7	0	0	1,445	7,225	5.0	0
36	9:00 AM	7/31	9:00 AM	8/1	24	FW [d]		5	0	0	873	4,365	5.0	0
District 4 subtotal:					753			8	286	0	126,892	634,460	5.0	0

-continued-

Table 6.–Page 4 of 4.

Subdistricts 5-A, 5-B, and 5-C		
	Number caught and released	Number caught but not sold
FALL SEASON Incidental harvest of Chinook salmon[c]	0	2

Subdistricts 6-A, 6-B, and 6-C														
					Hours				Chinook salmon		Summer chum salmon			Pink
Period	Starting time	Start date	Ending time	End date	fished 6-AB	Gear type	Mesh size	Number of fishery operators	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt (lb)	salmon Number
1	6:00 PM	7/13	12:00 PM	7/15	42	GN/FW[d]	7.5	1	45	50	214	1,310	6.1	0
2	6:00 PM	7/16	12:00 PM	7/18	42	GN/FW[d]	7.5	1	0	46	109	735	6.7	0
3	6:00 PM	7/20	12:00 PM	7/22	42	GN/FW[d]	7.5	1	6	20	461	2,799	6.1	0
4	6:00 PM	7/23	12:00 PM	7/25	42	GN/FW[d]	7.5	1	0	12	780	4,590	5.9	0
5	6:00 PM	7/27	12:00 PM	7/29	42	GN/FW[d]	7.5	1	0	11	1,065	6,145	5.8	0
6	6:00 PM	7/30	12:00 PM	8/1	42	GN/FW[d]	7.5	1	0	4	798	4,730	5.9	0
District 6 subtotal:					252			1	51	143	3,427	20,309	5.9	0
Upper Yukon Area, summer season, Districts 4 and 6 subtotal: [c]					1,005			9	337	145[e]	130,319	654,769	5.9	0
Yukon Area, summer season, Districts 1 through 6 total:					1,507			426	12,266	3,335[f]	576,700	3,453,864	6.0	39,243
Summer season harvest by selective gear only														
District 1					310	DN/BS			5,859	0	128,206	799,985	6.2	14,659
District 2					216	DN/BS			6,069	0	115,605	700,877	6.1	172
District 4					873	FW			286	0	126,892	634,460	5.0	0
Total					1,399				12,214	0	370,703	2,135,322	5.8	14,831

Note: Chinook salmon caught in gillnets were not allowed to be sold throughout the summer and fall seasons. Chinook salmon caught in dip nets, beach seines, and fish wheels were required to be immediately released alive. DN = dip net; BS = beach seine; GN = gillnet; R= restricted mesh size; FW = fish wheel. En dashes or blank cells = no data.

[a] Under commercial fishing regulations adopted by the Alaska Board of Fisheries in 2013, ADF&G may allow the use of dip nets and beach seines.

[b] Does not include Chinook salmon caught but not sold in the fall season.

[c] No commercial fishing occurred in District 3 or during the summer season in District 5.

[d] Fish wheels were to be manned at all times. Chinook salmon caught in fish wheels were to be released immediately back to the water alive.

[e] Includes two Chinook salmon caught but not sold during the fall chum salmon commercial fishery in District 5.

[f] Includes 148 Chinook salmon caught but not sold during the fall season in Districts 1 and 2, and two Chinook salmon caught but not sold during the fall chum salmon commercial fishery in District 5.

Table 7.–Commercial sales in number of salmon by statistical area, Yukon Area, 2018.

Statistical area	Chinook [a]	Summer chum [a]	Fall chum [a]	Coho [a]	Pink [a]	Total salmon
334-11	0	33,367	225	811	4,344	38,747
12	0	28,867	11,395	4,003	15,820	60,085
13	0	33,782	9,974	1,816	1,253	46,825
14	0	15,188	7,523	1,366	430	24,507
15	0	25,173	62,852	17,958	5,815	111,798
16	0	10,286	24,037	15,698	4,248	54,269
17	0	81,152	63,315	16,955	5,490	166,912
18	0	22,388	18,085	4,503	1,056	46,032
19	0	755	1,544	2,321	0	4,620
Subtotal District 1	0	250,958	198,950	65,431	38,456	553,795
334-21	0	36,058	20,600	7,356	337	64,351
22	0	56,448	36,157	15,345	438	108,388
23	0	42,456	57,582	10,606	11	110,655
24	0	56,309	55,119	7,387	1	118,816
25	0	4,152	1,190	151	0	5,493
Subtotal District 2	0	195,423	170,648	40,845	787	407,703
Total Lower Yukon [b]	0	446,381	369,598	106,276	39,243	961,498
334-46	0	126,892	596	0	0	127,488
Subtotal District 4 [c]	–	126,892	596	0	0	127,488
334-52	–	–	896	0	0	896
Subtotal District 5 [d]	–	–	896	0	0	896
334-62	0	3,427	3,498	1,256	0	8,181
63	0	0	13,200	3,058	0	16,258
Subtotal District 6 [e]	0	3,427	16,698	4,314	0	24,439
Total Upper Yukon	0	130,319	18,190	4,314	0	152,823
Grand total Yukon Area	0	576,700	387,788	110,590	39,243	1,114,321

Note: En dashes indicate no commercial fishing activity occurred.

[a] Commercial harvest includes fish sold in the round and headed and gutted. Does not include ADF&G Test Fish Sales.

[b] No commercial openings or harvest occurred in District 3 of the Lower Yukon area.

[c] No commercial harvest occurred in other statistical areas of District 4.

[d] No commercial harvest occurred in other statistical areas of District 5.

[e] No commercial harvest occurred in other statistical areas of District 6.

Table 8.–Commercial salmon sales and estimated harvest by district and country, Yukon River drainage, 2018.

District or subdistrict	Number of fishery operators[a]	Chinook	Summer chum	Fall chum	Coho	Pink
1	309	0	250,958	198,950	65,431	38,456
2	201	0	195,423	170,648	40,845	787
Subtotal Districts 1 and 2	484	0	446,381	369,598	106,276	39,243
3	–	–	–	–	–	–
Total Lower Yukon	484	0	446,381	369,598	106,276	39,243
Anvik River	–	–	–	–	–	–
4-A	8	0	126,892	596	0	–
4-BC	–	–	–	–	–	–
Subtotal District 4	8	0	126,892	596	0	–
5-ABC	3	–	–	896	0	–
5-D	–	–	–	–	–	–
Subtotal District 5	3	–	–	896	0	–
District 6	3	0	3,427	16,698	4,314	–
Total Upper Yukon	14	0	130,319	18,190	4,314	–
Total Alaska	498	0	576,700	387,788	110,590	39,243
Total Canada	6	1	0	1,957	0	0
Grand total	504	1	576,700	389,745	110,590	39,243

Note: En dashes indicate no commercial fishing activity occurred.

[a] Number of unique permits fished by district, subdistrict, or area. Totals by area may not add up due to transfers between districts or subdistricts.

Table 9.–Fall chum and coho salmon commercial harvest by district or subdistrict and by period, set and drift gillnets combined for Districts 1, 2, and 3, and set gillnets and fish wheels combined for Districts 4, 5, and 6, Yukon Area, 2018.

District 1																	
									Fall chum salmon			Coho salmon			Chinook salmon		Pink salmon
					Hours fished			Number			Avg			Avg	Number	Number	
Period	Starting time	Start date	Ending time	End date	Drift	Set	Mesh size	fishery operators	Number	Pounds	wt (lb)	Number	Pounds	wt (lb)	caught but not sold [a]	caught and released	Number
1	1:00 PM	7/16	10:00 PM	7/16	6	9	6	146	16,330	106,848	6.5	19	119	6.3	37	–	17
2	3:00 PM	7/19	11:59 PM	7/19	6	9	6	125	15,340	104,496	6.8	102	597	5.9	45	1	–
3	3:00 PM	7/23	11:59 PM	7/23	6	9	6	64	920	5,869	6.4	67	379	5.7	2	–	–
4	3:00 PM	7/26	11:59 PM	7/26	6	9	6	136	2,416	15,677	6.5	145	819	5.6	7	–	–
5	3:00 PM	7/30	11:59 PM	7/30	6	9	6	75	2,366	16,550	7.0	229	1,369	6.0	5	–	–
6	1:00 PM	8/2	10:00 PM	8/2	6	9	6	203	15,099	115,410	7.6	926	5,798	6.3	5	–	–
7	3:00 PM	8/6	11:59 PM	8/6	6	9	6	177	7,204	55,732	7.7	1,800	11,880	6.6	3	–	–
8	2:00 PM	8/9	11:00 PM	8/9	6	9	6	177	12,421	96,013	7.7	3,124	19,886	6.4	1	–	–
9	9:00 AM	8/13	9:00 PM	8/13	9	12	6	147	4,008	29,942	7.5	4,288	27,391	6.4	–	–	–
10	1:00 PM	8/15	8:00 PM	8/15	5	7	6	211	19,587	150,797	7.7	6,730	43,727	6.5	–	–	–
11	12:00 PM	8/18	9:00 PM	8/18	6	9	6	209	38,086	288,659	7.6	11,855	77,339	6.5	–	–	–
12	12:00 PM	8/20	9:00 PM	8/20	6	9	6	147	3,722	27,512	7.4	3,189	20,485	6.4	–	–	–
13	12:00 PM	8/24	9:00 PM	8/24	6	9	6	156	5,039	35,963	7.1	3,754	23,865	6.4	1	–	–
14	12:00 PM	8/27	9:00 PM	8/27	6	9	6	208	35,124	260,312	7.4	14,607	94,053	6.4	–	–	–
15	1:00 PM	8/29	8:00 PM	8/29	5	7	6	146	5,810	41,666	7.2	5,267	33,666	6.4	–	–	–
16	12:00 PM	8/31	11:00 PM	8/31	8	11	6	136	3,512	23,697	6.7	2,969	18,567	6.3	–	–	–
17	12:00 PM	9/3	9:00 PM	9/3	6	9	6	150	8,743	62,019	7.1	3,454	21,684	6.3	–	–	–
18	12:00 PM	9/6	9:00 PM	9/6	6	9	6	102	2,438	16,515	6.8	1,914	11,970	6.3	–	–	–
19	12:00 PM	9/9	9:00 PM	9/9	6	9	6	63	473	2,990	6.3	618	3,753	6.1	–	–	–
20	12:00 PM	9/10	9:00 PM	9/10	6	9	6	38	312	1,909	6.1	374	2,266	6.1	–	–	–
District 1 subtotal:					123	181		284	198,950	1,458,576	7.3	65,431	419,613	6.4	106	1	17

-continued-

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District 2																
								Fall chum salmon			Coho salmon			Chinook salmon		Pink salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Mesh size	Number of operators	Number	Pounds	Avg wt (lb)	Number	Pounds	Avg wt (lb)	Number caught but not sold[a]	Number caught and released	Number
1	3:00 PM	7/22	9:00 PM	7/22	6	6	61	6,821	46,483	6.8	–	–	–	20	–	–
2	3:00 PM	7/25	9:00 PM	7/25	6	6	30	918	5,960	6.5	2	13	6.5	3	–	–
3	3:00 PM	7/29	9:00 PM	7/29	6	6	22	775	5,137	6.6	14	84	6.0	2	–	–
4	12:00 PM	8/1	6:00 PM	8/1	6	6	39	2,009	14,526	7.2	38	248	6.5	1	–	–
5	3:00 PM	8/5	9:00 PM	8/5	6	6	111	13,913	105,396	7.6	390	2,390	6.1	4	–	–
6	1:30 PM	8/8	7:30 PM	8/8	6	6	113	6,425	49,217	7.7	1,084	6,776	6.3	3	–	–
7	4:00 PM	8/10	8:00 PM	8/10	4	6	89	9,316	72,180	7.7	867	5,274	6.1	3	–	–
8	4:00 PM	8/11	8:00 PM	8/11	4	6	102	9,275	71,288	7.7	951	5,879	6.2	1	–	–
9	1:00 PM	8/15	8:00 PM	8/15	7	6	84	4,826	36,999	7.7	2,144	13,413	6.3	3	–	–
10	2:00 PM	8/17	8:00 PM	8/17	6	6	135	18,016	138,218	7.7	4,919	31,280	6.4	–	–	–
11	5:00 PM	8/18	9:00 PM	8/18	4	6	111	10,128	77,900	7.7	3,030	19,382	6.4	1	–	–
12	2:00 PM	8/21	8:00 PM	8/21	6	6	128	19,066	142,576	7.5	4,163	26,634	6.4	–	–	–
13	12:00 PM	8/26	6:00 PM	8/26	6	6	62	2,965	21,095	7.1	1,497	9,406	6.3	1	–	–
14	2:00 PM	8/29	8:00 PM	8/29	6	6	111	22,584	164,725	7.3	5,404	34,797	6.4	–	–	–
15	4:00 PM	8/30	10:00 PM	8/30	6	6	98	16,408	120,063	7.3	5,355	34,212	6.4	–	–	–
16	3:00 PM	8/31	11:00 PM	8/31	8	6	88	13,756	98,644	7.2	4,563	28,877	6.3	–	–	–
17	2:00 PM	9/2	8:00 PM	9/2	6	6	61	4,258	29,807	7.0	2,187	13,568	6.2	–	–	–
18	2:00 PM	9/4	8:00 PM	9/4	6	6	69	5,508	38,899	7.1	2,024	12,635	6.2	–	–	–
19	2:00 PM	9/8	8:00 PM	9/8	6	6	51	2,668	17,830	6.7	1,438	8,825	6.1	–	–	–
20	2:00 PM	9/10	8:00 PM	9/10	6	6	31	1,013	6,699	6.6	772	4,792	6.2	–	–	–
				SUMMER SEASON							3	18	6.0			
District 2 subtotal:					117		172	170,648	1,263,642	7.4	40,845	258,503	6.3	42	0	0

-continued-

Table 9.–Page 3 of 4.

	Hours fished			Fall chum salmon			Coho salmon			Chinook salmon		Pink salmon
	Drift	Set	Number of operators	Number	Pounds	Avg wt (lb)	Number	Pounds	Avg wt (lb)	Number caught but not sold[a]	Number caught and released	Number
Lower Yukon Area, fall season, Districts 1 and 2 subtotal:	240	298	448	369,598	2,722,218	7.4	106,276	678,116	6.4	148	1	17

Subdistrict 4-A

							Fall chum salmon			Coho salmon			Chinook salmon		Pink salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Number of operators	Number	Pounds	Avg wt (lb)	Number	Pounds	Avg wt (lb)	Number caught but not sold[a]	Number caught and released	Number
1	9:00 AM	8/1	9:00 AM	8/2	24	4	596	2,980	5.0	–	–	–	–	–	–
2–60	9:00 AM	8/2	9:00 AM	9/30	1,416	0	–	–	–	–	–	–	–	–	–
61	9:00 AM	9/30	11:59 PM	9/30	15	0	–	–	–	–	–	–	–	–	–
District 4 subtotal:					1,455	4	596	2,980	5.0	0	0		0	0	0

Subdistricts 5-B and 5-C

							Fall chum salmon			Coho salmon			Chinook salmon		Pink salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Number of operators	Number	Pounds	Avg wt (lb)	Number	Pounds	Avg wt (lb)	Number caught but not sold[a]	Number caught and released	Number
1	6:00 PM	8/7	12:00 PM	8/13	138	2	397	3,097	7.8	–	–	–	2	–	–
2	12:00 PM	8/13	12:00 PM	8/20	168	3	499	3,891	7.8	–	–	–	–	–	–
3	12:00 PM	8/20	12:00 PM	8/27	168	0	–	–	–	–	–	–	–	–	–
4	12:00 PM	8/27	12:00 PM	9/3	168	0	–	–	–	–	–	–	–	–	–
5	12:00 PM	9/3	12:00 PM	9/10	168	0	–	–	–	–	–	–	–	–	–
6	12:00 PM	9/10	12:00 PM	9/17	168	0	–	–	–	–	–	–	–	–	–
7	12:00 PM	9/17	12:00 PM	9/24	168	0	–	–	–	–	–	–	–	–	–
8	12:00 PM	9/24	11:59 PM	9/30	156	0	–	–	–	–	–	–	–	–	–
District 5 subtotal:					1,302	3	896	6,988	7.8	0	0	–	2	–	0

-continued-

Table 9.–Page 4 of 4.

Subdistricts 6-A, 6-B, and 6-C															
							Fall chum salmon			Coho salmon			Chinook salmon		Pink salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Number of operators	Number	Pounds	Avg wt (lb)	Number	Pounds	Avg wt (lb)	Number caught but not sold[a]	Number caught and released	Number
1	6:00 PM	8/17	12:00 PM	8/19	42	0	–	–	–	–	–	–	–	–	–
2	6:00 PM	8/20	12:00 PM	8/22	42	0	–	–	–	–	–	–	–	–	–
3	6:00 PM	8/24	12:00 PM	8/26	42	1	150	960	6.4	1	5	5.0	–	–	–
4	6:00 PM	8/27	12:00 PM	8/29	42	0	–	–	–	–	–	–	–	–	–
5	6:00 PM	8/31	12:00 PM	9/2	42	0	–	–	–	–	–	–	–	–	–
6	6:00 PM	9/3	12:00 PM	9/5	42	0	–	–	–	–	–	–	–	–	–
7	6:00 PM	9/7	12:00 PM	9/9	42	1	88	657	7.5	–	–	–	–	–	–
8	6:00 PM	9/10	12:00 PM	9/12	42	0	–	–	–	–	–	–	–	–	–
9	6:00 PM	9/14	12:00 PM	9/16	42	1	360	2,689	7.5	130	754	5.8	–	–	–
10	6:00 PM	9/17	12:00 PM	9/19	42	1	425	3,187	7.5	80	480	6.0	–	–	–
11	6:00 PM	9/21	12:00 PM	9/23	42	3	1,496	11,212	7.5	248	1,473	5.9	–	–	–
12	6:00 PM	9/24	12:00 PM	9/26	42	3	1,849	13,625	7.4	592	3,369	5.7	–	–	–
13	6:00 PM	9/28	12:00 PM	9/30	42	3	3,325	24,664	7.4	916	5,343	5.8	–	–	–
14	6:00 PM	10/1	12:00 PM	10/3	42	2	2,020	15,103	7.5	520	3,098	6.0	–	–	–
15	6:00 PM	10/5	12:00 PM	10/7	42	3	2,594	19,169	7.4	621	3,624	5.8	–	–	–
16	6:00 PM	10/8	12:00 PM	10/10	42	2	969	7,207	7.4	382	2,265	5.9	–	–	–
17	6:00 PM	10/12	12:00 PM	10/14	42	2	511	3,811	7.5	98	577	5.9	–	–	–
18	6:00 PM	10/15	12:00 PM	10/17	42	2	871	6,442	7.4	155	902	5.8	–	–	–
19	6:00 PM	10/19	12:00 PM	10/21	42	2	703	5,232	7.4	315	1,870	5.9	–	–	–
20	6:00 PM	10/22	12:00 PM	10/24	42	2	953	6,928	7.3	171	964	5.6	–	–	–
21	6:00 PM	10/26	12:00 PM	10/28	42	1	384	2,792	7.3	85	479	5.6	–	–	–
22	6:00 PM	10/29	12:00 PM	10/31	42	0							–	–	–
District 6 subtotal:					924	3	16,698	123,678	7.4	4,314	25,203	5.8	0	0	0
Upper Yukon Area, fall season, Districts 4, 5, and 6 subtotals:					3,681	10	18,190	133,646	7.3	4,314	25,203	5.8	2	0	0
Yukon Area, fall season, Districts 1 through 6 total:					3,979	458	387,788	2,855,864	7.4	110,590	703,319	6.4	150	1	17

Note: No commercial fishing occurred in District 3 and Subdistricts 4-B, 4-C, 5-A, and 5-D. En dashes indicate no data.

[a] Chinook salmon caught but not sold during fall season are added in summer season harvest.

Table 10.–Preliminary subsistence and personal use salmon harvest estimates, including commercially related and test fish harvests provided for subsistence use, and related information, Yukon Area, 2018.

Community	Number of fishing households[b]	Number of dogs[c]	Estimated harvest				Primary gear used[a]			
			Chinook	Summer chum	Fall chum	Coho	Set gillnet	Drift gillnet	Fish wheels	Other
Hooper Bay	108	272	456	8,332	158	117	107	1	0	0
Scammon Bay	89	134	661	7,019	367	754	84	5	0	0
Coastal District total	197	406	1,117	15,351	525	871	191	6	0	0
Nunam Iqua	19	54	78	1,549	188	184	14	3	0	3
Alakanuk[c]	70	157	424	5,632	520	188	23	45	0	2
Emmonak[c]	85	252	1,211	7,094	2,213	330	12	73	0	0
Kotlik[c]	84	184	1,556	7,007	759	264	42	43	0	0
District 1 subtotal	258	647	3,269	21,282	3,680	966	91	164	0	5
Mountain Village[c]	89	179	1,030	5,347	875	270	7	81	0	0
Pitkas Point	19	45	365	1,390	112	54	0	19	0	0
St. Mary's	101	129	1,180	4,586	475	37	0	97	0	4
Pilot Station[c]	68	151	659	4,401	1,127	122	2	66	0	0
Marshall	72	184	914	3,311	415	112	3	69	0	0
District 2 subtotal	349	688	4,148	19,035	3,004	595	12	332	0	4
Russian Mission	60	152	1,043	2,245	349	123	28	32	0	0
Holy Cross	28	76	562	303	174	23	3	24	0	0
Shageluk	13	58	198	506	183	8	11	2	0	0
District 3 subtotal	101	286	1,803	3,054	706	154	42	58	0	0
Lower Yukon River total	708	2,027	9,220	43,371	7,390	1,715	145	554	0	9
Anvik	21	49	566	437	500	15	5	15	0	0
Grayling[c]	38	91	911	792	774	0	1	37	0	0
Kaltag[c]	22	51	570	25	66	34	0	19	0	3
Nulato [c]	60	127	1,282	248	882	223	0	59	1	0
Koyukuk	29	74	864	150	301	24	4	25	0	0
Galena	72	163	1,254	303	1,393	216	17	56	0	0
Ruby	22	54	1,137	993	842	26	0	21	1	0
District 4 Yukon River subtotal	264	609	6,584	2,948	4,758	538	27	232	2	3
Huslia/ Hughes	22	344	150	3,726	659	980	19	3	0	0
Allakaket/Alatna/Bettles	24	200	49	4,820	362	27	22	3	0	0
Koyukuk River subtotal	46	544	199	8,546	1,021	1,007	41	6	0	0
District 4 subtotal	310	1,153	6,783	11,494	5,779	1,545	68	238	2	3

-continued-

Table 10.–Page 2 of 2.

Community	Number of fishing households[b]	Number of dogs[c]	Estimated harvest				Primary gear used[a]			
			Chinook	Summer chum	Fall chum	Coho	Set gillnet	Drift gillnet	Fish wheels	Other
Tanana	45	269	5,253	5,892	17,451	1,343	19	0	26	0
Rampart/Stevens Village[d]	11	114	178	2	1,417	0	10	0	1	0
Fairbanks (FNSB)[d,e]	59	181	1,342	395	2,023	0	58	0	1	0
Beaver	21	24	328	8	142	0	14	0	7	0
Fort Yukon/Birch Creek	62	373	4,547	0	3,105	0	24	0	34	5
Circle/Central[d]	9	112	575	0	1,278	0	4	0	5	0
Eagle[c,e,d]	25	225	1,007	0	16,807	0	16	0	9	0
Other District 5[d,f]	16	9	404	34	124	0	15	0	1	0
District 5 Yukon River subtotal	248	1,307	13,634	6,331	42,347	1,343	160	0	84	5
Venetie/Chalkyitsik	21	235	443	114	2,544	0	19	0	1	0
Teedriinjik/Draanjik rivers subtotal	21	235	443	114	2,544	0	19	0	1	0
District 5 subtotal	269	1,542	14,077	6,445	44,891	1,343	179	0	85	5
Manley[d]	6	30	190	70	2,365	0	5	0	1	0
Nenana/Healy	15	148	323	108	2,779	0	12	0	3	0
Fairbanks (FNSB)[d,e]	65	261	242	577	1,279	53	64	0	1	0
Other District 6[d,g]	10	156	61	19	0	0	10	0	0	0
District 6 Tanana River subtotal	96	595	816	774	6,423	53	91	0	5	0
Upper Yukon River total	675	3,290	21,676	18,713	57,093	2,941	338	238	92	8
Alaska, Yukon Area total	1,580	5,317	32,013	77,435	65,008	5,527	674	798	92	17
AK, Yukon Area percentages of the total		–	18%	43%	36%	3%	43%	50%	6%	1%
Included in the communities above:										
Survey community subtotal	1,373	4,198	26,741	72,575	35,254	5,046	488	798	71	17
Retained from commercial fisheries[h]	–	–	1,456	533	248	75	–	–	–	–
Subsistence permit subtotal	153	931	3,606	694	26,392	0	132	0	21	0
Test fishery subtotal	–	–	1,322	3,657	2,734	428	–	–	–	–
District 6 commercial retained[i]	–	–	143	0	114	53	–	–	–	–
Subsistence harvests subtotal	1,526	5,129	31,812	76,926	64,494	5,527	620	798	92	17

Source: Padilla, A. J., S. K. S. Decker, and T. Hamazaki. Unpublished draft. Subsistence and personal use salmon harvests in the Alaska portion of the Yukon River drainage, 2018. Alaska Department of Fish and Game, Anchorage. (data preliminary until published).

[a] Primary gear is the gear type used to harvest the largest number of salmon by each household. Other gear types included dip nets, fyke nets, jigging, spears, and beach seines. Discrepancies between gear and household totals are due to rounding.

[b] Does not include 41 households that fished with a Tolovana River pike permit, or 15 households that fished in more than one permit area.

[c] Includes salmon distributed from test fishery projects (added to community harvest).

[d] Permit data from permits returned by December 5, 2018.

[e] Fairbanks (FNSB) North Star Borough includes Fairbanks, Ester, North Pole, Salcha, and Two Rivers.

[f] "Other District 5" includes residents of Anchorage, Auke Bay, Eagle River, Manley, Minto, Nenana, Northway, Palmer, Tok, Venetie, Wasilla, and Wiseman who obtained a household permit and fished in a Yukon River required permit area.

[g] "Other District 6" includes residents of Anchorage, Homer, Minto, Sutton, and the Upper Tanana River drainage communities of Northway, and Tok who obtained a permit and fished in the Tanana River.

[h] Estimated number of salmon retained from commercial fisheries and used for subsistence in surveyed communities. These salmon are included in subsistence harvest estimates. Households from the Coastal District, and Districts 1–3 and 5 reported salmon retention from commercial periods.

[i] Number of salmon retained from commercial fisheries and used for subsistence in District 6. These salmon were added to permit harvest totals from District 6 communities.

Table 11.–Summary of 2018 salmon escapement counts compared to existing goals.

Stock/location	Assessment method	Goal type	Goals	2018 Escapement
Chinook salmon stock				
E. Fork Andreafsky	Weir	SEG	2,100–4,900	4,114
W. Fork Andreafsky	Aerial survey	SEG	640–1,600	455
Anvik	Aerial survey	SEG	1,100–1,700	1,109
Nulato (Forks combined)	Aerial survey	SEG	940–1900	870
Gisasa	Weir	none	–	[a]
Henshaw	Weir	none	–	[b]
Chena	Tower/sonar	BEG	2,800–5,700	5,947[c]
Salcha	Tower/sonar	BEG	3,300–6,500	5,021[c]
Goodpaster	Tower	none	–	2,480
Canadian (Upper Yukon River)	Sonar-harvest	IMEG	42,500–55,000	54,474
Summer chum salmon stock				
Yukon drainagewide	Sonar	BEG	500,000–1,200,000	1,468,759[d]
E. Fork Andreafsky	Weir	BEG	>40,000	36,330
Anvik	Sonar	BEG	350,000–700,000	305,098
Gisasa	Weir	none	–	[a]
Henshaw	Weir	none	–	[b]
Chena	Tower/sonar	none	–	13,084[e]
Salcha	Tower/sonar	none	–	39,996[e]
Fall chum salmon stock				
Yukon drainagewide	Bayesian	SEG	300,000–600,000	642,600
Teedriinjik (Chandalar)	Sonar	BEG	74,000–152,000	170,356
Tanana	MSA	BEG	61,000–136,000	260,533
Delta	Ground surveys	BEG	6,000–13,000	39,641
Fishing Branch	Weir/sonar	IMEG	22,000–49,000	10,151
Canadian Upper Yukon River	Sonar-harvest	IMEG	70,000–104,000	154,128
Coho salmon stock				
Delta Clearwater River	Boat survey	SEG	5,200–17,000	2,884

Note: Biological escapement goal = BEG, sustainable escapement goal = SEG, and interim management escapement goal = IMEG; en dashes = not applicable because no escapement goal set.

[a] No count. Weir did not operate due to lack of funding.

[b] No count. High water prevented operation of weir.

[c] Visual and sonar counts were combined for missed days to derive a preliminary estimate.

[d] Drainagewide escapement based on mainstem Yukon River sonar near Pilot Station and Andreafsky River escapements minus harvest estimates above the sonar site.

[e] Due to high water events during the season and terminating the project earlier than normal, the passage estimate is considered incomplete.

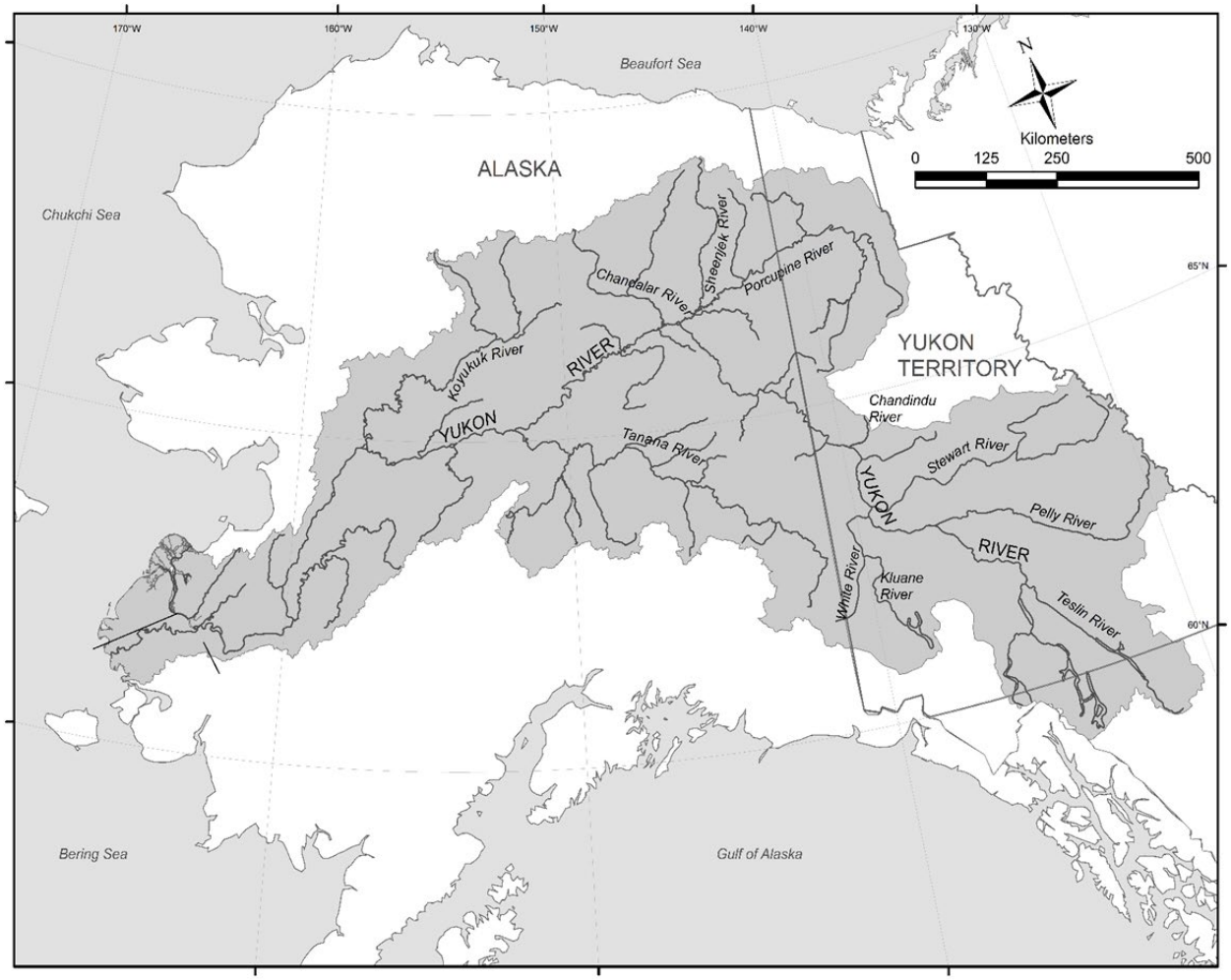

Figure 1.–Map of the Yukon River drainage.

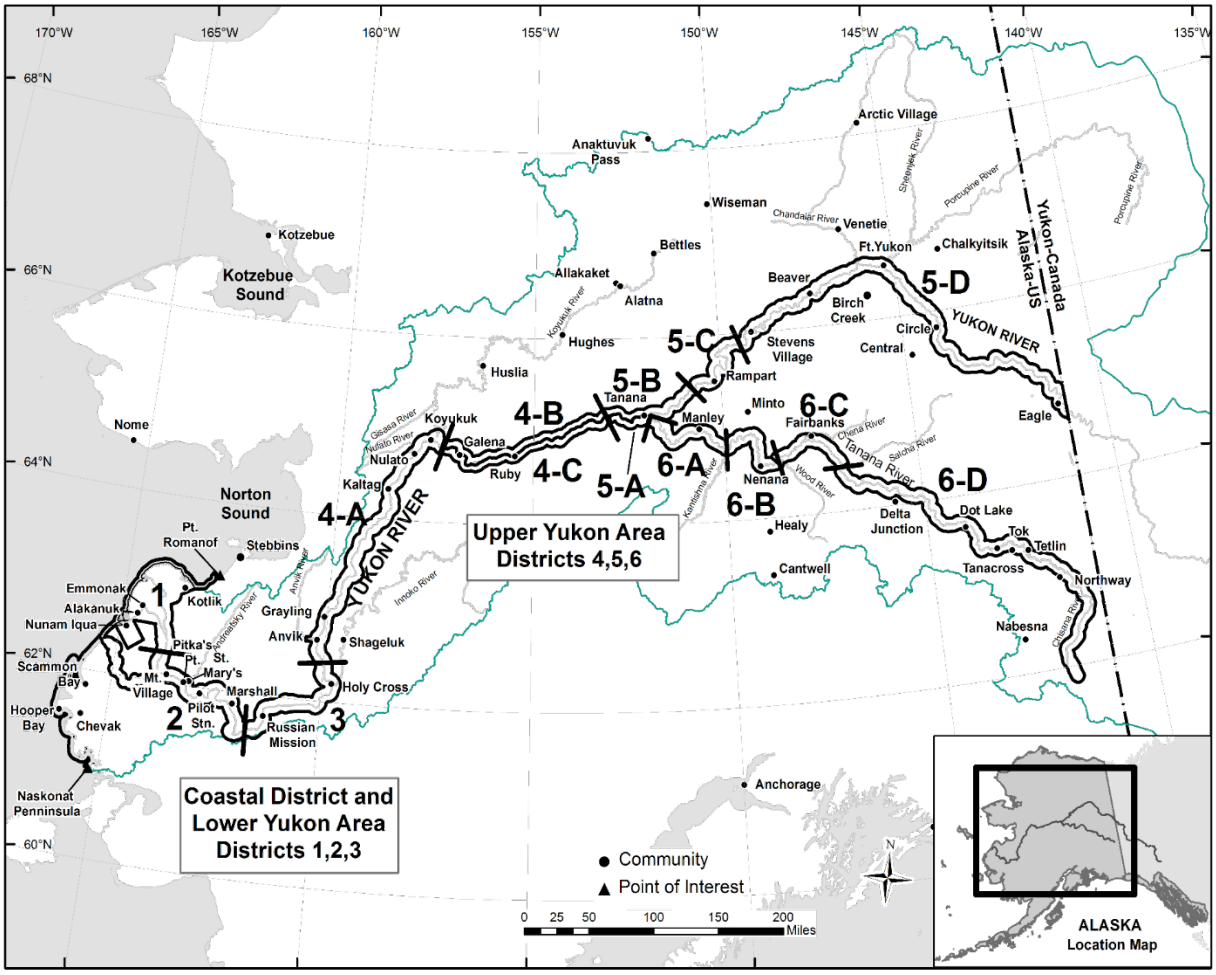

Figure 2.–Map of the Alaska portion of the Yukon River drainage showing communities and fishing districts.

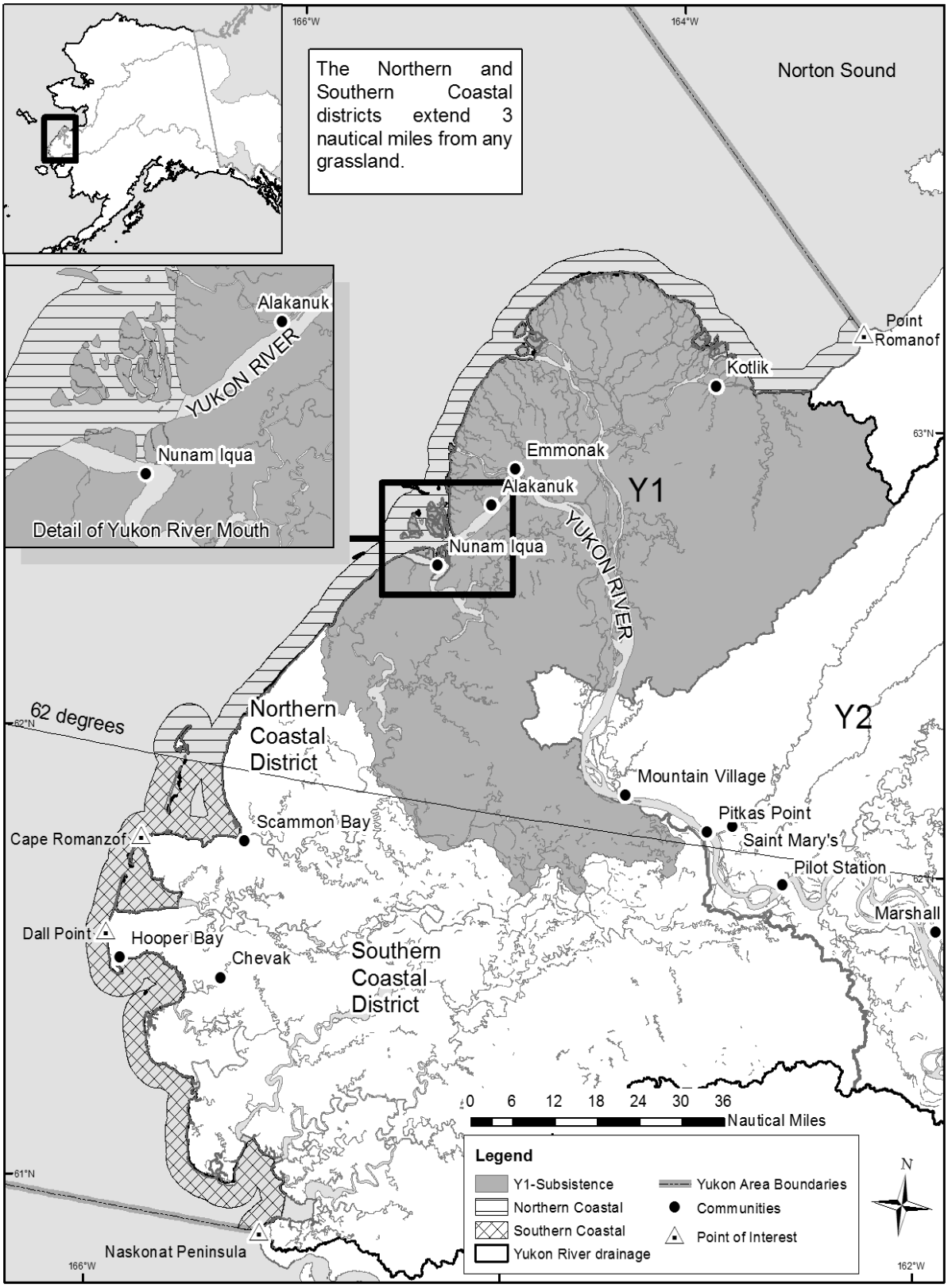

Figure 3.–Coastal District and District 1, Yukon Area.

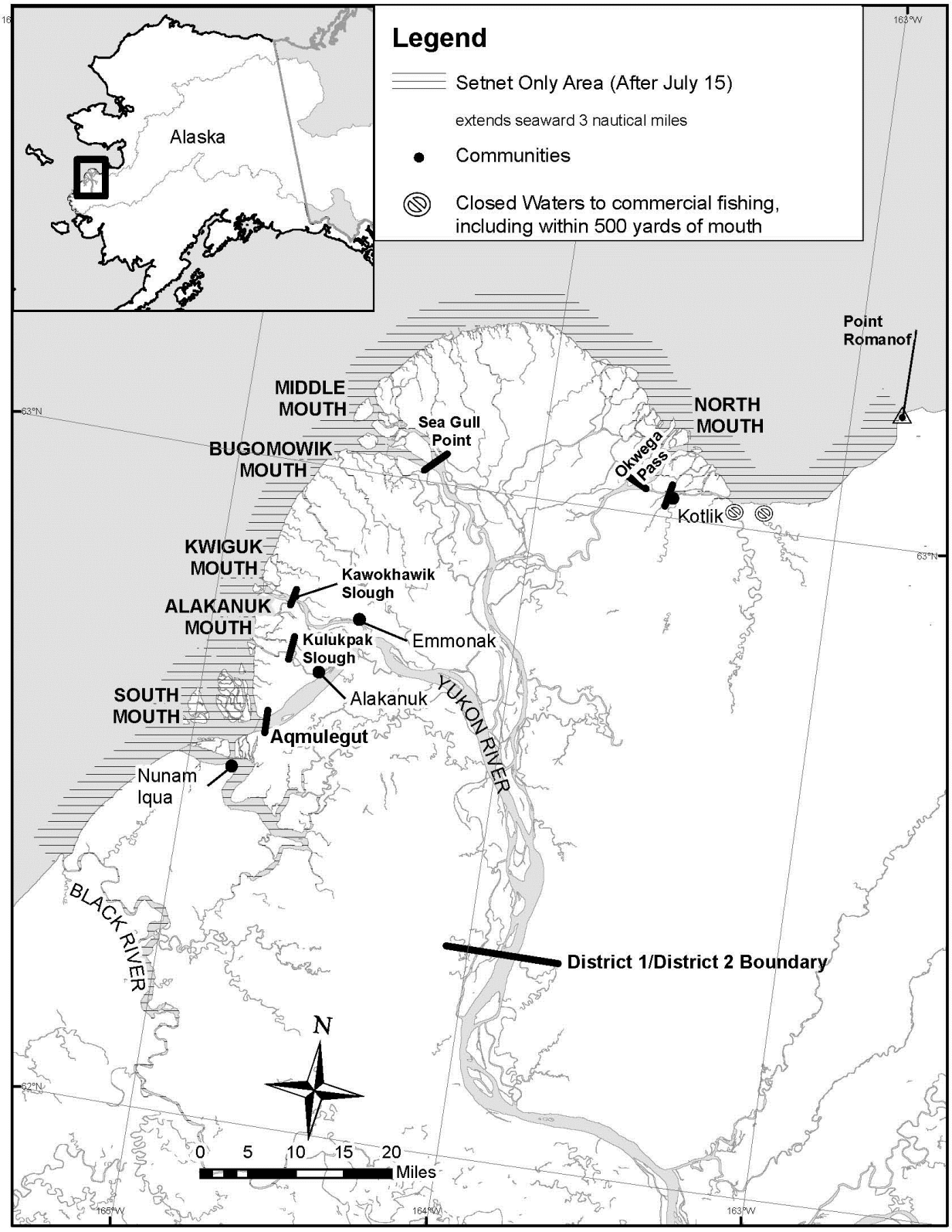

Figure 4.–Set Gillnet Only Area of District 1, Yukon Area.

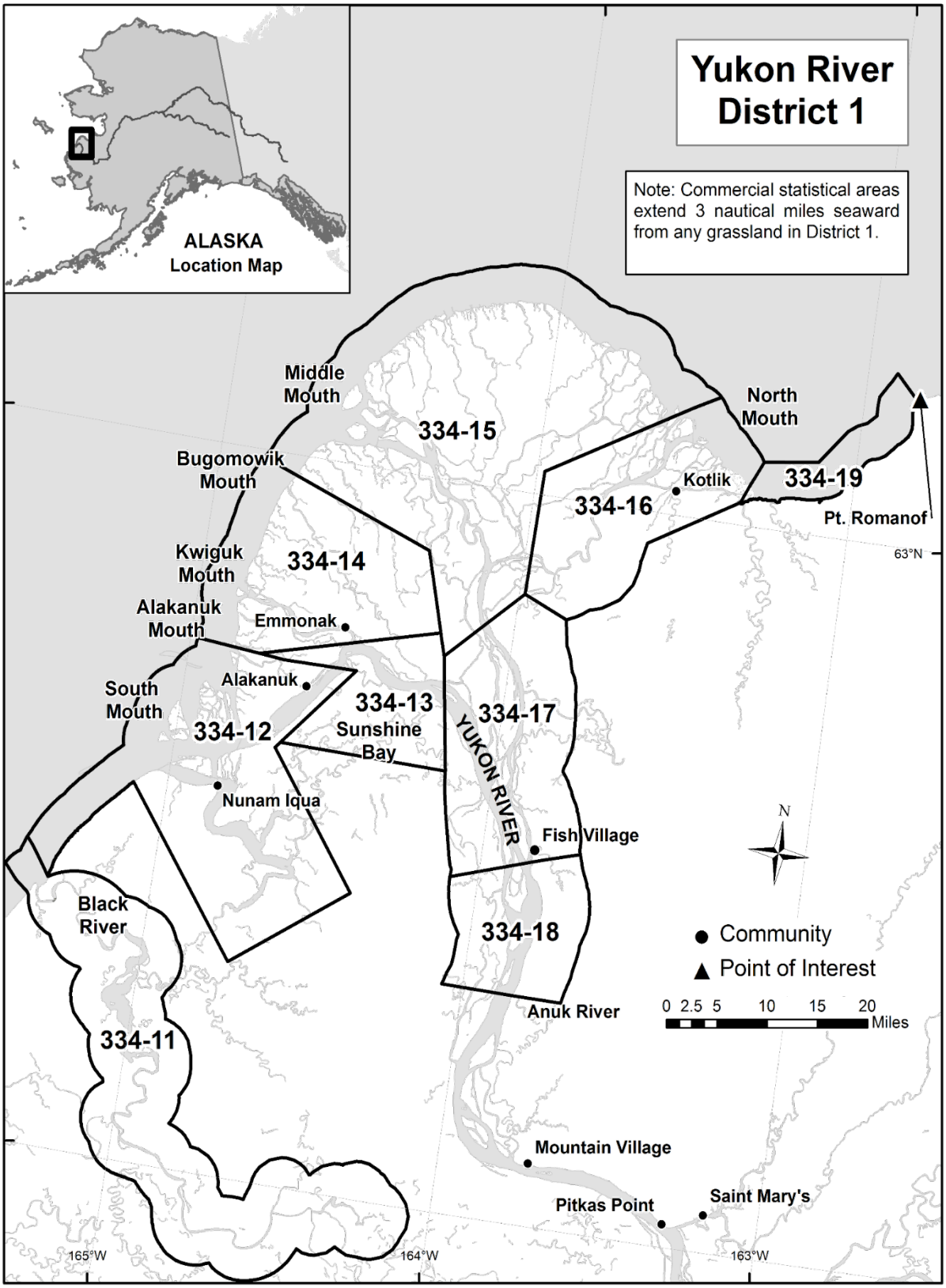

Figure 5.–District 1 showing statistical areas, Yukon Area.

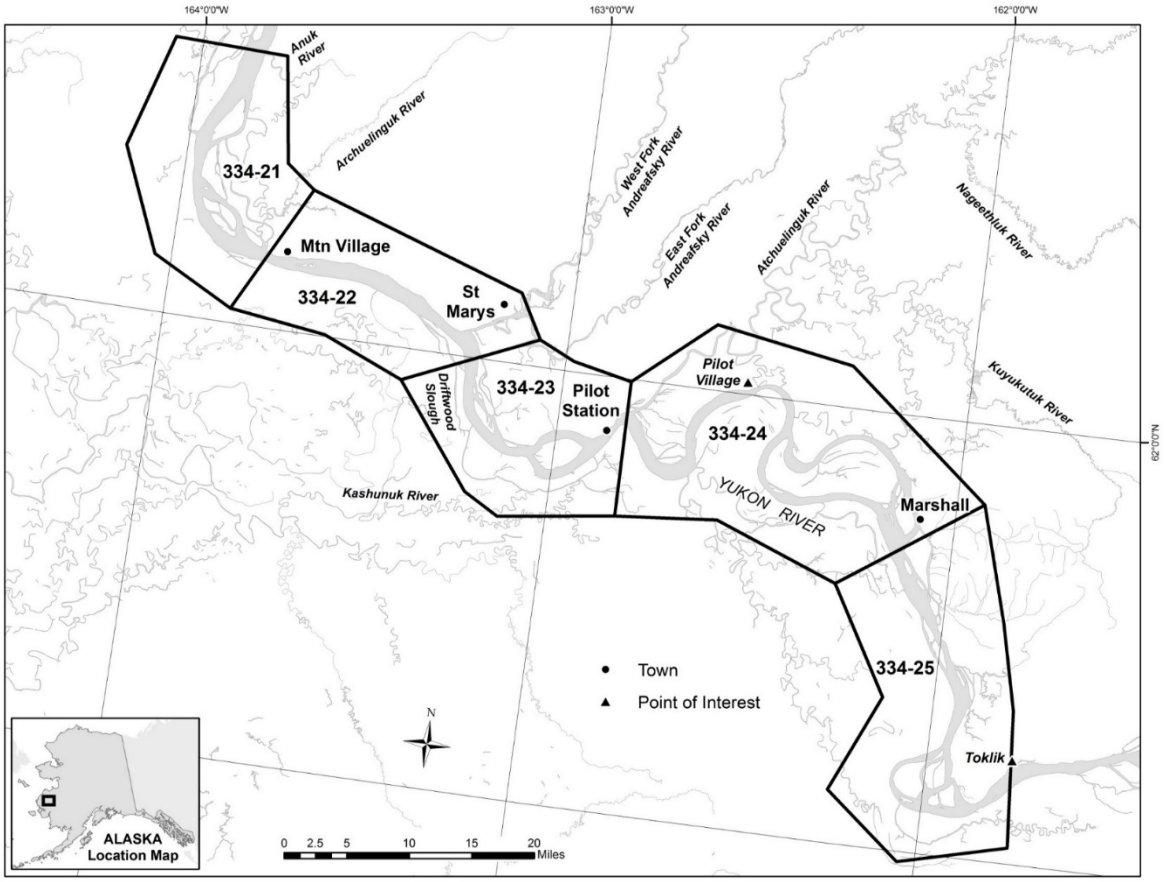

Figure 6.–District 2 showing statistical areas, Yukon Area.

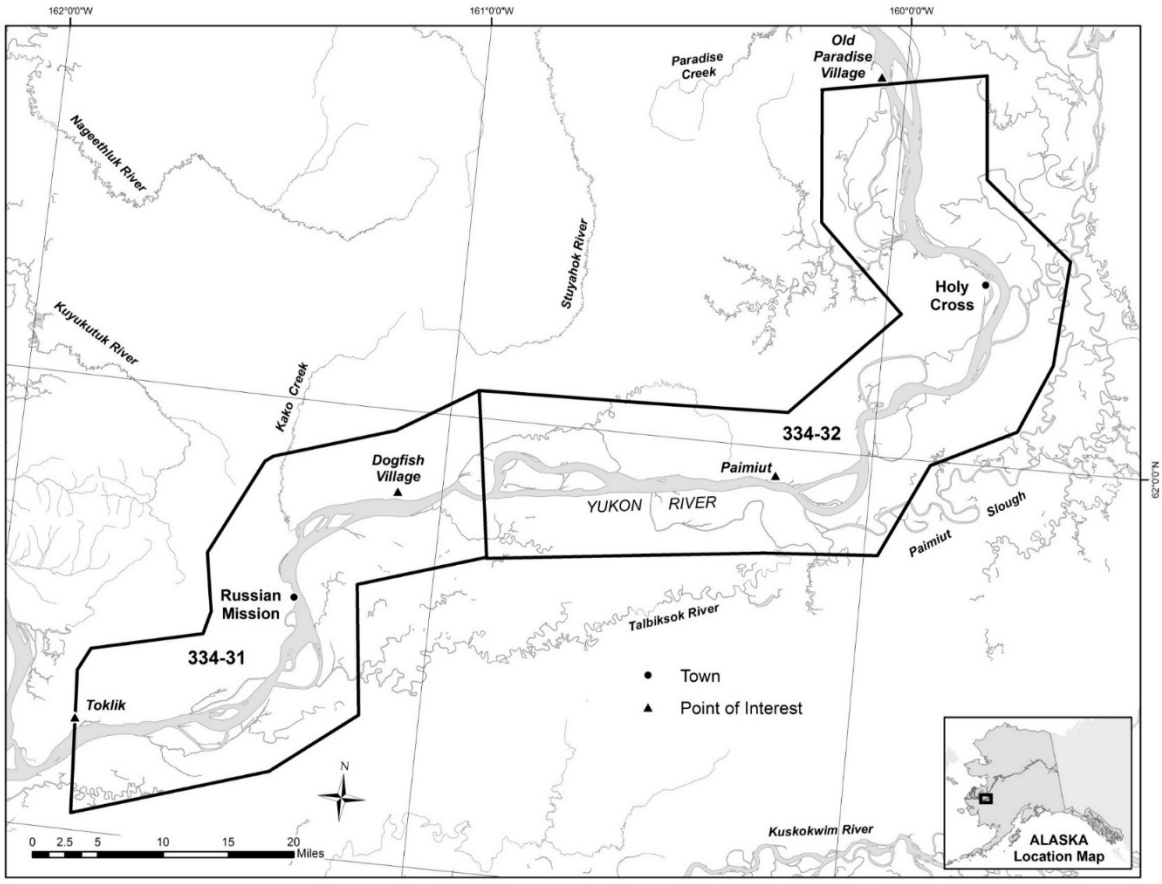

Figure 7.–District 3 showing statistical areas, Yukon Area.

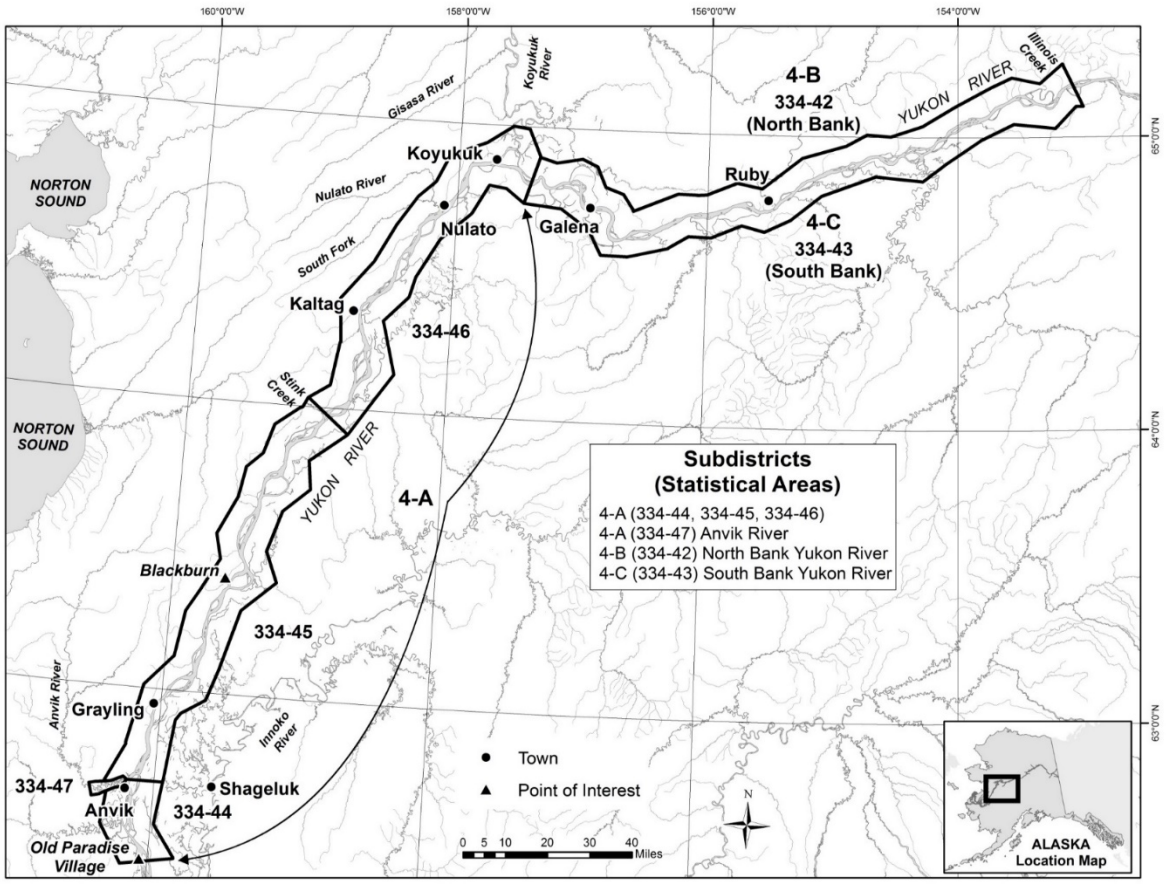

Figure 8.–District 4 showing statistical areas, Yukon Area.

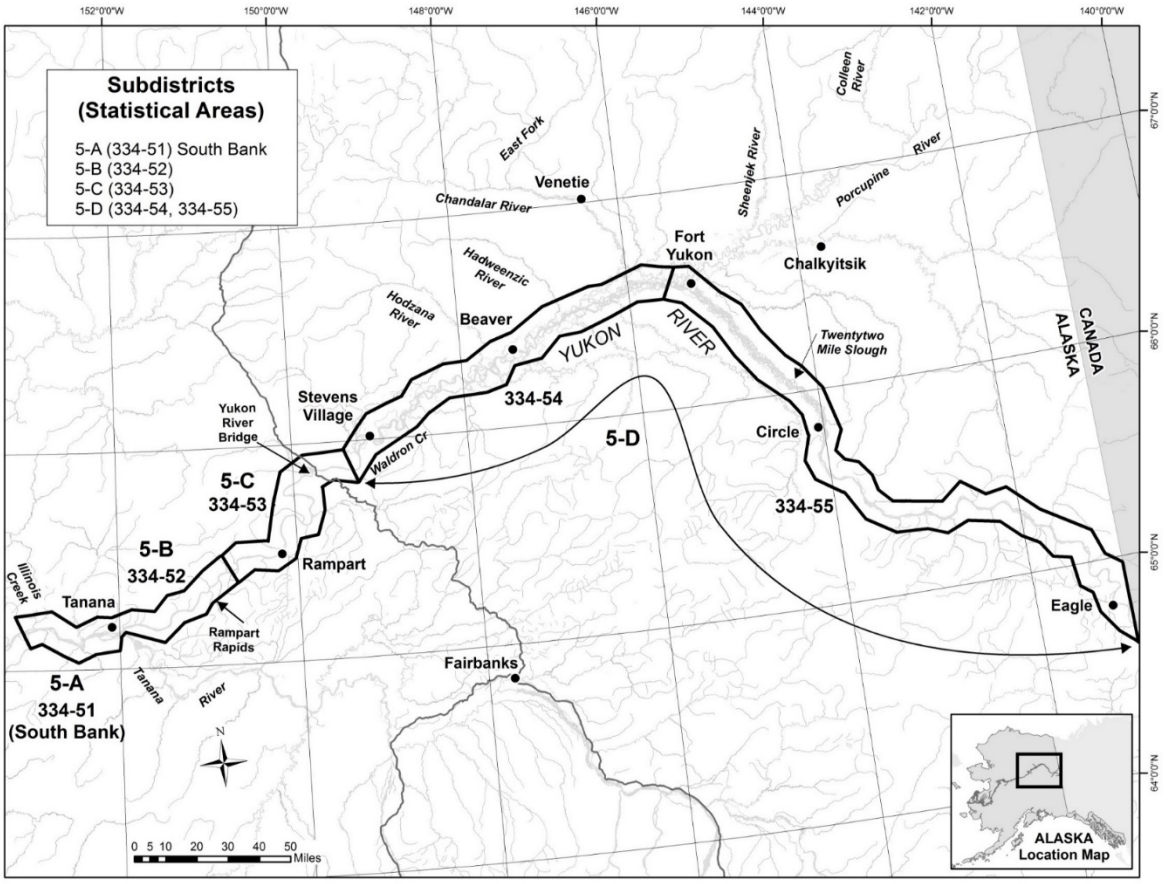

Figure 9.–District 5 showing statistical areas, Yukon Area.

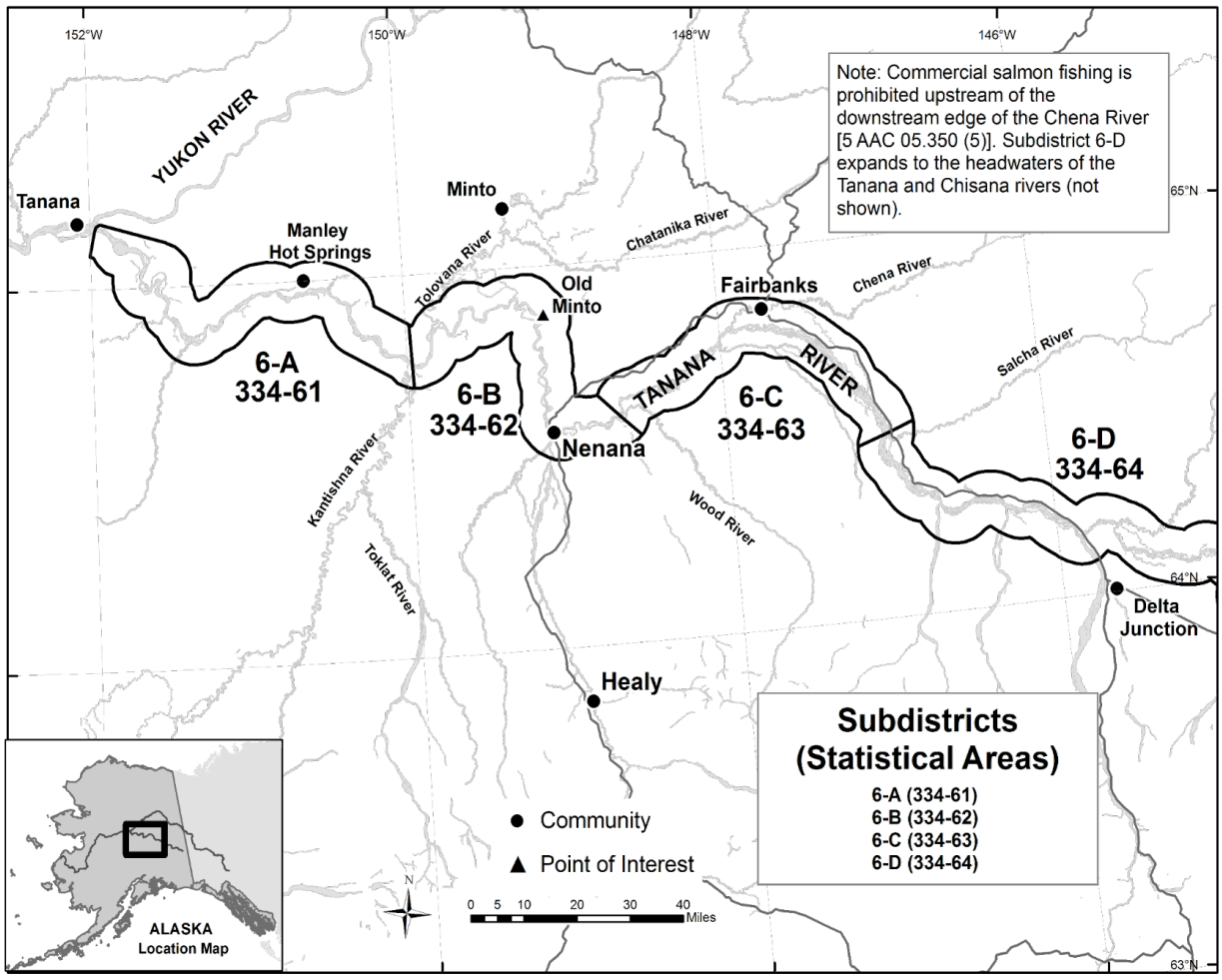

Figure 10.–District 6 showing statistical areas, Yukon Area.

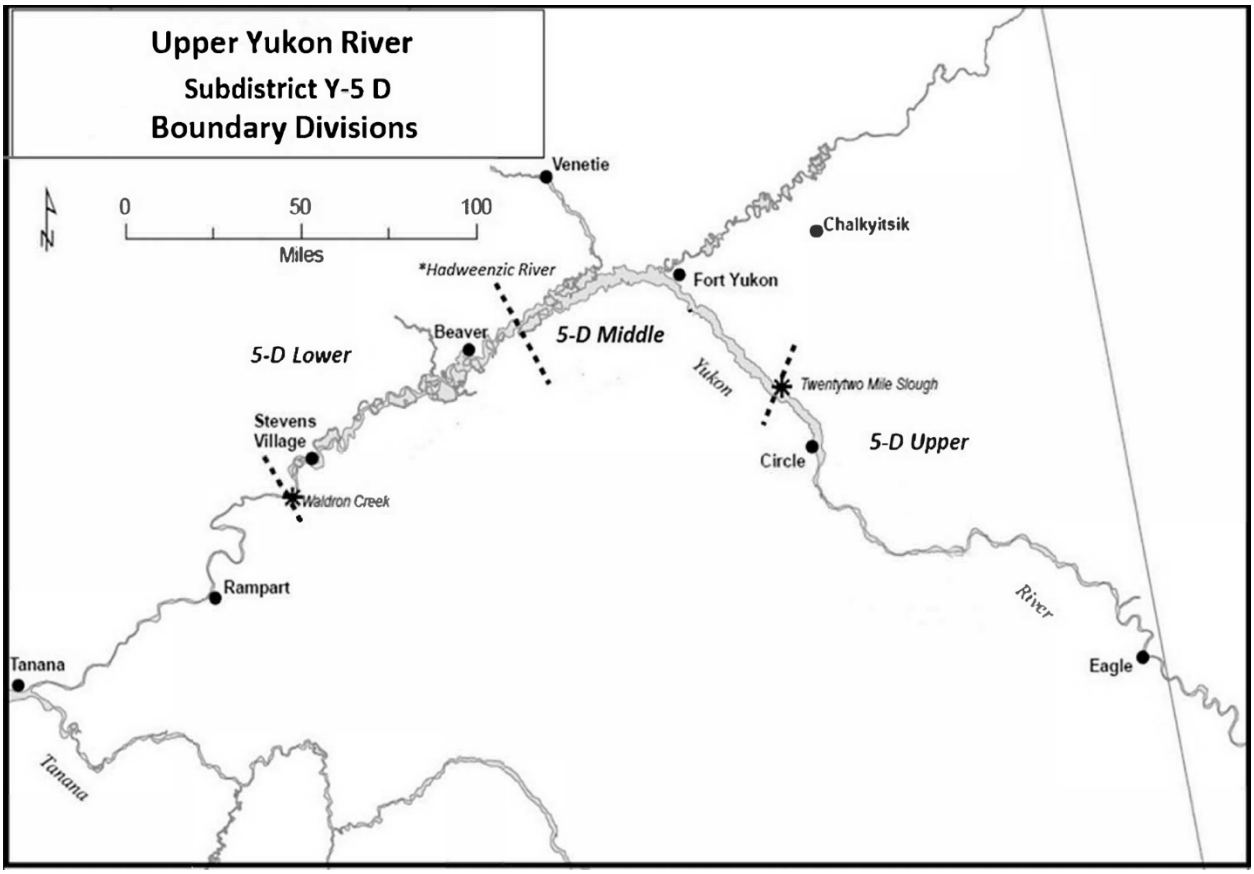

Figure 11.–Subdistrict 5-D boundary divisions, Yukon Area.

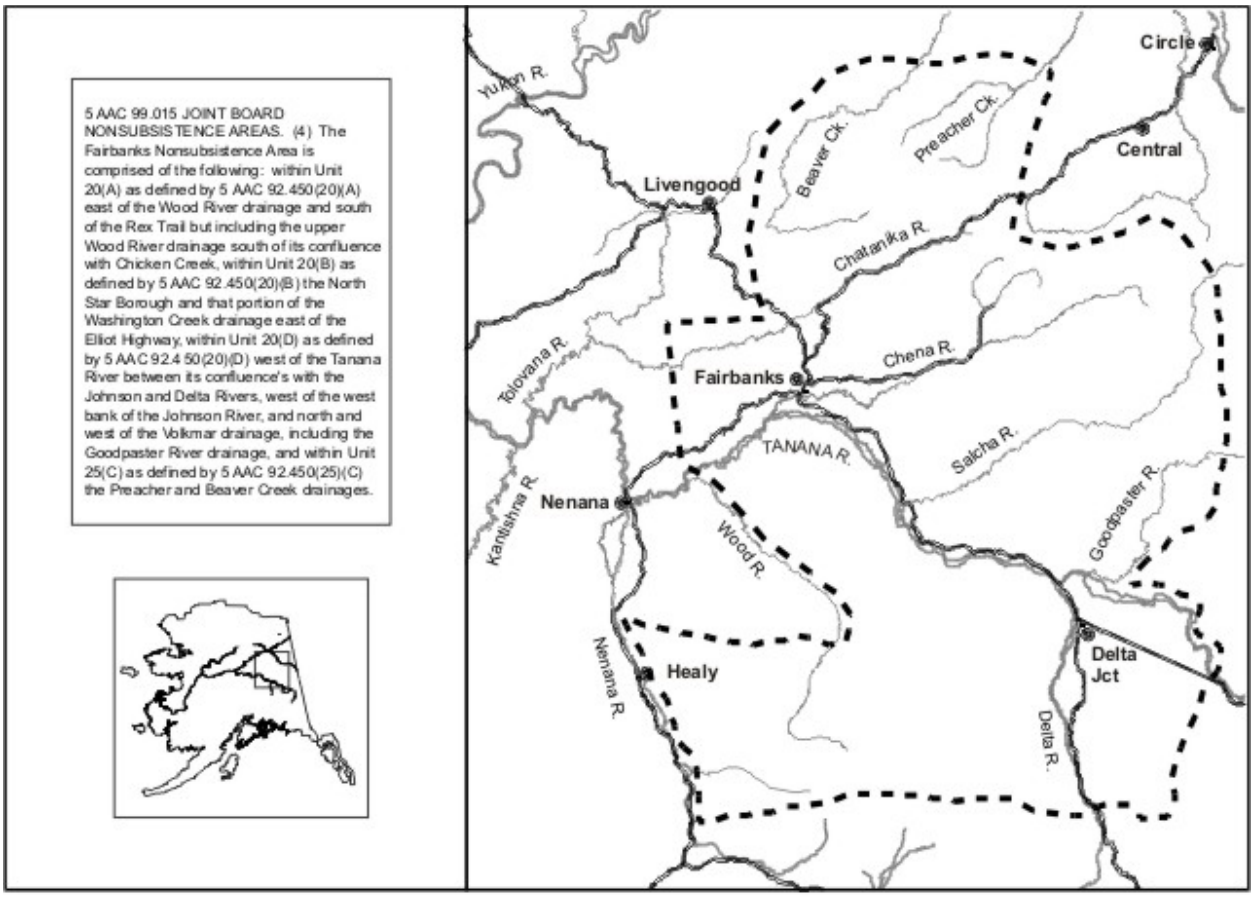

Figure 12.–The Fairbanks Nonsubsistence Area.

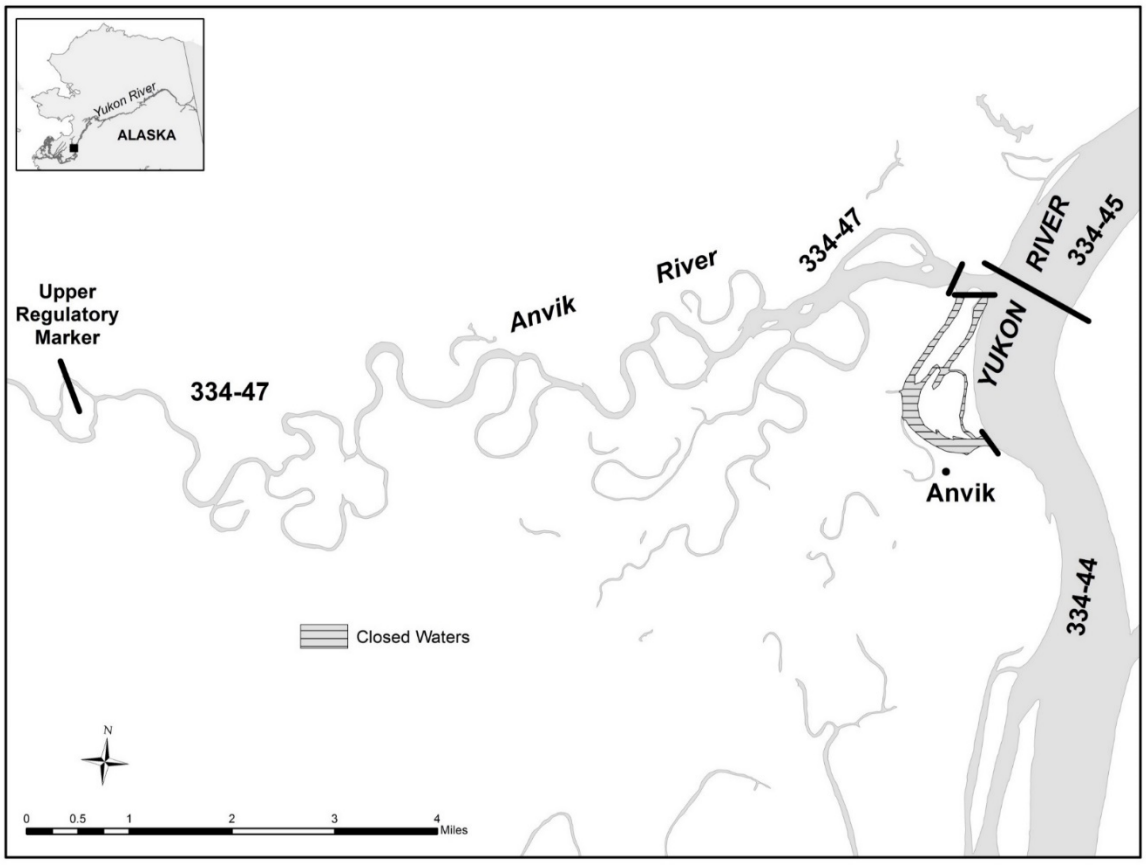

Figure 13.–Anvik River Management Area, Yukon Area.

APPENDIX A:
YUKON RIVER DRAINAGE SALMON

Appendix A1.–List of indigenous fishes found in the Yukon Area.

Species code[a]	Scientific name	Common name
601	*Lampetra camtschatica*	Arctic lamprey
570	*Stenodus leucichthys*	Inconnu (sheefish)
588	*Coregonus nasus*	Broad whitefish
589	*Coregonus pidschian*	Humpback whitefish
583	*Coregonus sardinella*	Least cisco
585	*Coregonus laurettae*	Bering cisco
586	*Prosopium cylindraceum*	Round whitefish
587	*Prosopium coulteri*	Pygmy whitefish
610	*Thymallus arcticus*	Arctic grayling
550	*Salvelinus namaycush*	Lake trout
520	*Salvelinus alpinus*	Arctic char
530	*Salvelinus malma*	Dolly Varden
410	*Oncorhynchus tshawytscha*	Chinook salmon
420	*Oncorhynchus nerka*	Sockeye salmon
430	*Oncorhynchus kisutch*	Coho salmon
440	*Oncorhynchus gorbuscha*	Pink salmon
450	*Oncorhynchus keta*	Chum salmon
513	*Osmerus mordax*	Rainbow smelt
514	*Hypomesus olidus*	Pond smelt
500	*Esox lucius*	Northern pike
630	*Dallia pectoralis*	Alaska blackfish
650	*Couesius plumbeus*	Lake chub
640	*Catostomus catostomus*	Longnose sucker
670	*Percopsis omiscomaycus*	Trout perch
590	*Lota lota*	Burbot (lush)
661	*Pungitius pungitius*	Ninespine stickleback
162	*Cottus cognatus*	Slimy sculpin
ESTUARINE		
113	*Eleginus gracilis*	Saffron cod
122	*Liopsetta glacialis*	Arctic flounder
127	*Limanda aspera*	Yellowfin sole
129	*Platichthys stellatus*	Starry flounder
192	*Hexagrammos stelleri*	Whitespotted greenling
230	*Clupea pallasii*	Pacific herring
516	*Mallotus villosus*	Capelin
NA	*Megalocottus platycephalus*	Belligerent sculpin

Note: Includes fishes found in the Yukon River drainage in Canada.

[a] Species code is a 3-digit number that identifies the species of fish caught on harvest fish tickets.

Appendix A2.–Yukon River drainage mileages.

Location	Mileage from mouth
NORTH MOUTH (APOON PASS)	
Kotlik	6
Hamilton	26
MIDDLE MOUTH (KWIKPAK, KAWANAK PASS)	
Choolunawick	16
Akers Camp	26
New Hamilton	34
SOUTH MOUTH (KWIKLUAK PASS)	
Mouth, Black River	-18
Flat Island	0
Sheldon Point	5
Tin Can Point	8
Alakanuk	17
Emmonak-Kwiguk (Kwiguk Pass)	24
Sunshine Bay	24
Aproka Pass (upstream mouth)	35
Kwikpak Pass (upstream mouth)	44
Head of Passes	48
Fish Village	52
Mouth, Anuk River	63
(District 1/2 Boundary)	
Patsy's Cabin	71
Mountain Village	87
Old Andreafsky	97
Pitkas Point	103
Mouth, Andreafsky River	104
St. Mary's	107
Pilot Station	122
Mouth, Atcheulinguk (Chulinak) River	126
Pilot Village	138
Marshall (Fortuna Ledge)	161
Upstream Mouth Owl Slough	163
Ingrihak	170
Ohogamuit	185
Toklik	191
(District 2/3 Boundary)	
Kakamut	193
Russian Mission	213
Dogfish Village	227
Paimuit	251
Mouth, Innoko River (South Slough)	274
Shageluk	328
Holikachuk	383
Holy Cross	279
Mouth, Koserefski River	286
Old Paradise Village	301
(District 3/4 Boundary)	
Mouth, Bonasila River	306
Anvik	317
Mouth, Anvik River	318
Grayling	336
Mouth, Thompson Creek	349
Blackburn	370
Eagle Slide	402
Mouth, Rodo River	447
Kaltag	450
Mouth, Nulato River	483
Nulato	484
Koyukuk	502
Mouth, Koyukuk River	508
Mouth, Gisasa River	564
Huslia	711
Mouth, Dakli River	755
Mouth, Hogatza River	780
Hughes	881
Mouth, Kanuti River	935
Alatna (Mouth, Alatna River)	956
Allakaket	956
Mouth, South Fork	986
Mouth, John River	1,117
Bettles	1,121
Middle Fork	1,141
Cold Foot	1,174
Wiseman	1,186
Bishop Rock	514
Prospect Point	519
Galena	530
Whiskey Creek	555
Mouth, Yuki River	562
Ruby	581
Mouth, Melozitna River	583
Horner Hot Springs	605
Kokrines	608
Mouth, Nowitna River	612
Birches	647
Kallands-Mouth of Illinois Creek	664

-continued-

Location	Mileage from mouth
(District 4/5 Boundary)	
Mouth, Tozitna River	681
Tanana Village	695
Mouth, Tanana River	695
(District 5/6 Boundary)	
Manley Hot Springs	765
Mouth, Kantishna River	793
Mouth, Toklat River	838
Mouth, Sushana River	850
Mouth, Bearpaw River	887
Outlet, L. Minchumina	959
Minto	835
Nenana	860
Mouth, Nenana River	860
Mouth, Wood River	894
Rosie Creek Bluffs	912
Mouth, Chena R. (Fairbanks)	920
Mouth, Salcha River	965
Benchmark #735 Slough	991
Mouth, Little Delta River	1,000
Mouth, Delta Creek	1,014
Mouth, Clear Creek	1,015
(Richardson-Clearwater)	
Mouth, Shaw Creek	1,021
Mouth, Delta River	1,031
(Big Delta)	
Delta Junction	1,041
Mouth, Goodpaster River	1,049
Bluff Cabin Slough	1,050
Outlet, Clearwater Lake	1,052
Outlet, Clearwater Creek	1,053
(Delta Clearwater)	
Mouth, Gerstle River	1,059
Outlet, Healy Lake	1,071
Outlet, Lake George	1,086
Tanacross	1,128
Outlet, Tetlin Lake	1,188
Mouth, Nabesna River	1,210
Northway Junction	1,214
Mouth, Chisana River	1,215
Mouth, Sheep Creek	1,297
Rampart Rapids	731
Rampart	763
Mouth, Hess Creek	789
Mouth, Ray River	817
Highway Bridge -	820
Pipeline Crossing	
Mouth, Dall River	841
Stevens Village	847
Mouth, Hodzana River	897
Beaver	932
Mouth Hadweenzic River	952
Mouth, Chandalar River	
(Venetie Landing)	982
Venetie	1,025
Fort Yukon	1,002
Mouth, Porcupine River	1,002
Mouth, Black River	1,026
Chalkyitsik	1,084
Mouth, Salmon Fork River	1,142
Mouth, Sheenjek River	1,054
Mouth, Coleen River	1,157
Mouth, Salmon Trout River	1,193
U.S.–Canadian Border	1,219
Old Crow	1,259
Fishing Branch River	1,600
spawning area	
Circle	1,061
Woodchopper	1,110
Mouth, Charley River	1,124
Mouth, Kandik River	1,135
Mouth, Nation River	1,166
Mouth, Tatonduk River	1,186
Mouth, Seventymile River	1,194
Eagle	1,213
U.S.–Canadian border	1,224
Mouth, Fortymile River	1,269
Dawson	1,319
Mouth, Klondike River	1,320
Mouth, Sixty Mile River	1,369
Mouth, Stewart River	1,375
McQuesten	1,455
Stewart Crossing	1,491
Mayo	1,520
Mouth, Hess River	1,594
Mouth, White River	1,386
Mouth, Donjek River	1,455
Mouth Kluane River	1,541
Outlet Kluane L.	1,587
Burwash Landing	1,595
Kluane	1,625
Fort Selkirk	1,477
Mouth, Pelly River	1,478
Pelly Crossing	1,510
Mouth, MacMillan River	1,542
Ross River	1,602
Minto	1,499
Mouth Tatchun Creek	1,530
Carmacks	1,547
Mouth, Little Salmon River	1,583
Mouth, Big Salmon River	1,621
Mouth, N. Big Salmon River	1,641
Mouth, S. Big Salmon River	1,657
Outlet, Big Salmon Lake	1,714
Mouth, Teslin River	1,654
Roaring Bull Rapids	1,707
Johnson's Crossing	
(Outlet, Teslin L.)	1,756
Teslin	1,780

-continued-

Location	Mileage from mouth
Mouth Nisutlin River	1,788
Mouth, Sidney Creek	1,837
Mouth, Hundred Mi. Creek	1,851
Mouth, NcNeil River	1,887
Outlet, Nisutlin Lake	1,892
Outlet, Lake Laberge	1,679
Inlet, Lake Laberge	1,712
Mouth, Takhini River	1,718
Whitehorse	1,745
Outlet, Marsh Lake	1,764
Mouth, M'Clintock River	1,769
Outlet, Little Atlin L.	1,788
Outlet, Atlin Lake	1,812
Atlin	1,844
Tagish	1,786
Outlet, Tagish Lake	1,788
Carcross	1,810
(Outlet L. Bennett)	
Bennett	1,835

Appendix A3.–Commercial Chinook salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1998–2018.

	Lower Yukon Area [a]			
Year	District 1	District 2	District 3	Subtotal
1998	25,413	16,806	0	42,219
1999	37,161	27,133	538	64,832
2000	4,735	3,783	–	8,518
2001	–	–	–	–
2002	11,089	11,440	–	22,529
2003	22,709	14,220	–	36,929
2004	28,403	24,145	–	52,548
2005	16,694	13,413	–	30,107
2006	23,748	19,843	315	43,906
2007	18,616	13,306	190	32,112
2008	2,530	2,111	–	4,641
2009	90	226	–	316
2010	5,744	4,153	–	9,897
2011 [b]	36[c]	46[c]	–	82
2012 [b]	0	0	–	0
2013 [b]	0	0	–	0
2014 [b]	0	0	–	0
2015 [b]	0	0	–	0
2016 [b]	0	0	–	0
2017	168[c]	0	–	168
2018 [b]	0	0	–	0
2013–2017 Average	34	0	–	34
2008–2017 Average	857	654	–	1,510

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Appendix A3.–Page 2 or 3.

	Upper Yukon Area[d]								
	District 4			District 5			District 6		
Year	Number	Roe	Estimated harvest[e]	Number	Roe	Estimated harvest[e]	Number	Roe	Estimated harvest[e]
1998	–	–	–	517	0	517	882	260	963
1999	1,437	0	1,437	2,604	0	2,604	402	1,096	689
2000	0	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	771	0	771	836	896	1,066
2003	562	0	562	1,134	0	1,134	1,813	0	1,813
2004	–	–	–	1,546	0	1,546	2,057	0	2,057
2005	–	–	–	1,469	0	1,469	453	0	453
2006	–	–	–	1,839	0	1,839	84	0	84
2007	0	0	0	1,241	0	1,241	281	0	281
2008	0	0	0	–	–	–	0	0	0
2009	0	0	0	–	–	–	0	0	0
2010	0	0	0	–	–	–	0	0	0
2011	–	–	–	–	–	–	0	0	0
2012	0	0	0	–	–	–	0	0	0
2013	0	0	0	–	–	–	0	0	0
2014	0	0	0	–	–	–	0	0	0
2015	0	0	0	–	–	–	0	0	0
2016	–	–	–	–	–	–	0	0	0
2017	–	–	–	–	–	–	0	0	0
2018	0	0	0	–	–	–	0	0	0
2013–2017 Average	0	0	0	–	–	–	0	0	0
2008–2017 Average	0	0	0	–	–	–	0	0	0

-continued-

	Upper Yukon Area subtotal					
Year	Number	Roe	Estimated harvest[e]	Alaska harvest	Canada harvest	Yukon River
1998	1,399	260	1,480	43,699	390	44,089
1999	4,443	1,096	4,730	69,562	3,160	72,722
2000	–	–	–	8,518	–	8,518
2001	–	–	–	–	1,351	1,351
2002	1,607	896	1,837	24,366	708	25,074
2003	3,509	0	3,509	40,438	2,672	43,110
2004	3,603	0	3,603	56,151	3,785	59,936
2005	1,922	0	1,922	32,029	4,066	36,095
2006	1,923	0	1,923	45,829	2,332	48,161
2007	1,522	0	1,522	33,634	–	33,634
2008	0	0	0	4,641	1	4,642
2009	0	0	0	316	364	680
2010	0	0	0	9,897	0	9,897
2011	0	0	0	82	4	86
2012	0	0	0	0	0	0
2013	0	0	0	0	2	2
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	1	1
2017	0	0	0	168	0	168
2018	0	0	0	0	1	1
2013–2017 Average	0	0	0	34	1	34
2008–2017 Average	0	0	0	1,510	37	1,548

Note: En dashes indicate no commercial fishing activity occurred.

[a] All fish sold in the round.

[b] In an effort to conserve Chinook salmon, commercial sales were prohibited during the summer season. Commercial sales were prohibited during the fall season from 2012–2016 and 2018.

[c] Commercial sales were prohibited during the summer season. Chinook salmon sold during fall season.

[d] Harvest reported in numbers of fish sold in the round and pounds of roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe. These data do not include department test fish sales.

[e] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

Appendix A4.–Commercial summer chum salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1998–2018.

	Lower Yukon Area			
Year	District 1[a]	District 2[a]	District 3	Subtotal
1998	21,270	6,848	0	28,118
1999	16,181	11,702	0	27,883
2000	3,315	3,309	–	6,624
2001	–	–	–	–
2002	6,327	4,027	–	10,354
2003	3,579	2,583	–	6,162
2004	13,993	5,782	–	19,775
2005	23,965	8,313	–	32,278
2006	21,816	25,543	116	47,475
2007	106,790	69,432	1	176,223
2008	67,459	58,139	–	125,598
2009	71,335	86,571	–	157,906
2010	102,267	80,948	–	183,215
2011	163,439	103,071	–	266,510
2012	150,800	57,049	–	207,849
2013	207,871	171,272	–	379,143
2014	198,240	229,107	–	427,347
2015	172,639	181,447	–	354,086
2016	293,522	228,267	–	521,789
2017	345,395	47,770	–	393,165
2018	250,958	195,423	–	446,381
2013–2017 Average	243,533	171,573		415,106
2008–2017 Average	177,297	124,364		301,661

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	Upper Yukon Area[b]								
	District 4			District 5			District 6		
Year	Number	Roe	Estimated harvest[c]	Number	Roe	Estimated harvest[c]	Number	Roe	Estimated harvest[c]
1998	–	–	–	96	13	110	397	140	570
1999	1,267	0	1,267	115	0	115	124	24	148
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	6	0	6	3,198	16	3,218
2003	62	0	62	0	0	0	4,461	0	4,461
2004	–	–	–	25	0	25	6,610	0	6,610
2005	–	–	–	0	0	0	8,986	0	8,986
2006	–	–	–	20	0	20	44,621	0	44,621
2007	7,304	0	7,304[d]	0	0	0	14,674	0	14,674
2008	23,746	0	23,746[d]	–	–	–	1,842	0	1,842
2009	4,589	0	4,589[d]	–	–	–	7,777	0	7,777
2010	44,207	0	44,207[e]	–	–	–	5,466	0	5,466
2011	–	–	–	–	–	–	8,651	0	8,651
2012	108,222	0	108,222	–	–	–	3,504	0	3,504
2013	100,507	0	100,507	–	–	–	5,937	0	5,937
2014	96,385	0	96,385	–	–	–	6,912	0	6,912
2015	–	–	–	–	–	–	4,770	0	4,770
2016	–	–	–	–	–	–	4,020	0	4,020
2017	159,051	–	159,051	–	–	–	4,300	0	4,300
2018	126,892		126,892	–	–	–	3,427	0	3,427
2013–2017 Average	118,648	0	120,709				5,188	0	5,188
2008–2017 Average	76,672	0	76,672				5,318	0	5,318

-continued-

Year	Upper Yukon Area subtotal[c] Number	Roe	Estimated harvest[c]	Yukon Area total Number	Roe	Estimated harvest[c]
1998	493	153	680	28,611	153	28,798
1999	1,506	24	1,530	29,389	24	29,413
2000	–	–	–	6,624	–	6,624
2001	–	–	–	–	–	–
2002	3,204	16	3,224	13,558	16	13,578
2003	4,523	0	4,523	10,685	0	10,685
2004	6,635	0	6,635	26,410	0	26,410
2005	8,986	0	8,986	41,264	0	41,264
2006	44,641	0	44,641	92,116	0	92,116
2007	21,978	0	21,978	198,201	0	198,201
2008	25,588	0	25,588	151,186	0	151,186
2009	12,366	0	12,366	170,272	0	170,272
2010	49,673	0	49,673	232,888	0	232,888
2011	8,651	0	8,651	275,161	0	275,161
2012	111,726	0	111,726	319,575	0	319,575
2013	106,444	0	106,444	485,587	0	485,587
2014	103,297	0	103,297	530,644	0	530,644
2015	4,770	0	4,770	358,856	0	358,856
2016	4,020	0	4,020	525,809	0	525,809
2017	163,351	0	163,351	556,516	0	556,516
2018	130,319	0	130,319	576,700	0	576,700
2013–2017 Average	76,376	0	76,376	491,482	0	491,482
2008–2017 Average	58,989	0	58,989	360,649	0	360,649

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average.

[a] All fish sold in the round.

[b] Harvest reported in numbers of fish sold in the round and pounds of roe. Roe sales may include some pink and Chinook salmon roe. These data do not include department test fish sales.

[c] The estimated harvest is the number of fish sold in the round plus the estimated number of females caught to produce the roe sold plus the estimated number of unsold males.

[d] The number of female fish from which roe were extracted is the number harvested. Males not purchased and recorded as caught but not sold are included in personal use tables.

[e] Both males and females were purchased and are included in the number harvested.

Appendix A5.–Commercial fall chum salmon sales and estimated harvest by area, district, and country, Yukon River drainage, 1998–2018.

	Lower Yukon Area			
Year	District 1[a]	District 2[a]	District 3[a]	Subtotal
1998	–	–	–	–
1999	9,987	9,703	–	19,690
2000	–	–	–	–
2001	–	–	–	–
2002	–	–	–	–
2003	5,586	–	–	5,586
2004	660	–	–	660
2005	130,525	–	–	130,525
2006	101,254	39,905	–	141,159
2007	38,852	35,826	–	74,678
2008	67,704	41,270	–	108,974
2009	11,911	12,072	–	23,983
2010	545	270	–	815
2011	127,735	100,731	–	228,466
2012	139,842	129,284	–	269,126
2013	106,588	106,274	–	212,862
2014	51,829	59,138	–	110,967
2015	100,562	74,214	–	174,776
2016	226,576	213,340	–	439,916
2017	328,410	134,668	–	463,078
2018	198,950	170,648	–	369,598
2013–2017 Average	162,793	117,527		280,320
2008–2017 Average	116,170	87,126		203,296

-continued-

	Upper Yukon Area								
	District 4			District 5			District 6		
Year	Number[a]	Roe[b]	Estimated harvest[c]	Number[a]	Roe[b]	Estimated harvest[c]	Number[a]	Roe[b]	Estimated harvest[c]
1998	–	–	–	–	–	–	–	–	–
1999	681	0	681	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	1,315	0	1,315	–	–	–	4,095	0	4,095
2004	–	–	–	0	0	0	3,450	0	3,450
2005	–	–	–	0	0	0	49,637	0	49,637
2006	–	–	–	10,030	0	10,030	23,353	0	23,353
2007	–	–	–	427	0	427	15,572	0	15,572
2008	0	0	0	4,556	0	4,556	5,735	0	5,735
2009	–	–	–	–	–	–	1,286	545	1,893
2010	–	–	–	–	–	–	1,735	0	1,735
2011	–	–	–	1,246	0	1,246	9,267	0	9,267
2012	811	0	811	2,419	0	2,419	17,336	0	17,336
2013	–	–	–	1,041	0	1,041	24,148	0	24,148
2014	–	–	–	1,264	0	1,264	3,368	0	3,368
2015	–	–	–	1,048	0	1,048	15,646	0	15,646
2016	–	–	–	7,542	0	7,542	18,053	0	18,053
2017	1,402	0	1,402	1,952	138	1,952[d]	22,890	290	23,270
2018	596	0	596	896	0	896	16,698	0	16,698
2013–2017 Average				2,569	28	2,569	16,821	58	16,897
2008–2017 Average	738	0	738	2,634	17	2,634	11,946	84	12,045

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Year	Upper Yukon Area Subtotal Number[a]	Roe[b]	Estimated harvest[c]	Total Alaska estimated harvest	Canada total	Grand total
1998	–	–	–	–	–	–
1999	681	0	681	20,371	10,402	30,773
2000	–	–	–	–	1,319	1,319
2001	–	–	–	–	2,198	2,198
2002	–	–	–	–	3,065	3,065
2003	5,410	0	5,410	10,996	9,030	20,026
2004	3,450	0	3,450	4,110	7,365	11,475
2005	49,637	0	49,637	180,162	11,931	192,093
2006	33,383	0	33,383	174,542	4,096	178,638
2007	15,999	0	15,999	90,677	7,109	97,786
2008	10,291	0	10,291	119,265	4,062	123,327
2009	1,286	545	1,893	25,876	293	26,169
2010	1,735	0	1,735	2,550	2,186	4,736
2011	10,513	0	10,513	238,979	5,312	244,291
2012	20,566	0	20,566	289,692	3,205	292,897
2013	25,189	0	25,189	238,051	3,369	241,420
2014	4,632	0	4,632	115,599	2,485	118,084
2015	16,694	0	16,694	191,470	2,862	194,332
2016	25,595	0	25,595	465,511	1,745	467,256
2017	26,244	428	26,624[e]	489,702	2,404	492,106
2018	18,190	0	18,190	387,788	1,957	389,745
2013–2017 Average	19,671	86	19,747	300,067	2,573	302,640
2008–2017 Average	14,275	97	14,373	217,670	2,792	220,462

Note: En dash indicates no commercial fishing activity occurred.

[a] Harvest reports in numbers of fish sold in the round.

[b] Sales reported in numbers of fish sold in the round and pounds of unprocessed roe, which may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho roe from fall chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

[d] The number of females harvested to produce the roe sold is included in the subsistence harvest estimate.

[e] Includes headed and gutted fish sold and used to produce roe sold.

Appendix A6.–Commercial coho salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1998–2018.

	Lower Yukon Area			
Year	District 1[a]	District 2[a]	District 3[a]	Subtotal
1998	–	1	–	1
1999	855	746	–	1,601
2000	–	–	–	–
2001	–	–	–	–
2002	–	–	–	–
2003	9,757	–	–	9,757
2004	1,583	–	–	1,583
2005	36,533	–	–	36,533
2006	39,323	14,482	–	53,805
2007	21,720	21,487	–	43,207
2008	13,946	19,246	–	33,192
2009	5,994	1,582	–	7,576
2010	1,027	1,028	–	2,055
2011	45,336	24,195	–	69,531
2012	39,757	29,063	–	68,820
2013	27,306	31,458	–	58,764
2014	54,804	48,602	–	103,406
2015	66,029	54,860	–	120,889
2016	113,669	67,208	–	180,877
2017	95,982	33,277	–	129,259
2018	65,431	40,845	–	106,276
2013–2017 Average	71,558	47,081		118,639
2008–2017 Average	46,385	31,052		77,437

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	Upper Yukon Area								
	District 4			District 5			District 6		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	367	0	367	–	–	–	15,119	0	15,119
2004	–	–	–	0	0	0	18,649	0	18,649
2005	–	–	–	0	0	0	21,778	0	21,778
2006	–	–	–	–	–	–	11,137	0	11,137
2007	–	–	–	–	–	–	1,368	0	1,368
2008	0	0	0	91	0	91	2,408	0	2,408
2009	–	–	–	–	–	–	457	258	742
2010	–	–	–	–	–	–	1,700	0	1,700
2011	–	–	–	0	0	0	6,784	0	6,784
2012	0	0	0	634	0	634	5,335	0	5,335
2013	–	–	–	0	0	0	7,439	0	7,439
2014	–	–	–	0	0	0	1,286	0	1,286
2015	–	–	–	0	0	0	8,811	0	8,811
2016	–	–	–	54	0	54	20,551	0	20,551
2017	0	0	0	0	0	0	9,436	126	9,656[d]
2018	0	0	0	0	0	0	4,314	0	4,314
2013–2017 Average				11	0	11	9,505	25	9,549
2008–2017 Average	0	0	0	97	0	97	6,421	38	6,471

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Year	Upper Yukon Area Subtotal Number[a]	Roe[b]	Harvest[c]	Alaska total harvest
1998	–	–	–	1
1999	–	–	–	1,601
2000	–	–	–	0
2001	–	–	–	0
2002	–	–	–	0
2003	15,486	0	15,486	25,243
2004	18,649	0	18,649	20,232
2005	21,778	0	21,778	58,311
2006	11,137	0	11,137	64,942
2007	1,368	0	1,368	44,575
2008	2,499	0	2,499	35,691
2009	457	258	742	8,318
2010	1,700	0	1,700	3,755
2011	6,784	0	6,784	76,315
2012	5,969	0	5,969	74,789
2013	7,439	0	7,439	66,203
2014	1,286	0	1,286	104,692
2015	8,811	0	8,811	129,700
2016	20,605	0	20,605	201,482
2017	9,436	126	9,656[d]	138,915
2018	4,314	0	4,314	110,590
2013–2017 Average	9,515	25	9,559	128,198
2008–2017 Average	6,499	38	6,549	83,986

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to calculate average.

[a] Harvest reports in numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold.

[c] Harvest is estimated from number of fish sold in the round plus the estimated number of females to produce the roe sold. Prior to 1990, the ratio of pounds of roe to females to produce roe was calculated at 1:1.

[d] Includes headed and gutted fish sold and used to produce roe sold.

Appendix A7.–Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1998–2018.

	Lower Yukon Area set or drift gillnet		Upper Yukon Area set gillnet		Upper Yukon Area fish wheel		Total	
Year	Permits issued[a]	Permits fished[b]	Permits issued[a]	Permits fished[b]	Permits issued[a]	Permits fished[b]	Permits issued[a]	Permits fished[b]
1998	704	643	72	6	160	22	936	671
1999	704	632	72	13	162	23	938	668
2000	704	561	72	0	160	0	936	561
2001	700	0	72	0	156	0	928	0
2002	702	540	72	12	156	12	930	564
2003	703	557	72	7	157	20	932	584
2004	692	551	67	9	137	14	896	574
2005	691	581	67	6	135	15	893	602
2006	686	574	66	10	128	26	880	610
2007	684	566	66	6	124	24	874	596
2008	681	474	64	2	124	20	869	496
2009	678	391	61	2	122	10	861	403
2010	670	444	58	0	115	11	843	455
2011	665	437	55	0	115	9	835	446
2012	662	475	52	0	106	19	820	494
2013	653	451	51	0	103	16	807	467
2014	653	468	47	0	100	14	800	482
2015	649	480	46	0	98	6	793	486
2016	647	483	46	1	95	8	788	492
2017	647	457	46	1	93	18	786	476
2018	652	484	45	0	94	14	791	498
2013–2017 Average	650	468	47	0	98	12	795	481

[a] Information obtained from CFEC. Permits issued is the number of active permanent and interim permits.

[b] Data obtained from OceanAK fish ticket database. Only permits that made at least one commercial delivery are included.

Appendix A8.–Number of commercial salmon fishing permit holders making at least one delivery by district and season, Yukon Area, 1998–2018.

	Chinook and summer chum salmon season								
	Lower Yukon Area				Upper Yukon Area				Yukon
Year	District 1	District 2	District 3	Subtotal[a]	District 4	District 5	District 6	Subtotal	Area total
1998	434	231	0	643	0	18	10	28	671
1999	412	217	5	631	5	26	6	37	668
2000	350	214	0	562	0	0	0	0	562
2001[b]	–	–	–	–	–	–	–	–	–
2002	322	223	0	540	0	18	6	24	564
2003	351	217	0	556	3	16	7	26	582
2004	396	212	0	549	0	14	6	20	569
2005	370	228	0	578	0	12	5	17	595
2006	379	214	6	569	0	15	10	25	594
2007	359	220	3	564	5	12	10	27	591
2008	266	181	0	444	8	0	5	13	457
2009	213	166	0	376	6	0	5	11	387
2010	264	181	0	440	5	0	5	10	450
2011	228	182	0	403	0	0	5	5	408
2012	242	178	0	413	11	0	3	14	427
2013	220	174	0	384	9	0	2	11	395
2014	231	183	0	405	10	0	1	11	416
2015	270	177	0	435	0	0	2	2	437
2016	245	198	0	435	0	0	2	2	437
2017	284	114	0	388	10	0	3	13	401
2018	264	167	0	417	8	0	1	9	426
2013–2017 Average	250	169	0	409	6	0	2	8	417

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	Fall chum and coho salmon season								
	Lower Yukon Area				Upper Yukon Area				Yukon
Year	District 1	District 2	District 3	Subtotal[a]	District 4	District 5	District 6	Subtotal	Area total
1998	0	0	0	0	0	0	0	0	0
1999	146	110	0	254	4	0	0	4	258
2000	0	0	0	0	0	0	0	0	0
2001[b]	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	0	0	0
2003	75	0	0	75	2	0	5	7	82
2004	26	0	0	26	0	0	6	6	32
2005	177	0	0	177	0	0	7	7	184
2006	219	71	0	286	0	4	11	15	301
2007	181	122	0	300	0	2	8	10	310
2008	251	177	0	428	0	3	8	11	439
2009	165	130	0	292	0	0	2	2	294
2010	72	18	0	90	0	0	4	4	94
2011	234	169	0	395	0	2	5	7	402
2012	267	201	0	449	4	3	5	13	462
2013	251	197	0	436	0	1	6	7	443
2014	256	199	0	441	0	2	2	4	445
2015	266	184	0	440	0	1	5	6	446
2016	275	197	0	459	0	4	4	8	467
2017	318	144	0	438	5	4	4	13	451
2018	284	172	0	448	4	3	3	10	458
2013–2017 Average	273	184	0	443	1	2	4	8	450

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	Combined season[c]								
	Lower Yukon Area				Upper Yukon Area				Yukon
Year	District 1	District 2	District 3	Subtotal[a]	District 4	District 5	District 6	Subtotal	Area total
1998	434	231	0	643	0	18	10	28	671
1999	422	238	5	632	6	26	6	38	670
2000	349	214	0	561	0	0	0	0	561
2001[b]	–	–	–	–	–	–	–	–	–
2002	322	223	0	540	0	18	6	24	564
2003	358	217	0	557	3	16	8	27	584
2004	399	212	0	551	0	14	9	23	574
2005	392	228	0	581	0	12	9	21	602
2006	396	224	6	574	0	20	16	36	610
2007	366	236	3	566	5	13	12	30	596
2008	297	208	0	474	8	3	11	22	496
2009	226	172	0	391	6	0	6	12	403
2010	274	183	0	444	5	0	6	11	455
2011	260	201	0	437	0	2	7	9	446
2012	284	210	0	475	11	3	5	23	498
2013	264	211	0	451	9	1	6	16	467
2014	277	216	0	468	10	2	2	14	482
2015	299	207	0	480	0	1	5	6	486
2016	288	216	0	483	0	4	5	9	492
2017	338	157	0	457	10	4	5	19	476
2018	309	201	0	484	8	3	3	14	498
2013–2017 Average	293	201	0	468	6	2	5	13	481

[a] Since 1984, the subtotal for the Lower Yukon Area was the unique number of permits fished. Some individual fishers in the Lower Yukon Area may have operated in more than one district during the year.

[b] No commercial fishing.

[c] Combined seasons numbers will differ as the data represent the total number of unique permits fished during the entire season.

Appendix A9.–Type of commercial salmon processing, Yukon Area, 1998–2018.

Year	Fresh-frozen (round weight in pounds)				Salmon roe (pounds)
	Chinook	Coho	Chum	Pink	
1998	779,936	9	191,692	0	28,919
1999	1,368,658	10,342	352,970	0	50,696
2000	158,776	0	50,782	0	6,286
2001	–	–	–	0	–
2002	472,678	–	93,416[a]	0	931
2003	841,748	165,757	144,942	0	0
2004	1,142,053	117,295	165,587	0	0
2005	597,191	410,398	1,637,483	0	273
2006	857,552	390,502	1,844,981	0	0
2007	594,003	331,412	1,884,881	0	5,939
2008	65,558	241,028	1,851,890	46,564	29,094
2009	4,194	55,464	1,260,797	0	4,709
2010	127,846	23,986	1,457,912	0	0
2011	985[b]	516,498	3,483,462	0	0
2012	–	457,466	3,810,797	0	0
2013	–	454,839	4,497,391	0	0
2014	–	712,839	4,152,050	189,953	0
2015	–	935,921	3,513,754	29,774	0
2016	–	1,265,741	6,453,560	445,692	0
2017	1,804[b]	871,325[c]	6,855,911[c]	0	554
2018	–	703,319	6,309,713	106,642	0

Note: En dash indicates no commercial fishing activity occurred. Roe includes unprocessed roe sold by commercial fishery operators and estimated production of roe from in the round purchases.

[a] Chum salmon sold during summer season only.

[b] Chinook salmon sold during fall season.

[c] Includes headed and gutted fish sold and used to produce roe sold.

Appendix A10.–Estimated average price per pound paid to commercial fishing operators, Yukon Area, 1998–2018.

	Lower Yukon Area price per pound (dollars)					Upper Yukon Area price per pound (dollars)							
Year	Chinook	Summer chum	Fall chum	Coho	Pink	Chinook	Chinook roe	Summer chum	Summer chum roe	Fall chum	Fall chum roe	Coho	Coho roe
1998	2.51	0.14	–	–	–	0.91	2.00	0.18	1.90	–	–	–	–
1999	3.80	0.10	0.25	0.35	–	1.10	2.11	0.18	2.25	0.20	–	–	–
2000	4.57	0.17	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–	–
2002	3.77	0.06	–	–	–	0.75	1.75	0.32	2.25	–	–	–	–
2003	2.37	0.05	0.15	0.10	–	0.80	–	0.27	–	0.10	–	0.05	–
2004	2.80	0.05	0.25	0.05	–	0.77	–	0.27	–	0.05	–	0.06	–
2005	3.43	0.05	0.32	0.32	–	0.87	–	0.25	–	0.14	–	0.12	–
2006	3.94	0.05	0.20	0.20	–	1.30	–	0.16	–	0.14	–	0.19	–
2007	3.73	0.19	0.27	0.39	–	1.33	–	0.25	2.36	0.20	–	0.20	–
2008	4.64	0.40	0.55	0.97	0.10	–	–	0.25	3.00	0.27	–	0.20	–
2009	5.00	0.50	0.70	1.00	–	–	–	0.26	3.00	0.19	–	0.15	–
2010	5.00	0.70	1.00	1.50	–	–	–	0.23	–	0.23	–	0.26	–
2011	5.00[a]	0.75	1.00	1.00	–	–	–	0.26	–	0.22	–	0.15	–
2012	–	0.75	1.00	1.25	–	–	–	0.37	–	0.19	–	0.25	–
2013	–	0.75	0.75	1.10	–	–	–	0.30	–	0.16	–	0.17	–
2014	–	0.60	0.75	1.00	0.07	–	–	0.29	–	0.25	–	0.38	–
2015	–	0.60	0.60	0.70	0.12	–	–	0.23	–	0.14	–	0.12	–
2016	–	0.60	0.68	1.00	0.14	–	–	0.26	–	0.14	–	0.13	–
2017	5.50[a]	0.60	0.60	1.00	–	–	–	0.34	–	0.15	1.84	0.15	2.00
2018	–	0.60	0.78	1.00	0.15	–	–	0.33	–	0.13	–	0.15	–
2013–2017 Average		0.63	0.68	0.96	0.07			0.28		0.17		0.19	

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average.

[a] Chinook salmon sold in fall season only.

Appendix A11.–Value of commercial salmon fishery (in dollars) to Yukon Area fishing operators, 1998–2018.

	Summer season							
	Chinook			Summer chum			Pink	
Year	Lower Yukon value	Upper Yukon value	Subtotal	Lower Yukon value	Upper Yukon value	Subtotal	Lower Yukon value	Total season
1998	1,911,370	17,285	1,928,655	26,415	821	27,236	–	1,955,891
1999	4,950,522	74,475	5,024,997	19,687	1,720	21,407	–	5,046,404
2000	725,606	–	725,606	8,633	–	8,633	–	734,239
2001	–	–	–	–	–	–	–	–
2002	1,781,996	20,744	1,802,740	4,342	6,176	10,518	–	1,813,258
2003	1,871,202	40,957	1,912,159	1,585	6,879	8,464	–	1,920,623
2004	3,063,667	38,290	3,101,957	8,884	9,645	18,529	–	3,120,486
2005	1,952,109	24,415	1,976,524	11,004	13,479	24,483	–	2,001,007
2006	3,290,367	32,631	3,322,998	23,862	42,988	66,850	–	3,389,848
2007	1,939,114	27,190	1,966,304	220,715	34,421	255,136	–	2,221,440
2008	325,470	–	325,470	326,930	65,840	392,770	4,656	718,240
2009	20,970	–	20,970	514,856	20,430	535,286	–	556,256
2010	639,230	–	639,230	823,967	61,534	885,501	–	1,524,731
2011	4,925	–	4,925[a]	1,301,008	12,966	1,313,974	–	1,318,899
2012	–	–	–	980,424	137,817	1,118,241	–	1,118,241
2013	–	–	–	1,721,524	152,110	1,873,634	–	1,873,634
2014	–	–	–	1,648,866	154,959	1,803,825	13,672	1,817,593[b]
2015	–	–	–	1,259,908	7,166	1,267,074	1,674	1,269,200[b]
2016	–	–	–	1,903,490	6,030	1,909,520	54,800	1,964,341[b]
2017	9,922	–	9,922[a]	1,470,353	276,682	1,747,035	–	1,756,957[b]
2018	–	–	–	1,679,448	217,064	1,896,512	15,989	1,912,514[b]
2013–2017 Average				1,600,828	119,389	1,720,217	23,382	1,736,345

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	Fall season								
	Fall chum			Coho			Pink		
Year	Lower Yukon value	Upper Yukon value	Subtotal	Lower Yukon value	Upper Yukon value	Subtotal	Lower Yukon value	Total season	Total value
1998	–	–	–	–	–	–	–	–	1,955,891
1999	35,639	876	36,515	3,620	0	3,620	–	40,135	5,086,539
2000	–	–	–	–	–	–	–	–	734,239
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	1,813,258
2003	5,993	3,398	9,391	18,168	5,095	23,263	–	32,654	1,953,277
2004	1,126	848	1,974	2,774	6,372	9,146	–	11,120	3,131,606
2005	316,698	48,159	364,857	83,793	19,182	102,975	–	467,832	2,468,839
2006	202,637	33,806	236,443	50,299	11,137	61,436	–	297,879	3,687,727
2007	144,256	16,907	161,163	127,869	1,368	129,237	–	290,400	2,511,840
2008	428,969	22,089	451,058	216,777	3,717	220,494	–	671,552	1,389,792
2009	108,778	1,286	110,064	52,176	457	52,633	–	162,697	718,953
2010	5,428	2,761	8,189	20,535	442	20,977	–	29,166	1,553,897
2011	1,628,329	16,115	1,644,444	472,199	6,792	478,991	–	2,123,435	3,442,334
2012	1,385,498	28,355	1,413,853	534,523	7,428	541,951	–	1,955,804	3,074,045
2013	1,154,172	25,744	1,179,916	453,998	7,115	461,113	–	1,641,029	3,514,663
2014	621,975	8,156	630,131	706,569	2,380	708,949	19	1,339,099	3,156,692
2015	762,142	15,683	777,825	616,165	6,877	623,042	2,017	1,402,884	2,672,084
2016	2,093,566	22,477	2,116,043	1,143,823	15,540	1,159,363	8,863	3,284,269	5,248,610
2017	2,038,232	29,176	2,067,408	814,580	8,778	823,358	–	2,890,766	4,647,722
2018	2,113,465	17,933	2,131,398	677,191	3,688	680,879	8	2,812,284	4,724,798
2013–2017 Average	1,334,018	20,247	1,354,265	747,027	8,138	755,165	3,633	2,111,609	3,847,954

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average.

[a] Chinook salmon sold during the fall season.

[b] Since 2014, the value includes coho salmon sold during the summer season.

Appendix A12.–Average weight of salmon (in pounds) harvested in the commercial fishery, Yukon Area, 1998–2018.

	Lower Yukon area[a]					Upper Yukon area[a]			
Year	Chinook	Summer chum	Fall chum	Coho	Pink	Chinook	Summer chum	Fall chum	Coho
1998	18.0	6.7	–	–	–	13.2	6.1	–	–
1999	20.1	7.1	7.2	6.5	–	14.8	6.1	6.4	–
2000	18.0	7.7	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	19.9	7.2	–	–	–	15.9	6.0	–	–
2003	21.4	7.3	7.2	7.4	–	14.6	6.1	6.1	6.0
2004	20.8	6.9	6.8	7.0	–	13.8	5.7	4.9	5.7
2005	18.9	6.8	7.8	7.1	–	14.6	6.0	7.1	6.9
2006	19.0	6.8	7.2	6.2	–	13.1	6.1	7.0	5.1
2007	17.9	6.5	7.1	7.5	–	13.5	5.8	5.4	5.0
2008	14.1	6.6	7.2	6.8	3.3	–	7.3	7.8	7.6
2009	13.3	6.5	6.6	6.9	–	–	5.4	5.2	6.8
2010	12.9	6.4	6.7	6.7	–	–	5.3	6.9	6.0
2011	12.0	6.5	7.1	6.8	–	–	5.7	6.8	6.5
2012	–	6.3	6.9	6.2	–	–	4.6	7.0	5.0
2013	–	6.1	7.2	7.0	–	–	4.8	6.2	5.6
2014	–	6.4	7.5	6.8	3.5	–	5.2	7.0	4.8
2015	–	5.9	7.3	7.3	4.0	–	6.5	6.7	6.2
2016	–	6.1	7.0	6.3	3.5	–	5.9	6.3	5.9
2017	10.7	6.2	7.3	6.3	–	–	5.0	7.1	5.9
2018	–	6.3	7.4	6.4	2.7	–	5.0	7.4	5.8
2008–2017 Average	12.6	6.3	7.1	6.7	3.6		5.6	6.7	6.0

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average.

[a] Data obtained from weight samples or from fish ticket information.

Appendix A13.–Chinook salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1998–2018.

	Coastal	District 1				District 2			
Year	Subsistence[a]	Subsistence	Commercial[b]	Test fish sales	Total	Subsistence	Commercial[b]	Test fish sales	Total
1998	391	7,242	25,413	878	33,533	9,455	16,806	48	26,309
1999	1,111	6,848	37,161	1,049	45,058	10,439	27,133	156	37,728
2000	563	5,891	4,735	275	10,901	9,935	3,783	322	14,040
2001	2,882	7,089	–	0	7,089	13,442	–	0	13,442
2002	1,122	5,603	11,089	494	17,186	8,954	11,440	34	20,428
2003	1,850	6,332	22,709	619	29,660	9,668	14,220	61	23,949
2004	2,038	5,880	28,403	722	35,005	9,724	24,145	70	33,939
2005	848	5,058	16,694	310	22,062	9,156	13,413	0	22,569
2006	883	5,122	23,748	817	29,687	8,039	19,843	0	27,882
2007	1,198	6,059	18,616	792	25,467	10,553	13,306	57	23,916
2008	1,492	6,163	2,530	0	8,693	8,826	2,111	0	10,937
2009	905	4,125	90	0	4,215	6,135	226	0	6,361
2010	1,300	5,856	5,744	0	11,600	8,676	4,153	0	12,829
2011	769	6,255	36	0	6,291	8,069	46	0	8,115
2012	2,104	4,313	0	0	4,313	6,881	0	0	6,881
2013	1,542	1,634	0	0	1,634	1,104	0	0	1,104
2014	563	1,356	0	0	1,356	616	0	0	616
2015	966	1,919	0	0	1,919	1,185	0	0	1,185
2016	886[c]	2,766[c]	0	0	2,766	3,161[c]	0	0	3,161
2017	1,053[c]	4,580[c]	168	0	4,748	5,023[c]	0	0	5,023
2018	1,117[c]	3,269[c]	0	0	3,269	4,148[c]	0	0	4,148
2013–2017 Average	1,002	2,451	34	0	2,485	2,218	0	0	2,218
2008–2017 Average	1,158	3,897	857	0	4,754	4,968	654	0	5,621

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	District 3			Lower Yukon Area subtotals[a]			
Year	Subsistence	Commercial	Total	Subsistence	Commercial	Test fish sales	Total
1998	4,514	0	4,514	21,602	42,219	926	64,747
1999	7,715	538	8,253	26,113	64,832	1,205	92,150
2000	3,914	–	3,914	20,303	8,518	597	29,418
2001	6,361	–	6,361	29,774	–	0	29,774
2002	4,139	–	4,139	19,818	22,529	528	42,875
2003	5,002	–	5,002	22,852	36,929	680	60,461
2004	4,748	–	4,748	22,390	52,548	792	75,730
2005	5,131	–	5,131	20,193	30,107	310	50,610
2006	5,374	315	5,689	19,418	43,906	817	64,141
2007	4,651	190	4,841	22,461	32,112	849	55,422
2008	5,855	–	5,855	22,336	4,641	0	26,977
2009	2,924	–	2,924	14,089	316	0	14,405
2010	4,299	–	4,299	20,131	9,897	0	30,028
2011	4,134	–	4,134	19,227	82	0	19,309
2012	2,362	–	2,362	15,660	0	0	15,660
2013	444	–	444	4,724	0	0	4,724
2014	48	–	48	2,583	0	0	2,583
2015	447	–	447	4,517	0	0	4,517
2016	901[c]	–	901	7,714[c]	0	0	7,714
2017	2,296[c]	–	2,296	12,952[c]	168	0	13,120
2018	1,803[c]	–	1,803	10,337[c]	0	0	10,337
2013–2017 Average	827	–	827	6,498	34	0	6,532
2008–2017 Average	2,371	–	2,371	12,393	1,510	0	13,904

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	District 4				District 5			
Year	Subsistence	Commercial	Commercial related[d]	Total	Subsistence	Commercial	Commercial related[d]	Total
1998	15,801	–	–	15,801	14,802	517	0	15,319
1999	11,238	1,437	0	12,675	14,330	2,604	0	16,934
2000	6,264	–	–	6,264	8,854	–	–	8,854
2001	10,152	–	–	10,152	13,566	–	–	13,566
2002	9,456	–	–	9,456	13,401	771	0	14,172
2003	12,771	562	0	13,333	19,191	1,134	0	20,325
2004	16,269	–	–	16,269	15,666	1,546	0	17,212
2005	13,964	–	–	13,964	17,424	1,469	0	18,893
2006	12,022	–	–	12,022	15,924	1,839	0	17,763
2007	11,831	0	0	11,831	19,165	1,241	0	20,406
2008	10,619	0	0	10,619	11,626	–	–	11,626
2009	9,514	0	0	9,514	8,917	–	–	8,917
2010	12,888	0	0	12,888	10,397	–	–	10,397
2011	9,893	–	–	9,893	10,493	–	–	10,493
2012	7,662	0	0	7,662	6,466	–	–	6,466
2013	2,901	0	0	2,901	4,541	–	–	4,541
2014	132	0	0	132	288	–	–	288
2015	771	–	–	771	1,849	–	–	1,849
2016	6,015[c]	–	–	6,015	7,082[c]	–	–	7,082
2017	9,783[c]	–	–	9,783	14,523[c]	–	–	14,523
2018	6,783[c]	–	–	6,783	14,077[c]	–	–	14,077
2013–2017 Average	3,920	0	0	3,920	5,657	–	–	5,657
2008–2017 Average	7,018	0	0	7,018	7,618	–	–	7,618

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	District 6					Upper Yukon Area subtotals				
Year	Subsistence	Commercial	Commercial related[d]	Personal use	Total	Subsistence	Commercial	Commercial related[d]	Personal use	Total[e]
1998	1,919	882	81	357	3,239	32,522	1,399	81	357	34,359
1999	1,624	402	288	331	2,645	27,192	4,443	288	331	32,254
2000	983	–	–	75	1,058	16,101	0	0	75	16,176
2001	2,327	–	–	122	2,449	26,045	0	0	122	26,167
2002	1,067	836	230	126	2,259	23,924	1,607	230	126	25,887
2003	2,145	1,813	0	204	4,162	34,107	3,509	0	204	37,820
2004	1,388	2,057	0	201	3,646	33,323	3,603	0	201	37,127
2005	1,828	453	0	138	2,419	33,216	1,922	0	138	35,276
2006	1,229	84	0	89	1,402	29,175	1,923	0	89	31,187
2007	1,717	281	0	136	2,134	32,713	1,522	0	136	34,371
2008	605	0	0	126	731	22,850	0	0	126	22,976
2009	1,285	0	0	127	1,412	19,716	0	0	127	19,843
2010	1,143	0	0	162	1,305	24,428	0	0	162	24,590
2011	1,367	0	0	89	1,456	21,753	0	0	89	21,842
2012	627	0	0	71	698	14,755	0	0	71	14,826
2013	367	0	0	42	409	7,809	0	0	42	7,851
2014	283	0	0	1	284	703	0	0	1	704
2015	440	0	0	5	445	3,060	0	0	5	3,065
2016	816[c]	0	0	57	873	13,913[c]	0	0	57	13,970
2017	778[c]	0	0	125	903	25,084[c]	0	0	125	25,209
2018	615[c]	0	0	201	816	21,475[c]	0	0	201	21,676
2013–2017 Average	537	0	0	46	583	10,114	0	0	46	10,160
2008–2017 Average	771	0	0	81	852	15,407	0	0	81	15,488

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	Alaska Yukon Area totals						
Year	Subsistence[a]	Commercial	Commercial related[d]	Personal use	Test fish sales	Sport fish	Total
1998	54,124	43,618	81	357	926	654	99,760
1999	53,305	69,275	288	331	1,205	1,023	125,427
2000	36,404	8,518	0	75	597	276	45,870
2001	55,819	0	0	122	0	679	56,620
2002	43,742	24,136	230	126	528	486	69,248
2003	56,959	40,438	0	204	680	2,719	101,000
2004	55,713	56,151	0	201	792	1,513	114,370
2005	53,409	32,029	0	138	310	483	86,369
2006	48,593	45,829	0	89	817	739	96,067
2007	55,174	33,634	0	136	849	960	90,753
2008	45,186	4,641	0	126	0	409	50,362
2009	33,805	316	0	127	0	863	35,111
2010	44,559	9,897	0	162	0	474	55,092
2011	40,980	82	0	89	0	474	41,625
2012	30,415	0	0	71	0	345	30,831
2013	12,533	0	0	42	0	166	12,741
2014	3,286	0	0	1	0	0	3,287
2015	7,577	0	0	5	0	13	7,595
2016	21,627[e]	0	0	57	0	20	21,704
2017	38,036[e]	168	0	125	0	18	38,347
2018	31,812[e]	0	0	201	0	[f]	32,013
2013–2017 Average	16,612	34	0	46	0	43	16,735
2008–2017 Average	27,800	1,510	0	81	0	278	29,670

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	Canada: Yukon Territories totals							
	Mainstem Yukon							
	Non-commercial						Porcupine	Total
Year	Domestic	Aboriginal	Sport	Test fish[g]	Commercial	Subtotal	Aboriginal	Canadian
1998	24	4,687	–	737	390	5,838	99	5,937
1999	213	8,804	177	–	3,160	12,354	114	12,468
2000	–	4,068	–	761	–	4,829	50	4,879
2001	89	7,421	146	767	1,351	9,774	370	10,144
2002	59	7,139	128	1,036	708	9,070	188	9,258
2003	115	6,121	275	263	2,672	9,446	173	9,619
2004	88	6,483	423	167	3,785	10,946	292	11,238
2005	99	6,376	436	–	4,066	10,977	394	11,371
2006	63	5,757	606	–	2,332	8,758	314	9,072
2007	–	4,175	2	617	–	4,794	300	5,094
2008	–	2,885	0	513	1	3,399	314	3,713
2009	17	3,791	125	–	364	4,297	461	4,758
2010	–	2,455	1	–	–	2,456	250	2,706
2011	–	4,550	40	–	4	4,594	290	4,884
2012	–	2,000	–	–	0	2,000	200	2,200
2013	–	1,902	–	–	2	1,904	242	2,146
2014	–	100	–	–	–	100	3	103
2015	–	1,000	–	–	–	1,000	204	1,204
2016	–	2,768	–	–	1	2,769	177	2,946
2017	–	3,500	–	–	0	3,500	131	3,631
2018	–	2,789[c]	–	–	1	2,790	308	3,098
2013–2017 Average	–	1,854	–	–	1	1,855	151	2,006
2008–2017 Average	17	2,495	42	513	47	2,602	227	2,829

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	Yukon River Drainage (Alaska/Canada) totals						
Year	Subsistence[a,h]	Commercial	Commercial related[d]	Personal use	Alaska test fish	Sport fish	Total
1998	59,671	44,008	81	357	926	654	105,697
1999	62,436	72,435	288	331	1,205	1,200	137,895
2000	41,283	8,518	0	75	597	276	50,749
2001	64,466	1,351	0	122	0	825	66,764
2002	52,164	24,844	230	126	528	614	78,506
2003	63,631	43,110	0	204	680	2,994	110,619
2004	62,743	59,936	0	201	792	1,936	125,608
2005	60,278	36,095	0	138	310	919	97,740
2006	54,727	48,161	0	89	817	1,345	105,139
2007	60,266	33,634	0	136	849	962	95,847
2008	48,898	4,642	0	126	0	409	54,075
2009	38,074	680	0	127	0	988	39,869
2010	47,264	9,897	0	162	0	475	57,798
2011	45,820	86	0	89	0	514	46,509
2012	32,615	0	0	71	0	345	33,031
2013	14,677	2	0	42	0	166	14,887
2014	3,389	0	0	1	0	0	3,390
2015	8,781	0	0	5	0	13	8,799
2016	24,572[c]	1	0	57	0	20	24,650
2017	41,667[c]	168	0	125	0	18	41,978
2018	34,909[c]	1	0	201	0	0[f]	35,111
2013–2017 Average	18,617	34	0	46	0	43	18,741
2008–2017 Average	30,576	1,548	0	81	0	295	32,499

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Note: En dash indicates no fishing activity occurred.

[a] Includes harvest from the Coastal District communities of Hooper Bay and Scammon Bay.

[b] Includes estimates of illegal sales in years when it occurred.

[c] Data are preliminary.

[d] "Commercial related" refers to the estimated harvest of female Chinook salmon to produce roe sold.

[e] No test fish sales occurred in the Upper Yukon Area.

[f] Data are unavailable at this time.

[g] Canadian Chinook salmon test fishery is conducted for management purposes, the fish harvested are retained and given to Aboriginal or domestic users, but are not reported under those categories.

[h] Includes Alaska subsistence harvest and Canadian domestic, test fishery, and Aboriginal harvests.

Appendix A14.–Summer chum salmon total utilization in numbers of fish by district and area, Yukon River drainage, 1998–2018.

	Coastal	District 1				District 2			
Year	Subsistence[a]	Subsistence	Commercial	Test fish sales	Total	Subsistence	Commercial	Test fish sales	Total
1998	1,362	26,888	21,270	2,935	51,093	26,280	6,848	84	33,212
1999	13,461	20,169	16,181	799	37,149	24,137	11,702	37	35,876
2000	13,177	24,079	3,315	561	27,955	25,331	3,309	87	28,727
2001	13,916	22,771	–	0	22,771	26,303	–	0	26,303
2002	14,796	24,107	6,327	164	30,598	23,554	4,027	54	27,635
2003	13,968	19,701	3,579	37	23,317	16,773	2,583	82	19,438
2004	8,262	20,620	13,993	217	34,830	25,931	5,782	0	31,713
2005	14,357	27,695	23,965	134	51,794	24,277	8,313	0	32,590
2006	24,171	27,881	21,816	456	50,153	31,655	25,543	0	57,198
2007	16,121	24,209	106,790	10	131,009	23,507	69,432	0	92,939
2008	18,120	22,767	67,459	80	90,306	24,291	58,139	0	82,430
2009	12,797	23,998	71,335	0	95,333	21,089	86,571	0	107,660
2010	22,425	25,172	102,267	0	127,439	23,738	80,948	0	104,686
2011	18,305	28,590	163,439	0	192,029	24,692	103,071	0	127,763
2012	23,241	35,370	150,800	1,274	187,444	32,566	57,049	1,138	90,753
2013	23,135	28,516	207,871	2,304	238,691	32,499	171,272	0	203,771
2014	19,304	23,894	198,240	0	222,134	26,134	229,107	0	255,241
2015	20,468	21,641	172,639	2,494	196,774	24,557	181,447	0	206,004
2016	11,844[b]	26,738[b]	293,522	380	320,640	27,622[b]	228,267	0	255,889
2017	14,005[b]	22,507[b]	345,395	1,819	369,721	24,694[b]	47,770	0	72,464
2018	15,351[b]	21,282[b]	250,958	1,028	273,268	19,035[b]	195,423	0	214,458
2013–2017 Average	17,751	24,659	243,533	1,399	269,592	27,101	171,573	0	198,674
2008–2017 Average	18,364	25,919	177,297	835	204,051	26,188	124,364	114	150,666

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	District 3			Lower Yukon Area subtotals[a]			
Year	Subsistence	Commercial	Total	Subsistence	Commercial	Test fish sales	Total
1998	6,472	0	6,472	61,002	28,118	3,019	92,139
1999	5,748	0	5,748	63,515	27,883	836	92,234
2000	3,687	–	3,687	66,274	6,624	648	73,546
2001	1,309	–	1,309	64,299	–	0	64,299
2002	2,506	–	2,506	64,963	10,354	218	75,535
2003	5,858	–	5,858	56,300	6,162	119	62,581
2004	2,958	–	2,958	57,771	19,775	217	77,763
2005	5,766	–	5,766	72,095	32,278	134	104,507
2006	3,534	116	3,650	87,241	47,475	456	135,172
2007	2,056	1	2,057	65,893	176,223	10	242,126
2008	2,971	–	2,971	68,149	125,598	80	193,827
2009	1,146	–	1,146	59,030	157,906	0	216,936
2010	1,341	–	1,341	72,676	183,215	0	255,891
2011	2,733	–	2,733	74,320	266,510	0	340,830
2012	8,690	–	8,690	99,867	207,849	2,412	310,128
2013	4,692	–	4,692	88,842	379,143	2,304	470,289
2014	3,748	–	3,748	73,080	427,347	0	500,427
2015	3,127	–	3,127	69,793	354,086	2,494	426,373
2016	3,064[b]	–	3,064	69,268[b]	521,789	380	591,437
2017	3,760[b]	–	3,760	64,966[b]	393,165	1,819	459,950
2018	3,054[b]	–	3,054	58,722[b]	446,381	1,028	506,131
2013–2017 Average	3,678	–	3,678	73,190	415,106	1,399	489,695
2008–2017 Average	3,527	–	3,527	73,999	301,661	949	376,609

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	District 4					District 5			
Year	Subsistence	Commercial	Commercial related[c]	Anvik River[d]	Total	Subsistence	Commercial	Commercial related[c]	Total
1998	18,046	–	–	–	18,046	2,314	96	14	2,424
1999	15,339	1,267	0	–	16,606	2,276	115	0	2,391
2000	7,046	–	–	–	7,046	3,641	–	–	3,641
2001	4,588	–	–	–	4,588	2,856	–	–	2,856
2002	15,971	–	–	–	15,971	5,610	6	0	5,616
2003	17,513	62	0	–	17,575	5,545	0	0	5,545
2004	14,959	–	–	–	14,959	3,411	25	0	3,436
2005	12,350	–	–	–	12,350	6,800	0	0	6,800
2006	14,997	–	–	–	-	11,830	20	0	11,850
2007	16,256	7,304	0	–	23,560	8,881	0	0	8,881
2008	13,517	23,746	0	–	37,263	3,537	–	–	3,537
2009	14,958	4,589	0	–	19,547	5,298	–	–	5,298
2010	11,720	44,207	0	–	55,927	3,555	–	–	3,555
2011	13,166	–	–	–	13,166	7,709	–	–	7,709
2012	21,555	108,222	0	–	129,777	4,892	–	–	4,892
2013	13,761	100,507	0	–	114,268	11,417	–	–	11,417
2014	9,981	96,385	0	–	106,366	3,108	–	–	3,108
2015	9,777	–	–	–	9,777	3,745	–	–	3,745
2016	13,728[b]	–	–	–	13,728	4,900[b]	–	–	4,900
2017	16,527[b]	159,051	–	–	175,578	5,033[b]	–	–	5,033
2018	11,494[b]	126,892	–	–	138,386	6,445[b]	–	–	6,445
2013–2017 Average	12,755	118,648	0	–	83,943	5,641	–	–	5,641
2008–2017 Average	13,869	76,672	0	–	67,540	5,319	–	–	5,319

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	District 6						Upper Yukon Area subtotals					
Year	Subsistence	Commercial	Commercial related[c]	Personal use	Test fish sales	Total	Subsistence	Commercial	Commercial related[c]	Personal use	Test fish sales	Total
1998	6,004	397	173	84	0	6,658	26,364	493	187	84	0	27,128
1999	2,654	124	24	382	0	3,184	20,269	1,506	24	382	0	22,181
2000	1,111	–	–	30	0	1,141	11,798	0	0	30	0	11,828
2001	412	–	–	146	0	558	7,856	–	–	146	0	8,002
2002	512	3,198	19	175	0	3,904	22,093	3,204	19	175	0	25,491
2003	2,914	4,461	0	148	0	7,523	25,972	4,523	0	148	0	30,643
2004	1,793	6,610	0	231	0	8,634	20,163	6,635	0	231	0	27,029
2005	2,014	8,986	0	152	0	11,152	21,164	8,986	0	152	0	30,302
2006	1,010	44,621	0	262	0	45,893	27,837	44,641	0	262	0	57,743
2007	1,896	14,674	0	184	0	16,754	27,033	21,978	0	184	0	49,195
2008	1,311	1,842	0	138	0	3,291	18,365	25,588	0	138	0	44,091
2009	1,253	7,777	0	308	0	9,338	21,509	12,366	0	308	0	34,183
2010	422	5,466	0	319	0	6,207	15,697	49,673	0	319	0	65,689
2011	825	8,651	0	439	0	9,915	21,700	8,651	0	439	0	30,790
2012	678	3,504	0	321	0	4,503	27,125	111,726	0	321	0	139,172
2013	1,094	5,937	0	138	0	7,169	26,272	106,444	0	138	0	132,854
2014	731	6,912	0	235	0	7,878	13,820	103,297	0	235	0	117,352
2015	252	4,770	0	220	0	5,242	13,774	4,770	0	220	0	18,764
2016	96[b]	4,020	0	176[b]	0	4,292	18,724[b]	4,020	0	176[b]	0	22,920
2017	911[b]	4,300	0	438[b]	0	5,649	22,471[b]	163,351	0	438[b]	0	186,260
2018	265[b]	3,427	0	509[b]	0	4,201	18,204[b]	130,319	0	509[b]	0	149,032
2013–2017 Average	617	5,188	0	241	0	6,046	19,012	76,376	0	241	0	95,630
2008–2017 Average	757	5,318	0	273	0	6,348	19,946	58,989	0	273	0	79,208

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	Alaska Yukon Area totals						
Year	Subsistence[a]	Commercial	Commercial related[c]	Personal use	Test fish sales	Sport fish[e]	Total
1998	87,366	28,611	187	84	3,019	421	119,688
1999	83,784	29,389	24	382	836	555	114,970
2000	78,072	6,624	0	30	648	161	85,535
2001	72,155	–	0	146	0	82	72,383
2002	87,056	13,558	19	175	218	384	101,410
2003	82,272	10,685	0	148	119	1,638	94,862
2004	77,934	26,410	0	231	217	203	104,995
2005	93,259	41,264	0	152	134	435	135,244
2006	115,078	92,116	0	262	456	583	208,495
2007	92,926	198,201	0	184	10	245	291,566
2008	86,514	151,186	0	138	80	371	238,289
2009	80,539	170,272	0	308	0	174	251,293
2010	88,373	232,888	0	319	0	1,183	322,763
2011	96,020	275,161	0	439	0	294	371,914
2012	126,992	319,575	0	321	2,412	271	449,571
2013	115,114	485,587	0	138	2,304	1,423	604,566
2014	86,900	530,644	0	235	0	374	618,153
2015	83,567	358,856	0	220	2,494	194	445,331
2016	87,992[b]	525,809	0	176[b]	380	264	614,621
2017	87,437[b]	556,516	0	438[b]	1,819	186	646,396
2018	76,926[b]	576,700	0	509	1,028	[f]	655,163
2013–2017 Average	92,202	491,482	0	241	1,399	488	585,813
2008–2017 Average	93,945	360,649	0	273	949	473	456,290

Note: En dash indicates no commercial fishing activity occurred.

[a] Includes harvest from the Coastal District communities of Hooper Bay and Scammon Bay.

[b] Data are preliminary.

[c] "Commercial related" refers to the estimated number of females and incidental males harvested to produce roe sold, excluding the Anvik River. Beginning in 2006, the numbers of females harvested are included in the total commercial harvest.

[d] Only roe has been sold in the Anvik River commercial fishery. The commercial related harvest shown is the estimated number of females harvested to produce roe sold.

[e] Estimated sport fish harvest for all chum salmon (assumes majority of chum salmon caught during summer season) in Alaskan portion of the drainage.

[f] Data are unavailable at this time.

Appendix A15.–Fall chum salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1998–2018.

	Coastal	District 1				District 2			
Year	Subsistence[a]	Subsistence	Commercial	Test fish sales[b]	Total	Subsistence	Commercial	Test fish sales[b]	Total
1998	34	3,163	–	–	3,163	4,482	–	–	4,482
1999	204	6,502	9,987	1,149	17,638	4,594	9,703	22	14,319
2000	89	5,294	–	–	5,294	1,425	–	–	1,425
2001	559	3,437	–	–	3,437	3,256	–	–	3,256
2002	284	1,881	–	–	1,881	1,618	–	–	1,618
2003	146	2,139	5,586	0	7,725	2,901	–	–	2,901
2004	320	2,067	660	0	2,727	2,421	–	–	2,421
2005	70	2,889	130,525	87	133,501	3,257	–	–	3,257
2006	187	3,902	101,254	0	105,156	4,015	39,905	0	43,920
2007	234	4,390	38,852	0	43,242	3,472	35,826	0	39,298
2008	386	2,823	67,704	0	70,527	3,522	41,270	0	44,792
2009	158	1,917	11,911	0	13,828	1,563	12,072	0	13,635
2010	186	3,202	545	0	3,747	1,419	270	0	1,689
2011	315	3,434	127,735	0	131,169	2,578	100,731	0	103,309
2012	11	7,622	139,842	74	147,538	3,332	129,284	92	132,708
2013	149	3,673	106,588	121	110,382	4,878	106,274	0	111,152
2014	252	4,072	51,829	30	55,931	5,817	59,138	0	64,955
2015	198	5,877	100,562	50	106,489	6,258	74,214	0	80,472
2016	762[c]	4,602[c]	226,576	668	231,846	4,533[c]	213,225	0	217,758
2017	561[c]	4,587[c]	328,410	1,246	334,243	4,175[c]	134,668	0	138,843
2018	525[c]	3,680[c]	198,950	907	203,537	3,004[c]	170,648	0	173,652
2013–2017 Average	384	4,562	162,793	423	167,778	5,132	117,504	0	122,636
2008–2017 Average	298	4,181	116,170	219	120,570	3,808	87,115	9	90,931

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	District 3			Lower Yukon Area subtotals [a]			
Year	Subsistence	Commercial	Total	Subsistence	Commercial	Test fish sales [b]	Total
1998	1,561	–	1,561	9,240	–	–	9,240
1999	415	–	415	11,715	19,690	1,171	32,576
2000	598	–	598	7,406	–	–	7,406
2001	700	–	700	7,952	–	–	7,952
2002	164	–	164	3,947	–	–	3,947
2003	738	–	738	5,924	5,586	0	11,510
2004	298	–	298	5,106	660	0	5,766
2005	1,304	–	1,304	7,520	130,525	87	138,132
2006	480	–	480	8,584	141,159	0	149,743
2007	925	–	925	9,021	74,678	0	83,699
2008	1,821	–	1,821	8,552	108,974	0	117,526
2009	937	–	937	4,575	23,983	0	28,558
2010	1,325	–	1,325	6,132	815	0	6,947
2011	354	–	354	6,681	228,466	0	235,147
2012	637	–	637	11,602	269,126	166	280,894
2013	1,764	–	1,764	10,464	212,862	121	223,447
2014	2,457	–	2,457	12,598	110,967	30	123,595
2015	1,388	–	1,388	13,721	174,776	50	188,547
2016	997[c]	–	997	10,894[c]	439,801	668	451,363
2017	1,304[c]	–	1,304	10,627[c]	463,078	1,246	474,951
2018	706[c]	–	706	7,915[c]	369,598	907	378,420
2013–2017 Average	1,582		1,582	11,661	280,297	423	292,381
2008–2017 Average	1,298		1,298	9,585	203,285	228	213,098

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	District 4				District 5			
Year	Subsistence	Commercial	Commercial related[d]	Total	Subsistence	Commercial	Commercial related[d]	Total
1998	7,898	–	–	7,898	31,393	–	–	31,393
1999	9,174	681	0	9,855	53,580	–	–	53,580
2000	1,759	–	–	1,759	9,920	–	–	9,920
2001	3,352	–	–	3,352	20,873	–	–	20,873
2002	1,549	–	–	1,549	10,976	–	–	10,976
2003	9,750	1,315	0	11,065	28,270	–	–	28,270
2004	7,797	–	–	7,797	40,670	0	0	40,670
2005	9,405	–	–	9,405	51,663	0	0	51,663
2006	6,335	–	–	6,335	52,158	10,030	0	62,188
2007	8,576	–	–	8,576	53,731	427	0	54,158
2008	7,412	0	0	7,412	57,258	4,556	0	61,814
2009	7,382	–	–	7,382	38,083	–	–	38,083
2010	6,788	–	–	6,788	44,334	–	–	44,334
2011	7,260	–	–	7,260	51,885	1,246	0	53,131
2012	18,055	811	0	18,866	54,350	2,419	0	56,769
2013	15,191	–	–	15,191	76,098	1,041	0	77,139
2014	15,936	–	–	15,936	51,197	1,264	0	52,461
2015	13,274	–	–	13,274	50,260	1,048	0	51,308
2016	10,034[c]	–	–	10,034	58,840[c]	7,542	0	66,382
2017	9,609[c]	1,402	0	11,011	60,438[c]	1,952[e]	0	62,390
2018	5,779	596	0	6,375	44,891[c]	896	0	45,787
2013–2017 Average	12,809	1,402	0	13,089	59,367	2,569	0	61,936
2008–2017 Average	11,094	738	0	11,315	54,274	2,634	0	56,381

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	District 6						Upper Yukon Area subtotals					
Year	Subsistence[e]	Commercial	Commercial related[d]	Personal use	Test fish sales[b]	Total	Subsistence[g]	Commercial	Commercial related[d]	Personal use	Test fish sales[b]	Total
1998	14,370	–	–	2	–	14,372	53,661	–	–	2	–	53,663
1999	15,471	–	–	262	–	15,733	78,225	681	0	262	–	79,168
2000	310	–	–	1	–	311	11,989	–	–	1	–	11,990
2001	3,526	–	–	10	–	3,536	27,751	–	–	10	–	27,761
2002	3,202	–	–	3	–	3,205	15,727	–	–	3	–	15,730
2003	12,986	4,095	0	394	–	17,475	51,006	5,410	0	394	–	56,810
2004	8,953	3,450	0	230	–	12,633	57,420	3,450	0	230	–	61,100
2005	22,946	49,637	0	133	–	72,716	84,014	49,637	0	133	–	133,784
2006	16,925	23,353	0	333	–	40,611	75,418	33,383	0	333	–	109,134
2007	29,893	15,572	0	173	–	45,638	92,200	15,999	0	173	–	108,372
2008	16,135	5,735	0	181	–	22,051	80,805	10,291	0	181	–	91,277
2009	16,079	1,286	0	78	–	17,443	61,544	1,286	0	78	–	62,908
2010	11,391	1,735	0	3,209	–	16,335	62,513	1,735	0	3,209	–	67,457
2011	14,376	9,267	0	347	–	23,990	73,521	10,513	0	347	–	84,381
2012	15,302	17,336	0	410	–	33,048	87,707	20,566	0	410	–	108,683
2013	11,640	24,148	0	383	–	36,171	102,929	25,189	0	383	–	128,501
2014	12,798	3,368	0	278	–	16,444	79,931	4,632	0	278	–	84,841
2015	9,345	15,646	0	80	–	25,071	72,879	16,694	0	80	–	89,653
2016	4,882[c]	18,053	0	283[c]	–	23,218	73,756[c]	25,595	0	283[c]	–	99,634
2017	4,419[c]	23,270[f]	0	626[c]	–	28,315	74,466[c]	26,624[f]	0	626[c]	–	101,716
2018	5,909[c]	16,698	0	514[c]	–	23,121	56,579	18,190	0	514	–	75,283
2013–2017 Average	8,617	16,897	0	330		25,844	80,792	19,747	0	330		100,869
2008–2017 Average	11,637	11,984	0	588		24,209	77,005	14,313	0	588		91,905

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	Alaska Yukon Area totals						Canada: Yukon Area totals					
									Mainstem Yukon River		Porcupine	
Year	Subsistence[a]	Commercial	Commercial related[d]	Personal use	Test fish sales[b]	Total	Domestic	Aboriginal	Commercial	Subtotal	Aboriginal	Total
1998	62,901	–	–	2	–	62,903	0	1,795	0	1,795	6,159	7,954
1999	89,940	20,371	0	262	1,171	111,744	0	3,234	10,402	13,636	6,000	19,636
2000	19,395	–	–	1	–	19,396	0	2,927	1,319	4,246	5,000	9,246
2001	35,703	–	–	10	–	35,713	3	3,077	2,198	5,278	4,594	9,872
2002	19,674	–	–	3	–	19,677	0	3,167	3,065	6,232	1,860	8,092
2003	56,930	10,996	0	394	0	68,320	0	1,493	9,030	10,523	382	10,905
2004	62,526	4,110	0	230	0	66,866	0	2,180	7,365	9,545	205	9,750
2005	91,534	180,162	0	133	87	271,916	13	2,035	11,931	13,979	4,593	18,572
2006	84,002	174,542	0	333	0	258,877	0	2,521	4,096	6,617	5,179	11,796
2007	101,221	90,677	0	173	0	192,071	0	2,221	7,109	9,330	4,500	13,830
2008	89,357	119,265	0	181	0	208,803	0	2,068	4,062	6,130	3,436	9,566
2009	66,119	25,269	0	78	0	91,466	0	820	293	1,113	898	2,011
2010	68,645	2,550	0	3,209	0	74,404	0	1,523	2,186	3,709	2,078	5,787
2011	80,202	238,979	0	347	0	319,528	0	1,000	5,312	6,312	1,851	8,163
2012	99,309	289,692	0	410	166	389,577	0	700	3,205	3,905	3,118	7,023
2013	113,393	238,051	0	383	121	351,948	18	500	3,369	3,887	2,283	6,170
2014	92,529	115,599	0	278	30	208,436	19	546	2,485	3,050	1,983	5,033
2015	86,600	191,470	0	80	50	278,200	35	1,000	2,862	3,897	556	4,453
2016	84,650[c]	465,396	0	283[c]	668	550,997	0	1,000	1,745	2,745	3,005	5,750
2017	85,093[c]	489,702	0	626[c]	1,246	576,667	0	1,000	2,404	3,404	2,312	5,716
2018	64,494	387,788	0	514[c]	907	453,703	0	1,000	1,957	2,957	1,874	4,831
2013–2017 Average	92,453	300,044	0	330	423	393,250	14	809	2,573	3,397	2,028	5,424
2008–2017 Average	86,590	217,597	0	588	228	305,003	7	1,016	2,792	3,815	2,152	5,967

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	Yukon River Drainage (Alaska/Canada) totals					
Year	Subsistence[a,g]	Commercial	Commercial related[d]	Personal use	Alaska test fish[b]	Total
1998	70,855	0	0	2	–	70,857
1999	99,174	30,773	0	262	1,171	131,380
2000	27,322	1,319	0	1	–	28,642
2001	43,377	2,198	0	10	–	45,585
2002	24,701	3,065	0	3	–	27,769
2003	58,805	20,026	0	394	0	79,225
2004	64,911	11,475	0	230	0	76,616
2005	98,175	192,093	0	133	87	290,488
2006	91,702	178,638	0	333	0	270,673
2007	107,942	97,786	0	173	0	205,901
2008	94,861	123,327	0	181	0	218,369
2009	67,837	25,562	0	78	0	93,477
2010	72,246	4,736	0	3,209	0	80,191
2011	83,053	244,291	0	347	0	327,691
2012	103,127	292,897	0	410	166	396,600
2013	116,194	241,420	0	383	121	358,118
2014	95,077	118,084	0	278	30	213,469
2015	88,191	194,332	0	80	50	282,653
2016	88,655[c]	467,141	0	283[c]	668	556,747
2017	88,405[c]	492,106	0	626[c]	1,246	582,383
2018	67,368	389,745	0	514	907	458,534
2013–2017 Average	95,304	302,617	0	330	423	398,674
2008–2017 Average	89,765	220,390	0	588	228	310,970

Note: En dash indicates no fishing activity occurred.

[a] Includes harvest from the Coastal District communities of Hooper Bay and Scammon Bay.

[b] The number of salmon sold by ADF&G test fisheries.

[c] Data are preliminary.

[d] Estimated number of females harvested to produce roe sold.

[e] The number of females harvested to produce the roe sold is included in the subsistence harvest estimate.

[f] Includes headed and gutted fish sold and used to produce roe sold.

[g] Includes Alaska Yukon River subsistence and Canadian domestic and Aboriginal harvests.

Appendix A16.–Coho salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1998–2018.

	Coastal	District 1				District 2			
Year	Subsistence[a]	Subsistence	Commercial	Test fish sales[b]	Total	Subsistence	Commercial	Test fish sales[b]	Total
1998	349	2,171	–	–	2,171	2,297	1	0	2,298
1999	74	1,730	855	236	2,821	2,793	746	0	3,539
2000	222	1,067	–	–	1,067	2,351	–	–	2,351
2001	548	1,274	–	–	1,274	1,440	–	–	1,440
2002	248	1,295	–	–	1,295	1,233	–	–	1,233
2003	292	1,260	9,757	0	11,017	1,586	–	–	1,586
2004	63	1,175	1,583	0	2,758	1,500	–	–	1,500
2005	279	976	36,533	0	37,509	1,110	–	–	1,110
2006	335	1,177	39,323	0	40,500	2,459	14,482	0	16,941
2007	110	2,265	21,720	0	23,985	2,347	21,487	0	23,834
2008	116	1,211	13,946	0	15,157	1,997	19,246	0	21,243
2009	246	847	5,994	0	6,841	1,057	1,582	0	2,639
2010	124	1,122	1,027	0	2,149	557	1,023	0	1,580
2011	55	1,127	45,335	0	46,462	823	24,184	0	25,007
2012	93	3,350	39,757	39	43,146	1,346	29,063	0	30,409
2013	287	1,224	27,306	1	28,531	1,080	31,458	0	32,538
2014	204	1,782	54,804	0	56,586	1,769	48,602	0	50,371
2015	174	2,100	66,029	8	68,137	3,002	54,860	0	57,862
2016	355[c]	1,236[c]	113,669	11	114,916	1,133[c]	67,208	0	68,341
2017	435[c]	1,046[c]	95,982	63	97,091	1,263[c]	33,277	0	34,540
2018	871[c]	966[c]	65,431	48	66,445	595[c]	40,845	0	41,440
2013–2017 Average	291	1,478	71,558	17	73,052	1,649	47,081	0	48,730
2008–2017 Average	209	1,505	46,385	12	47,902	1,403	31,050	0	32,453

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	District 3			Lower Yukon Area subtotals [a]			
Year	Subsistence	Commercial	Total	Subsistence[a]	Commercial	Test fish sales[b]	Total
1998	400	–	400	5,217	1	0	5,218
1999	610	–	610	5,207	1,601	236	7,044
2000	94	–	94	3,734	–	–	3,734
2001	0	–	0	3,262	–	–	3,262
2002	115	–	115	2,891	–	–	2,891
2003	711	–	711	3,849	9,757	0	13,606
2004	284	–	284	3,022	1,583	0	4,605
2005	217	–	217	2,582	36,533	0	39,115
2006	83	–	83	4,054	53,805	0	57,859
2007	739	–	739	5,461	43,207	0	48,668
2008	410	–	410	3,734	33,192	0	36,926
2009	321	–	321	2,471	7,576	0	10,047
2010	353	–	353	2,156	2,050	0	4,206
2011	36	–	36	2,041	69,519	0	71,560
2012	556	–	556	5,345	68,820	39	74,204
2013	371	–	371	2,962	58,764	1	61,727
2014	340	–	340	4,095	103,406	0	107,501
2015	428	–	428	5,704	120,889	8	126,601
2016	140[c]	–	140	2,864[c]	180,877	11	183,752
2017	497[c]	–	497	3,241[c]	129,259	63	132,563
2018	154[c]	–	154	2,586[c]	106,276	48	108,910
2013–2017 Average	355		355	3,773	118,639	17	122,429
2008–2017 Average	345		345	3,461	77,435	12	80,909

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	District 4				District 5			
Year	Subsistence	Commercial	Commercial related[d]	Total	Subsistence	Commercial	Commercial related[d]	Total
1998	2,593	–	–	2,593	2,839	–	–	2,839
1999	2,049	–	–	2,049	4,241	–	–	4,241
2000	1,068	–	–	1,068	4,987	–	–	4,987
2001	2,266	–	–	2,266	7,674	–	–	7,674
2002	1,023	–	–	1,023	2,076	–	–	2,076
2003	5,773	367	0	6,140	3,887	–	–	3,887
2004	4,766	–	–	4,766	1,423	–	–	1,423
2005	2,971	–	–	2,971	2,159	–	–	2,159
2006	1,302	–	–	1,302	3,779	–	–	3,779
2007	2,952	–	–	2,952	3,366	–	–	3,366
2008	1,490	0	0	1,490	3,203	91	–	3,294
2009	3,986	–	–	3,986	2,498	–	–	2,498
2010	1,730	–	–	1,730	3,604	–	–	3,604
2011	2,072	–	–	2,072	1,389	–	–	1,389
2012	3,556	0	0	3,556	3,092	634	0	3,726
2013	4,940	–	–	4,940	1,298	0	0	1,298
2014	3,062	–	–	3,062	2,030	0	0	2,030
2015	1,941	–	–	1,941	2,462	0	0	2,462
2016	826[c]	–	–	826	861[c]	54	0	915
2017	529[c]	0	0	529	1,007[c]	0	0	1,007
2018	1,545[c]	0	0	1,545	1,343[c]	0	0	1,343
2013–2017 Average	2,260			2,260	1,532	11	0	1,542
2008–2017 Average	2,413	0	0	2,413	2,144	111	0	2,222

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	District 6						Upper Yukon Area subtotals					
Year	Subsistence	Commercial	Commercial related[d]	Personal use	Test fish sales[b]	Total	Subsistence	Commercial	Commercial related[d]	Personal use	Test fish sales[b]	Total
1998	7,472	–	–	9		7,481	12,904	–	–	9		12,913
1999	9,394	–	–	147		9,541	15,684	–	–	147		15,831
2000	5,150	–	–	0		5,150	11,205	–	–	0		11,205
2001	8,966	–	–	34		9,000	18,906	–	–	34		18,940
2002	9,499	–	–	20		9,519	12,598	–	–	20		12,618
2003	10,363	15,119	0	549		26,031	20,023	15,486	0	549		36,058
2004	11,584	18,649	0	233		30,466	17,773	18,649	0	233		36,655
2005	19,538	21,778	0	107		41,423	24,668	21,778	0	107		46,553
2006	10,571	11,137	0	279		21,987	15,652	11,137	0	279		27,068
2007	7,845	1,368	0	135		9,348	14,163	1,368	0	135		15,666
2008	8,428	2,408	0	50		10,886	13,121	2,499	0	50		15,670
2009	7,051	457	285	70		7,863	13,535	457	285	70		14,347
2010	5,555	1,700	0	1,062		8,317	10,889	1,700	0	1,062		13,651
2011	6,842	6,784	0	232		13,858	10,303	6,784	0	232		17,319
2012	9,540	5,335	0	100		14,975	16,188	5,969	0	100		22,257
2013	5,257	7,439	0	109		12,805	11,495	7,439	0	109		19,043
2014	7,911	1,286	0	174		9,371	13,003	1,286	0	174		14,463
2015	8,000	8,811	0	145		16,956	12,403	8,811	0	145		21,359
2016	4,271[c]	20,551	0	266[c]		25,088	5,958[c]	20,605	0	266[c]		26,829
2017	2,525[c]	9,656[e]	0	200[c]		12,381	4,061[c]	9,656[e]	0	200[c]		13,917
2018	53[c]	4,314	0	0[c]		4,367	2,941[c]	4,314	0	0[c]		7,255
2013–2017 Average	5,593	9,549	0	179		15,320	9,384	9,559	0	179		19,122
2008–2017 Average	6,538	6,443	29	241		13,250	11,096	6,521	29	241		17,886

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	Alaska Yukon Area totals							Canada: Yukon Territories totals		
Year	Subsistence[a]	Commercial	Commercial related[d]	Personal use	Test fish sales[b]	Sport fish	Total	Mainstem Yukon River[f]	Porcupine Aboriginal	Total
1998	18,121	1	0	9	0	758	18,889	0	214	214
1999	20,891	1,601	0	147	236	609	23,484	0	100	100
2000	14,939	–	–	0	–	554	15,493	0	37	37
2001	22,168	–	–	34	–	1,202	23,404	0	0	0
2002	15,489	–	–	20	–	1,092	16,601	26	449	475
2003	23,872	25,243	0	549	0	1,477	51,141	7	523	530
2004	20,795	20,232	0	233	0	1,623	42,883	5	175	180
2005	27,250	58,311	0	107	0	627	86,295	0	11	11
2006	19,706	64,942	0	279	0	1,000	85,927	1	111	112
2007	19,624	44,575	0	135	0	597	64,931	2	500	502
2008	16,855	35,691	0	50	0	341	52,937	0	200	200
2009	16,006	8,033	285	70	0	964	25,358	0	0	0
2010	13,045	3,750	0	1,062	0	944	18,801	0	12	12
2011	12,344	76,303	0	232	0	463	89,342	0	63	63
2012	21,533	74,789	0	100	39	131	96,592	0	10	10
2013	14,457	66,203	0	109	1	266	81,036	0	10	10
2014	17,098	104,692	0	174	0	1,855	123,819	0	133	133
2015	18,107	129,700	0	145	8	593	148,553	0	0	0
2016	8,822[c]	201,482	0	266[c]	11	670	211,251	0	0	0
2017	7,302[c]	138,915	0	200[c]	63	291	146,771	0	71	71
2018	5,527[c]	110,590	0	0[c]	48	[g]	116,165	0	25	25
2013–2017 Average	13,157	128,198	0	179	17	735	142,286	0	43	43
2008–2017 Average	14,557	83,956	29	241	12	652	99,446	0	50	50

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	Yukon River Drainage (Alaska/Canada) totals						
Year	Subsistence[a,h]	Commercial	Commercial related[d]	Personal use	Alaska test fish[b]	Sport fish	Total
1998	18,335	1	0	9	0	758	19,103
1999	20,991	1,601	0	147	236	609	23,584
2000	14,976	0	0	0	0	554	15,530
2001	22,168	0	0	34	0	1,202	23,404
2002	15,938	17	0	20	0	1,101	17,076
2003	24,395	25,243	0	549	0	1,484	51,671
2004	20,970	20,236	0	233	0	1,624	43,063
2005	27,261	58,311	0	107	0	627	86,306
2006	19,817	64,942	0	279	0	1,001	86,039
2007	20,124	44,575	0	135	0	599	65,433
2008	17,055	35,691	0	50	0	341	53,137
2009	16,006	8,033	285	70	0	964	25,358
2010	13,057	3,750	0	1,062	0	944	18,813
2011	12,407	76,303	0	232	0	463	89,405
2012	21,543	74,789	0	100	39	131	96,602
2013	14,467	66,203	0	109	1	266	81,046
2014	17,231	104,692	0	174	0	1,855	123,952
2015	18,107	129,700	0	145	8	593	148,553
2016	8,822[c]	201,482	0	266[c]	11	670	211,251
2017	7,373[c]	138,915	0	200[c]	63	291	146,842
2018	5,552[c]	110,590	0	0[c]	48	[g]	116,190
2013–2017 Average	13,200	128,198	0	179	17	735	142,329
2008–2017 Average	14,607	83,956	29	241	12	652	99,496

Note: En dash indicates no commercial fishing activity occurred.

[a] Includes harvest from the Coastal District communities of Hooper Bay and Scammon Bay.

[b] The number of fish sold by ADF&G test fisheries.

[c] Data are preliminary.

[d] Estimated number of females harvested to produce roe sold.

[e] Includes headed and gutted fish sold and used to produce roe sold.

[f] Includes domestic, commercial, test, sport, and Aboriginal harvest from the Mainstem Yukon River.

[g] Data are unavailable at this time.

[h] Includes Alaska Yukon River subsistence harvest and Canadian Aboriginal harvest.

Appendix A17.–Yukon Area pink salmon total utilization in numbers of fish, by district and area, 1998–2018.

	Coastal District	District 1			District 2			District 3	Lower Yukon Area subtotals		
Year	Subsistence[a]	Subsistence	Commercial	Total	Subsistence	Commercial	Total	Subsistence[a]	Subsistence	Commercial	Total
1998	3,732	1,590	0	1,590	1,550	0	1,550	1,617	8,489	0	8,489
1999	626	32	0	32	21	0	21	0	679	0	679
2000	998	301	0	301	235	0	235	28	1,562	0	1,562
2001	394	9	–	9	0	–	0	0	403	0	403
2002	5,892	1,028	0	1,028	1,282	0	1,282	0	8,202	0	8,202
2003	1,470	207	0	207	117	0	117	130	1,924	0	1,924
2004	7,926	615	0	615	1,138	0	1,138	6	9,685	0	9,685
2005	2,505	390	0	390	232	0	232	0	3,127	0	3,127
2006	2,814	1,114	0	1,114	900	0	900	25	4,853	0	4,853
2007	1,548	382	0	382	185	0	185	3	2,118	0	2,118
2008	3,779	3,053	13,391	16,444	1,025	709	1,734	456	8,313	14,100	22,413
2009	2,143	132	0	132	15	0	15	9	2,299	0	2,299
2010	2,464	787	0	787	1,049	0	1,049	2	4,302	0	4,302
2011	2,098	53	0	53	125	0	125	9	2,285	0	2,285
2012	2,444	1,619	0	1,619	880	0	880	100	5,043	0	5,043
2013	809	115	0	115	140	0	140	12	1,076	0	1,076
2014	2,635	3,292	49,317	52,609	920	5,434	6,354	11	6,858	54,751	61,609
2015	1,865	388	7,326	7,714	363	52	415	0	2,616	7,378	9,994
2016	6,497[b]	1,800[b]	125,070	126,870	258[b]	2,268	2,526	11[b]	8,566[b]	127,338	135,904
2017	1,324[b]	743[b]	0	743	375[b]	0	375	2[b]	2,444[b]	0	2,444
2018	2,923[b]	444[b]	38,456[c]	38,900	304[b]	787	1,091	0[b]	3,671[b]	39,243	42,914
2013–2017 Average	2,626	1,268	36,343	37,610	411	1,551	1,962	7	4,312	37,893	42,205
2008–2017 Average	2,606	1,198	19,510	20,709	515	846	1,361	61	4,380	20,357	24,737

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	District 4	District 5	District 6	Upper Yukon Area subtotals			Alaska Yukon Area totals			
Year	Subsistence[a]	Subsistence[a]	Subsistence[a]	Subsistence	Commercial	Total	Subsistence	Commercial	Sport fish	Total
1998	700	0	0	700	0	700	9,189	0	85	9,274
1999	2	0	0	2	0	2	681	0	0	681
2000	31	0	0	31	0	31	1,593	0	0	1,593
2001	0	0	0	0	0	0	403	–	0	403
2002	221	0	0	221	0	221	8,423	0	0	8,423
2003	243	0	0	243	0	243	2,167	0	24	2,191
2004	12	0	0	12	0	12	9,697	0	33	9,730
2005	7	0	0	7	0	7	3,134	0	0	3,134
2006	1	0	0	1	0	1	4,854	0	54	4,908
2007	0	0	0	0	0	0	2,118	0	0	2,118
2008	1,023	276	0	1,299	0	1,299	9,612	14,100	0	23,712
2009	2	0	0	2	0	2	2,301	0	0	2,301
2010	0	0	0	0	0	0	4,302	0	0	4,302
2011	40	0	0	40	0	40	2,325	0	0	2,325
2012	104	3	0	107	0	107	5,150	0	51	5,201
2013	0	0	0	0	0	0	1,076	0	0	1,076
2014	66	8	0	74	0	74	6,932	54,751	0	61,683
2015	16	13	0	29	0	29	2,645	7,378	136	10,159
2016	117[b]	34[b]	0[b]	151[b]	0	151	8,717[b]	127,338	70	136,125
2017	13[b]	0[b]	0[b]	13[b]	0	13	2,457[b]	0	0	2,457
2018	41[b]	0[b]	0[b]	41[b]	0	41	3,712[b]	39,243	[d]	42,955
2013–2017 Average	42	11	0	53	0	53	4,365	37,893	41	42,300
2008–2017 Average	138	33	0	172	0	172	4,552	20,357	26	24,934

Note: En dash indicates no commercial fishing activity occurred.

[a] No commercial or commercial related harvest of pink salmon in this district from 1998-2018.

[b] Data are preliminary.

[c] Includes test fish sale of pink salmon. One pink salmon was sold in during fall season in 2018.

[d] Data are unavailable at this time.

Appendix A18.–Yukon River Chinook salmon harvest percentage by stock group for the United States and Canada, 1998–2018.

			Upper (Canadian-origin) stock		
Year [a]	Lower stock	Middle stock	U.S. harvest	Canada harvest	U.S. and Canada combined
1998	32.7	17.4	44.2	5.6	49.8
1999	40.1	6.3	44.5	9.1	53.6
2000	33.9	12.3	44.1	9.7	53.8
2001	31.6	16.0	36.5	15.9	52.4
2002	19.4	29.2	39.3	12.1	51.4
2003	6.8	28.9	55.4	8.9	64.3
2004	15.3	28.8	46.8	9.1	55.9
2005	20.7	21.4	46.4	11.5	57.9
2006	17.6	27.6	46.1	8.7	54.9
2007	13.0	30.6	51.1	5.4	56.4
2008	17.0	28.0	48.4	6.6	55.0
2009	11.1	31.4	45.3	12.2	57.5
2010	17.8	32.7	44.8	4.7	49.5
2011	13.9	29.8	45.6	10.7	56.3
2012	13.3	34.8	44.8	7.1	51.9
2013	13.4	21.0	49.5	16.1	65.6
2014 [b]	28.9	25.2	42.9	3.0	45.9
2015 [b]	13.5	31.3	41.5	13.7	55.2
2016 [b]	13.3	27.1	47.6	12.0	59.6
2017 [b]	8.5	30.5	52.6	8.4	60.9
2018 [b]	8.1	27.7	56.1	8.0	64.2
Average					
1998–2017	19.1	25.5	45.9	9.5	55.4
2013–2017	15.5	27.0	46.8	10.6	57.4

Note: Methods in determining stock groupings are reported in DuBois (2016). Years 2014–2018 are still considered preliminary and in draft form. Lower and Middle stocks are only harvested in the U.S.

[a] Years 1981–2013 do not include the subsistence harvest from the Coastal District communities of Hooper Bay and Scammon Bay; 2014–2018 includes the subsistence harvest from Hooper Bay and Scammon Bay.

[b] Data are preliminary.

Appendix A19.–Salmon fishery projects conducted in the Alaskan portion of the Yukon River drainage in 2018.

Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Commercial Catch and Effort Assessment	Alaskan portion of the Yukon River drainage	Document and estimate the catch and associated effort of the (1) Alaskan Yukon River; and (2) commercial salmon fishery via receipts (fish tickets) of commercial sales of salmon.	Jun–Oct	ADF&G	All aspects
Sex ID study	Emmonak, Eagle	Examination of accuracy of visual identification of sex of Chinook, chum, and coho salmon	Jun–Aug	ADF&G	All aspects
Commercial Catch Sampling and Monitoring	Alaskan portion of the Yukon River drainage	(1) Determine age, sex, and size of chum and coho salmon harvested in Alaskan Yukon River commercial fisheries; and (2) monitor Alaskan commercial fishery openings and closures.	Jun–Oct	ADF&G, ADPS	All aspects, Enforcement
Biological Sampling of Yukon River Salmon	Yukon, RM 17–RM 1,002	Collect genetics samples and age, sex, and length information from subsistence caught Chinook salmon.	Jun–Aug	Spearfish Research	All aspects
Yukon River Chinook Microsatellite Baseline	Yukon River drainage	Survey standardized microsatellites and Yukon River Chinook salmon both U.S. and Canada populations.	Ongoing	ADF&G, USFWS, DFO	TI funding, R&E funding
Yukon River Salmon Stock Identification	Yukon River drainage	Estimate Chinook salmon stock composition of the various Yukon River drainage harvests through genetic stock identification, age compositions, and geographical distribution of catches and escapements.	Ongoing	ADF&G	All aspects, TI funding

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Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Yukon Delta Smolt	Yukon Delta (mouths and delta platform)	(1) Determine the composition and spatiotemporal variation in prey species of juvenile Chinook salmon; (2) determine the quality of dominate juvenile Chinook salmon prey; (3) assess the relationship between prey quality and juvenile Chinook salmon size and condition during summer; (4) evaluate juvenile Chinook salmon spatial distribution and habitat use in relation to prey communities in Yukon River tributaries and delta habitats; and (5) evaluate spatiotemporal differences in juvenile Chinook salmon condition, size, and energy content.	May–Aug	NOAA-AFSC, Spearfish Research, and YDFDA	All aspects
YRDFA Weekly Teleconferences	Yukon River drainage	Acts as a forum for fishing operators along the Yukon River to interact with state and federal managers for the collection and dissemination of fisheries information.	May–Sept	YRDFA	All aspects, OSM funding
Lower Yukon River Set Gillnet Test Fishing	South, Middle, and North mouths of the Yukon River Delta, RM 20	(1) Index Chinook salmon run timing and abundance using set gillnets; and (2) sample captured salmon for age, sex, and size composition information.	Jun–Aug	ADF&G, YDFDA	All aspects
Lower Yukon River Drift Test Fishing	South and Middle mouths of the Yukon River Delta, RM 20	(1) Index Chinook, summer and fall chum, and coho salmon run timing and abundance using drift gillnets; and (2) sample captured salmon for age, sex, and size composition information.	Jun–Aug	ADF&G, YDFDA	All aspects
Mountain Village Drift Gillnet Test Fishing	Mainstem Yukon River, RM 87	(1) Index fall chum and coho salmon run timing and relative abundance using drift gillnets; and (2) sample captured salmon for age, sex, and size composition information.	Jul–Sep	Sandone Consulting LLC, ATC, ADF&G	All aspects, R&M funding
East Fork Weir, Andreafsky River	RM 20 East Fork, Yukon RM 124	Estimate daily escapement, with age, sex, and size composition, of Chinook and summer chum salmon into the East Fork of the Andreafsky River.	Jun–Aug	USFWS	All aspects, OSM funding

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Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Anvik River Sonar	RM 40 Anvik River, Yukon RM 358	(1) Estimate daily escapement of summer chum salmon to the Anvik River; and (2) estimate age, sex, and size composition of the summer chum salmon escapement.	Jun–Jul	ADF&G	All aspects, AKSSF funding
Inseason Monitoring of Subsistence Salmon Harvests	Marshall, Yukon RM 161	Collected inseason data by conducting door-to-door salmon harvest surveys during the fishing season with reference to (1) local research assistant capacity with staff oversight; (2) financial costs; (3) community response; (4) provide regular updates to managers; and (5) currently producing report outlining results.	May–Jan	ADF&G	All aspects
Yukon River Sonar	Pilot Station, RM 123	(1) Estimate Chinook and summer and fall chum salmon passage in the mainstem Yukon River; and (2) apportion other species including coho salmon and other finfish.	May–Sep	ADF&G	All aspects
Henshaw Creek Weir	RM 1 Henshaw Creek, Koyukuk River drainage, RM 976	(1) Estimate daily escapement of Chinook and summer chum salmon into Henshaw Creek; and (2) estimate age, sex, and size composition of the Chinook and summer chum salmon escapements.	Jun–Aug	TCC, USFWS-OSM	All aspects, oversight and funding report write-up
Chandalar River Sonar	RM 14 Chandalar River, Yukon RM 996	Estimate fall chum salmon passage using DIDSON sonars in the Chandalar River.	Aug–Sept	USFWS	All aspects, TI funding
Yukon River Sonar	Eagle, RM 1,213	(1) Estimate daily passage of Chinook and chum salmon in the mainstem Yukon River using both split-beam and DIDSON; and (2) estimate age, sex, and size composition of salmon captured in the test nets.	Jul–Oct	ADF&G, DFO	All aspects, technical support, TI funding, ADF&G general fund
Nenana River Escapement Surveys	Nenana River drainage, RM 860	Aerial surveys for numbers and distribution of coho and chum salmon in 10 tributaries of the Nenana River below Healy Creek.	Sep–Oct	ADF&G	All aspects

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Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Delta River Ground Surveys	Tanana River drainage RM 1,031	(1) Estimate fall chum salmon spawning escapement in Delta River; and (2) sample fall chum salmon carcasses for age, sex, and size composition information.	Oct–Dec	ADF&G	All aspects
Chena River Tower	RM 45 Chena River, Tanana River drainage, RM 921	Estimate daily escapement of Chinook and summer chum salmon into the Chena River.	Jul–Aug	ADF&G	All aspects, AKSSF funding
Salcha River Tower	RM 4 Salcha River, Tanana River drainage, RM 967	Estimate daily escapement of Chinook and summer chum salmon into the Salcha River.	Jul–Aug	ADF&G	All aspects, AKSSF funding
Upper Tanana Escapement Surveys	Tanana River drainage, RM 991–RM 1,053	Boat survey for number and distribution of coho salmon in a tributary of the Tanana River drainage.	Oct	ADF&G	All aspects
Goodpaster River Tower	RM 45 Goodpaster River, Tanana River drainage, RM 1,049	Estimate daily escapement of Chinook and summer chum salmon into the Goodpaster River.	Jul–Aug	BSFA	All aspects, Pogo Mine funding
Upper Yukon River Chum Salmon Genetic Stock Identification	Yukon River drainage	Establish the feasibility of using DNA markers for genetic stock identification of chum salmon in the Yukon River.	Jun–Oct	USFWS	All aspects
Yukon River Inseason Salmon Harvest Interviews	Alakanuk, Marshall, Russian Mission, Holy Cross, Kaltag, Huslia, Galena, Nenana, Ft. Yukon, and Eagle	Collect qualitative inseason subsistence salmon harvest information through weekly interviews.	May–Aug	YRDFA, USFWS	All aspects, OSM funding

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Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Migratory Timing and Harvest Information of Chinook Salmon Stocks	Yukon River drainage	Enlarge existing allozyme and develop a DNA database to characterize the genetic diversity of Chinook salmon in the Yukon River within the U.S. and Canada. U.S. collections include microsatellites and allozyme. Canadian collections include microsatellites.	Jun–Aug	USFWS-OSM, ADF&G, DFO	All aspects
In-river coded-wire-tag (CWT) recovery (Whitehorse Hatchery tags)	Yukon River drainage	Collection of Chinook salmon heads from all operating project that are marked with no adipose fin and sent to lab to extract data tag.	May–Sep	ADF&G	Decoding

Notes:
ADF&G = Alaska Department of Fish and Game
ADPS = Alaska Department of Public Safety
AFSC = Alaska Fisheries Science Center
AKSSF = Alaska Sustainable Salmon Fund
ATC = Asacarsarmiut Tribal Council
AVCP = Association of Village Council Presidents, Inc.
BSFA = Bering Sea Fishermen's Association
DFO = Department of Fisheries and Oceans Canada
DNA = Deoxyribonucleic acid
GF = General fund (ADF&G)
NOAA = National Oceanic and Atmospheric Administration
OSM = Office of Subsistence Management
R&M = Research and Management Fund
R&E = Restoration and Enhancement Fund
TCC = Tanana Chiefs Conference, Inc.
TI = Treaty Implementation
USFWS = United States Fish and Wildlife Service
USFWS-OSM = United States Fish and Wildlife Service, Office of Subsistence Management
YDFDA = Yukon Delta Fisheries Development Association
YRDFA = Yukon River Drainage Fisheries Association

Appendix A20.–List of harvest/escapement monitoring and incubation/rearing projects involving salmon in the Canadian portion of the Yukon River drainage in 2018.

Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Aboriginal Catch Monitoring	Yukon communities	To (1) determine weekly catches and effort in the aboriginal fishery; and (2) implement components of the UFA and AFS.	Jul–Oct	YFN, DFO	Joint Project
Recreational Catch Monitoring	Yukon River mainstem and tributaries	(1) To determine the recreational harvest by species including the date, sex, whether released or retained, and fishing location; and (2) report all salmon caught through the YSCCC program.	Jul–Oct	DFO	All aspects
Commercial Catch Monitoring	Yukon River mainstem	To (1) determine weekly catches and effort in the Canadian commercial fishery (Chinook and chum); and (2) collect other information as required.	Jul–Oct	DFO	All aspects
Escapement Surveys and Biological Sampling	Throughout upper Yukon River drainage	To (1) conduct surveys of spawning fish by foot, boat, air etc.; (2) collect ASL and genetic tissue samples from spawning populations; and (3) enumerate and recover tags in terminal areas.	Jul–Oct	R&E Projects, DFO, YFN, AFS	All aspects
Porcupine River Sonar - Chinook	Old Crow	Installation and operation of 2 ARIS sonars to (1) estimate Chinook salmon daily passage; and (2) to conduct biological sampling for species apportionment, age, sex, and length.	Jul–Aug	VGG, DFO	All aspects
Porcupine River Sonar - Chum	Old Crow	Operation of 2 ARIS sonars to (1) estimate chum salmon daily passage; and (2) conduct biological sampling for species apportionment, age, sex, and length.	Aug–Oct	VGG, DFO	All aspects
Whitehorse Rapids Fishway	Whitehorse	(1) To enumerate wild and hatchery-reared Chinook salmon returns to the Whitehorse fishway area; and (2) obtain age, size, sex, and tag data.	Jul–Aug	YF, GA	All aspects

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Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Blind Creek Weir	Pelly River	To (1) enumerate Chinook salmon escapement, recover tags; and (2) collect ASL data and DNA samples.	Jul–Aug	JW&A	All aspects
Big Salmon Sonar	Big Salmon River	(1) Installation and operation of a DIDSON sonar program for Chinook salmon; and (2) obtain carcass ASL samples.	Jul–Aug	Metla Env. Inc., JW&A	All aspects
Pelly River Sonar	Pelly River mainstem	(1) Develop an accurate, in-season stock assessment tool to estimate the annual passage rates for Chinook salmon in the Pelly River; and (2) conduct test netting for species apportionment, and to collect ASL samples.	Jul–Aug	Selkirk First Nation, EDI	All aspects
Whitehorse Rapids Fish Hatchery and Coded-Wire Tagging Project	Whitehorse	To (1) rear and release ~150K Chinook salmon fry produced from Whitehorse Rapids Fishway broodstock; and (2) mark fry with a CWT, adipose clip, and release upstream of the Whitehorse hydroelectric facility.	Ongoing	GY, YEC, YF&GA, DFO	All aspects, coded-wire tagging
McIntyre Incubation Facility and Coded-Wired Tagging Project	Whitehorse	To (1) incubate up to 120K Chinook salmon eggs from brood stock collected in Yukon River spawning tributaries, and/or the Whitehorse Rapids Fishway; and (2) rear, mark with CWT, adipose clip, and release fry to natal streams and/or restoration sites.	Ongoing	YC, YEC, TKC, DFO	Field work, project monitoring, technical support
Big Salmon River Juvenile Chinook Assessment	Big Salmon River	(1) Operation of Rotary Screw Trap, Gee minnow traps, and seine nets to capture juvenile Chinook salmon and use CPUE and mark–recapture to initiate development of an abundance index; and (2) sample juvenile chinook salmon to monitor change in size through the season.	May–Aug	DFO, Metla Env. Inc.	All aspects

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Project name	Location, river mile (RM)	Primary objective(s)	Duration	Agency	Responsibility
Takhini River Chinook Salmon Restoration Investigation	Takhini River	(1) Quantify and characterize habitats used by, and relative fish abundance of, Takhini River Chinook salmon as (a) summer-rearing juveniles and (b) migrating and spawning adults; and (2) establish a baseline understanding of current abundance and distribution in the system.	Jul–Aug	DFO	All aspects
Impacts to the Kluane Fall Chum Salmon Stock from a Major Hydrological Change	Kluane Lake and River	(1) Describe baseline and current habitat use of spawning and incubating chum salmon; (2) assess suitability of habitat given recent reduction in flow; and (3) project likely impact of changes.	Sep–Mar	DFO	All aspects
Overwintering Limitations to Juvenile Chinook	Yukon River (Whitehorse)	(1) Describe and characterize habitats used by Yukon juvenile Chinook salmon during the winter and how it differs from habitat used in the summer months.	Jan–Mar	DFO	All aspects

Notes:

ASL = Age Sex Length–term that refers to the collection of biological information.
AFS = Aboriginal Fisheries Strategy
BM&A = B. Mercer and Associates
CWT = coded wire tag
DFO = Department of Fisheries and Oceans Canada
DNA = Deoxyribonucleic acid
EDI = Environmental Dynamics Incorporated
GY = Government of Yukon-Environment Yukon
JW&A = Wilson & Associates
Metla Env. Inc = Metla Environmental Incorporated
TKC = Ta'an Kwa'chin Council
UFA = Umbrella Final Agreement
VGG = Vuntut Gwitchin Government
YC = Yukon College
YEC = Yukon Energy Corporation
YFN = Yukon First Nations
YF&GA = Yukon Fish and Game Association
YSCCC = Yukon Salmon Conservation Catch Card

Appendix A21.–Selected environmental and salmon catch information, Yukon River drainage, 1998–2018.

Year	Average Nome April air temp (°F)	Tanana River Nenana ice breakup	Ice out Yukon Delta Area	First Chinook caught Yukon Delta Area[a]	First summer chum caught Yukon Delta Area[a]	First District 1 commercial period
1998	26	4/20	5/22	5/28	5/25	6/15
1999	17	4/29 [b]	5/29	6/6	6/13	6/22
2000	21	5/1	5/29	6/3	6/5	6/24
2001	22	5/8	6/5	6/7	6/9	N/A
2002	20	5/7	5/24	5/31	5/30	6/20
2003	26	4/29	5/17	5/22	5/30	6/16
2004	29	4/24	5/8	5/18	5/27	6/17
2005	15	4/28	5/17	5/25	6/1	6/24
2006	12 [c]	5/2	5/29	6/6	6/7	6/19
2007	27 [c]	4/27	5/18	6/3	6/12	6/18
2008	15 [c]	5/5	5/24	6/3	6/16	7/2
2009	17 [c]	5/1	5/26	6/5	6/10	6/20
2010	20 [e]	4/29	5/22 [d]	6/9	6/10	6/28
2011	17.9 [e]	5/4	5/22	5/31	6/4	6/24
2012	20.4 [e]	4/23	5/25	6/8	6/9	6/29
2013	16.3 [e]	5/20	6/3	6/10	6/10	6/18
2014	28.4 [e]	4/25	5/9	5/19	5/15	6/9
2015	21.5 [e]	4/24	5/19	5/27	5/24	6/11
2016	34.3 [e]	4/23	5/3	5/23	5/16	6/7
2017	30.4 [e]	5/1	5/14	5/26	5/21	6/10
2018	26.3 [e]	5/1	5/18	5/27	5/27	6/9
1998–2017 Average	22	4/30	5/21	5/31	6/2	6/19

[a] Subsistence or test fishery.

[b] The Nenana Ice Classic tripod moved on 4/29, but the ice did not move out for several more days.

[c] Source for 2006–2009: https://www.extremeweatherwatch.com/cities/nome (Accessed April 15, 2022).

[d] Breakup on the Lower River occurred on May 22; however, shore-fast sea ice persisted until later than usual in the season.

[e] Monthly mean temperature 2010–2018. Source: https://akclimate.org/data/city-summaries/ (Accessed April 12, 2022).

Appendix A22.–List of emergency orders (EO) and their descriptions for Districts 1–6 in the Chinook (referred to as "king" salmon in EOs) and summer chum salmon fishery, Yukon Area, 2018.

EO Number: 3-S-SY-01-18	Effective date: June 8, 2018

Establishes a weekly fishing schedule of two 18-hour periods per week in the Northern Portion of the Coastal District from 62 degrees North latitude to Point Romanof, including all state marine waters, and District 1, including the Black River.

Effective 2:00 p.m. Friday, June 8, salmon may be taken for subsistence for two 18-hour periods per week from 2:00 p.m. Fridays to 8:00 a.m. Saturdays and from 2:00 p.m. Tuesdays to 8:00 a.m. Wednesdays.

EO Number: 3-S-SY-02-18	Effective date: June 11, 2018

Establishes a weekly fishing schedule of two 18-hour periods per week in District 2 and District 3.

Effective 2:00 p.m. Monday, June 11, in Districts 2 and 3, salmon may be taken for subsistence for two 18-hour periods per week from 2:00 p.m. Mondays to 8:00 a.m. Tuesdays and from 2:00 p.m. Thursdays to 8:00 a.m. Fridays.

EO Number: 3-S-SY-03-18	Effective date: June 10, 2018

By emergency order, drift gillnets may be used for king and chum salmon from June 10 through August 2 during open fishing periods in District 4.

In the lower portion of Subdistrict 4-A, downstream from the mouth of Stink Creek, consistent with 5 AAC 01.220. Lawful gear and gear specifications. (e)(2)(A) and (e)(2)(B), effective 12:01 a.m. Sunday, June 10, salmon may be taken by drift gillnets.

In the upper portion of Subdistrict 4-A, upstream from the mouth of Stink Creek, consistent with 5 AAC 01.220. Lawful gear and gear specifications. (e)(1)(A) and (e)(1)(B), effective 12:01 a.m. Sunday, June 10, salmon may be taken by drift gillnets.

In Subdistricts 4-B and 4-C, consistent with 5 AAC 01.220. Lawful gear and gear specifications. (e)(3)(A) and (e)(3)(B), effective 12:01 a.m. Sunday, June 10, salmon may be taken by drift gillnets.

EO Number: 3-S-SY-04-18	Effective date: June 8, 2018

Opens the commercial salmon fishing season and prohibits the sale of king salmon in District 1 and District 2. Subsistence fishing periods closed prior to the start of the commercial salmon fishing season at 8:00 a.m. Wednesday, June 6, in District 1, and 8:00 a.m. Friday, June 8, in District 2.

The commercial fishing season opens in District 1 effective 9:00 a.m. Friday, June 8.
The commercial fishing season opens in District 2 effective 8:00 a.m. Saturday, June 9.
King salmon may be retained but not sold in the gillnet fishery in Districts 1 and 2.

EO Number: 3-S-SY-05-18	Effective date: June 9, 2018

Establishes three 12-hour commercial fishing periods in District 1 and two 12-hour commercial fishing periods in District 2 and allows the taking of salmon with beach seine or dip net gear only. Commercial fishing operators are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket.

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Effective 2:00 p.m. Saturday, June 9, in District 1, salmon may be taken for commercial purposes from:
2:00 p.m. Saturday, June 9 to 2:00 a.m. Sunday, June 10
2:00 p.m. Sunday, June 10 to 2:00 a.m. Monday, June 11
2:00 p.m. Monday, June 11 to 2:00 a.m. Tuesday, June 12

Effective 2:00 p.m. Tuesday, June 12, in District 2, salmon may be taken for commercial purposes from:
2:00 p.m. Tuesday, June 12, to 2:00 a.m. Wednesday, June 13
2:00 p.m. Wednesday, June 13, to 2:00 a.m. Thursday, June 14

EO Number: 3-S-SY-06-18 Effective date: June 14, 2018

Establishes a weekly fishing schedule: in Subdistrict 4-A from ¾ miles downstream of Old Paradise Village upstream to Cone Point, and the Anvik River, effective 6:00 p.m. Thursday, June 14, subsistence fishing will close. Effective 6:00 p.m. Sunday, June 17, salmon may be taken for subsistence for two 24-hour periods per week from 6:00 p.m. Sundays to 6:00 p.m. Mondays, and from 6:00 p.m. Wednesdays to 6:00 Thursdays.

EO Number: 3-S-SY-07-18 Effective date: June 13, 2018

Establishes one 12-hour and one 24-hour commercial fishing period in District 1 and allows the taking of salmon with beach seine or dip net gear only. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

In District 1, salmon may be taken for commercial purposes from:
12:00 noon Wednesday, June 13, to 11:59 p.m. Wednesday, June 13, a 12-hour period;
12:00 noon Thursday, June 14, to 12:00 noon Friday, June 15, 24-hour period.

EO Number: 3-S-SY-08-18 Effective date: June 16, 2018

Establishes two 12-hour and two 24-hour commercial fishing periods in District 1 and four 12-hour commercial fishing periods in District 2. This emergency order allows the taking of salmon with beach seine or dip net gear only. Commercial fishing operators are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

Effective 12:00 noon Saturday June 16, in District 1, salmon may be taken for commercial purposes from:
12:00 noon Saturday, June 16, to 11:59 p.m. Saturday, June 16, a 12-hour period;
12:01 a.m. Sunday, June 17, to 11:59 p.m. Sunday, June 17, a 24-hour period;
12:01 a.m. Monday, June 18, to 11:59 p.m. Monday, June 18, a 24-hour period;
12:01 a.m. Tuesday, June 19, to 12:00 noon Tuesday, June 19, a 12-hour period;

Effective 12:00 noon Saturday, June 16, in District 2, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Saturday, June 16;
12:00 noon to 11:59 p.m. Sunday, June 17;
12:00 noon to 11:59 p.m. Tuesday, June 19;
12:00 noon to 11:59 p.m. Wednesday, June 20.

EO Number: 3-S-SY-09-18 Effective date: June 18, 2018

Closes unrestricted fishing and establishes a schedule consisting of two 24-hour periods per week in Subdistricts 4-B and 4-C, from Cone Point to Illinois Creek; effective 6:00 p.m. Monday, June 18, subsistence fishing will close. Effective 6:00 p.m. Wednesday, June 20, salmon may be taken for subsistence for two 24-hour periods per week from 6:00 p.m. Wednesdays to 6:00 Thursdays, and from 6:00 p.m. Sundays to 6:00 p.m. Mondays.

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EO Number: 3-S-SY-10-18 Effective date: June 19, 2018

This emergency order amends EO 3-S-SY-01-18 and cancels an 18-hour subsistence period in the Northern Portion of the Coastal District from 62 degrees North latitude to Point Romanof, including all state marine waters, and District 1, including the Black River. Effective 2:00 p.m. Tuesday, June 19, salmon fishing will remain closed during one 18-hour period.

EO Number: 3-S-SY-11-18 Effective date: June 18, 2018

This emergency order amends EO 3-S-SY-02-18 and cancels an 18-hour subsistence period in District 2 and District 3; effective 2:00 p.m. Monday, June 18, salmon fishing will remain closed during one 18-hour period in Districts 2 and 3.

EO Number: 3-S-SY-12-18 Effective date: June 20, 2018

Amends emergency order 3-S-SY-06-18 and cancels a 24-hour subsistence period; in Subdistrict 4-A, from ¾ mile downstream of Old Paradise Village upstream to Cone Point, and the Anvik Special Management Area, effective 6:00 p.m. Wednesday, June 20, subsistence fishing is closed for one 24-hour period.

EO Number: 3-S-SY-13-18 Effective date: June 21, 2018

Rescinds emergency order 3-S-SY-02-18 and restricts subsistence fishing to gillnets of 6-inch or less mesh during a weekly fishing schedule of two 18-hour periods per week in Districts 2 and 3. One additional period with gillnets of 7.5- inch or less mesh will open in District 3.

Effective 2:00 p.m. Thursday, June 21, in District 2 salmon may be taken for subsistence for two 18-hour periods per week with gillnets of 6-inch or less mesh from 2:00 p.m. Thursdays to 8:00 a.m. Fridays and from 2:00 p.m. Mondays to 8:00 a.m. Tuesdays.

Effective 2:00 p.m. Thursday, June 21, in District 3 salmon may be taken for subsistence from 2:00 p.m. Thursday, June 21, to 8:00 a.m. Friday, June 22, with gillnets of 7.5-inch or less mesh.

Effective 2:00 p.m. Monday, June 25, in District 3 salmon may be taken for subsistence for two 18-hour periods per week with gillnets of 6-inch or less mesh from 2:00 p.m. Mondays to 8:00 a.m. Tuesdays and from 2:00 p.m. Thursdays to 8:00 a.m. Fridays.

EO Number: 3-S-SY-14-18 Effective date: June 22, 2018

This emergency order rescinds emergency order 3-S-SY-01-18 and restricts subsistence fishing to gillnets of 6-inch or less mesh during a weekly fishing schedule of two 18-hour periods per week in the Northern Portion of the Coastal District from 62 degrees North latitude to Point Romanof, including all state marine waters, and District 1, including the Black River.

Effective 2:00 p.m. Friday, June 22, salmon may be taken for subsistence for two 18-hour periods per week with gillnets of 6-inch or less mesh from 2:00 p.m. Fridays to 8:00 a.m. Saturdays and from 2:00 p.m. Tuesdays to 8:00 a.m. Wednesdays.

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EO Number: 3-S-SY-15-18 Effective date: June 24, 2018

Amends emergency order 3-S-SY-06-18 and restricts subsistence fishing to gillnets of 6-inch or less mesh during one 24-hour fishing period. A weekly fishing schedule consisting of two 24-hour periods per week in Subdistrict 4-A was established by emergency order 3-S-SY-06-18.

In Subdistrict 4-A, from ¾ mile downstream of Old Paradise Village upstream to Cone Point, and the Anvik Special Management Area, effective 6:00 p.m. Sunday, June 24, salmon may be taken for subsistence with gillnets of 6-inch or less mesh from 6:00 p.m. Sunday, June 24, until 6:00 p.m. Monday, June 25.

EO Number: 3-S-SY-16-18 Effective date: June 20, 2018

Establishes two 24-hour and one 10-hour commercial fishing periods in District 1 and three 12-hour commercial fishing periods in District 2. This emergency order allows the taking of salmon by CFEC salmon gillnet permit holders for commercial purposes with beach seine or dip net gear only. Commercial fishing operators using dip net or beach seine gear are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

Effective 12:01 a.m. Wednesday, June 20, in District 1, salmon may be taken for commercial purposes from:
12:01 a.m. Wednesday, June 20, to 11:59 p.m. Wednesday, June 20, a 24-hour period;
12:01 a.m. Thursday, June 21, to 11:59 p.m. Thursday, June 21, a 24-hour period;
12:01 a.m. Friday, June 22, to 10:00 a.m. Friday, June 22, a 10-hour period;
Effective 12:00 noon Friday, June 22, in District 2, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Friday, June 22;
12:00 noon to 11:59 p.m. Saturday, June 23;
12:00 noon to 11:59 p.m. Sunday, June 24.

EO Number: 3-S-SY-17-18 Effective date: June 25, 2018

Amends emergency order 3-S-SY-09-18 by canceling a fishing period and restricting subsistence fishing to gillnets of 6-inch or less mesh.

In Subdistricts 4-B and 4-C, from Cone Point to Illinois Creek, effective 6:00 p.m. Monday, June 25, subsistence fishing will close. Effective 6:00 p.m. Sunday, July 1, salmon may be taken for subsistence for a 24-hour period with gillnets of 6-inch or less mesh from 6:00 p.m. Sunday, July 1 to 6:00 p.m. Monday, July 2.

EO Number: 3-S-SY-18-18 Effective date: June 23, 2018

Closes unrestricted fishing and restricts subsistence fishing to gillnets of 6-inch or less mesh during two 24-hour fishing periods per week in Subdistricts 5-A, 5-B and 5-C.

In Subdistricts 5-A, 5-B and 5-C, effective 6:00 p.m. Saturday, June 23, subsistence fishing will close. Effective 6:00 p.m. Tuesday, June 26, salmon may be taken for subsistence for two 24-hour periods per week with gillnets of 6-inch or less mesh from 6:00 p.m. Tuesdays to 6:00 p.m. Wednesdays, and from 6:00 p.m. Fridays to 6:00 p.m. Saturdays.

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EO Number: 3-S-SY-19-18 Effective date: July 1, 2018

Closes unrestricted fishing and restricts subsistence fishing to gillnets of 6-inch or less mesh during one 84-hour fishing period per week in portions of Subdistrict 5-D.

In the lower and middle portions of Subdistrict 5-D, from the Alaska Department of Fish and Game regulatory marker two miles downstream of Waldron Creek upstream to 22 Mile Slough and including the Porcupine River and all other adjacent tributaries:

Effective 10:00 p.m. Sunday, July 1, subsistence fishing will close.

Effective 10:00 a.m. Thursday, July 5, salmon may be taken for subsistence for one 84-hour period per week with gillnets of 6-inch or less mesh from 10:00 a.m. Thursdays to 10:00 p.m. Sundays.

EO Number: 3-S-SY-20-18 Effective date: June 24, 2018

Closes unrestricted fishing in Subdistricts 6-A and 6-B and restricts subsistence fishing to gillnets of 6-inch or less mesh during two 21-hour fishing periods per week.

In Subdistricts 6-A and 6-B, from the mouth of the Tanana River upstream to the regulatory marker at the mouth of the Wood River, effective 12:00 noon Sunday, June 24, subsistence fishing will close. Effective 6:00 p.m. Monday, June 25, salmon may be taken for subsistence for two 21-hour periods per week with gillnets of 6-inch or less mesh from 6:00 p.m. Mondays to 3:00 p.m. Tuesdays, and from 6:00 p.m. Fridays to 3:00 p.m. Saturdays.

EO Number: 3-S-SY-21-18 Effective date: June 25, 2018

This emergency order restricts personal use fishing time to half of the regulatory schedule with gillnets of 6-inch or less mesh in order to conserve king salmon.

Effective 6:00 p.m. Monday, June 25, in Subdistrict 6-C, from the regulatory marker at the mouth of the Wood River upstream to the downstream mouth of the Salcha River, salmon may be taken for personal use for two 21-hour periods per week with gillnets of 6-inch or less mesh from 6:00 p.m. Mondays to 3:00 p.m. Tuesdays, and from 6:00 p.m. Fridays to 3:00 p.m. Saturdays.

EO Number: 3-S-SY-22-18 Effective date: June 27, 2018

Closes subsistence fishing which was open 24 hours a day, 7 days a week in the Old Minto Area. Fishing will reopen on the regulatory schedule. Fishing gear is not restricted and fish harvesters may use gillnets of 7.5-inch or less mesh and fish wheels.

Effective 6:00 p.m. Wednesday, June 27, in the Old Minto Area, subsistence fishing will close and reopen on the regulatory schedule of five days per week from 6:00 p.m. Fridays to 6:00 p.m. Wednesdays.

EO Number: 3-S-SY-23-18 Effective date: June 26, 2018

Amends emergency order 3-S-SY-14-18 and cancels a subsistence fishing period in the Northern Portion of the Coastal District from 62 degrees North latitude to Point Romanof, including all state marine waters, and District 1, including the Black River. Effective 2:00 p.m. Tuesday, June 26, salmon fishing will remain closed during one 18-hour period.

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EO Number: 3-S-SY-24-18 Effective date: June 28, 2018

Amends EO 3-S-SY-13-18 and cancels an 18-hour subsistence period in District 2 and District 3. Effective 2:00 p.m. Thursday, June 28, salmon fishing will remain closed during one 18-hour period in Districts 2 and 3.

EO Number: 3-S-SY-25-18 Effective date: June 23, 2018

Establishes four 12-hour commercial fishing periods in District 1 and four 12-hour commercial fishing periods in District 2. This emergency order allows the taking of salmon by CFEC salmon gillnet permit holders for commercial purposes with beach seine or dip net gear only. Commercial fishing operators using dip net or beach seine gear are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

Effective 12:00 noon Saturday, June 23, in District 1, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Saturday, June 23;
12:00 noon to 11:59 p.m. Sunday, June 24;
12:00 noon to 11:59 p.m. Monday, June 25;
12:00 noon to 11:59 p.m. Tuesday, June 26;
Effective 12:00 noon Tuesday, June 26, in District 2, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Tuesday, June 26;
12:00 noon to 11:59 p.m. Wednesday, June 27;
12:00 noon to 11:59 p.m. Thursday, June 28;
12:00 noon to 11:59 p.m. Friday, June 29.

EO Number: 3-S-SY-26-18 Effective date: June 27, 2018

Establishes three 12-hour commercial fishing periods in District 1 and two 12-hour commercial fishing periods in District 2. This emergency order allows the taking of salmon by CFEC salmon gillnet permit holders for commercial purposes with beach seine or dip net gear only. Commercial fishing operators using dip net or beach seine gear are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

Effective 12:00 noon Wednesday, June 27, in District 1, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Wednesday, June 27;
12:00 noon to 11:59 p.m. Thursday, June 28;
12:00 noon to 11:59 p.m. Saturday, June 30;
Effective 12:00 noon Saturday, June 30, in District 2, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Saturday, June 30;
12:00 noon to 11:59 p.m. Sunday, July 1.

EO Number: 3-S-SY-27-18 Effective date: June 27, 2018

Amends EO 3-S-SY-06-18 and cancels a subsistence period. In Subdistrict 4-A, from ¾ mile downstream of Old Paradise Village upstream to Cone Point, and the Anvik Special Management Area, effective 6:00 p.m. Wednesday, June 27, subsistence fishing will remain closed for one 24-hour period.

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EO Number: 3-S-SY-28-18 Effective date: June 26, 2018

Opens the commercial salmon fishing season for live release fish wheels in Subdistrict 4-A. Any incidentally caught king salmon must be released alive and recorded on fish tickets.

Effective 12:01 a.m. Tuesday, June 26, the commercial salmon fishing season is open in Subdistrict 4-A, from ¾ miles downstream of Old Paradise Village upstream to Cone Point. Commercial fishing is open 24 hours a day, 7 days a week.

EO Number: 3-S-SY-29-18 Effective date: July 1, 2018

Rescinds emergency orders 3-S-SY-06-18, 3-S-SY-09-18, and 3-S-SY-17-18 and establishes two 24-hour fishing periods in District 4. During the second period, gear will be restricted to gillnets of 6-inch or less mesh.

Effective 6:00 p.m. Sunday, July 1, salmon may be taken from 6:00 p.m. Sunday, July 1 to 6:00 Monday, July 2, with gillnets of 7.5-inch or less mesh.

Effective 6:00 p.m. Wednesday, July 4, salmon may be taken from 6:00 p.m. Wednesday, July 4 to 6:00 p.m. Thursday, July 5, with gillnets of 6-inch or less mesh.

EO Number: 3-S-SY-30-18 Effective date: July 2, 2018

Rescinds emergency order 3-S-SY-20-18 and restricts subsistence fishing to gillnets of 6-inch or less mesh during two 24-hour fishing periods per week in Subdistricts 6-A and 6-B.

Effective 6:00 p.m. Monday, July 2, salmon may be taken for subsistence in Subdistricts 6-A and 6-B, from the mouth of the Tanana River upstream to the regulatory marker at the mouth of the Wood River, for two 24-hour periods per week with gillnets of 6-inch or less mesh from 6:00 p.m. Mondays to 6:00 p.m. Tuesdays, and from 6:00 p.m. Fridays to 6:00 p.m. Saturdays.

EO Number: 3-S-SY-31-18 Effective date: July 2, 2018

Rescinds emergency order 3-S-SY-21-18 and restricts personal use fishing to gillnets of 6-inch or less mesh during two 24-hour periods per week in order to conserve king salmon.

Effective 6:00 p.m. Monday, July 2, in Subdistrict 6-C, from the regulatory marker at the mouth of the Wood River upstream to the downstream mouth of the Salcha River, salmon may be taken for personal use for two 24-hour periods per week with gillnets of 6-inch or less mesh from 6:00 p.m. Mondays to 6:00 p.m. Tuesdays, and from 6:00 p.m. Fridays to 6:00 p.m. Saturdays.

EO Number: 3-S-SY-32-18 Effective date: July 2, 2018

Amends emergency order 3-S-SY-13-18 and opens one 18-hour period with gillnets of 7.5-inch or less mesh in District 3.

Effective 2:00 p.m. Monday, July 2, in District 3 salmon may be taken for subsistence from 2:00 p.m. Monday, July 2, to 8:00 a.m. Tuesday, July 3, with gillnets of 7.5-inch or less mesh.

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EO Number: 3-S-SY-33-18 Effective date: July 1, 2018

Establishes two 12-hour commercial fishing periods in District 1 and two 12-hour commercial fishing periods in District 2. This emergency order allows the taking of salmon by CFEC salmon gillnet permit holders for commercial purposes with beach seine or dip net gear only. Commercial fishing operators using dip net or beach seine gear are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

Effective 12:00 p.m. noon Sunday, July 1, in District 1, salmon may be taken for commercial purposes from:
12:00 noon to 11:59 p.m. Sunday, July 1;
12:00 noon to 11:59 p.m. Monday, July 2;
Effective 10:00 a.m. Tuesday, July 3, in District 2, salmon may be taken for commercial purposes from:
10:00 a.m. to 10:00 p.m. Tuesday, July 3;
10:00 a.m. to 10:00 p.m. Wednesday, July 4.

EO Number: 3-S-SY-34-18 Effective date: July 4, 2018

Establishes two 6-hour commercial fishing periods with gillnets of 6-inch or less mesh in District 1. In District 2, one 12-hour period will open with beach seine or dip net gear and two 6-hour commercial fishing periods will open with gillnets of 6-inch or less mesh. This emergency order allows the taking of salmon by CFEC salmon gillnet permit holders for commercial purposes with beach seine or dip net gear. Commercial fishing operators using dip net or beach seine gear are required to immediately release incidentally-caught king salmon back to the water alive. King salmon caught and released must be recorded on a fish ticket. Commercial fishing operators using gillnets are required to report any salmon retained for personal use on a fish ticket. Subsistence fishing is on a reduced regulatory schedule of two 18-hour periods per week and will be closed before, during, and after commercial openings.

Effective 6:00 p.m. Wednesday, July 4, in District 1, salmon may be taken for commercial purposes with gillnets of 6-inch or less mesh from:
6:00 p.m. to 11:59 p.m. Wednesday, July 4;
6:00 p.m. to 11:59 p.m. Thursday, July 5;
Effective 10:00 a.m. Friday, July 6, in District 2, salmon may be taken for commercial purposes with dip net or beach seine gear from:
10:00 a.m. to 10:00 p.m. Friday, July 6;
Effective 4:00 p.m. Saturday, July 7, in District 2, salmon may be taken for commercial purposes with gillnets of 6-inch or less mesh from:
4:00 p.m. to 10:00 p.m. Saturday, July 7;
4:00 p.m. to 10:00 p.m. Sunday, July 8.

EO Number: 3-S-SY-35-18 Effective date: July 8, 2018

Establishes two 24-hour fishing periods in District 4. During the second period, gear will be restricted to gillnets of 6-inch or less mesh.

Effective 6:00 p.m. Sunday, July 8, salmon may be taken from 6:00 p.m. Sunday, July 8, to 6:00 p.m. Monday, July 9, with gillnets of 7.5-inch or less mesh.

Effective 6:00 p.m. Wednesday, July 11, salmon may be taken from 6:00 p.m. Wednesday, July 11, to 6:00 p.m. Thursday, July 12, with gillnets of 6-inch or less mesh.

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EO Number: 3-S-SY-36-18 Effective date: July 9, 2018

Amends emergency order 3-S-SY-13-18 and opens one 18-hour period in District 3 before returning to the regulatory schedule with gillnets of 7.5-inch or less mesh.

Effective 2:00 p.m. Monday, July 9, in District 3 salmon may be taken for subsistence for an 18-hour period from 2:00 p.m. Monday, July 9 to 8:00 a.m. Tuesday, July 10.

Effective 8:00 p.m. Wednesday, July 11, in District 3 salmon may be taken for subsistence for two 36-hour periods per week from 8:00 p.m. Wednesdays to 8:00 a.m. Fridays, and from 8:00 p.m. Sundays to 8:00 a.m. Tuesdays.

EO Number: 3-S-SY-37-18 Effective date: July 8, 2018

Closes unrestricted fishing and restricts subsistence fishing to gillnets of 6-inch or less mesh during one 84-hour fishing period per week in portions of Subdistrict 5-D.

In the upper portion of Subdistrict 5-D, from 22 Mile Slough upstream to the United States-Canada Border, including all adjacent tributaries, effective 10:00 p.m. Sunday, July 8, subsistence fishing will close. Effective 10:00 a.m. Thursday, July 12, salmon may be taken for subsistence for one 84-hour period per week with gillnets of 6-inch or less mesh from 10:00 a.m. Thursdays to 10:00 p.m. Sundays.

EO Number: 3-S-SY-38-18 Effective date: July 7, 2018

Establishes 9-hour commercial fishing periods with gillnets of 6 inch or less mesh in District 1. Commercial fishing operators are required to report any salmon retained for personal use on a fish ticket.

Additionally, this emergency order rescinds emergency order 3-S-SY-14-18. Subsistence fishing in the Northern Portion of the Coastal District from 62 degrees North latitude to Point Romanof, including all state marine waters, and District 1, including the Black River, is open 24 hours a day, 7 days a week with gillnets of 7.5-inch or less mesh except for closures 3 hours before, during, and 3 hours after commercial periods.

Effective 6:00 p.m. Saturday, July 7, in District 1, salmon may be taken for commercial purposes with gillnets of 6-inch or less mesh from 6:00 p.m. each day until 3:00 a.m. the next day.

Effective 6:00 a.m. Sunday, July 8, in the Northern Portion of the Coastal District from 62 degrees North latitude to Point Romanof, including all state marine waters, and District 1, including the Black River, salmon may be taken for subsistence purposes with gillnets of 7.5-inch or less mesh from 6:00 a.m. to 3:00 p.m. each day.

EO Number: 3-S-SY-39-18 Effective date: July 9, 2018

Amends emergency order 3-S-SY-13-18 and removes the mesh size restriction during a weekly fishing schedule of two 18-hour periods per week in District 2.

Effective 2:00 p.m. Monday, July 9, in District 2 salmon may be taken for subsistence for two 18-hour periods per week with gillnets of 7.5-inch or less mesh from 2:00 p.m. Mondays to 8:00 a.m. Tuesdays and from 2:00 p.m. Thursdays to 8:00 a.m. Fridays.

EO Number: 3-S-SY-40-18 Effective date: July 10, 2018

Establishes six 12-hour commercial fishing periods with gillnets of 6-inch or less mesh in District 2. Commercial fishing operators are required to report any salmon retained for personal use on a fish ticket.

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Subsistence fishing in District 2 is open for two 18-hour periods per week with gillnets of 7.5-inch or less mesh and will be closed before, during, and after commercial periods.

Effective 12:00 noon Tuesday, July 10, in District 2, salmon may be taken for commercial purposes with gillnets of 6-inch or less mesh during the 12-hour following periods;

12:00 noon to 11:59 p.m. Tuesday, July 10
12:00 noon to 11:59 p.m. Wednesday, July 11
12:00 noon to 11:59 p.m. Friday, July 13
12:00 noon to 11:59 p.m. Saturday, July 14
12:00 noon to 11:59 p.m. Sunday, July 15
12:00 noon to 11:59 p.m. Tuesday, July 17.

EO Number: 3-S-SY-41-18 Effective date: July 15, 2018

Opens subsistence fishing on the regulatory schedule of two 48-hour fishing periods per week in District 4. Fish harvesters may use gillnets of 7.5-inch or smaller mesh.

Effective 6:00 p.m. Sunday, July 15, salmon may be taken for two 48-hour periods per week from 6:00 p.m. Sundays to 6:00 p.m. Tuesdays, and from 6:00 p.m. Wednesdays to 6:00 p.m. Fridays.

EO Number: 3-S-SY-42-18 Effective date: July 13, 2018

Rescinds emergency order 3-S-SY-30-18. Subsistence fishing in Subdistricts 6-A and 6-B will return to the regulatory schedule of two 42-hour periods per week with gillnets of 7.5-inch or less mesh.

Effective 6:00 p.m. Friday, July 13, salmon may be taken for subsistence in Subdistricts 6-A and 6-B, from the mouth of the Tanana River upstream to the regulatory marker at the mouth of the Wood River, for two 42-hour periods per week from 6:00 p.m. Fridays to 12:00 noon Sundays, and from 6:00 p.m. Mondays to 12:00 noon Wednesdays.

EO Number: 3-S-SY-43-18 Effective date: July 13, 2018

Rescinds emergency order 3-S-SY-31-18. Personal use fishing will return to the regulatory schedule of two 42-hour periods per week with gillnets of 7.5-inch or less mesh.

Effective 6:00 p.m. Friday, July 13, in Subdistrict 6-C, from the regulatory marker at the mouth of the Wood River upstream to the downstream mouth of the Salcha River, salmon may be taken for personal use for two 42-hour periods per week from 6:00 p.m. Fridays to 12:00 noon Sundays, and from 6:00 p.m. Mondays to 12:00 noon Wednesdays.

EO Number: 3-S-SY-44-18 Effective date: July 18, 2018

Rescinds emergency order 3-S-SY-18-18 and opens subsistence fishing with gillnets of 7.5-inch or less mesh during the regulatory schedule of two 48-hour fishing periods per week in Subdistricts 5-A, 5-B, and 5-C.

In Subdistricts 5-A, 5-B, and 5-C, effective 6:00 p.m. Wednesday, July 18, subsistence fishing will close. Effective 6:00 p.m. Friday, July 20, salmon may be taken for subsistence for two 48-hour periods per week from 6:00 p.m. Fridays to 6:00 p.m. Sundays, and from 6:00 p.m. Tuesdays to 6:00 p.m. Thursdays.

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EO Number: 3-S-SY-45-18 Effective date: July 21, 2018

Amends emergency order 3-S-SY-28-18 and removes the requirement to man commercial fish wheels in Subdistrict 4-A. Salmon caught in commercial fish wheels may be sold or the majority of the carcass must be salvaged for use by humans or domesticated animals. Disposal of male chum carcasses into the river is illegal under Sec 15.05.831.

Waste of Salmon. (a). Fishermen may release Chinook salmon immediately alive or retain them for personal use. Chinook salmon may not be sold.

Effective 9:00 a.m. Saturday, July 21, commercial salmon fishing is open 24 hours a day, 7 days a week with fish wheels in Subdistrict 4-A, from ¾ miles downstream of Old Paradise Village upstream to Cone Point.

EO Number: 3-S-SY-46-18 Effective date: July 13, 2018

Opens the commercial salmon fishing season and prohibits the sale of king salmon in District 6 of the Upper Yukon Area.

Effective 6:00 p.m. Friday, July 13, the commercial salmon fishing season is open in District 6 for two 42-hour periods per week from 6:00 p.m. Fridays to 12:00 noon Sundays, and from 6:00 p.m. Mondays to 12:00 noon Wednesdays. King salmon may be retained but not sold in the gillnet and fish wheel fishery.

Appendix A23.–List of emergency orders pertaining to the Fall Season in Districts 1-6 fall chum and coho salmon fishery, Yukon Area, 2018.

EO Number: 3-S-FY-01-18	Effective date: January 2, 2018

Effective 1:00 p.m. Tuesday, January 2, 2018, subsistence fishing for northern pike through the ice closed on the Chatanika River from the confluence of Goldstream Creek to 1 river mile upstream. This emergency order reduces the 3-mile closed portion of the Chatanika River to 1 river mile of closed waters.

EO Number: 3-S-FY-02-18	Effective date: July 18, 2018

Effective 8:00 p.m. Wednesday, July 18, the commercial salmon fishing season in District 3 is open.

EO Number: 3-S-FY-03-18	Effective date: July 18, 2018

This emergency order rescinds emergency orders 3-S-SY-36-18 and 3-S-SY-39-18 that restricted subsistence fishing in Districts 2 and 3 to two 18-hour periods per week. Effective 3:00 a.m. Wednesday, July 18, subsistence fishing in District 2 will be open 24 hours a day, 7 days a week except for 12 hours before, during, and 12 hours after commercial openings. Effective 8:00 a.m. Wednesday, July 18, subsistence fishing in District 3 is open 24 hours a day, 7 days a week except for 12 hours before, during, and 12 hours after commercial openings. Subsistence salmon fish harvesters may use gillnets with 7.5-inch mesh or less.

EO Number: 3-S-FY-04-18	Effective date: July 16, 2018

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Monday, July 16, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 4:00 p.m. until 10:00 p.m. Monday, July 16, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 1:00 a.m. Monday, July 16, and reopen at 10:00 a.m. Tuesday, July 17. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 1:00 a.m. Monday, July 16, and reopen at 10:00 a.m. Tuesday, July 17.

The provision contained in emergency order 3-S-SY-04-18 prohibiting the sale of incidentally caught king salmon remains in effect for the 2018 commercial fishery.

EO Number: 3-S-FY-05-18	Effective date: July 18, 2018

A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Wednesday, July 18, in District 2. The provision contained in emergency order 3-S-SY-04-18 prohibiting the sale of incidentally caught king salmon remains in effect for the 2018 commercial fishery.

EO Number: 3-S-FY-06-18	Effective date: July 19, 2018

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 12:00 midnight Thursday, July 19, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 6:00 p.m. until 12:00 midnight Thursday, July 19, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 3:00 a.m. Thursday, July 19, and reopen at 12:00 noon Friday, July 20. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 3:00 a.m. Thursday, July 19, and reopen at 12:00 noon Friday, July 20.

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EO Number: 3-S-FY-07-18 Effective date: July 22, 2018

A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Sunday, July 22, in District 2.

EO Number: 3-S-FY-08-18 Effective date: July 23, 2018

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 12:00 midnight Monday, July 23, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 6:00 p.m. until 12:00 midnight Monday, July 23, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 3:00 a.m. Monday, July 23, and reopen at 12:00 noon Tuesday, July 24. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 3:00 a.m. Monday, July 23, through 12:00 noon Tuesday, July 24.

EO Number: 3-S-FY-09-18 Effective date: July 25, 2018

A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Wednesday, July 25, in District 2.

EO Number: 3-S-FY-10-18 Effective date: July 26, 2018

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 12:00 midnight Thursday, July 26, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 6:00 p.m. until 12:00 midnight Thursday, July 26, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 3:00 a.m. Thursday, July 26, and reopen at 12:00 noon Friday, July 27. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 3:00 a.m. Thursday, July 26, through 12:00 noon Friday, July 27.

EO Number: 3-S-FY-11-18 Effective date: July 29, 2018

Effective 6:00 p.m. Sunday, July 29, the commercial salmon fishing season in Subdistricts 4-B and 4-C is open.

EO Number: 3-S-FY-12-18 Effective date: July 29, 2018

This emergency order rescinds emergency order 3-S-SY-41-18 that placed subsistence fishing in District 4 on a two 48-hour periods per week schedule. Effective 6:00 p.m. Tuesday, July 31, subsistence fishing in Subdistrict 4-A is open on a 5-day per week subsistence fishing schedule opening at 6 p.m. Tuesdays and closing at 6 p.m. Sundays. Effective 6:00 p.m. Sunday, July 29, subsistence fishing in Subdistricts 4-B and 4-C is open on a 5-day per week subsistence fishing schedule opening at 6 p.m. Sundays and closing at 6 p.m. Fridays. Subsistence salmon fish harvesters may use gillnets with 7.5-inch mesh or less.

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EO Number: 3-S-FY-13-18 Effective date: July 29, 2018

A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Sunday, July 29, in District 2.

EO Number: 3-S-FY-14-18 Effective date: July 30, 2018

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 12:00 midnight Monday, July 30, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 6:00 p.m. until 12:00 midnight Monday, July 30, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 3:00 a.m. Monday, July 30, and reopen at 12:00 noon Tuesday, July 31. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 3:00 a.m. Monday, July 30, and reopen at 12:00 noon Tuesday, July 31.

EO Number: 3-S-FY-15-18 Effective date: August 1, 2018

A 6-hour commercial salmon fishing period is scheduled from 12:00 noon until 6:00 p.m. Wednesday, August 1, in District 2.

EO Number: 3-S-FY-16-18 Effective date: August 2, 2018

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Thursday, August 2, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 4:00 p.m. until 10:00 p.m. Thursday, August 2, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 1:00 a.m. Thursday, August 2, and reopen at 10:00 a.m. Friday, August 3. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 1:00 a.m. Thursday, August 2, and reopen at 10:00 a.m. Friday, August 3.

EO Number: 3-S-FY-17-18 Effective date: August 7, 2018

Effective 6:00 p.m. Tuesday, August 7, the commercial salmon fishing season in Subdistricts 5-A, 5-B, and 5-C is open. Commercial fishing in Subdistricts 5-B and 5-C will be open 24 hours per day, 7 days per week.

EO Number: 3-S-FY-18-18 Effective date: August 7, 2018

This emergency order rescinds emergency order 3-S-SY-44-18 that placed subsistence fishing in Subdistricts 5-A, 5-B, and 5-C on a two 48-hour periods per week schedule. Effective 6:00 p.m. Tuesday, August 7, subsistence fishing in Subdistricts 5-A, 5-B and 5-C will be placed on a 5-day per week subsistence fishing schedule opening at 6 p.m. Tuesdays and closing at 6 p.m. Sundays. Subsistence salmon fish harvesters may use gillnets with 7.5-inch mesh or less.

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EO Number: 3-S-FY-19-18 Effective date: August 5, 2018

A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Sunday, August 5, in District 2.

EO Number: 3-S-FY-20-18 Effective date: August 6, 2018

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 12:00 midnight Monday, August 6, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 6:00 p.m. until 12:00 midnight Monday, August 6, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 3:00 a.m. Monday, August 6, and reopen at 12:00 noon Tuesday, August 7. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 3:00 a.m. Monday, August 6, and reopen at 12:00 noon Tuesday, August 7.

EO Number: 3-S-FY-21-18 Effective date: August 9, 2018

This emergency order rescinds emergency orders 3-S-SY-19-18 and 3-S-SY-37-18 that placed subsistence fishing in Subdistrict 5-D on 84-hour period per week schedule with gillnets restricted to 6 inches or less. Effective 10:00 a.m. Thursday, August 9, subsistence salmon fishing in Subdistrict 5-D from an ADF&G regulatory marker located two miles downstream of Waldron Creek upstream to 22 Mile Slough, is open 24 hours per day, 7 days per week. Subsistence salmon fish harvesters may use gillnets with 7.5-inch mesh or less. Effective 10:00 a.m. Thursday, August 16, subsistence salmon fishing in Subdistrict 5-D from 22 Mile Slough upstream to the U.S./Canada border, and including all adjacent tributaries, is open 24 hours per day, 7 days per week. Subsistence salmon fish harvesters may use gillnets with 7.5-inch mesh or less.

EO Number: 3-S-FY-22-18 Effective date: August 8, 2018

A 6-hour commercial salmon fishing period is scheduled from 1:30 p.m. until 7:30 p.m. Wednesday, August 8, in District 2.

EO Number: 3-S-FY-23-18 Effective date: August 9, 2018

A 9-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 11:00 p.m. Thursday, August 9, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 5:00 p.m. until 11:00 p.m. Thursday, August 9, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 2:00 a.m. Thursday, August 9, and reopen at 11:00 a.m. Friday, August 10. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 2:00 a.m. Thursday, August 9, and reopen at 11:00 a.m. Friday, August 10.

EO Number: 3-S-FY-24-18 Effective date: August 10, 2018

A 4-hour commercial salmon fishing period is scheduled from 4:00 p.m. until 8:00 p.m. Friday, August 10, in District 2.

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EO Number: 3-S-FY-25-18 Effective date: August 11, 2018

A 4-hour commercial salmon fishing period is scheduled from 4:00 p.m. until 8:00 p.m. Saturday, August 11, in District 2. For this commercial period, subsistence salmon fishing will close at 3:00 p.m. Saturday, August 11, and reopen at 8:00 a.m. Sunday, August 12.

EO Number: 3-S-FY-26-18 Effective date: August 12, 2018

A 12-hour commercial salmon fishing period is scheduled from 9:00 a.m. until 9:00 p.m. Monday, August 13, in the Set Net Only Area of District 1. A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Monday, August 13, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 9:00 p.m. Sunday, August 12, and reopen at 9:00 a.m. Tuesday, August 14. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed from 9:00 p.m. Sunday, August 12, and reopen at 9:00 a.m. Tuesday, August 14.

EO Number: 3-S-FY-27-18 Effective date: August 15, 2018

A 7-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 8:00 p.m. Wednesday, August 15, in District 2.

EO Number: 3-S-FY-28-18 Effective date: August 15, 2018

A 7-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 8:00 p.m. Wednesday, August 15, in the Set Net Only Area of District 1. A 5-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 8:00 p.m. Wednesday, August 15, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 noon Wednesday, August 15, and reopen at 11:00 p.m. Wednesday, August 15. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed at 12:00 noon Wednesday, August 15, and reopen at 11:00 p.m. Wednesday, August 15.

EO Number: 3-S-FY-29-18 Effective date: August 17, 2018

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Friday, August 17, in District 2.

EO Number: 3-S-FY-30-18 Effective date: August 16, 2018

This emergency order amends that portion of emergency order 3-S-FY-12-18 that placed Subdistricts 4-A, 4-B, and 4-C on a 5-day per week subsistence fishing schedule. Effective 1:30 p.m. Thursday, August 16, subsistence salmon fishing in Subdistricts 4-A, 4-B, and 4-C is open 7 days a week, 24 hour per day. All other provisions contained in emergency order 3-S-FY-12-18 remain in effect.

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EO Number: 3-S-FY-31-18 Effective date: August 16, 2018

This emergency order amends that portion of emergency order 3-S-FY-18-18 that placed Subdistricts 5-A, 5-B, and 5-C on a 5-day per week subsistence fishing schedule. Effective 1:30 p.m. Thursday, August 16, subsistence salmon fishing in Subdistricts 5-A, 5-B, and 5-C is open 7 days a week, 24 hour per day. All other provisions contained in emergency order 3-S-FY-18-18 remain in effect.

EO Number: 3-S-FY-32-18 Effective date: August 18, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Saturday, August 18, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Saturday, August 18 in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 noon Saturday, August 18, and reopen at 9:00 a.m. Sunday, August 19. For this commercial period, subsistence fishing with all gillnets, including
4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed at 12:00 noon Saturday, August 18, and reopen at 9:00 a.m. Sunday, August 19.

EO Number: 3-S-FY-33-18 Effective date: August 18, 2018

A 4-hour commercial salmon fishing period is scheduled from 5:00 p.m. until 9:00 p.m. Saturday, August 18, in District 2. For this commercial period, subsistence salmon fishing in District 1 will close at 3:00 p.m. Saturday, August 18, and reopen at 9:00 a.m. Sunday, August 19.

EO Number: 3-S-FY-34-18 Effective date: August 20, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Monday, August 20, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Monday, August 20 in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 noon Monday, August 20, and reopen at 9:00 a.m. Tuesday, August 21. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, is closed at 12:00 noon Monday, August 20, and reopen at 9:00 a.m. Tuesday, August 21.

EO Number: 3-S-FY-35-18 Effective date: August 21, 2018

A 4-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 6:00 p.m. Tuesday, August 21, in District 2.

EO Number: 3-S-FY-36-18 Effective date: August 21, 2018

This emergency order extends the previously announced commercial salmon fishing period in Yukon Area District 2 for two hours. The current period will close at 8:00 p.m. Tuesday, August 21. All other provisions in emergency order 3-S-FY-35-18 remain in effect.

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EO Number: 3-S-FY-37-18 Effective date: August 23, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Friday, August 24, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Friday, August 24, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District will close at 12:00 midnight Thursday, August 23, and reopen at 9:00 a.m. Saturday, August 25. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:00 midnight Thursday, August 23, and reopen at 9:00 a.m. Saturday, August 25.

EO Number: 3-S-FY-38-18 Effective date: August 26, 2018

A 6-hour commercial salmon fishing period is scheduled from 12:00 noon until 6:00 p.m. Sunday, August 26, in District 2.

EO Number: 3-S-FY-39-18 Effective date: August 26, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Monday, August 27, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Monday, August 27, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 midnight Sunday, August 26, and reopen at 9:00 a.m. Tuesday, August 28. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:00 midnight Sunday, August 26, and reopen at 9:00 a.m. Tuesday, August 28.

EO Number: 3-S-FY-40-18 Effective date: August 29, 2018

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Wednesday, August 29, in District 2.

EO Number: 3-S-FY-41-18 Effective date: August 29, 2018

A 7-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 8:00 p.m. Wednesday, August 29, in the Set Net Only Area of District 1. A 5-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 8:00 p.m. Wednesday, August 29, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 11:00 a.m. Wednesday, August 29, and reopen at 8:00 a.m. Thursday, August 30. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 11:00 a.m. Wednesday, August 29, and reopen at 8:00 a.m. Thursday, August 30.

EO Number: 3-S-FY-42-18 Effective date: August 30, 2018

A 4-hour commercial salmon fishing period is scheduled from 4:00 p.m. until 8:00 p.m. Thursday, August 30, in District 2. For this commercial period, subsistence salmon fishing in District 2 will close at 1:00 p.m. Thursday, August 30, and reopen at 8:00 a.m. Friday, August 31.

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EO Number: 3-S-FY-43-18 Effective date: August 30, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Friday, August 31, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Friday, August 31, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 midnight Thursday, August 30, and reopen at 9:00 a.m. Saturday, September 1. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:00 midnight Thursday, August 30, and reopen at 9:00 a.m. Saturday, September 1.

EO Number: 3-S-FY-44-18 Effective date: August 30, 2018

This emergency order amends emergency order 3-S-FY-42-18 and extends the announced commercial salmon fishing period in Yukon Area District 2 for two hours. The current period will close at 10:00 p.m. Thursday, August 30, 2018. All other provisions in emergency order 3-S-FY-42-18 remain in effect.

EO Number: 3-S-FY-45-18 Effective date: August 31, 2018

A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Friday, August 31, in District 2.

EO Number: 3-S-FY-46-18 Effective date: August 31, 2018

This emergency order amends emergency order 3-S-FY-45-18 and extends the announced commercial salmon fishing period in Yukon Area District 2 for two hours. The current period will close at 11:00 p.m. Friday, August 31. All other provisions in emergency order 3-S-FY-45-18 remain in effect.

EO Number: 3-S-FY-47-18 Effective date: August 31, 2018

This emergency order amends emergency order 3-S-FY-43-18 and extends the announced commercial salmon fishing period in Yukon Area District 1 (including both the Set Net Only Area) for two hours. The current period will close at 11:00 p.m. Friday, August 31. All other provisions in emergency order 3-S-FY-43-18 remain in effect.

EO Number: 3-S-FY-48-18 Effective date: September 2, 2018

Effective 12:01 a.m. Saturday, September 1, the coho salmon commercial fishing season in Districts 1 and 2 is open. A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Sunday, September 2, in District 2.

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EO Number: 3-S-FY-49-18 Effective date: September 3, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Monday, September 3, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Sunday, September 3, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:01 a.m. Monday, September 3, and reopen at 9:00 a.m. Tuesday, September 4. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:01 a.m. Monday, September 3, and reopen at 9:00 a.m. Tuesday, September 4.

EO Number: 3-S-FY-50-18 Effective date: September 4, 2018

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Tuesday, September 4, in District 2.

EO Number: 3-S-FY-51-18 Effective date: September 6, 2018

Effective 12:00 noon Thursday, September 6, subsistence salmon fishing in the mainstem Porcupine River will be open from 12:00 noon Thursdays until 12:00 noon Mondays.

EO Number: 3-S-FY-52-18 Effective date: September 5, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Thursday, September 6, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Thursday, September 6, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 midnight Wednesday, September 5, and reopen at 9:00 a.m. Friday, September 7. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:00 midnight Wednesday, September 5, and reopen at 9:00 a.m. Friday, September 7.

EO Number: 3-S-FY-53-18 Effective date: September 8, 2018

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Saturday, September 8, in District 2.

EO Number: 3-S-FY-54-18 Effective date: September 8, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Sunday, September 9, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Sunday, September 9, in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 midnight Saturday, September 8, and reopen at 3:00 a.m. Tuesday, September 11. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:00 midnight Saturday, September 8, and reopen at 3:00 a.m. Tuesday, September 11.

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EO Number: 3-S-FY-55-18 Effective date: September 8, 2018

A 9-hour commercial salmon fishing period is scheduled from 12:00 noon until 9:00 p.m. Monday, September 10, in the Set Net Only Area of District 1. A 6-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 9:00 p.m. Monday, September 10 in the remainder of District 1.

For this commercial period, subsistence salmon fishing in District 1 will close at 12:00 midnight Saturday, September 8, and reopen at 3:00 a.m. Tuesday, September 11. For this commercial period, subsistence fishing with all gillnets, including 4-inch and smaller mesh, in the Pastolik and Pastoliak Rivers, and within 500 yards of the mouths of both rivers, will close at 12:00 midnight Saturday, September 8, and reopen at 3:00 a.m. Tuesday, September 11.

EO Number: 3-S-FY-56-18 Effective date: September 10, 2018

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Monday, September 10, in District 2.

EO Number: 3-S-FY-57-18 Effective date: October 3, 2018

Effective 12:00 noon Wednesday, October 3, subsistence salmon fishing in the mainstem Porcupine River closed.

EO Number: 3-S-FY-58-18 Effective date: September 10, 2018

Effective 6:00 p.m. Wednesday, October 31, the commercial salmon fishing season in District 6 is closed.

APPENDIX B:
LOWER YUKON AREA SALMON

Appendix B1.–Commercial catches of Chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon.

	Unrestricted mesh size [a,b]		6-inch Maximum mesh size [a]		Selective gear [c]
	Chinook	Summer chum	Chinook	Summer chum	Summer chum
Year	District 1 and 2	District 1 and 2	District 1 and 2	District 1 and 2	District 1 and 2
1998	41,008	20,314	1,211	7,804	
1999	64,264	27,883			
2000	8,518	6,624			
2001	–	–	–	–	
2002	22,529	10,354			
2003	36,928	6,162			
2004	52,546	19,775			
2005	30,032	32,278			
2006	43,084	35,574	478	11,785	
2007	22,796	11,311	9,121	164,911	
2008[d]			4,348	125,598	
2009[d]			131	157,906	
2010[d]			9,897	183,215	
2011[d]			0	266,510	
2012[d]			0	207,849	
2013[d]			0	189,935	189,208
2014[d]			0	154,498	272,849
2015[d]			0	126,872	227,214
2016[d]			0	340,643	181,146
2017[d]			0	258,122	135,043
2018[d]			0	202,570	243,811
2013–2017 Average	–	–	0	214,014	201,092
2008–2017 Average	–	–	1,438	201,115	–

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate either insufficient information to generate average, or commercial fishing did occur but gear type was not allowed. ADF&G test fish sales are not included.

[a] Does not include Chinook salmon caught during the fall season fishery.

[b] Primarily 8- to 8.5-inch mesh size used from early June to early July. In 2010, the Alaska Board of Fisheries (BOF) adopted new regulation stating the maximum mesh size of gillnets to be used within the Yukon River drainage was 7.5 inches.

[c] In 2013, the BOF adopted new gear types for use in the summer chum directed commercial fishery: dipnets, beach seines, and 5.5-inch mesh gillnets not exceeding 30 meshes in depth.

[d] In summer chum directed commercial fisheries with gillnets restricted to 6-inch maximum mesh size, the sale of incidentally caught Chinook salmon was prohibited throughout portions or all of the summer season.

Appendix B2.–Commercial Chinook salmon harvest in numbers of fish for fall and summer seasons combined by statistical area, Lower Yukon Area, 1998–2018.

	District 1								
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1998	226	1,741	654	1,591	7,264	1,934	7,822	4,181	25,413
1999	1,454	2,604	3,112	3,798	4,057	935	13,130	8,071	37,161
2000	78	1,057	144	389	640	85	1,259	1,083	4,735
2001	–	–	–	–	–	–	–	–	–
2002	1,001	1,271	449	742	2,993	69	2,338	2,224	11,087
2003	1,601	4,714	1,089	1,514	4,756	437	3,518	5,080	22,709
2004	975	2,505	1,965	1,502	4,285	1,783	9,270	6,118	28,403
2005	2,137	1,531	944	592	2,580	1,650	3,926	3,334	16,694
2006	2,252	2,106	1,558	928	3,507	2,476	6,201	4,720	23,748
2007	1,116	1,419	1,555	855	4,890	1,168	5,828	1,785	18,616
2008	50	440	209	263	372	226	628	342	2,530
2009	1	16	4	3	36	17	10	3	90
2010	252	824	213	358	1,266	985	1,570	276	5,744
2011	1	8	1	0	4	17	4	1	36
2012	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0
2017	0	26	4	13	51	46	28	0	168
2018	0	0	0	0	0	0	0	0	0
Avg 2013–2017	0	5	1	3	10	9	6	0	34
Avg 2008–2017	30	131	43	64	173	129	224	62	857

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	District 2						District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1998	2,203	6,081	2,245	4,613	1,664	16,806	0	0	0
1999	4,666	8,565	2,623	6,923	4,356	27,133	0	538	538
2000	1,433	964	415	457	511	3,780	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	2,140	3,044	1,992	2,712	1,546	11,434	–	–	–
2003	2,965	5,454	993	2,104	2,704	14,220	–	–	–
2004	5,879	8,326	3,459	3,819	2,662	24,145	–	–	–
2005	3,292	5,905	1,397	347	2,472	13,413	–	–	–
2006	3,750	8,457	2,700	3,425	1,511	19,843	315	0	315
2007	2,818	5,509	2,458	1,375	1,146	13,306	190	0	190
2008	420	654	670	252	115	2,111	–	–	–
2009	39	106	56	2	23	226	–	–	–
2010	389	1,690	890	1,184	0	4,153	–	–	–
2011	2	16	6	22	0	46	–	–	–
2012	0	0	0	0	0	0	–	–	–
2013	0	0	0	0	0	0	–	–	–
2014	0	0	0	0	0	0	–	–	–
2015	0	0	0	0	0	0	–	–	–
2016	0	0	0	0	0	0	–	–	–
2017	0	0	0	0	0	0	–	–	–
2018	0	0	0	0	0	0	–	–	–
Avg 2013–2017	0	0	0	0	0	0	–	–	–
Avg 2008–2017	85	247	162	146	14	654	–	–	–

Note: En dash indicates no commercial fishing activity occurred. ADF&G test fishery sales not included. Values include Chinook salmon harvested in both summer and fall seasons.

Appendix B3.–Commercial summer chum salmon harvest in numbers of fish by statistical area, Lower Yukon Area, 1998–2018.

	District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	334-19 [a]	Total
1998	54	2,583	441	2,275	5,115	730	6,601	3,471		21,270
1999	1,128	1,667	1,653	2,979	816	141	3,845	3,952		16,181
2000	146	537	207	650	631	60	546	538		3,315
2001	–	–	–	–	–	–	–	–		–
2002	193	1,303	374	1,519	858	4	1,277	799		6,327
2003	90	588	117	292	690	188	566	1,048		3,579
2004	667	885	1,446	904	2,694	870	4,171	2,356		13,993
2005	4,260	2,791	1,658	2,697	3,631	1,985	3,970	2,973		23,965
2006	4,310	3,181	1,915	899	2,315	1,441	4,382	3,373		21,816
2007	3,724	15,690	14,297	10,746	15,816	8,801	25,753	11,963		106,790
2008	1,200	9,216	5,521	9,224	6,219	5,937	17,423	12,719		67,459
2009	730	7,457	9,120	9,569	12,979	4,930	23,532	3,018		71,335
2010	3,881	19,138	5,707	12,405	12,116	9,484	32,994	6,542		102,267
2011	150	28,715	20,807	39,517	19,948	10,720	35,634	7,948		163,439
2012	4,240	43,096	21,516	25,364	1,126	432	53,037	1,989		150,800
2013	36	55,130	20,303	35,431	19,303	6,198	67,662	3,808		207,871
2014	16,781	52,300	14,698	27,699	12,182	761	61,940	11,879		198,240
2015	18,693	33,245	8,485	19,045	17,974	7,414	47,244	20,539		172,639
2016	24,855	39,657	31,585	29,592	27,717	20,964	105,501	13,651		293,522
2017	13,769	46,543	20,718	31,578	34,659	31,913	138,283	27,932	0	345,395
2018	33,367	28,867	33,782	15,188	25,173	10,286	81,152	22,388	755	250,958
Avg 2013–2017	14,827	45,375	19,158	28,669	22,367	13,450	84,126	15,562	–	243,533
Avg 2008–2017	8,434	33,450	15,846	23,942	16,422	9,875	58,325	11,003	–	177,297

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	District 2						District 3 (334-31)		
Year	334-21	334-22	334-23	334-24	334-25	Total	Number	Roe	Estimated harvest [b]
1998	710	2,350	1,079	2,351	358	6,848	0	0	0
1999	1,758	3,269	1,457	3,415	1,803	11,702	0	0	0
2000	1,552	961	327	220	249	3,309	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	1,105	997	862	794	269	4,027	–	–	–
2003	1,153	855	218	181	176	2,583	–	–	–
2004	1,724	1,439	1,350	1,061	208	5,782	–	–	–
2005	2,852	3,978	850	105	528	8,313	–	–	–
2006	6,325	10,523	2,080	5,805	810	25,543	116	0	116
2007	21,356	32,583	9,310	1,740	4,443	69,432	1	0	1
2008	15,326	14,017	16,781	10,145	1,870	58,139	–	–	–
2009	13,583	48,571	19,717	3,053	1,647	86,571	–	–	–
2010	9,575	23,029	14,474	33,870	0	80,948	–	–	–
2011	15,959	27,109	20,506	37,868	1,629	103,071	–	–	–
2012	12,129	20,952	12,317	11,651	0	57,049	–	–	–
2013	10,458	96,662	29,860	34,292	0	171,272	–	–	–
2014	22,806	94,595	50,069	61,637	0	229,107	–	–	–
2015	15,708	74,315	43,855	38,827	8,742	181,447	–	–	–
2016	22,739	102,263	42,503	50,073	10,689	228,267	–	–	–
2017	5,744	31,990	3,925	5,218	893	47,770	–	–	–
2018	36,058	56,448	42,456	56,309	4,152	195,423	–	–	–
Avg 2013–2017	15,491	79,965	34,042	38,009	4,065	175,548	–	–	–
Avg 2008–2017	14,403	53,350	25,401	28,663	2,547	124,364	–	–	–

Note: En dash indicates no commercial fishing activity occurred. ADF&G test fishery sales not included.

[a] Statistical area 334-19 was created in 2016.

[b] Estimated harvest includes both males and females harvested to produce roe sold.

Appendix B4.–Commercial fall chum salmon harvest in numbers of fish by statistical area, Lower Yukon Area, 1998–2018.

	District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	334-19 [a]	Total
1998	–	–	–	–	–	–	–	–		–
1999	4	1,931	474	1,182	1,934	1,439	1,103	1,920		9,987
2000	–	–	–	–	–	–	–	–		–
2001	–	–	–	–	–	–	–	–		–
2002	–	–	–	–	–	–	–	–		–
2003	0	2,784	177	310	958	0	381	976		5,586
2004	0	509	25	67	0	0	19	40		660
2005	117	16,840	8,735	25,330	8,253	31,864	29,546	9,840		130,525
2006	163	16,212	9,929	9,973	7,538	9,568	32,200	15,671		101,254
2007	0	6,395	8,550	4,951	1,423	2,130	12,562	2,841		38,852
2008	22	16,471	6,018	9,138	5,152	7,090	16,072	7,741		67,704
2009	66	1,355	457	301	4,576	2,118	2,415	623		11,911
2010	0	211	0	13	83	10	167	61		545
2011	11	10,019	3,673	10,142	34,153	35,432	27,230	7,075		127,735
2012	2,068	34,698	4,039	12,305	23,870	11,351	37,810	13,701		139,842
2013	240	21,188	7,304	11,192	12,175	5,484	43,824	5,181		106,588
2014	658	8,509	2,659	6,092	6,193	2,643	19,391	5,684		51,829
2015	9,666	21,198	6,032	6,450	13,118	11,488	26,401	6,209		100,562
2016	2,758	60,695	15,780	19,998	19,537	13,461	68,882	25,465	0	226,576
2017	2,195	66,241	35,177	27,291	46,009	32,711	98,773	20,013	0	328,410
2018	225	11,395	9,974	7,523	62,852	24,037	63,315	18,085	1,544	198,950
2013–2017 Average	3,103	35,566	13,390	14,205	19,406	13,157	51,454	12,510		162,793
2008–2017 Average	1,768	24,059	8,114	10,292	16,487	12,179	34,097	9,175		116,170

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	District 2						District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1998	–	–	–	–	–	–	–	–	–
1999	1,536	2,836	3,254	1,910	167	9,703	–	–	–
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	3,362	21,069	11,060	4,414	0	39,905	–	–	–
2007	8,619	17,068	8,245	1,894	0	35,826	–	–	–
2008	10,027	11,630	11,507	7,424	682	41,270	–	–	–
2009	1,107	7,988	1,593	235	1,149	12,072	–	–	–
2010	3	27	165	0	75	270	–	–	–
2011	14,239	33,639	18,123	32,063	2,667	100,731	–	–	–
2012	14,454	34,658	26,646	53,526	0	129,284	–	–	–
2013	18,476	27,663	16,379	40,955	2,801	106,274	–	–	–
2014	5,949	19,112	11,186	22,891	0	59,138	–	–	–
2015	8,450	20,433	21,486	22,702	1,143	74,214	–	–	–
2016	37,155	104,917	44,412	7,383	19,473	213,340	–	–	–
2017	11,613	47,318	44,301	27,400	4,036	134,668	–	–	–
2018	20,600	36,157	57,582	55,119	1,190	170,648	–	–	–
2013–2017									
Average	16,329	43,889	27,553	24,266	5,491	117,527			
2008–2017									
Average	12,147	30,739	19,580	21,458	3,203	87,126			

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average. ADF&G test fishery sales not included.

[a] Statistical area 334-19 was created in 2016.

Appendix B5.–Commercial coho salmon harvest in numbers of fish by statistical area, Lower Yukon Area, 1998–2018.

	District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	334-19 [a]	Total
1998	–	–	–	–	–	–	–	–		–
1999	3	261	36	45	184	176	88	62		855
2000	–	–	–	–	–	–	–	–		–
2001	–	–	–	–	–	–	–	–		–
2002	–	–	–	–	–	–	–	–		–
2003	0	4,890	305	656	1,939	0	576	1,391		9,757
2004	128	772	201	290	0	0	50	142		1,583
2005	98	4,249	1,069	4,020	1,560	17,728	6,615	1,194		36,533
2006	7	3,034	2,467	2,315	3,508	15,280	10,196	2,516		39,323
2007	0	1,320	2,361	1,983	993	6,331	7,091	1,641		21,720
2008	35	3,122	1,024	1,274	838	2,456	3,712	1,485		13,946
2009	0	227	124	11	1,566	2,486	1,493	87		5,994
2010	0	204	5	6	142	102	445	123		1,027
2011	21	5,257	1,851	4,696	9,424	9,101	12,724	2,261		45,335
2012	33	3,739	331	1,229	8,683	7,241	14,523	3,978		39,757
2013	33	4,995	1,248	2,360	4,810	2,609	9,993	1,258		27,306
2014	712	5,380	3,441	4,648	9,127	5,286	20,007	6,203		54,804
2015	6,176	12,451	2,606	3,897	8,589	9,072	19,200	4,038		66,029
2016	2,302	24,930	9,529	3,424	14,313	19,005	29,352	10,814	0	113,669
2017	1,097	15,411	5,529	1,771	10,685	28,437	27,993	5,059	0	95,982
2018	811	4,003	1,816	1,366	17,958	15,698	16,955	4,503	2,321	65,431
2013–2017										
Average	2,064	12,633	4,471	3,220	9,505	12,882	21,309	5,474		71,558
2008–2017										
Average	1,041	7,572	2,569	2,332	6,818	8,580	13,944	3,531		46,385

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	District 2						District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1998	–	–	–	–	–	–	–	–	–
1999	147	238	248	65	48	746	–	–	–
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	2,138	7,250	3,745	1,349	0	14,482	–	–	–
2007	4,195	12,354	3,253	1,685	0	21,487	–	–	–
2008	3,275	6,076	4,594	4,680	621	19,246	–	–	–
2009	370	1,085	100	8	19	1,582	–	–	–
2010	7	105	606	0	305	1,023	–	–	–
2011	6,184	8,091	3,705	5,987	217	24,184	–	–	–
2012	4,748	10,750	5,584	7,981	0	29,063	–	–	–
2013	3,951	11,041	7,225	8,911	330	31,458	–	–	–
2014	5,397	19,757	12,310	11,138	0	48,602	–	–	–
2015	6,566	21,057	14,355	11,027	1,855	54,860	–	–	–
2016	14,666	30,970	17,886	2,645	1,041	67,208	–	–	–
2017	4,506	15,619	7,035	5,940	177	33,277	–	–	–
2018	7,356	15,345	10,606	7,387	151	40,845	–	–	–
2013–2017									
Average	7,017	19,689	11,762	7,932	681	47,081			
2008–2017									
Average	4,967	12,455	7,340	5,832	457	31,050			

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average. ADF&G test fishery sales not included.

[a] Statistical area 334-19 was created in 2016.

Appendix B6.–Commercial pink salmon harvest in numbers of fish by statistical area, Lower Yukon Area, 1998–2018.

Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	334-19 [a]	Total
1998	0	0	0	0	0	0	0	0		0
1999	0	0	0	0	0	0	0	0		0
2000	0	0	0	0	0	0	0	0		0
2001	–	–	–	–	–	–	–	–		–
2002	0	0	0	0	0	0	0	0		0
2003	0	0	0	0	0	0	0	0		0
2004	0	0	0	0	0	0	0	0		0
2005	0	0	0	0	0	0	0	0		0
2006	0	0	0	0	0	0	0	0		0
2007	0	0	0	0	0	0	0	0		0
2008	1,341	4,128	858	1,095	2,376	1,858	1,441	294		13,391
2009	0	0	0	0	0	0	0	0		0
2010	0	0	0	0	0	0	0	0		0
2011	0	0	0	0	0	0	0	0		0
2012	0	0	0	0	0	0	0	0		0
2013	0	0	0	0	0	0	0	0		0
2014	7,531	26,685	2,265	3,391	3,318	56	5,678	393		49,317
2015	4,139	2,484	44	72	187	248	100	52		7,326
2016	16,494	61,702	7,173	3,934	7,758	12,585	14,469	955	0	125,070
2017	0	0	0	0	0	0	0	0	0	0
2018	4,344	15,820	1,253	430	5,815	4,248	5,490	1,056	0	38,456
Avg 2013–2017	5,633	18,174	1,896	1,479	2,253	2,578	4,049	280	0	36,343
Avg 2008–2017	2,951	9,500	1,034	849	1,364	1,475	2,169	169	0	19,510

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Year	334-21	334-22	334-23	334-24	334-25	Total
1998	0	0	0	0	0	0
1999	0	0	0	0	0	0
2000	0	0	0	0	0	0
2001	–	–	–	–	–	–
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	346	363	0	0	0	709
2009	0	0	0	0	0	0
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0
2014	1,216	4,213	5	0	0	5,434
2015	17	35	0	0	0	52
2016	1,091	1,177	0	0	0	2,268
2017	0	0	0	0	0	0
2018	337	438	11	1	0	787
Avg 2013–2017	465	1,085	1	0	0	1,551
Avg 2008–2017	267	579	1	0	0	846

Note: En dash indicates no commercial fishing activity occurred.

[a] Statistical area 334-19 was created in 2016.

Appendix B7.–Daily and cumulative CPUE for Chinook salmon in the 8.5-inch set gillnet test fishery, Big Eddy and Middle Mouth sites combined, lower Yukon River, 2018.

Chinook salmon in 8.5-inch set gillnets						
	2018				Average 1989–2017 [a]	
Date	Daily catch	Daily CPUE	Cumulative CPUE	Proportion	Cumulative CPUE	Proportion
5/29	0	0.00	0.00	0.00	0.20	0.01
5/30	0	0.00	0.00	0.00	0.33	0.01
5/31	0	0.00	0.00	0.00	0.45	0.02
6/1	0	0.00	0.00	0.00	0.54	0.02
6/2	0	0.00	0.00	0.00	0.71	0.03
6/3	0	0.00	0.00	0.00	0.84	0.03
6/4	0	0.00	0.00	0.00	0.99	0.04
6/5	0	0.00	0.00	0.00	1.22	0.05
6/6	0	0.00	0.00	0.00	1.55	0.06
6/7	1	0.08	0.08	0.00	1.92	0.08
6/8	1	0.04	0.13	0.01	2.23	0.09
6/9	3	0.10	0.23	0.01	2.82	0.11
6/10	8	0.17	0.40	0.02	3.34	0.14
6/11	6	0.13	0.52	0.02	3.91	0.16
6/12	23	0.48	1.00	0.04	4.65	0.19
6/13	16	0.33	1.33	0.05	5.49	0.22
6/14	3	0.09	1.43	0.06	6.30	0.26
6/15	6	0.13	1.55	0.06	7.08	0.29
6/16	22	0.69	2.24	0.09	8.01	0.33
6/17	56	1.56	3.79	0.16	8.96	0.37
6/18	27	0.75	4.54	0.19	9.99	0.41
6/19	53	1.10	5.65	0.23	10.91	0.45
6/20	62	1.29	6.94	0.29	11.82	0.48
6/21	72	1.50	8.44	0.35	12.83	0.52
6/22	48	1.00	9.44	0.39	13.83	0.56
6/23	101	2.10	11.54	0.47	14.85	0.61
6/24	62	1.29	12.84	0.53	15.92	0.65
6/25	13	0.27	13.11	0.54	16.92	0.69
6/26	80	1.67	14.77	0.61	17.92	0.73
6/27	54	1.13	15.90	0.65	18.78	0.77
6/28	39	0.81	16.71	0.69	19.61	0.80
6/29	21	0.44	17.15	0.71	20.34	0.83
6/30	43	0.90	18.04	0.74	20.92	0.85
7/1	70	1.46	19.50	0.80	21.48	0.88
7/2	100	2.08	21.59	0.89	22.03	0.90
7/3	51	1.06	22.65	0.93	22.50	0.92
7/4	18	0.38	23.02	0.95	22.86	0.93
7/5	21	0.44	23.46	0.96	23.17	0.95

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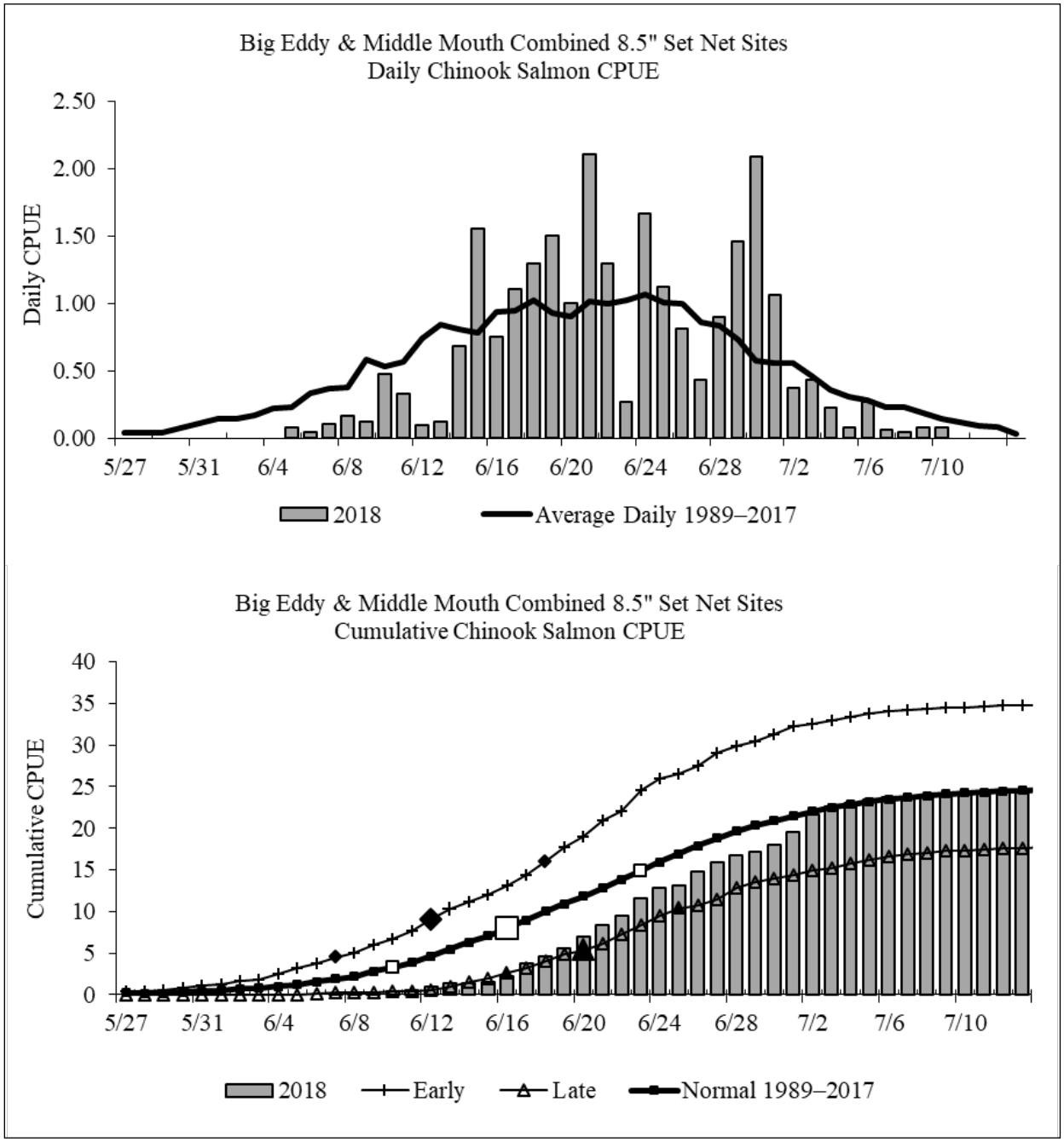
Chinook salmon in 8.5-inch set gillnets						
	2018				Average 1989–2017 [a]	
Date	Daily catch	Daily CPUE	Cumulative CPUE	Proportion	Cumulative CPUE	Proportion
7/6	11	0.23	23.69	0.97	23.46	0.96
7/7	4	0.08	23.77	0.98	23.69	0.97
7/8	13	0.27	24.04	0.99	23.92	0.98
7/9	3	0.06	24.11	0.99	24.09	0.98
7/10	1	0.04	24.15	0.99	24.24	0.99
7/11	2	0.08	24.23	1.00	24.35	0.99
7/12	2	0.08	24.32	1.00	24.44	1.00
7/13	0	0.00	24.32	1.00	24.52	1.00
Total	1,116		24.32		24.52	

Note: The box within the cumulative CPUE column indicates the first quarter point, midpoint, and third quarter point of the cumulative CPUE.

[a] Historical average includes years 1989–2000, 2002–2008, 2010–2011, and 2014–2017.

Appendix B8.–Daily and cumulative CPUE for the 2018 Chinook salmon set gillnet test fishery compared to the average daily and cumulative CPUE from 1989–2018.



Note: The symbols along the cumulative index lines represent the first quarter point, midpoint, and third quarter point of the cumulative index. Historical averages do not include years 2001, 2009, and 2013. In 2015, the set net site at the Big Eddy site was discontinued after June 29 and only the set net operated at the Middle Mouth site was used for the remainder of the season.

Appendix B9.–Daily and cumulative CPUE for summer chum salmon in the cooperative 5.5-inch mesh drift gillnet test fishery, Big Eddy and Middle Mouth sites combined, lower Yukon River, 2018.

Summer chum salmon in 5.5-inch drift gillnet												
	Big Eddy drift				Middle Mouth drift				Big Eddy and Middle Mouth combined			
Date	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE
5/25	–	–	0.00	–	–	–			–	–	0.00	–
5/26	–	–	0.00	0.00	–	–			–	–	0.00	0.00
5/27	–	–	0.00	0.00	–	–			–	–	0.00	0.00
5/28	–	–	0.00	0.00	–	–			–	–	0.00	0.00
5/29	0[a]	0.00	0.00	0.00	0	0.00	0.00	0.00	0[b]	0.00	0.00	0.00
5/30	1	1.52	0.00	1.52	0	0.00	0.00	0.00	1[b]	1.52	0.00	1.52
5/31	0[c]	0.00	0.00	1.52	0	0.00	0.00	0.00	0[b]	0.00	0.00	1.52
6/1	1[a,d]	3.12	0.00	4.64	0	0.00	0.00	0.00	1[b]	3.12	0.00	4.64
6/2	0	0.00	0.00	4.64	0	0.00	0.00	0.00	0[b]	0.00	0.00	4.64
6/3	6	9.23	0.00	13.87	0	0.00	0.00	0.00	6[b]	9.23	0.00	13.87
6/4	13[d]	26.22	0.00	40.09	0	0.00	0.00	0.00	13[b]	26.22	0.00	40.09
6/5	8	11.57	0.00	51.65	0	0.00	0.00	0.00	8[b]	11.57	0.00	51.65
6/6	56[d]	159.05	0.01	210.71	2	3.12	0.00	3.12	58	162.17	0.01	213.82
6/7	67	412.31	0.04	623.01	102	145.71	0.04	145.71	169	558.02	0.04	771.85
6/8	66	337.02	0.06	960.04	135	197.56	0.10	343.28	201	534.58	0.07	1,306.43
6/9	43[c]	607.06	0.11	1,567.10	4	8.42	0.11	351.70	47	615.48	0.11	1,921.91
6/10	39[c]	183.53	0.12	1,750.63	4	9.41	0.11	361.11	43	192.94	0.12	2,114.85
6/11	37	56.20	0.12	1,806.83	1	2.42	0.11	363.53	38	58.63	0.12	2,173.48
6/12	85	152.24	0.13	1,959.07	4	9.41	0.11	372.94	89	161.65	0.13	2,335.13
6/13	64[c]	731.43	0.18	2,690.50	48	116.36	0.15	489.31	112	847.79	0.18	3,182.93
6/14	108	308.57	0.20	2,999.07	14	32.94	0.16	522.25	122	341.51	0.19	3,524.44
6/15	94[a]	358.10	0.23	3,357.17	13	31.52	0.17	553.76	107	389.61	0.22	3,914.05
6/16	44[a]	106.67	0.23	3,463.84	17	26.67	0.18	580.43	61	133.33	0.22	4,047.38
6/17	131	714.55	0.28	4,178.38	19	33.29	0.19	613.72	150	747.83	0.26	4,795.22
6/18	156	1593.21	0.39	5,771.59	42	68.57	0.21	682.29	198	1661.78	0.36	6,456.99
6/19	28	146.09	0.40	5,917.68	7	11.83	0.21	694.12	35	157.92	0.36	6,614.91
6/20	37	277.50	0.42	6,195.18	5	8.11	0.21	702.23	42	285.61	0.38	6,900.52
6/21	47	113.94	0.42	6,309.12	12	18.95	0.22	721.17	59	132.89	0.39	7,033.41
6/22	30	112.50	0.43	6,421.62	26	39.00	0.23	760.17	56	151.50	0.40	7,184.91

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Summer chum salmon in 5.5-inch drift gillnet												
	Big Eddy drift				Middle Mouth drift				Big Eddy and Middle Mouth combined			
Date	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE
6/23	100	1,548.40	0.54	7,970.01	36	104.10	0.26	864.27	136	1652.49	0.49	8,837.40
6/24	35	116.67	0.54	8,086.68	90	178.51	0.32	1,042.78	125	295.18	0.50	9,132.58
6/25	19	29.80	0.55	8,116.48	12	20.14	0.32	1,062.92	31	49.94	0.51	9,182.52
6/26	100	1,297.30	0.63	9,413.79	51	105.52	0.36	1,168.44	151	1402.82	0.58	10,585.34
6/27	56	353.69	0.66	9,767.47	28	50.91	0.37	1,219.35	84	404.60	0.61	10,989.94
6/28	41	126.15	0.67	9,893.63	20	44.44	0.38	1,263.79	61	170.60	0.61	11,160.54
6/29	44	103.53	0.67	9,997.16	16	25.10	0.39	1,288.89	60	128.63	0.62	11,289.16
6/30	110	723.29	0.72	10,720.45	41	73.99	0.41	1,362.88	151	797.28	0.67	12,086.44
7/1	95	1,169.24	0.80	11,889.69	120	685.71	0.62	2,048.59	215	1854.95	0.77	13,941.39
7/2	89	1,525.72	0.90	13,415.40	120	257.14	0.70	2,305.73	209	1782.86	0.87	15,724.25
7/3	42	330.49	0.92	13,745.90	87	278.40	0.79	2,584.13	129	608.89	0.90	16,333.15
7/4	33	52.11	0.93	13,798.00	54	120.00	0.82	2,704.13	87	172.11	0.91	16,505.25
7/5	22	36.92	0.93	13,834.92	33	53.88	0.84	2,758.01	55	90.80	0.91	16,596.05
7/6	20	31.37	0.93	13,866.30	29	44.33	0.85	2,802.34	49	75.70	0.92	16,671.76
7/7	53	125.32	0.94	13,991.62	5	7.69	0.86	2,810.04	58	133.01	0.93	16,804.77
7/8	75	342.86	0.96	14,334.48	46	89.03	0.88	2,899.07	121	431.89	0.95	17,236.66
7/9	46	216.47	0.98	14,550.95	71	150.80	0.93	3,049.86	117	367.27	0.97	17,603.93
7/10	12	18.95	0.98	14,569.89	42	66.32	0.95	3,116.18	54	85.26	0.97	17,689.19
7/11	3	4.74	0.98	14,574.63	3	4.74	0.95	3,120.92	6	9.47	0.97	17,698.66
7/12	88	176.00	0.99	14,750.63	32	49.55	0.96	3,170.47	120	225.55	0.99	17,924.21
7/13	25	39.74	0.99	14,790.37	25	40.27	0.98	3,210.73	50	80.00	0.99	18,004.22
7/14	26	77.04	1.00	14,867.40	21	67.20	1.00	3,277.93	47	144.24	1.00	18,148.45
7/15	5	7.84	1.00	14,875.25	5	8.22	1.00	3,286.15	10	16.06	1.00	18,164.52
Total	2,300			14,875.25	1,442			3,286.15	3,742			18,164.52

Note: The box within the cumulative index column indicates the first quarter point, midpoint, and third quarter point of the cumulative index.

[a] Site 2 evening drift cancelled.

[b] Big Eddy only.

[c] Morning drift only.

[d] Site 2 morning drift cancelled.

Appendix B10.–Fall chum and coho salmon, daily and cumulative catch per unit effort (CPUE), cooperative drift gillnet (6-inch) test fishery, Big Eddy and Middle Mouth sites combined, Lower Yukon Area, 2001 to 2017 compared to 2018.

	Fall chum salmon							Coho salmon						
	2001 to 2017 Median			2018				2001 to 2017 Median			2018			
Date	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE
7/16	22.08	0.01	22.08	63	132.63	0.04	132.63 [a]	0.00	0.00	0.00	0	0.0	0.00	0.00 [a]
7/17	37.31	0.04	59.39	19	15.15	0.05	147.78	0.04	0.00	0.04	0	0.0	0.00	0.00
7/18	40.97	0.06	100.36	6	4.72	0.05	152.50	0.00	0.00	0.04	0	0.0	0.00	0.00
7/19	28.84	0.08	129.20	80	62.34	0.07	214.84	0.04	0.00	0.09	0	0.0	0.00	0.00
7/20	16.85	0.09	146.05	5	4.04	0.07	218.88	0.00	0.00	0.09	0	0.0	0.00	0.00
7/21	11.42	0.10	157.47	2	1.58	0.07	220.46	0.09	0.00	0.18	0	0.0	0.00	0.00
7/22	15.29	0.11	172.76	4	3.13	0.07	223.59	0.04	0.00	0.22	0	0.0	0.00	0.00
7/23	17.22	0.12	189.98	2	1.55	0.07	225.14	0.24	0.00	0.46	0	0.0	0.00	0.00
7/24	19.59	0.13	209.57	12	8.94	0.08	234.08	0.24	0.00	0.69	0	0.0	0.00	0.00
7/25	15.05	0.14	224.62	4	3.07	0.08	237.15	0.22	0.00	0.91	0	0.0	0.00	0.00
7/26	16.43	0.15	241.06	27	20.51	0.08	257.66	0.27	0.00	1.19	0	0.0	0.00	0.00
7/27	24.30	0.17	265.35	1	0.77	0.09	258.43	0.85	0.00	2.04	0	0.0	0.00	0.00
7/28	27.91	0.18	293.26	0	0.00	0.09	258.43	1.05	0.01	3.09	0	0.0	0.00	0.00
7/29	36.08	0.21	329.34	0	0.00	0.09	258.43	1.52	0.01	4.60	0	0.0	0.00	0.00
7/30	32.75	0.23	362.09	1	0.76	0.09	259.19	2.06	0.02	6.66	0	0.0	0.00	0.00
7/31	41.45	0.26	403.54	54	27.34	0.09	286.53 [b]	1.28	0.02	7.95	0	0.0	0.00	0.00 [b]
8/1	46.92	0.29	450.46	26	19.62	0.10	306.15	2.71	0.03	10.66	1	0.8	0.00	0.76
8/2	34.64	0.32	485.09	158	124.33	0.14	430.48	3.39	0.04	14.05	1	0.8	0.00	1.54
8/3	27.72	0.34	512.81	74	46.13	0.16	476.61 [b]	6.88	0.05	20.93	2	1.2	0.01	2.79 [b]
8/4	20.74	0.36	533.55	61	53.04	0.17	529.66	5.42	0.06	26.36	2	1.7	0.01	4.53
8/5	29.05	0.38	562.61	10	10.21	0.18	539.87 [a]	4.12	0.07	30.48	1	1.0	0.01	5.55 [a]
8/6	43.62	0.41	606.23	69	101.60	0.21	641.46 [a]	5.99	0.09	36.47	4	5.9	0.03	11.44 [a]
8/7	39.00	0.44	645.23	35	26.25	0.22	667.71	9.24	0.11	45.71	2	1.5	0.03	12.94
8/8	23.88	0.46	669.10	135	118.25	0.26	785.96	8.62	0.14	54.33	4	3.5	0.04	16.44
8/9	23.04	0.48	692.14	74	60.20	0.28	846.16	7.35	0.16	61.68	13	10.6	0.07	27.02
8/10	28.35	0.51	720.50	8	6.12	0.28	852.28	12.33	0.19	74.01	1	0.8	0.07	27.78
8/11	23.61	0.52	744.11	5	3.80	0.28	856.08	9.56	0.21	83.57	3	2.3	0.08	30.06
8/12	70.32	0.56	814.42	10	7.67	0.28	863.74	15.59	0.25	99.15	6	4.6	0.09	34.66
8/13	90.16	0.61	904.59	7	11.05	0.29	874.80 [a]	22.26	0.30	121.41	1	1.6	0.09	36.24 [a]
8/14	41.45	0.64	946.04	122	94.76	0.32	969.55	16.97	0.34	138.38	15	11.7	0.12	47.89
8/15	59.44	0.67	1,005.48	191	416.73	0.46	1,386.28 [a]	22.73	0.38	161.10	9	19.64	0.17	67.53 [a]

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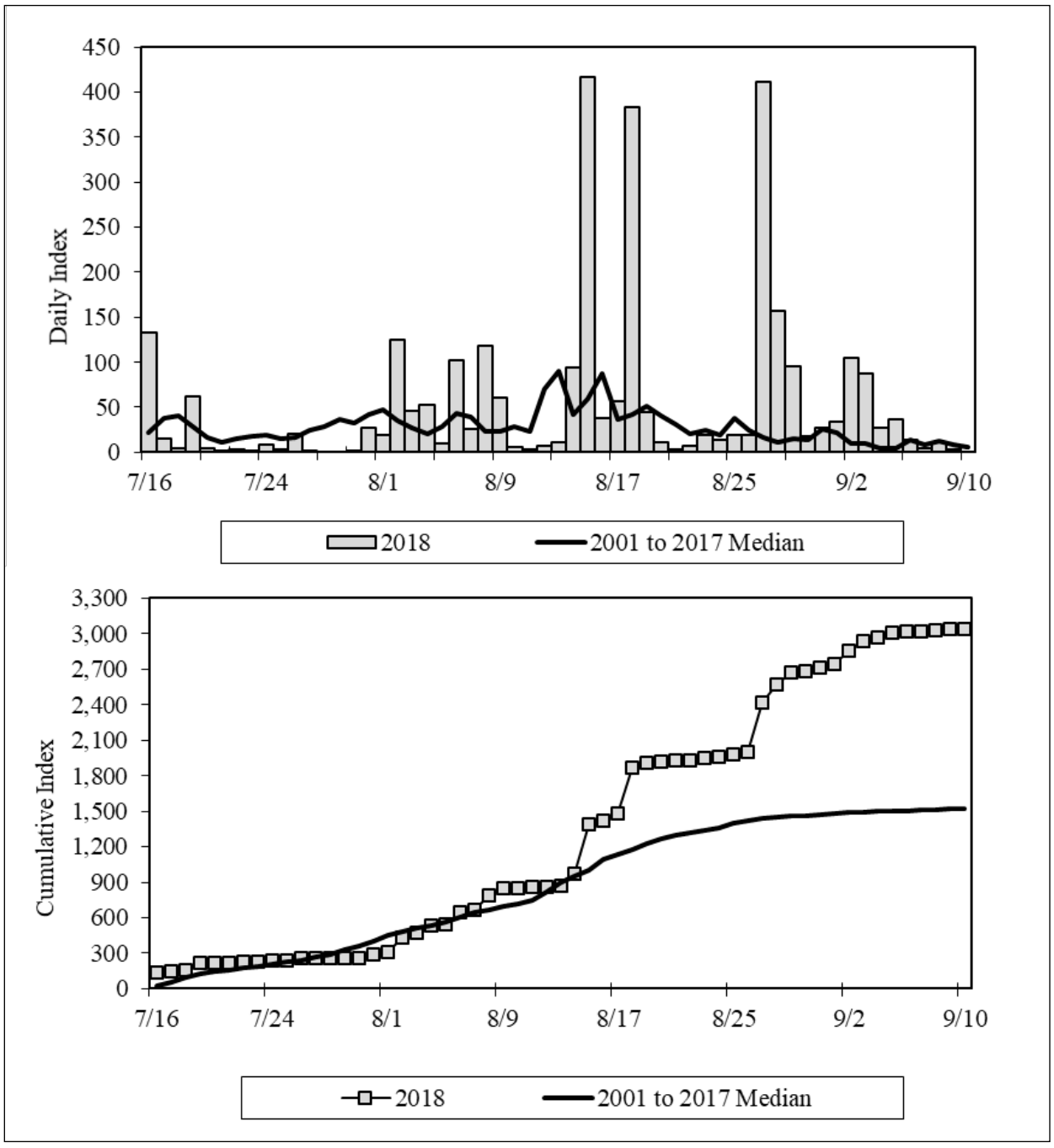
	Fall chum salmon							Coho salmon						
	2001 to 2017 Median			2018				2001 to 2017 Median			2018			
Date	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE
8/16	88.09	0.73	1,093.57	51	37.66	0.47	1,423.94	21.71	0.43	182.82	16	11.82	0.20	79.34
8/17	36.56	0.75	1,130.13	78	57.25	0.49	1,481.19	19.19	0.48	202.01	16	11.74	0.23	91.09
8/18	41.36	0.78	1,171.49	219	383.65	0.61	1,864.84 [a]	14.66	0.51	216.67	8	14.02	0.27	105.10 [a]
8/19	51.38	0.81	1,222.87	56	45.10	0.63	1,909.94	25.56	0.57	242.23	6	4.83	0.28	109.93
8/20	40.28	0.84	1,263.15	7	10.77	0.63	1,920.71 [a]	27.54	0.63	269.77	2	3.08	0.29	113.01 [a]
8/21	30.95	0.86	1,294.09	2	3.08	0.63	1,923.79 [a]	22.63	0.68	292.40	2	3.08	0.30	116.09 [a]
8/22	20.63	0.87	1,314.72	9	6.77	0.64	1,930.56	14.80	0.71	307.19	3	2.26	0.30	118.34
8/23	23.90	0.89	1,338.62	19	18.92	0.64	1,949.48 [a]	13.28	0.74	320.47	3	2.99	0.31	121.33 [a]
8/24	19.29	0.90	1,357.91	9	14.03	0.65	1,963.51 [a]	10.88	0.76	331.35	1	1.56	0.31	122.89 [a]
8/25	38.42	0.93	1,396.33	24	19.14	0.65	1,982.64	16.08	0.80	347.44	3	2.39	0.32	125.28
8/26	24.59	0.94	1,420.91	25	19.11	0.66	2,001.75	9.06	0.82	356.50	9	6.88	0.34	132.16
8/27	16.81	0.95	1,437.72	127	411.89	0.80	2,413.64 [a]	12.68	0.85	369.18	35	113.51	0.63	245.68 [a]
8/28	10.51	0.96	1,447.61	195	157.05	0.85	2,570.69	6.83	0.87	375.60	36	28.99	0.70	274.67
8/29	15.77	0.97	1,455.96	56	96.00	0.88	2,666.69 [a]	11.41	0.88	381.64	14	24.00	0.76	298.67 [a]
8/30	13.75	0.97	1,462.43	23	18.16	0.88	2,684.85	18.61	0.90	390.40	12	9.47	0.79	308.14
8/31	25.48	0.98	1,474.42	17	26.84	0.89	2,711.69 [a]	14.85	0.91	397.39	9	14.21	0.83	322.35 [a]
9/1	22.11	0.98	1,484.82	44	34.51	0.91	2,746.20	15.74	0.92	404.80	19	14.90	0.86	337.26
9/2	9.39	0.98	1,489.24	114	104.43	0.94	2,850.63	11.50	0.93	410.21	18	16.49	0.91	353.74
9/3	10.43	0.99	1,494.15	47	87.44	0.97	2,938.07 [a]	9.40	0.94	414.63	8	14.88	0.94	368.63 [a]
9/4	4.59	0.99	1,496.31	34	26.67	0.98	2,964.74	9.29	0.95	419.01	10	7.84	0.96	376.47
9/5	4.79	0.99	1,498.56	48	37.16	0.99	3,001.90	6.91	0.95	422.26	3	2.32	0.97	378.79
9/6	14.09	0.99	1,505.19	9	14.21	0.99	3,016.11 [a]	10.35	0.96	427.13	3	4.74	0.98	383.53 [a]
9/7	8.59	0.99	1,509.23	5	3.95	1.00	3,020.06	10.62	0.97	432.13	3	2.37	0.99	385.90
9/8	12.19	0.99	1,514.97	14	11.05	1.00	3,031.11	10.49	0.98	437.06	4	3.16	1.00	389.06
9/9	9.14	1.00	1,519.27	2	3.16	1.00	3,034.27 [a]	8.53	0.98	441.08	1	1.58	1.00	390.64 [a]
9/10	5.28	1.00	1,521.76	0	0.00	1.00	3,034.27 [a]	4.87	0.99	443.37	0	0.00	1.00	390.64 [a]
Total				2,499			3,034.27				309			390.64

Note: The box within the cumulative index column indicates the first quarter point, midpoint, and third quarter point of the cumulative index.

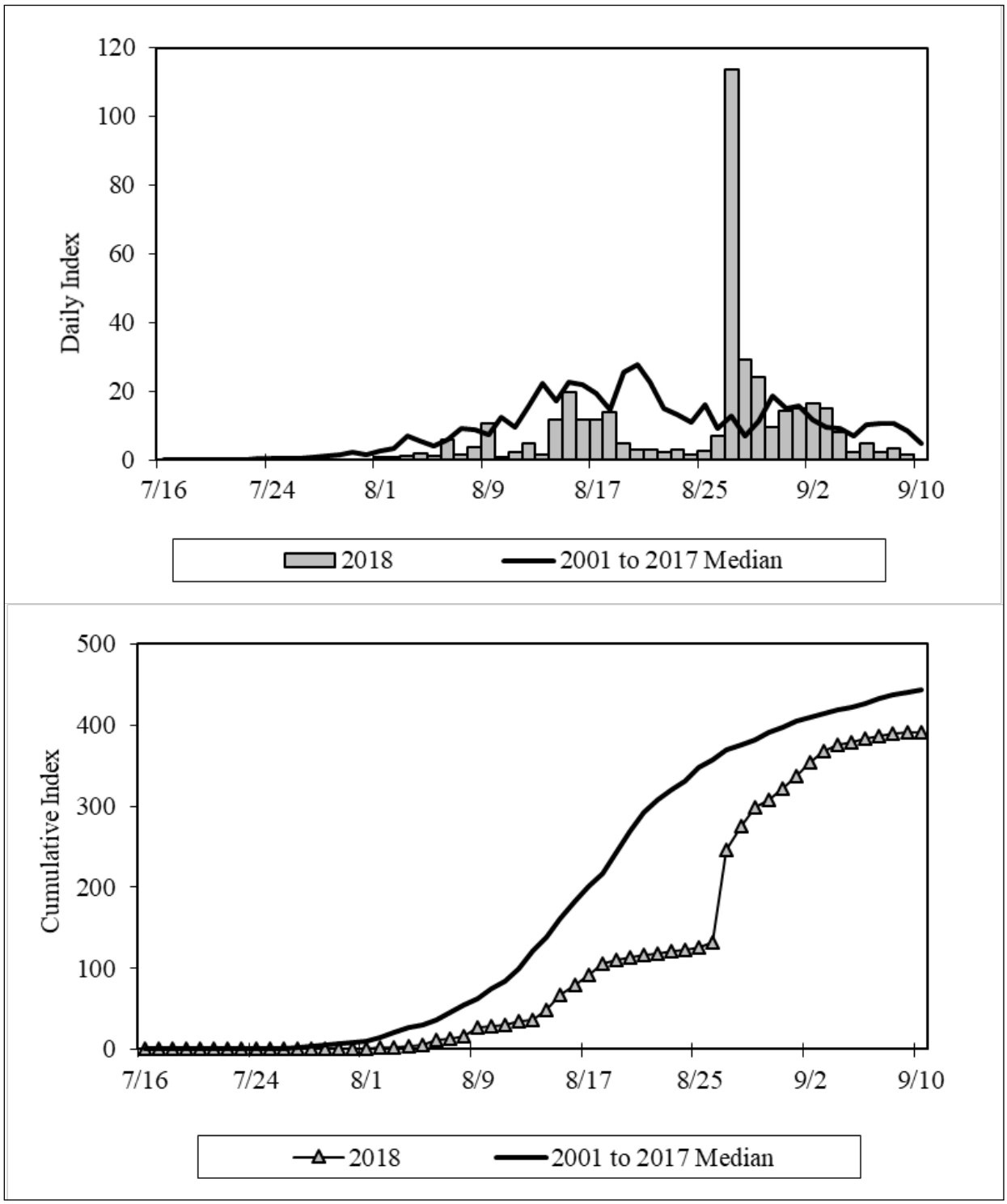
[a] One or more drifts cancelled.

[b] Includes supplemental drifts.

Appendix B11.–Fall chum salmon daily and cumulative catch per unit effort (CPUE), Big Eddy and Middle Mouth sites combined, cooperative drift net test fishery, Lower Yukon River, 2001–2017 compared to 2018.



Appendix B12.–Coho salmon daily and cumulative catch per unit effort (CPUE), Big Eddy and Middle Mouth sites combined, cooperative drift net test fishery, Lower Yukon River, 2001–2017 compared to 2018.



APPENDIX C:
UPPER YUKON AREA SALMON

Appendix C1.–Commercial salmon harvest by statistical area and gear type, Upper Yukon Area, 2018.

Statistical area	Number of operators[a]	Chinook			Summer chum			Fall chum			Coho		
		FW	SGN	Total	FW	SGN	Total	FW	SGN	Total	FW	SGN	Total
334-42	–	–	–	–	–	–	–	–	–	–	–	–	–
334-43	–	–	–	–	–	–	–	–	–	–	–	–	–
334-44	–	–	–	–	–	–	–	–	–	–	–	–	–
334-45	–	–	–	–	–	–	–	–	–	–	–	–	–
334-46	8	0	–	0	126,892	–	126,892	596	0	596	0	0	0
334-47	–	–	–	–	–	–	–	–	–	–	–	–	–
Subtotal District 4	8	–	–	–	126,892	–	126,892	596	0	596	0	0	0
334-51	–	–	–	–	–	–	–	–	–	–	–	–	–
334-52	3	–	–	–	–	–	–	896	0	896	0	0	0
334-53	–	–	–	–	–	–	–	–	–	–	–	–	–
334-54	–	–	–	–	–	–	–	–	–	–	–	–	–
334-55	–	–	–	–	–	–	–	–	–	–	–	–	–
Subtotal District 5	3	–	–	–	–	–	–	896	0	896	0	0	0
334-61	0	0	0	0	0	0	0	0	0	0	0	0	0
334-62	1	0	0	0	3,427	0	3,427	3,498	0	3,498	1,256	0	1,256
334-63	2	0	0	0	0	0	0	13,200	0	13,200	3,058	0	3,058
Subtotal District 6	3	0	0	0	3,427	0	3,427	16,698	0	16,698	4,314	0	4,314
Upper Yukon Area total	14	0	0	0	130,319	0	130,319	18,190	0	18,190	4,314	0	4,314

Note: En dash indicates no commercial fishing activity occurred. FW= Fish wheel, SGN = Set gillnet.

[a] The number of operators is the unique number of permits fished.

Appendix C2.–Commercial Chinook salmon sales and estimated harvest by statistical area, Subdistrict 4-A, Upper Yukon Area, 1998–2018.

	334-44			334-45			334-46			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	–	–	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	0	0	0	0	0	0
2003	–	–	–	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–	–	–	–
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	–	–	–	–	–	–	–	–	–	–	–	–
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–
2017	0	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0	0

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the number of females estimated to have produced the roe sold. Since 1990, the estimated number of females is based on a District 4 sampling program that estimated average roe weight per female by statistical area, period, and gear type.

Appendix C3.–Commercial Chinook salmon sales and estimated harvest by statistical area, Subdistricts 4-B and 4-C, Upper Yukon Area, 1998–2018.

	334-42			334-43			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	–	–	–	–	–	–	–	–	–
1999	233	0	233	1,204	0	1,204	1,437	0	1,437
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	562	0	562	562	0	562
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–
2008	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–
2017	–	–	–	–	–	–	–	–	–
2018	–	–	–	–	–	–	–	–	–

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the number of females estimated to have produced the roe sold. Since 1990, the estimated number of females is based on a District 4 sampling program that estimated average roe weight per female by statistical area, period, and gear type.

Appendix C4.–Commercial Chinook salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B, and 5-C, Upper Yukon Area, 1998–2018.

	334-51			334-52			334-53			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	0	0	0	279	0	279	196	0	196	475	0	475
1999	–	–	–	1,468	0	1,468	721	0	721	2,189	0	2,189
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	307	0	307	257	0	257	564	0	564
2003	–	–	–	711	0	711	197	0	197	908	0	908
2004	–	–	–	1,317	0	1,317	229	0	229	1,546	0	1,546
2005	–	–	–	1,297	0	1,297	172	0	172	1,469	0	1,469
2006	–	–	–	1,358	0	1,358	481	0	481	1,839	0	1,839
2007	–	–	–	1,064	0	1,064	177	0	177	1,241	0	1,241
2008	–	–	–	0	0	0	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	0	0	0	–	–	–	–	–	–
2012	–	–	–	0	0	0	–	–	–	–	–	–
2013	–	–	–	0	0	0	–	–	–	–	–	–
2014	–	–	–	0	0	0	–	–	–	–	–	–
2015	–	–	–	0	0	0	–	–	–	–	–	–
2016	–	–	–	0	0	0	–	–	–	–	–	–
2017	–	–	–	0	0	0	–	–	–	–	–	–
2018	–	–	–	0	0	0	–	–	–	–	–	–

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the number of females estimated to have produced the roe sold. Since 1990, the estimated number of females is based on a District 4 sampling program that estimated average roe weight per female by statistical area, period, and gear type.

Appendix C5.–Commercial Chinook salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1998–2018.

	334-54			334-55			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	11	0	11	31	0	31	42	0	42
1999	81	0	81	334	0	334	415	0	415
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	0	0	0	207	0	207	207	0	207
2003	0	0	0	226	0	226	226	0	226
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–
2008	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–
2017	–	–	–	–	–	–	–	–	–
2018	–	–	–	–	–	–	–	–	–

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the number of females estimated to have produced the roe sold. Since 1990, the estimated number of females is based on a District 4 sampling program that estimated average roe weight per female by statistical area, period, and gear type.

Appendix C6.–Commercial Chinook salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1998–2018.

	334-61			334-62			334-63			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	217	0	217	431	208	496	234	52	250	882	260	963
1999	0	0	0	269	734	462	133	362	228	402	1,096	690
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	0	0	0	732	896	962	104	0	104	836	896	1,066
2003	0	0	0	1,445	0	1,445	368	0	368	1,813	0	1,813
2004	0	0	0	1,542	0	1,542	515	0	515	2,057	0	2,057
2005	0	0	0	391	0	391	62	0	62	453	0	453
2006	0	0	0	0	0	0	84	0	84	84	0	84
2007	0	0	0	106	0	106	175	0	175	281	0	281
2008	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0	0
2013–2017 Average	0	0	0	0	0	0	0	0	0	0	0	0
2008–2017 Average	0	0	0	0	0	0	0	0	0	0	0	0

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

Appendix C7.–Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 4–A, Upper Yukon Area, 1998–2018.

	334-44					334-45				
		Roe expansion					Roe expansion			
Year	Number[a]	Roe[b]	Males[c]	Females[d]	Estimated harvest[e]	Number[a]	Roe[b]	Males[c]	Females[d]	Estimated harvest[e]
1998	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–	–
2007[f]	5,359	–	–	–	5,359	–	–	–	–	–
2008[f]	–	–	–	–	–	–	–	–	–	–
2009[f]	3,890	–	–	–	3,890	699	–	–	699	699
2010[g]	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–
2012[g]	–	–	–	–	–	–	–	–	–	–
2013[g]	–	–	–	–	–	–	–	–	–	–
2014[g]	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–
2017[g]	–	–	–	–	–	–	–	–	–	–
2018[g]	–	–	–	–	–	–	–	–	–	–
2013–2017 Average										
2008–2017 Average	3,890				3,890	699			699	699

-continued-

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Year	334-46					Subtotal 334-44, 45, and 46				
		Roe expansion					Roe expansion			
	Number[a]	Roe[b]	Males[c]	Females[d]	Estimated harvest[e]	Number[a]	Roe[b]	Males[c]	Females[d]	Estimated harvest[e]
1998	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–	–
2007[f]	1,945	–	–	–	1,945	7,304	–	–	–	7,304
2008[f]	23,746	–	–	–	23,746	23,746	–	–	–	23,746
2009[f]	–	–	–	–	–	4,589	–	–	–	4,589
2010[g]	44,207	–	–	–	44,207	44,207	–	–	–	44,207
2011	–	–	–	–	–	–	–	–	–	–
2012[g]	108,222	–	–	–	108,222	108,222	–	–	–	108,222
2013[g]	100,507	–	–	–	100,507	100,507	–	–	–	100,507
2014[g]	96,385	–	–	–	96,385	96,385	–	–	–	96,385
2015	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–
2017[g]	159,051	–	–	–	159,051	159,051	–	–	–	159,051
2018[g]	126,892	–	–	–	126,892	126,892	–	–	–	126,892
2013–2017 Average	118,648				118,648	118,648				118,648
2008–2017 Average	88,686				88,686	76,672				76,672

-continued-

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Year	334-47 (Anvik River)				Total (Subdistrict 4-A and Anvik)				
		Roe expansion				Roe expansion			
	Number[a]	Roe[b]	Females[d]	Estimated harvest[e]	Number[a]	Roe[b]	Males[c]	Females[d]	Estimated harvest[e]
1998	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–
2007[f]	–	–	–	–	7,304	–	–	–	7,304
2008[f]	–	–	–	–	23,746	–	–	–	23,746
2009[f]	–	–	–	–	4,589	–	–	–	4,589
2010[g]	–	–	–	–	44,207	–	–	–	44,207
2011	–	–	–	–	–	–	–	–	–
2012[g]	–	–	–	–	108,222	–	–	–	108,222
2013[g]	–	–	–	–	100,507	–	–	–	100,507
2014[g]	–	–	–	–	96,385	–	–	–	96,385
2015	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–
2017[g]	–	–	–	–	159,051	–	–	–	159,051
2018[g]	–	–	–	–	126,892	–	–	–	126,892
2013–2017 Average					118,648				118,648
2008–2017 Average					76,672				76,672

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated number of unsold males that were caught and not sold while harvesting the females that produced the roe sold. Since 1990, the estimated number is based on a District 4 sampling program that estimated average percent males in the harvest by statistical area, period, and gear type.

[d] The estimated number of females to produce the roe sold. Since 1991, the estimated number of females that produce the roe sold is based on a District 4 sample roe weight per female by statistical area, period, and gear type.

[e] From 1990 to 2006, the estimated harvest is the number of fish sold in the round plus the estimated number of females and the estimated number of unsold males harvested to produce the roe sold. Beginning in 2007, the actual numbers of female fish from which roe were extracted are included in the total harvest. Males were recorded as caught but not sold, thus are accounted for in personal use totals.

[f] The number of female fish from which roe were extracted is the number harvested. Males were not purchased and are accounted for in personal use totals.

[g] Both males and females were purchased and are included in the number harvested.

Appendix C8.–Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 4-B and 4-C, Upper Yukon Area, 1998–2018.

	334-42				334-43				Total				
		Roe expansion				Roe expansion				Roe expansion			
Year	Number[a]	Roe[b]	Females[c]	Harvest[d]	Number[a]	Roe[b]	Females[c]	Harvest[d]	Number[a]	Roe[b]	Females[c]	Males[e]	Harvest[d]
1998	–	–	–	–	–	–	–	–	–	–	–	–	–
1999	153	0	0	153	1,114	0	0	1,114	1,267	0	0	0	1,267
2000	–	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	62	0	0	62	62	0	0	0	62
2004	–	–	–	–	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–	–	–	–	–
2008	–	–	–	–	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–	–
2017	–	–	–	–	–	–	–	–	–	–	–	–	–
2018	–	–	–	–	–	–	–	–	–	–	–	–	–

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from the summer chum salmon roe.

[c] The estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produced the roe sold is based on a District 4 sampling program that estimated average roe weight per female by statistical area, period, and gear type.

[d] The estimated harvest is the number of fish sold in the round plus the estimated number of females harvested to produce roe sold plus the estimated number of males caught but not sold.

[e] The estimated number of unsold males that were caught and not sold while harvesting the females that produced the roe sold. Since 1990, the estimated number is based on a District 4 sampling program that estimated average percent males in the harvest by statistical area, period, and gear type.

Appendix C9.–Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B, and 5-C, Upper Yukon Area, 1998–2018.

	334-51			334-52			334-53			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	0	0	0	37	13	51	59	0	59	96	13	110
1999	0	0	0	74	0	74	40	0	40	114	0	114
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	6	0	6	6	0	6
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	3	0	3	22	0	22	25	0	25
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	20	0	0	0	0	0	20	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	–	–	–	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–
2017	–	–	–	–	–	–	–	–	–	–	–	–
2018	–	–	–	–	–	–	–	–	–	–	–	–

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold.

[c] The harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

Appendix C10.–Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 5-D, Upper Yukon Area, 1998–2018.

	334-54			334-55			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	1	0	1	1	0	1
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–
2008	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–
2017	–	–	–	–	–	–	–	–	–
2018	–	–	–	–	–	–	–	–	–

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from the summer chum salmon roe sold.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females needed to produce the roe sold. Since 1990, the estimated number of females needed to produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

Appendix C11.–Commercial summer chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1998–2018.

	334-61			334-62			334-63			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	56	0	56	202	109	337	139	31	177	397	140	570
1999	0	0	0	102	0	102	22	24	46	124	24	148
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	0	0	0	2,711	16	2,731	487	0	487	3,198	16	3,218
2003	0	0	0	3,953	0	3,953	508	0	508	4,461	0	4,461
2004	0	0	0	2,447	0	2,447	4,163	0	4,163	6,610	0	6,610
2005	0	0	0	5,404	0	5,404	3,582	0	3,582	8,986	0	8,986
2006	0	0	0	37,758	0	37,758	6,863	0	6,863	44,621	0	44,621
2007	0	0	0	10,627	0	10,627	4,047	0	4,047	14,674	0	14,674
2008	0	0	0	1,194	0	1,194	648	4	652	1,842	4	1,846
2009	590	0	590	4,979	0	4,979	2,208	0	2,208	7,777	0	7,777
2010	0	0	0	5,466	0	5,466	0	0	0	5,466	0	5,466
2011	0	0	0	4,964	0	4,964	3,687	0	3,687	8,651	0	8,651
2012	0	0	0	3,151	0	3,151	353	0	353	3,504	0	3,504
2013	0	0	0	5,937	0	5,937	0	0	0	5,937	0	5,937
2014	0	0	0	6,912	0	6,912	0	0	0	6,912	0	6,912
2015	0	0	0	4,589	0	4,589	181	0	181	4,770	0	4,770
2016	0	0	0	4,020	0	4,020	0	0	0	4,020	0	4,020
2017	0	0	0	4,300	0	4,300	0	0	0	4,300	0	4,300
2018	0	0	0	3,427	0	3,427	0	0	0	3,427	0	3,427
2013–2017 Average	0	0	0	5,152	0	5,152	36	0	36	5,188	0	5,188
2008–2017 Average	59	0	59	4,551	0	4,551	708	0	708	5,318	0	5,318

Note: En dash indicates no commercial fishing activity occurred.

[a] Reported as numbers of fish sold in the round.

[b] Pounds of salmon roe sold. Since 1990, efforts were made to separate Chinook salmon roe from summer chum salmon roe.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

Appendix C12.–Commercial fall chum salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1998–2018.

	334-46[a]			334-42			334-43			Total		
Year	Number[b]	Roe[c]	Harvest[d]	Number[b]	Roe[c]	Harvest[d]	Number[b]	Roe[c]	Harvest[d]	Number[b]	Roe[c]	Harvest[d]
1998	–	–	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	104	0	104	577	0	577	681	0	681
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001[e]	–	–	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	1,315	0	1,315	1,315	0	1,315
2004	–	–	–	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–	–	–	–
2006	0	0	0	–	–	–	–	–	–	0	0	0
2007	–	–	–	–	–	–	–	–	–	–	–	–
2008	0	0	0	–	–	–	–	–	–	0	0	0
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–	–	–
2012	811	0	811	–	–	–	–	–	–	811	0	811
2013	–	–	–	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–
2017	1,402	0	1,402	–	–	–	–	–	–	1,402	0	1,402
2018	596	0	596	–	–	–	–	–	–	596	0	596
2013–2017 Average	1,402	0	1,402	–	–	–	–	–	–	1,402	0	1,402
2008–2017 Average	738	0	738	–	–	–	–	–	–	738	0	738

Note: En dash indicates no commercial fishing activity occurred.

[a] In Subdistrict 4-A (Statistical Area 334-41), from 1977 to 2001, commercial fishing, by regulation, was not allowed during fall season. Additionally, in 1990, Subdistrict 4-A (Statistical Area 334-41) was subdivided into Statistical Areas 334-44, 334-45, and 334-46.

[b] Harvest reported in numbers of fish sold in the round.

[c] Pounds of salmon roe sold.

[d] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by period, by statistical area and gear type.

[e] Guideline harvest range (GHR) included 4-A.

Appendix C13.–Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B, and 5-C, Upper Yukon Area, 1998–2018.

	334-51			334-52			334-53			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	–	–	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–	–	–	–
2004	0	0	0	–	–	–	–	–	–	0	0	0
2005	–	–	–	0	0	0	0	0	0	0	0	0
2006	–	–	–	–	–	–	10,030	–	10,030	10,030	0	10,030
2007	–	–	–	385	–	385	42	–	42	427	0	427
2008	0	0	0	4,556	–	4,556	0	0	0	4,556	0	4,556
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	1,246	–	1,246	0	0	0	1,246	0	1,246
2012	–	–	–	2,419	–	2,419	0	0	0	2,419	0	2,419
2013	–	–	–	1,041	–	1,041	0	0	0	1,041	0	1,041
2014	–	–	–	1,264	–	1,264	0	0	0	1,264	0	1,264
2015	–	–	–	1,048	–	1,048	0	0	0	1,048	0	1,048
2016	–	–	–	7,542	–	7,542	0	0	0	7,542	0	7,542
2017	–	–	–	1,952	138	1,952[d]	0	0	0	1,952	138	1,952[d]
2018	–	–	–	896	–	896	0	0	0	896	0	896
2013–2017 Average				2,569	138	2,569	0	0	0	2,569	28	2,569
2008–2017 Average				2,634	138	2,634	0	0	0	2,634	17	2,634

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average.

[a] Harvest reported in numbers of fish sold in the round.

[b] Pounds of salmon roe sold.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 5 sampling program that estimated average roe weight per female by period.

[d] The number of females harvested to produce the roe sold is included in the subsistence harvest estimate.

Appendix C14.–Commercial fall chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1998–2018.

	334-61			334-62			334-63			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	–	–	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	3,778	0	3,778	317	0	317	4,095	0	4,095
2004	–	–	–	3,450	0	3,450	–	–	–	3,450	0	3,450
2005	–	–	–	49,637	0	49,637	–	–	–	49,637	0	49,637
2006	–	–	–	23,353	0	23,353	–	–	–	23,353	0	23,353
2007	–	–	–	15,572	0	15,572	–	–	–	15,572	0	15,572
2008	4,029	–	4,029	1,706	0	1,706	–	–	–	5,735	0	5,735
2009	1286	545	1,893	–	–	–	–	–	–	1,286	545	1,893
2010	–	–	–	1,735	0	1,735	–	–	–	1,735	0	1,735
2011	–	–	–	9,267	0	9,267	–	–	–	9,267	0	9,267
2012	–	–	–	17,336	0	17,336	–	–	–	17,336	0	17,336
2013	–	–	–	24,148	0	24,148	–	–	–	24,148	0	24,148
2014	1,568	0	1,568	1,800	0	1,800	–	–	–	3,368	0	3,368
2015	808	0	808	14,771	0	14,771	67	0	67	15,646	0	15,646
2016	0	0	0	12,990	0	12,990	5,063	0	5,063	18,053	0	18,053
2017	0	0	0	8,207	290	8,587	[d] 14,683	0	14,683	22,890	290	23,270
2018	0	0	0	3,498	0	3,498	13,200	0	13,200	16,698	0	16,698
2013–2017 Average	475	0	475	12,383	58	12,459	6,604	0	6,604	16,821	58	16,897
2008–2017 Average	1,099	91	1,185	10,218	32	10,260	6,604	0	6,604	11,946	84	12,045

Note: En dash indicates no commercial fishing activity occurred.

[a] Harvest reported in numbers of fish sold in the round.

[b] Pounds of salmon roe sold.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

[d] Includes headed and gutted fish sold and used to produce roe.

Appendix C15.–Commercial coho salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1998–2018.

	334-46[a]			334-42			334-43			Total		
Year	Number[b]	Roe[c]	Harvest[d]	Number[b]	Roe[c]	Harvest[d]	Number[b]	Roe[c]	Harvest[d]	Number[b]	Roe[c]	Harvest[d]
1998	–	–	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	367	0	367	367	0	367
2004	–	–	–	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–	–	–	–
2006	0	0	0	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–	–	–	–
2008	0	0	0	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–	–	–
2012	0	0	0	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–
2017	0	0	0	–	–	–	–	–	–	0	0	0
2018	0	0	0	–	–	–	–	–	–	0	0	0

Note: En dash indicates no commercial fishing activity occurred.

[a] In Subdistrict 4-A (Statistical Area 334-41), from 1977 to 2001, commercial fishing, by regulation, was not allowed during fall season. Additionally, in 1990, Subdistrict 4-A (Statistical Area 334-41) was subdivided into Statistical Areas 334-44, 334-45, and 334-46.

[b] Harvest reports in numbers of fish sold in the round.

[c] Pounds of salmon roe sold.

[d] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 4 sampling program that estimated average roe weight per female by period.

Appendix C16.–Commercial coho salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1998–2018.

	334-61			334-62			334-63			Total		
Year	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]	Number[a]	Roe[b]	Harvest[c]
1998	–	–	–	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–	–	–	–
2003	–	–	–	14,984	0	14,984	135	0	135	15,119	0	15,119
2004	–	–	–	18,649	0	18,649	–	–	–	18,649	0	18,649
2005	–	–	–	21,778	0	21,778	–	–	–	21,778	0	21,778
2006	–	–	–	11,137	0	11,137	–	–	–	11,137	0	11,137
2007	–	–	–	1,368	0	1,368	–	–	–	1,368	0	1,368
2008	2,160	0	2,160	248	0	248	–	–	–	2,408	0	2,408
2009	457	258	742	–	–	–	–	–	–	457	258	742
2010	–	–	–	1,700	0	1,700	–	–	–	1,700	0	1,700
2011	–	–	–	6,784	0	6,784	–	–	–	6,784	0	6,784
2012	–	–	–	5,335	0	5,335	–	–	–	5,335	0	5,335
2013	–	–	–	7,439	0	7,439	–	–	–	7,439	0	7,439
2014	318	0	318	968	0	968	–	–	–	1,286	0	1,286
2015	447	0	447	8,361	0	8,361	3	0	3	8,811	0	8,811
2016	0	0	0	13,285	0	13,285	7,266	0	7,266	20,551	0	20,551
2017	0	0	0	3,515	126	3,735[d]	5,921	0	5,921	9,436	126	9,656[d]
2018	0	0	0	1,256	0	1,256	3,058	0	3,058	4,314	0	4,314
2013–2017 Average	153	0	191	6,714	25	6,758	4,062	0	4,397	9,505	25	9,549
2008–2017 Average	483	37	611	5,293	14	5,317	4,062	0	4,397	6,421	38	6,471

Note: En dash indicates no commercial fishing activity occurred.

[a] Harvest reports in numbers of fish sold in the round.

[b] Pounds of salmon roe sold.

[c] The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Since 1990, the estimated number of females that produce the roe sold is based on a District 6 sampling program that estimated average roe weight per female by period.

[d] Includes headed and gutted fish sold and used to produce roe.

APPENDIX D:
YUKON RIVER SALMON SUBSISTENCE AND PERSONAL USE

Appendix D1.–Chinook salmon subsistence harvest totals by fishing district and community of residence, as estimated from postseason survey, returned permits and test fishery projects, and personal use harvest total for District 6, Yukon Area, 2008–2018.

Community	2008	2009	2010	2011	2012	2013	2014	2015	2016 [a]	2017 [a]	2018 [a]	2008–2012 Average	2013–2017 Average
Hooper Bay	388	183	584	252	1,090	1,210	455	534	284	320	456	499	561
Scammon Bay	1,104	722	716	517	1,014	332	108	432	602	733	661	815	441
Coastal District total	1,492	905	1,300	769	2,104	1,542	563	966	886	1,053	1,117	1,314	1,002
Nunam Iqua	163	200	404	250	195	12	62	210	190	235	78	242	142
Alakanuk	1,238	634	944	1,464	1,081	275	214	436	465	846	424	1,072	447
Emmonak	2,696	1,634	2,194	2,172	1,864	553	463	612	939	1,732	1,211	2,112	860
Kotlik	2,066	1,657	2,314	2,369	1,173	794	617	661	1,172	1,767	1,556	1,916	1,002
District 1 subtotal	6,163	4,125	5,856	6,255	4,313	1,634	1,356	1,919	2,766	4,580	3,269	5,342	2,451
Mountain Village	1,597	1,258	1,585	1,340	1,078	258	163	382	652	825	659	1,372	456
Pitkas Point	3,284	1,201	2,110	2,686	1,409	328	128	128	512	1,612	914	2,138	542
St. Mary's	1,645	1,482	1,601	2,063	1,789	266	178	370	809	1,118	1,030	1,716	548
Pilot Station	544	265	580	246	261	37	79	44	156	507	365	379	165
Marshall	1,756	1,929	2,800	1,734	2,344	215	68	261	1,032	961	1,180	2,113	507
District 2 subtotal	8,826	6,135	8,676	8,069	6,881	1,104	616	1,185	3,161	5,023	4,148	7,717	2,218
Russian Mission	2,949	978	924	1,550	1,711	236	16	365	321	1,368	1,043	1,622	461
Holy Cross	2,509	1,745	3,098	2,231	576	204	0	68	557	836	562	2,032	333
Shageluk	397	201	277	353	75	4	32	14	23	92	198	261	33
District 3 subtotal	5,855	2,924	4,299	4,134	2,362	444	48	447	901	2,296	1,803	3,915	827
Lower Yukon River total	20,844	13,184	18,831	18,458	13,556	3,182	2,020	3,551	6,828	11,899	9,220	16,975	5,496
Anvik	1,433	796	1,069	1,052	435	121	0	58	241	731	566	957	230
Grayling	1,761	1,133	2,122	1,374	1,081	226	3	22	370	751	911	1,494	274
Kaltag	2,403	1,970	3,191	2,488	1,346	348	10	119	1,358	2,048	570	2,280	777
Nulato	1,250	1,551	2,989	1,538	1,955	602	0	33	1,957	2,269	1,282	1,857	972
Koyukuk	513	982	867	1,349	614	898	52	26	612	648	864	865	447
Galena	2,232	1,370	1,357	1,434	742	275	1	372	993	2,246	1,254	1,427	777
Ruby	637	542	1,102	482	1,316	357	6	68	344	593	1,137	816	274
District 4 subtotal	10,229	8,344	12,697	9,717	7,489	2,827	72	698	5,875	9,286	6,584	9,695	3,752
Huslia/Hughes	316	1,070	128	131	165	68	51	38	94	462	150	362	143
Allakaket/Alatna/Bettles	74	100	63	45	8	6	9	35	46	35	49	58	26
Koyukuk River subtotal	390	1,170	191	176	173	74	60	73	140	497	199	420	169
District 4 total (incl. Koyukuk R.)	10,619	9,514	12,888	9,893	7,662	2,901	132	771	6,015	9,783	6,783	10,115	3,920

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Community	2008	2009	2010	2011	2012	2013	2014	2015	2016 [a]	2017 [a]	2018 [a]	2008–2012 Average	2013–2017 Average
Tanana	3,981	2,950	3,215	2,936	2,100	1,200	88	141	2,129	2,962	5,253	3,036	1,304
Rampart/Stevens Village	889	933	731	616	520	274	0	1	228	155	178	738	132
Beaver	546	516	198	356	71	107	0	69	165	609	328	337	190
Fort Yukon/Birch Creek	2,023	861	1,756	2,521	2,141	1,561	93	480	1,226	4,302	4,547	1,860	1,532
Circle/Central	567	539	414	363	346	178	0	185	260	714	575	446	267
Eagle	1,068	446	867	728	167	175	76	395	864	1,730	1,007	655	648
Fairbanks (FNSB) [b]	1,898	1,509	1,670	2,186	558	610	14	263	1,318	2,521	1,342	1,564	945
Other District 5 [c]	362	541	779	777	477	125	0	7	306	860	404	587	260
District 5 subtotal	11,334	8,295	9,630	10,483	6,380	4,230	271	1,541	6,496	13,853	13,634	9,224	5,278
Venetie/Chalkyitsik	292	622	767	10	86	311	17	308	586	670	443	355	378
Chandalar/Black R. subtotal	292	622	767	10	86	311	17	308	586	670	443	355	378
District 5 total	11,626	8,917	10,397	10,493	6,466	4,541	288	1,849	7,082	14,523	14,077	9,580	5,657
Manley	106	345	337	287	174	165	92	121	230	103	190	250	142
Minto	12	–	43	61	99	60	0	23	35	101	–	54	44
Nenana/Healy	335	473	660	681	296	87	139	263	464	429	323	489	276
Fairbanks (FNSB) [d]	108	396	91	330	58	49	41	33	87	145	53	197	71
Other District 6 [e]	44	71	12	8	0	6	11	0	0	0	49	27	3
District 6 Tanana R. total	605	1,285	1,143	1,367	627	367	283	440	816	778	615	1,005	537
Upper Yukon River total	22,850	19,716	24,428	21,753	14,755	7,809	703	3,060	13,913	25,084	21,475	20,700	10,114
Yukon Area total	45,186	33,805	44,559	40,980	30,415	12,533	3,286	7,577	21,627	38,036	31,812	38,989	16,612
Personal Use (District 6) [f]	126	127	162	89	71	42	1	5	57	125	201	115	46
Yukon Area total with Personal Use	45,312	33,932	44,721	41,069	30,486	12,575	3,287	7,582	21,684	38,161	32,013	39,104	16,658

[a] Data are preliminary.

[b] Harvest by subsistence permit holders residing in Fairbanks who fished in District 5 near the Yukon River bridge crossing.

[c] Other permit holders who fished in District 5 but did not reside in the communities listed.

[d] Harvests by subsistence permit holders residing in Fairbanks who fished in the Tanana River.

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

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

Appendix D2.–Summer chum salmon subsistence harvest totals by fishing district and community of residence, as estimated from postseason survey, returned permits and test fishery projects, and personal use harvest total for District 6, Yukon Area, 2008–2018.

Community	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	2008–2012 Average	2013–2017 Average
Hooper Bay	12,007	9,195	17,020	13,460	15,799	13,629	13,236	11,870	6,324	7,969	8,332	13,496	10,606
Scammon Bay	6,113	3,602	5,405	4,845	7,442	9,506	6,068	8,598	5,520	6,036	7,019	5,481	7,146
Coastal District total	18,120	12,797	22,425	18,305	23,241	23,135	19,304	20,468	11,844	14,005	15,351	18,978	17,751
Nunam Iqua	1,949	2,280	2,267	2,077	1,977	2,651	2,010	2,239	2,130	1,759	1,549	2,110	2,158
Alakanuk	6,881	5,152	7,722	7,447	9,012	7,520	9,120	4,469	6,527	5,035	5,632	7,243	6,534
Emmonak	9,646	9,038	10,918	12,468	15,829	8,209	7,143	9,973	8,976	6,937	7,094	11,580	8,248
Kotlik	4,291	7,528	4,265	6,598	8,552	10,136	5,621	4,960	9,105	8,776	7,007	6,247	7,720
District 1 subtotal	22,767	23,998	25,172	28,590	35,370	28,516	23,894	21,641	26,738	22,507	21,282	27,179	24,659
Mountain Village	6,012	4,888	6,196	4,182	5,716	5,299	5,728	4,702	4,796	5,031	4,401	5,399	5,111
Pitkas Point	3,023	2,172	2,395	3,810	5,903	3,986	6,189	4,351	5,180	5,300	3,311	3,461	5,001
St. Mary's	7,559	7,204	7,071	9,355	9,031	11,861	7,059	6,063	8,782	7,593	5,347	8,044	8,272
Pilot Station	1,246	994	633	585	1,153	2,186	1,588	1,225	1,485	1,623	1,390	922	1,621
Marshall	6,451	5,831	7,443	6,760	10,763	9,167	5,570	8,216	7,379	5,147	4,586	7,450	7,096
District 2 subtotal	24,291	21,089	23,738	24,692	32,566	32,499	26,134	24,557	27,622	24,694	19,035	25,275	27,101
Russian Mission	2,400	849	528	1,225	2,508	3,967	3,181	2,626	1,798	2,645	2,245	1,502	2,843
Holy Cross	441	194	463	363	1,147	262	97	421	991	245	303	522	403
Shageluk	130	103	350	1,145	5,035	463	470	80	275	870	506	1,353	432
District 3 subtotal	2,971	1,146	1,341	2,733	8,690	4,692	3,748	3,127	3,064	3,760	3,054	3,376	3,678
Lower Yukon River total	50,029	46,233	50,251	56,015	76,626	65,707	53,776	49,325	57,424	50,961	43,371	55,831	55,439
Anvik	340	277	451	220	1,371	830	2,052	777	1,117	330	437	532	1,021
Grayling	660	1,429	1,612	838	2,616	618	1,617	509	878	738	792	1,431	872
Kaltag	916	50	102	163	186	67	954	216	467	193	25	283	379
Nulato	468	133	416	246	254	401	158	6	1,001	1,414	248	303	596
Koyukuk	1,104	1,378	352	890	828	4,459	300	0	119	96	150	910	995
Galena	758	1,718	1,702	3,414	718	179	377	1,059	1,689	1,229	303	1,662	907
Ruby	655	603	1,971	775	3,891	681	29	88	678	115	993	1,579	318
District 4 subtotal	4,901	5,588	6,606	6,546	9,864	7,235	5,487	2,655	5,949	4,115	2,948	6,701	5,088
Huslia/Hughes	5,321	4,277	2,227	4,120	7,734	4,070	3,214	4,609	4,764	9,540	3,726	4,736	5,239
Allakaket/Alatna/Bettles	3,295	5,093	2,887	2,500	3,957	2,456	1,280	2,513	3,015	2,872	4,820	3,546	2,427
Koyukuk River subtotal	8,616	9,370	5,114	6,620	11,691	6,526	4,494	7,122	7,779	12,412	8,546	8,282	7,667
District 4 total (incl. Koyukuk R.)	13,517	14,958	11,720	13,166	21,555	13,761	9,981	9,777	13,728	16,527	11,494	14,983	12,755

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Community	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	2008–2012 Average	2013–2017 Average
Tanana	2,877	4,665	1,856	4,381	4,333	9,565	2,612	3,162	3,685	3,086	5,892	3,622	4,422
Rampart/Stevens Village	190	118	189	110	259	55	70	0	539	10	2	173	135
Beaver	27	22	22	393	27	12	0	0	23	102	8	98	27
Fort Yukon/Birch Creek	230	275	722	1,297	0	225	19	0	12	101	0	505	71
Circle/Central	5	2	37	48	0	66	0	0	0	0	0	18	13
Eagle	14	0	25	2	0	50	0	0	0	0	0	8	10
Fairbanks (FNSB)[b]	119	44	427	688	172	1,350	300	575	461	1,413	395	290	820
Other District 5[c]	25	29	144	790	101	94	91	8	180	321	34	218	139
District 5 subtotal	3,487	5,155	3,422	7,709	4,892	11,417	3,092	3,745	4,900	5,033	6,331	4,933	5,637
Venetie/Chalkyitsik	50	143	133	0	0	0	16	0	0	0	114	65	3
Chandalar/Black R. subtotal	50	143	133	0	0	0	16	0	0	0	114	65	3
District 5 total	3,537	5,298	3,555	7,709	4,892	11,417	3,108	3,745	4,900	5,033	6,445	4,998	5,641
Manley	144	367	102	142	58	45	182	9	32	16	70	163	57
Minto	9	–	8	27	64	258	24	0	4	234	–	27	104
Nenana/Healy	943	508	113	471	370	642	275	60	19	385	108	481	276
Fairbanks (FNSB)[d]	215	372	183	185	114	143	237	183	41	269	82	214	175
Other District 6[e]	0	6	16	0	72	6	13	0	0	7	5	19	5
District 6 Tanana R. total	1,311	1,253	422	825	678	1,094	731	252	96	911	265	898	617
Upper Yukon River total	18,365	21,509	15,697	21,700	27,125	26,272	13,820	13,774	18,724	22,471	18,204	20,879	19,012
Yukon Area total	86,514	80,539	88,373	96,020	126,992	115,114	86,900	83,567	87,992	87,437	76,926	95,688	92,202
Personal Use (District 6)[f]	138	308	319	439	321	138	235	220	176	438	509	305	241
Yukon Area total with Personal Use	86,652	80,847	88,692	96,459	127,313	115,252	87,135	83,787	88,168	87,875	77,435	95,993	92,443

[a] Data are preliminary.

[b] Harvest by subsistence permit holders residing in Fairbanks who fished in District 5 near the Yukon River bridge crossing.

[c] Other permit holders who fished in District 5 but did not reside in the communities listed.

[d] Harvests by subsistence permit holders residing in Fairbanks who fished in the Tanana River.

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

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

Appendix D3.–Fall chum salmon subsistence harvest totals by fishing district and community of residence, as estimated from postseason survey, returned permits and test fishery projects, and personal use harvest total for District 6, Yukon Area, 2008–2018.

Community	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	2008–2012 Average	2013–2017 Average
Hooper Bay	329	41	116	267	1	91	137	79	105	139	158	151	110
Scammon Bay	57	117	70	48	10	58	115	119	657	422	367	60	274
Coastal District total	386	158	186	315	11	149	252	198	762	561	525	211	384
Nunam Iqua	59	41	143	51	210	93	128	210	111	52	188	101	119
Alakanuk	423	116	860	881	449	328	593	1,067	743	426	520	546	631
Emmonak	1,670	1,589	1,718	1,540	5,890	2,165	2,465	3,244	2,501	2,739	2,213	2,481	2,623
Kotlik	671	171	481	962	1,073	1,087	886	1,356	1,247	1,370	759	672	1,189
District 1 subtotal	2,823	1,917	3,202	3,434	7,622	3,673	4,072	5,877	4,602	4,587	3,680	3,800	4,562
Mountain Village	917	265	833	575	1,031	777	796	1,346	903	1,070	1,127	724	978
Pitkas Point	748	190	56	562	184	853	1,100	1,731	1,106	536	415	348	1,065
St. Mary's	926	926	133	800	685	2,174	1,484	1,398	1,204	1,617	875	694	1,575
Pilot Station	101	76	10	30	9	65	400	172	232	172	112	45	208
Marshall	830	106	387	611	1,423	1,009	2,037	1,611	1,088	780	475	671	1,305
District 2 subtotal	3,522	1,563	1,419	2,578	3,332	4,878	5,817	6,258	4,533	4,175	3,004	2,483	5,132
Russian Mission	578	205	104	11	282	804	365	449	235	671	349	236	505
Holy Cross	920	627	21	94	339	855	1,840	763	583	329	174	400	874
Shageluk	323	105	1,200	249	16	105	252	176	179	304	183	379	203
District 3 subtotal	1,821	937	1,325	354	637	1,764	2,457	1,388	997	1,304	706	1,015	1,582
Lower Yukon River total	8,166	4,417	5,946	6,366	11,591	10,315	12,346	13,523	10,132	10,066	7,390	7,297	11,276
Anvik	317	176	169	202	569	763	1,028	680	527	296	500	287	659
Grayling	1,012	490	202	1,152	804	471	1,451	1,184	499	272	774	732	775
Kaltag	620	200	658	196	2,830	583	2,828	1,255	680	149	66	901	1,099
Nulato	729	552	1,049	652	2,729	2,995	3,839	2,248	2,681	1,748	882	1,142	2,702
Koyukuk	1,177	578	792	1,388	1,331	5,308	998	2,838	297	166	301	1,053	1,921
Galena	1,364	4,306	1,968	2,739	2,947	602	3,368	2,542	3,319	4,774	1,393	2,665	2,921
Ruby	657	134	1,026	592	4,408	2,505	972	713	526	104	842	1,363	964
District 4 subtotal	5,876	6,436	5,864	6,921	15,618	13,227	14,484	11,460	8,529	7,509	4,758	8,143	11,042
Huslia/Hughes	191	374	403	247	1,911	1,257	927	1,226	954	552	659	625	983
Allakaket/Alatna/Bettles	1,345	572	521	92	526	707	525	588	551	1,548	362	611	784
Koyukuk River subtotal	1,536	946	924	339	2,437	1,964	1,452	1,814	1,505	2,100	1,021	1,236	1,767
District 4 total (incl. Koyukuk R.)	7,412	7,382	6,788	7,260	18,055	15,191	15,936	13,274	10,034	9,609	5,779	9,379	12,809

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Community	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	2008–2012 Average	2013–2017 Average
Tanana	17,478	19,595	14,984	21,728	20,465	31,546	14,131	19,627	21,261	21,957	17,451	18,850	21,704
Rampart/Stevens Village	1,643	1,770	3,441	1,251	467	940	6,700	186	4,500	0	1,417	1,714	2,465
Beaver	13	120	37	122	174	21	323	76	228	0	142	93	130
Fort Yukon/Birch Creek	14,252	2,829	6,006	7,188	12,659	16,453	8,025	6,257	7,737	3,696	3,105	8,587	8,434
Circle/Central	3,198	110	927	299	161	1,397	1,277	1,652	1,306	2,182	1278	939	1,563
Eagle	15,269	10,941	15,008	17,455	18,731	18,871	17,450	17,185	15,765	19,126	16,807	15,481	17,679
Fairbanks (FNSB) [b]	659	229	822	1,696	793	1,160	1,406	2,454	2,143	3,075	2,023	840	2,048
Other District 5 [c]	3,183	71	120	208	443	121	222	229	17	12	124	805	120
District 5 subtotal	55,695	35,665	41,345	49,947	53,893	70,509	49,534	47,666	52,957	50,048	42,347	47,309	54,143
Venetie/Chalkyitsik	1,563	2,418	2,989	1,938	457	5,589	1,663	2,594	5,883	10,390	2,544	1,873	5,224
Chandalar/Black R. subtotal	1,563	2,418	2,989	1,938	457	5,589	1,663	2,594	5,883	10,390	2,544	1,873	5,224
District 5 total	57,258	38,083	44,334	51,885	54,350	76,098	51,197	50,260	58,840	60,438	44,891	49,182	59,367
Manley	7,058	4,126	2,696	2,333	2,164	1,539	2,579	1,697	414	809	2,365	3,675	1,408
Minto	28	–	70	1,500	2	593	472	140	40	18	–	400	253
Nenana/Healy	8,542	8,396	7,870	6,218	9,260	3,852	4,545	3,981	2,269	2,460	2,779	8,057	3,421
Fairbanks (FNSB) [d]	470	3,460	678	4,317	3,876	5,651	5,190	3,496	884	1,114	765	2,560	3,267
Other District 6 [e]	37	97	77	8	0	5	12	31	1,275	18	0	44	268
District 6 Tanana R. total	16,135	16,079	11,391	14,376	15,302	11,640	12,798	9,345	4,882	4,419	5,909	14,657	8,617
Upper Yukon River total	80,805	61,544	62,513	73,521	87,707	102,929	79,931	72,879	73,756	74,466	56,579	73,218	80,792
Yukon Area total	89,357	66,119	68,645	80,202	99,309	113,393	92,529	86,600	84,650	85,093	64,494	80,726	92,453
Personal Use (District 6) [f]	181	78	3,209	347	410	383	278	80	283	626	514	845	330
Yukon Area total with Personal Use	89,538	66,197	71,854	80,549	99,719	113,776	92,807	86,680	84,933	85,719	65,008	81,571	92,783

Source: Jallen et al. (2017).

[a] Data are preliminary.

[b] Harvests by Fairbanks subsistence permit holders who fished in District 5 near the Yukon River bridge crossing.

[c] Other permit holders who fished in District 5 but did not reside in the communities listed.

[d] Harvests by Fairbanks subsistence permit holders who fished in the Tanana River.

[e] Other permits holders who fished in District 6 but did not reside in the communities listed.

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

Appendix D4.–Coho salmon subsistence harvest totals by fishing district and community of residence, as estimated from postseason survey, returned permits and test fishery projects, and personal use harvest total for District 6, Yukon Area, 2008–2018.

Community	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	2008–2012 Average	2013–2017 Average
Hooper Bay	66	24	45	0	7	73	118	95	121	222	117	28	126
Scammon Bay	50	222	79	55	86	214	86	79	234	213	754	98	165
Coastal District total	116	246	124	55	93	287	204	174	355	435	871	127	291
Nunam Iqua	24	71	73	23	18	83	153	229	58	20	184	42	109
Alakanuk	157	194	449	431	252	167	443	581	183	201	188	297	315
Emmonak	717	401	362	472	2,660	517	613	852	717	723	330	922	684
Kotlik	313	181	238	201	420	457	573	438	278	102	264	271	370
District 1 subtotal	1,211	847	1,122	1,127	3,350	1,224	1,782	2,100	1,236	1,046	966	1,531	1,478
Mountain Village	268	203	189	145	329	136	568	305	136	91	122	227	247
Pitkas Point	490	245	33	150	567	508	468	1,511	409	140	112	297	607
St. Mary's	518	413	127	261	256	271	202	723	438	769	270	315	481
Pilot Station	130	45	116	37	53	41	123	72	22	40	54	76	60
Marshall	591	151	92	230	141	124	408	391	128	223	37	241	255
District 2 subtotal	1,997	1,057	557	823	1,346	1,080	1,769	3,002	1,133	1,263	595	1,156	1,649
Russian Mission	372	96	300	0	319	152	124	154	6	483	123	217	184
Holy Cross	38	120	0	0	237	0	103	246	134	0	23	79	97
Shageluk	0	105	53	36	0	219	113	28	0	14	8	39	75
District 3 subtotal	410	321	353	36	556	371	340	428	140	497	154	335	355
Lower Yukon River total	3,618	2,225	2,032	1,986	5,252	2,675	3,891	5,530	2,509	2,806	1,715	3,023	3,482
Anvik	40	137	28	19	214	97	197	46	184	11	15	88	107
Grayling	25	318	132	119	26	34	403	212	35	0	0	124	137
Kaltag	45	40	0	258	928	306	514	18	53	4	34	254	179
Nulato	195	171	242	118	41	125	454	48	0	82	223	153	142
Koyukuk	84	198	254	137	62	3,267	50	416	1	6	24	147	748
Galena	558	2,353	549	1,013	276	170	718	654	201	136	216	950	376
Ruby	291	314	148	312	1,806	345	335	185	226	24	26	574	223
District 4 subtotal	1,238	3,531	1,353	1,976	3,353	4,344	2,671	1,579	700	263	538	2,290	1,911
Huslia/Hughes	100	412	289	83	165	360	282	310	93	174	980	210	244
Allakaket/Alatna/Bettles	152	43	88	13	38	236	109	52	33	92	27	67	104
Koyukuk River subtotal	252	455	377	96	203	596	391	362	126	266	1,007	277	348
District 4 total (incl. Koyukuk R.)	1,490	3,986	1,730	2,072	3,556	4,940	3,062	1,941	826	529	1,545	2,567	2,260

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Community	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	2008–2012 Average	2013–2017 Average
Tanana	1,511	2,373	2,314	312	3,060	1,135	1,788	2,434	639	874	1,343	1,914	1,374
Rampart/Stevens Village	0	90	452	0	0	0	0	2	52	0	0	108	11
Beaver	6	0	1	0	2	0	2	0	0	0	0	2	0
Fort Yukon/Birch Creek	1,618	2	244	1,040	4	7	201	2	1	4	0	582	43
Circle/Central	0	13	164	0	5	150	0	0	38	0	0	36	38
Eagle	0	0	1	1	0	0	1	0	0	0	0	0	0
Fairbanks (FNSB) [b]	7	13	2	2	0	0	0	0	101	112	0	5	43
Other District 5 [c]	61	7	0	0	21	0	0	0	0	1	0	18	0
District 5 subtotal	3,203	2,498	3,178	1,355	3,092	1,292	1,992	2,438	831	991	1,343	2,665	1,509
Venetie/Chalkyitsik	0	0	426	34	0	6	38	24	30	16	0	92	23
Chandalar/Black R. subtotal	0	0	426	34	0	6	38	24	30	16	0	92	23
District 5 total	3,203	2,498	3,604	1,389	3,092	1,298	2,030	2,462	861	1,007	1,343	2,757	1,532
Manley	4,243	2,308	1,832	1,482	1,374	447	1,177	1,263	323	750	0	2,248	792
Minto	0	–	0	0	0	266	37	270	0	0	–	0	115
Nenana/Healy	3,880	4,166	3,511	4,248	6,664	1,962	3,002	3,359	2,293	1,402	0	4,494	2,404
Fairbanks (FNSB) [d]	299	577	212	1,109	1,502	2,576	3,689	3,108	978	362	53	740	2,143
Other District 6 [e]	6	0	0	3	0	6	6	0	677	11	0	2	140
District 6 Tanana R. total	8,428	7,051	5,555	6,842	9,540	5,257	7,911	8,000	4,271	2,525	53	7,483	5,593
Upper Yukon River total	13,121	13,535	10,889	10,303	16,188	11,495	13,003	12,403	5,958	4,061	2,941	12,807	9,384
Yukon Area total	16,855	16,006	13,045	12,344	21,533	14,457	17,098	18,107	8,822	7,302	5,527	15,957	13,157
Personal Use (District 6) [f]	50	70	1,062	232	100	109	174	145	266	200	0	303	179
Yukon Area total with Personal Use	16,905	16,076	14,107	12,576	21,633	14,566	17,272	18,252	9,088	7,502	5,527	16,259	13,336

Source: Jallen et al. (2017).

[a] Data are preliminary.

[b] Harvests by Fairbanks subsistence permit holders who fished in District 5 near the Yukon River bridge crossing.

[c] Other permit holders who fished in District 5 but did not reside in the communities listed.

[d] Harvests by Fairbanks subsistence permit holders who fished in the Tanana River.

[e] Other permits holders who fished in District 6 but did not reside in the communities listed.

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

Appendix D5.–Pink salmon subsistence harvest totals by fishing district and community of residence, as estimated from postseason survey, returned permits and test fishery projects, and personal use harvest total for District 6, Yukon Area, 2008–2018.

												Estimated total		
Community	2008 [a]	2009 [a]	2010 [a]	2011 [a]	2012 [a]	2013	2014 [a]	2015	2016 [a,b]	2017 [a,b]	2018 [a,b]	Even years average	Odd years average	All years average
Hooper Bay	1,013	957	219	210	1,101	302	712	451	4,007	319	635	896	407	651
Scammon Bay	2,766	1,186	2,245	1,888	1,343	507	1,923	1,414	2,490	1,005	2,288	1,932	1,286	1,609
Coastal District	3,779	2,143	2,464	2,098	2,444	809	2,635	1,865	6,497	1,324	2,923	2,827	1,693	2,260
Nunam Iqua	757	61	306	8	1,051	0	670	352	352	484	377	668	118	393
Alakanuk	494	24	151	13	174	92	970	15	715	100	7	381	35	208
Emmonak	641	5	206	0	199	0	588	7	228	0	31	372	13	192
Kotlik	1,161	42	124	32	195	23	1,064	14	505	159	29	553	48	300
District 1	3,053	132	787	53	1,619	115	3,292	388	1,800	743	444	1,973	214	1,094
Mountain Village	500	6	217	24	207	0	233	57	93	148	94	355	35	195
Pitkas Point	15	0	143	0	2	2	45	288	48	0	122	50	71	61
St. Mary's	367	5	543	1	643	0	614	18	104	176	35	481	11	246
Pilot Station	117	4	125	34	23	131	27	0	8	5	0	59	34	46
Marshall	26	0	21	66	5	7	1	0	5	46	53	11	15	13
District 2	1,025	15	1,049	125	880	140	920	363	258	375	304	955	166	560
Russian Mission	436	0	2	0	76	12	8	0	0	0	0	106	3	55
Holy Cross	20	0	0	0	0	0	0	0	2	1	0	7	0	4
Shageluk	0	9	0	9	24	0	3	0	9	1	0	5	4	5
District 3	456	9	2	9	100	12	11	0	11	2	0	119	7	63
Anvik	23	2	0	0	0	0	0	0	0	0	0	5	0	3
Grayling	200	0	0	40	0	0	39	0	33	0	16	48	8	28
Kaltag	383	0	0	0	0	0	0	0	73	0	0	77	0	38
Nulato	35	0	0	0	0	0	8	0	0	0	0	9	0	4
Koyukuk	67	0	0	0	0	0	0	0	0	0	0	13	0	7
Galena	31	0	0	0	3	0	6	16	11	8	0	8	3	6
Ruby	184	0	0	0	0	0	13	0	0	0	0	39	0	20
Hughes/Huslia	100	0	0	0	101	0	0	0	0	5	20	40	0	20
Allakaket/Alatna/Bettles	0	0	0	0	0	0	0	0	0	0	5	0	0	0
District 4	1,023	2	0	40	104	0	66	16	117	13	41	239	12	125

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Community	2008 [a]	2009 [a]	2010 [a]	2011 [a]	2012 [a]	2013	2014 [a]	2015	2016 [a,b]	2017 [a,b]	2018 [a,b]	Estimated total: Even years average	Estimated total: Odd years average	Estimated total: All years average
Tanana	80	0	0	0	3	0	8	13	34	0	0	18	3	10
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	196	0	0	0	0	0	0	0	0	0	0	39	0	20
Venetie/Chalkyitsik	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District 5	276	0	0	0	3	0	8	13	34	0	0	57	3	30
Survey totals	9,612	2,301	4,302	2,325	5,150	1,076	6,932	2,645	8,717	2,457	3,712	6,943	2,161	4,475
CI (95%)	1,818	1,184	1,209	918	918	918	1,356	612	2,065	748	1,093	1,473	876	1,167
Test fish [b]	83	1	103	34	216	0	120	0	9	7	65	106	8	58

Source: Jallen et al. (2017).

Note: Averages do not include the current year. CI (95%) is the annual 95% confidence interval.

[a] Includes pink salmon given to communities from test fishery projects.

[b] Data are preliminary.

Appendix D6.–Reported harvest of salmon and other fish species from subsistence permits issued in the Yukon and Koyukuk rivers, 2008–2018.

	Number of permits		Percent	Number reporting	Reported harvest									
Year	Issued	Returned	returned	harvest	Chinook	Summer chum	Fall chum	Coho	Whitefish	Sheefish	Burbot	Northern pike	Longnose sucker	Arctic grayling
2008	188	175	93%	111	4,313	192	20,581	7	420	105	71	73	93	395
2009	167	162	97%	94	3,794	189	13,117	123	519	46	46	74	76	265
2010	207	198	96%	122	4,059	814	17,612	191	491	68	22	73	40	157
2011	191	188	98%	117	4,276	1,619	20,447	3	723	70	17	119	160	395
2012	164	159	97%	87	1,749	344	20,316	26	663	100	11	30	21	59
2013	124	118	95%	72	1,203	1,715	21,649	150	291	37	15	23	39	107
2014	100	97	97%	51	77	461	20,355	1	738	201	8	37	10	67
2015	106	105	99%	55	792	583	21,706	2	487	143	14	76	7	96
2016 [a]	146	145	99%	99	2,820	680	19,231	141	662	53	9	52	9	36
2017 [a]	156	154	99%	120	6,022	1,760	24,395	113	870	114	19	53	6	49
2018 [a]	171	155	91%	114	3,344	550	20,410	95	848	90	38	42	0	37
2013–2017 Average	126	124	98%	79	2,183	1,040	21,467	81	610	110	13	48	14	71
2008–2017 Average	155	150	97%	93	2,911	836	19,941	76	586	94	23	61	46	163

Note: Reported information from permits issued in the Yukon River (portions of Subdistricts 5-C and 5-D) and the South Fork of the Koyukuk River.

[a] Data are preliminary.

Appendix D7.–Reported harvest of salmon and other fish species from subsistence permits issued in Subdistricts 6-A, 6-B and 6-D of the Tanana River, 2008–2018.

	Number of permits				Number	Reported harvest									
	Issued			Percent	reporting		Summer	Fall					Northern	Longnose	Arctic
Year	Salmon	Pike	Returned	returned	harvest	Chinook	chum	chum	Coho	Whitefish	Sheefish	Burbot	pike	sucker	grayling
2008	169	146	292	93%	152	601	1,000	10,510	6,017	2,942	4	18	1,603	48	93
2009	139	113	243	96%	125	1,273	1,253	13,845	6,744	3,472	29	73	662	127	98
2010	160	96	235	92%	107	954	422	10,813	5,415	2,343	52	20	177	64	39
2011	157	70	219	96%	112	1,015	825	12,726	6,124	4,072	32	122	200	118	80
2012	136	106	221	91%	110	603	494	12,881	8,099	3,281	47	47	795	142	45
2013	167	77	230	94%	113	366	1,094	11,425	5,190	2,386	10	52	377	190	100
2014	123	106	224	98%	123	272	712	11,602	7,326	2,864	11	19	611	91	16
2015	128	120	247	100%	120	356	234	9,273	7,815	3,004	22	9	814	28	34
2016 [a]	110	201	301	97%	180	410	636	3,701	3,048	2,620	16	34	1,131	23	1
2017 [a]	106	93	198	99%	92	657	734	4,419	2,515	1,393	13	12	224	8	0
2018 [a]	139	174	162	52%	128	468	278	5,786	1,650	691	5	6	768	0	0
2013–2017 Average	127	119	240	1	126	412	682	8,084	5,179	2,453	14	25	631	68	30
2008–2017 Average	140	113	241	1	123	651	740	10,120	5,829	2,838	24	41	659	84	51

Note: Reported information from permits issued in the Tanana River includes the Kantishna River and Tolovana River northern pike fishery.

[a] Data are preliminary.

Appendix D8.–Reported harvest of salmon and other fish species from personal use permits issued in Subdistrict 6-C of the Tanana River, 2008–2018.

	Number of permits				Number	Reported harvest									
	Issued			Percent	reporting		Summer	Fall					Northern	Longnose	Arctic
Year	Salmon	Whitefish[a]	Returned	returned	harvest	Chinook	chum	chum	Coho	Whitefish	Sheefish	Burbot	pike	sucker	grayling
2008	51	6	56	98%	29	126	138	181	50	41	2	0	2	157	0
2009	57	11	68	100%	28	127	308	78	70	48	1	0	0	315	0
2010	67	8	73	97%	41	162	319	3,209	1,062	206	1	3	7	66	5
2011	67	7	71	96%	38	89	439	347	232	62	1	1	0	142	0
2012	60	12	70	97%	32	71	321	410	100	22	0	0	0	233	0
2013	53	14	66	99%	36	42	138	383	132	89	1	1	3	118	0
2014	50	21	71	100%	33	1	235	278	174	145	3	0	0	270	0
2015	42	22	64	100%	28	5	220	80	145	280	1	0	1	323	1
2016[b]	57	21	78	100%	39	57	176	283	266	271	1	0	7	181	6
2017[b]	82	14	96	100%	49	125	438	626	200	117	1	1	4	165	0
2018[b]	99	16	107	93%	61	201	509	514	132	34	0	0	0	66	1
2013–2017 Average	57	18	75	100%	37	46	241	330	183	180	1	0	3	211	1
2008–2017 Average	59	14	71	99%	35	81	273	588	243	128	1	1	2	197	1

Note: Reported information from permits issued in the salmon and whitefish/sucker fishery (combined harvest).

[a] Whitefish and sucker fishery permits.

[b] Data are preliminary.

Appendix D9.–Estimated and reported subsistence and personal use harvest of miscellaneous fish species, Yukon Area, 2008–2018.

	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	2017[a]	2018[a]	5-Year average 2007–2011	5-Year average 2012–2016
Survey estimates [b]													
Whitefish [c]	54,729	51,778	50,232	44,890	70,486	64,766	84,889	79,740	70,051	65,084	54,349	54,423	72,906
Northern pike	16,053	8,061	14,086	14,270	18,450	11,264	14,582	20,109	24,592	22,596	21,054	14,184	18,629
Sheefish	10,154	7,861	9,231	10,139	17,094	15,553	12,583	12,828	14,459	12,910	11,826	10,896	13,667
Survey reported													
Burbot	3,273	2,027	2,743	2,477	2,422	2,115	2,016	3,364	2,502	2,811	2,953	2,588	2,562
Arctic lamprey	803	1,699	10,863	6,037	1,243	2,608	19,888[d]	42,237[d]	17,609	19,357	952	4,129	20,340
Tomcod	6,391	2,709	3,978	6,797	4,023	5,221	10,020	4,697	5,795	6,661	5,143	4,780	6,479
Arctic grayling	857	667	1,571	1,273	2,674	1,435	1,772	1,832	1,518	1,452	1,808	1,408	1,602
Longnose suckers	25	59	273	286	95	180	90	–	–	–	–	148	135
Arctic char	184	43	148	205	216	167	–	–	–	–	–	159	167
Alaska blackfish	110,356	47,320	68,873	87,064	62,731	63,235	92,080	97,586	90,207	109,888	61,896	75,269	90,599
Sockeye salmon	213	216	263	279	405	258	–	–	–	–	–	275	258
Herring [e]	–	–	–	–	10,449	9,082	17,164	24,591	15,959	16,492	25,907	10,449	16,658
Permit Reported													
Whitefish [b]	3,402	4,039	3,040	4,851	3,966	2,766	3,747	3,771	3,558	2,380	2,297	3,860	3,244
Northern pike	1,678	733	257	319	825	403	648	891	1,186	281	928	762	682
Sheefish	111	76	121	103	147	48	215	166	70	128	96	112	125
Burbot	89	119	45	140	58	68	27	23	43	32	69	90	39
Arctic grayling	488	363	201	475	104	210	83	131	62	49	62	326	107
Longnose suckers	298	518	170	414	396	347	371	358	214	179	66	359	294
Yukon Area totals from subsistence survey communities and permit areas													
Whitefish [b]	58,131	55,817	53,272	49,741	74,452	67,532	88,636	83,511	73,609	67,464	56,646	58,283	76,150
Northern pike	17,731	8,794	14,343	14,589	19,275	11,667	15,230	21,000	25,778	22,877	21,982	14,946	19,310
Sheefish	10,265	7,937	9,352	10,242	17,241	15,601	12,798	12,994	14,529	13,038	11,922	11,007	13,792
Burbot	3,362	2,146	2,788	2,617	2,480	2,183	2,043	3,387	2,545	2,843	3,022	2,679	2,600
Arctic grayling	1,345	1,030	1,772	1,748	2,778	1,645	1,855	1,963	1,580	1,501	1,870	1,735	1,709
Longnose suckers	323	577	443	700	491	527	461	358	214	179	66	507	348

Source: Jallen et al. (2017).

Note: En dash indicates information was not collected.

[a] Data are preliminary.

[b] Subsistence whitefish, northern pike, and sheefish estimates in surveyed communities is based on a stratified random sample of households as designated for the estimation of subsistence salmon harvests and may not reflect harvest of those households targeting nonsalmon species.

[c] Whitefish includes various *Coregonus* species and round whitefish (*Prosopium cylindraceum*).

[d] Harvest of Arctic lamprey reported on postcards was incorporated into totals reported on surveys. This is the total number reported on surveys and postcards. Lamprey estimates represent previous winter's harvest.

[e] Starting in 2012, households in the Lower Yukon including the Coastal District were asked about harvest of herring. Household responses for herring include smelt and unspecified species.

APPENDIX E:
YUKON RIVER SALMON ESCAPEMENT

Appendix E1.–Origins of Yukon River drainage salmon spawning escapement goals by species.

Stock/location	Goal type	Goals	Year established	Primary source
Chinook salmon stock				
E. Fork Andreafsky River	SEG	2,100–4,900	2010	Volk et al. (2009)
W. Fork Andreafsky River	SEG	640–1,600	2005	ADF&G (2004)
Anvik River	SEG	1,100–1,700	2005	ADF&G (2004)
Nulato River (forks combined)	SEG	940–1,900	2005	ADF&G (2004)
Chena River	BEG	2,800–5,700	2001	Evenson (2002)
Salcha River	BEG	3,300–6,500	2001	Evenson (2002)
Canadian Upper Yukon River	IMEG	42,500–55,000	2010	JTC (2010)
Summer chum salmon stock				
Yukon River Drainage	BEG	500,000–1,200,000	2016	Hamazaki and Conitz (2015)
E. Fork Andreafsky River	SEG	>40,000	2010	Fleischman and Evenson (2010)
Anvik River	BEG	350,000–700,000	2005	ADF&G (2004)
Fall chum salmon stock				
Yukon River Drainage	SEG	300,000–600,000	2010	Fleischman and Borba (2009)
Tanana River	BEG	61,000–136,000	2001	Eggers (2001)
Delta River	BEG	6,000–13,000	2001	Eggers (2001)
Chandalar River	BEG	74,000–152,000	2001	Eggers (2001)
Canadian Upper Yukon River	IMEG	70,000–104,000	2010	JTC (2010)
Fishing Branch River	IMEG	22,000–49,000	2008	JTC (2008)
Coho salmon stock				
Delta Clearwater River	SEG	5,200–17,000	2004	ADF&G (2004)

Note: Sustainable escapement goal (SEG), biological escapement goal (BEG), and interim management escapement goal (IMEG). Sheenjek River and Upper Yukon Tributaries fall chum salmon goals were discontinued in 2016.

Appendix E2.–Detailed preliminary salmon spawning escapement estimates for the Yukon River drainage, 2018.

Stream (method)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Atchuelinguk River (fixed wing)	7/25	Fair	213	3,785	–	–	ADF&G
Andreafsky River							
West Fork (fixed wing)	7/24	Fair	455	13,837	–	–	ADF&G
East Fork (fixed wing)	7/24	Fair	(746)	(16,206)	–	–	ADF&G
East Fork (weir count) [a]	6/14–7/31	–	4,114	36,330	–	–	USFWS
Andreafsky Subtotal			4,569	50,167	–	–	
Yukon River Near Pilot Station (sonar)	5/28–9/8	–	(161,831)	(1,612,688)	(928,664)	(136,347)	ADF&G
Bonasila River (fixed wing)	7/25	Incomplete	49	3,509	–	–	ADF&G
Anvik River (sonar)	6/15–7/31	–	–	305,098	–	–	ADF&G
Anvik River (fixed wing) [b]							
Goblet Creek to Sonar Site	7/25	Fair	0	(365)	–	–	ADF&G
Sonar Site to Yellow River	7/25	Fair	83	(3,100)	–	–	ADF&G
Yellow River to Swift River	7/25	Fair	259	(2,620)	–	–	ADF&G
Swift River to Otter Creek	7/25	Fair	346	(3,755)	–	–	ADF&G
Otter Creek To McDonald Creek	7/25	Fair	195	(13,590)	–	–	ADF&G
Upstream of McDonald Creek	–	–	–	–	–	–	ADF&G
Beaver Creek	7/25	Fair	67	(1,605)	–	–	ADF&G
Yellow River	–	–	–	–	–	–	ADF&G
Swift River	7/25	Fair	56	(3,771)	–	–	ADF&G
Otter Creek	7/25	Fair	103	(1,503)	–	–	ADF&G
Anvik Subtotal			1,109	305,098	–	–	
Nulato River (fixed wing)							
North Fork	7/23	Fair	438	1,164	–	–	ADF&G
South Fork	7/23	Fair	432	3,930	–	–	ADF&G
Nulato Subtotal			870	5,094	–	–	
Total Lower Yukon River (downstream of Koyukuk River)			6,810	367,653	–	–	
Koyukuk River Drainage							
Gisasa River (weir project) [c]	–	–	–	–	–	–	USFWS
Gisasa River (fixed wing)	7/26	Fair	452	8,058	–	–	ADF&G
Indian River (fixed wing)	7/26	Fair	19	5,081	–	–	ADF&G
Dakli River (fixed wing)	7/26	Fair	8	12,167	–	–	ADF&G
Caribou Creek (fixed wing)	7/26	Fair	8	1,596	–	–	ADF&G
Clear Creek (fixed wing)	7/26	Fair	1	1,711	–	–	ADF&G
Henshaw Creek (weir project) [c]	–	–	–	–	–	–	TCC
Henshaw Creek (fixed wing)	7/26	Fair	277	15,595	–	–	ADF&G
Koyukuk River Drainage Subtotal			765	44,208	–	–	
Total Yukon River (downstream of Tanana River)			7,575	411,861	–	–	

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Stream (method)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Tanana River Drainage							
Kantishna River Drainage (helicopter)							
Barton Creek	11/7	Incomplete	–	–	0	764	ADF&G
Toklat River	11/7	Good	–	–	25,587	278	ADF&G
Kantishna Subtotal			–	–	25,587	1,042	
Nenana River Drainage (helicopter)							
Nenana River (Teklanika R.–upstream 8 miles)	11/6	Fair	–	–	0	241	ADF&G
Seventeenmile Slough	11/6	Incomplete	–	–	4	347	ADF&G
Lost Slough	11/6	Fair	–	–	907	1,822	ADF&G
Julius Creek	11/6	Fair	–	–	0	0	ADF&G
Clear Creek	11/6	Fair	–	–	0	0	ADF&G
Glacier Creek	11/6	Poor	–	–	0	11	ADF&G
Wood Creek	11/6	Fair	–	–	0	361	ADF&G
Teklanika River Springs	11/7	Fair	–	–	0	253	ADF&G
Nenana Subtotal			–	–	911	3,035	
Chena River (counting tower/sonar)	6/27–8/10	–	5,947	13,084	–	–	ADF&G
Salcha River (counting tower/sonar)	6/27–8/10	–	5,021	39,996	–	–	ADF&G
Richardson Clearwater River (helicopter)	11/8	Fair	–	–	0	976	ADF&G
Mainstem Tanana sloughs (helicopter)							
Benchmark No 735 Slough	11/8	Good	–	–	998	142	ADF&G
Whitestone Slough	11/8	Fair	–	–	462	0	ADF&G
Rika's Roadhouse vicinity	11/8	Fair	–	–	7,090	0	ADF&G
Bluff Cabin Slough	11/8	Fair	–	–	5,822	0	ADF&G
Clearwater Lake Outlet Slough	11/8	Fair	–	–	4,653	30	ADF&G
One Mile Slough (OMS)	11/8	Fair	–	–	383	0	ADF&G
Pearse Slough and vicinity (OMS to Pearse Sl.)	11/8	Fair	–	–	109	1	ADF&G
Mainstem Tanana sloughs subtotal			–	–	19,517	173	

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Stream (method)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Delta River							
Foot survey (population estimate)	11/15	Good	–	–	39,641	144	ADF&G
Blue Creek (helicopter)	11/8	Fair	–	–	837	61	ADF&G
Goodpaster River (counting tower)	7/6–8/01	–	2,480	–	–	–	BSFA
Bluff Cabin Creek (helicopter)	11/8	Good	–	–	345	43	ADF&G
Delta Clearwater River Index Area (boat survey)	11/7	Good	–	–	101	2,884	ADF&G
Delta Clearwater Lake							
Clearwater Lake outlet (helicopter)	11/8	Fair	–	–	60	2,465	ADF&G
Total Tanana River			13,448	53,080	86,061	7,878	
Teedriinjik River (sonar) [d]	8/12–9/28, 10/14	–	–	–	170,356	–	USFWS
Porcupine River Drainage (U.S.)							
Yukon River near Eagle (sonar) [d]	6/27–10/6, 10/23	–	(57,893)	–	(168,800)	–	ADF&G/DFO
Total Alaskan portion of drainage observed escapements			21,023	464,941	256,417	7,878	
Yukon Territory Streams							
Porcupine River Drainage (Canada)							
Porcupine River (sonar minus Canada harvest) [d]	6/29–9/30	–	3,106	–	–	–	DFO [e]
Fishing Branch (weir)	9/3–10/25	–	–	–	(10,151)	–	DFO [e]
Mainstem Yukon River Sites - Canada							
Kluane River (fixed-wing)	10/17	Fair	–	–	(1,734)	–	DFO [e]
Pelly River (sonar) [d, f]	7/2–8/25, 8/29	–	(9,751)	–	–	–	DFO [e]
Blind Creek (weir)	7/22–8/18	–	(612)	–	–	–	DFO [e]
Big Salmon River (sonar)	7/15–8/21, 8/28	–	(5,159)	–	–	–	DFO [e]
Takhini River (sonar)	8/1–9/5	–	(1,554)	–	–	–	DFO [e]
Whitehorse Fishway (fish ladder with window)	7/30–9/6	–	(691)	–	–	–	DFO [e]
Subtotal mainstem sites			(17,767)	–	(1,734)	–	

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Stream (drainage)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Canadian mainstem Yukon River							
Border passage estimate (Eagle sonar minus U.S. harvest)			(57,264)	–	(157,085)	–	ADF&G/DFO
Canadian escapement estimate (border passage minus Canada harvest) [g]			54,474	–	154,128	–	ADF&G/DFO
Total Yukon Territory [h]			57,580	–	154,128	–	
Yukon River drainage total observed escapements			78,603	464,941	410,545	7,878	

Note: Data in parentheses are not included in subtotals or totals. Surveys rated anything other than "Good" or "Fair" should not be used without reviewing the entire history of the system to determine relevance. (https://www.adfg.alaska.gov/CF_R3/external/sites/aykdbms_website/Default.aspx).

[a] East Fork Andreafsky River weir also documented 1,198 sockeye and 96,350 pink salmon in 2018.

[b] Anvik River aerial survey documented 570 sockeye salmon in 2018.

[c] Projects did not operate in 2018.

[d] Includes post-season expansion for targeted salmon species.

[e] Yukon Territory counts provided by DFO but are operated by various contractors mostly funded by Restoration and Enhancement Funds.

[f] Includes pre-season expansion of Chinook salmon.

[g] Canadian "border passage" estimate for Yukon Territory streams (excluding the Porcupine River). Canadian harvest has not been removed.

[h] Yukon Territory counts include Canadian mainstem Yukon River escapement estimate plus Porcupine River.

Appendix E3.–Pilot Station sonar project estimates with standard error, Yukon River drainage, 1998–2018.

Year[a]	Chinook	SE	Summer chum	SE	Fall chum	SE	Coho[b]	SE	Pink	SE	Other[c]	SE	Total
1998	108,038	51,703	824,901	39,270	375,222	12,387	146,365	9,403	103,416	6,806	210,677	39,574	1,824,098
1999	184,218	57,953	969,459	47,296	451,505	15,253	76,174	5,356	3,947	1,741	337,701	18,069	2,077,396
2000	54,560	6,601	448,665	14,395	273,206	12,539	206,365	10,208	61,389	6,958	262,627	14,695	1,338,373
2001[d]	121,089	9,106	442,546	14,703	408,961	19,343	160,272	11,811	2,846	1,343	265,749	12,076	1,429,320
2002	151,713	24,298	1,097,769	31,062	367,886	17,508	137,077	7,689	123,698	11,745	405,534	21,246	2,334,172
2003	318,088	17,359	1,183,009	36,869	923,540	36,052	280,552	20,301	11,370	2,251	379,651	17,604	3,155,631
2004	200,761	12,145	1,344,213	30,363	633,368	22,206	207,844	11,933	399,339	20,531	391,939	19,875	3,240,290
2005[e]	259,014	25,807	2,570,697	47,944	1,893,688	67,359	194,372	17,823	61,091	6,866	427,406	20,116	5,430,841
2006	228,763	16,836	3,780,760	94,500	964,238	27,749	163,889	11,044	183,006	14,376	531,047	37,610	5,971,623
2007	170,246	15,523	1,875,491	45,224	740,195	28,175	192,406	11,708	126,282	13,655	761,657	37,154	3,936,864
2008	175,046	12,989	1,849,553	41,667	636,525	18,251	145,378	8,441	580,127	52,427	306,225	38,132	3,795,389
2009[d]	177,796	15,885	1,477,186	42,490	274,227	23,436	240,779	17,758	34,529	7,658	589,916	31,373	2,862,338
2010	145,088	89,628	1,415,027	93,896	458,103	24,800	177,724	7,592	917,731	48,439	569,905	63,425	3,833,506
2011	148,797	12,264	2,051,501	47,104	873,877	25,933	149,533	12,626	9,754	1,813	453,537	20,113	3,748,542
2012	127,555	11,339	2,136,476	48,046	778,158	37,802	130,734	9,602	420,344	36,366	464,058	22,476	4,151,339
2013	136,805	20,001	2,849,683	69,667	865,295	43,937	110,515	14,162	6,126	3,948	732,009	34,535	4,788,210
2014	163,895	11,389	2,020,309	60,127	706,630	37,630	283,421	17,089	679,126	36,469	584,831	27,192	4,551,897
2015	146,859	18,820	1,591,505	59,825	669,483	24,776	121,193	8,884	39,690	7,560	853,989	45,440	3,498,988
2016	176,898	11,226	1,921,748	48,946	994,760	39,170	168,297	11,187	1,364,849	52,975	355,365	24,548	5,095,025
2017	263,014	17,696	3,093,735	84,048	1,829,931	54,179	166,320	20,382	166,529	18,991	796,199	39,097	6,439,149
2018	161,831	14,917	1,612,688	65,257	928,664	33,460	136,347	7,231	689,607	29,159	547,959	27,918	4,077,096
Averages													
1998–2017	172,912		1,747,212		755,940		172,961		264,759		484,001		3,675,150
2008–2017	166,175		2,040,672		808,699		169,389		421,881		570,603		4,276,438
2013–2017	177,494		2,295,396		1,013,220		169,949		451,264		664,479		4,874,654

Note: To calculate a 90% confidence interval, multiply the standard error (SE) by 1.645.

[a] Estimates for all years were generated with the most current apportionment model.

[b] Estimate may not include entire run. From 2008 to present, operations were extended to September 7, instead of the usual end date of August 31.

[c] Includes sockeye salmon, cisco, whitefish, sheefish, burbot, suckers, Dolly Varden, and northern pike.

[d] Estimates are speculative. High waters were present all season in 2001. Extreme low water during the fall season, 2009.

[e] Estimates include extrapolations for the dates June 10 to June 18 to account for the time before the DIDSON was deployed.

Appendix E4.–Chinook salmon aerial survey indices for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1998–2018.

	Andreafsky River		Anvik River		Nulato River			
Year	East Fork	West Fork	Drainagewide Total	Index Area[a]	North Fork[b]	South Fork	Both forks	Gisasa River
1998	1,027	1,249[c]	709[c]	648[c]	507	546	1,053	889[c]
1999	[d]	870[c]	[c]	950[c]	[d]	[d]	[d]	[d]
2000	1,018	427	1,721	1,394	[d]	[d]	[d]	[d]
2001	1,059	565	1,420	1,177	1,116	768	1,884[e]	1,298
2002	1,447	917	1,713	1,329	687	897	1,584	506
2003	1,116[c]	1,578	973[c]	973[c]	[d]	[d]	[d]	[c]
2004	2,879	1,317	3,679	3,304	856	465	1,321	731
2005	1,715	1,492	2,421	1,922	323	230	553	958
2006	591[c]	824	1,886	1,776[f]	620	672	1,292	843
2007	1,758	976	1,650	1,497	1,684	899	2,583	593
2008	278[c]	262[c]	992[c]	827[c]	415	507	922	487
2009	84[c]	1,678	832	590	1,418	842	2,260	515
2010	537[c]	858	974	721	356	355	711	264
2011	620	1,173	642	501	788	613	1,401	906
2012	[d]	227[c]	722	451	682	692	1,374	[d]
2013	1,441	1,090	940	656	586	532	1,118	201[d]
2014	[d]	1,695	1,584	800	[d]	[d]	[d]	[d]
2015	2,167[c]	1,356[c]	2,616	[d]	999	565	1,564	558
2016[d]	[d]	[d]	[d]	[d]	[d]	[d]	[d]	[d]
2017	[d]	942	1,101[c]	894	500	443	943	[d]
2018	746	455	1,109	800	438	432	870	452
SEG[g]	[h]	640–1,600	1,100–1,700		[e]		940–1,900	[h]
Average								
2008–2017	855	1,031	1,156	680	718	569	1,287	489
2013–2017	1,804	1,271	1,560	783	695	513	1,208	380

Note: Aerial survey counts are peak counts only. Survey rating was fair or good unless otherwise noted.

[a] Anvik River Index Area includes mainstem counts between Yellow River and McDonald Creek.

[b] Nulato River mainstem aerial survey counts below the forks are included with the North Fork.

[c] Incomplete, poor timing, and/or poor survey conditions resulting in minimal or inaccurate counts.

[d] Aerial survey was not flown due to run timing and/or water/weather conditions.

[e] In 2001, the Nulato River escapement goal was established for both forks combined.

[f] Index area includes counts from Beaver Creek to McDonald Creek.

[g] SEG = sustainable escapement goal.

[h] Aerial escapement goal (2,100–4,900) was discontinued in 2010. Weir-based goal replaced East Fork Andreafsky River aerial survey goal.

Appendix E5.–Chinook salmon escapement counts for selected spawning areas in the Alaska portion of the Yukon River drainage, 1998–2018.

	East Fork Andreafsky River weir		Nulato River tower	Henshaw Creek weir		Gisasa River weir		Chena River tower		Salcha River tower		Goodpaster River tower
Year	Number of fish	% Fem.	Number of fish	Number of fish	% Fem.	Number of fish	% Fem.	Number of fish	% Fem.[a]	Number of fish	% Fem.[a]	Number of fish
1998	4,034	29.0	1,536			2,414	16.2	4,745	28.4	5,027	26.1	
1999	3,444	28.6	1,932			2,644	26.4	6,485	45.6	9,198	44.6	
2000	1,609	54.3	908	193	29.7	2,089	34.4	4,694[b]	21.7	4,595	34.3	
2001	1148	[c]	[c]	1,091	36.3	3,052	49.2	9,696	30.1	13,328	32.1	
2002	4,123	21.1	2,696	649	30.8	2,025	20.7	6,967[b]	27.3	9,000[d]	29.8	
2003	4,336	45.3	1,716[e]	748	38.4	1,901	38.1	11,100[d]	31.8	15,500[d]	36.6	
2004	8,045	37.3		1,248	21.3	1,774	30.1	9,645	43.9	15,761	54.2	3,673
2005	2,239	50.2		1,059	41.4	3,111	34.0	[c]	30.6	5,988	47.5	1,184
2006	6,463	42.6			[c]	3,031	28.2	2,936	32.1	10,679	38.1	2,479
2007	4,504	44.7		740	24.9	1,427	39.0	3,806	27.3	6,425	31.0	1,581
2008	4,242	34.8		766	27.7	1,738	16.2	3,208	29.0	5,415[d]	33.7	1,880
2009	3,004	46.0		1,637	49.0	1,955	29.3	5,253	40.0	12,774	33.9	4,280
2010	2,413	48.6		857	49.6	1,516	29.0	2,382	20.6	6,135	26.6	1,167
2011	5,213	20.2		1,796	33.9	2,692	19.5	[c]	22.7	7,200[d]	42.1	1,325
2012	2,517	28.0		922	43.0	1,323	17.0	2,220[f]	39.1	7,165	50.9	752
2013	1,998	40.4		772	44.8	1,126	34.1	1,859	40.3	5,465	50.5	723
2014	5,949	44.3			[c]	1,589	19.2	7,192[g]	33.1	[c]	32.0	1,236[h]
2015	5,474	39.7		2,391	40.7	1,319	29.5	6,294	39.0	6,288[i]	37.0	2,353
2016	2,676	49.7		1,354	47.5	1,395	27.2	6,665[g]	22.8	2,675[g]	38.8	2,435
2017	2,970	25.9		677	41.8	1,083	27.8	4,949[c]	45.3	4,195[c]	41.2	2,769
2018[j]	4,114	24.9		–	–[c]			5,947	54.8	5,021	56.0	2,480
BEG[k]								2,800–5,700		3,300–6,500		
SEG[l]	2,100–4,900											
Average												
1998–2017	3,820	38.5	1,758	1,056	37.6	1,960	28.3	5,561	32.5	8,043	38.1	1,988
2008–2017	3,646	37.8		1,241	42.0	1,574	24.9	4,447	33.2	6,368	38.7	1,892
2013–2017	3,813	40.0		1,299	43.7	1,302	27.6	5,392	36.1	4,656	39.9	1,903

-continued-

Note: Unless otherwise noted, blank cells indicate years when a project did not operate. En dash = no data. "% Fem." = percent female.

[a] Past mark–recapture experiments utilizing electrofishing techniques for the first event have shown that carcass surveys (second event) tend to be biased with respect to sex and length; therefore, an adjustment factor is applied.

[b] Mark–recapture population estimate.

[c] Project operations were hindered by high water conditions for much of the season.

[d] Estimate includes an expansion for missed counting days based on average run timing.

[e] Weir counts.

[f] Estimate includes an expansion for missed counting days based on using two DIDSON sonars to assess Chinook salmon passage.

[g] Due to high water, estimate is incomplete and represents minimum escapement.

[h] Project operated for 18 days due to high water.

[i] Final estimate uses a binomial mixed-effects model to create passage estimates for the period of missed counts prior to start of tower operations on July 12.

[j] Data are preliminary.

[k] Biological escapement goals (BEG) established by the Alaska Board of Fisheries, January 2001.

[l] Sustainable escapement goal (SEG).

Appendix E6.–Chinook salmon escapements for selected spawning areas in the Canadian portion of the Yukon River drainage, 1998–2018.

Year	Tincup Creek[a]	Tatchun Creek[b]	Little Salmon River[a]	Big Salmon River[a,c]	Nisutlin River[a,d]	Ross River[a,e]	Wolf River[a,f]	Blind Creek	Chandindu River	Big Salmon sonar	Klondike River sonar	Teslin River sonar
1998	53	405	361	523	145		66	373	132			
1999		252	495	353	330		131	892	239			
2000	19[g]	276[g]	46	113	20		32		4[h]			
2001	39[g]		1,035	1,020	481		154		129[g]			
2002			526	1,149	280		84		[i]			
2003			1,658	3,075	687		292	1,115	185[j]			
2004			1,140	762	330		226	792				
2005			1,519	952	807	363	260	525		5,584		
2006			1,381	1,140	601		114	677		7,308		
2007			451	601	137		54	304		4,504		
2008			93	303			22	276		1,329		
2009			821	1,827	497		134	716		9,261	5,147	
2010			63	656	288		94	270		3,817	803	
2011			38	405			81	360		5,156	1,181	
2012								157		2,584		3,396
2013								312		3,242		9,916
2014								602		6,321		17,507
2015								964		10,071		20,410
2016								664		6,691		
2017								[k]		5,672		
2018[l]								612		5,159		
IMEG												
Averages												
1998–2017	37	311	688	920	384	363	125	565	138	5,479	2,377	12,807
2008–2017			254	798	393		83	480		5,414	2,377	12,807
2013–2017								636		6,399		15,944

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	Whitehorse Fishway		Canadian mainstem		
Year	Count	Percent hatchery contribution	Border passage estimate[m]	Harvest	Spawning escapement estimate[n]
1998	777	95	41,335	5,838	35,497
1999	1,118	74	49,538	12,354	37,184
2000	677	69	30,699	4,829	25,870
2001	988	36	62,333	9,774	52,559
2002	605	39	51,428	9,070	42,358
2003	1,443	70	90,037	9,446	80,591
2004	1,989	76	59,415	10,946	48,469
2005	2,632	57	78,962	10,977	67,985
2006	1,720	47	71,388	8,758	62,630
2007	427	56	39,698	4,794	34,904
2008	399	54	37,282	3,399	33,883
2009	828	47	69,575	4,297	65,278
2010	672	49	34,470	2,456	32,014
2011	1,534	48	50,901	4,594	46,307
2012	1,030	59	34,656	2,000	32,656
2013	1,139	67	30,573	1,904	28,669
2014	1,601	78	63,431	100	63,331
2015	1,465	60	83,674	1,000	82,674
2016	1,556	42	71,567	2,769	68,798
2017	1,226	39	71,815	3,500	68,315
2018	691	27	57,264	2,790	54,474
IMEG					42,500–55,000[o]
Averages					
1998–2017	1,167	57	56,192	5,505	50,499
2008–2017	1,145	54	54,794	2,602	52,193
2013–2017	1,397	57	64,212	1,855	62,357

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Note: Blank cells indicate no data.

[a] Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Survey rating is fair to good, unless otherwise noted.

[b] All foot surveys prior to 1997. The 1997–2000 data were from weir counts.

[c] Counts are from the mainstem Big Salmon River between Big Salmon Lake and the vicinity of Souch Creek.

[d] One Hundred Mile Creek to Sidney Creek.

[e] Big Timber Creek to Lewis Lake.

[f] Wolf Lake to Fish Lake outlet except where otherwise indicated.

[g] Foot survey.

[h] High water delayed project installation, therefore, counts are incomplete.

[i] Resistance board weir tested for 3 weeks.

[j] Combination resistance board weir and conduit weir tested and operational from July 10 to July 30.

[k] Did not operate due to high water.

[l] Data are preliminary.

[m] Estimated total border passage excluding Porcupine River based on 3-area index (Little Salmon, Big Salmon and Nisutlin aerial survey) plus Canadian harvest from 1982–2001, on radio tagging proportion study from 2002–2004, and on Eagle sonar for 2005–2017.

[n] Estimated total spawning escapement excluding Porcupine River based on 3 area index for 1982–2001, and on border passage estimate minus Canadian harvest for 2002–2015.

[o] Interim management escapement goal (IMEG) range of 42,500–55,000 was established in 2010 and continued through 2018.

Appendix E7.–Summer chum salmon escapements for selected spawning areas in the Alaskan portion of the Yukon River drainage, 1998–2018.

	Andreafsky River						Nulato River		
	East Fork		West Fork	Anvik River	Rodo River	Kaltag Creek	South Fork	North Fork[a]	Mainstem
Year	Aerial[b]	Weir	Aerial[b]	Sonar	Aerial[b]	Tower	Aerial[b]	Aerial[b]	Tower
1998	–	67,720	–	487,301	–	8,113	–	–	49,140
1999	–	32,587	–	437,356	–	5,339	–	–	30,076
2000	2,094[c]	24,785	18,989[c]	196,349	–	6,727	–	–	24,308
2001	–	2,134[d]	–	224,059	–	–	–	–	–
2002	–	44,194	–	459,058	–	13,583	–	–	72,232
2003	–	22,461	–	256,920	–	3,056	–	–	19,590[d]
2004	–	64,883	–	365,353	–	5,247	–	–	–
2005	–	20,127	–	525,391	–	22,093	–	–	–
2006	3,100[c]	102,260	617	605,487	–	–	7,772	11,658	–
2007	–	69,642	–	459,038	–	–	21,825	15,277	–
2008	9,300	57,259	25,850	374,933	–	–	12,070	10,715	–
2009	736	8,770	3,877	193,098	621	–	2,120	567	–
2010	1,982	72,893	24,380	396,174	–	–	1,891	1,038	–
2011	12,889	100,473	10,020	642,529	6,011	–	9,454	8,493	–
2012	–[c]	56,680	–[c]	484,091	15,606	–	20,600	14,948	–
2013	10,965	61,234	9,685	577,876	–	–	13,695	13,230	–
2014	–	37,793	–	399,796	–	–	–	–	–
2015	6,004[c]	48,809	2,836[c]	374,968	3,685	–	4,102	9,525	–
2016	–	50,362	–	337,821	–	–	–	–	–
2017	–	55,532	11,655	415,139	–	–	4,890	7,882	–
2018[e]	16206	36,330	13,837	305,098	–	–	3,930	1,164	–
Escapement objective		>40,000[f]		350,000–700,000[g]					
Averages									
1998–2017	5,884	50,030	11,990	410,637	6,481	9,165	9,842	9,333	39,069
2008–2017	6,979	54,981	12,615	419,643	6,481	–	8,603	8,300	–
2013–2017	8,485	50,746	8,059	421,120	3,685	–	7,562	10,212	–

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	Henshaw Creek	Gisasa River		Hogatza River		Tozitna River	Chena River		Salcha River	
				Clear and Caribou Creeks	Clear Creek					
Year	Weir	Aerial[b]	Weir	Aerial[b]	Tower	Weir and aerial[b]	Aerial[b]	Tower	Aerial[b]	Tower
1998		–	21,142	120[c,h]	212[d]	7[d]	24[c]	5,901	370[c]	17,289
1999		–	10,155	–	11,283	–	520	9,165	150	23,221
2000	24,457	–	11,410	–	19,376	480	105	3,515	228	20,516
2001	34,777	–	17,946	–	3,674	12,527	2	4,773	–	14,900
2002	25,249	–	33,481	–	13,150	18,789	–	1,021[d]	78	27,012[d]
2003	21,400	–	25,999	–	6,159	8,487	–	573[d]	–	–
2004	86,474	–	37,851	–	15,661	25,003	–	15,163[d]	–	47,861
2005	237,481	–	172,259	–	26,420	39,700	219	16,873[d]	4,320	194,933
2006	–	1,000	261,305	–	29,166[i]	22,629	469	35,109[d]	152	113,960
2007	44,425	–	46,257	–	6,029[i]	8,470	–	4,999	–[c]	13,069
2008	96,731	20,470	36,938	–	–	9,133	37	1,300[d]	–[c]	2,213[d]
2009	156,933	1,060	25,904	3,981[h]	–	8,434	–	16,516	–	31,035
2010	105,398	1,096	47,669	840[h]	–	–	–	7,560	–	22,185
2011	248,247	13,228	95,796	3,665[h]	–	11,351	4,600	–[d]	819	66,564[j]
2012	292,082	–[d]	83,423	23,022[h]	–	11,045	1,180	6,882[j]	–[c]	46,252
2013	285,008	9,300[d]	80,055	–	–[c]	–	–[c]	21,372	–[c]	60,981
2014	–[d]	–	32,523	–	–	–	1,317	13,303[k]	–	–[d]
2015	238,529	5,601	42,747	6,080	–	–	–	8,620[k]	–[c]	12,812[k]
2016	286,780	–	66,670	–	–	–	–	6,493[k]	–	2,897[k]
2017	360,687	–	73,584	–	–	–	–	21,156[k]	–	29,093[k]
2018	–[d]	8,058	–	3,307	–	–	–	13,084[d]	–	39,996[d]
Escapement objective										
Averages										
1998–2017	159,041	7,394	61,156	6,285	13,113	13,543	847	10,669	874	41,410
2008–2017	230,044	8,459	58,531	7,518	–	9,991	1,784	11,467	819	30,448
2013–2017	292,751	7,451	59,116	6,080	–	–	–	14,189	–	26,446

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Note: Unless otherwise noted, blank cells indicate years prior to the project being operational. En dashes indicates years in which no information was collected.

[a] Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.

[b] Aerial survey counts are peak counts only, survey rating is fair or good unless otherwise noted.

[c] Incomplete survey and/or poor survey timing or conditions resulted in minimal or inaccurate count.

[d] Incomplete count due to late installation, early removal, or high water events.

[e] Data are preliminary.

[f] Sustainable escapement goal established by the Alaska Board of Fisheries, January 2010.

[g] Biological escapement goal established by the Alaska Board of Fisheries, 2005.

[h] Consists of Clear Creek only.

[i] Project operated as a video monitoring system on Clear Creek. Video was also conducted on Caribou Creek from 2004 to 2007 (15,345; 14,605; 24,039; and 17,728 respectively).

[j] Estimate includes an expansion for missed counting days based on using two DIDSON sonars to assess chum salmon passage.

[k] Due to high water, DIDSON sonar was used and preliminary species apportionment was estimated using average run timing.

Appendix E8.–Fall chum salmon abundance estimates or escapement estimates for selected spawning areas in Alaskan portions of the Yukon River drainage, 1998–2018.

		Alaska							
		Tanana River drainage						Upper Yukon River drainage	
Year	Yukon River mainstem sonar estimate	Toklat River[a]	Kantishna River abundance estimate[b]	Delta River[c]	Bluff Cabin Slough[d]	Upper Tanana River abundance estimate[e]	Tanana River estimate[f]	Chandalar River[g]	Sheenjek River[h]
1998	375,222	15,605		7,804	3,549[c]	62,384	82,475	83,899	33,058
1999	451,505	4,551	27,199	16,534	7,559[c]	97,843	109,309	92,685	14,229
2000	273,206	8,911	21,450	3,001	1,595[i]	34,844	55,983	71,048	30,084[j]
2001	408,961	6,007[k]	22,992	8,103	1,808	96,556[l]	116,012	112,664	53,932
2002	367,886	28,519	56,665	11,992	3,116[i]	109,961	163,421	94,472	31,642
2003	923,540	21,492	87,359	22,582	10,600	193,418	263,302	221,343	44,047[m]
2004	633,368	35,480	76,163	25,073	10,270	123,879	187,409	169,848	37,878
2005	1,894,078	17,779[n]	107,719	28,132	11,964	337,755	372,758	526,838	485,886[o,p]
2006	964,238		71,135	14,055		202,669	233,193	254,778	175,620[o,p]
2007	740,195		81,843	18,610		320,811	357,016	243,805	69,184[o,p]
2008	636,525			23,055	1,198[i]		264,200	178,278	50,348[o,p]
2009	274,227[q]			13,492	2,900		159,828		54,126[o,p]
2010	458,103			17,993	1,610		212,660	167,532	24,669
2011	873,877			23,639	2,655		270,846	298,223	97,976[o,p]
2012	778,158			9,377[i]			102,096	205,791	104,701[o,p]
2013	865,295	9,161[d]		31,955	5,554		275,089	252,710	
2014	706,630			32,480[i]	4,095		215,393	221,421	
2015	669,483	8,422[d]		33,401[i]	6,020		149,265	164,486	
2016	994,760	16,885[d]		21,913[i]	4,936		199,639	295,023	
2017	1,829,931			48,783[i]			516,331	509,115	
2018[r]	928,664	25,587[d]		39,641[i]	5,822		260,533	170,356	
Escapement	300,000	15,000[t]		6,000		46,000[u]	61,000	74,000	50,000[t]
Objective[s]	600,000	33,000		13,000		103,000	136,000	152,000	104,000
Average									
1998–2017	781,314[v]	15,710	61,392	20,599	4,964	158,012	215,311	219,156	87,159
2008–2017	868,085[v]	–	–	25,609	3,621	–	236,535	254,731	66,364
2013–2017	1,013,220	11,489	–	33,706	5,151	–	271,143	288,551	–

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Note: Yukon River mainstem sonar historical estimates were revised in 2016 using selectivity parameters. Blank cells = no data.

[a] Expanded total abundance estimates for upper Toklat River index area using stream life curve (SLC) developed with 1987–1993 data. Index area includes Geiger Creek, Sushana River, and mainstem floodplain sloughs from approximately 0.25 mile upstream of roadhouse, unless otherwise indicated.

[b] Fall chum salmon abundance estimate for the Kantishna and Toklat River drainages is based on a mark–recapture program.

[c] Population estimate generated from replicate foot surveys and stream life data (area under the curve method), unless otherwise noted.

[d] Aerial survey count, unless otherwise indicated.

[e] Fall chum salmon abundance estimate for the upper Tanana River drainage is based on a mark–recapture program. Upper Tanana River consists of that portion upstream of the confluences with the Kantishna River.

[f] Tanana River abundance estimates from 1995 to 1998 are based on the relationship of the Upper Tanana to the Kantishna River abundance estimates, and 2008–2012 are based on the relationship of the Tanana estimate (1995–2007) with the Delta River escapements. The estimates since 2013 are based on regression with Mainstem Yukon 1995–2012 (excluding 2005) minus Tanana River harvests.

[g] Split-beam sonar estimate 1995 to 2006. DIDSON used since 2007. Project was aborted in 2009. Sonar counts were expanded to represent the remainder of the run after the project was terminated for the season.

[h] Single-beam sonar estimate beginning in 1981, split-beam sonar estimate 2002 to 2004, DIDSON from 2005 to 2012. Sonar counts were expanded to represent the remainder of the run after the project was terminated for the season.

[i] Peak foot survey count.

[j] Project ended early (September 12) because of low water.

[k] Minimal estimate because Sushana River was breached by the main channel and uncountable.

[l] Low numbers of tags deployed and recovered resulted in an estimate with an extremely large confidence interval (SE = 20,955).

[m] Project ended on peak daily passages due to late run timing, estimate was expanded based on run timing (87%) at Rampart.

[n] Minimal estimate because of late timing of ground surveys with respect to peak of spawning.

[o] Sonar counts include both banks 1985–1987, 2005–2009, and 2011–2012.

[p] In addition to the historical right bank count, the left bank was enumerated with DIDSON (right bank count for 2005–2009 and 2011–2012 was 266,963, 106,397, 39,548, 35,912, 28,480, 49,080, and 57,823, respectively, not including end of season expansions, and is used to compare to the escapement goal).

[q] Mainstem Yukon River sonar project (located near Pilot Station) encountered record low water levels during the fall season causing difficulties with species apportionment and catchability. Fall chum salmon estimate is suspected of being conservative and should not be used in averages or run reconstructions.

[r] Data are preliminary.

[s] Escapement goal (EG) includes individual tributary biological escapement goals (BEGs) and drainagewide sustainable escapement goal (SEG).

[t] EG discontinued in 2010 for Toklat River and 2016 for Sheenjek River.

[u] The BEG for the Tanana River as a whole is 61,000 to 136,000. However, it includes the Toklat plus and the Upper Tanana which was broken out for comparison to the upper Tanana River abundance estimates.

[v] Does not include 2009.

Appendix E9.–Fall chum salmon abundance estimates or escapement estimates for selected spawning areas in Canadian portions of the Yukon River drainage, 1998–2018.

	Porcupine drainage					Canadian mainstem		
Year	Fishing Branch River[a]	Porcupine River sonar	Mainstem Yukon River index[b]	Kluane River[b,c]	Teslin River[b,d]	Border passage estimate[e]	Harvest	Spawning escapement estimate[f]
1998	13,687		7,292	7,337	235	48,047	1,795	46,252
1999	12,958			5,136	19[g]	72,188[h]	13,636	58,552
2000	5,057		933[g]	1,442	204	57,978[h]	4,246	53,732
2001	21,737		2,453	4,884	5	38,769[h]	5,278	33,491
2002	13,636		973	7,147	64	104,853[h]	6,232	98,621
2003	29,713		7,982	39,347	390	153,656[h]	10,523	143,133
2004	20,417		3,440	18,982	167	163,625[h]	9,545	154,080
2005	119,058		16,425	34,600	585	451,477	13,979	437,498
2006	30,954		6,553	18,208	620	227,515[i]	6,617	220,898
2007	32,150					246,317[i]	9,330	236,987
2008	19,086[j]					174,028[i]	6,130	167,898
2009	25,828					94,739	1,113	93,626
2010	15,413					121,498	3,709	117,789
2011	13,085[j]					211,878	6,312	205,566
2012	22,399					141,567	3,905	137,662
2013	[k]	35,615				204,149	3,887	200,262
2014	[k]	17,756				159,846	3,050	156,796
2015	8,351	21,396				112,555	3,897	108,658
2016[l]	29,397	54,395				148,012	2,745	145,267
2017	48,524	67,818		16,265		404,989	3,404	401,585
2018	10,151	–		1,734		157,083	2,826	154,257
EO[m]	50,000–120,000							>80,000
IMEG	22,000–49,000[n]							70,000–104,000[o]
Average								
1997–2017	26,747	–	5,756	15,335	254	166,884	5,967	160,918
2008–2017	22,760	–	–	–	–	177,326	3,815	173,511
2013–2017	28,757	39,396	–	–	–	205,910	3,397	202,514

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Note: Blank cells = no data.

[a] Weir counts with expansions through October 25, unless otherwise indicated.

[b] Aerial survey count, unless otherwise indicated.

[c] Index area includes Duke River to end of spawning sloughs below Swede Johnston Creek.

[d] Index area includes Boswell Creek area (5 km below to 5 km above confluence).

[e] Border passage estimate is based on mark–recapture from 1980 to 2005 and 2006 to present is based on sonar minus harvest from Eagle residents upstream of deployment.

[f] Excludes Fishing Branch River escapement (estimated border passage minus Canadian mainstem harvest).

[g] Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.

[h] 1999 to 2004 border passage estimates were revised using a Stratified Population Analysis System (Arnason et al. 1995).

[i] Mark–recapture border passage estimates include 217,810, 235,956, and 132,048 from 2006 to 2008, respectively, during transition to sonar.

[j] Incomplete count caused by late installation and/or early removal of project or high water events.

[k] Fishing Branch River weir did not operate.

[l] Data are preliminary.

[m] Escapement Objective (EO) based on U.S./Canada Treaty Obligations, some years stabilization or rebuilding goals are applied.

[n] Interim management escapement goal (IMEG) established for 2008–2010 based on percentile method and carried forward.

[o] Interim management escapement goal (IMEG) established for 2010 based on brood table of Canadian origin mainstem stocks (1982 to 2003).

Appendix E10.–Yukon River fall chum salmon estimated brood year production and return per spawner estimates, 1974–2018.

				Estimated brood year return								(R)	(R/P)
	(P)	Estimated annual totals		Number of salmon[a]				Proportion				Total brood	Return/
Year	Escapement[b]	Catch	Run	Age 3	Age 4	Age 5	Age 6	Age 3	Age 4	Age 5	Age 6	year return[a]	Spawner
1974	685,150	478,875	1,164,025	112,999	659,786	98,123	0	0.13	0.76	0.11	0.00	870,908	1.27
1975	2,240,500	473,062	2,713,562	199,426	1,750,465	67,673	125	0.10	0.87	0.03	0.00	2,017,689	0.90
1976	566,800	339,043	905,843	145,789	647,486	139,161	4,887	0.16	0.69	0.15	0.01	937,323	1.65
1977	737,800	447,918	1,185,718	113,146	1,091,853	198,906	5,009	0.08	0.77	0.14	0.00	1,408,915	1.91
1978	566,100	434,030	1,000,130	22,567	376,136	108,327	0	0.04	0.74	0.21	0.00	507,030	0.90
1979	1,379,000	615,377	1,994,377	46,547	920,261	313,609	4,054	0.04	0.72	0.24	0.00	1,284,470	0.93
1980	340,000	488,305	828,305	10,019	414,089	217,546	3,889	0.02	0.64	0.34	0.01	645,543	1.90
1981	571,450	682,257	1,253,707	52,424	994,989	346,509	9,599	0.04	0.71	0.25	0.01	1,403,521	2.46
1982	253,300	373,175	626,475	11,792	498,285	180,096	714	0.02	0.72	0.26	0.00	690,888	2.73
1983	518,600	525,016	1,043,616	15,644	945,391	234,945	2,412	0.01	0.79	0.20	0.00	1,198,393	2.31
1984	367,800	412,322	780,122	7,656	428,996	181,684	10,077	0.01	0.68	0.29	0.02	628,414	1.71
1985	712,900	515,481	1,228,381	49,030	912,369	320,663	3,246	0.04	0.71	0.25	0.00	1,285,309	1.80
1986	546,300	318,028	864,328	0	508,536	374,546	5,266	0.00	0.57	0.42	0.01	888,348	1.63
1987	736,600	406,143	1,142,743	14,688	627,629	351,795	8,312	0.01	0.63	0.35	0.01	1,002,424	1.36
1988	360,000	353,685	713,685	41,674	212,015	164,047	13,054[c]	0.10	0.49	0.38	0.03	430,792	1.20
1989	551,300	545,166	1,096,466	3,320	304,591	413,575[c]	22,207	0.00	0.41	0.56	0.03	743,693	1.35
1990	501,700	352,264	853,964	764	694,356[c]	457,973	32,733	0.00	0.59	0.39	0.03	1,185,826	2.36
1991	608,000	439,096	1,047,096	4,389[c]	1,121,598	396,788	12,930	0.00	0.73	0.26	0.01	1,535,706	2.53
1992	423,550	148,846	572,396	7,402	702,676	209,430	4,119	0.01	0.76	0.23	0.00	923,627	2.18
1993	386,700	91,015	477,715	8,326	479,626	107,965	3,229	0.01	0.80	0.18	0.01	599,146	1.55
1994	956,150	169,225	1,125,375	4,593	237,440	149,238	1,688[c]	0.01	0.60	0.38	0.00	392,958	0.41
1995	1,148,000	461,180	1,609,180	2,499	266,440	72,562[c]	374	0.01	0.78	0.21	0.00	341,876	0.30
1996	879,600	260,923	1,140,523	419,326	174,452[c]	133,896	8,328	0.00	0.55	0.42	0.03	317,096	0.36
1997	536,500	170,079	706,579	3,250[c]	239,419	118,815	3,414	0.01	0.66	0.33	0.01	364,898	0.68
1998	281,200	70,823	352,023	636.354	270,729	59,390	7,107	0.00	0.80	0.18	0.02	337,862	1.20
1999	288,150	131,176	419,326	29,213	722,521	185,167	13,053	0.03	0.76	0.19	0.01	949,953	3.30
2000	223,400	28,553	251,953	8,654	315,305	109,859	0	0.02	0.73	0.25	0.00	433,818	1.94
2001	329,300	45,026	374,326	144,417	2,052,507	705,136	34,037	0.05	0.70	0.24	0.01	2,936,097	8.92
2002	399,600	27,485	427,085	0	463,880	239,734	13,934	0.00	0.65	0.33	0.02	717,548	1.80
2003	714,900	79,079	793,979	25,320	860,796	463,500	17,292	0.02	0.63	0.34	0.01	1,366,908	1.91

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				Estimated brood year return								(R)	(R/P)
	(P)	Estimated annual totals		Number of salmon[a]				Proportion				Total brood	Return/
Year	Escapement[b]	Catch	Run	Age 3	Age 4	Age 5	Age 6	Age 3	Age 4	Age 5	Age 6	year return[a]	spawner
2004	575,700	76,296	651,996	0	354,529	156,829	2,064	0.00	0.69	0.31	0.00	513,423	0.89
2005	1,885,000	290,418	2,175,418	2,420	399,999	93,924	5,357	0.00	0.80	0.19	0.01	501,700	0.27
2006	923,850	270,486	1,194,336	26,298	394,331	344,939	30,286	0.03	0.50	0.43	0.04	795,854	0.86
2007	928,900	205,667	1,134,567	83,086	857,174	189,955	6,498	0.07	0.75	0.17	0.01	1,136,713	1.22
2008	616,400	217,983	834,383	10,106	847,383	401,308	7,633	0.01	0.67	0.32	0.01	1,266,429	2.05
2009	507,100	93,319	600,419	12,065	773,359	414,316	23,003	0.01	0.63	0.34	0.02	1,222,743	2.41
2010	493,400	80,005	573,405	1,895	492,060	245,367	9,202	0.00	0.66	0.33	0.01	748,523	1.52
2011	890,200	327,376	1,217,576	24,008	483,872	182,671	2,240	0.03	0.70	0.26	0.00	692,791	0.78
2012	683,100	396,589	1,079,689	68,863	1,168,116	319,040	5,732	0.04	0.74	0.20	0.01	1,561,751	2.29
2013	825,100	357,960	1,183,060	29,212	1,849,080	312,501	18,252	0.01	0.84	0.14	0.01	2,209,045[d]	~2.68
2014	724,800	213,217	938,017	55,462	752,777	360,489		0.05	0.64	0.31		1,168,728[e]	~1.61
2015	538,650	282,455	821,105	29,436									
2016	833,100	555,985	1,389,085										
2017	1,644,000	583,688	2,227,688										
2018	642,600												
Avg. 2017	701,810	314,411	1,016,222										
Min 2012	223,400	27,485	251,953	0	174,452	59,390	0	0.00	0.41	0.03	0.00	317,096	0.27
Max 2012	2,240,500	682,257	2,713,562	199,426	2,052,507	705,136	34,037	0.16	0.87	0.56	0.04	2,936,097	8.92
	674,718	All brood years (1974–2012)		33,727	658,088	242,795	8,644	0.03	0.69	0.27	0.01	943,254	1.74
	532,155	Even brood years (1974–2012)		24,106	493,029	214,527	8,036	0.03	0.66	0.30	0.01	739,698	1.54
	824,784	Odd brood years (1974–2012)		43,854	831,835	272,551	9,284	0.03	0.71	0.25	0.01	1,157,523	1.94

Note: Minimum and maximum indicate the lowest and highest values for each year presented through 2012. Average value is through the year 2017. Current brood year data is preliminary as is 2018 harvest estimate. Since 2015, estimates of drainagewide escapement have been based on Bayesian analysis. Blank cells = no data.

[a] The estimated number of salmon which returned are based upon annual age composition observed in Lower Yukon Test Fishery gillnets each year, weighted by test fish catch per unit effort.

[b] Contrast in escapement data is 10.03.

[c] Based upon expanded test fish age composition estimates for years in which the test fishery terminated early both in 1994 and 2000.

[d] Brood year return for 3-, 4-, and 5-year old fish indicate that production (R/P) from brood year 2013 was approximately 2.68. Recruits estimated for incomplete brood year, denoted by shaded values.

[e] Brood year return for 3- and 4- year old fish indicate that production (R/P) from brood year 2014 was approximately 1.61. Recruits estimated for incomplete brood year, denoted by shaded values.

Appendix E11.–Coho salmon passage estimates or escapement estimates for selected spawning areas in the Alaska portion of the Yukon River drainage, 1998–2018.

		Nenana River drainage				Upper Tanana River drainage		
Year	Yukon River mainstem sonar estimate[a]	Lost Slough	Nenana mainstem[b]	Wood Creek	Seventeen Mile Slough	Delta Clearwater River[c]	Clearwater Lake and Outlet	Richardson Clearwater River
1998	146,365	1,360 (h)[d]	2,771 (h)[d]	[e]	1,413 (g/b)	11,100 (b)	2,775 (b)	
1999	76,174	1,002 (h)[d]	745 (h)[d]	370 (h)	662 (h)[d]	10,975 (b)		
2000	206,365	55 (h)[d]	68 (h)[d]	[e]	879 (h)[d]	9,225 (b)	1,025 (b)	2,175 (h)
2001	160,272	242 (h)	859 (h)	699 (h)	3,753 (h)	46,985 (b)	4,425 (b)	1,531 (f)
2002	137,077	0 (h)	328 (h)	935 (h)	1,910 (h)	38,625 (b)	5,900 (b)	874 (f)
2003	280,552	85 (h)	658 (h)	3,055 (h)	4,535 (h)	102,800 (b)	8,800 (b)	6,232 (h)
2004	207,844	220 (h)	450 (h)	840 (h)	3,370 (h)	37,550 (b)	2,925 (b)	8,626 (h)
2005	194,622	430 (h)	325 (h)	1,030 (h)	3,890 (h)	34,293 (b)	2,100 (b)	2,024 (h)
2006	163,889	194 (h)	160 (h)	634 (h)	1,916 (h)	16,748 (b)	4,375 (b)	271 (h)
2007	192,406	63 (h)	520 (h)	605 (h)	1,733 (h)	14,650 (b)	2,075 (b)	553 (h)
2008	145,378	1,342 (h)	1,539 (h)	578 (h)	1,652 (h)	7,500 (b)	1,275 (b)	265 (h)
2009	240,779[f]	410 (h)		470 (h)	680 (h)	16,850 (b)	5,450 (b)	155 (h)
2010	177,724	1,110 (h)	280 (h)	340 (h)	720 (h)	5,867 (b)	813 (b)	1,002 (h)
2011	149,533	369 (h)			912 (h)	6,180 (b)	2,092 (b)	575 (h)
2012	130,734		106 (h)		405 (h)	5,230 (b)	396 (h)	515 (h)
2013	110,515	721 (h)		55 (h)	425 (h)	6,222 (b)	2,221 (h)	647 (h)
2014	283,421	333 (h)	378 (h)	649 (h)	886 (h)	4,285 (b)	434 (h)	1,941 (h)
2015	121,193	242 (h)	1,789 (h)	1,419 (h)	3,890 (h)	19,533 (b)	1,621 (h)	3,742 (h)
2016	168,297	334 (h)	1,680 (h)	1,327 (h)	2,746 (h)	6,767 (b)	1,421 (h)	1,350 (h)
2017	166,320	1,278 (h)	862 (h)	2,025 (h)	1,942 (h)	9,617 (b)		
2018[g]	136,347	1,822 (h)	241 (h)	361 (h)	347 (h)	2,884 (b)	2,465 (h)	976 (h)
SEG[h]						5,200–17,000		
Averages								
1998–2017	169,404[f]	515	795	939	1,916	20,550	2,785	1,910
2008–2017	161,457[f]	682	948	858	1,426	8,805	1,747	1,132
2013–2017	169,949	582	1,177	1,095	1,978	9,285	1,424	1,920

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Note: Only peak counts presented. Survey rating is fair to good, unless otherwise noted. Denotations of survey methods include: (b) = boat, (f) = fixed wing, (g) = ground/foot, (h) = helicopter, and (u) = undocumented.

[a] Passage estimates for coho salmon are incomplete. The sonar project is terminated prior to the end of the coho salmon run. Yukon River mainstem sonar historical estimates were revised in 2016, using new selectivity parameters.

[b] Index area includes mainstem Nenana River between the confluences of Lost Slough and Teklanika River.

[c] Index area is the lower 17.5 miles of system surveys conducted generally during the period October 21 through October 27 (November 7, 2018).

[d] Poor survey.

[e] No survey of Wood Creek due to obstructions in creek.

[f] Pilot Station sonar project encountered record low water levels during the fall season causing difficulties with species apportionment and catchability. Coho salmon are suspected of being overestimated therefore this value should not be used in averages or run reconstructions.

[g] Data are preliminary.

[h] Sustainable escapement goal (SEG) established January 2004 (replaces biological escapement goal [BEG] of greater than 9,000 fish established March 1993).

Appendix E12.–Index of coho salmon run size minus estimated total Yukon River harvest provides an estimate of escapement upstream of the mainstem Yukon River sonar operated near Pilot Station, 1995–2018.

Year	Coho salmon reconstruction index[a]	Total Yukon harvest	Estimated escapement
1995	199,551	77,278	122,273
1996[b]			
1997	197,883	61,583	136,300
1998	154,560	18,889	135,671
1999	143,457	23,484	119,973
2000	208,918	15,493	193,425
2001	186,751	23,404	163,347
2002	182,391	16,601	165,790
2003	307,672	51,141	256,531
2004	296,423	42,883	253,540
2005	261,861	86,295	175,566
2006	309,275	85,927	223,348
2007	284,304	64,931	219,373
2008	181,154	52,937	128,217
2009[c]			
2010	188,372	18,801	169,571
2011	243,795	89,342	154,453
2012	216,839	96,592	120,247
2013	163,768	81,032	82,736
2014	388,971	124,274	264,697
2015	255,541	148,534	107,007
2016[d]	397,650	211,236	186,414
2017[d]	315,247	148,526	166,721
2018[d]	238,682	116,387	122,295
Median-17	216,839	64,931	165,790
Minimum-17	143,457	15,493	82,736
Maximum-17	397,650	211,236	264,697

Note: Median, minimum, and maximum indicate the median, lowest, and highest values through 2017.

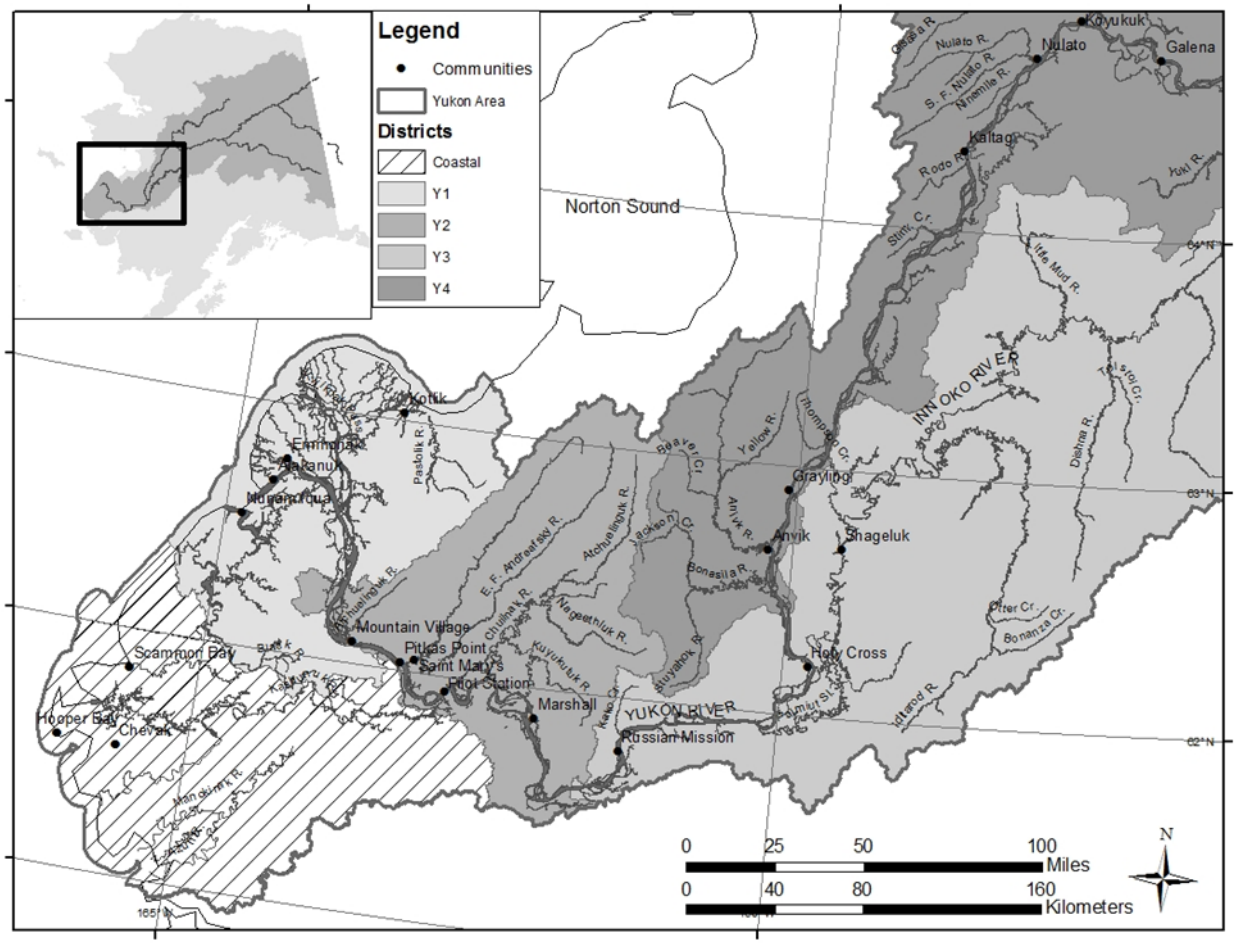
[a] Does not include escapements to systems downstream of Yukon River mile 123, including the Andreafsky River. A weir was used to count coho salmon in the East Fork Andreafsky from 1995 to 2005 with escapements ranging from 3,000 to 16,000 and an average of 8,000 fish. Escapement into this system is typically doubled to represent the West Fork contributions.

[b] Sonar operated in research mode only.

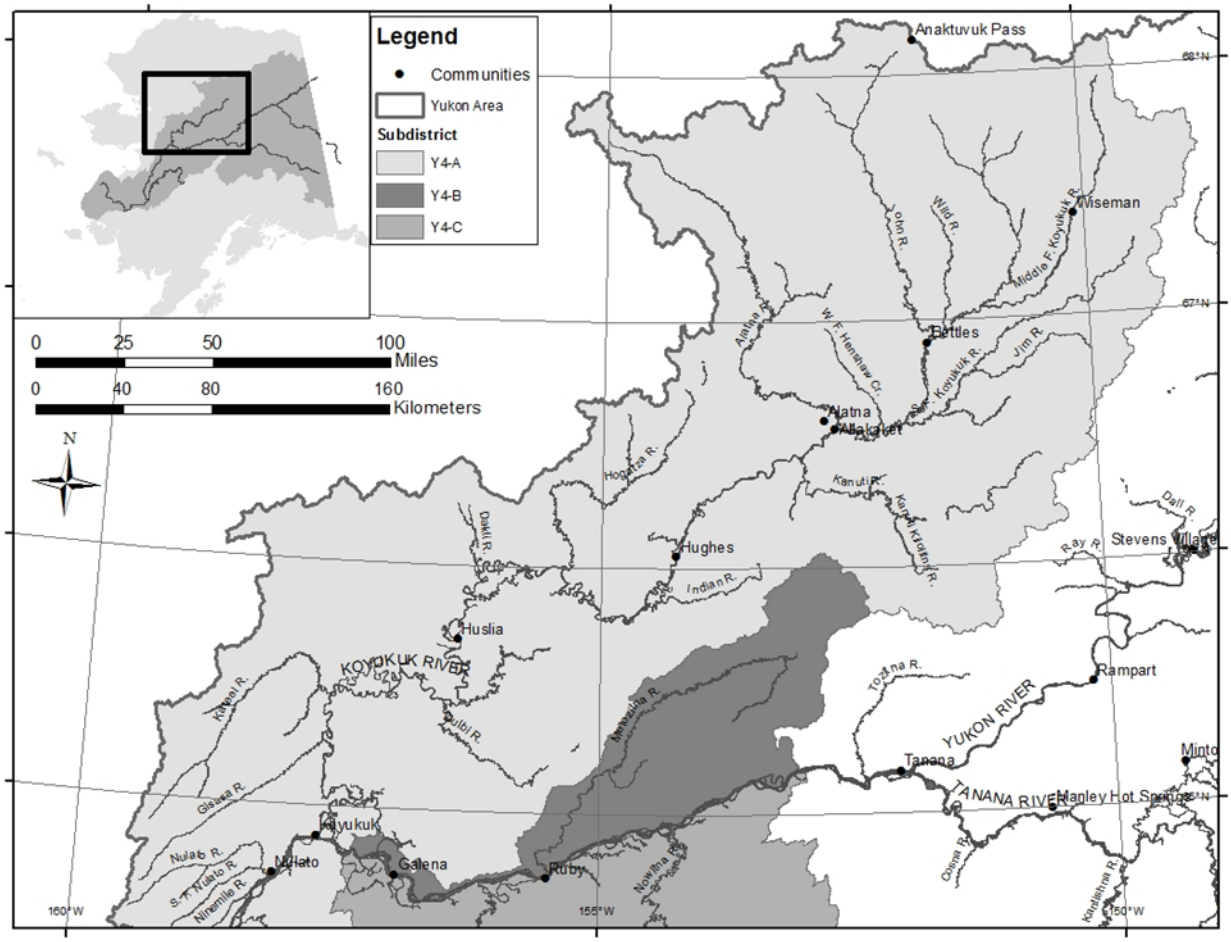
[c] Pilot Station sonar operations in 2009 were compounded by extreme low water and poor catchability of fall chum salmon resulting in concerns about over estimation of coho salmon in the drift gillnet apportionment.

[d] Data are preliminary, particularly estimates of subsistence and personal use harvests.

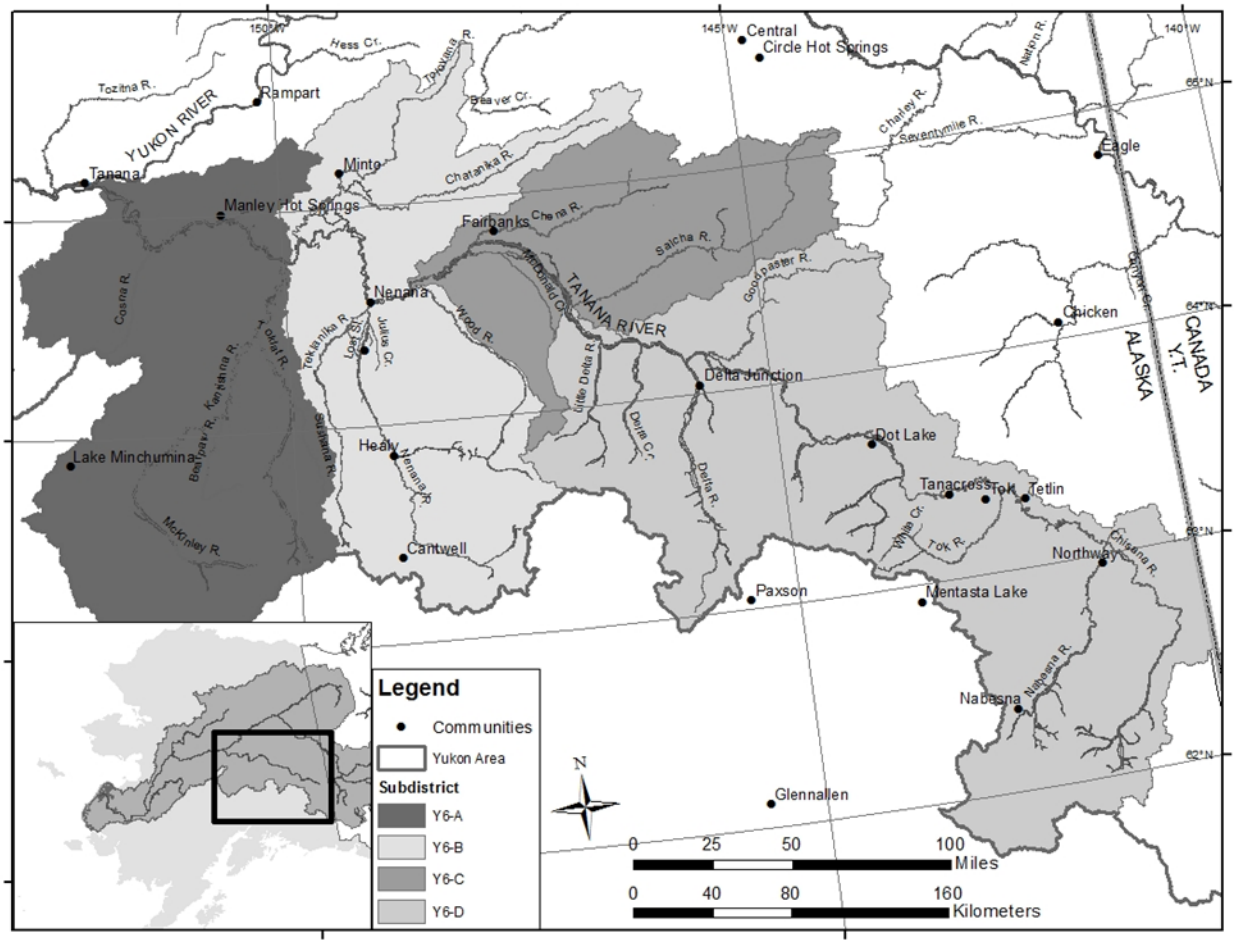
Appendix E13.–The lower Yukon River drainage.



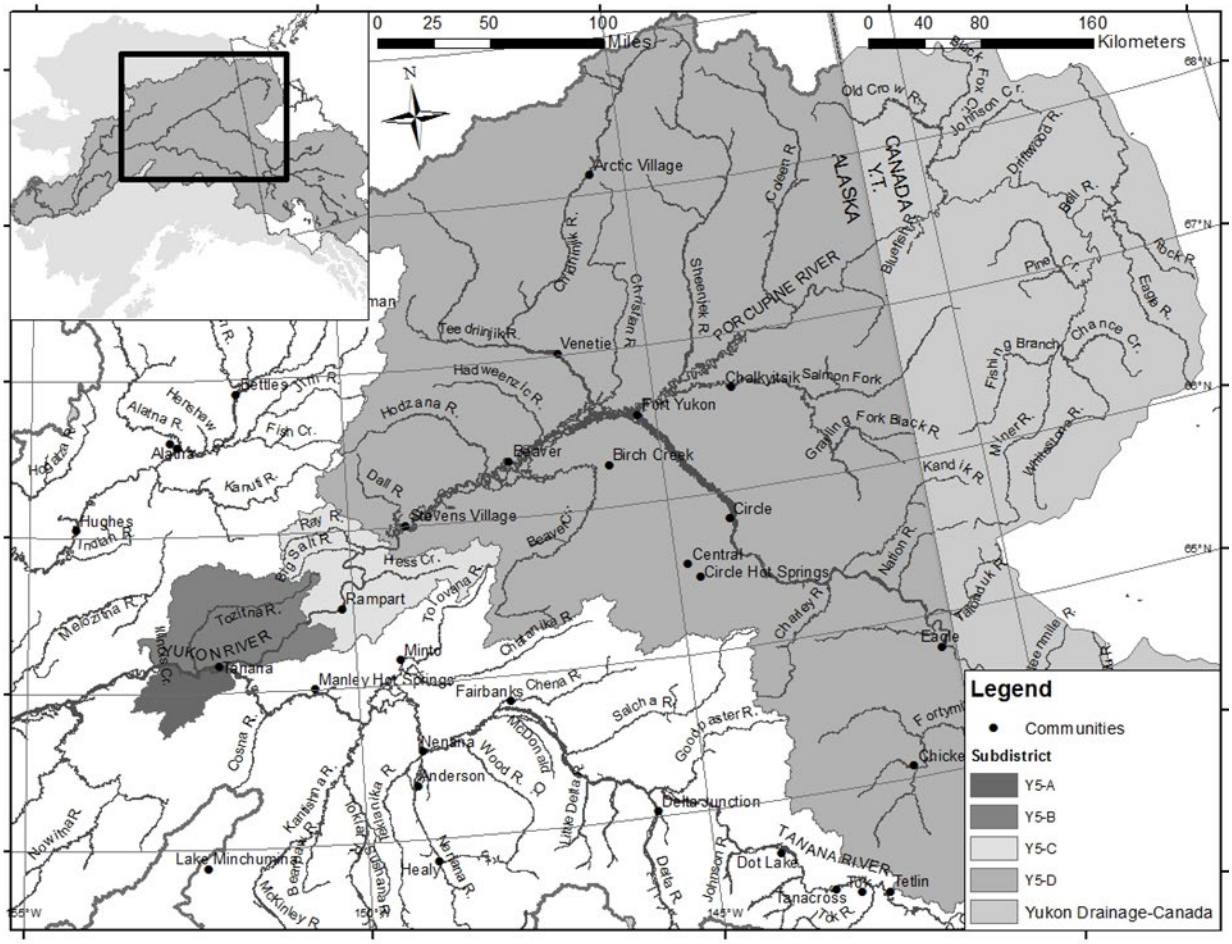
Appendix E14.–The Koyukuk River drainage.



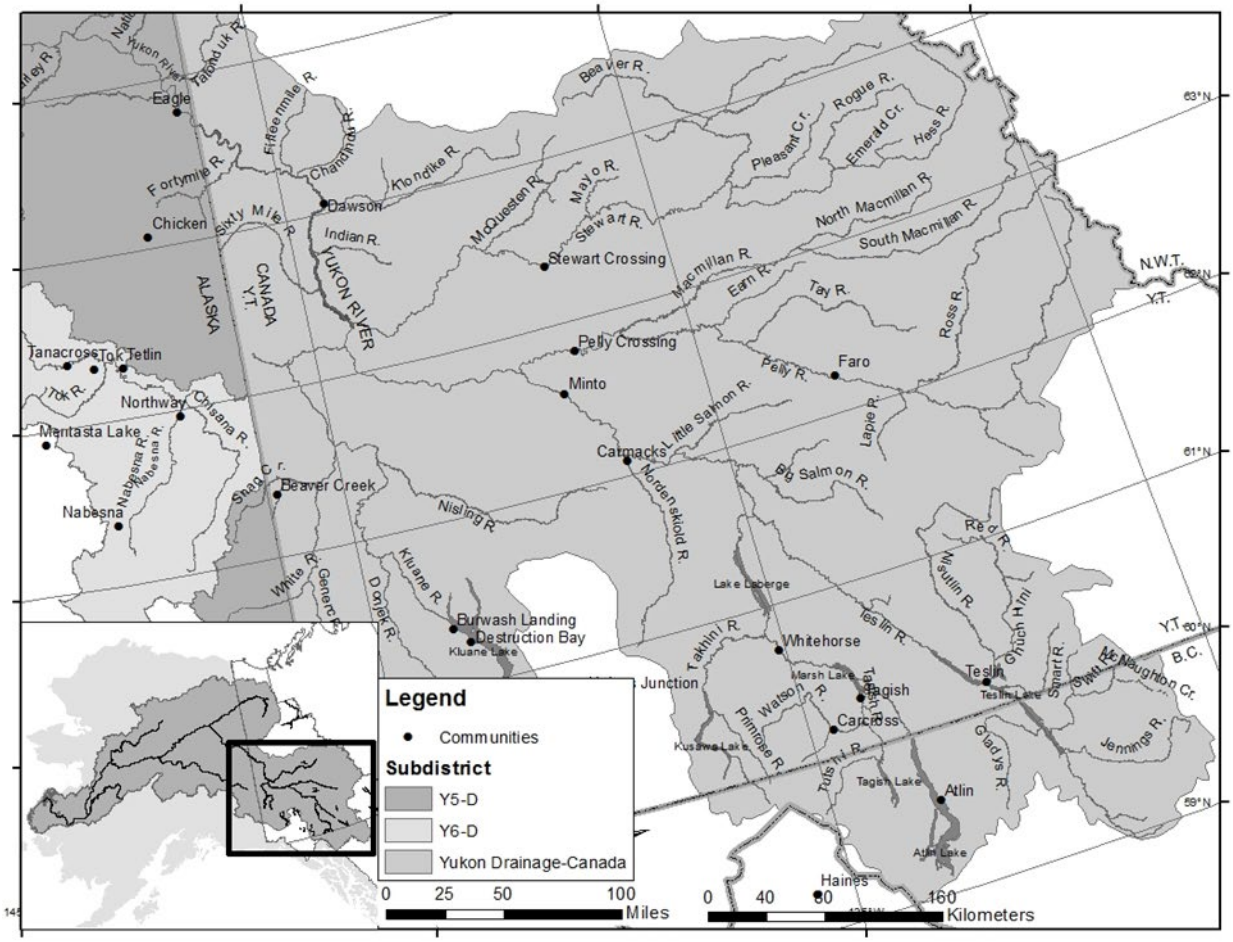
Appendix E15.–The Tanana River drainage.



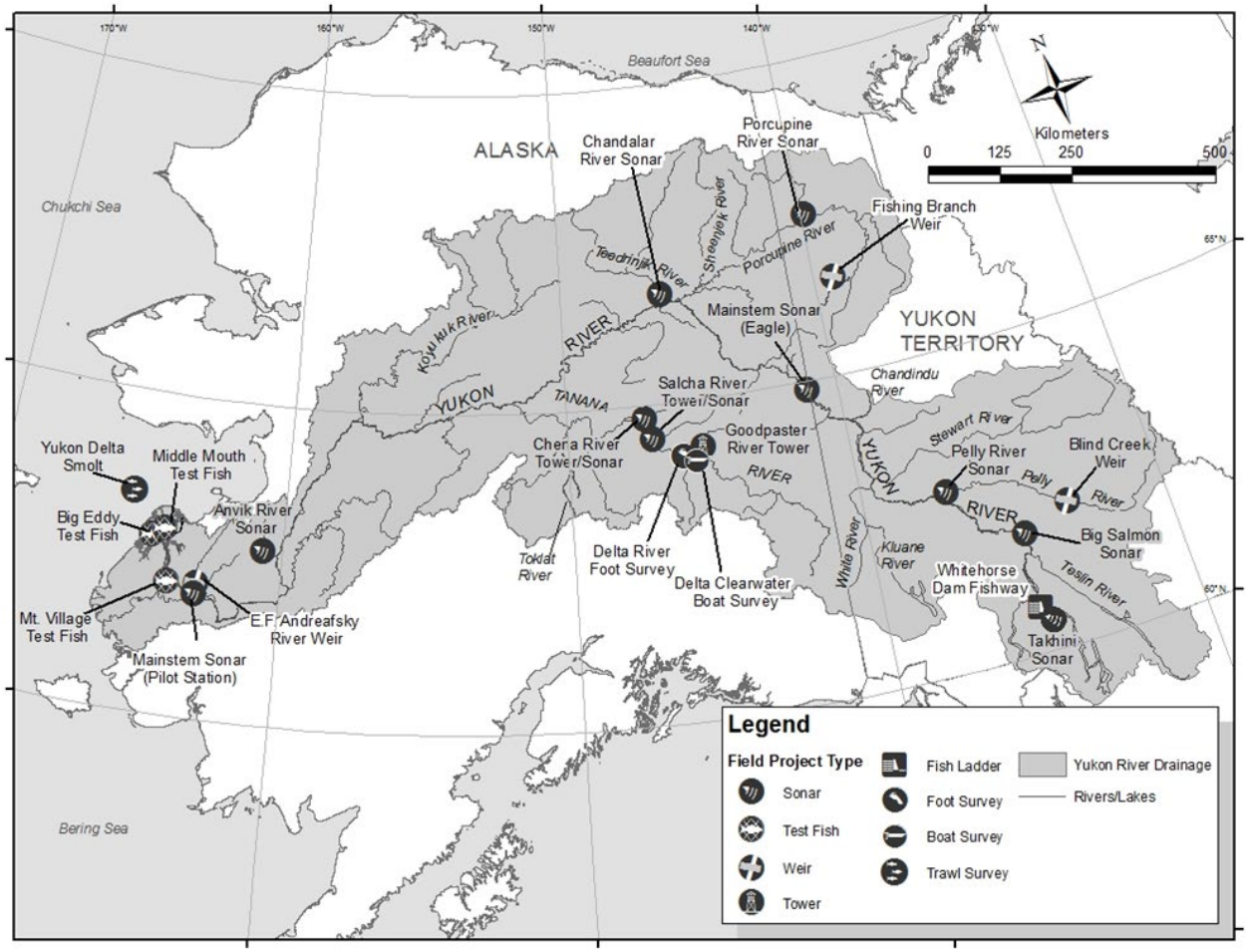
Appendix E16.–The middle Yukon River and Porcupine River drainages.



Appendix E17.–The upper Yukon River drainage in Canada.



Appendix E18.–Select salmon monitoring projects, Yukon River drainage.



Appendix E19.–Reconstructed drainagewide Yukon River Chinook salmon run size, 1998–2018.

Year	Canadian origin Chinook total run	Harvest below Pilot Station sonar[a]	Total Andreafsky River[b]	Pilot Station sonar	Drainagewide run[c]
1998	88,282	51,397	8,068	108,038	167,503
1999	110,446	68,633	6,888	184,218	259,739
2000	52,842	20,660	3,218	54,560	78,438
2001	85,663	18,915	2,296	121,089	142,300
2002	81,487	31,660	8,246	151,713	191,619
2003	149,979	47,911	8,672	318,088	374,671
2004	117,247	61,717	16,090	200,761	278,568
2005	123,612	40,469	4,478	259,015	303,962
2006	119,485	50,802	12,926	228,763	292,491
2007	87,899	44,656	9,008	170,246	223,910
2008	62,637	17,837	8,484	175,046	201,367
2009	87,682	10,252	6,008	177,796	194,056
2010	59,741	22,435	4,826	145,088	172,349
2011	71,726	12,407	10,426	148,797	171,630
2012	48,494	11,889	5,034	127,555	144,478
2013	37,177	3,952	3,996	136,805	144,753
2014	64,886	2,407	11,898	163,895	178,200
2015	87,323	3,942	10,948	146,859	161,749
2016	83,306	6,301	5,352	176,898	188,551
2017	93,858	9,212	5,940	263,014	278,166
2018[d]	76,566	7,620	8,228	161,831	177,679
Averages					
2008–2017	69,683	10,063	7,291	166,175	183,530
2013–2017	73,310	5,163	7,627	177,494	190,284

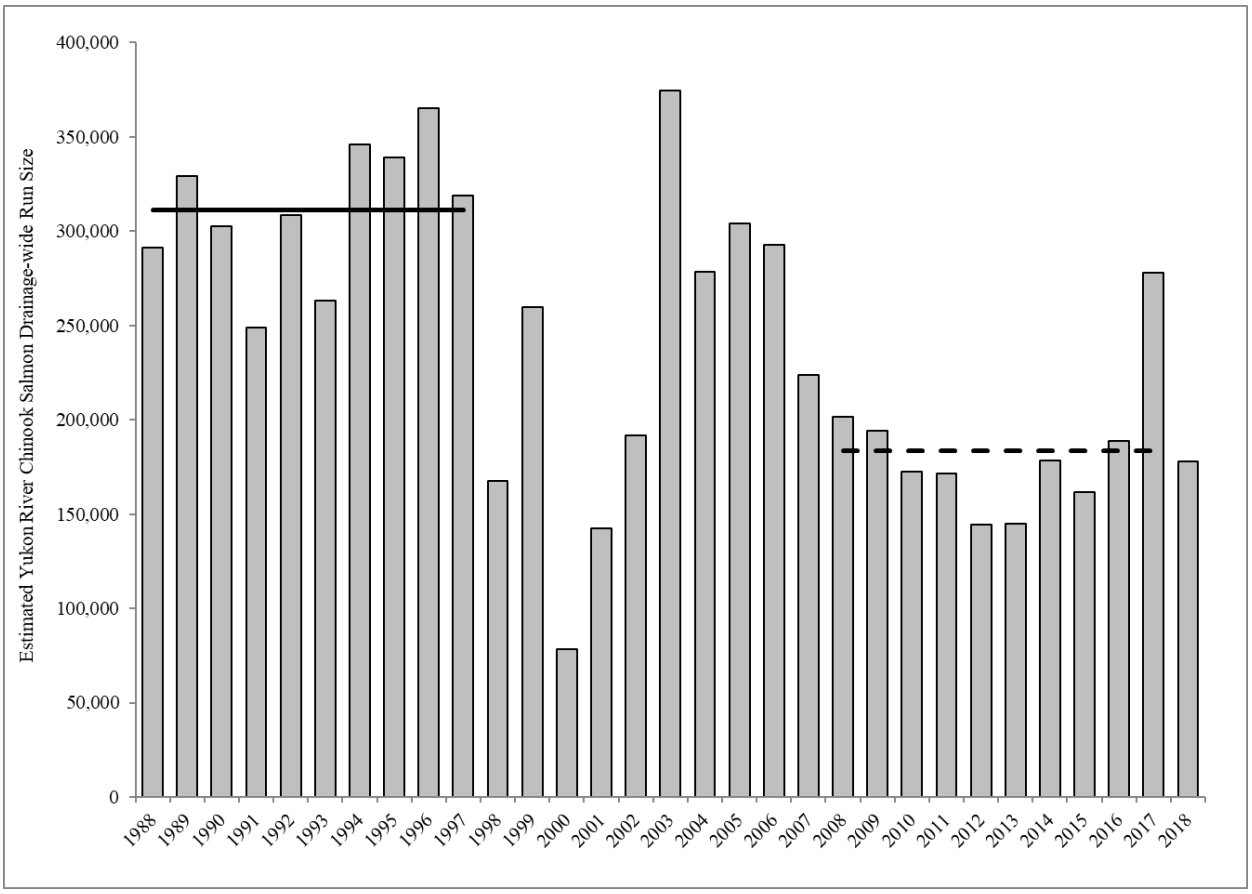
[a] Harvest below Pilot Station sonar includes commercial and subsistence harvest in statistical area codes 334-11 through 334-19 and 334-21 through 334-23.

[b] East Fork Andreafsky River weir escapement count multiplied by 2.

[c] Drainagewide run is the sum of harvest below Pilot Station sonar, East Fork Andreafsky weir count doubled, and the Pilot station sonar count.

[d] Preliminary commercial harvest and escapement estimates.

Appendix E20.–Historical estimated Yukon River Chinook salmon drainagewide run size, various methods, 1988–2018.



Note: Total run size for 1987–1994 and 1996 is the Canadian-origin run size doubled. Run size for 1995 and 1997–2018 is measured at Pilot station sonar and includes escapement and harvest below the sonar. The solid black line is the 1987–1996 average run size. The dashed line is the 10-year average run size (2008–2017).

Appendix E21.–Yukon River summer chum salmon drainagewide run size, 1998–2018.

Year	Harvest below Pilot Station sonar[a]	Total Andreafsky River[b]	Pilot Station sonar	Drainagewide run[c]
1998	81,665	135,440	824,901	1,042,006
1999	80,056	65,174	969,459	1,114,689
2000	66,178	49,570	448,665	564,413
2001	61,388	4,268	442,546	508,202
2002	69,482	88,388	1,097,769	1,255,639
2003	55,574	44,922	1,183,009	1,283,505
2004	71,771	129,766	1,344,213	1,545,750
2005	94,925	40,254	2,570,696	2,705,875
2006	120,515	204,520	3,780,760	4,105,795
2007	230,816	139,284	1,875,491	2,245,591
2008	175,818	114,518	1,849,553	2,139,889
2009	208,918	17,540	1,477,186	1,703,644
2010	218,285	145,786	1,415,027	1,779,098
2011	294,790	200,946	2,051,501	2,547,237
2012	283,884	113,360	2,136,476	2,533,720
2013	427,319	122,468	2,849,683	3,399,470
2014	428,853	75,586	2,020,309	2,524,748
2015	371,326	97,618	1,591,505	2,060,449
2016	522,431	100,724	1,921,748	2,544,903
2017	444,779	111,064	3,093,735	3,649,578
2018[d]	439,305	72,660	1,612,688	2,124,653
Averages				
2008–2017	337,640	109,961	2,040,672	2,488,274
2013–2017	438,942	101,492	2,295,396	2,835,830

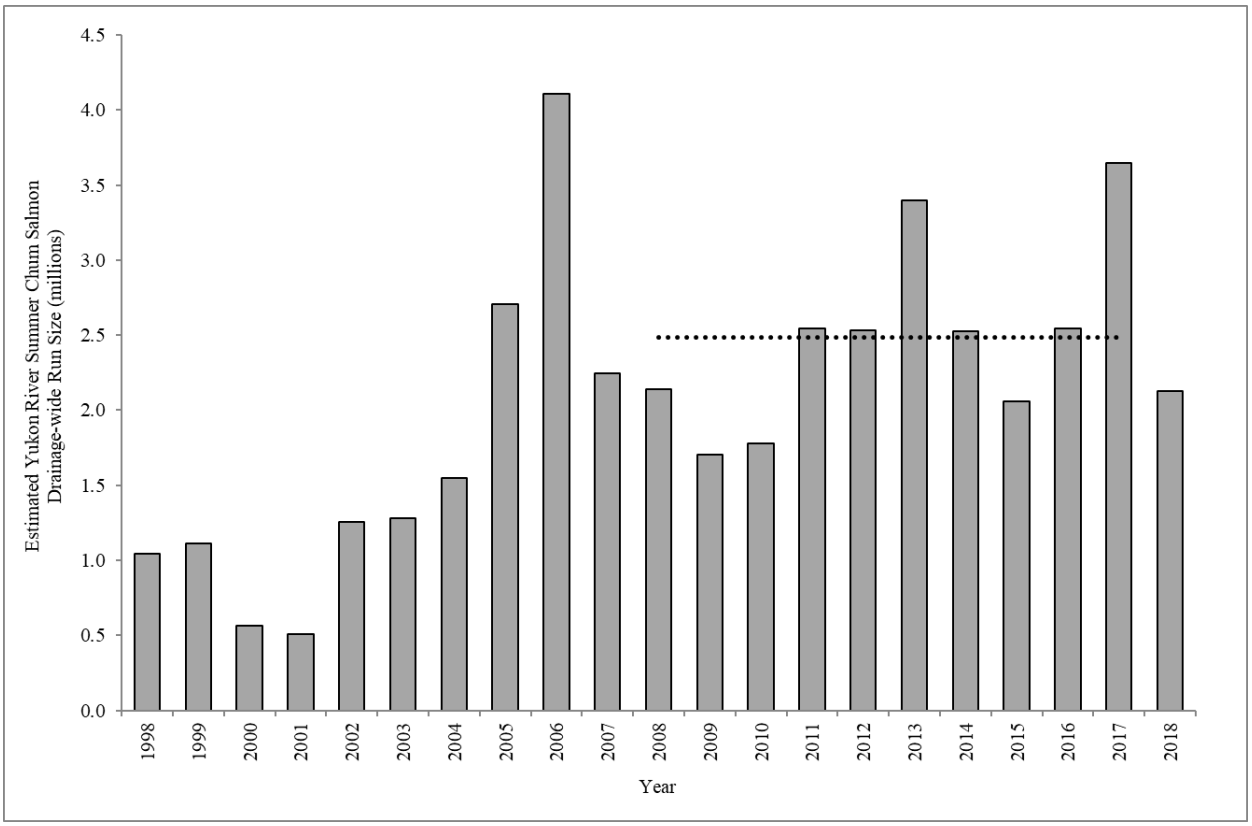
[a] Harvest below Pilot Station sonar includes subsistence harvest in the communities of Hooper Bay, Scammon Bay, Nunam Iqua, Alakanuk, Emmonak, Kotlik, Mountain Village, Pitkas Point, Saint Mary's, and Pilot Station, and commercial harvest from statistical area codes 334-11 through 334-19 and 334-21 through 334-23.

[b] East Fork Andreafsky River weir escapement count multiplied by 2.

[c] Drainagewide run is the sum of harvest below Pilot Station sonar, East fork Andreafsky weir count doubled, and the Pilot station sonar count.

[d] Preliminary commercial harvest and escapement estimates.

Appendix E22.–Estimated Yukon River summer chum drainagewide run size, 1998–2018.



Note: Dashed line is 2008–2018 average drainagewide run size.

Appendix E23.–Pilot Station sonar Chinook salmon passage and Canadian-origin proportion by strata, 2005–2018.

Year	Strata	Dates	Pilot Station passage	Proportion of run	Canadian proportion[a]	Estimated number of Canadian fish
2005	Stratum 1	06/04 – 06/17	91,136	0.35	0.60	54,335
	Stratum 2	06/18 – 07/03	119,627	0.46	0.45	53,533
	Stratum 3	07/04 – 08/20	48,451	0.19	0.29	14,002
	Total		259,214	1	0.47	121,871
2006	Stratum 1	06/07 – 06/24	63,374	0.28	0.44	28,106
	Stratum 2	06/25 – 07/26	165,389	0.72	0.39	64,312
	Total		228,763	1	0.4	92,417
2007	Stratum 1	06/06 – 06/19	50,083	0.29	0.53	26,629
	Stratum 2	06/20 – 06/30	62,907	0.37	0.37	23,502
	Stratum 3	07/01 – 08/16	57,256	0.34	0.21	11,772
	Total		170,246	1	0.37	61,903
2008	Stratum 1	06/07 – 06/23	41,294	0.24	0.47	19,532
	Stratum 2	06/24 – 06/29	42,554	0.24	0.33	13,958
	Stratum 3	06/30 – 08/02	90,559	0.52	0.31	27,711
	Total		174,407	1	0.35	61,201
2009	Stratum 1	06/09 – 06/16	7,000	0.04	0.68	4,750
	Stratum 2	06/17 – 06/22	27,229	0.15	0.53	14,347
	Stratum 3	06/23 – 06/29	83,866	0.47	0.41	34,509
	Stratum 4	06/30 – 07/19	59,701	0.34	0.17	10,265
	Total		177,796	1	0.36	63,871
2010	Stratum 1	06/12 – 06/21	28,885	0.21	0.49	14,110
	Stratum 2	06/22 – 06/27	45,306	0.33	0.50	22,860
	Stratum 3	06/28 – 09/05	63,708	0.46	0.28	17,891
	Total		137,899	1	0.4	54,861
2011	Stratum 1	06/01 – 06/18	31,273	0.21	0.58	18,148
	Stratum 2	06/19 – 06/27	67,686	0.45	0.36	24,611
	Stratum 3	06/28 – 08/07	49,838	0.33	0.16	8,034
	Total		148,797	1	0.34	50,792
2012	Stratum 1	06/10 – 06/24	31,998	0.25	0.45	14,463
	Stratum 2	06/25 – 07/02	63,648	0.50	0.47	30,042
	Stratum 3	07/03 – 07/30	31,909	0.25	0.34	10,753
	Total		127,555	1	0.43	55,258
2013	Stratum 1	06/14 – 06/27	78,133	0.57	0.72	56,568
	Stratum 2	06/28 – 08/02	58,672	0.43	0.26	15,137
	Total		136,805	1	0.52	71,706
2014	Stratum 1	06/01 – 06/14	45,236	0.28	0.49	22,347
	Stratum 2	06/15 – 06/24	82,146	0.50	0.42	34,255
	Stratum 3	06/25 – 08/04	36,513	0.22	0.18	6,718
	Total		163,895	1	0.39	63,320

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Year	Strata	Dates	Pilot Station passage	Proportion of run	Canadian proportion[a]	Estimated number of Canadian fish
2015	Stratum 1	05/30 – 06/17	30,600	0.21	0.50	15,178
	Stratum 2	06/18 – 06/26	51,172	0.35	0.37	18,780
	Stratum 3	06/27 – 08/17	65,087	0.44	0.33	21,218
	Total		146,859	1	0.38	55,176
2016	Stratum 1	05/30 – 06/14	37,511	0.21	0.52	19,136
	Stratum 2	06/15 – 06/25	86,622	0.49	0.34	29,114
	Stratum 3	06/26 – 08/24	52,765	0.3	0.54	28,282
	Total		176,898	1	0.43	76,532
2017	Stratum 1	05/31 – 06/13	30,088	0.11	0.43	12,857
	Stratum 2	06/14 – 06/20	79,913	0.3	0.49	38,929
	Stratum 3	06/21 – 06/25	69,392	0.26	0.43	30,121
	Stratum 4	06/26 – 08/11	83,621	0.32	0.41	34,008
	Total		263,014	1	0.44	115,915
2018	Stratum 1	06/02 – 06/13	16,275	0.1	0.53	8,621
	Stratum 2	06/14 – 06/24	56,270	0.35	0.47	26,357
	Stratum 3	06/25 – 07/03	57,070	0.35	0.41	23,227
	Stratum 4	07/04 – 08/05	32,216	0.2	0.29	9,402
	Total		161,831	1	0.42	67,609
Average	Stratum 1		43,585	0.25	0.53	23,551
2005–2017	Stratum 2		73,298	0.41	0.41	29,491
	Stratum 3		59,031	0.34	0.32	19,183
	Total		177,858	1	0.41	72,679

APPENDIX F:
YUKON AREA FRESHWATER FISHERIES

Appendix F1.–Quotas and harvested cisco (in pounds and numbers) from the commercial whitefish fishery in the lower Yukon River, 2005–2018.

Year	Quota (number of fish)	Permits fished	Number of deliveries	First delivery	Last delivery	Bering cisco			Least cisco			Total		Value
						Number	Pounds	Avg. wt.	Number	Pounds	Avg. wt.	Number	Pounds	
2005	5,029[a]	13	34	15 Oct	28 Oct	241	362	1.50	1694	2294	1.35	3,176	6,315[b]	$6,315
2006	6,127[a]	19	61	8 Sep	21 Sep	4497	5519	1.23	69	81	1.17	6,901	11,263[b]	$8,431
2007	4,910[a]	23	42	26 Sep	1 Oct	2,451	2,951	1.20	–	–	–	4,644	9,459[b]	$9,002
2008	9,270[a]	16	70	22 Sep	2 Oct	8,642	9,380	1.09	695	692	1.00	9,337	10,072	$10,072
2009	13,972[a]	29	110	16 Sep	26 Sep	9,185	9,903	1.08	750	763	1.02	9,935	10,666	$10,666
2010	14,138[a]	22	68	15 Sep	20 Oct	13,929	14,785	1.06	420	439	1.05	14,349	15,224	$22,836
2011	9,106[a]	19	47	4 Sep	15 Sep	11,386	12,523	1.10	253	258	1.02	11,639	12,781	$12,781
2012	13,132[a]	20	65	8 Sep	18 Sep	11,099	12,705	1.14	231	237	1.03	11,330	12,942	$12,942
2013	20,000	17	53	17 Sep	25 Sep	16,901	19,442	1.15	120	123	1.03	17,021	19,565	$19,565
2014	25,000	25	132	11 Sep	22 Sep	25,604	31,268	1.22	42	50	1.19	25,646	31,318	$46,977
2015	25,000	22	142	7 Sep	21 Sep	23,670	28,391	1.20	15	16	1.07	23,685	28,407	$42,611
2016	25,000	24	163	13 Sep	24 Sep	26,329	30,764	1.17	13	12	0.92	26,342	30,776	$46,164
2017	25,000	27	167	11 Sep	20 Sep	16,779	19,479	1.16	70	60	0.86	16,849	19,539	$29,309
2018	35,000	19	145	13 Sep	26 Sep	26,571	30,937	1.16	113	53	0.47	26,684	30,990	$46,485
2007–2017 Average		22	102	12 Sep	25 Sep	16,352	18,864	1.10	261	265	1.00	16,613	19,129	$25,392
2013–2017 Average		23	131	11 Sep	22 Sep	21,857	25,869	1.20	52	52	1.00	21,909	25,921	$36,925

Note: The whitefish commercial fishery started in 2005. En dash = no data.

[a] From 2005 to 2012, quota was based on number of pounds and was 10,000 pounds, except for 2009, 2010, and 2012 when the quota was 15,000 pounds. Quota from 2005 to 2012 is calculated from pounds allocated and average total weight. Quota determined in numbers of fish starting in 2013.

[b] Totals include Bering cisco, least cisco, sheefish, and unidentified whitefish that were also sold.

Appendix F2.–Lamprey commercial freshwater harvest, 2003–2018.

Year	Quota (pounds)	Permits fished	Lower Yukon		Upper Yukon		Total		Average weight (pounds)[a]	Price per pound	Harvest value
			Number	Pounds	Number	Pounds	Number	Pounds			
2003	44,080	38	92,890	23,960	99,624	25,697	192,513	49,657	0.258	1.25	$62,071
2004	–	0									
2005	5,000	0									
2006	40,000	12	3,243	715	33,933	7,481	37,176	8,196	0.220	1.00	$8,196
2007	47,080	1	2,109	465	191	42	191	42	0.220[b]	1.00	$42
2008	40,000	10			41,749	11,137	41,749	11,137	0.267	1.00	$11,137
2009	44,080	15			48,117	14,745	49,634	15,210	0.306	1.24[c]	$18,546
2010	40,000	22			108,837	30,713	108,837	30,713	0.282	1.25	$38,391
2011	44,080	3			2,660	783	2,660	783	0.294[d]	1.25	$979
2012	44,080	4			1,539	336	1,539	336	0.218	1.25	$420
2013	44,080	11			45,805	11,613	45,805	11,613	0.254	1.25	$14,516
2014	49,080	30	49,148	15,386	91,785	28,734	140,933	44,120	0.313	1.50	$66,180
2015	44,080	18	12,373	2,755	149,371	33,260	161,744	36,015	0.223	1.50	$54,022
2016	44,080	9	8,689	2,031	8,691	2,031	17,378	4,061	0.234	1.50	$6,091
2017	44,080	0									
2018	44,080	5	0	0	16,480	4,091	16,480	4,091	0.248[e]	1.50	$6,137
2013–2017 Average		14	23,403	6,724	73,913	18,910	91,465	23,952	0.256	1.44	$35,202
2003–2017 Average		12	23,403	6,724	55,395	14,817	63,365	17,110	0.257	1.30	$23,365

Note: Blanks indicates no commercial fishing activity occurred. Commercial lamprey fishery began in 2003.

[a] Average weight of lamprey harvested in Grayling used to calculate number of lamprey harvested in the commercial fishery.

[b] No harvest sampling was conducted; the average lamprey weight in Grayling from 2006 was used to calculate the number of lamprey harvested.

[c] Average price per pound calculated by dividing total harvest value by total pounds of lamprey delivered. Commercial fishing operators in Marshal were paid $1.00 per pound and in Grayling were paid $1.25 per pound.

[d] No harvest sampling was conducted; the average weight of lamprey collected in Grayling from 2009 and 2010 was used to calculate the number of lamprey harvested.

[e] No harvest sampling was conducted; the average weight of lamprey collected in Grayling from 2012 to 2016 was used to calculate the number of lamprey harvested.

Appendix F3.–Freshwater finfish sales during the commercial salmon fishing season by district, Yukon Area, 1998–2018.

	Lower Yukon	Lower Yukon Area		Upper Yukon	District 4		District 5				District 6	
	Area permits	sheefish		Area permits	Whitefish		Whitefish		Sheefish		Whitefish	
Year	sold whitefish	Number	Pounds	sold whitefish	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1998	9	16	254	2	0	0	116	88	0	0	0	0
1999	–	–	–	0	0	0	0	0	0	0	0	0
2000	16	27	478	0	–	–	–	–	–	–	–	–
2001	–	–	–	0	–	–	–	–	–	–	–	–
2002	1	1	17	2	0	0	0	0	0	0	60	120
2003	0	0	0	7	40[a]	113	0	0	0	0	129	297
2004	0	0	0	6	–	–	4	15	0	0	53	112
2005	0	0	0	3	–	–	0	0	0	0	66[a]	175
2006	0	0	0	3	–	–	0	0	0	0	99	397
2007	15	29	457	2	0	0	0	0	0	0	55	152
2008	0	0	0	3	0	0	271	264	38	338	95[b]	292
2009	0	0	0	0	0	0	–	–	–	–	0	0
2010	0	0	0	2	0	0	–	–	–	–	18	72
2011	0	0	0	2	–	–	0	0	0	0	37	148
2012	0	0	0	1	0	0	0	0	0	0	10	25
2013	0	0	0	1	0	0	0	0	0	0	22	56
2014	0	0	0	2	0	0	5[c]	20	38	456	0	0
2015	0	0	0	2	–	–	11	30	45	515	300	811
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	2	0	0	0	0	0	0	128	635
2018	0	0	0	2	0	0	0	0	0	0	516	3,014
2013–2017 Average	0	0	0	1	0	0	3	10	17	194	90	300
2008–2017 Average	0	0	0	2	0	0	36	39	15	164	61	204

Note: En dash indicates no commercial fishing activity occurred. Commercial whitefish permits have not been issued in the Upper Yukon Area since 1997.

[a] A small number of sheefish or pike were also sold (less than 5 fish).

[b] Sales do not include the number of fish; therefore, number of fish was estimated using average weight (3.07 pounds) from 2007 and 2010 in District 6.

[c] Three humpback whitefish, 1 broad whitefish, and 1 unidentified whitefish.

APPENDIX G:
CAPE ROMANZOF HERRING DISTRICT HERRING FISHERY

Appendix G1.–Waters open to commercial herring fishing in the Cape Romanzof District.