Fishery Management Report No. 18-14

Annual Management Report Yukon Area, 2016

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Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

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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The Fishery Management Reports series was established in 1989 by the Division of Sport Fish for the publication of an overview of management activities and goals in a specific geographic area, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/. This publication has undergone regional peer review.

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ABSTRACT

The 2016 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 2016 with reference to historical data, presents an outlook for the 2017 fishing season, and provides data on the use of salmon species by commercial, subsistence (Aboriginal), personal use (domestic), and sport (recreational) fisheries. Alaska and Canada fisheries are summarized because the Yukon River is a transboundary river. The report further compiles summaries of selected Yukon River projects. Fisheries data in this report supersedes information in previous annual management reports. Some of the data presented are preliminary and may be presented with minor differences in future reports. This report is organized into the following sections: 1) Salmon Fishery: this section presents a description of the area, fishery resources, and fisheries management practices, along with a comprehensive report of the 2016 salmon fisheries, by summer and fall season, and compares the 2016 runs with previous years, 2) Other Marine and Freshwater Finfish Fisheries: this section 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.

Key words: Chinook salmon, *Oncorhynchus tshawytscha*, chum salmon, *Oncorhynchus keta*, coho salmon, *Oncorhynchus kisutch*, Pacific herring, *Clupea pallasii*, whitefish, *Coregonus*, Arctic lamprey, *Lethenteron camtschaticum*, escapement, commercial harvest, subsistence harvest, season outlook, Yukon River Salmon Agreement, 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 subsistence, personal use, and commercial fisheries in the Yukon Area of Alaska. This annual management report details the activities of ADF&G in the Yukon Area during 2016.

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. With the possible exception of 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 (approximately 97,580 residents), there are approximately 22,230 rural residents in the Alaska portion of the drainage (Hunsinger 2012), 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 Lower Yukon Area (Districts 1, 2, and 3) includes the Yukon River drainage from the mouth upriver to a point near Old Paradise Village at river mile 301 (Figures 3, 4, and 5). The Upper Yukon Area (Districts 4, 5, and 6) 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 6, 7, and 8). Subdistrict 5-D is divided into 3 areas (lower, middle, upper) for management purposes (Figure 9). The Coastal District was established in 1994, redefined in 1996, and is open only to subsistence fishing. Within the Set Gillnet Only Area (Figure 10), located along the coastal area of District 1, only set gillnets are allowed during fall season commercial fishing periods. Additional fishing areas include the Fairbanks Nonsubsistence Area (Figure 11) and the Anvik River (Figure 12). The districts and subdistricts are further divided into 31 statistical areas for management and reporting purposes (Appendix A2).

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 2017).

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*.

Chinook salmon are the largest salmon found in the Yukon River, ranging from 2 to 90 pounds. 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 (entering Yukon River from early June to mid-July), rapid maturation in freshwater, and smaller body size (average weight is approximately 6 to 7 pounds). Summer chum salmon spawn primarily in run-off streams in the lower 700 miles of the drainage and in the Tanana River drainage. Fall chum salmon are distinguished by later run timing (entering Yukon River from mid-July to early September), robust body shape, and larger body size (average weight is approximately 7 to 8 pounds). Fall chum salmon primarily spawn in the upper portion of the drainage in streams that are spring fed. 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 late July 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 in the Tanana River drainage. Major spawning populations of coho salmon have been documented in tributaries of the Tanana River and in the Andreafsky River.

Pink salmon enter the lower river from late June to late July. Pink salmon weigh on average about 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. In the last 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, Tanana River upstream of confluence with Kantishna River, Anvik and Gisasa (Carlson and McGuire 2016) river drainages. Sockeye salmon are annually counted at the Andreafsky River weir (Mears and Morella 2017).

FISHERIES OVERVIEW

Of the 5 species of Pacific salmon found in the Yukon Area, Chinook, chum, coho, and pink 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 are the most targeted subsistence species by number of fishermen. Subsistence fishermen target Chinook salmon throughout the Yukon River drainage and coastal waters. Since 1998, Chinook salmon productivity has declined, producing weaker runs. Restrictions to subsistence fishing opportunity, because of poor run sizes of Chinook salmon since 2007 have severely limited the harvests in recent years. Reduced fishing periods were implemented for the Chinook salmon subsistence fishery throughout the drainage in 2008, marking the beginning of a trend of more active management for this fishery to conserve Chinook salmon to achieve escapement goals. Subsistence fishing time on the mainstem has been reduced and gear restrictions have been implemented since 2012. Closures and gear restrictions were the most extensive in 2013 through 2015, resulting in the lowest subsistence harvests in 2013 (14,677), 2014 (3,389) and 2015 (8,781); Appendix A13).

Summer chum salmon provide the largest subsistence harvest of salmon in terms of numbers in the Yukon Area (including the Coastal District), averaging about 93,600 fish since 1996 (Appendix A13). Subsistence fishermen 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, fishermen target them less due to their poor quality. Similar to Chinook salmon, production of summer chum salmon began a sharp decline beginning in 1998. Although their recovery has occurred much faster, harvest levels have been affected by subsistence fishing restrictions due to their overlap in run timing with Chinook salmon. During this time, beach seines, dip nets and fish-friendly fish wheels were required to minimize the capture of, and live release of, Chinook salmon.

Fall chum salmon provide the second largest subsistence harvest in terms of numbers. Alaska and Canadian (including the Coastal District) harvests have averaged about 81,900 fish since 1996. Subsistence fishermen target fall chum salmon throughout the Yukon River drainage and the majority of the harvest occurs 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, but recovery occurred much faster. Subsistence fishing harvest levels increased due to low runs of Chinook salmon. Harvests of fall chum salmon have averaged about 91,500 fish since 2006 (Appendix A14).

Coho salmon harvests generally occur incidentally while targeting fall chum salmon. The subsistence harvest has averaged about 19,500 fish since 1996 (Appendix A15). 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 an abundance cycle alternating between high and low every 2 years, with high abundance typically observed during even numbered years. The odd-year subsistence harvests from 1997 to 2015 have averaged about 1,700 pink salmon. The even-year subsistence harvests for the entire drainage from 1996 to 2014 have averaged about 6,500 pink salmon (Appendix A16).

Commercial Chinook salmon harvests in the Alaska portion of the Yukon River drainage between 1996 and 2007 have averaged about 50,700 fish (Appendix A3). However, because of poor Chinook salmon runs, no Chinook salmon directed commercial fishing has occurred in the Yukon Area since 2007. Beginning in 2012, the sale of incidentally caught Chinook salmon in the summer chum salmon directed commercial fishery was not allowed.

Commercial harvests of summer chum salmon from 1996 through 2015 have averaged 204,300 fish (Appendix A4). Restrictions to the Chinook salmon directed commercial fisheries have had recent impacts on the commercial harvest of summer chum salmon because a substantial portion of their runs overlap. Beginning in 1994, low commercial harvests, related to low summer chum salmon runs and decreasing market interest, continued throughout the area until 2003. Beginning in 2004, the summer chum salmon run strength began to increase following poor run sizes from 1998 to 2002. However, most of the available surplus went unharvested between 2002 and 2006 due to a lack of market interest. Beginning in 2007, following increased roe market interest and strengthening run sizes, commercial exploitation of summer chum salmon roe was renewed in Subdistrict 4-A at a much smaller scale than before 1998. Despite harvestable surpluses available in 2007 through 2010, the redevelopment of this fishery was hindered by management strategies taken to reduce incidental harvest of co-migrating Chinook salmon. In 2013, gear types such as dip nets and beach seines, which select for the capture of summer chum salmon while minimizing the capture and allowing the live release of Chinook salmon, were adopted as legal gear. Commercial harvests of summer chum salmon from 2011 through 2015 have averaged about 394,000 fish (Appendix A4).

Commercial harvests of fall chum salmon from 1996 through 2015 have averaged about 116,500 fish (Appendix A5). Like summer chum, fall chum experienced decreased market interest and low 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 2011, both the market and run productivity has been steady, and commercial harvests have averaged 214,800 (Appendix A5).

Although Chinook, summer chum, and fall chum salmon have been targeted in the commercial fisheries, coho salmon have typically been harvested incidentally during fall chum-directed fisheries. Commercial harvest of coho salmon since 1996 has averaged 40,300 fish (Appendix A6). Since 2009, ADF&G has had the flexibility to conduct late season coho salmon-directed

commercial fishing if certain stipulations are met (such fisheries occurred in 2009–2011 and 2014–2016). Record coho salmon harvests above 120,000 fish were taken in 2015 and 2016. Since 2011, commercial harvest of coho salmon has averaged 90,300 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 state regulation (*Policy for the Management of Sustainable Salmon Fisheries* (SSFP; 5 AAC 39.222.)). Over the last 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. In order 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 over-exploited in relation to actual abundance. Based on current knowledge, it is not possible to manage for 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 (GHR) established by BOF, and emergency order (EO) authority, which is used to implement time and area openings, closures, and mesh size 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 1). 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 conduct late season coho salmon directed commercial fishing if certain stipulations are met. Likewise, the majority of 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 at Pilot Station has provided inseason estimates of salmon passage for fisheries management. The level of subsistence, commercial, sport, and personal use harvests

can be adjusted through the use of EOs to control time and area of openings and closures. News releases announcing EOs are broadcast on local radio stations, posted on the state web site (http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main), VHF radio where available, transmitted by fax, and emailed to select communities, processors, buyers, and fishermen. Additionally, most processors and buyers are notified of EOs by telephone.

In 2016, 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 management of salmon runs (Appendices A17 and A18). The types of monitoring projects operating in the Alaska portion of the drainage include:

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 fishermen 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, fishermen must obtain subsistence or personal use household permits on which their daily harvest is recorded. Similarly, sport fishing harvest and effort was estimated by 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 fishermen along the Yukon River to interact with state and federal managers and for the dissemination of fisheries information.
2. *Test fishery*: A test fishery 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. Additionally, the test fishery utilized drift gillnets from June through July 15 to provide an index of Chinook and summer chum salmon run abundance and 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.
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 passage of Chinook and fall chum salmon into Canada. These projects include associated test gillnet fisheries for the purpose of 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 and Porcupine rivers to estimate fall chum salmon spawning escapements. Sonar operations also occurred on the Chena and Salcha rivers and these projects also operate towers to apportion the fish counted on the sonar, however, in 2016 high water events for most of the season precluded collection of tower counts, so estimates are based on sonar.
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 harvested to determine age composition of the runs. Chum salmon escapement sampling uses vertebra from carcasses instead of scales for aging because of resorption problems. Sex was determined by examining internal reproductive organs (in the test fisheries) or external characteristics. Length was measured from mid eye to fork of tail.

6. *Genetic Stock Identification:* Genetic samples were collected from Chinook and chum salmon caught in select test fisheries throughout the drainage. Analyses 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. In addition, genetic samples were collected during fall season from chum salmon in the subsistence fishery in a portion of District 5 located between Tanana and Rapids.
7. *Aerial and Ground Surveys of Salmon Spawning Streams*: Due to the high water events in the Yukon River drainage during the summer season aerial surveys were flown to monitor spawning escapements primarily in Tanana River for fall chum and coho salmon. Fall chum salmon foot surveys were conducted at selected areas in the Tanana River drainage in October and November.
8. *Tower Project*: Despite many high water events this season, Chinook salmon were successfully counted on the Goodpaster River tower.
9. *Weir Projects*: Weirs were operated on the East Fork Andreafsky River, Gisasa River, and Henshaw Creek from June to August to estimate Chinook and summer chum salmon escapement. Fishing Branch River weir was operated by DFO to enumerate fall chum salmon and assess meeting treaty obligations, sonar operations were also tested at this site for use during high water events.
10. *Juvenile Studies*: Yukon Delta Smolt Project (NOAA-AFSC & 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 spatio-temporal variation in prey species of juvenile Chinook salmon; determine the quality of dominate 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 spatio-temporal differences in juvenile Chinook salmon condition, size, and energy content.
11. *Mark–Recapture*: A USFWS and TCC conducted a mark–recapture project on summer chum salmon within the Koyukuk River drainage in 2014–2016. Tagging occurred mid-June to late July in 2016 and included both spaghetti tags and a subset of radio tags deployed. Radio tags were tracked and fates were determined however abundance estimates are currently not available.

Because the mainstem Yukon River sonar operated near Pilot Station is the primary project used to determine abundance of fish passage as applied to the fishery management plans inseason, the following is an update of recent developments with the dataset.

Following the 2015 field season, ADF&G staff reviewed the species apportionment component of the passage estimation at the mainstem Yukon River sonar project. In recent years, it has been

observed that some fish, least cisco and Bering cisco (*Coregonus sardinella* and *Coregonus laurettae*) in particular, have received very high weighting, that in many cases appear to inflate the cisco estimates at the expense of salmon estimates. The original selectivity parameters for cisco produce narrow curves resulting in low probability of capture (and hence high weighting) for fish that deviate even slightly from the mode. When reviewing this issue, 1 solution was to set a minimum value for the probability of capture to limit the weighting of any single fish. A value of 0.1 was chosen as a reasonable minimum selectivity. This meant that the maximum weight a single fish with low probability of capture could have would be 10 to 1. The previous model allowed for selectivity to be as low as 0.01 which would allow a fish with low probability of capture to have an effective weighting of 100 to 1. Additionally, selectivity parameters for all species were also updated using all project catch data from 1990 to 2015. This increased the sample sizes for parameter estimation for all species and made it possible to develop parameters specific to sheefish (*Stenodus leucichthys*). The updated selectivity parameters also resulted in wider curves for cisco. Incorporating these 2 changes alleviated many of the weighting issues observed with cisco and in turn increased the estimates for many of the other species necessitating the need to recalculate the historical estimates using identical methodology.

Estimates computed using the new methodology and updated selectivity parameters were generally higher for Chinook, summer chum, fall chum, coho, and pink salmon with reductions in the other species. The effect on individual species within the other grouping (cisco, sheefish, etc.) cannot be easily determined because they were previously grouped and sheefish did not have separate parameters prior to generating these new parameters. Updated daily passage estimates by species can be obtained from the ADF&G, Division of Commercial Fisheries, Arctic-Yukon-Kuskokwim Database Management System (AYKDBMS)[1].

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 for escapement needs and subsistence uses while aiming to reestablish the historic range of harvest levels by other users. Additionally, in response to guidelines established in the SSFP (5 AAC 39.222(f)(42)), BOF classified Yukon River Chinook salmon as a 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 yield concern was originally based on low harvest levels for the previous 3 year period (1998–2000) and anticipated low harvest in 2001. The classification as a yield concern was continued at the January 2004, January 2007, January 2010, and January 2013 BOF meetings (Schmidt and Newland 2012).

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). The intent of this plan is to conservatively manage harvests in order 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

[1] AYKDBMS available at: http://www.adfg.alaska.gov/CommFishR3/WebSite/AYKDBMSWebsite/Default.aspx.

2016; see details below in *Alaska Board of Fisheries Actions*. Directed summer chum salmon commercial opportunity has been provided in 2007 through 2016. Unfortunately, despite harvestable surpluses available in these years, redevelopment of this fishery has been hindered by 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 a harvest of the available Anvik River summer chum salmon above spawning escapement goals and to decrease the harvest pressure on non-Anvik River summer chum salmon stocks located in the mainstem Yukon River. Under this plan, the Anvik River may 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 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 mostly 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 is in accordance with 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 intent of the plan is to align management objectives with the established escapement goals, provide flexibility in managing subsistence harvests when stocks are low, and bolster salmon escapement as run abundance increases. The Sustainable Escapement Goal (SEG) range for the Yukon River drainage is 300,000 to 600,000 fall chum salmon. There are provisions in the plan to allow incremental levels of subsistence salmon fishing balanced with requirements to attain escapement objectives during low runs.

Coho salmon runs have been above average since 2014; escapement and subsistence needs have been met. Coho salmon are primarily harvested incidentally during the fall chum 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 impact on fall chum salmon escapement and allocation.

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 run progresses upstream. Subsistence fishing is open 7 days per week until the schedule is established. The subsistence salmon fishing schedule is based on current or past fishing and provides reasonable opportunity for subsistence during years of average to below average runs. 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 impacts on any particular component of the run,

and 3) provide subsistence fishing opportunity among all user groups during years of low salmon runs.

The schedule for subsistence salmon fishing is as follows:

(1) Coastal District, Innoko, Koyukuk, and Kantishna rivers, and Subdistrict 5-D: 7 days per week;
(2) Districts 1, 2, 3: two 36-hour periods a week;
(3) District 4 and Subdistricts 5-A, 5-B and 5-C: two 48-hour periods a week;
(4) District 6: two 42-hour periods a week; and
(5) Old Minto Area: 5 days per week.

ALASKA BOARD OF FISHERIES ACTIONS

The BOF met in Fairbanks in January 2016 and made several changes to regulations pertaining to Yukon Area fisheries. The following is a summary of BOF actions at that meeting:

1. New trigger points were selected for the summer chum management plan. Subsistence fishing may occur at projected run sizes above 500,000 fish; up to 50,000 fish may be harvested commercially when the projected run size is between 650,000 and 750,000 fish; and a drainagewide commercial fishery may be opened above a projected run size of 750,000 fish. Sport fishing and personal use may be allowed for run sizes above 650,000. If indicators show that individual escapement goals will be met in a district, subdistrict, or portion of a subdistrict, then subsistence and commercial fisheries may be opened by emergency order. A drainagewide escapement goal was also established of 500,000–1,200,000 summer chum.

2. Fall chum salmon directed commercial fishing may now occur when the run is projected to be greater than 550,000 fish. The previously used trigger point value was 500,000 fish.

3. The practice of holding a salmon in the live box of a fish wheel prior to live release was eliminated. The new regulation requires that fishermen closely attend their fish wheels while in operation and release specified salmon alive to the water in times of conservation.

4. Specifications for beach seines used for subsistence were modified. Beach seine gear may not exceed 150 fathoms in length, 100 meshes in depth, and 4.0 inch stretched measure. Webbing may not be constructed of single strand or multiple strand monofilaments.

5. Chinook salmon caught in subsistence beach seines must be released to the water alive during times of Chinook salmon conservation.

6. The area of allowable drift gillnet fishing for chum salmon was expanded to encompass Subdistrict 4-A. Under new regulations, summer chum salmon may be harvested by drift gillnet in all of Subdistrict 4-A from June 10 to August 2.

7. Yukon Area commercial set gillnet regulations were modified to allow commercial fishermen to use multiple set gillnets with a combined total length of 150 fathoms.

8. Beach seines used in commercial fishing may not exceed 150 fathoms in length, 100 meshes in depth, and 4.0 inch stretched measure. Beach seines may not be constructed of single-strand or multiple-strand monofilament web.
9. ADF&G can restrict gillnets to 6.0 inch or less in District 6 commercial fishery periods established by emergency order.
10. A pink salmon directed commercial fishery may occur if a harvestable surplus of pink salmon is sufficient for subsistence use and if chum salmon escapement goals are expected to be achieved. The commercial fishery may occur in District 1 from June 15 to July 31 using gillnets of 4.75 inch or less stretched measure.
11. The area available for commercial fishing in District 1 was extended from Apoon Pass to Point Romanof (Figure 2), and up to 3 miles from any grassland bank.
12. Gillnet gear may be used for subsistence fishing in the South and Middle Forks of the Koyukuk River from August 20 to June 30 and gillnet mesh may not exceed 3.5 inches.
13. That portion of the Chatanika River from its confluence with Goldstream Creek to a point 3 miles upriver is closed to the subsistence taking of northern pike through the ice. Bag and possession limits were not changed.
14. In Racetrack Slough of the Koyukuk River, and in the sloughs of the Huslia River drainage, the offshore end of a gillnet may not be closer than 20 feet from the opposite bank, unless closed by emergency order, from ice out through June 15.
15. Personal use salmon fishermen in Subdistrict 6-C may now retain incidentally caught northern pike.

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 state-managed fishery management is causing subsistence or conservation concerns (Ward and Horn 2003). Federal subsistence fishing schedules, openings, closures, and fishing methods are established in regulations (Department of Interior 2011). In general, the regulations are the same as those issued for the subsistence taking of fish under Alaska Statutes (AS 16.05.060); however, differences in regulations do exist. In some cases, state regulations can be superseded by a Federal Special Action.

Federal Subsistence Management Actions

No Yukon River federal subsistence special action requests were submitted to the Federal Subsistence Board in 2016. The federal inseason subsistence fishery manager received a request for a cultural and educational Chinook salmon harvest permit from the Ruby Tribal Council. The Federal Subsistence Board gave the federal inseason subsistence fishery manager delegated authority to approve similar requests by the Ruby Tribal Council in 2015. After considering the request, the federal inseason subsistence fishery manager awarded the Ruby Tribal Council a permit to harvest up to 6 Chinook salmon by set gillnet with a mesh size of 6.0 inch or less between June 13 and June 15, 2016, in the federal public waters adjacent to the Nowitna National Wildlife Refuge. Six Chinook salmon, 7 Sheefish, and 3 Humpback whitefish were harvested under this permit. Four funerary salmon harvest allowances were requested and granted for families in Marshall, Grayling, Nulato, and Koyukuk. These funerary allowances limited the harvest to a maximum of 10 Chinook salmon. Additionally, Mountain Village was issued a search and rescue permit to allow the use of 6.0 inch or less mesh size gillnet gear for search and rescue purposes.

The Yukon Area federal management staff work 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 rational for enacted management actions. The State of Alaska area managers are the lead agency staff with authority throughout the entire Yukon Area whereas the federal management authority is primarily limited to overlapping waters adjacent to Federal Conservation Units. During the 2016 fishing season, federal managers issued 45 Streamlining Actions (38 summer; 7 fall) which aligned federal regulations with Alaska regulations that were established through ADF&G EO authority. Management of the Yukon Area commercial fishery by the state prompted issuance of 12 Federal Memorandums of Concurrence (11 summer; 1 fall). These memorandums documented federal consideration which resulted in concluding state actions taken in regulating the commercial fishery provided adequate assurances for escapement and federal subsistence needs. No Federal Special Actions were issued during the 2016 season which would be used to implement changes in federal rules that differ from state regulations.

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 of 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 (Panel), comprised 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 United States 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, Alaska and Canada fisheries are managed consistent with conservation objectives that were jointly developed. The Panel meets semiannually and advises the United States 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 prior to the salmon returns.

For the 2016 season, the Panel agreed to 1 year Canadian interim management escapement goal (IMEG) ranges of 42,500 to 55,000 Chinook salmon and 70,000 to 104,000 fall chum salmon based on the Eagle sonar project (JTC 2016). The 2016 IMEG for Fishing Branch River fall chum salmon was 22,000 to 49,000 fish based on weir counts. 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

Prior to 2005, cooperative U.S/Canada management of Canadian-origin Yukon River Chinook salmon was based on an agreed-upon escapement goal range of 33,000–43,000 fish. This goal was developed from, and subsequently monitored by, a mark–recapture program located just upstream of the international border on the Yukon River. Since 2005, the parties have developed a new and improved technique, the Eagle sonar project, to assess the abundance of salmon migrating into Canada. Estimates derived from the mark–recapture program were consistently lower than those produced from the sonar project. Based on the disparity between the mark–recapture and sonar project estimates of Canadian border passage, it was inappropriate to continue to apply the longstanding escapement goal based on mark–recapture to escapement estimates derived from the sonar project.

The JTC recommended using the Eagle sonar project in 2008 as the primary assessment tool for the border passage estimate and reviewed the best approach to transition from the mark–recapture-based escapement goal to a new sonar-based escapement goal. Considerable analyses were conducted to construct a new database of stock and recruitment information that was not solely based on mark–recapture estimates. These analyses included examining the relationships between aerial survey indices (3 scenarios: 3-area index; 4-area index; and a single index) and independent border passage estimates (2 scenarios: Eagle sonar project passage estimates and passage estimates derived from a radiotelemetry program). A JTC working group reviewed

extensive analyses undertaken by Gene Sandone with ADF&G and, after thorough discussion at the March 2008 JTC meeting, made proposals to the JTC as a whole.

The JTC discussed recommendations provided by the *Chinook Salmon Escapement Goal working group* for a minimum IMEG in 2008. Although working group members could justify IMEG targets ranging from 45,000 to 50,000 fish, consensus was eventually achieved. The JTC recommended that the Panel adopt an IMEG of >45,000 Canadian-origin Yukon River Chinook salmon in 2008 should be assessed using information from the Eagle sonar project. This recommendation was established for 1 year, recognizing that further analysis of a biologically based escapement goal was required and additional factors such as habitat capacity had yet to be incorporated. In 2009, the JTC recommended that the minimum IMEG (>45,000 Chinook salmon) be used for a second year.

In 2010, the JTC recommended that the IMEG be established as a range to incorporate uncertainty in numbers reported from assessment projects. The JTC reached consensus for an upper bound of 55,000 and the Panel agreed to adopt a lower bound of 42,500. The IMEG range of 42,500 to 55,000 Chinook salmon has been retained since 2010. The success of achieving this escapement goal is assessed using the Eagle sonar passage estimate minus catches from fisheries occurring upstream of the sonar, namely U.S. subsistence catch near the community of Eagle, Alaska 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 22 times through 2016. The DFO fall chum salmon mark–recapture program was conducted from 1982 to 2008 whereas the joint U.S./Canada sonar program operated near Eagle, Alaska was conducted for fall chum salmon from 2006 to 2016. 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 from 2006 to present.

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).

For 2016, the JTC recommends that the upper Yukon 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 prior to the returns from the exceptional 2005 spawning escapement of 437,498 fall chum salmon. A range was established to offer more flexibility with respect to uncertainties associated with management. Returns from the high 2005 escapement have greatly increased the contrast in the spawner-recruit data, but the spawner-recruit analysis cannot be completed until estimates of the proportions of Canadian-origin fall chum salmon in Alaska harvests can be obtained. The JTC escapement goal subcommittee will continue to examine other data that may be used in

recommending a revised escapement goal for future years, including genetic stock composition and age composition estimates for this stock.

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 5 times from 1985 to 2016 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).

The YRSA goal of 50,000–120,000 fish was achieved only once over the 2 fall chum salmon 4 year cycles preceding 2008 when escapements to the upper Yukon River in Canada were rebuilding. This led the JTC to question whether the lack of success was related to an unrealistically high goal. A JTC escapement goal subcommittee reviewed the goal and attempted to address some of the issues raised during the PSARC review. However, as with the mainstem goal, no harvest proportions are available to separately estimate the spawner-recruit relationship in the Canadian-origin stock.

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 (Clark et al. 2014) 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 approximate 25 and 75 percentiles of 22 years of Fishing Branch River weir counts.

The 2012 and 2016 Fishing Branch weir counts and run size estimates did not provide any indication that the 2008 IMEG required revision. The JTC recommended extending the Fishing Branch IMEG range (22,000 to 49,000 fall chum salmon) for another 3 years (2014–2016). The Panel directed the JTC, at their fall 2014 meeting, to provide them with Fishing Branch River fall chum salmon rebuilding options. The options were presented to the Panel at the spring 2015 meeting. However, the Panel could not reach a consensus on adopting a rebuilding plan. It was unknown at the time if the Fishing Branch River weir was going to be reinstated (after being nonoperational in 2013 and 2014) to measure the escapement goal. The current IMEG remained in effect through the 2016 season.

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 2016, concurrently with operations of the Porcupine River border sonar. In 2016 high water was an issue the entire season and the Fishing Branch River weir count was supplemented by the sonar estimates. With a Porcupine River border passage of

greater than 54,000 and the weir count of greater than 32,000 the fall chum salmon the Fishing Branch River IMEG (22,000–49,000 fish) was achieved.

2016 SALMON MANAGEMENT AND HARVESTS

Total Yukon Drainage Salmon Harvest

The total 2016 harvest for the Yukon River drainage was 23,775 Chinook (including Canada), 601,872 summer chum, 555,784 fall chum (including Canada), 210,212 coho salmon, and 129,549 pink salmon (Table 2). The total 2016 harvest in the Alaska portion of the Yukon River drainage, including the Coastal District, was 21,715 Chinook salmon, 613,716 summer chum, 550,796 fall chum, and 210,567 coho salmon (Appendices A13–A15).

Alaska Commercial Fishery

A total of 6 salmon processors and/or catcher-sellers registered in the Alaska portion of the Yukon Area in 2016 (Table 3). The total 2016 commercial harvest for the Yukon Area in Alaska was 0 Chinook, 525,809 summer chum, 465,396 fall chum, 201,482 coho, and 127,338 pink salmon (Table 2). The commercial harvest of summer and fall chum, coho, and pink salmon was above the 5-year and 10-year averages (Appendices A13–A16). A total of 492 permit holders participated in the 2016 commercial fishery, which was above the 5-year average of 476 permit holders (Appendix A8). Yukon River fishermen in Alaska received an estimated $5.2 million for their salmon harvest in 2016, which was above the 5-year average of $3.2 million (Appendix A10).

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. In addition, genetic samples were collected and analyzed inseason from multiple assessment projects 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 river provided timing information and inseason abundance: the Lower Yukon test fishery (LYTF), an 8.5 inch set net project primarily designed to assess Chinook salmon run timing operated in the Middle and South mouths of the Yukon River; a summer chum salmon-directed drift gillnet test fishery using 5.5 inch mesh operated in the Middle and South mouths of the Yukon River; and a mainstem sonar project near Pilot Station, which provided abundance estimates for Chinook and summer chum salmon. 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 break up at the mouth of the Yukon River occurred from May 3, which was about 18 days earlier than the average break up date of May 22 (Appendix A19). The first summer chum salmon of the year was caught in the subsistence fishery on May 16 and in the 5.5 inch drift gillnet test fishery on May 19, which was about 2 weeks earlier than the average date of June 2. The first subsistence-caught Chinook salmon was harvested on May 23, which was 1 week

earlier than the average date of May 30 (Appendix A19). ADF&G relied on subsistence harvest reports to guide initial management actions during the early portion of the salmon runs.

LYTF was operational at the South Mouth site on May 24 and at the Middle Mouth site on June 3. LYTF data can be found in the ADF&G AYKDBMS. The first Chinook salmon caught in the test fishery was on May 24. Unlike previous years, the Big Eddy set net fished for the entire summer season. However, only 1 set net site operated at Middle Mouth in an effort to reduce Chinook salmon mortality. LYTF concluded operations on July 15 with a cumulative CPUE of 38.19, which was above the historical average CPUE of 28.61 for years with early run timing. The first quarter point, midpoint, and third quarter point were June 11, June 19, and June 25, respectively. 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. In accordance with the goal of reducing Chinook salmon mortality, 790 Chinook salmon were released from the LYTF.

The cumulative passage estimate at the sonar project located near Pilot Station was approximately 176,900 Chinook salmon (Appendix E3), which was near the recent historical average[2] of 177,400. Chinook salmon entered the river in 4 pulses consisting of 22,600 fish, 33,000 fish, 47,000 fish, and 23,500 fish respectively. Inseason run assessment analysis was focused on making comparisons to years with similar early run timing in order to make informed management decisions. The first quarter point, midpoint, and third quarter point for the sonar project near Pilot Station were on June 15, June 21, and June 27 respectively, which were similar to passage dates from previous early runs. The 2016 Chinook salmon run appears to have been 2 days earlier than average based on the midpoint at the Pilot Station sonar project.

An estimated 1.9 million summer chum salmon passed the sonar project near Pilot Station (Appendix E3), which was above the historical median of 1.7 million fish for the project. The first quarter point, midpoint, and third quarter point were June 17, June 24, and July 5, respectively, which was consistent with early run timing. Five large pulses of summer chum salmon were detected at the sonar project and the largest group consisted of approximately 405,600 fish passing from July 2 to July 7.

Summer Season Subsistence Fishery

As in recent years, management of the 2016 summer salmon season was complicated by the disparity in run strength between the overlapping Chinook and summer chum salmon runs. In accordance with discussions from the preseason planning meeting, managers expected to provide limited subsistence harvest opportunity for Chinook salmon while providing liberal subsistence and commercial opportunity for summer chum salmon.

In previous years, gillnets were restricted to 6.0 inch or smaller mesh immediately following ice-out. However, in 2016 managers waited for increased Chinook salmon catches at the LYTF assessment project before closing the subsistence gillnet fishery. From ice-out up until the salmon-fishing closure, fishermen could use 7.5 inch or smaller mesh gillnets to target sheefish and other species. Once salmon fishing closed, and just as salmon were entering the river, the use of 4.0 inch or smaller mesh gillnets not exceeding 60 feet in length was allowed for the harvest of nonsalmon species, such as sheefish, whitefish species, and Northern pike. This opportunity to

[2] Average includes the years 1995, 1997, 2000, 2002–2008, and 2010–2015. The sonar did not operate in 1996 and project difficulties occurred in 2001, and 2009.

harvest nonsalmon species was allowed at all times during subsistence salmon fishing closures throughout the season and ADF&G encouraged subsistence fishermen to avoid fishing in areas where Chinook salmon were known to migrate.

Consistent with the preseason management plan, conservative actions were broadly implemented early in the Chinook salmon run. The Coastal District was divided into 2 areas and beginning May 29 the Southern Coastal District was restricted to 6.0 inch or smaller mesh gill nets until July 1, and the Northern Coastal District was completely closed for salmon fishing from May 29 until July 1 and then restricted to 6.0 inch or smaller mesh until the start of the fall season on July 16 in order to protect Chinook coming into the mouth of the river.

Beginning May 30, June 1, and June 4, in Districts 1, 2, and 3, respectively, subsistence salmon fishing was open 24 hours a day, 7 days per week, with dip nets and beach seines only. Both dip nets and beach seines require the live release of Chinook salmon. The transition from a gillnet subsistence fishery to a selective gear subsistence fishery occurred in the upriver districts consistent with the migratory timing of Chinook salmon. Unlike previous years, the use of dip nets and beach seines was allowed in District 5. The use of gillnets to target salmon was delayed until managers were confident that Chinook salmon escapement goals would be met. Although the use of selective gear was allowed early in the season prior to the arrival of summer chum salmon, the intent was to give fishermen ample time to prepare without issuing short-notice news releases once summer chum salmon were present.

When assessment information indicated that the Chinook salmon run size might be in the middle of preseason projection range, subsistence fishing opportunity with 6.0 inch or smaller mesh gillnets on a reduced regulatory schedule was provided in Districts 1 through 3 to more efficiently harvest summer chum salmon, while providing limited harvest of Chinook salmon. The first of these gillnet openings occurred on June 20 in District 1, June 19 in District 2, and June 22 in District 3. A week following the 6.0 inch gillnet openings, assessment information showed that the Chinook salmon run was coming in at the upper end of the preseason projection. Therefore, a short 7.5 inch gillnet subsistence period was provided in Districts 2 and 3 to harvest Chinook salmon. District 1 was not provided with a 7.5 inch gillnet subsistence opportunity because liberal commercial fishing time in the district resulted in the incidental harvest of Chinook salmon that could be retained for subsistence use and many fishermen reported meeting their needs for Chinook salmon.

When over 80% of the Chinook salmon run had passed the LYTF project, subsistence salmon fishing in Districts 1 and 2 was open 24 hours a day, 7 days per week with 6.0 inch or smaller mesh gillnets except for 6 hours before, during, and after a commercial fishing period. Starting June 26, District 3 was put on a reduced regulatory subsistence salmon fishing schedule of two 18-hour periods per week with 6.0 inch or smaller mesh gillnets. Once subsistence salmon fishing opened on a gillnet schedule, the use of selective gear types was discontinued. Starting July 10, after most of the Chinook salmon run had passed, subsistence salmon fishing in District 3 was relaxed to 24 hours a day, 7 days per week with 6.0 inch or smaller mesh gillnets to target summer chum salmon.

Similar to management actions taken in the lower river, subsistence salmon fishing with gillnets and fish wheels closed on June 6 in the lower portion of Subdistrict 4-A, June 10 in the upper portion of Subdistrict 4-A, and June 12 in Subdistricts 4-B and 4-C. Subsistence fishing with dip nets, beach seines, and live-release fish wheels opened 24 hours after the gillnet closure. These

selective gear types required the live-release of Chinook salmon. Selective gear types were discontinued and subsistence salmon fishing with 6.0 inch or smaller mesh gillnets was allowed on a reduced regulatory schedule in the lower portion of Subdistrict 4-A on June 22, in the upper portion of Subdistrict 4-A on June 27, and in Subdistricts 4-B and 4-C on July 3. The transition from a selective gear fishery to a gillnet fishery was due to increased confidence that Chinook salmon escapement goals would be met. Fishermen in Subdistrict 4-A were able to use set or drift gillnets for fishing. Fishermen in Subdistricts 4-B and 4-C could use drift gillnets in areas adjacent to federal lands. Shortly after being placed on a reduced regulatory schedule, a 6-hour 7.5 inch or smaller mesh gillnet subsistence period was provided in each subdistrict. Once the majority of the Chinook salmon run had migrated through District 4, the subsistence fishing schedule was relaxed to 5 days a week starting July 13 in the lower portion of Subdistrict 4-A, July 14 in the upper portion of Subdistrict 4-A, and on July 17 in Subdistricts 4-B and 4-C. Federal drift gillnetting was no longer allowed with the start of the 5 day per week schedule because the gear type was no longer an option after July 14 by regulation.

Subsistence salmon fishing closures were similarly implemented in District 5 and, unlike previous years, harvest opportunity with selective gear types was provided. Although few summer chum salmon migrate into District 5, managers received feedback from fishermen that the use of selective gear types was preferred over a subsistence salmon closure. Subsistence salmon fishing with gillnets and fish wheels was closed on June 16 and reopened on June 17 for live-release fish wheels, dip nets and beach seines in Subdistricts 5-A, 5-B, and 5-C. Starting July 5, subsistence salmon fishing allowed with 6.0 inch or smaller mesh gillnets and fish wheels (from which Chinook salmon could be kept) on a reduced regulatory subsistence schedule consisting of two 24-hour periods per week. Similar to management actions taken in other districts, a 6 hour subsistence fishing period with 7.5 inch or smaller mesh gillnets was provided between the scheduled subsistence periods. Due to high daily passage of Chinook at the Eagle sonar project, subsistence salmon fishing in Subdistricts 5-A, 5-B, and 5-C opened on their regulatory schedule of two 48-hour periods per week on July 19, but were then liberalized to 5 days per week on July 21 once the lower end of the border escapement goal was achieved. Gear restrictions were relaxed on July 26 and fishermen could use 7.5 inch or smaller mesh gillnets and fish wheels to harvest salmon.

As in previous years, Subdistrict 5-D was further divided into 3 areas (lower, middle, and upper) to allow for more management precision and flexibility when implementing management actions. As discussed at the preseason planning meeting, Subdistrict 5-D was open to fish on the first group or “trickle” of Chinook salmon prior to the arrival of the first pulse with 6.0 inch or smaller mesh gillnets and fish wheels. This subsistence opportunity on the early trickle was only provided to Subdistrict 5-D because they receive the most restrictive management actions as a result of fishing mainly on Canadian-origin Chinook salmon passing through their district. Prior to arrival of the first pulse of Chinook salmon, subsistence salmon fishing with gillnets and fish wheels closed on June 28, July 1, and July 3 in Subdistrict 5-D lower, middle, and upper, respectively, and closures were in effect until July 10, July 13, and July 15 respectively. Unlike the other districts, subsistence fishing opportunity with selective gear types was not provided because summer chum salmon do not migrate into Subdistrict 5-D. A 12 hour subsistence fishing period with 6.0 inch or smaller mesh gillnets was provided in Subdistrict 5-D lower and middle on July 11 and July 13, respectively. Fishermen provided managers with feedback that 12 hour periods were not sufficient for set gillnetting or operating a fish wheel. Therefore, this 12 hour subsistence period was followed by a 24 hour subsistence fishing period on July 17 in Subdistrict

5-D lower and middle. Subdistrict 5-D upper had a 36 hour fishing period starting July 15 with 6.0 inch or smaller mesh gillnets. Once it became clear that the upper end of the border escapement goal and Canadian harvest sharing goals would be met, subsistence salmon fishing opened for a 4.5 day period starting July 19 which was then relaxed to 24 hours a day, 7 days per week on July 24. Gear restrictions were relaxed on July 26 and fishermen could use 7.5 inch or smaller mesh gillnets and fish wheels to harvest salmon.

Conservative management actions were also taken in Yukon River tributaries in an effort to provide protection for Alaska Chinook salmon stocks. In the Tanana River (Subdistricts 6-A and 6-B), subsistence salmon fishing remained on its regulatory schedule of two 42-hour periods per week for the entirety of the Chinook salmon season. However, gear was restricted to 6.0 inch or smaller mesh gillnets and manned fish wheels on July 1. On July 11, fishermen could use 7.5 inch or smaller mesh gillnets and were no longer required to attend fish wheels. Beginning June 20 in Subdistrict 6-C, personal use salmon fishing was restricted to 6.0 inch or smaller mesh gillnets, live-release fish wheels, and dip nets for nearly the entire duration of the Chinook salmon run. Beginning July 15, personal use fishermen could use 7.5 inch or smaller mesh gillnets and were no longer required to attend fish wheels or release Chinook salmon alive from fish wheels and dip nets. Fishermen in the Koyukuk and Innoko rivers were restricted to 6.0 inch or smaller mesh gillnets from June 20 to June 28 and June 20 to June 25, respectively. Following these gillnet restrictions, subsistence salmon fishing reopened 24 hours a day, 7 days per week, with 7.5 inch or smaller mesh gillnets for the remainder of the Chinook salmon run.

The 2016 Chinook salmon run was conservatively managed throughout the season. The final cumulative passage at the sonar projects near Pilot Station and Eagle indicated that the run came in at the upper end of the preseason projection range. Preliminary subsistence harvest estimates show that the opportunities provided in 2016 allowed subsistence fishermen to meet their summer chum salmon needs (as determined by ANS) and increase their Chinook salmon harvest relative to 2015. Over the last several years, Yukon River fishermen have exhibited incredible flexibility in complying with schedule changes and gear restrictions. ADF&G acknowledges the continued commitment made by Yukon River fishermen to conserve the valuable Chinook salmon resource for future generations.

Summer Season Commercial Fishery

For the ninth consecutive year, no commercial periods targeting Chinook salmon were allowed in the mainstem Yukon River or in the Tanana River. Sale of Chinook salmon was prohibited for the sixth consecutive year. However, liberal commercial fishing opportunity with selective gear was provided to target the available surplus of summer chum salmon in Districts 1, 2, and 6. No buyer operated in Subdistrict 4-A in 2016, therefore, no commercial openings were provided in that subdistrict. 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 impact to the below average Chinook salmon run.

Lower Yukon Districts

An early break up and the use of selective gear types allowed ADF&G to open commercial harvest of summer chum salmon using dip nets and beach seines beginning June 7 in District 1 and June 14 in District 2 (Table 4). The impact to Chinook salmon was expected to be minimal because fishermen were required to immediately release all incidentally-caught Chinook salmon back to the water alive from dip net and beach seine gear. ADF&G allowed thirteen 12-hour

periods in District 1 and nine 12-hour periods in District 2 using dip nets and beach seines only. The combined harvest in Districts 1 and 2 with selective gear types was 184,529 summer chum salmon with 8,261 Chinook salmon reported released alive. Beach seines accounted for less than 2% of the summer chum salmon harvest taken with selective gear types.

The use of gillnets was delayed until inseason assessment indicated that the Chinook salmon run was coming in at the midpoint of the preseason projection. In District 1 only, commercial opportunity with 5.5 inch or smaller mesh gillnets not exceeding 30 meshes in depth was provided for 8 periods beginning June 25 in order to reduce the incidental harvest of large Chinook salmon. Once Chinook salmon started entering the Middle Mouth of the Yukon River in higher concentrations, commercial fishing in District 1 was restricted to the South Mouth only for 4 periods. When managers were confident that the run would meet escapement goals, gillnet opportunity with 6.0 inch or smaller mesh was provided for the remainder of the summer season beginning July 5 in District 1 (Table 4). The 5.5 inch gillnet gear restriction was not applied in District 2 because most fishermen do not have that gear type. Therefore, commercial fishing with 6.0 inch or smaller mesh gillnets began June 27 in District 2.

The sale of incidentally caught Chinook salmon was prohibited during the entire commercial fishing season (both summer and fall seasons). This action helped ensure fishermen would not target Chinook salmon during gillnet commercial fishing periods; and fishermen could either release incidentally-caught Chinook salmon alive or use them for subsistence purposes. Fishermen were required to report any Chinook salmon caught but not sold on fish tickets. An estimated 5,443 Chinook salmon were reported incidentally harvested in Districts 1 and 2 during the summer season commercial gillnet fishery. A total of 67 Chinook salmon were caught but not sold in the fall season (Table 4).

The cumulative summer chum salmon commercial harvest in Districts 1 and 2 for all gear types combined was 525,172 fish (Table 4). Lower Yukon Area fishermen also harvested 109,612 pink salmon and 4 coho salmon during the summer season. The 2016 summer chum salmon harvest was over one and a half times greater than the 5-year average harvest of 326,987 fish and was the largest commercial harvest in the Lower Yukon in the last 25 years (Appendix A4).

Upper Yukon Districts

No commercial fishery operated in District 4 due to the lack of a buyer. District 6 was managed using tributary escapement projects that operated in the Tanana River drainage. A harvestable surplus of summer chum salmon was expected based on sonar abundance estimates and genetic stock composition information. Given the available surplus and favorable market interest, ADF&G scheduled the first summer chum salmon-directed commercial fishing period in District 6 on July 11 (Table 4). Although tower projects on the Chena and Salcha rivers could not operate due to high and murky water, the sonar was used to count Chinook and summer chum salmon. Preliminary sonar counts from both projects were promising and indicated Chinook salmon escapement goals might be met. Therefore, gear restrictions were not implemented during the commercial fishery; fishermen could use 7.5 inch or smaller mesh gillnets and fish wheels. Chinook salmon could not be sold but could be retained for subsistence use. ADF&G scheduled 9 commercial fishing periods. The preliminary cumulative harvest was 4,020 summer chum salmon. Commercial fishermen also retained 179 Chinook salmon for personal use (not including 1 Chinook salmon retained for personal use during the fall season; Table 4). The 2016

District 6 commercial harvest was 32% below the 5-year average of 5,955 summer chum salmon (Appendix A4).

Summer Season Harvest, Effort, and Exvessel Value

There were a total of 58 commercial periods (Table 4) in 2016 and the majority of commercial harvest occurred in the lower river districts (Tables 4, 6 and 7). The total commercial harvest for Districts 1, 2, and 6 combined was 525,809 summer chum salmon, which was 33% above the 5-year average harvest of 393,965 fish and the second largest harvest since 1996 (Appendix A4).

A total of 437 permit holders participated in the summer chum salmon fishery, which was 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 435 permit holders fished in the Lower Yukon Area in 2016, which was above the 5-year average of 408 permits fished. In the Upper Yukon Area, 2 permit holders fished, which was below the 5-year average of 9 permits fished. (Appendix A8). The decrease in permit holders that fished in the Upper Yukon Area was primarily due to the lack of a commercial market in District 4.

Lower Yukon Area fishermen in Alaska received $1.9 million for their summer chum salmon harvest in 2016, which was 40% above the 5-year average commercial harvest value of $1.38 million. Lower Yukon Area fishermen also received an additional $54,800 from the sale of pink salmon, which was the largest value for pink salmon commercial harvest recorded from 1996 to 2015 (Appendix A10). In 2016, fishermen received $0.60 per pound for summer chum salmon and $0.14 per pound for pink salmon (Appendix A9). The estimated average income for Lower Yukon Area fishermen during the summer season in 2016 was $4,502.

In 2016, Upper Yukon Area fishermen received an average of $0.26 per pound for summer chum salmon sold in the round which was below the 5-year average of $0.29 per pound (Appendix A9). The Upper Yukon Area exvessel value for summer chum salmon was estimated to be $6,030 (Appendix A10).

Summer Season Commercial Harvest Characteristics

Approximately 1,520 summer chum salmon were sampled for ASL from commercial harvests in Districts 1 and 6. The 2016 ASL data is housed in the ADF&G AYKDBMS. The summer chum salmon age composition from the District 1 dip net commercial fishery (n = 466) was 0% age-3, 60% age-4, 36% age-5, and 4% age-6 fish. Females comprised 37% of the sample. The summer chum salmon age composition from the District 1 gillnet commercial fishery (n = 540) was 1% age-3, 66% age-4, 30% age-5, and 3% age-6 fish. Females comprised 47% of the sample. Approximately 480 summer chum salmon were sampled for length in District 6 and the females were not sampled proportionally to the harvest. The mean length of all summer chum salmon sampled in Districts 1 and 6 commercial fisheries was 552 and 569 mm, respectively.

Fall Chum and Coho Salmon Assessment

ADF&G monitored a suite of assessment projects that provided salmon run timing, relative abundance, and stock composition information. Projects operated in the lower river included 2 drift gillnet test fisheries which provided timing information and relative abundance, a mainstem Yukon River sonar which provided abundance estimates, and harvest information from both subsistence and commercial fisheries. Genetic samples collected from chum salmon at the

mainstem sonar (located near Pilot Station) provided stock composition information. Additionally 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 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 collaboration between projects. Age, sex, and length information were also collected at the lower 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 begins in District 1 on July 16. Chum salmon caught in the Lower Yukon River drift gillnet test fishery (LYTF) after July 15 were considered fall chum salmon. Mountain Village drift gillnet test fishery (MVTF) began operation on July 18, and the mainstem Yukon River sonar operated near Pilot Station began counting chum salmon as 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 ceased operations on September 10 (the project was operated by the Yukon Delta Fisheries Development Association after ADF&G ceased operations on August 28) and had a fall chum salmon cumulative catch per unit effort (CPUE) of 1,893, which was below the historical median of 2,099. The MVTF ceased operations after September 12 with a preliminary cumulative CPUE for fall chum salmon of 2,943, which was above the historical median of 2,003. The mainstem Yukon River sonar near Pilot Station ceased operations after August 31. The preliminary fall chum salmon passage estimate at the mainstem sonar project near Pilot Station was estimated to be 994,800 fish, which was above the historical median of 669,500 fish.

Five pulses of fall chum salmon were detected past the mainstem Yukon River sonar. Pulse 3, was 6 days in duration and finished passing the mainstem sonar on August 20. A potential sixth pulse was detected by an increase in cumulative fall chum salmon passage at LYTF and MVTF during the first week of September. Both the MVTF and the mainstem Yukon River sonar remained above historical medians for the entire season. Inseason run projections remained well above the 550,000 fall chum salmon threshold necessary to allow fall chum salmon directed commercial fishing. Run timing for fall chum salmon was only slightly late, averaging 2 days late over all the assessment projects.

The preliminary coho salmon passage estimate at the mainstem sonar project near Pilot Station was 168,300 fish, which was above the historical median of 132,900 fish. A portion of the coho salmon run was missed because the mainstem sonar shuts down prior to completion of the run. Run timing for coho salmon was average at the majority of assessment projects.

Subsistence Fisheries

Initial management was based on a preseason projection of 800,000 to 900,000 derived from the summer chum to fall chum salmon relationship. In anticipation that the fall chum salmon run size in 2016 would meet both escapement needs and provide for a commercial surplus, all districts and subdistricts (except the mainstem Porcupine River) were placed on their regulatory subsistence fishing schedules and subsequently liberalized to 7 days per week, 24 hours per day, commensurate with the transition to fall season management. The transition date was based on the fall chum salmon migration timing upriver. Because of the Chinook salmon restrictions put in place in the Yukon Area this season, ADF&G liberalized subsistence fishing schedules to

increase the opportunity to harvest fall chum salmon for subsistence use. Finally, upon transitioning, subsistence fishermen were allowed to use up to 7.5 inch mesh gear.

The mainstem Porcupine River was closed to subsistence salmon fishing on August 31. Subsistence salmon fishing on Porcupine River tributaries, such as the Sheenjek and Black rivers, remained open. By September 19, based on favorable projections at the Fishing Branch River weir and upper Porcupine River border sonar projects in Canada, the subsistence fishing closure was relaxed to a reduced fishing schedule of one 72-hour fishing period per week. Finally, by September 30, fall chum salmon passage at the Fishing Branch River weir indicated that the lower end of the escapement objective would be met, and subsistence fishing was allowed 24 hours a day, 7 days a week.

Finally, subsistence fishing in District 6 opened to 7 days per week, 24 hours a day on October 2.

Fall Season Commercial Fisheries

Districts 1 and 2 began the fall season on a 2-period per week commercial fishing schedule. Fall chum salmon passage by the mainstem sonar by mid-August exceeded 600,000 fish and commercial opportunity was increased. By the third week in August, as fall chum passage passed the mainstem sonar exceeded 900,000 fish, both Districts 1 and 2 were fishing either every other day or every day. Commercial fishing was open in Subdistricts 5-B and 5-C from August 8 through October 5, although the harvests of fall chum and coho salmon was small. Finally, commercial fishing for salmon in District 6 opened on August 12 and remained on a schedule through October 2. Because of a poor market conditions for roe, 1 buyer operated briefly in the district, but the majority of harvest was by catcher-sellers operating in the district.

Coho salmon daily and cumulative passages at the mainstem sonar were mostly below the historical median until late August when the second and largest pulse passed the mainstem sonar near Pilot Station. The commercial harvest of coho salmon in Districts 1 and 2 combined was the highest on record. Therefore the coho salmon run in 2016 was assessed as above average. ADF&G determined that a commercial surplus in addition to what was harvested during the fall chum salmon directed fisheries remained. As a result, 5 coho salmon directed commercial openings between September 1 and September 10 were allowed in both Districts 1 and 2, and a coho directed commercial fishery occurred in District 6 and Subdistricts 5-B and 5-C from October 1 to October 5

Fall Season Harvest, Effort, and Exvessel Value

A total of 65 commercial periods were announced in 2016; the majority of the commercial fishing periods and harvest occurred in Districts 1 and 2 (Table 5). A regular schedule of commercial fishing periods were established in Districts 5 and 6. Fishing effort was low and harvests were relatively small because of limited markets.

The 2016 total commercial harvest for the Yukon River fall season in the Alaska portion of the drainage was 465,396 fall chum salmon (Tables 6 and 7; Appendix A5), 201,482 coho salmon (Tables 6 and 7; Appendix A6), and 17,726 pink salmon (Table 2). The fall chum salmon commercial harvest was above the 5-year average of 214,758 fish, the coho salmon harvest was a record harvest for the third consecutive year, eclipsing the previous high of 129,700 fish in 2015. The 5-year average coho salmon commercial harvest was 90,340 fish. All salmon were sold in the round and no salmon roe was sold separately.

The average weight of fall chum salmon caught commercially in Districts 1 and 2 was 7 pounds, which was below the average weight of 7.3 pounds in 2015 the 10-year average weight of 7.1 pounds (Appendix A11). The average price paid per pound in Districts 1 and 2 (Lower Yukon Area) was $0.68 for fall chum and $1.00 for coho salmon (Appendix A9). The fall chum salmon price was below the 5-year average of $0.82 and the coho salmon price was just below the 5-year average of $1.01. In Subdistricts 5-B and 5-C and in District 6 (Upper Yukon Area), the average price paid per pound was $0.14 for fall chum salmon and $0.13 for coho salmon (Appendix A9). Both prices were below their respective 5-year averages. The total exvessel value of the fall season harvest was the highest on record at $3,283,755: $2,115,529 for fall chum, $1,159,363 for coho salmon, and $8,863 for pink salmon (Appendix A10). A total of 467 individual permit holders participated in the 2016 fall chum and coho salmon fishery, 459 in Districts 1 and 2 combined, and 8 in Districts 5 and 6 combined (Appendix A8).

Fall Season Commercial Harvest Characteristics

Preliminary fall chum salmon age composition from the District 1 commercial harvest was 2.5% for age-3 and 0.9% for age-6, and the dominant age classes contained 80.0% age-4 and 16.6% age-5, estimated from a sample of 749 fish. Females comprised 48.4% of the commercial harvest sample of fall chum salmon, which was below the 10-year average of 50.8%. The mean length of fall chum salmon in the commercial harvest sample was 566 mm, which was below the 10-year average of 573 mm. The 2016 and historical ASL data is housed in the ADF&G AYKDBMS.

Preliminary coho salmon sex composition from the commercial harvest in District 1 (n = 297) contained 46.8% females, which was below the 10-year average of 49.1%. The mean length of coho salmon in the commercial harvest sample was 542 mm, which was well below the 10-year average of 563 mm. The 2016 and historical ASL data is housed in the ADF&G AYKDBMS.

Yukon Area Subsistence Salmon Harvest

In order to conserve Chinook salmon, fishing closures and gear restrictions were enacted throughout the drainage during the Chinook and summer chum salmon migrations. Subsistence and personal use fishing during the fall chum and coho salmon runs were largely unrestricted and open according to regulatory schedules (Appendices D10–D12). The preliminary estimate of total salmon harvest was 21,743 Chinook; 87,699 summer chum; 84,449 fall chum; 9071 coho (Table 8); and 8,708 pink salmon (Appendix D5) for subsistence and personal use fisheries in the Yukon Area. The Yukon Area includes the Alaska portion of the Yukon River drainage and the communities within the Coastal District. Harvest estimates derived primarily from household surveys also include salmon received from test fishery projects, retained from commercial fisheries for subsistence, and harvests documented by households with subsistence and personal use fishing permits. An estimated 1,618 households participated in the Yukon Area subsistence and personal use fisheries in 2016 with 41%, 38% and 5% of households using drift gillnets, set gillnets and fish wheels respectively as their primary gear types (Table 8). The remaining 16% of households used other gear types, such as beach seines and dip nets.

Subsistence salmon harvest survey and permit programs collected quantitative information about salmon harvest by species, gear types used to harvest salmon, harvest distribution, miscellaneous species harvest, number of dogs and salmon fed to 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 all of the Tanana River drainage and segments of District 5 in the upper

Yukon River. Personal use permits are required in the non-subsistence area of the Tanana River near Fairbanks (Figure 11).

Stratified random sampling techniques were used to select Yukon Area households to be interviewed during the 2016 postseason survey (Cochran 1977). Harvest estimates are determined by household, by level of harvest, e.g. no harvest, medium, heavy harvesters, and these estimates are expanded to include households not interviewed for a more complete estimate of a community's harvest. The harvest surveys include salmon retained for subsistence from commercial fishing which are reported by households as part of their subsistence harvest. Although more households were estimated to use drift gillnet gear (655) than set gillnet (604) as their primary gear type, a large number of households (261) were estimated to use primarily selective gear types such as dip nets or beach seines. A total of 81 households were estimated to use fish wheels as their primary gear type (Table 8).

A total of 456 subsistence permits were issued in 2016 for the harvest of salmon and nonsalmon species. As of March 7, 2017, 97% of the permits issued were returned and 279 permits reported fishing information (Appendices D6 and D7). 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 was primarily estimated using the subsistence survey program (Jallen et al. 2017). Permit holders report the number of dogs owned and salmon harvested to feed dogs, (Jallen et al. 2017).

Households that returned subsistence permits (including Stevens Village) reported harvesting 3,456 Chinook, 776 summer chum, 22,932 fall chum, and 3,189 coho salmon (Appendices D6 and D7). Commercially harvested salmon (from the Tanana River fishery) which are retained for subsistence use are reported as such on the fish ticket, and this harvest was added to the relevant community permit totals. In 2016, 180 Chinook, 0 summer chum, 1,181 fall chum, and 1,223 coho salmon were added to the community harvest totals of Manley, Nenana, and Fairbanks (Table 8).

The number of permits issued for the Yukon and Koyukuk rivers in 2016 was 7% above the 5-year average and 9% below the 10-year average (Appendices D6–D8). Harvest of Chinook salmon reported on permits was 16% below the 10-year average; however it was 74% above the 5-year average. Harvest of summer chum salmon was reduced in 2016; 28% and 29% below the 5-year and 10-year averages respectively, possibly because of reduced opportunity due to Chinook salmon conservation measures. Fall chum salmon harvest was 8% below the 5-year average and 5% below the 10-year average, and coho salmon harvest was 141 fish; 287% and 107% above the 5-year and 10-year averages respectively (Appendix D6).

The number of permits issued for salmon and pike in the Tanana River subsistence permit required areas in 2016 was 31% above the 5-year average and 25% above the 10-year average. Harvest of Chinook salmon in Tanana River subsistence fisheries was 22% above the 5-year average and 19% below the 10-year average. The harvest of summer chum salmon was 86% below the 5-year average, and 89% below the 10-year average. Harvests of fall chum salmon were 68% and 71% below the 5-year and 10-year averages respectively. Coho salmon harvests were 56% below both the 5-year and 10-year averages (Appendix D7). These numbers do not include harvests from personal use permits or salmon retained from commercial fisheries for personal use. The reductions in fall chum and coho salmon harvests reported on permits in 2016

may have occurred as a consequence of a shift from subsistence harvests to the commercial market through an increase of catcher sellers operating in the area.

In order to monitor and manage the Yukon Area salmon fisheries, ADF&G operates or oversees, several test fishery projects within the drainage. Fish harvested during operation of these projects are provided to the local community to supplement their subsistence harvests. In 2016, test fishery projects throughout the drainage provided a total of 1,244 Chinook, 5,223 summer chum, 2,989 fall chum, and 865 coho salmon to households for subsistence use (data on file with Yukon Management Group, Division of Commercial Fisheries, ADF&G, Anchorage). Residents of the communities of Alakanuk, Emmonak, Kotlik, Eagle, Marshall, Mountain Village, Nunam Iqua, Pilot Station, Pitka's Point, and St. Mary's were the primary recipients of these fish. Salmon caught in the test fisheries were assumed to replace fish that would have been obtained through normal fishing activities; therefore, salmon received from the test fisheries were added into the subsistence harvest for that community.

Historic Trends and Amounts Necessary for Subsistence

One method for assessing the relative success of Yukon Area fishermen is to compare the annual drainagewide estimated subsistence harvest to historic averages and to the "amounts (reasonably) necessary for subsistence" (ANS) harvest ranges established by the BOF (ADF&G 2001). 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. The pink salmon ANS was established in 2013 (Estensen et al. 2015). Except for the harvests of summer chum and pink salmon, which were within their ANS ranges, subsistence harvests of each of the other salmon species in 2016 were below the lower level of their ANS ranges. 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.

The Yukon Area subsistence harvest for 2016 Chinook salmon was 14% above the 5-year average and 52% below the 2006–2010 average (Appendix D1). The summer chum salmon subsistence harvest was 35% below the 5-year average and 6% below the 2006–2010 average (Appendix D2). The harvest of fall chum salmon was 11% below the 5-year average and 3% above the 2006–2010 average (Appendix D3). Coho salmon harvest was 47% below the 5-year average and 48% below the 2006–2010 average (Appendix D4). Overall, the 2016 Yukon Area subsistence salmon harvest of 202,466 Chinook, summer chum, fall chum and coho salmon combined (Appendices D1–D4) was approximately 14% below the 5-year average of 237,065 fish and 12% below the 2006–2010 average of 231,789 fish. This 10 year period includes years with very low harvests and fishing restrictions, such as closures during the summer season to protect Chinook salmon from 2009 through 2015. The 2016 harvest of Chinook salmon was the highest harvest since 2012, but it was also the fourth lowest harvest ever recorded during the ADF&G subsistence estimates from 1975 to present, with 4 of the 5 lowest harvests occurring between 2013 and 2016.

During the survey interviews, households had the opportunity to comment on any topic related to fishing they felt was important. The most numerous 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 (179 responses). The next largest group of comments was negative about management (124). A large number of households

(80) said that they met their needs for salmon or that they did not fish for salmon (54). Lack of equipment, e.g. boats, motors and nets, was reported as preventing fishing for 22 households. Dip nets were mentioned by 30 households, with the majority having a negative opinion (20) of dip nets due to their inefficiency, difficulty of use, etc. The remaining households reported owning dip nets, understanding that the gear is used for conservation or being glad for the fishing opportunity that gear provided (10). More households said that run dynamics were positive (43) than negative (30), however, run dynamics comments were about salmon species generally. Some households (54) thought that management actions were good, and an additional 11 households approved of conservation measures or wanted more protections for Chinook salmon to help rebuild the run. Other households (13) expressed concern over diseases and worms observed in the salmon.

The restrictions on Chinook salmon fishing in District 1 have led to an emerging trend of households fishing 'up north' or 'near Stebbins' in order to harvest Chinook salmon outside of the Yukon Area. Several households in District 1 reported that they harvested a combined total of 59 Chinook and 190 summer chum salmon from the Norton Sound management area. Similar to other reports of salmon harvested from Bristol Bay or the Copper River, these fish were not included in surveyed households harvest totals and were not used to generate Yukon Area harvest estimates.

Alaska Personal Use Fishery

A household permit is required for personal use fishing in the portion of the Tanana River drainage within the Fairbanks Nonsubsistence Area (Figure 11). Fishermen are required to document their personal use harvest on household permits and return them to ADF&G at the end of the season.

In 2016, 57 personal use salmon permits were issued for salmon. As of December 14, 2016, all personal use salmon permits were returned and 29 reported fishing. The reported personal use harvest was 57 Chinook, 176 summer chum, 283 fall chum, and 266 coho salmon (Appendix D8). The number of personal use permits issued in 2016 for salmon and whitefish was 14% above the 5-year average and 16% above the 10-year average. Harvest of Chinook salmon reported on permits was 37% above the 5-year average but 33% below the 10-year. The harvest of summer chum salmon was 35% and 31% below the 5-year and 10-year averages respectively, and fall chum salmon in 2016 was 6% and 48% below the 5-year and 10-year averages respectively. Harvest of coho salmon was 70% above the 2011–2015 and 12% above the 10-year average (Appendix D8). The majority of the nonsalmon harvests are from the directed whitefish and sucker fishery using various approved gear types in an attempt to minimize salmon harvests (Appendix D8).

Sport Fishery

In 2016, the sport fishery for Chinook salmon was closed in the Yukon River (excluding the Tanana River) for the duration of the season. In the Tanana Drainage sport fishing was permitted, however the use of bait was prohibited from July 2 to August 10. Alaska sport fishing effort and harvests are monitored annually through a statewide sport fishery 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 Drainage) sport salmon harvest was estimated at 200 Chinook, 511 chum 662 coho, and 37 pink salmon (Wuttig and Baker 2017; Scannel 2017).

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 (AWT) with the Department of Public Safety.

Patrols of the lower and middle Yukon River were conducted from mid to late June. Troopers reported compliance on behalf of the public to comply with the dip netting regulations. AWT responded to reports of commercial fishermen fishing outside of open periods and overt and covert AWT patrols in both those areas revealed high compliance and few citations were issued for closed periods. AWT also discovered an illegal subsistence gillnet near Russian Mission. The investigation identified the suspect and resulted in a successful prosecution of an illegal gear case. Boating safety patrols were conducted in conjunction with commercial and subsistence patrols and overall compliance was good regarding boater safety and commercial fishing vessel requirements. Above Holy Cross, patrols were spread thin because AWT had limited assets in the middle river communities. The commercial and subsistence enforcement efforts on the lower Yukon River resulted in roughly 250 AWT man hours, 213 contacts, 15 warnings, and 4 citations. Patrol efforts in 2016 resulted in reduced numbers of resource users contacted and warned as compared to the previous year.

AWT Troopers based in the Central Interior focused patrols based primarily on run timing in coordination with ADF&G staff and input from the public. Concerns were similar to past years and included gear restriction violations and closed period violations. Due primarily to increased staffing, AWT was able to increase patrols in this area and conducted 5 two-day boat patrols that originated from the Yukon River bridge, down to Tanana and upstream to Stevens Village area. Overall contacts were relatively low and compliance was fairly good. AWT issued 5 citations for violations including gear size, closed period, and interference with lawful fishing. Gear marking violations were documented and fishermen were warned.

In 2016 the United States Fish and Wildlife Service (USFWS), Division of Refuge Law Enforcement (DRLE) along with, Bureau of Land Management (BLM), and AWT were all involved in enforcement operations the entire length of the river for both the Chinook and summer chum salmon runs. Officers found multiple violations in 2016. Most violations were fishing with unmarked gear. Some violations were for fishing gillnet gear with a mesh size greater than allowed by regulation. Depending on the egregiousness of the violation, actions officers took ranged from warnings to citations including net seizures. Patrols indicated that a few people were still using gillnets with a mesh size greater than 7.5 inches.

CANADIAN FISHERIES

A total of 2,946 Chinook salmon, 5,750 fall chum salmon, and 0 coho salmon were harvested in the 2016 Canadian commercial, Aboriginal, recreational, and domestic fisheries combined (Table 2; Appendices A13, A14, and A15).

Canadian Commercial Fishery

A total of 1,745 fall chum salmon were harvested in the Canadian Yukon River commercial fishery in 2016 (Appendix 15). No other salmon species were harvested for commercial purposes (Table 2).

Chinook Salmon Harvest

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

The inseason Chinook salmon run status indicated that there would not be a sufficient run to support a commercial fishery. The commercial Chinook salmon fishery remained closed throughout the 2016 season and there was no harvest (JTC 2017). Since 1997, there has been a marked decrease in commercial catch of Chinook salmon in the upper Yukon River as a result of very limited fishing opportunities and/or closures to protect weak runs.

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 1,745 fall chum salmon were harvested during commercial fishery openings (JTC 2017). Since 1997, there has been a marked decrease in commercial catches of Upper Yukon River fall chum salmon as a result of a limited market as well as reduced fishing opportunities in some years due to below average run sizes. The 2016 commercial fall chum salmon harvest was 50% below the 10-year average of 3,498 fish and the 5-year average of 3,447 fish (Appendix A14). Between 2006 and 2015, the commercial fall chum salmon catch ranged from a low of 293 fish in 2009, when the run was late and the fishery was closed most of season due to conservation concerns, to a high of 5,312 fish in 2011.

Commercial harvest of coho salmon in the mainstem Yukon River in Canada is usually very small. This is thought to be related to a combination of low abundance and limited availability of this species to fisheries due to late migration timing. There were no coho salmon harvested in the commercial fishery in 2016 (JTC 2017).

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 65,000–88,000 Canadian-origin Yukon Chinook salmon, the YSSC recommended that the TAC be varied to zero early in the 2016 fishing season. Although a TAC was available later in the season, Yukon First Nation Governments continued to follow very conservative management plans resulting in severely reduced harvests for 2016. The Upper Yukon River Aboriginal Chinook salmon catch was estimated to be 2,768 fish (JTC 2017). The 5-year average was 1,910 fish (Appendix 13).

Mainstem Yukon River Fall Chum Salmon

The preseason outlook for Canadian-origin fall chum salmon in 2016 indicated an average to above average run of 137,500–195,000 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 2016 fall chum salmon harvest in the Aboriginal fishery from the upper Yukon River was estimated to be 1,000 fish based on recent harvest information (JTC 2017).

Porcupine River Chinook Fall Chum and Coho Salmon

Vuntut Gwitchin First Nation (VGFN) reported a season total harvest of 177 Chinook salmon for 2016 (JTC 2017). The 5-year average was 188 Chinook salmon (Appendix 13).

A total of 3,005 fall chum salmon was harvested in the Old Crow-based VGFN fishery (JTC 2017). The 5-year average harvest was 1,958 fall chum salmon (Appendix 15).

There were no coho salmon harvested in the Porcupine River in 2016 (JTC 2017). The 5-year average was 43 fish (Appendix A15).

Domestic Fishery

The domestic fishery was closed during the Chinook salmon season. For fall chum salmon, there were openings (concurrently to the commercial fishery openings) during the season. There was a total reported domestic catch of 0 fall chum salmon in 2016. The long-term average was 453 fish from 1974 to 2015; domestic fishery catches were not recorded prior to 1974 (JTC 2017).

Recreational Fishery

In 1999, the Salmon Sub-committee introduced a mandatory Yukon Salmon Conservation Catch Card (YSCCC) 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 or harvested in the Yukon River or its tributaries in the 2016 recreational fishery (Appendix A13). For the 2016 season, the daily catch and possession limits of fall chum salmon in the recreational fishery remained at 2 and 4, respectively. There were no reports of fall chum salmon caught (JTC 2017).

SPAWNING ESCAPEMENT

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

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; and
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 EGs developed or modified through this process are primarily presented as ranges. 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 use of EG ranges should 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. 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 concurrently with the 2016 BOF cycle. Based on previous years' reviews and goals established during the previous BOF cycle, 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). BEG is defined as an escapement range that provides the highest potential to produce maximum sustained yield. SEG is defined as a level of escapement, determined through an index or range of escapement estimates that has provided for sustained yield over a 5 to 10 year period.

Most AYK Region escapement goals were originally set in the late 1970s or early 1980s, many of which have been revised subsequently 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 signed in 1992. These early goals were generally established using a simple escapement averaging methodology based on aerial survey counts. Following adoption of the new policies (SSFP and *Policy for Statewide Salmon Escapement Goals*), several new or revised BEGs were established. These included BEGs for Chena and Salcha River Chinook salmon (Evenson 2002), Anvik River summer chum salmon (Clark and Sandone 2001), and Andreafsky River summer chum salmon (Clark 2001), and Yukon River fall chum salmon (Eggers 2001). The Chena and Salcha Chinook salmon BEGs have been reanalyzed in subsequent review cycles but not changed (Volk et al. 2009). The goal range for Anvik River summer chum salmon was subsequently revised (ADF&G 2004). The goal for East Fork Andreafsky River summer chum salmon 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). 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. A few goals have been discontinued since 2001 (Volk et al. 2009; ADF&G 2004). The remaining systems with Chinook salmon goals include the West Fork Andreafsky, Nulato, and Anvik rivers based on aerial surveys and a coho salmon goal for the Delta Clearwater River based upon a boat survey (Conitz et al. 2012). Transboundary escapement goals for passage at the Alaska-Canada border have been established by agreement, according to 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 interim management escapement goals (IMEG) because they were provisionally established until the 2 parties can agree upon formal BEG analyses.

At the January 2016 Alaska Board of Fisheries meeting escapement goal recommendations were presented. A drainagewide summer chum salmon goal of 500,000 to 1,200,000 was recommended along with the discontinuation of 2 existing fall chum goals: the Sheenjek River and the Upper Yukon Tributary aggregate goal (Conitz et al. 2015). ADF&G has had no means to monitor the escapement into the Sheenjek River since 2012. The Sheenjek River goal is a subset of the Upper Yukon Tributary goal, rendering both goals unnecessary.

Mixed Stock Analysis

Scale pattern analysis, age composition estimates, and geographic distribution have been used by ADF&G on an annual basis from 1981 through 2003 to estimate stock composition of Chinook and chum salmon in Yukon River harvests and estimating total run abundance. In 2004, the feasibility of using genetic analysis as 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 and Wenburg 2015). Identification of salmon stock composition using genetic techniques has been a useful tool for inseason fisheries management on the Yukon River.

Three region-of-origin groupings (also referred to as 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 stock group spawns in Canada. In 2016, salmon tissues were taken inseason for mixed stock analysis (MSA) from 646 Chinook salmon collected from the test fishery associated with the mainstem Yukon River sonar project at Pilot Station. Genetic MSA on the first stratum sampled (May 30–June 14) indicated that 52% of Chinook salmon sampled were Canadian-origin. Genetic MSA on the second stratum sampled (June 15–25) indicated that 34% of Chinook salmon sampled were Canadian-origin. Samples analyzed from the final stratum (June 26–July 6) indicated that 54% of Chinook salmon sampled were Canadian-origin (JTC 2017). These analyses were used to help project if the Chinook salmon border passage objectives would be achieved, which influenced inseason management actions. The samples collected at the mainstem sonar operated near Eagle, Alaska were analyzed by DFO for their management of Canadian conservation units (JTC 2017). Tissue samples were also collected from fish in the mixed stock subsistence harvest from 11 communities (n = 1,045) and genetic MSA indicated that the subsistence Chinook salmon harvest in District 1 was 52% Canadian-origin, the harvest in District 2 was 41% Canadian-origin, and the harvest in District 4A Upper was 42% Canadian-origin. Within individual communities, the proportion of Canadian-origin Chinook salmon harvest ranged between 42% and 64%. 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 is in its infancy for most of the Yukon River drainage fisheries. The summer chum salmon stock groups are similar to the western Alaska stocks (Eggers et al. 2011); however, the fall chum salmon can be separated into distinct stock groups, including a partition of Canadian-origin stocks which are of importance in regards to meeting treaty obligations. Genetic MSA from test fishery samples are used in fall season fishery management with consideration for all chum salmon stocks entering the river after July 19, and breaks out the major components as summer, Tanana, Border U.S. (Chandalar, Sheenjek, and Black rivers) and total Canadian-origin stocks and does not separate Canadian mainstem from Porcupine stocks (JTC 2017).

Chum salmon genetic tissue samples were collected (May 31–August 31; 4,213 summer and 2,664 fall season) from the test fishery at the mainstem Yukon River sonar project at Pilot Station. 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 2017). For summer chum salmon, the lower river stock group comprised 73% of the run and the middle river stock

group comprised 27% of the run. The Tanana component of the middle river stock group comprised 8% of the total summer chum salmon run, and peaked in passage past the Pilot Station sonar during the sampling period of July 19 to July 25. The run transition from summer to fall chum salmon occurred on July 19, as expected, and 52% of the mixture comprised of fall chum salmon during the first period of fall season management (July 19-25). For fall chum salmon, 67% of the run was of U.S. origin and 33% of Canadian origin. The composition of the U.S. contribution was 29% Tanana stock and 38% Border U.S. stock (Chandalar, Sheenjek, and Black rivers). The composition of the Canadian contribution was 20% mainstem Yukon, 4% Porcupine, 8% White, and 1% Teslin River stocks. Preparations are underway to continue the MSA collections from the test fishery during the 2017 season.

Two additional Yukon River Panel Research and Restoration funded projects collected chum salmon harvest samples for MSA: 1 project was focused on sampling the large commercial fishery in District 1, particularly during pulses of chum salmon that move quickly through the area; the second project was focused on the relatively large District 5 subsistence harvest between the communities of Tanana and Rampart. Tissue collections were completed for both projects and results will be available after data analyses are completed.

Aerial Survey Escapement Assessment Methods

The Yukon River drainage is too extensive for 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 to aerial surveillance is that current or potential habitat-related problems arising from natural or man-induced causes can be identified. Among the disadvantages are that results may be highly variable if non-standardized procedures are used. Recently helicopters have been used more often to increase accuracy of counts because of the aircrafts maneuverability, but they are also limited on range and are more costly.

Variability in aerial survey accuracy is dependent on a number of factors such as weather, water turbidity, timing of surveys with respect to peak spawning, aircraft type, survey altitude, experience of both pilot and observer, and the 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 are significantly lower than total spawning abundance due to the die-off of early spawners and arrival of fish after the survey. Aerial estimates in a given stream may demonstrate a wide range in the proportion of fish 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 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 highest priority. Index areas have been designated by importance as spawning areas and/or by geographic location with respect to other unsurveyable salmon spawning streams in the general area.

2016 Summer Season Escapement

Chinook Salmon Escapement

Although below average, the 2016 Chinook salmon run was above the upper end of the preseason outlook range. The escapement goal for the East Fork Andreafsky River weir and the IMEG at the U.S./Canada border were both exceeded (Appendix E5 and E6). Goals for the West Fork Andreafsky, Anvik and Nulato river aerial survey indices (Appendices E2 and E4) could not be assessed because inclement weather precluded any survey flights in 2016. Similarly, poor water conditions resulted in the Chena and Salcha river towers being inoperable for most of the season, thus escapement goals for those rivers could not be assessed.

Three resistance board weirs enumerated Chinook salmon passage in the Yukon River Area during 2016. The East Fork Andreafsky River weir was operated by USFWS and had an estimated Chinook salmon passage of 2,676 fish. This passage fell within the SEG range of 2,100–4,900 fish. This goal has been met in 4 of the last 5 years (Appendix E5). Age, sex, and length data were collected from 161 Chinook salmon caught in the weir trap. The estimated age composition at the East Fork Andreafsky River was 1.9% age-3, 26.0% age-4, 65.3% age-5, 6.8% age-6, and 0.0% age-7 fish. The sex composition of fish sampled was 49.7% female and 50.3% male (JTC 2017). The Gisasa River weir was operated by USFWS and had an estimated Chinook salmon passage of 1,395 fish (Appendix E5). This passage estimate was above the 5-year average of 1,610 Chinook salmon. Age, sex, and length data were collected from 239 Chinook salmon caught in the weir trap. The estimated age composition from scale samples was 0.4% age-3, 34.4% age-4, 44.8% age-5, 20.0% age-6, and 0.4% age-7. The sex composition of fish sampled was 27.2% female and 72.8% male (JTC 2017). The Henshaw Creek weir was operated by the Tanana Chiefs Conference and USFWS Office of Subsistence Management. The estimated Chinook salmon passage at the weir in 2016 was 1,354 fish (Appendix E5). Age, sex, and length data were collected from 381 Chinook salmon caught in the weir trap. The estimated age composition from scale samples was 0.5% age-3, 10.2% age-4, 63.8% age-5, 25.2% age-6, and 0.3% age-7 fish. The sex composition of fish sampled was 47.5% female and 52.5% male (JTC 2017).

Escapement on the Chena and Salcha rivers was monitored using tower counts and counts were supplemented using DIDSON sonar during high water events. Escapement on the Goodpaster River was monitored using a counting tower. Chinook salmon escapement at the Chena and Salcha rivers were affected by high water conditions throughout the season so final estimates used a binominal mixed-effects model to create passage estimates for the periods of missed counts. An estimated 6,665 Chinook salmon were counted in the Chena River, which exceeds the escapement goal range of 2,800–5,700 (Appendix E5). This goal has been met 3 of the last 5 years that could be assessed (Appendix E5). An estimated 2,675 Chinook salmon were counted in the Salcha River, which did not meet the escapement goal of 3,300–6,500 Chinook salmon. The BEG for the Salcha river has been met in 4 of the last 5 years that could be monitored (Appendix E5). The Goodpaster River tower counted an estimated 2,435 Chinook salmon. Age, sex, and length information for Chinook salmon were collected from the Chena and Salcha rivers using carcass surveys conducted by ADF&G. The estimated age composition of 368 Chinook salmon sampled in the Chena River was 0.0% age-3, 43.7% age-4, 46.0% age-5, 9.8% age-6, and 0.5% age-7 fish. The sex composition was 22.8% female and 77.2% male (JTC 2017). The estimated age composition of 474 Chinook salmon sampled in the Salcha River was 0.0% age-3,

42.4% age-4, 40.7% age-5, 16.7% age-6, and 0.2% age-7 fish. The sex composition of fish sampled was 38.8% female and 61.2% male (JTC 2017).

The Canadian Yukon River border passage estimate for 2016 was 71,567 Chinook salmon. This was calculated using the Eagle sonar project estimate of 72,329 minus an estimated 762 fish harvested by Alaskan subsistence fishermen upstream of the sonar project site (Appendix E6). After subtracting the Canadian Yukon River mainstem harvest of 2,769 fish, a total of 68,798 Chinook salmon were estimated to have reached Canadian spawning areas (Appendix E6). The spawning escapement surpassed the upper end of the IMEG range of 42,500–55,000, which was the fourth time that the goal has been achieved since it was adopted by the Yukon River Panel in 2010 (Appendix E1). A drift gillnet test fishery was 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 inch) are fished daily to collect samples. The estimated age composition of 666 Chinook salmon caught in the test fishery was 0.0% age-3, 9.2% age-4, 65.0% age-5, 25.2% age-6, and 0.6% age-7 fish. The sex composition of fish sampled was 32.4% female and 67.2% male (JTC 2017).

In Canada, the Big Salmon River was enumerated using a long-range dual frequency sonar located approximately 1.5 km upstream of the confluence with the Yukon River. The 2016 count of 6,691 Chinook salmon was above the 2006–2010 average passage of 5,475 Chinook salmon for the Big Salmon River (Appendices E2 and E6). The escapement of Chinook salmon to the Big Salmon River, based on sonar, represented 9.3% of the mainstem Yukon River sonar passage estimate near Eagle, Alaska. Carcass sampling yielded 136 Chinook salmon samples. Of the total, 84 (63%) fish were female and 49 (37%) fish were male. The mean mideye to tail fork (METF) of females and males sampled was 832 mm and 757 mm respectively. Of the 102 samples which were successfully aged, 1.0% (2.9% of the males and none of the females) were age-4, 45.1% (74.3% of the males and 29.9% of the females) were age-5, and 53.9% (22.9% of the males and 70.1% of the females) were age-6 (JTC 2017).

Sonars were used to estimate Chinook salmon escapement to the Pelly River system between July 1 and August 3, 2016. Selkirk First Nation worked with Environmental Dynamics Incorporated (EDI) to conduct this pilot year of assessment. 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. A total of 4,740 Chinook salmon were estimated at this location during the 2016 period of operation. Counts ranged from 3 fish on the first day, to a peak count of 391 Chinook salmon on July 20. The total on August 2, the last full day of the project, was 140 Chinook salmon (JTC 2017).

The Blind Creek weir project enumerated Chinook salmon escapement and obtained biological information from the stock in 2016. The weir was set up approximately 1 km upstream of the confluence with the Pelly River. A total of 664 Chinook salmon were counted at the weir, which was higher than the 5-year average escapement of 479 fish. ASL samples were randomly collected from migrating Chinook salmon throughout the period of weir operation. A total of 500 Chinook salmon were live-sampled. Within this sample, 188 (38%) were female and 312 (62%) were male. The METF of females and males sampled was 785 mm and 659 mm. Of the 364 samples that were successfully aged, 18.4% (29.8% of the males and no females) were age-4, 47.8% (55.6% of the males and 35.3% of the females) were age-5, 29.9% (13.3% of the males

and 56.8% of the females) were age-6, and 3.8% (1.3% of the males and 7.9% of the females) were age-7 (JTC 2017).

The Whitehorse Rapids Fishway is a fish ladder that bypasses the Whitehorse Dam. It has a viewing window and fish trap that allows salmon counting without handling fish. Staff at Whitehorse Rapids Fishway counted 1,556 Chinook salmon in 2016 (Appendices E2 and E6). Of the adult Chinook salmon counted, 42% were of hatchery origin. The hatchery component included 119 females and 532 males, comprising 42% of both the female and male escapement. The wild component included 164 females and 741 males. Female Chinook salmon made up 18% of the total returns to the hatchery (JTC 2017).

Summer Chum Salmon Escapement

Summer chum salmon escapement in the Alaska portion of the Yukon River drainage is monitored through a combination of weirs, towers, and sonars (Appendix E7). The East Fork Andreafsky River weir escapement estimate for chum salmon was 50,362, which was above the SEG (>40,000 fish) but below the 5-year average of 60,998 fish (Appendix E7). ASL data were collected from 868 fish caught in the weir trap. The estimated age composition was 0.9% age-3, 68.7% age-4, 28.1% age-5, and 2.4% age-6 fish. The sex composition of the fish sampled was 44.8% female and 55.2% male. The Anvik River sonar escapement count of 337,821 summer chum salmon was below the BEG range of 350,000 to 700,000 fish (Appendix E7) and was below the 5-year average of 495,852 fish. This was the second time the BEG for the Anvik River was not met or exceeded since the goal was established in 2005 (Appendix E7) However, this season the chum salmon passage was quite high before and after sonar was operation, therefore it's likely many thousands of fish escaped but were not counted. ASL samples were collected for 724 summer chum salmon. The estimated age composition was 1.4% age-3, 71.6% age-4, and 24.8% age-5, and 2.2% age-6 fish. The sex composition of the fish sampled was 61.0% female and 39.0% male. The escapement estimate of summer chum salmon through the Gisasa River weir was 66,670 fish, which was slightly lower than the 5-year average of 66,909 fish (Appendix E7). Age, sex, and length data were collected from 1,040 fish caught in the weir trap. The age composition of samples was 0.0% age-3, 41.1% age-4, 52.9% age-5, and 5.9% age-6 fish. The sex composition of the fish sampled was 41.1% female and 58.9% male. The escapement estimate of summer chum salmon at the Henshaw Creek weir was 286,780, which was higher than the 5-year average of 265,780 fish (Appendix E7). Age, sex, and length data were collected from 668 fish caught in the weir trap. The estimated age composition from scale samples was 0.3% age-3, 69.4% age-4, 29.1% age-5, and 1.2% age-6 fish. The sex composition of fish sampled was 57.2% females and 42.8% males. The escapement estimate of summer chum salmon through the Chena River tower was 6,493 fish, which was lower than the 5-year average of 12,544 fish (Appendix E7). The escapement estimate of summer chum salmon through the Salcha River tower was 2,897 fish, which was lower than the 5-year average of 40,015 fish (Appendix E7). Summer chum salmon passage into the Chena and Salcha rivers was considered incomplete due to incomplete assessment data during 2016. Age, sex, and length information was collected for summer chum salmon returning to the Salcha River using carcass surveys conducted by ADF&G. The estimated age composition of summer chum salmon from vertebra was 0.6% age-3, 32.1% age-4, 61.0% age-5, and 6.3% age-6. The sex composition of fish sampled was 52.8% female and 47.2% male.

2016 Fall Season Escapement

Fall Chum Salmon Escapement

Historical fall chum salmon escapement information and 2016 escapement results are archived by ADF&G staff (Appendices E2, E8, E9, and E11). 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 located 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. Drainagewide run size was determined based on coverage of spawner distribution (escapement estimates), age composition, and estimates of harvest.

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 a SEG based on Fleischman and Borba (2009). From 2000 through 2013, the postseason run reconstruction and resulting drainagewide escapement estimate were derived from Eggers' (2001) method. Since 2014, a Bayesian state-space model was used to determine the drainagewide escapement similar to that reported in Fleischman and Borba 2009. The drainagewide escapement estimate produced for 2016 was 829,000 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 takes into account estimates from sub-drainages 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). Further, adding the U.S. and Canada harvests (555,000 fish) to the estimated escapement, results in a total run size estimate of slightly greater than 1,384,000 fall chum salmon.

The drainagewide escapement goal was not achieved from 1998 to 2000 even with restrictions to fisheries reducing 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 current drainagewide goal for fall chum salmon has been achieved in 91% of the last 43 years and all 13 years since the range was established in 2004.

The historical (1974–2015) average drainagewide total run size is 976,000 fall chum salmon and ranges between 252,000 fish in 2000 to 2,700,000 fish in 1975 (Appendix E10). From 1974 to 1991, fall chum salmon run sizes alternated consistently between lower even-numbered years and higher odd-numbered years (averaging 852,000 and 1,400,000 respectively). Since 1992, there appears to be a decadal cycle occurring when the fall chum salmon run peaked in 1995, 2005, and 2016, 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 last decade. The 2016 fall chum salmon run could be characterized overall as above average for both the all year average and the even-numbered year average from 1974 to 2015.

The Tanana River is the second largest component of the drainagewide fall chum salmon run. Based on abundance estimates from mark–recaptures studies conducted from 1995 to 2007 (Cleary and Hamazaki 2008), the Tanana River drainage contributes 21% to 41% of the overall

run, averaging 32%. Estimated escapement in those years averaged 184,000 fall chum salmon with a range of 56,000 in 2000 fish to 373,000 fish in 2005. In 2016, there were no inseason assessment projects for fall chum salmon in the Tanana River drainage except for catch per unit effort in the subsistence and commercial fisheries. Additionally, mixed stock analysis (MSA), based on genetics, suggested the estimate for the Tanana River was greater than 300,000 chum salmon and considering upriver harvests it was likely that the BEG range of 61,000 to 136,000 fall chum salmon was 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 8 replicate foot surveys conducted between October 4 and November 29, 2016. The Delta River escapement was estimated to be 22,000 fall chum salmon (Table 9) based on the peak survey count conducted November 3. This level of escapement exceeded the upper end of the BEG range of 6,000 to 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 26% to 37%, averaging 31%. The project has used various sonar types (split beam 1995–2006 and DIDSON 2007 to present) to enumerate fall chum salmon passage (Melegari 2014). 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 2016, the project operated from August 8 through September 26 and ended with a cumulative count of 252,918 fish. However, because the project was still passing more than 10,000 fish a day when the project ceased operation, an expansion of passage through October 9 was made. The resulting escapement estimate was 295,023 fall chum salmon (Table 9; Appendices E2 and E8) and was 29% above the 5-year average of 229,000 fish. The 2016 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 2016, estimates of the Canadian component included the operation of the Fishing Branch River weir in combination with sonar at the weir site. Expansions were applied to 12 days at the beginning of the passage estimates due to high water which delayed deployment of the weir and 4 days postseason resulting in an estimate of 29,395 fall chum salmon, indicating the IMEG of 22,000–49,000 was achieved in 2016. Additionally, the sonar project located on the Porcupine River near the U.S./Canada border (downstream of Old Crow) was operated resulting in a passage estimate of 54,395 targets attributed to fall chum salmon, subtracting the Old Crow harvest would indicate that the IMEG was achieved with some consideration for stocks bound to other locations in the drainage. The mainstem Yukon River border passage was assessed using sonars located downstream of Eagle Alaska in 2016. After removal of U.S. and Canada harvests the 2016 escapement was estimated to be approximately 145,000 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 15 years (since 2002) and exceeded the upper end in all but 2 of those years (Appendices E2 and 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, Sheenjek River escapement has not been monitored and the Fishing Branch River weir was not operated in 2013 and 2014. As a result, assessing whether the goal was achieved is 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 these 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. Historic coho salmon escapement information along with the most current 2016 escapement results are presented in Appendix E11. The mainstem Yukon River sonar operated near Pilot Station does not provide complete estimate of coho salmon passage because the project ceases operations before the end of the run. The passage estimate of coho salmon at mainstem Yukon River sonar was 168,297 fish through August 31, 2016 (Appendices E3 and E11). Tributary escapement estimate information was limited to portions of the Tanana River drainage. In 2015, escapements were above average in most areas of the Tanana River and supported the above average run that was indicated by the run reconstruction that included the mainstem Yukon River sonar project operated near Pilot Station plus the large harvests that occurred downstream.

Currently, only 1 escapement goal has been established for coho salmon in the Yukon River drainage. The Delta Clearwater River, in the Tanana River drainage, has an SEG range of 5,200 to 17,000 fish (ADF&G 2004). The Delta Clearwater River spawning count was 6,767 coho salmon (Table 9) and was conducted by boat survey on October 26, 2016. This escapement estimate was within the escapement goal range. Coho salmon escapements in the Nenana River and the upper Tanana River evaluated by aerial surveys were all near or above average when compared to the historical long-term averages (1972–2015; JTC 2017) and the 5-year average.

In recent years, a coho salmon run reconstruction index has been developed that expands the mainstem Yukon River sonar (operated near Pilot Station) passage estimates by comparing timing of the next closest monitoring project in the Lower Yukon (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 (<1,000–95,000) depending on management of the fall chum salmon fishery. Currently the data used for run reconstruction of coho salmon is based on the years 1995 and 1997 to present (excluding 2009) when the mainstem sonar was operational. This model results in an average run size of 197,000 coho salmon in the Yukon River. An index of Yukon River drainagewide escapement is derived from the run reconstruction minus the total harvest of coho salmon providing an average escapement of 163,000 fish. In 2016 the index of run size set a new record of approximately 398,000 coho salmon and an above average escapement of 188,000 fish after removal of an estimated record harvest of approximately 210,000 fish.

2017 SALMON OUTLOOK

Chinook Salmon

The total Yukon River Chinook salmon outlook was estimated by applying historical average proportions of Canadian-origin fish in the total run to the forecast of the Canadian component of the run. The average proportion of Canadian origin fish in the total run was approximately 50%. The drainagewide run outlook based on the Canadian-origin forecasted run, which attempts to account for low productivity since 2007, was 140,000–193,000 Chinook salmon. A run of this

size would be below the long-term average (1989–1999) of approximately 300,000 Chinook salmon.

Summer Chum Salmon

The strength of the summer chum salmon run in 2017 will be dependent on production from the 2013 (age-4 fish) and 2012 (age-5 fish) escapements, because these age classes generally dominate the run. The total runs during 2012 and 2013 were approximately 2.5 million and 3.3 million summer chum salmon, respectively. The escapement goals on the Anvik River (350,000–750,000 fish) and the East Fork Andreafsky River (>40,000 fish) were met in both years. Summer chum salmon generally exhibit strong run size correlations among adjacent years, and it is expected that the 2017 total run in the Yukon River will be approximately 2.4 million fish.

The 2017 summer chum run is 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 14 years (2003–2016). If inseason indicators of run strength suggest sufficient abundance exists to allow for a commercial fishery, the commercially harvestable surplus in Alaska could range from 1,200,000 to 1,500,000 summer chum salmon. Similar to the last 4 years, however, commercial harvest of summer chum salmon in 2017 could be affected due to measures taken to protect the Chinook salmon from incidental harvest in chum salmon-directed fisheries.

Fall Chum Salmon

The 2017 run will include fish returning from parent years 2011– 2014. Estimates of returns per spawner (R/S), based on brood year return, and were used to estimate production for 2011 and 2012. An auto-regressive Ricker spawner-recruit model was used to predict returns from 2013 and 2014. The point projection in 2017 used the 1974 to 2010 complete brood year returns applied odd/even maturity schedule for the same time period. The result was a point estimate of 1,561,000 fall chum salmon. The 2017 run size forecast is expressed as a range from 1,400,000 to 1,700,000 fall chum salmon. This forecasted run size is above average for odd-numbered year run.

All of the contributing parent year escapements from 2011 through 2014 exceeded the upper end of the drainagewide escapement goal range 300,000 to 600,000 fall chum salmon (Appendix E10). The major contributor to the 2017 fall chum salmon run is anticipated to be age-0.3 fish returning from 2013 parent year (Appendix E10). However, the primary age-0.3 escapement was over 800,000 the level that usually does not meet replacement as occurred in the 2011 parent year. The run is expected to be bolstered by a large return of the age-0.4 component from the 2012 parent year that produced excellent returns as age-0.3. Overall production for the next few years was estimated to be just above replacement.

With this projected run size for fall chum salmon escapement goals are anticipated to be met while supporting normal subsistence fishing activities. Commercial harvest could range from 850,000 to 1,150,000 fall chum salmon depending on where the actual run comes in within the forecasted range.

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 2017 coho salmon run will be age-4 fish returning from the 2013 parent year. Based on the run reconstruction index (1995–2015, excluding 1996 and 2009) the 2013 escapement was estimated to be 81,000 coho salmon, which was the lowest in the series and well below the median of 163,000 fish.

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 of 6,222 fish in 2013 was above the lower end of the sustainable escapement goal (SEG) range of 5,200 to 17,000 coho salmon. Five additional locations in the Tanana River drainage were surveyed for coho salmon specifically; all were below average when compared to the 5-year average. The coho salmon run outlook was based on parent year escapements assuming average survival. Based on the last 3 years of high coho salmon returns there is a possibility the run will be average. Commercial harvest could be between 60,000 and 200,000 coho salmon caught incidentally in the fall chum salmon directed fishery.

OTHER MARINE AND FRESHWATER FINFISH FISHERIES

SUBSISTENCE AND PERSONAL USE FISHERY

The estimated subsistence and personal use harvest of nonsalmon species in 2016 was 73,609 whitefish (*Coregonus spp. and Prosopium cylindraceum*), 25,778 northern pike (*Esox lucius*), and 14,529 sheefish (*Stenodus leucichthys;* Appendix D9). Other species are only reported by total harvest as they are harvested in small amounts and include a total of 2,545 burbot (*Lota lota*), 5,795 tomcod (*Eleginus gracilis*), 1,580 Arctic grayling (*Thymallus arcticus*), 214 longnose suckers (*Catostomus catostomus*), 90,207 Alaska blackfish (*Dallia pectoralis*), 17,609 Arctic lamprey (*Lethenteron camtschaticum),* and 15,959 Pacific herring (*Clupea pallasii*; Appendix D9), and 236 gallons of Pacific herring roe. Subsistence and personal use catches of freshwater finfish taken under authority of a permit in the Upper Yukon Area are presented in Appendices D6–D8.

Nonsalmon species (e.g. pike, sheefish, whitefish, blackfish, etc.) are an important subsistence resource for people in most areas throughout the Yukon River drainage, largely because they are available for harvest all season (Brown et al. 2005; Andersen et al. 2004). 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. Subsistence users particularly rely on nonsalmon species during the winter and spring and when other sources of fish or wildlife are unavailable.

Estimates of nonsalmon harvest is 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 are collected during the annual ADF&G postseason subsistence salmon harvest surveys but is ancillary to salmon-specific surveys and usually does not include species distinctions. Survey projects have begun to identify whitefish harvest by species in the Koyukuk River drainage and lower-middle communities of Grayling, Anvik, Shageluk, and Holy Cross (Brown et al. 2005; Andersen et al. 2004). Beginning in 2012, households in the Lower Yukon including the Coastal District were asked about their herring harvests (Jallen et al. 2015).

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 and Tanana rivers 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 for the commercial harvest of species not managed under existing commercial fishing regulations during discrete time periods throughout the year. Following the decline in salmon runs, an interest in nonsalmon commercial fisheries emerged on the Yukon River. Despite the strengthening chum salmon returns in recent years, the interest in freshwater fisheries has remained, particularly for Bering cisco *Coregonus laurettae* and Arctic lamprey.

Whitefish Fishery Summary

From 2005 to 2016, ADF&G issued Commissioner’s permits for an experimental whitefish commercial fishery in the lower Yukon River. Commissioner’s permits allowed for the harvest of coregonid (‘whitefish’) species in Districts 1 and 2 starting with 10,000 pounds in 2005 and incrementally increasing to 25,000 cisco. In 2013, the quota allocation switched from pounds of fish to numbers of fish. The reasons for the change in quota units are twofold: it is easier to track numbers of fish instead of pounds of fish, and the assumption that a whitefish weighs 1 pound no longer holds true. Gear restrictions were implemented in 2007 to reduce the stretched-mesh size from a maximum of 6.0 inches (allowed in 2005 and 2006) to a maximum of 4.0 inches. The smaller mesh size would target cisco species while reducing the incidental harvest of sheefish and broad whitefish *Coregonus nasus*. In response to market preference, commercial permits were issued for the specific harvest of Bering cisco, 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 2016, one Commissioner’s permit was issued to Kwik’pak Fisheries, LLC for the commercial harvest of Bering and least cisco. The permit authorized a maximum harvest of 25,000 cisco in District 1 of the Lower Yukon Area from September 1 through October 15. The allowable harvest in 2016 did not change from the 25,000 cisco authorized in 2014. The decision not to increase the allowable harvest was based principally on the lack of population abundance information on Yukon River Bering cisco. Given the lack of information on Bering cisco, a continued cautionary management approach is warranted.

The fishery permit stipulated that fishing gear was restricted to 1 set or drift gillnet up to 150 feet in length with a maximum stretched-mesh size of 4.0 inches, or 1 hand line/hook and line.

Additionally, commercial fishing was prohibited in designated areas around the village of Kotlik to prevent commercial fishing from potentially impacting subsistence fishing. Closures were implemented in the waters of Apoon Pass from its confluence with Chaniliut Slough to the northern shoreline of Apoon Mouth, including the Pastolik and Pastoliak rivers.

The 2016 commercial fishery occurred from September 13 to September 24. The whitefish commercial fishery started later than usual due to the record-breaking harvests in the fall chum and coho salmon fisheries that lasted until September 10. Twenty-four fishermen made 163 deliveries totaling 26,329 Bering cisco and 13 least cisco (Appendix F1). The 2016 harvest was approximately 1,300 cisco above the allowable quota. The Bering cisco harvest was above the 5-year average of 17,700 fish and the least cisco harvest was below the 5-year average of 132 fish (Appendix F1). The price paid to fishermen was $1.50 per pound, resulting in an estimated total harvest value of $46,164. The average price paid to each fisherman was approximately $1,924. The majority of the Bering cisco commercial harvest occurred in Kotlik (83%) followed by Emmonak ((12%); data on file with Yukon Area Management Group, Division of Commercial Fisheries, ADF&G; Anchorage).

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. In 2016, one commercial permit was issued to a catcher/seller in the Tanana River, however no commercial fishing occurred and no whitefish or suckers were sold. 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 2016, no whitefish or sheefish were incidentally harvested and sold in Districts 5 and 6 during commercial salmon fishing (Appendix F3).

Harvest Sampling

Whitefish were identified by species at the processing facility in Emmonak prior to shipment to Anchorage. A total of 198 Bering cisco were sampled for age, sex, and length. A small incision was made on the ventral side of each specimen to identify reproductive organs. Fork length (tip of snout to fork of tail) was measured to the nearest millimeter. Fifty Bering cisco were delivered already processed and therefore sex could not be assessed. The proportions of male and female Bering cisco sampled in 2016 were relatively equal (39% female, 35% male, and 25% unknown). Similar to previous years, females were generally larger than males, 345 mm and 322 mm, respectively. Otoliths were collected from all fish sampled and will be processed in the future for age classification (data on file with Yukon Area Management Group, Division of Commercial Fisheries, ADF&G; Anchorage).

Arctic Lamprey Fishery Summary

Since 2003, a Commissioner's permit has been issued annually allowing for total harvests between 5,000 and 49,080 pounds of Arctic lamprey. 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 2016 lamprey fishery was monitored by ADF&G staff via phone and email communications for the entire lamprey commercial fishery. Community contacts were established with local

subsistence fishermen in the villages of Alakanuk, Emmonak, Pitkas Point, St. Mary's, Mountain Village, Pilot Station, Marshall, Russian Mission, Holy Cross, Anvik, and Grayling. Information regarding subsistence fishing effort, harvest rates, local weather, river ice conditions, and run timing was gathered during these communication events. The ADF&G representative also communicated with the processor for updates on harvest and quality.

Similar to previous years, local contracted fishermen with the Yukon Delta Fisheries Development Association set up test fishery sites in the lower river to assess lamprey presence and run timing. Test fishing in 2016 began earlier than previous years in an attempt to catch lamprey from the start of the run. Fyke nets operated from September 26 through October 27. Fyke nets were the only gear type used for the test fishery in 2016 due to their high success rate and the lack of lamprey caught in hoop nets during test fishery operations in 2013. A total of 10 sites were fished in areas around Flat Island, Munson Island, and upriver towards Mountain Village. Six fyke net sites fished in 2013–2015 were again fished in 2016 in order to collect CPUE and run timing data for the same site across multiple years. A total of 9,008 lamprey were caught during test fishery operations with most of the lamprey caught across from the Alakanuk slough entrance. On October 13, 4 fyke nets were set upriver near Ten Mile Island; these sites were located about halfway between the South Mouth sites and Mountain Village in order to check for lamprey migrating upriver. After a week with no harvest, these nets were pulled and not redeployed.

Based on anecdotal information, subsistence fishermen had a harder time meeting subsistence needs in 2016 given the inability to locate the lamprey run. Subsistence fishermen primarily used dip nets from the beach or the edge of shorefast ice to harvest lamprey. Subsistence users from Mountain Village and Pitka's Point reported light subsistence harvest. Fishermen said lamprey was initially found in strong numbers but the run passed quickly. Pilot Station fishermen reported a heavy subsistence harvest of lamprey and staff from the Pilot Station Tribal Council reported that subsistence lamprey needs were met. Subsistence fishermen in Marshall reported that the lamprey run was sporadic and passed through quickly resulting in a light subsistence harvest. About 15 subsistence fishermen in Russian Mission were dip netting lamprey through the ice until the run passed; fishermen collected about three 33-gallon bags of lamprey per person and reported being satisfied with their harvest. Fishermen who were unable to meet their lamprey needs stated their limited success was due to the late freeze-up of the Yukon River. Fishermen reported that they were forced to fish from the edge of marginally safe shore ice and were unable to travel to their traditional fishing locations.

Commercial Fishery

In 2016, one freshwater commercial fishery permit was issued to Kwik'pak Fisheries, LLC allowing a harvest of up to 44,080 pounds (20 metric tons) of Arctic lamprey. The permit was valid October 12 through December 31, or until the harvest limit was reached. The processor established buying stations in Mountain Village, and Grayling.

A total of 9 commercial freshwater permit holders, down from 30 in 2014 and 18 in 2015, delivered a harvest of 4,062 pounds to the commercial processor, equal to approximately 17,509 lamprey (Appendix F1 and F2). The buyer paid $1.50 per pound of lamprey (data on file with Yukon Area Management Group, Division of Commercial Fisheries, ADF&G; Anchorage.). The estimated commercial value of the fishery was $6,093 and the average price paid to each fisherman was $677. The value of the 2016 commercial fishery was the fourth lowest since the

fishery began in 2003. Similar to the subsistence fishery, the limited success of the commercial fishery was probably due to the late freeze-up of the Yukon River and the inability of ADF&G and fishermen to locate the run.

Harvest Sampling

A total of 135 Arctic lamprey from the commercial fishery in Grayling were sampled for sex, length, and weight after shipment to Anchorage. Reproductive organs were visually identified by making a ventral incision on each specimen. Total length was measured from the tip of the snout to the tip of the tail to the nearest millimeter; weight was measured to the nearest gram. The average length of lamprey was 407 mm. The average weight of lamprey was 106 g. Females comprised 42% of the total sample (data on file with Yukon Area Management Group, Division of Commercial Fisheries, ADF&G; Anchorage).

For the third time since sampling occurred, reproductive organs from a subset of female lamprey were weighed to calculate the gonadosomatic index (GSI), the proportion of gonad weight to total weight, which assesses sexual maturity. Average gonad weight was 8.5 g and GSI was 8.2% (data on file with Yukon Area Management Group, Division of Commercial Fisheries, ADF&G; Anchorage).

CAPE ROMANZOF HERRING FISHERY

The Cape Romanzof Herring District consists of all state waters from Dall Point to 62 degrees north latitude (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 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. Additionally, a few fishermen 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. Additionally, some Yukon River Delta residents harvest herring spawn-on-kelp (*Fucus* sp.) north of Stebbins in southern Norton Sound. Estensen et al. 2015 discusses 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 2016.

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 fishery projects and aerial surveys were not conducted in any of the AYK herring districts in 2016, 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 2016 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 actual biomass observed in 2016 may fall above or below the preseason projections given that herring experience annual fluctuations in survival and recruitment rates.

The 2016 projected biomass for the Cape Romanzof District was forecast to be 5,843 short tons and the minimum biomass threshold is 1,500 short tons. Based on the *Bering Sea Herring Fishery Management Plan* (5 AAC 27.060), the exploitation rate shall not exceed 20% of the estimated biomass. Therefore, the allowable harvest was 1,169 short tons. The 2017 projected biomass was 5,157 short tons, which provided an allowable harvest of 1,031short tons.

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TABLES AND FIGURES

Table 1.–Guideline harvest ranges and mid-points for commercial harvest of Chinook, summer chum, and fall chum salmon, Yukon Area, Alaska, 2016.

Chinook salmon						
	Guideline harvest range [a]					
District or	Lower		Midpoint		Upper	
Subdistrict	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	0 to 60,000	89.1	90,000	91.6	120,000	92.9
3	0 to 1,800	2.7	2,000	2.0	2,200	1.7
4	0 to 2,250	3.3	2,550	2.6	2,850	2.2
5B, C	0 to 2,400	3.6	2,600	2.6	2,800	2.2
5D	0 to 300	0.4	400	0.4	500	0.4
6	0 to 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						
	Guideline harvest range [b]					
District or	Lower		Midpoint		Upper	
Subdistrict	Numbers	Percent	Numbers	Percent	Numbers	Percent
1 and 2	0 to 251,000	62.9	503,000	62.9	755,000	62.9
3	0 to 6,000	1.6	12,500	1.6	19,000	1.6
4A [c]	0 to 113,000	28.2	225,500	28.2	338,000	28.2
4B, C	0 to 16,000	3.9	31,500	3.9	47,000	3.9
5B, C, D	0 to 1,000	0.3	2,000	0.3	3,000	0.3
6	0 to 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						
	Guideline harvest range [e]					
District or	Lower		Midpoint		Upper	
Subdistrict	Numbers	Percent	Numbers	Percent	Numbers	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
5B, C	4,000	5.5	20,000	10.2	36,000	11.2
5D	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 to 4,000 pounds of roe. [f]						

-continued-

[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 to1989.

[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 to 4,000 pounds of fall chum salmon roe was established in November 1998.

Table 2.–Total utilization in numbers of salmon by district and country, Yukon River drainage, 2016.

District	Fishery	Chinook [a]	Summer chum [a]	Fall chum [a]	Coho [a]	Pink [a]
1	Subsistence [b]	2,786	26,701	4,585	1,233	1,800
	Commercial	0	293,522	226,576	113,669	125,070 [c]
	Test fish sales	0	380	668	11	0
	Total	2,786	320,603	231,829	114,913	126,870
2	Subsistence [b]	3,159	27,197	4,476	1,119	249
	Commercial	0	228,267	213,225	67,208	2,268
	Test fish sales	0	0	0	0	0
	Total	3,159	255,464	217,701	68,327	2,517
3	Subsistence [b]	900	3,053	989	140	11
	Commercial	–	–	–	–	–
	Total	900	3,053	989	140	11
Total	Subsistence [b]	6,845	56,951	10,050	2,492	2,060
Lower	Commercial	0	521,789	439,801	180,877	127,338
Yukon	Test fish sales	0	380	668	11	0
Area	Total	6,845	579,120	450,519	183,380	129,398
4	Subsistence [b]	6,015	13,502	9,874	826	117
	Commercial	–	–	–	–	–
	Total	6,015	13,502	9,874	826	117
5	Subsistence [b]	7,096	4,958	58,598	864	34
	Commercial	–	–	7,542	54	–
	Total	7,096	4,958	66,140	918	34
6	Subsistence [b]	816	96	5,165	4,271	0
	Commercial	–	4,020	18,053	20,551	–
	Personal use	57	176	283	266	0
	Total	873	4,292	23,501	25,088	0
Total	Subsistence [b]	13,927	18,556	73,637	5,961	151
Upper	Commercial	0	4,020	25,595	20,605	–
Yukon	Personal use	57	176	283	266	0
Area	Total	13,984	22,752	99,515	26,832	151
Total	Subsistence [b]	20,772	75,507	83,687	8,453	2,211
Yukon	Commercial	0	525,809	465,396	201,482	127,338
River	Personal use	57	176	283	266	0
(Alaska)	Test Fish sales	0	380	668	11	0
	Sport Fish [d]	[e]	[e]	[e]	[e]	[e]
	Total	20,829	601,872	550,034	210,212	129,549
	Domestic	–	0	0	0	0
Total	Aboriginal (mainstem)	2,768	0	1,000	0	0
Canada	Test Fish harvest	–	–	–	–	–
	Commercial	1	0	1,745	0	0
	Subtotal	2,769	0	2,745	0	0
	Porcupine aboriginal	177	0	3,005	0	0
	Total	2,946	0	5,750	0	0
	Grand total	23,775	601,872	555,784	210,212	129,549

Note: En dash indicates fishery did not occur.

[a] Commercial harvest includes only fish sold in the round. Does not include subsistence harvest from coastal communities of Hooper Bay and Scammon Bay.

[b] Data are preliminary.

[c] Includes 17,726 pink salmon caught during the fall season commercial fisheries.

[d] Assume majority of chum salmon harvested during summer season.

[e] Data not available.

Table 3.–Salmon processors, buyers, catcher-sellers, and associated data, Yukon Area, 2016.

Commercial operation (Processing location/buying station)	Product	District
Kwik'pak Fisheries 1016 West Sixth Avenue, Suite 301 Anchorage, AK 99501 (Emmonak/St. Mary's)	Fresh salmon Frozen salmon Salmon roe	1 and 2
Interior Alaska Fish Processors 2400 Davis Rd. Fairbanks, AK 99709 (Fairbanks, Yukon Bridge, Nenana)	Fresh/frozen salmon Salmon roe Salted/brined salmon Smoked salmon	5 and 6
Robert Pierce P.O. Box 614 Nenana, AK 99760 (Nenana)	Fresh salmon	6
Great Ruby Fish 2055 Saratoak Ave Anchorage, AK 99517 (Nenana)	Fresh salmon	5 and 6
John Krieg 3641 Dubia Rd North Pole, AK 99705 (Nenana)	Fresh salmon	6
Edmund Lord P.O. Box 183 Nenana, AK 99760 (Nenana)	Fresh salmon	6

Table 4.–Chinook and summer chum salmon commercial harvest by district, period, and gear type, for Districts 1, 2, and 6, Yukon Area, 2016.

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 fishermen	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt	Number
1		6:00 PM	7 Jun	6:00 AM	8 Jun	12	DN/BS		56	57		1,582	9,516	6.0	0
2		1:00 PM	10 Jun	1:00 AM	11 Jun	12	DN/BS		99	483		12,304	76,326	6.2	0
3		1:00 PM	11 Jun	1:00 AM	12 Jun	12	DN/BS		78	342		8,010	49,678	6.2	0
4		3:00 PM	13 Jun	3:00 AM	14 Jun	12	DN/BS		107	742		15,750	95,227	6.0	0
5		3:00 PM	14 Jun	3:00 AM	15 Jun	12	DN/BS		108	533		9,952	59,982	6.0	0
6		3:00 PM	15 Jun	3:00 AM	16 Jun	12	DN/BS		71	299		3,777	22,658	6.0	0
7		3:00 PM	16 Jun	3:00 AM	17 Jun	12	DN/BS		47	144		2,036	11,775	5.8	0
8		3:00 PM	17 Jun	3:00 AM	18 Jun	12	DN/BS		45	183		2,977	17,038	5.7	0
9		3:00 PM	18 Jun	3:00 AM	19 Jun	12	DN/BS		111	404		11,294	64,934	5.7	0
10		3:00 PM	19 Jun	3:00 AM	20 Jun	12	DN/BS		49	295		4,639	26,693	5.8	0
11		3:00 PM	21 Jun	3:00 AM	22 Jun	12	DN/BS		88	341		8,459	47,627	5.6	444
12		3:00 PM	22 Jun	3:00 AM	23 Jun	12	DN/BS		74	245		7,602	43,464	5.7	284
13		3:00 PM	24 Jun	3:00 AM	25 Jun	12	DN/BS		42	63		496	2,762	5.6	1,560
14		6:00 PM	25 Jun	12:00 AM	26 Jun	6	R	5.5	162	36	815	29,588	178,201	6.0	2,225
15	[b]	8:00 PM	27 Jun	12:00 AM	28 Jun	4	R	5.5	129	0	295	3,183	18,607	5.8	5,573
16	[b]	8:00 PM	28 Jun	12:00 AM	29 Jun	4	R	5.5	100	0	277	5,687	34,528	6.1	6,431
17	[b]	6:00 PM	29 Jun	12:00 AM	30 Jun	6	R	5.5	132	0	173	7,047	41,289	5.9	8,687
18	[b]	6:00 PM	30 Jun	12:00 AM	1 Jul	6	R	5.5	83	0	118	4,364	26,178	6.0	5,406
19		8:00 PM	1 Jul	2:00 AM	2 Jul	6	R	5.5	113	7	238	21,920	132,295	6.0	5,322
20		8:00 PM	2 Jul	2:00 AM	3 Jul	6	R	5.5	155	0	258	37,211	223,875	6.0	9,106
21		8:00 PM	4 Jul	2:00 AM	5 Jul	6	R	5.5	131	1	114	12,601	76,131	6.0	5,385
22		8:00 PM	5 Jul	2:00 AM	6 Jul	6	R	6	112	0	129	4,432	27,748	6.3	8,193
23		8:00 PM	6 Jul	2:00 AM	7 Jul	6	R	6	109	0	85	5,163	32,094	6.2	9,698
24		6:00 PM	8 Jul	3:00 AM	9 Jul	9	R	6	164	0	106	17,875	112,401	6.3	19,059
25		6:00 PM	9 Jul	3:00 AM	10 Jul	9	R	6	70	0	33	7,863	48,486	6.2	0
26		6:00 PM	10 Jul	3:00 AM	11 Jul	9	R	6	128	0	50	27,312	173,159	6.3	0
27		6:00 PM	11 Jul	3:00 AM	12 Jul	9	R	6	139	0	69	19,499	123,784	6.3	0
28		6:00 PM	13 Jul	3:00 AM	14 Jul	9	R	6	100	0	21	3,403	20,916	6.1	19,971
29		6:00 PM	15 Jul	3:00 AM	16 Jul	9	R	6	42	0	0	879	5,281	6.0	0
									FALL SEASON		47				
District 1 subtotal:						266			245	4,175	2,828	[c] 296,905	1,802,652	6.1	107,344

-continued-

Table 4.–Page 2 of 3.

District 2									Chinook salmon		Summer chum salmon			Pink salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Gear type [a]	Mesh size	Number fishermen	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt	Number
1	12:00 PM	14 Jun	12:00 AM	15 Jun	12	DN/BS		96	563		9,444	57,308	6.1	0
2	12:00 PM	16 Jun	12:00 AM	17 Jun	12	DN/BS		93	394		13,291	79,283	6.0	0
3	12:00 PM	17 Jun	12:00 AM	18 Jun	12	DN/BS		70	586		10,683	63,463	5.9	0
4	12:00 PM	18 Jun	12:00 AM	19 Jun	12	DN/BS		69	258		5,486	31,982	5.8	0
5	3:00 PM	20 Jun	3:00 AM	21 Jun	12	DN/BS		99	446		11,398	66,497	5.8	0
6	3:00 PM	21 Jun	3:00 AM	22 Jun	12	DN/BS		113	479		12,349	70,810	5.7	0
7	3:00 PM	23 Jun	3:00 AM	24 Jun	12	DN/BS		107	574		14,849	84,587	5.7	0
8	3:00 PM	24 Jun	3:00 AM	25 Jun	12	DN/BS		111	479		10,775	62,043	5.8	0
9	3:00 PM	25 Jun	3:00 AM	26 Jun	12	DN/BS		67	303		7,376	41,079	5.6	0
10	12:00 PM	27 Jun	4:00 PM	27 Jun	4	R	6	112	0	586	16,201	103,140	6.4	21
11	6:00 PM	29 Jun	10:00 PM	29 Jun	4	R	6	117	1	489	12,579	77,687	6.2	53
12	6:00 PM	1 Jul	10:00 PM	1 Jul	4	R	6	116	0	399	13,165	81,627	6.2	136
13	6:00 PM	5 Jul	10:00 PM	5 Jul	4	R	6	148	0	417	27,572	173,927	6.3	494
14	6:00 PM	7 Jul	10:00 PM	7 Jul	4	R	6	129	0	263	12,436	77,806	6.3	263
15	4:00 PM	9 Jul	10:00 PM	9 Jul	6	R	6	101	2	174	11,848	75,005	6.3	0
16	4:00 PM	10 Jul	10:00 PM	10 Jul	6	R	6	84	0	83	5,957	36,313	6.1	0
17	4:00 PM	12 Jul	10:00 PM	12 Jul	6	R	6	123	0	62	17,657	111,676	6.3	0
18	4:00 PM	14 Jul	10:00 PM	14 Jul	6	R	6	93	0	47	11,930	74,893	6.3	1301
19	4:00 PM	16 Jul	10:00 PM	16 Jul	6	R	6	50	1	27	2,839	17,597	6.2	0
20	4:00 PM	17 Jul	10:00 PM	17 Jul	6	R	6	10	0	1	432	2,581	6.0	0
						FALL SEASON				67				
District 2 subtotal:					164			198	4,086	2,615 [c]	228,267	1,389,304	6.1	2,268
Lower Yukon Area, summer season, Districts 1, 2, and 3 subtotal [d]:					430			435	8,261	5,443 [c]	525,172	3,191,956	6.1	109,612

-continued-

Table 4.–Page 3 of 3.

Subdistricts 6-A, 6-B, and 6-C															
					Hours				Chinook salmon		Summer chum salmon			Pink salmon	
Period	Starting time	Start date	Ending time	End date	fished 6-AB	Gear type	Mesh size	Number fishermen	Number caught and released	Number caught but not sold	Number	Pounds	Avg wt	Number	
1	6:00 PM	11 Jul	12:00 PM	13 Jul	42	FW [e]/GN	7.5	[f]	0	46	609	3,767	6.2	0	
2	6:00 PM	15 Jul	12:00 PM	17 Jul	42	FW [e]/GN	7.5	[f]	0	51	624	3,866	6.2	0	
3	6:00 PM	18 Jul	12:00 PM	20 Jul	42	FW [e]/GN	7.5	[f]	0	8	124	770	6.2	0	
4	6:00 PM	22 Jul	12:00 PM	24 Jul	42	FW [e]/GN	7.5	[f]	0	32	543	3,264	6.0	0	
5	6:00 PM	25 Jul	12:00 PM	27 Jul	42	FW [e]/GN	7.5	[f]	0	22	608	3,030	5.0	0	
6	6:00 PM	29 Jul	12:00 PM	31 Jul	42	FW [e]/GN	7.5	[f]	0	12	866	4,985	5.8	0	
7	6:00 PM	1 Aug	12:00 PM	3 Aug	42	FW [e]/GN	7.5	[f]	0	8	646	3,860	6.0	0	
8	6:00 PM	5 Aug	12:00 PM	7 Aug	42	FW [e]/GN	7.5	0							
9	6:00 PM	8 Aug	12:00 PM	10 Aug	42	FW [e]/GN	7.5	0							
								FALL SEASON		1					
District 6 subtotal:					378			-	0	180 [c]	4,020	23,542	5.9	0	
Upper Yukon Area, summer season, Districts 4, 5, and 6 subtotal [g]:					378			-	0	180 [c]	4,020	23,542	5.9	0	
Yukon Area, summer season, Districts 1–6 total [f]:					808			435	8,261	5,623 [c]	529,192	3,215,498	6.1	109,612	

Note: Chinook salmon caught in gillnets were not allowed to be sold throughout the summer and fall season. 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.

[a] Under new 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] Only the south mouth fished

[c] Includes Chinook salmon caught but not sold in the fall season.

[d] No commercial fishing occurred in District 3.

[e] 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.

[f] Fewer than 5 commercial fishermen participated in the fishery. Number of fishermen not provided to preserve confidentiality.

[g] No commercial fishing occurred in Districts 4 and 5.

Table 5.–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, 2016.

District 1																
						Hours fished				Fall chum salmon			Coho salmon			Chinook salmon
Period		Starting time	Start date	Ending time	End date	Drift	Set	Mesh size	Number fishermen	Number	Pounds	Avg wt	Number	Pounds	Avg wt	Number caught but not sold[a]
1	[b]	3:00 PM	7/18	11:59 PM	7/18	9	9	6	125	22,636	163,233	7.2	0	–	–	13
2		3:00 PM	7/21	11:59 PM	7/21	9	9	6	165	10,134	72,929	7.2	22	133	6.0	18
3		12:00 PM	7/25	11:59 PM	7/25	9	12	6	125	4,199	29,091	6.9	90	544	6.0	5
4		12:00 PM	7/28	11:59 PM	7/28	9	12	6	65	5,320	39,232	7.4	218	1,319	6.1	2
5		1:00 PM	7/30	10:00 PM	7/30	6	9	6	170	17,220	126,320	7.3	716	4,319	6.0	3
6		1:00 PM	8/1	10:00 PM	8/1	6	9	6	189	21,276	159,065	7.5	902	5,354	5.9	2
7		10:00 AM	8/4	10:00 PM	8/4	9	12	6	113	2,575	18,139	7.0	444	2,636	5.9	0
8		10:00 AM	8/8	10:00 PM	8/8	9	12	6	93	715	4,829	6.8	984	5,795	5.9	0
9		1:00 PM	8/11	10:00 PM	8/11	6	9	6	181	14,371	105,967	7.4	2,609	16,015	6.1	1
10		1:00 PM	8/14	10:00 PM	8/14	6	9	6	213	27,402	198,532	7.2	7,718	48,811	6.3	0
11		5:00 PM	8/16	11:59 PM	8/16	5	7	6	210	32,234	225,154	7.0	6,453	41,691	6.5	1
12		12:00 PM	8/18	9:00 PM	8/18	6	9	6	149	6,834	45,846	6.7	5,375	34,155	6.4	2
13		12:00 PM	8/21	9:00 PM	8/21	6	9	6	185	13,870	94,449	6.8	17,301	111,188	6.4	0
14		1:00 PM	8/23	10:00 PM	8/23	6	9	6	184	13,415	88,681	6.6	13,047	83,463	6.4	0
15		1:00 PM	8/24	10:00 PM	8/24	6	9	6	176	12,223	80,307	6.6	11,785	75,607	6.4	0
16		9:00 AM	8/26	6:00 PM	8/26	6	9	6	129	1,242	7,845	6.3	5,285	33,860	6.4	0
17		9:00 AM	8/27	6:00 PM	8/27	6	9	6	107	1,181	7,697	6.5	4,344	27,384	6.3	0
18		9:00 AM	8/28	6:00 PM	8/28	6	9	6	114	1,273	8,608	6.8	4,568	29,253	6.4	0
19		9:00 AM	8/29	6:00 PM	8/29	6	9	6	93	946	6,280	6.6	4,587	29,131	6.4	0
20		9:00 AM	8/30	6:00 PM	8/30	6	9	6	94	846	5,578	6.6	3,458	21,567	6.2	0
21		9:00 AM	8/31	6:00 PM	8/31	6	9	6	99	872	5,707	6.5	3,376	20,861	6.2	0
22		9:00 AM	9/2	9:00 PM	9/2	9	12	6	116	3,371	21,811	6.5	4,542	28,941	6.4	0
23		9:00 AM	9/4	9:00 PM	9/4	9	12	6	81	2,714	17,678	6.5	3,909	24,404	6.2	0
24		9:00 AM	9/6	9:00 PM	9/6	9	12	6	95	5,524	36,331	6.6	4,208	27,006	6.4	0
25		9:00 AM	9/8	9:00 PM	9/8	9	12	6	113	2,801	17,556	6.3	5,705	36,447	6.4	0
26		9:00 AM	9/10	9:00 PM	9/10	12	12	6	73	1,382	8,573	6.2	2,023	12,613	6.2	0
Coho salmon sold in the summer season													0	–	–	
District 1 subtotal:						191	259		275	226,576	1,595,438	7.0	113,669	722,497	6.4	47

-continued-

Table 5.–Page 2 of 3.

District 2														
								Fall chum salmon			Coho salmon			Chinook salmon
Period	Starting time	Start date	Ending time	End date	Hours fished	Mesh	Number fishermen	Number	Pounds	Avg wt	Number	Pounds	Avg wt	Number caught but not sold[a]
1	2:00 PM	7/20	8:00 PM	7/20	6	6	110	19,949	142,793	7.2	6	46	7.7	20
2	1:00 PM	7/24	9:00 PM	7/24	8	6	138	18,307	131,281	7.2	20	139	7.0	17
3	1:00 PM	7/27	9:00 PM	7/27	8	6	92	6,869	48,990	7.1	23	132	5.7	7
4	1:00 PM	7/31	9:00 PM	7/31	8	6	82	7,994	58,437	7.3	132	778	5.9	3
5	2:00 PM	8/3	9:00 PM	8/3	7	6	128	16,413	122,290	7.5	415	2,366	5.7	4
6	12:00 PM	8/7	8:00 PM	8/7	8	6	83	4,574	32,900	7.2	455	2,718	6.0	2
7	12:00 PM	8/10	8:00 PM	8/10	8	6	42	1,265	8,874	7.0	456	2,641	5.8	3
8	2:00 PM	8/13	8:00 PM	8/13	6	6	105	7,975	58,644	7.4	1,137	6,664	5.9	1
9	3:00 PM	8/16	8:00 PM	8/16	5	6	119	18,212	132,980	7.3	2,528	15,493	6.1	5
10	1:00 PM	8/18	9:00 PM	8/18	8	6	138	35,974	252,668	7.0	5,507	34,177	6.2	0
11	4:00 PM	8/19	9:00 PM	8/19	5	6	108	17,029	119,039	7.0	2,617	16,233	6.2	0
12	1:00 PM	8/21	9:00 PM	8/21	8	6	112	13,793	96,069	7.0	4,910	30,399	6.2	0
13	3:00 PM	8/23	8:00 PM	8/23	5	6	126	10,979	74,776	6.8	7,707	49,496	6.4	5
14	1:00 PM	8/26	9:00 PM	8/26	8	6	126	11,760	77,941	6.6	11,571	73,933	6.4	0
15	1:00 PM	8/27	9:00 PM	8/27	8	6	90	6,100	39,680	6.5	7,415	46,705	6.3	0
16	1:00 PM	8/28	9:00 PM	8/28	8	6	69	3,737	23,931	6.4	5,110	31,865	6.2	0
17	1:00 PM	8/30	9:00 PM	8/30	8	6	61	1,301	8,577	6.6	3,587	22,224	6.2	0
18	1:00 PM	8/31	9:00 PM	8/31	8	6	35	785	4,913	6.3	1,909	11,996	6.3	0
19	12:00 PM	9/2	9:00 PM	9/2	9	6	21	482	3,105	6.4	1,350	8,337	6.2	0
20	12:00 PM	9/4	9:00 PM	9/4	9	6	35	1,383	9,049	6.5	2,129	13,304	6.2	0
21	12:00 PM	9/6	9:00 PM	9/6	9	6	33	1,417	8,904	6.3	2,206	13,794	6.3	0
22	12:00 PM	9/8	9:00 PM	9/8	9	6	45	3,792	24,944	6.6	2,663	16,912	6.4	0
23	9:00 AM	9/10	9:00 PM	9/10	12	6	49	3,135	19,949	6.4	3,351	20,974	6.3	0
Coho salmon sold in the summer season											4	21	5.3	
District 2 subtotal:					178		197	213,225	1,500,734	7.0	67,208	421,347	6.3	67
Lower Yukon Area, fall season, Districts 1, 2, and 3 subtotal:					369	259	459	439,801	3,096,172	7.0	180,877	1,143,844	6.3	114

-continued-

Table 5.–Page 3 of 3.

Period	Starting time	Start date	Ending time	End date	Hours fished		Number fishermen	Fall chum salmon Number	Fall chum salmon Pounds	Fall chum salmon Avg wt	Coho salmon Number	Coho salmon Pounds	Coho salmon Avg wt
Subdistricts 5-B and 5-C													
1	6:00 PM	8/8	11:59 PM	10/5	1,398		4	7,542	47,290	6.3	54	319	5.9
District 5 subtotal:					1,398		4	7,542	47,290	6.3	54	319	5.9
Subdistricts 6-A, 6-B, and 6-C													
1	6:00 PM	8/12	12:00 PM	8/14	42		0	–	–	–	–	–	–
2	6:00 PM	8/15	12:00 PM	8/17	42		0	–	–	–	–	–	–
3	6:00 PM	8/19	12:00 PM	8/21	42		1	80	560	7	–	–	–
4	6:00 PM	8/22	12:00 PM	8/24	42		0	–	–	–	–	–	–
5	6:00 PM	8/26	12:00 PM	8/28	42		1	455	2,453	5.4	5	25	5.0
6	6:00 PM	8/29	12:00 PM	8/31	42		0	–	–	–	–	–	–
7	6:00 PM	9/2	12:00 PM	9/4	42		1	161	1,127	7.0	11	77	7.0
8	6:00 PM	9/5	12:00 PM	9/7	42		1	144	1,008	7.0	13	91	7.0
9	6:00 PM	9/9	12:00 PM	9/11	42		1	578	4,103	7.1	58	348	6.0
10	6:00 PM	9/12	12:00 PM	9/14	42		0	–	–	–	–	–	–
11	6:00 PM	9/16	12:00 PM	9/18	42		2	1,430	10,153	7.1	183	1,098	6.0
12	6:00 PM	9/19	12:00 PM	9/21	42		3	3,479	24,701	7.1	871	5,226	6.0
13	6:00 PM	9/23	12:00 PM	9/25	42		4	2,298	16,316	7.1	1,946	11,676	6.0
14	6:00 PM	9/26	6:00 PM	9/30	96		4	6,249	34,994	5.6	10,698	63,118	5.9
15	6:00 PM	10/2	12:00 PM	10/5	66		4	3,179	17,802	5.6	6,766	39,919	5.9
District 6 subtotal:					708		4	18,053	113,218	6.3	20,551	121,579	5.9
Upper Yukon Area, fall season, Districts 4, 5, and 6 subtotals:					2,106		8	25,595	160,507	6.3	20,605	121,897	5.9
Yukon Area, fall season, Districts 1–6 total:					2,543		467	465,396	3,256,679	7.0	201,482	1,265,741	6.3

Note: No commercial fishing occurred in Districts 3 and 4 and Subdistricts 5-A and 5-D. En dash indicates no commercial fishing activity occurred.

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

[b] Pink salmon were sold commercially during these periods. A total of 17,726 pink salmon were sold during the fall season.

Table 6.–Commercial sales in number of salmon by statistical area, Yukon Area, 2016.

Statistical area	Chinook [a]	Summer chum [a]	Fall chum [a]	Coho [a]	Pink [a]	Total salmon
334-11	0	24,855	2,758	2,302	16,494	46,409
12	0	39,657	60,695	24,930	61,702	186,984
13	0	31,585	15,780	9,529	7,173	64,067
14	0	29,592	19,998	3,424	3,934	56,948
15	0	27,717	19,537	14,313	7,758	69,325
16	0	20,964	13,461	19,005	12,585	66,015
17	0	105,501	68,882	29,352	14,469	218,204
18	0	13,651	25,465	10,814	955	50,885
Subtotal District 1	0	293,522	226,576	113,669	125,070	758,837
334-21	0	22,739	37,155	14,666	1,091	75,651
22	0	102,263	104,917	30,970	1,177	239,327
23	0	42,503	44,412	17,886	0	104,801
24	0	50,073	7,383	2,645	0	60,101
25	0	10,689	19,358	1,041	0	31,088
Subtotal District 2	0	228,267	213,225	67,208	2,268	510,968
334-31	–	–	–	–	–	–
32	–	–	–	–	–	–
Subtotal District 3	–	–	–	–	–	–
Total Lower Yukon	0	521,789	439,801	180,877	127,338	1,269,805
334-42	–	–	–	–	–	–
43	–	–	–	–	–	–
44	–	–	–	–	–	–
45	–	–	–	–	–	–
46	–	–	–	–	–	–
47	–	–	–	–	–	–
Subtotal District 4	–	–	–	–	–	–
334-51	–	–	–	–	–	–
52	–	–	7,542	54	–	7,596
53	–	–	0	0	–	0
54	–	–	–	–	–	–
55	–	–	–	–	–	–
Subtotal District 5	–	–	7,542	54	–	7,596
334-61	0	0	0	0	–	0
62	0	4,020	12,990	13,285	–	30,295
63	0	0	5,063	7,266	–	12,329
Subtotal District 6	0	4,020	18,053	20,551	–	42,624
Total Upper Yukon	0	4,020	25,595	20,605	0	50,220
Grand Total Yukon Area	0	525,809	465,396	201,482	127,338	1,320,025

Note: En dash indicates no commercial fishing activity occurred.

[a] Sales reported in numbers of fish sold in the round. Does not include ADF&G test fishery sales.

Table 7.–Commercial salmon sales and estimated harvest by district and country, Yukon River drainage, 2016.

District/ Subdistrict	Number of fishermen [a]	Chinook	Summer chum	Fall chum	Coho	Pink
1	288	0	293,522	226,576	113,669	125,070
2	216	0	228,267	213,225	67,208	2,268
Subtotal	483	0	521,789	439,801	180,877	127,338
3	–	–	–	–	–	–
Total Lower Yukon	483	0	521,789	439,801	180,877	127,338
Anvik River	–	–	–	–	–	–
4-A	–	–	–	–	–	–
4-BC	–	–	–	–	–	–
Subtotal District 4	–	–	–	–	–	–
5-ABC	4	–	–	7,542	54	–
5-D	–	–	–	–	–	–
Subtotal District 5	4	–	–	7,542	54	–
6	5	0	4,020	18,053	20,551	–
Total Upper Yukon	9	0	4,020	25,595	20,605	–
Total Alaska	492	0	525,809	465,396	201,482	127,338
Total Canada	7	1	0	1,745	0	0
Grand Total	499	1	525,809	467,141	201,482	127,338

Note: En dash indicates 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 8.–Subsistence and personal use salmon harvest estimates, including commercially related and test fishery harvests provided for subsistence use, and related information, Yukon Area, 2016.

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	86	153	284	6,324	105	121	85	1	0	0
Scammon Bay	86	82	602	5,520	657	234	68	12	0	5
Coastal District total	172	236	886	11,844	762	355	153	13	0	5
Nunam Iqua [c]	28	22	190	2,130	111	58	22	0	0	6
Alakanuk [c]	76	97	470	6,595	748	184	13	38	0	25
Emmonak [c, d]	82	113	939	8,976	2,501	717	4	68	0	10
Kotlik [c]	92	73	1,187	9,000	1,225	274	38	54	0	0
District 1 subtotal	278	306	2,786	26,701	4,585	1,233	77	160	0	41
Mountain Village [c]	93	106	809	8,750	1,204	437	3	70	0	21
Pitkas Point [c]	16	24	156	1,485	232	22	0	8	0	8
St. Marys [c]	94	73	1,043	7,377	1,021	115	11	57	0	27
Pilot Station [c]	49	81	639	4,577	913	136	0	40	0	9
Marshall [c]	59	62	512	5,180	1,106	409	0	42	0	17
District 2 subtotal	311	346	3,159	27,369	4,476	1,119	14	217	0	82
Russian Mission	43	56	321	1,798	235	6	9	25	0	9
Holy Cross	40	23	557	991	583	134	4	36	0	0
Shageluk	5	16	22	264	171	0	2	4	0	0
District 3 subtotal	88	94	900	3,053	989	140	15	65	0	9
Lower Yukon River total	677	746	6,845	57,123	10,050	2,492	106	442	0	132
Anvik	18	24	241	1,117	527	184	7	11	0	0
Grayling	20	36	370	878	499	35	0	20	0	0
Kaltag	28	35	1,358	467	680	53	0	28	0	0
Nulato	57	66	1,957	1,001	2,681	0	0	57	0	0
Koyukuk	22	31	612	119	297	1	1	21	0	0
Galena	76	92	993	1,689	3,319	201	22	52	2	0
Ruby	21	43	344	678	526	226	6	11	1	3
District 4 Yukon River subtotal	242	327	5,875	5,949	8,529	700	36	200	3	3
Huslia	19	60	77	3,568	333	93	19	0	0	0
Hughes	11	19	17	1,196	621	0	14	0	0	0
Allakaket	10	24	45	2,150	391	33	10	0	0	0
Alatna	2	8	1	639	0	0	2	0	0	0
Bettles	0	19	0	0	0	0	-	-	0	0
Koyukuk River subtotal	42	130	140	7,553	1,345	126	45	0	0	0
District 4 subtotal	284	457	6,015	13,502	9,874	826	81	200	3	3

-continued-

Table 8.–Page 2 of 3.

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	51	186	2,129	3,742	21,204	639	35	0	16	0
Rampart [d]	3	5	35	39	0	2	3	0	0	0
Fairbanks (FNSB) [d, e]	49	189	1,318	461	2,143	101	49	0	0	0
Stevens Village	4	144	178	500	4,500	50	2	0	2	0
Birch Creek	0	7	0	0	0	0	-	-	-	0
Beaver	14	32	165	23	228	0	13	0	1	0
Fort Yukon [c]	60	336	1,283	13	7,527	1	23	0	37	0
Circle [d]	10	123	207	0	1,288	38	3	0	7	0
Central [d]	3	3	53	0	18	0	2	0	1	0
Eagle [d, f]	23	202	864	0	15,765	0	16	0	7	0
Other District 5 [d, g]	14	23	306	180	17	0	13	0	0	0
District 5 Yukon River subtotal	231	1,250	6,538	4,958	52,690	831	158	0	71	0
Venetie	27	196	536	0	5,358	0	23	0	0	4
Chalkyitsik	10	87	50	0	550	30	10	0	0	0
Chandalar and Black Rivers subtotal	37	283	586	0	5,908	30	33	0	0	0
District 5 subtotal	268	1,533	7,124	4,958	58,598	861	191	0	71	0
Manley [d]	8	33	230	32	414	323	7	0	1	0
Minto [d]	5	62	35	4	40	0	3	0	1	0
Nenana [d]	15	158	464	19	2,269	2,293	10	0	4	0
Fairbanks (FNSB) [d, e]	165	220	143	209	1,167	1,244	44	0	1	106
Other District 6 [d, h]	24	67	1	8	1,275	677	8	0	0	11
District 6 Tanana River subtotal	217	540	873	272	5,165	4,537	72	0	7	117
Upper Yukon River total	769	2,530	14,012	18,732	73,637	6,224	345	200	81	124
Alaska, Yukon River total [i]	1,446	3,276	20,857	75,855	83,687	8,716	451	642	81	256
Alaska, Yukon Area total	1,618	3,512	21,743	87,699	84,449	9,071	604	655	81	261
AK, Yukon Area percentages of the total	-	-	11%	43%	42%	4%	38%	41%	5%	16%
Included in the communities above:										
Survey community subtotal	1,299	2,432	16,843	81,524	57,064	3,528	446	655	59	144
Retained from commercial fisheries [j]	-	-	1,616	1,724	1,639	196	-	-	-	-
Subsistence permit subtotal	241	1,080	3,419	776	22,932	3,189	88	0	22	109
Test fishery subtotal	-	-	1,244	5,223	2,989	865	-	-	-	-
District 6 commercial retained [k]	-	-	180	0	1,181	1,223	-	-	-	-
Subsistence harvests subtotal	1,540	-	21,686	87,523	84,166	8,805	534	655	81	253
Personal Use permit subtotals	78		57	176	283	266	70	0	0	8

-continued-

[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, spear and beach seines.

[b] Does not include 201 households that fished with a Tolovana River pike permit; includes 20 households that fished 2 permits and 3 households that fished 3 permits in District 5 or District 6 permit areas.

[c] Includes salmon distributed from test fishery projects.

[d] Permit data from permits returned by January 31, 2017.

[e] Fairbanks (FNSB) North Star Borough; may include Fairbanks, Ester, Fox, North Pole, Salcha, Two Rivers and Ft Wainwright

[f] Permit holders harvested 762 Chinook and 13,015 fall chum salmon above the mainstem Yukon River sonar project located near the community of Eagle

[g] Other District 5 includes residents of Anchorage, Grayling, Manley, Nenana, Tanana, Venetie and Wasilla, and the Upper Tanana Villages community of Tok who obtained a household permit and fished in a Yukon River permit required area.

[h] Other District 6 includes residents of Anchorage, Central, Chitina, Palmer, Talkeetna, Fort Yukon and the Upper Tanana River drainage communities of Delta Junction, Dot Lake, Northway and Tok who obtained a permit and fished in the Tanana River.

[i] Total excluding Coastal District is used to assess objectives under the Yukon River Salmon Agreement.

[j] Estimated number of salmon retained from commercial fisheries and used for subsistence in the Coastal District and Districts 1-3; included in subsistence harvest estimates.

[k] 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 9.–Summary of 2016 salmon escapement counts compared to existing goals.

Stock/location	Assessment method	Goal type	Goals	2016 Escapement
Chinook salmon stock				
E. Fork Andreafsky	Weir	SEG	2,100–4,900	2,676
W. Fork Andreafsky	Aerial survey	SEG	640–1,600	[a]
Anvik	Aerial survey	SEG	1,100–1,700	[a]
Nulato (Forks Combined)	Aerial survey	SEG	940–1900	[a]
Gisasa	Weir	none	–	1,395
Henshaw	Weir	none	–	1,354
Chena	Tower/sonar	BEG	2,800–5,700	6,665 [b]
Salcha	Tower/sonar	BEG	3,300–6,500	2,675 [b]
Goodpaster	Tower	none	–	2,435
Canadian Upper Yukon River	Sonar-harvest	IMEG	42,500–55,000	68,798
Summer chum salmon stock				
Yukon Drainagewide	Sonar	BEG	500,000–1,200,000	1,914,526 [c]
E. Fork Andreafsky	Weir	BEG	>40,000	50,362
Anvik	Sonar	BEG	350,000–700,000	337,821
Gisasa	Weir	none	–	66,670
Henshaw	Weir	none	–	286,780
Chena	Tower/sonar	none	–	6,493 [b]
Salcha	Tower/sonar	none	–	2,897 [b]
Fall chum salmon stock				
Yukon Drainagewide	Bayesian	SEG	300,000–600,000	828,800
Chandalar	Sonar	BEG	74,000–152,000	295,023
Tanana	Regression	BEG	61,000–136,000	199,639
Delta	Ground surveys	BEG	6,000–13,000	21,913
Fishing Branch	Weir/sonar	IMEG	22,000–49,000	29,397
Canadian Upper Yukon River	Sonar-harvest	IMEG	70,000–104,000	145,267
Coho salmon stock				
Delta Clearwater River	Boat survey	SEG	5,200–17,000	6,767

Note: Biological escapement goal (BEG), sustainable escapement goal (SEG) and interim management escapement goal (IMEG).

[a] No surveys conducted

[b] Due to high water, estimate incomplete and represents minimum escapement.

[c] Drainagewide escapement based on pilot station sonar and East Fork Andreafsky escapement estimates doubled with above sonar commercial harvest removed.

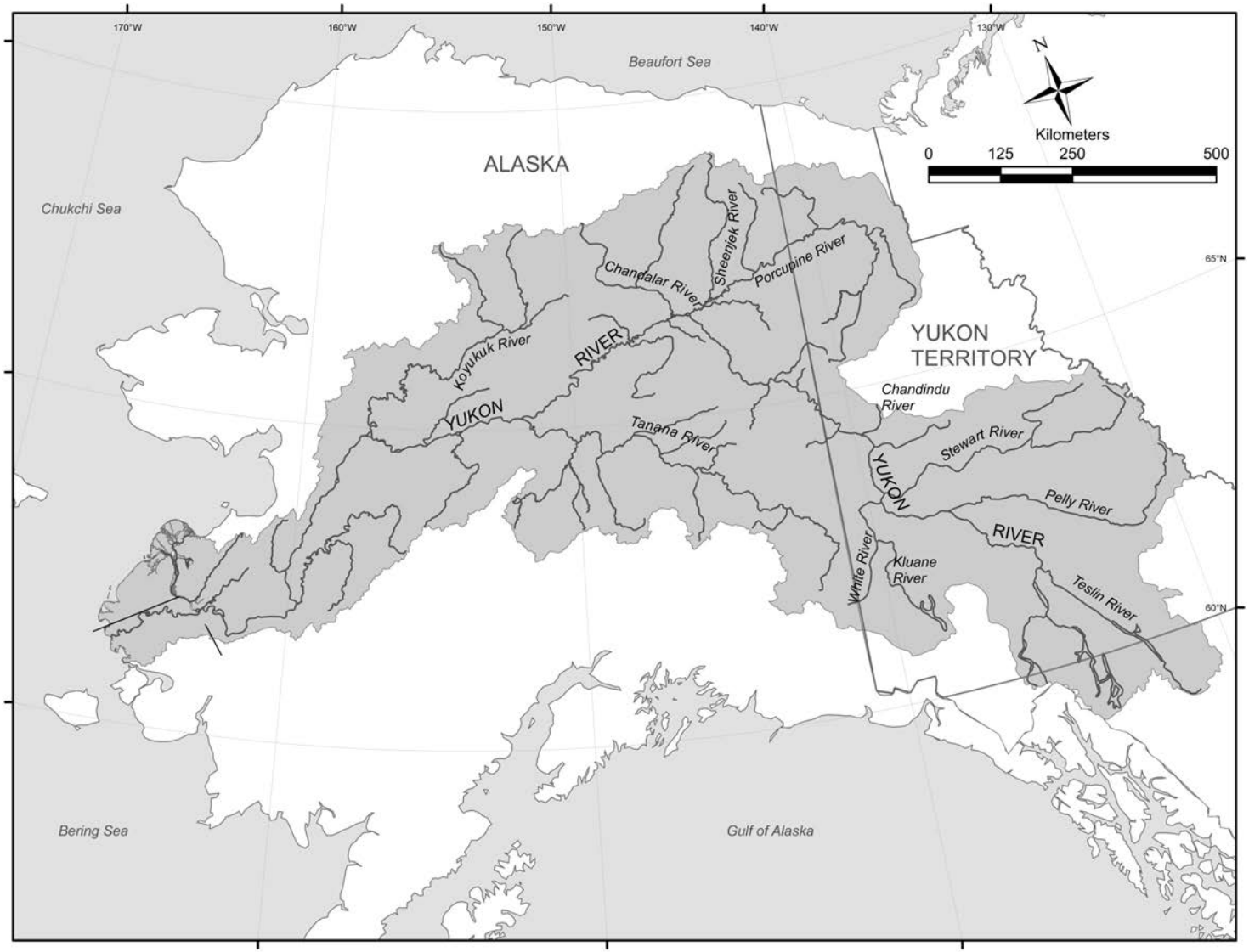

Figure 1.–Map of the Yukon River drainage.

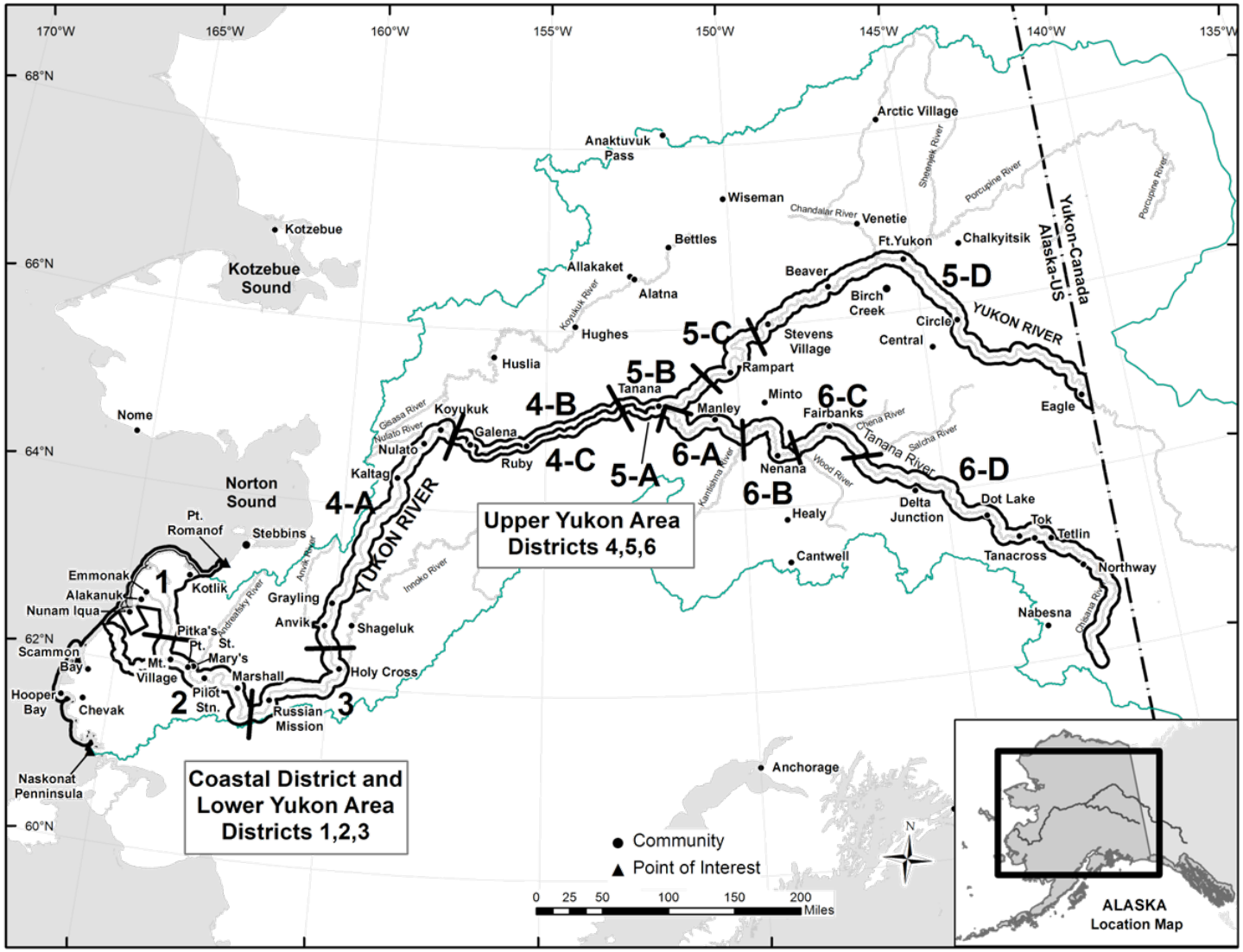

Figure 2.–Map of the Alaska portion of the Yukon River drainage showing communities and fishing districts.

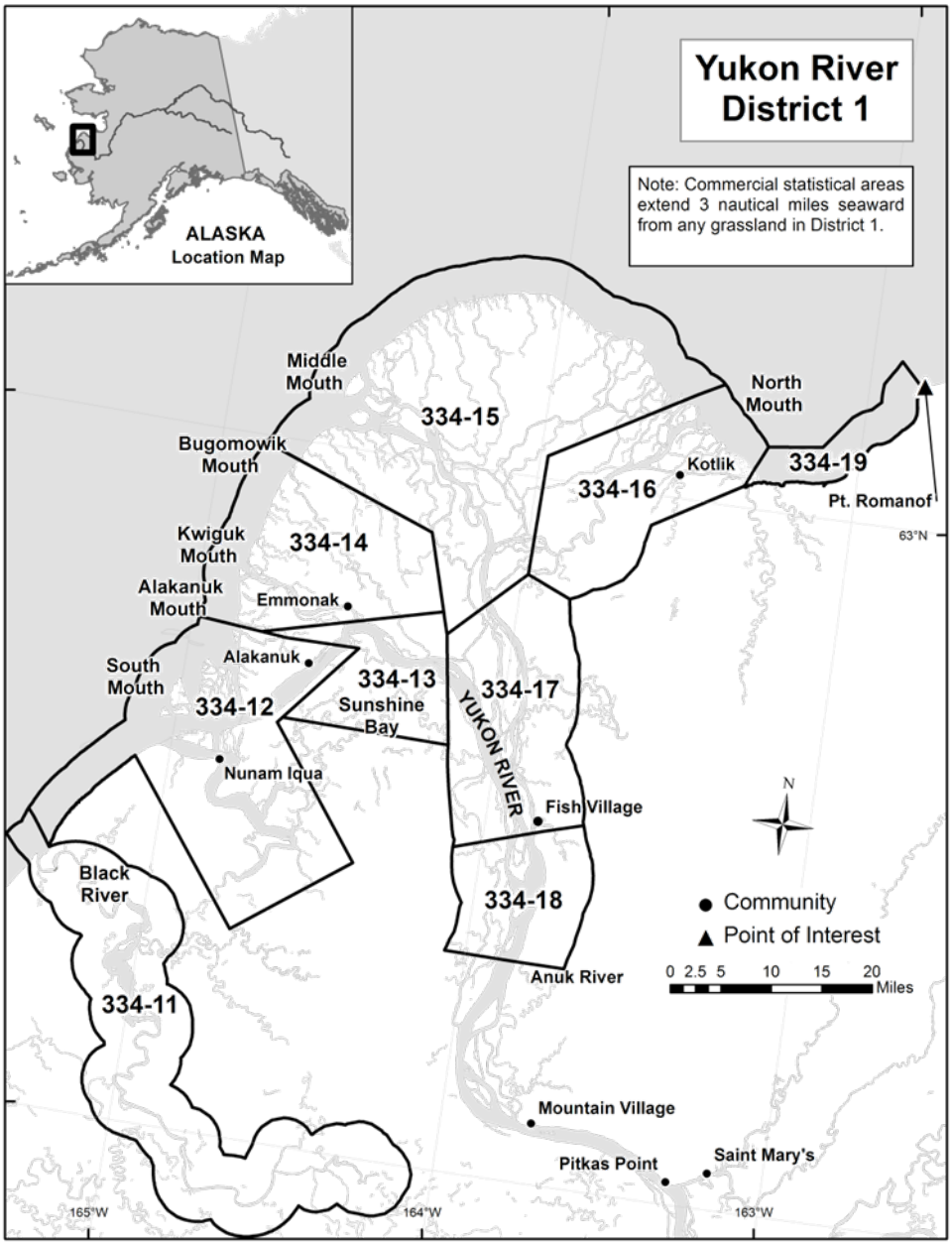

Figure 3.–District 1 showing statistical areas, Yukon Area.

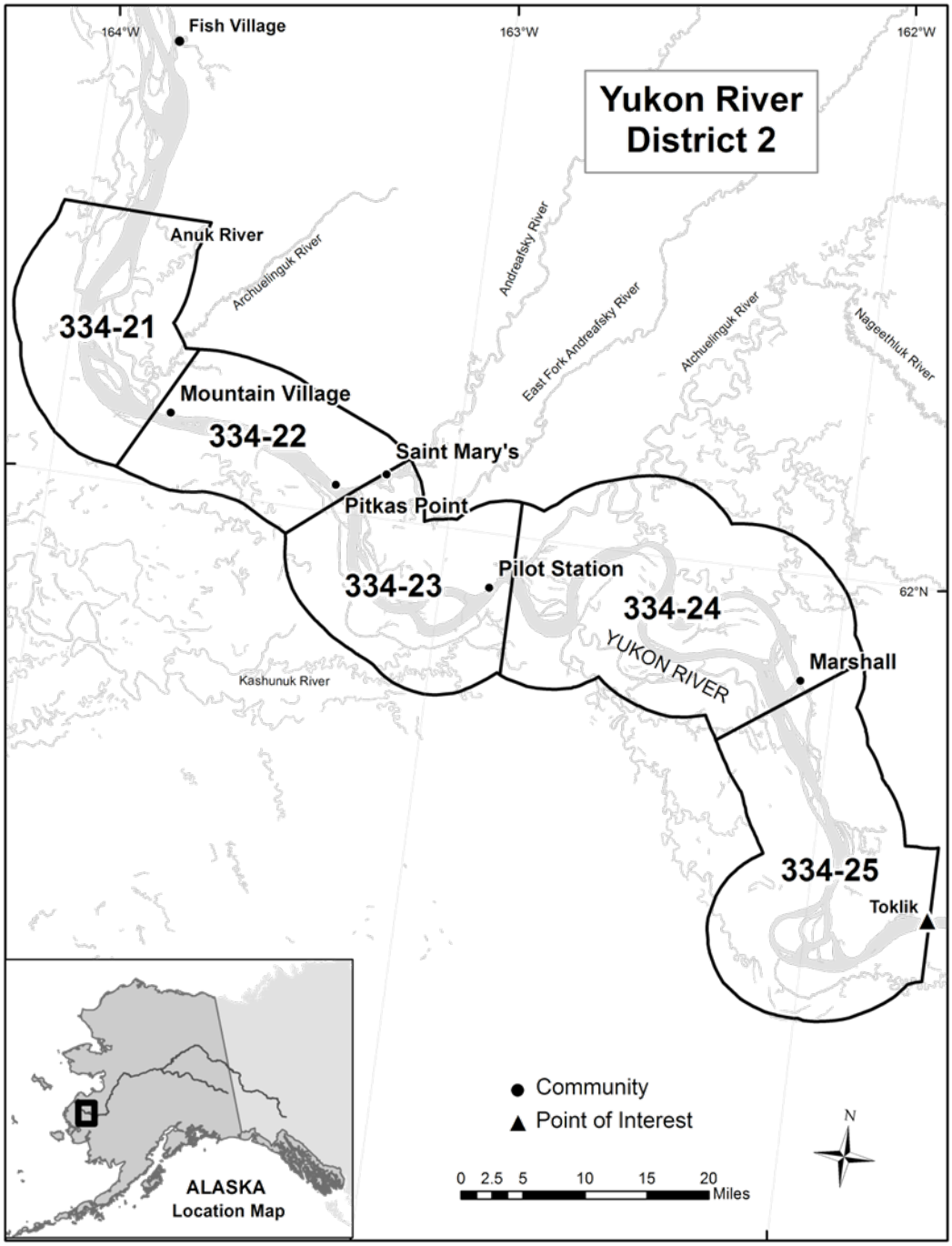

Figure 4.–District 2 showing statistical areas, Yukon Area.

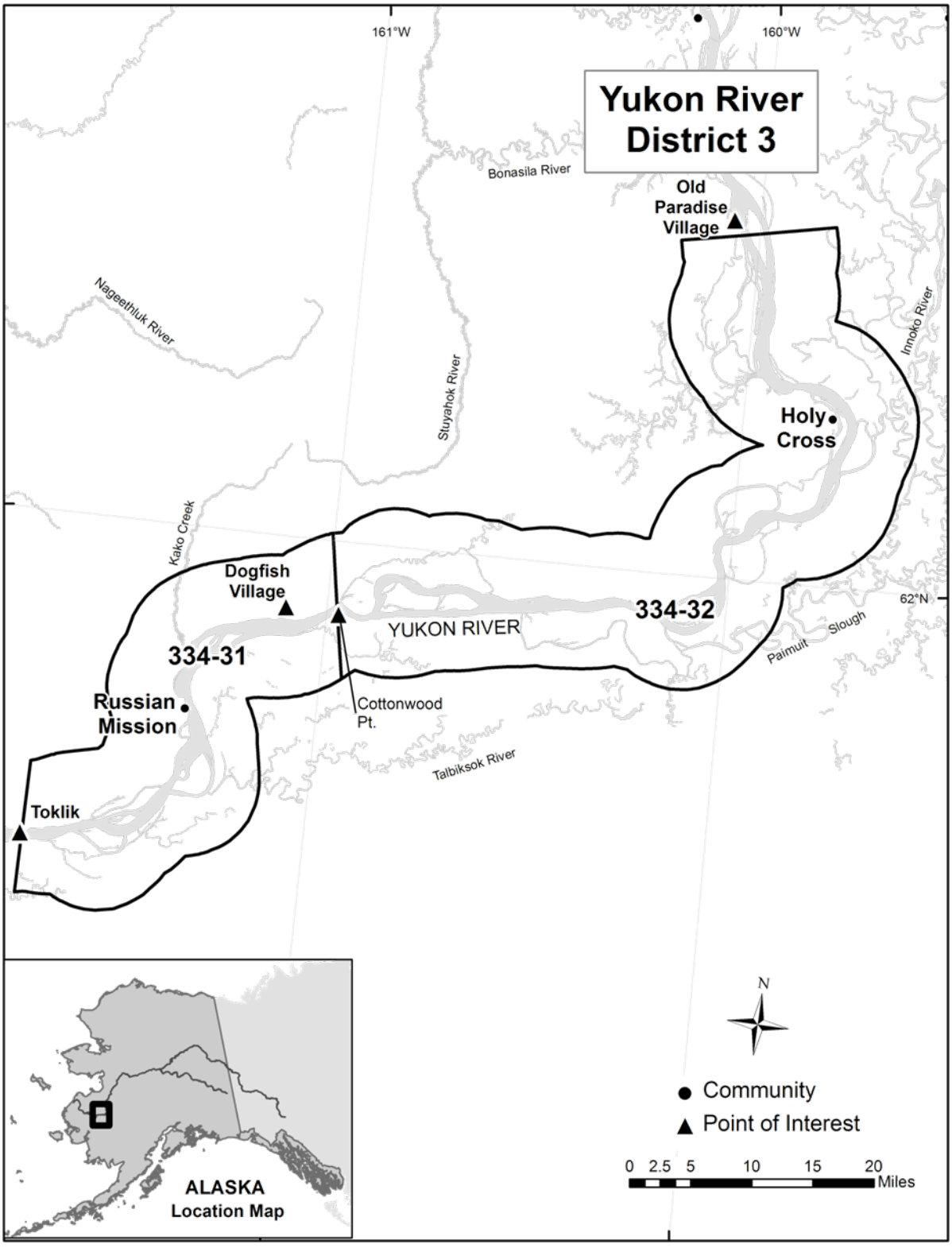

Figure 5.–District 3 showing statistical areas, Yukon Area.

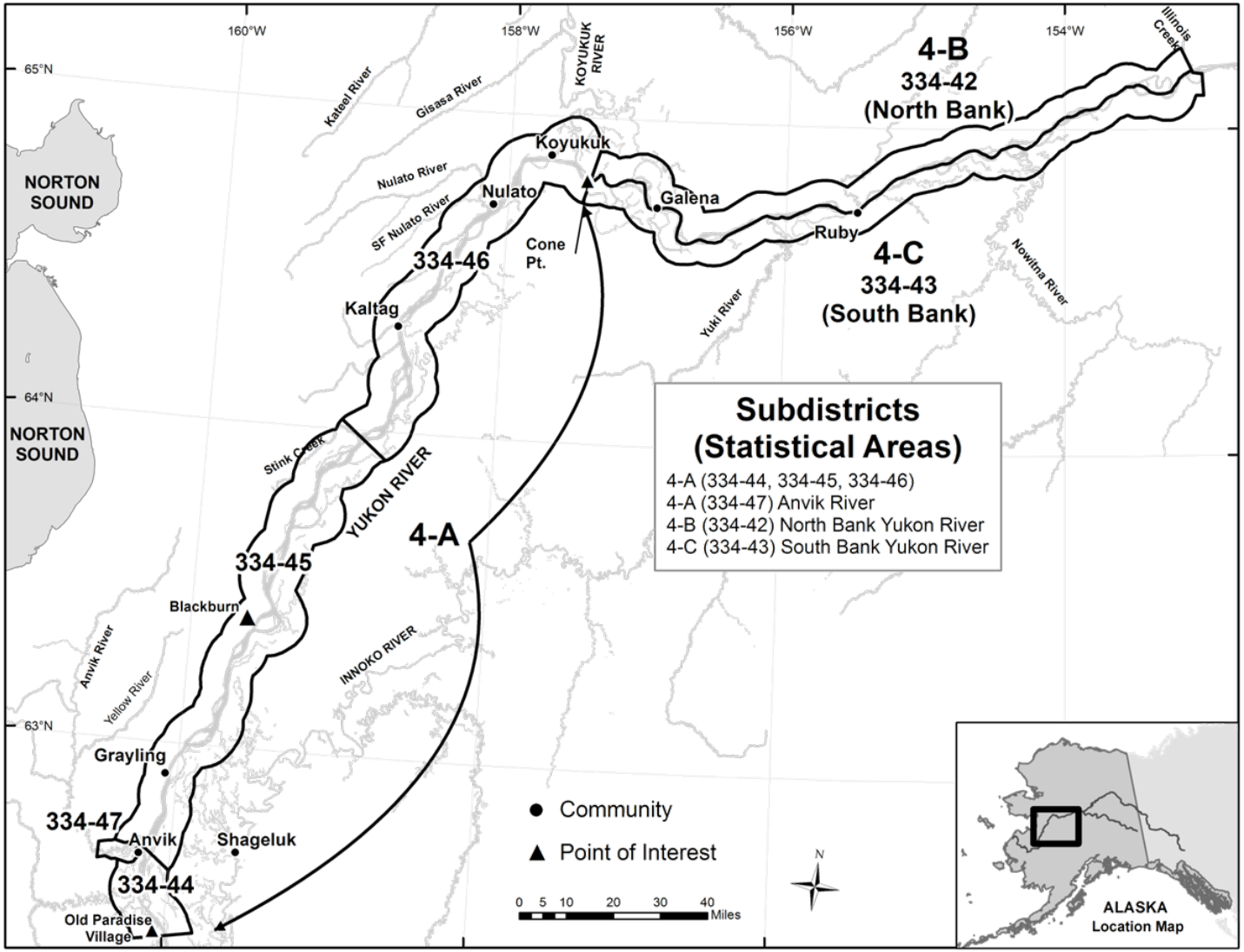

Figure 6.–District 4 showing statistical areas, Yukon Area.

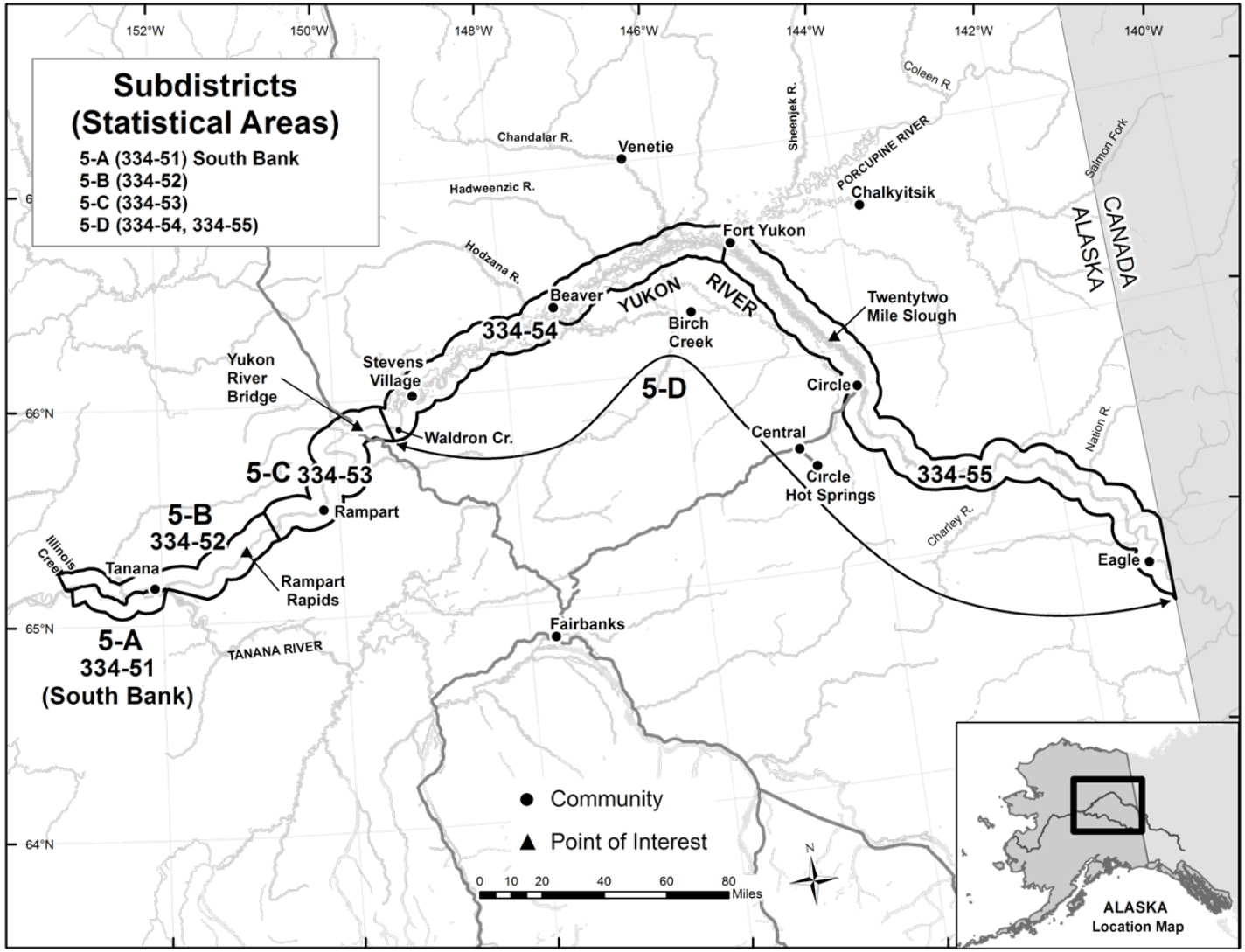

Figure 7.–District 5 showing statistical areas, Yukon Area.

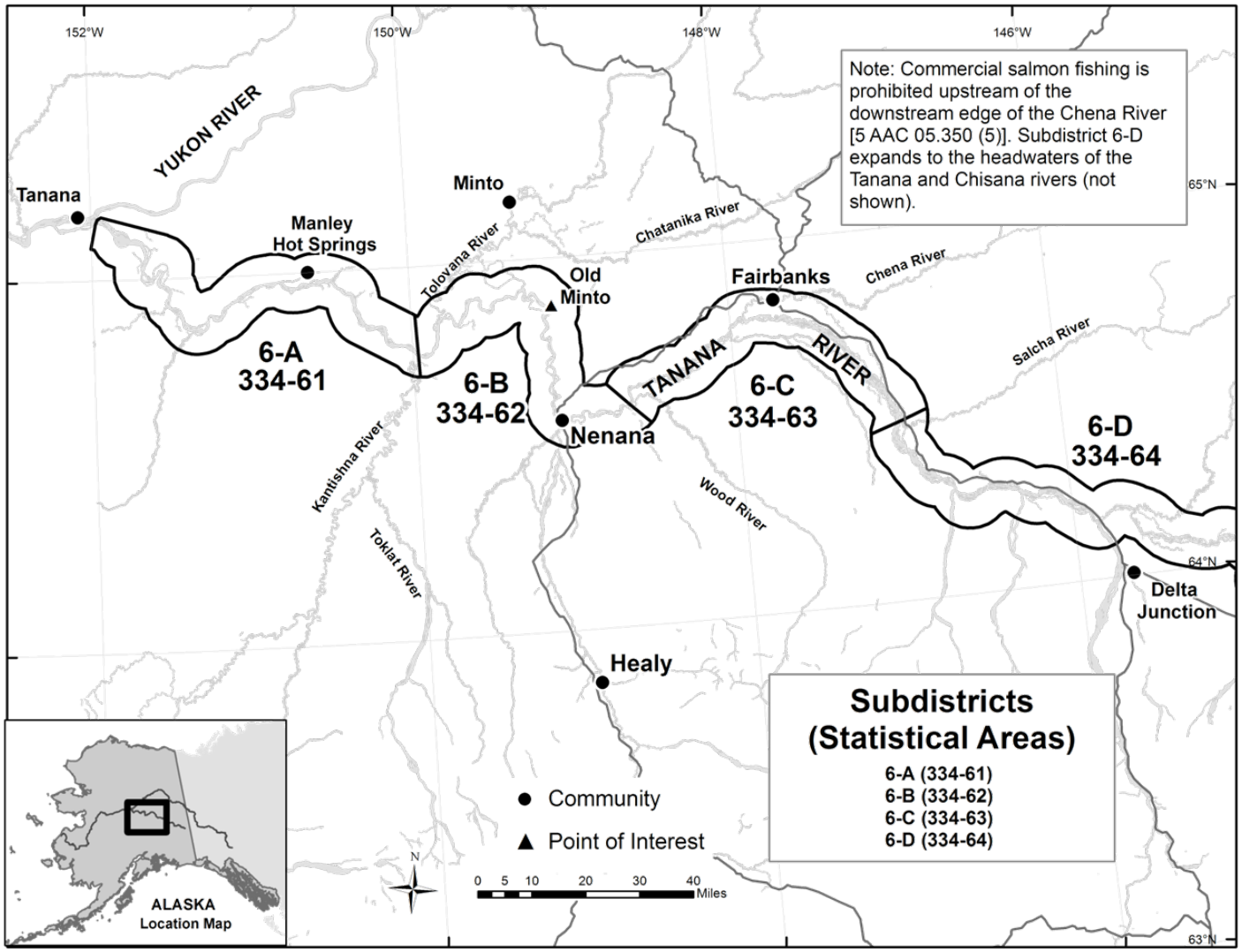

Figure 8.–District 6 showing statistical areas, Yukon Area.

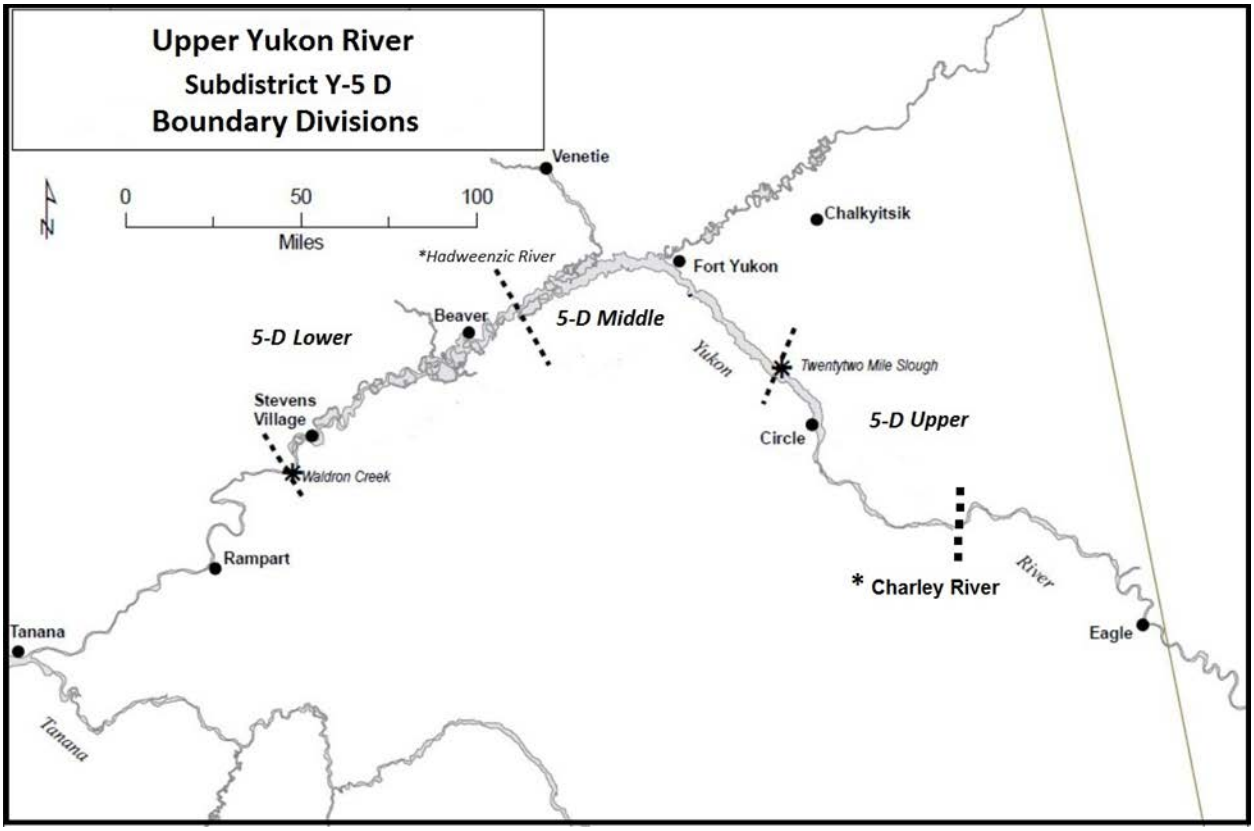

Figure 9.–Subdistrict 5-D Boundary Divisions, Yukon Area.

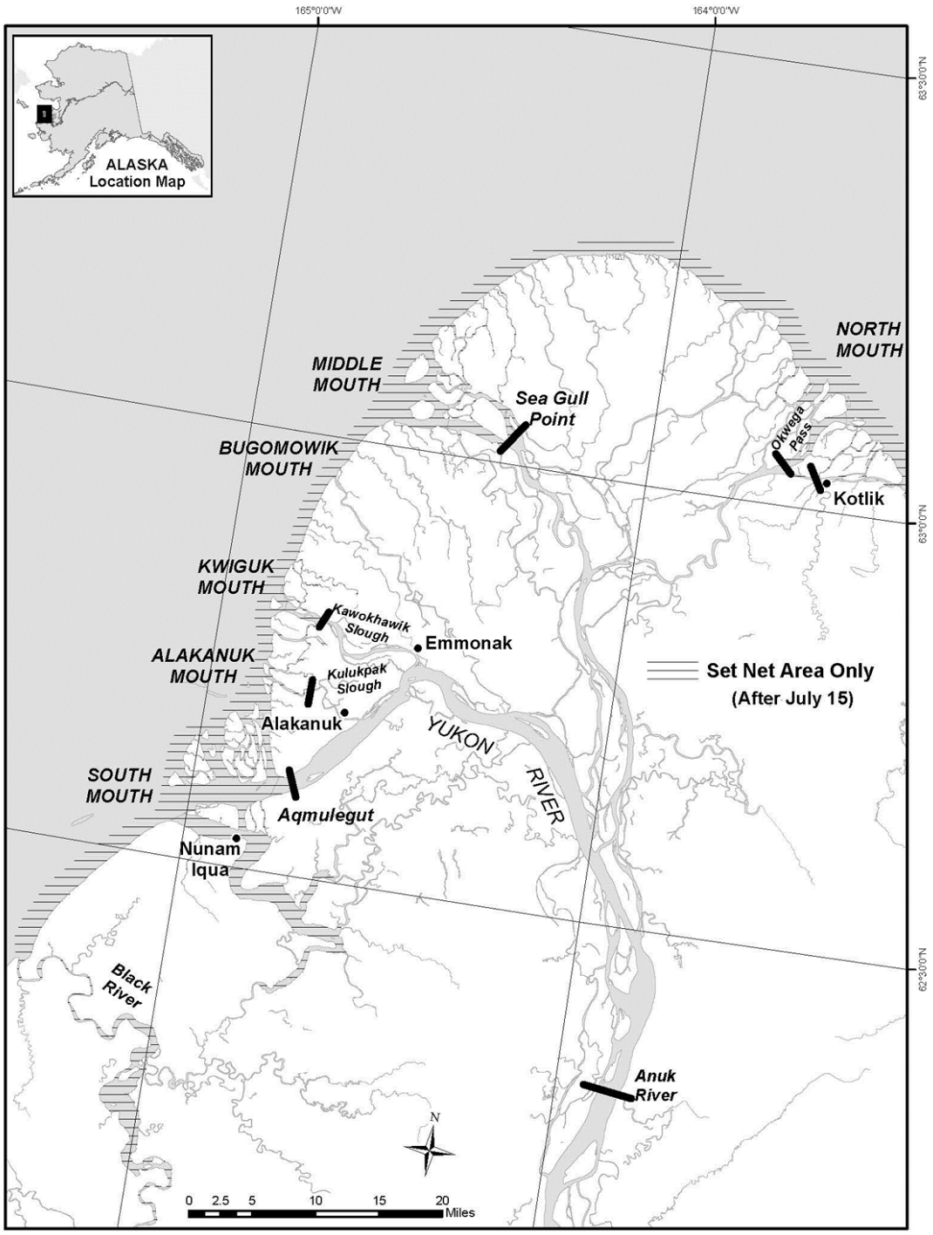

Figure 10.–Set Gillnet Only Area of District 1, Yukon Area.

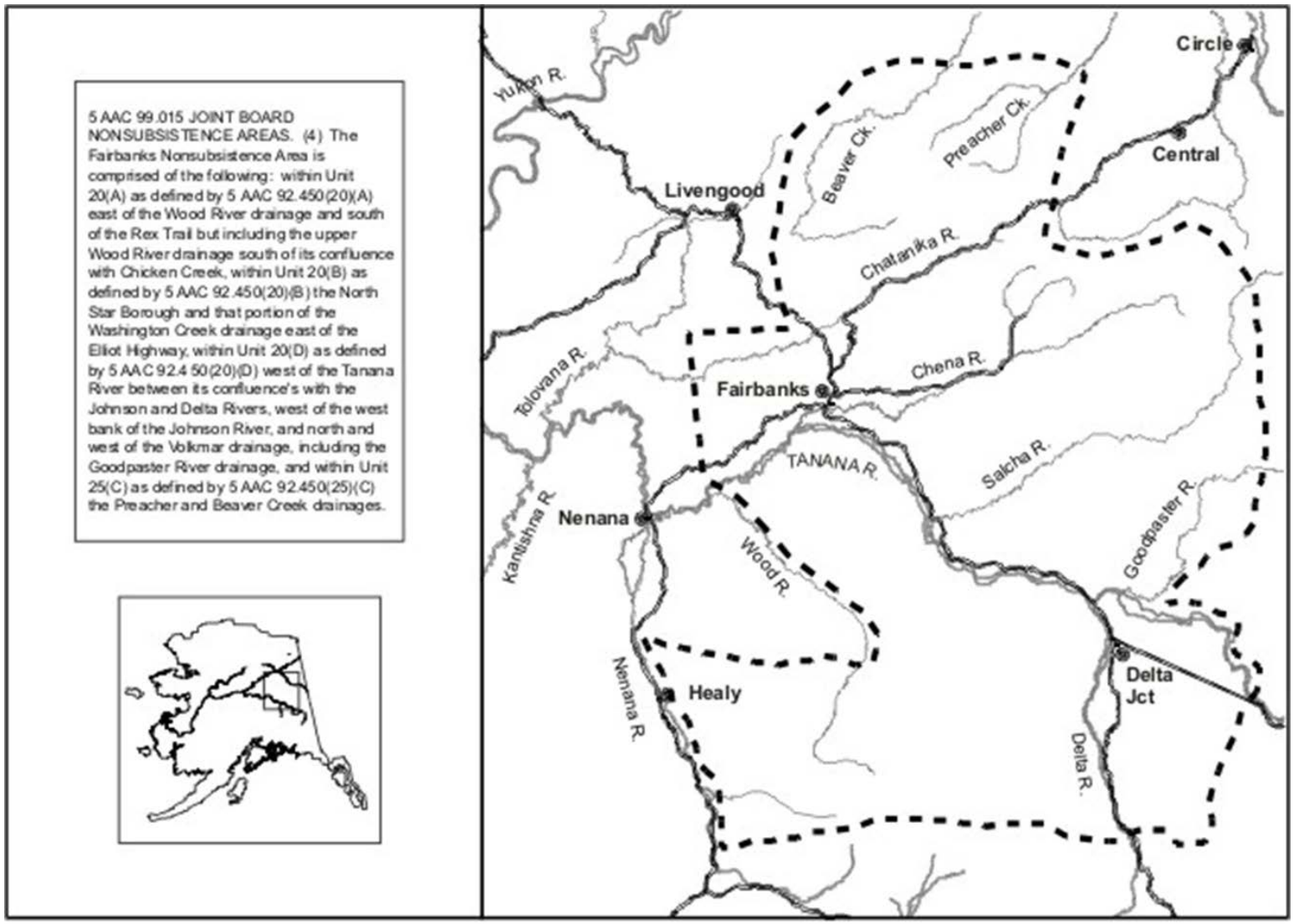

Figure 11.–The Fairbanks Nonsubsistence Area.

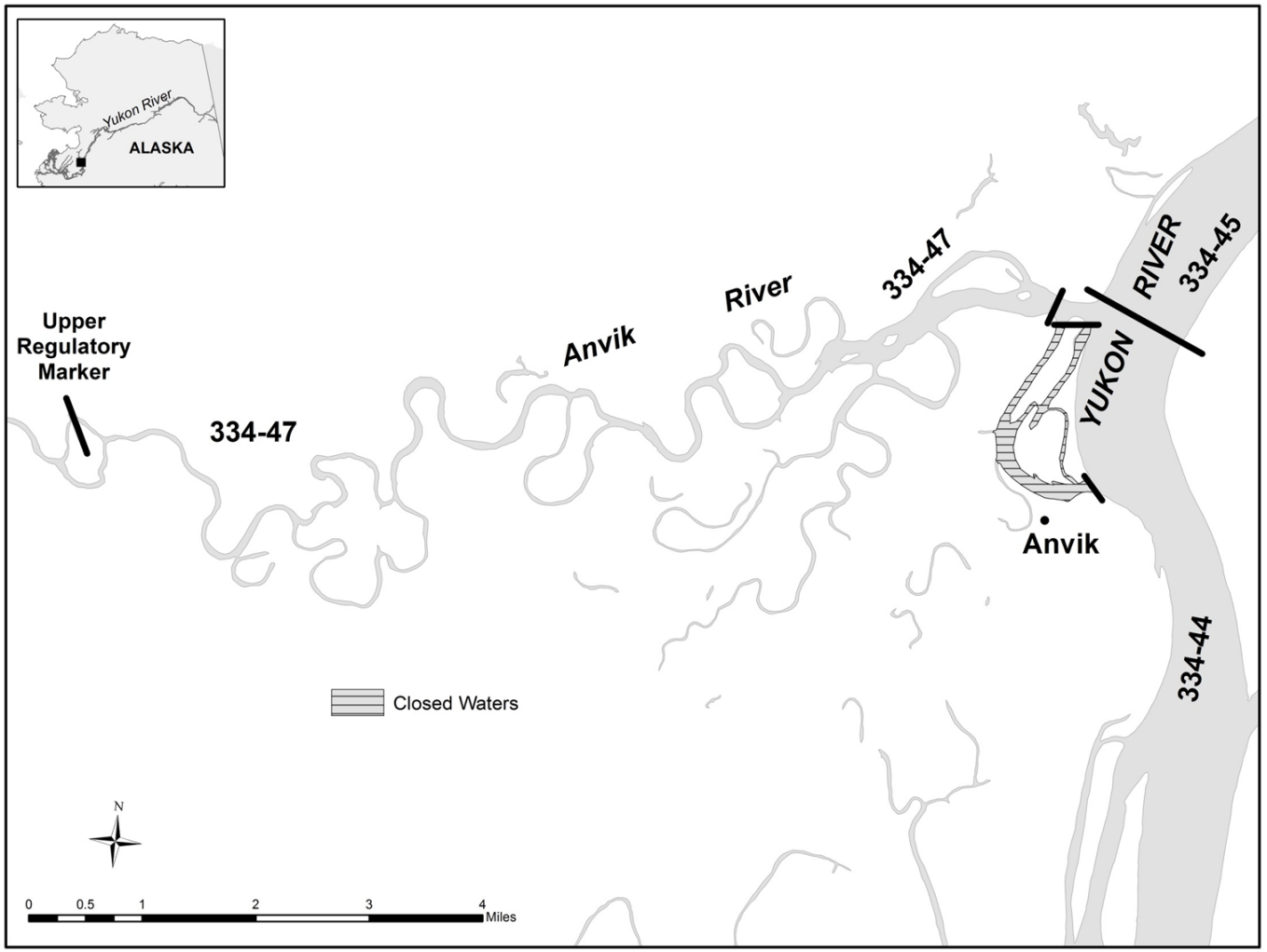

Figure 12.–Anvik River Management Area, Yukon Area.

APPENDIX A

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] The 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)	
Patsys Cabin	71
Mountain Village	87
Old Andreafsky	97
Pitkas Point	103
Mouth, Andreafsky River	104
St. Marys	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 R.)	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 R.	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 R.	1,000
Mouth, Delta Creek	1,014
Mouth, Clear Creek (Richardson-Clearwater)	1,015
Mouth, Shaw Creek	1,021
Mouth, Delta River (Big Delta)	1,031
Delta Junction	1,041
Mouth, Goodpaster River	1,049
Bluff Cabin Slough	1,050
Outlet, Clearwater Lake	1,052
Outlet, Clearwater Crk (Delta Clearwater)	1,053
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 - Pipeline Crossing	820
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 R.	1,142
Mouth, Sheenjek River	1,054
Mouth, Coleen River	1,157
Mouth, Salmon Trout R.	1,193
U.S. - Canadian Border	1,219
Old Crow	1,259
Fishing Branch R. spawning area	1,600
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 R.	1,641
Mouth, S. Big Salmon R.	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, 1996–2016.

	Lower Yukon Area [a]			
Year	District 1	District 2	District 3	Subtotal
1996	56,642	30,209	0	86,851
1997	66,384	39,363	–	105,747
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	46	–	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
2011-2015 Average	7	9		16
2006-2015 Average	5,076	3,969	253	9,095

-continued-

Appendix A3.–Page 2 of 3.

	Upper Yukon Area [c]								
	District 4			District 5			District 6		
Year	Number	Roe	Estimated Harvest [c] [d]	Number	Roe	Estimated Harvest [d]	Number	Roe	Estimated Harvest [d]
1996	45	202	137	2,497	518	2,757	278	750	447
1997	1,450	14	1,457	3,678	0	3,678	1,966	3,211	2,728
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
2011-2015 Average	0	0	0				0	0	0
2006-2015 Average	0	0	0	1,540	0	1,540	37	0	37

-continued-

	Upper Yukon Area Subtotal			Total		
Year	Number	Roe	Estimated Harvest [d]	Alaska Harvest	Canada Harvest	Yukon River
1996	2,820	1,470	3,341	90,192	10,164	100,356
1997	7,094	3,225	7,863	113,610	5,311	118,921
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	0	0
2011-2015 Average	0	0	0	16	1	18
2006-2015 Average	345	0	345	9,440	270	9,710

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] 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.

[c] 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. Does not include department test fish sales.

[d] 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, 1996–2016.

	Lower Yukon Area			
Year	District 1 [a]	District 2 [a]	District 3	Subtotal
1996	92,506	30,727	1,534 [b]	124,767
1997	59,915	18,242	–	78,157
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
2011 – 2015 Average	178,598	148,389		326,987
2006 – 2015 Average	126,266	106,258		232,535

-continued-

	Upper Yukon Area [c]								
	District 4			District 5			District 6		
Year	Number	Roe	Estimated Harvest [d]	Number	Roe	Estimated Harvest [d]	Number	Roe	Estimated Harvest [d]
1996	0	295,190	510,240	0	302	336	22,360	18,332	46,890
1997	2,062	74,231	124,671	137	0	137	14,886	9,036	25,287
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 [e]	0	0	0	14,674	0	14,674
2008	23,746	0	23,746 [e]	–	–	–	1,842	0	1,842
2009	4,589	0	4,589 [e]	–	–	–	7,777	0	7,777
2010	44,207	0	44,207 [f]	–	–	–	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
2011 – 2015 Average	101,705	0	101,705				5,955	0	5,955
2006 – 2015 Average	54,994	0	54,994				10,415	0	10,415

-continued-

	Upper Yukon Area Subtotal [c]					Total
Year	Number	Roe	Estimated Harvest [d]	Number	Roe	Estimated Harvest [d]
1996	22,360	313,824	557,466	147,127	313,824	682,233
1997	17,085	83,267	150,095	95,242	83,267	228,252
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		4,020	525,809		525,809
2011 – 2015 Average	66,978	0	66,978	393,965	0	393,965
2006 – 2015 Average	48,913	0	48,913	281,449	0	281,449

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] Number of males and females harvested to produce 935 pounds of roe.

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

[d] 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.

[e] 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.

[f] 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, 1996–2016.

	Lower Yukon Area			
Year	District 1 [a]	District 2 [a]	District 3 [a]	Subtotal
1996	33,629	29,651	–	63,280
1997	27,483	24,326	–	51,809
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	213,225	–	439,801
2011-2015 Average	105,311	93,928		199,239
2006-2015 Average	74,682	59,898		134,581

-continued-

	Upper Yukon Area								
	District 4			District 5			District 6		
Year	Numbers [a]	Roe [b]	Estimated Harvest [c]	Numbers [a]	Roe [b]	Estimated Harvest [c]	Numbers [a]	Roe [b]	Estimated Harvest [c]
1996	2,918	0	2,918	11,878	8,498	20,376	10,266	6,173	17,574
1997	2,458	0	2,458	2,446	1,194	3,640	–	–	–
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
2011-2015 Average				1,404	0	1,404	13,953	0	13,953
2006-2015 Average	406	0	406	2,754	0	2,754	11,745	55	11,805

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	Upper Yukon Area					
	Subtotal			Total		
Year	Numbers [a]	Roe [b]	Estimated Harvest [c]	Estimated Harvest	Canada Total	Grand Total
1996	25,062	14,671	40,868	104,148	20,069	124,217
1997	4,904	1,194	6,098	57,907	8,068	65,975
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	465,396	5,750	471,146
2011-2015 Average	15,519	0	15,519	214,758	3,447	218,205
2006-2015 Average	14,029	55	14,090	148,670	3,498	152,168

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] 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 roe.

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

Appendix A6.–Commercial coho salmon sales and estimated harvest by area and district, Yukon River drainage in Alaska, 1996–2016.

	Lower Yukon Area			
Year	District 1 [a]	District 2 [a]	District 3 [a]	Subtotal
1996	27,705	20,974	–	48,679
1997	21,450	13,056	–	34,506
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
2011–2015 Average	46,646	37,636		84,282
2006–2015 Average	31,524	24,600		47,689

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	Upper Yukon Area								
	District 4			District 5			District 6		
Year	Numbers [a]	Roe [b]	Estimated Harvest [c]	Numbers [a]	Roe [b]	Estimated Harvest [c]	Numbers [a]	Roe [b]	Estimated Harvest [c]
1996	161	0	161	–	–	–	3,803	4,829	7,142
1997	814	0	814	–	–	–	–	–	–
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
2011–2015 Average				127	0	127	5,931	0	5,931
2005–2014 Average	0	0	0	121	0	121	5,969	26	5,998

-continued-

	Upper Yukon Area			
	Subtotal			Alaska
Year	Numbers [a]	Roe [b]	Estimated Harvest [c]	Total Harvest
1996	3,964	4,829	7,303	55,982
1997	814	0	814	35,320
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
2011–2015 Average	6,058	0	6,058	90,340
2006–2015 Average	4,745	26	4,774	60,898

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] Estimated harvest is the 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.

Appendix A7.–Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1996–2016.

	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]
1996	707	627	72	11	165	38	944	676
1997	705	640	72	18	163	35	940	693
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
2011-2015 Average	656	462	50	0	104	13	811	475

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

[b] Data obtained from ADF&G 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, 1996–2016.

Chinook and Summer Chum Salmon Season									
	Lower Yukon Area				Upper Yukon Area				Yukon Area
Year	District 1	District 2	District 3	Subtotal [a]	District 4	District 5	District 6	Subtotal	Total
1996	448	189	9	627	87	23	15	125	752
1997	457	188	0	639	39	29	15	83	722
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
2011–2015 Average	238	179	0	408	6	0	3	9	417

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Fall Chum and Coho Salmon Season									
	Lower Yukon Area				Upper Yukon Area				
Year	District 1	District 2	District 3	Subtotal [a]	District 4	District 5	District 6	Subtotal	Yukon Area Total
1996	158	109	0	263	1	17	17	35	298
1997	176	130	0	304	3	8	0	11	315
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
2011–2015 Average	255	190	0	432	1	2	5	7	440

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COMBINED SEASON [c]									
	Lower Yukon Area				Upper Yukon Area				Yukon Area
Year	District 1	District 2	District 3	Subtotal [a]	District 4	District 5	District 6	Subtotal	Total
1996	455	217	9	628	87	29	19	135	763
1997	463	221	0	640	39	31	15	85	725
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
2011–2015 Average	277	209	0	462	6	2	5	14	476

[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.–Estimated average price per pound paid to fishermen, Yukon Area, 1996–2016.

	Lower Yukon Area					Upper Yukon Area							
Year	Chinook	Summer Chum	Fall Chum	Coho	Pink	Chinook	Chinook Roe	Summer Chum	Summer Chum Roe	Fall Chum	Fall Chum Roe	Coho	Coho Roe
1996	1.95	0.09	0.10	0.26	–	0.95	2.57	0.07	3.05	0.13	1.71	0.09	2.16
1997	2.46	0.10	0.22	0.32	–	0.97	1.62	0.07	1.08	0.17	1.75	0.20	–
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	–
2011 – 2015 Average		0.69	0.82	1.01	0.10			0.29		0.19		0.21	

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 A10.–Value of commercial salmon fishery to Yukon Area fishermen, 1996–2016

	Chinook			Summer Chum			Pink		
Year	Lower Yukon Value	Upper Yukon Value	Subtotal	Lower Yukon Value	Upper Yukon Value	Subtotal	Lower Yukon Value	Total Season	
1996	3,491,582	47,282	3,538,864	89,020	966,277	1,055,297	–	4,594,161	
1997	5,450,433	110,713	5,561,146	56,535	96,806	153,341	–	5,714,487	
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	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	[a]
2015	–	–	–	1,259,908	7,166	1,267,074	1,674	1,269,200	[a]
2016	–	–	–	1,903,490	6,030	1,909,520	54,800	1,964,341	[a]
2011-2015 Average				1,382,346	93,004	1,475,350	7,673	1,479,513	

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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
1996	48,579	45,438	94,017	96,795	13,020	109,815	–	203,832	4,797,993
1997	86,526	7,252	93,778	79,973	1,062	81,035	–	174,813	5,889,300
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	2,093,052	22,477	2,115,529	1,143,823	15,540	1,159,363	8,863	3,283,755	5,248,096
2011-2015 Average	1,110,423	18,811	1,129,234	556,691	6,119	562,809	1,018	1,692,450	3,171,964

Appendix A11.–Average weight of salmon harvested in the commercial fishery, Yukon Area, 1996–2016.

	Lower Yukon Area [a]					Upper Yukon Area [a]			
		Summer	Fall				Summer	Fall	
Year	Chinook	Chum	Chum	Coho	Pink	Chinook	Chum	Chum	Coho
1996	20.6	7.8	7.7	7.6	–	16.2	6.0	6.2	7.2
1997	20.9	7.2	7.6	7.3	–	15.4	5.9	6.4	6.5
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
2006–2015 Average	14.9	6.4	7.1	6.8	3.6	13.3	5.7	6.6	5.9

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

Appendix A12.–Chinook salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1996–2016.

	District 1				District 2			
			Test Fish				Test Fish	
Year	Subsistence [a]	Commercial [b]	Sales	Total	Subsistence	Commercial [b]	Sales	Total
1996	3,646	56,642	1,698	61,986	7,780	30,209	0	37,989
1997	7,550	66,384	2,791	76,725	9,350	39,363	20	48,733
1998	7,242	25,413	878	33,533	9,455	16,806	48	26,309
1999	6,848	37,161	1,049	45,058	10,439	27,133	156	37,728
2000	5,891	4,735	275	10,901	9,935	3,783	322	14,040
2001	7,089	–	0	7,089	13,442	–	0	13,442
2002	5,603	11,089	494	17,186	8,954	11,440	34	20,428
2003	6,332	22,709	619	29,660	9,668	14,220	61	23,949
2004	5,880	28,403	722	35,005	9,724	24,145	70	33,939
2005	5,058	16,694	310	22,062	9,156	13,413	0	22,569
2006	5,122	23,748	817	29,687	8,039	19,843	0	27,882
2007	6,059	18,616	792	25,467	10,553	13,306	57	23,916
2008	6,163	2,530	0	8,693	8,826	2,111	0	10,937
2009	4,125	90	0	4,215	6,135	226	0	6,361
2010	5,856	5,744	0	11,600	8,676	4,153	0	12,829
2011	6,255	36	0	6,291	8,069	46	0	8,115
2012	4,313	0	0	4,313	6,881	0	0	6,881
2013	1,634	0	0	1,634	1,104	0	0	1,104
2014	1,356	0	0	1,356	616	0	0	616
2015	1,919 [c]	0	0	1,919	1,185 [c]	0	0	1,185
2016	2,786 [c]	0	0	2,786	3,159 [c]	0	0	3,159
2011–2015 Average	3,095	7	0	3,103	3,571	9	0	3,580
2006–2015 Average	4,280	5,076	161	9,518	6,008	3,969	6	9,983

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	District 3			Lower Yukon Area Subtotals			
Year	Subsistence	Commercial	Total	Subsistence [a]	Commercial	Test Fish Sales	Total
1996	6,783	0	6,783	18,209	86,851	1,698	106,758
1997	6,311	–	6,311	23,211	105,747	2,811	131,769
1998	4,514	0	4,514	21,211	42,219	926	64,356
1999	7,715	538	8,253	25,002	64,832	1,205	91,039
2000	3,914	–	3,914	19,740	8,518	597	28,855
2001	6,361	–	6,361	26,892	–	0	26,892
2002	4,139	–	4,139	18,696	22,529	528	41,753
2003	5,002	–	5,002	21,002	36,929	680	58,611
2004	4,748	–	4,748	20,352	52,548	792	73,692
2005	5,131	–	5,131	19,345	30,107	310	49,762
2006	5,374	315	5,689	18,535	43,906	817	63,258
2007	4,651	190	4,841	21,263	32,112	849	54,224
2008	5,855	–	5,855	20,844	4,641	0	25,485
2009	2,924	–	2,924	13,184	316	0	13,500
2010	4,299	–	4,299	18,831	9,897	0	28,728
2011	4,134	–	4,134	18,458	82	0	18,540
2012	2,362	–	2,362	13,556	0	0	13,556
2013	444	–	444	3,182 [c]	0	0	3,182
2014	48	–	48	2,020 [c]	0	0	2,020
2015	447 [c]	–	447	3,551 [c]	0	0	3,551
2016	900 [c]	–	900	6,845 [c]	0	0	6,845
2011–2015 Average	1,487		1,487	8,153	16	0	8,170
2006–2015 Average	3,054	253	3,104	13,342	8,269	167	22,604

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	District 4				District 5			
Year	Subsistence	Commercial	Commercial Related [d]	Total	Subsistence	Commercial	Commercial Related [d]	Total
1996	8,193	45	92	8,330	15,727	2,497	260	18,484
1997	12,006	1,450	7	13,463	18,049	3,678	0	21,727
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 [c]	–	–	771	1,849 [c]	–	–	1,849
2016	6,015 [c]	–	–	6,015	7,096 [c]	–	–	7,096
2011–2015 Average	4,272	0	0	4,272	4,727			4,727
2006–2015 Average	7,823	0	0	7,823	8,967	1,540	0	9,275

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	District 6						Upper Yukon Area Subtotals					
Year	Subsistence	Commercial	Commercial Related [d]	Personal Use	Test Fish Sales	Total	Subsistence	Commercial	Commercial Related [d]	Personal Use	Test Fish Sales	Total
1996	1,177	278	169	215	0	1,839	25,097	2,820	521	215	0	28,653
1997	2,712	1,966	762	313	0	5,753	32,767	7,094	769	313	0	40,943
1998	1,919	882	81	357	0	3,239	32,522	1,399	81	357	0	34,359
1999	1,624	402	288	331	0	2,645	27,192	4,443	288	331	0	32,254
2000	983	-	-	75	0	1,058	16,101	0	0	75	0	16,176
2001	2,327	-	-	122	0	2,449	26,045	0	0	122	0	26,167
2002	1,067	836	230	126	0	2,259	23,924	1,607	230	126	0	25,887
2003	2,145	1,813	0	204	0	4,162	34,107	3,509	0	204	0	37,820
2004	1,388	2,057	0	201	0	3,646	33,323	3,603	0	201	0	37,127
2005	1,828	453	0	138	0	2,419	33,216	1,922	0	138	0	35,276
2006	1,229	84	0	89	0	1,402	29,175	1,923	0	89	0	31,187
2007	1,717	281	0	136	0	2,134	32,713	1,522	0	136	0	34,371
2008	605	0	0	126	0	731	22,850	0	0	126	0	22,976
2009	1,285	0	0	127	0	1,412	19,716	0	0	127	0	19,843
2010	1,143	0	0	162	0	1,305	24,428	0	0	162	0	24,590
2011	1,367	0	0	89	0	1,456	21,753	0	0	89	0	21,842
2012	627	0	0	71	0	698	14,755	0	0	71	0	14,826
2013	367	0	0	42	0	409	7,809	0	0	42	0	7,851
2014	283	0	0	1	0	284	703	0	0	1	0	704
2015	440 [c]	0	0	5	0	445	3,060 [c]	0	0	5	0	3,065
2016	816 [c]	0	0	57	0	873	13,927 [c]	0	0	57	0	13,984
2011–2015 Average	617	0	0	42	0	658	9,616	0	0	42	0	9,658
2006–2015 Average	906	37	0	85	0	1,028	17,696	345	0	85	0	18,126

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	Alaska Yukon River Totals						
Year	Subsistence [a]	Commercial	Commercial Related [d]	Personal Use	Test Fish Sales	Sport Fish	Total
1996	43,306	89,671	521	215	1,698	3,873	139,284
1997	55,978	112,841	769	313	2,811	2,174	174,886
1998	53,733	43,618	81	357	926	654	99,369
1999	52,194	69,275	288	331	1,205	1,023	124,316
2000	35,841	8,518	0	75	597	276	45,307
2001	52,937	0	0	122	0	679	53,738
2002	42,620	24,136	230	126	528	486	68,126
2003	55,109	40,438	0	204	680	2,719	99,150
2004	53,675	56,151	0	201	792	1,513	112,332
2005	52,561	32,029	0	138	310	483	85,521
2006	47,710	45,829	0	89	817	739	95,184
2007	53,976	33,634	0	136	849	960	89,555
2008	43,694	4,641	0	126	0	409	48,870
2009	32,900	316	0	127	0	863	34,206
2010	43,259	9,897	0	162	0	474	53,792
2011	40,211	82	0	89	0	474	40,856
2012	28,311	0	0	71	0	345	28,727
2013	10,991	0	0	42	0	166	11,199
2014	2,723	0	0	1	0	0	2,724
2015	6,611 [c]	0	0	5	0	13	6,629
2016	20,772 [c]	0	0	57	0	[e]	20,829
2011–2015 Average	17,769	16	0	42	0	200	18,027
2006–2015 Average	31,039	9,440	0	85	167	444	41,174

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	Canada: Yukon Territories Totals							
	Mainstem Yukon							
	Non-Commercial						Porcupine	Total
Year	Domestic	Aboriginal	Sport	Test fish [f]	Commercial	Subtotal	Aboriginal	Canadian
1996	141	8,451	790		10,164	19,546	66	19,612
1997	288	8,888	1,230		5,311	15,717	811	16,528
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 [c]	–	–	1	2,769	177	2,946
2011–2015 Average		1,910			2	1,920	188	2,107
2006–2015 Average	40	2,862	129	565	451	3,330	258	3,588

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	Yukon River Drainage (Alaska/Canada) Totals								Total Alaska Yukon Area		
Year	Subsistence	[a,g]	Commercial	Commercial Related [d]	Personal Use	Alaska Test Fish	Sport Fish	Total	Coastal District	Alaska Total	Yukon Area Total
1996	51,964		99,835	521	215	1,698	4,663	158,896	2,365	139,284	141,649
1997	65,965		118,152	769	313	2,811	3,404	191,414	1,139	174,886	176,025
1998	59,280		44,008	81	357	926	654	105,306	391	99,369	99,760
1999	61,325		72,435	288	331	1,205	1,200	136,784	1,111	124,316	125,427
2000	40,720		8,518	0	75	597	276	50,186	563	45,307	45,870
2001	61,584		1,351	0	122	0	825	63,882	2,882	53,738	56,620
2002	51,042		24,844	230	126	528	614	77,384	1,122	68,126	69,248
2003	61,781		43,110	0	204	680	2,994	108,769	1,850	99,150	101,000
2004	60,705		59,936	0	201	792	1,936	123,570	2,038	112,332	114,370
2005	59,430		36,095	0	138	310	919	96,892	848	85,521	86,369
2006	53,844		48,161	0	89	817	1,345	104,256	883	95,184	96,067
2007	59,068		33,634	0	136	849	962	94,649	1,198	89,555	90,753
2008	47,406		4,642	0	126	0	409	52,583	1,492	48,870	50,362
2009	37,169		680	0	127	0	988	38,964	905	34,206	35,111
2010	45,964		9,897	0	162	0	475	56,498	1,300	53,792	55,092
2011	45,051		86	0	89	0	514	45,740	769	40,856	41,625
2012	30,511		0	0	71	0	345	30,927	2,104	28,727	30,831
2013	13,135		2	0	42	0	166	13,345	1,542	11,199	12,741
2014	2,826		0	0	1	0	0	2,827	563	2,724	3,287
2015	7,815	[c]	0	0	5	0	13	7,833	966 [c]	6,629	7,595
2016	23,717	[c]	0	0	57	0		[e] 23,775	886 [c]	20,829	21,715
2011–2015 Average	19,868		18	0	42	0	208	20,134	1,189	18,027	19,216
2006–2015 Average	34,279		9,710	0	85	# 167	522	44,762	1,172	41,174	42,346

Note: En dash indicates no fishing activity occurred. Blank cells indicate insufficient information to generate average or data not available.

[a] Does not include coastal subsistence harvest in 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] Data are unavailable at this time.

[f] 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.

[g] Includes Alaska subsistence harvest and Canadian Domestic, test fish, and Aboriginal harvests.

Appendix A13.–Summer chum salmon total utilization in numbers of fish by district and area, Yukon River drainage, 1996–2016.

	District 1					District 2				
Year	Subsistence	[a]	Commercial	Test Fish Sales	Total	Subsistence		Commercial	Test Fish Sales	Total
1996	27,289		92,506	7,309	127,104	28,426		30,727	0	59,153
1997	27,248		59,915	2,557	89,720	26,971		18,242	33	45,246
1998	26,888		21,270	2,935	51,093	26,280		6,848	84	33,212
1999	20,169		16,181	799	37,149	24,137		11,702	37	35,876
2000	24,079		3,315	561	27,955	25,331		3,309	87	28,727
2001	22,771		–	0	22,771	26,303		–	0	26,303
2002	24,107		6,327	164	30,598	23,554		4,027	54	27,635
2003	19,701		3,579	37	23,317	16,773		2,583	82	19,438
2004	20,620		13,993	217	34,830	25,931		5,782	0	31,713
2005	27,695		23,965	134	51,794	24,277		8,313	0	32,590
2006	27,881		21,816	456	50,153	31,655		25,543	0	57,198
2007	24,209		106,790	10	131,009	23,507		69,432	0	92,939
2008	22,767		67,459	80	90,306	24,291		58,139	0	82,430
2009	23,998		71,335	0	95,333	21,089		86,571	0	107,660
2010	25,172		102,267	0	127,439	23,738		80,948	0	104,686
2011	28,590		163,439	0	192,029	24,692		103,071	0	127,763
2012	35,370		150,800	1,274	187,444	32,566		57,049	1,138	90,753
2013	28,516		207,871	2,304	238,691	32,499		171,272	0	203,771
2014	23,894		198,240	0	222,134	26,134		229,107	0	255,241
2015	21,641	[b]	172,639	2,494	196,774	24,557	[b]	181,447	0	206,004
2016	26,701	[b]	293,522	380	320,603	27,197	[b]	228,267	0	255,464
2011–2015 Average	27,602		178,598	1,214	207,414	28,090		148,389	228	176,706
2006–2015 Average	26,204		126,266	662	153,131	26,473		106,258	114	132,845

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	District 3			Lower Yukon Area Subtotals			
Year	Subsistence	Commercial	Total	Subsistence [a]	Commercial	Test Fish Sales	Total
1996	11,368	1,534	12,902	67,083	124,767	7,309	199,159
1997	10,316	–	10,316	64,535	78,157	2,590	145,282
1998	6,472	0	6,472	59,640	28,118	3,019	90,777
1999	5,748	0	5,748	50,054	27,883	836	78,773
2000	3,687	–	3,687	53,097	6,624	648	60,369
2001	1,309	–	1,309	50,383	–	0	50,383
2002	2,506	–	2,506	50,167	10,354	218	60,739
2003	5,858	–	5,858	42,332	6,162	119	48,613
2004	2,958	–	2,958	49,509	19,775	217	69,501
2005	5,766	–	5,766	57,738	32,278	134	90,150
2006	3,534	116	3,650	63,070	47,475	456	111,001
2007	2,056	1	2,057	49,772	176,223	10	226,005
2008	2,971	–	2,971	50,029	125,598	80	175,707
2009	1,146	–	1,146	46,233	157,906	0	204,139
2010	1,341	–	1,341	50,251	183,215	0	233,466
2011	2,733	–	2,733	56,015	266,510	0	322,525
2012	8,690	–	8,690	76,626	207,849	2,412	286,887
2013	4,692	–	4,692	65,707 [b]	379,143	2,304	447,154
2014	3,748	–	3,748	53,776 [b]	427,347	0	481,123
2015	3,127 [b]	–	3,127	49,325 [b]	354,086	2,494	405,905
2016	3,053 [b]	–	3,053	56,951 [b]	521,789	380	579,120
2011–2015 Average	4,598		4,598	60,290	326,987	1,442	388,719
2006–2015 Average	3,404	59	3,416	56,080	232,535	776	289,391

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	District 4					District 5			
Year	Subsistence	Commercial	Commercial Related [c]	Anvik River [d]	Total	Subsistence	Commercial	Commercial Related [c]	Total
1996	16,425	0	425,607	84,633	526,665	11,509	0	336	11,845
1997	24,230	2,062	109,061	13,548	148,901	4,520	137	0	4,657
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 [b]	–	–	–	9,777	3,745 [b]	–	–	3,745
2016	13,502 [b]	–	–	–	13,502	4,958 [b]	–	–	4,958
2011–2015 Average	13,648	101,705	0		74,671	6,174			6,174
2006–2015 Average	13,969	54,994	0		56,628	6,397	10	0	6,399

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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
1996	7,486	22,360	24,530	905	0	55,281	35,420	22,360	535,106	905	0	593,791
1997	3,824	14,886	10,401	391	0	29,502	32,574	17,085	133,010	391	0	183,060
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 [b]	4,770	0	220	0	5,242	13,774 [b]	4,770	0	220	0	18,764
2016	96 [b]	4,020	0	176	0	4,292	18,556 [b]	4,020	0	176	0	22,752
2011–2015 Average	716	5,955	0	271	0	6,941	20,538	66,978	0	271	0	87,786
2006–2015 Average	947	10,415	0	256	0	11,619	21,313	48,913	0	256	0	68,983

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	Alaska Yukon River Totals							Total Alaska Yukon Area		
Year	Subsistence	[a]	Commercial	Commercial Related [c]	Personal Use	Test Fish Sales	Sport Fish [e]	Total	Coastal District	Yukon Area Total
1996	102,503		147,127	535,106	905	7,309	1,946	794,896	22,235	817,131
1997	97,109		95,242	133,010	391	2,590	662	329,004	15,711	344,715
1998	86,004		28,611	187	84	3,019	421	118,326	1,362	119,688
1999	70,323		29,389	24	382	836	555	101,509	13,461	114,970
2000	64,895		6,624	0	30	648	161	72,358	13,177	85,535
2001	58,239		–	0	146	0	82	58,467	13,916	72,383
2002	72,260		13,558	19	175	218	384	86,614	14,796	101,410
2003	68,304		10,685	0	148	119	1,638	80,894	13,968	94,862
2004	69,672		26,410	0	231	217	203	96,733	8,262	104,995
2005	78,902		41,264	0	152	134	435	120,887	14,357	135,244
2006	90,907		92,116	0	262	456	583	184,324	24,171	208,495
2007	76,805		198,201	0	184	10	245	275,445	16,121	291,566
2008	68,394		151,186	0	138	80	371	220,169	18,120	238,289
2009	67,742		170,272	0	308	0	174	238,496	12,797	251,293
2010	65,948		232,888	0	319	0	1,183	300,338	22,425	322,763
2011	77,715		275,161	0	439	0	294	353,609	18,305	371,914
2012	103,751		319,575	0	321	2,412	271	426,330	23,241	449,571
2013	91,979		485,587	0	138	2,304	1,423	581,431	23,135	604,566
2014	67,596		530,644	0	235	0	374	598,849	19,304	618,153
2015	63,099	[b]	358,856	0	220	2,494	194	424,863	20,468	[b] 445,331
2016	75,507	[b]	525,809	0	176	380		[f] 601,872	11,844	[b] 613,716
2011–2015 Average	80,828		393,965	0	271	1,442	511	477,016	20,891	# 497,907
2006–2015 Average	77,394		281,449	0	256	776	511	360,385	19,809	# 380,194

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

[a] Does not include coastal subsistence harvest in 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 chums caught during summer season) in Alaska portion of the drainage.

[f] Data are unavailable at this time.

Appendix A14.–Fall chum salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1996–2016.

	District 1					District 2				
Year	Subsistence	[a]	Commercial	Test Fish Sales [b]	Total	Subsistence		Commercial	Test Fish Sales [b]	Total
1996	4,147		33,629	1,717	39,493	5,287		29,651	0	34,938
1997	3,132		27,483	867	31,482	4,680		24,326	0	29,006
1998	3,163		–	–	3,163	4,482		–	–	4,482
1999	6,502		9,987	1,149	17,638	4,594		9,703	22	14,319
2000	5,294		–	–	5,294	1,425		–	–	1,425
2001	3,437		–	–	3,437	3,256		–	–	3,256
2002	1,881		–	–	1,881	1,618		–	–	1,618
2003	2,139		5,586	0	7,725	2,901		–	–	2,901
2004	2,067		660	0	2,727	2,421		–	–	2,421
2005	2,889		130,525	87	133,501	3,257		–	–	3,257
2006	3,902		101,254	0	105,156	4,015		39,905	0	43,920
2007	4,390		38,852	0	43,242	3,472		35,826	0	39,298
2008	2,823		67,704	0	70,527	3,522		41,270	0	44,792
2009	1,917		11,911	0	13,828	1,563		12,072	0	13,635
2010	3,202		545	0	3,747	1,419		270	0	1,689
2011	3,434		127,735	0	131,169	2,578		100,731	0	103,309
2012	7,622		139,842	74	147,538	3,332		129,284	92	132,708
2013	3,673		106,588	121	110,382	4,878		106,274	0	111,152
2014	4,072		51,829	30	55,931	5,817		59,138	0	64,955
2015	5,877	[c]	100,562	50	106,489	6,258	[c]	74,214	0	80,472
2016	4,585	[c]	226,576	668	231,829	4,476	[c]	213,225	0	217,701
2011-2015 Average	4,936		105,311	55	110,302	4,573		93,928	18	98,519
2006-2015 Average	4,091		74,682	28	78,801	3,685		59,898	9	63,593

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	District 3			Lower Yukon Area Subtotals			
Year	Subsistence	Commercial	Total	Subsistence [a]	Commercial	Test Fish Sales [b]	Total
1996	2,706	–	2,706	12,140	63,280	1,717	77,137
1997	787	–	787	8,599	51,809	867	61,275
1998	1,561	–	1,561	9,206	–	–	9,206
1999	415	–	415	11,511	19,690	1,171	32,372
2000	598	–	598	7,317	–	–	7,317
2001	700	–	700	7,393	–	–	7,393
2002	164	–	164	3,663	–	–	3,663
2003	738	–	738	5,778	5,586	0	11,364
2004	298	–	298	4,786	660	0	5,446
2005	1,304	–	1,304	7,450	130,525	87	138,062
2006	480	–	480	8,397	141,159	0	149,556
2007	925	–	925	8,787	74,678	0	83,465
2008	1,821	–	1,821	8,166	108,974	0	117,140
2009	937	–	937	4,417	23,983	0	28,400
2010	1,325	–	1,325	5,946	815	0	6,761
2011	354	–	354	6,366	228,466	0	234,832
2012	637	–	637	11,591	269,126	166	280,883
2013	1,764	–	1,764	10,315	212,862	121	223,298
2014	2,457	–	2,457	12,346	110,967	30	123,343
2015	1,388 [c]	–	1,388	13,523 [c]	174,776	50	188,349
2016	989 [c]	–	989	10,050 [c]	439,801	668	450,519
2011-2015 Average	1,321		1,321	10,015	166,169	61	176,244
2006-2015 Average	1,209		1,209	8,985	134,581	37	143,603

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	District 4				District 5			
Year	Subsistence	Commercial	Commercial Related [d]	Total	Subsistence	Commercial	Commercial Related [d]	Total
1996	16,786	2,918	0	19,704	63,473	11,878	9,980	85,331
1997	11,734	2,458	0	14,192	55,258	2,446	1,474	59,178
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 [c]	–	–	13,274	50,260 [c]	1,048	0	51,308
2016	9,874 [c]	–	–	9,874	58,598 [c]	7,542	0	66,140
2011-2015 Average	13,943			14,105	56,758	1,404	0	58,162
2005-2014 Average	10,621			10,702	52,935	2,754	0	55,139

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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	[e] Commercial	Commercial Related [d]	Personal Use	Test Fish Sales [b]	Total
1996	36,467	10,266	7,308	356	–	54,397	116,726	25,062	17,288	356	–	159,432
1997	19,550	–	–	284	–	19,834	86,542	4,904	1,474	284	–	93,204
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	11,631	24,148	0	383	–	36,162	102,920	25,189	0	383	–	128,492
2014	12,798	3,368	0	278	–	16,444	79,931	4,632	0	278	–	84,841
2015	9,345 [c]	15,646	0	80 [c]	–	25,071	72,879 [c]	16,694	0	80 [c]	–	89,653
2016	5,165 [c]	18,053	0	283 [c]	–	23,501	73,637 [c]	25,595	0	283 [c]	–	99,515
2011-2015 Average	12,690	13,953	0	300		26,943	83,392	15,519	0	300		99,210
2006-2015 Average	15,388	11,745	0	547		27,679	78,944	14,029	0	547		93,520

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	Alaska Yukon River Totals						Canada: Yukon Area Totals					
			Commercial	Personal	Test Fish		Mainstem Yukon River				Porcupine	
Year	Subsistence [a]	Commercial	Related [d]	Use	Sales [b]	Total	Domestic	Aboriginal	Commercial	Subtotal	Aboriginal	Total
1996	128,866	88,342	17,288	356	1,717	236,569	0	1,260	20,069	21,329	3,025	24,354
1997	95,141	56,713	1,474	284	867	154,479	0	1,238	8,068	9,306	6,294	15,600
1998	62,867	–	–	2	–	62,869	0	1,795	0	1,795	6,159	7,954
1999	89,736	20,371	0	262	1,171	111,540	0	3,234	10,402	13,636	6,000	19,636
2000	19,306	–	–	1	–	19,307	0	2,927	1,319	4,246	5,000	9,246
2001	35,144	–	–	10	–	35,154	3	3,077	2,198	5,278	4,594	9,872
2002	19,390	–	–	3	–	19,393	0	3,167	3,065	6,232	1,860	8,092
2003	56,784	10,996	0	394	0	68,174	0	1,493	9,030	10,523	382	10,905
2004	62,206	4,110	0	230	0	66,546	0	2,180	7,365	9,545	205	9,750
2005	91,464	180,162	0	133	87	271,846	13	2,035	11,931	13,979	4,593	18,572
2006	83,815	174,542	0	333	0	258,690	0	2,521	4,096	6,617	5,179	11,796
2007	100,987	90,677	0	173	0	191,837	0	2,221	7,109	9,330	4,500	13,830
2008	88,971	119,265	0	181	0	208,417	0	2,068	4,062	6,130	3,436	9,566
2009	65,961	25,269	0	78	0	91,308	0	820	293	1,113	898	2,011
2010	68,459	2,550	0	3,209	0	74,218	0	1,523	2,186	3,709	2,078	5,787
2011	79,887	238,979	0	347	0	319,213	0	1,000	5,312	6,312	1,851	8,163
2012	99,298	289,692	0	410	166	389,566	0	700	3,205	3,905	3,118	7,023
2013	113,235	238,051	0	383	121	351,790	18	500	3,369	3,887	2,283	6,170
2014	92,277	115,599	0	278	30	208,184	19	546	2,485	3,050	1,983	5,033
2015	86,402 [c]	191,470	0	80 [c]	50	278,002	35	1,000	2,862	3,897	556	4,453
2016	83,687 [c]	465,396	0	283 [c]	668	550,034	0	1,000	1,745	2,745	3,005	5,750
2011-2015 Average	94,220	214,758	0	300	73	309,351	14	749	3,447	4,210	1,958	6,168
2006-2015 Average	87,929	148,609	0	547	37	237,123	7	1,290	3,498	4,795	2,588	7,383

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	Yukon River Drainage (Alaska/Canada) Totals						Total Alaska Yukon Area		
Year	Subsistence [a,e]	Commercial	Commercial Related [d]	Personal Use	Alaska Test Fish [b]	Total	Coastal District	Alaska Total	Yukon Area Total
1996	133,151	108,411	17,288	356	1,717	260,923	392	236,569	236,961
1997	102,673	64,781	1,474	284	867	170,079	0	154,479	154,479
1998	70,821	0	0	2	–	70,823	34	62,869	62,903
1999	98,970	30,773	0	262	1,171	131,176	204	111,540	111,744
2000	27,233	1,319	0	1	–	28,553	89	19,307	19,396
2001	42,818	2,198	0	10	–	45,026	559	35,154	35,713
2002	24,417	3,065	0	3	–	27,485	284	19,393	19,677
2003	58,659	20,026	0	394	0	79,079	146	68,174	68,320
2004	64,591	11,475	0	230	0	76,296	320	66,546	66,866
2005	98,105	192,093	0	133	87	290,418	70	271,846	271,916
2006	91,515	178,638	0	333	0	270,486	187	258,690	258,877
2007	107,708	97,786	0	173	0	205,667	234	191,837	192,071
2008	94,475	123,327	0	181	0	217,983	386	208,417	208,803
2009	67,679	25,562	0	78	0	93,319	158	91,308	91,466
2010	72,060	4,736	0	3,209	0	80,005	186	74,218	74,404
2011	80,887	244,291	0	347	0	325,525	315	319,213	319,528
2012	99,998	292,897	0	410	166	393,471	11	389,566	389,577
2013	116,036	241,420	0	383	121	357,960	149	351,790	351,939
2014	94,825	118,084	0	278	30	213,217	252	208,184	208,436
2015	87,993 [c]	194,332	0	80	50	282,455	198 [c]	278,002	278,200
2016	87,692 [c]	467,141	0	283	668	555,784	762 [c]	550,034	550,796
2011-2015 Average	95,948	218,205	0	300	73	314,526	185	309,351	309,536
2006-2015 Average	91,318	152,107	0	547	37	244,009	208	237,123	237,330

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

[a] Does not include coastal subsistence harvest in 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] Includes Alaska Yukon River subsistence and Canadian Domestic and Aboriginal harvests.

Appendix A15.–Coho salmon total utilization in numbers of fish by district, area, and country, Yukon River drainage, 1996–2016.

	District 1				District 2			
Year	Subsistence [a]	Commercial	Test Fish Sales [b]	Total	Subsistence	Commercial	Test Fish Sales [b]	Total
1996	2,445	27,705	1,728	31,878	3,475	20,974	0	24,449
1997	1,823	21,450	498	23,771	2,424	13,056	0	15,480
1998	2,171	–	–	2,171	2,297	1	0	2,298
1999	1,730	855	236	2,821	2,793	746	0	3,539
2000	1,067	–	–	1,067	2,351	–	–	2,351
2001	1,274	–	–	1,274	1,440	–	–	1,440
2002	1,295	–	–	1,295	1,233	–	–	1,233
2003	1,260	9,757	0	11,017	1,586	–	–	1,586
2004	1,175	1,583	0	2,758	1,500	–	–	1,500
2005	976	36,533	0	37,509	1,110	–	–	1,110
2006	1,177	39,323	0	40,500	2,459	14,482	0	16,941
2007	2,265	21,720	0	23,985	2,347	21,487	0	23,834
2008	1,211	13,946	0	15,157	1,997	19,246	0	21,243
2009	847	5,994	0	6,841	1,057	1,582	0	2,639
2010	1,122	1,027	0	2,149	557	1,023	0	1,580
2011	1,127	45,335	0	46,462	823	24,184	0	25,007
2012	3,350	39,757	39	43,146	1,346	29,063	0	30,409
2013	1,224	27,306	1	28,531	1,080	31,458	0	32,538
2014	1,782	54,804	0	56,586	1,769	48,602	0	50,371
2015	2,100 [c]	66,029	8	68,137	3,002 [c]	54,860	0	57,862
2016	1,233 [c]	113,669	11	114,913	1,119 [c]	67,208	0	68,327
2011-2015 Average	1,917	46,646	10	48,572	1,604	37,633	0	39,237
2006-2015 Average	1,621	31,524	5	33,149	1,644	24,599	0	26,242

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	District 3			Lower Yukon Area Subtotals			
Year	Subsistence	Commercial	Total	Subsistence [a]	Commercial	Test Fish Sales [b]	Total
1996	444	–	444	6,364	48,679	1,728	56,771
1997	766	–	766	5,013	34,506	498	40,017
1998	400	–	400	4,868	1	0	4,869
1999	610	–	610	5,133	1,601	236	6,970
2000	94	–	94	3,512	–	–	3,512
2001	0	–	0	2,714	–	–	2,714
2002	115	–	115	2,643	–	–	2,643
2003	711	–	711	3,557	9,757	0	13,314
2004	284	–	284	2,959	1,583	0	4,542
2005	217	–	217	2,303	36,533	0	38,836
2006	83	–	83	3,719	53,805	0	57,524
2007	739	–	739	5,351	43,207	0	48,558
2008	410	–	410	3,618	33,192	0	36,810
2009	321	–	321	2,225	7,576	0	9,801
2010	353	–	353	2,032	2,050	0	4,082
2011	36	–	36	1,986	69,519	0	71,505
2012	556	–	556	5,252	68,820	39	74,111
2013	371	–	371	2,675	58,764	1	61,440
2014	340	–	340	3,891	103,406	0	107,297
2015	428 [c]	–	428	5,530 [c]	120,889	8	126,427
2016	140 [c]	–	140	2,492 [c]	180,877	11	183,380
2011-2015 Average	346		346	3,867	84,280	10	88,156
2006-2015 Average	364		364	3,628	56,123	5	59,756

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Year	District 4 Subsistence	Commercial	Commercial Related [d]	Total	District 5 Subsistence	Commercial	Commercial Related [d]	Total
1996	2,467	161	0	2,628	6,588	–	–	6,588
1997	3,754	814	0	4,568	3,583	–	–	3,583
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 [c]	–	–	1,941	2,462 [c]	0	0	2,462
2016	826 [c]	–	–	826	864 [c]	54	0	918
2011-2015 Average	3,114			3,114	2,054	159	0	2,181
2006-2015 Average	2,703	0	0	2,703	2,672	145	0	2,745

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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
1996	14,893	3,803	3,339	198		22,233	23,948	3,964	3,339	198		31,449
1997	11,595	–	–	350		11,945	18,932	814	0	350		20,096
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 [c]	8,811	0	145	[c]	16,956	12,403 [c]	8,811	0	145	[c]	21,359
2016	4,271 [c]	20,551	0	266	[c]	25,088	5,961 [c]	20,605	0	266	[c]	26,832
2011-2015 Average	7,510	5,931	0	152		13,593	12,678	6,058	0	152		18,888
2006-2015 Average	7,700	4,673	29	236		12,637	13,075	4,745	29	236		18,084

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	Alaska Yukon River Totals							Canada: Yukon Territories Totals		
Year	Subsistence [a]	Commercial	Commercial Related [d]	Personal Use	Test Fish Sales [b]	Sport Fish	Total	Mainstem Yukon River [e]	Porcupine Aborginal	Total
1996	30,312	52,643	3,339	198	1,728	1,588	89,808	0	41	41
1997	23,945	35,320	0	350	498	1,470	61,583	2	298	300
1998	17,772	1	0	9	0	758	18,540	0	214	214
1999	20,817	1,601	0	147	236	609	23,410	0	100	100
2000	14,717	–	–	0	–	554	15,271	0	37	37
2001	21,620	–	–	34	–	1,202	22,856	0	0	0
2002	15,241	–	–	20	–	1,092	16,353	26	449	475
2003	23,580	25,243	0	549	0	1,477	50,849	7	523	530
2004	20,732	20,232	0	233	0	1,623	42,820	5	175	180
2005	26,971	58,311	0	107	0	627	86,016	0	11	11
2006	19,371	64,942	0	279	0	1,000	85,592	1	111	112
2007	19,514	44,575	0	135	0	597	64,821	2	500	502
2008	16,739	35,691	0	50	0	341	52,821	0	200	200
2009	15,760	8,033	285	70	0	964	25,112	0	0	0
2010	12,921	3,750	0	1,062	0	944	18,677	0	12	12
2011	12,289	76,303	0	232	0	463	89,287	0	63	63
2012	21,440	74,789	0	100	39	131	96,499	0	10	10
2013	14,170	66,203	0	109	1	266	80,749	0	10	10
2014	16,894	104,692	0	174	0	1,855	123,615	0	133	133
2015	17,933 [c]	129,700	0	145 [c]	8	593	148,379	0	0	0
2016	8,453 [c]	201,482	0	266 [c]	11	[f]	210,212	0	0	0
2011-2015 Average	16,545	90,337	0	152	10	662	107,706	0	43	43
2006-2015 Average	16,703	60,868	29	236	5	715	78,555	0	104	104

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	Yukon River Drainage (Alaska/Canada) Totals								Total Alaska Yukon Area		
Year	Subsistence	[a,g]	Commercial	Commercial Related [d]	Personal Use	Alaska Test Fish [b]	Sport Fish	Total	Coastal District	Alaska Total	Yukon Area Total
1996	30,353		52,643	3,339	198	1,728	1,588	89,849	92	89,808	89,900
1997	24,243		35,322	0	350	498	1,470	61,883	0	61,583	61,583
1998	17,986		1	0	9	0	758	18,754	349	18,540	18,889
1999	20,917		1,601	0	147	236	609	23,510	74	23,410	23,484
2000	14,754		0	0	0	0	554	15,308	222	15,271	15,493
2001	21,620		0	0	34	0	1,202	22,856	548	22,856	23,404
2002	15,690		17	0	20	0	1,101	16,828	248	16,353	16,601
2003	24,103		25,243	0	549	0	1,484	51,379	292	50,849	51,141
2004	20,907		20,236	0	233	0	1,624	43,000	63	42,820	42,883
2005	26,982		58,311	0	107	0	627	86,027	279	86,016	86,295
2006	19,482		64,942	0	279	0	1,001	85,704	335	85,592	85,927
2007	20,014		44,575	0	135	0	599	65,323	110	64,821	64,931
2008	16,939		35,691	0	50	0	341	53,021	116	52,821	52,937
2009	15,760		8,033	285	70	0	964	25,112	246	25,112	25,358
2010	12,933		3,750	0	1,062	0	944	18,689	124	18,677	18,801
2011	12,352		76,303	0	232	0	463	89,350	55	89,287	89,342
2012	21,450		74,789	0	100	39	131	96,509	93	96,499	96,592
2013	14,180		66,203	0	109	1	266	80,759	287	80,749	81,036
2014	17,027		104,692	0	174	0	1,855	123,748	204	123,615	123,819
2015	17,933	[c]	129,700	0	145	[c] 8	593	148,379	174	[c] 148,379	148,553
2016	8,453	[c]	201,482	0	266	[c] 11		[f] 210,212	355	[c] 210,212	210,567
2011-2015 Average	16,588		90,337	0	152	10	662	107,749	163	107,706	107,868
2006-2015 Average	16,807		60,868	29	236	5	716	78,659	174	78,555	78,730

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average or data not available.

[a] Does not include coastal subsistence harvest in 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 Domestic, commercial, test, Sport, and Aboriginal harvest from the Mainstem Yukon River.

[f] Data are unavailable at this time.

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

Appendix A16.–Yukon Area pink salmon total utilization in numbers of fish, by district and area, 1996–2016.

	Coastal District			District 1			District 2		
Year	Subsistence	Commercial	Total	Subsistence	Commercial	Total	Subsistence	Commercial	Total
1996	3,517	0	3,517	443	0	443	933	0	933
1997	265	0	265	69	0	69	115	0	115
1998	3,732	0	3,732	1,590	0	1,590	1,550	0	1,550
1999	626	0	626	32	0	32	21	0	21
2000	998	0	998	301	0	301	235	0	235
2001	394	–	394	9	–	9	0	–	0
2002	5,892	0	5,892	1,028	0	1,028	1,282	0	1,282
2003	1,470	0	1,470	207	0	207	117	0	117
2004	7,926	0	7,926	615	0	615	1,138	0	1,138
2005	2,505	0	2,505	390	0	390	232	0	232
2006	2,814	0	2,814	1,114	0	1,114	900	0	900
2007	1,548	0	1,548	382	0	382	185	0	185
2008	3,779	0	3,779	3,053	13,391	16,444	1,025	709	1,734
2009	2,143	0	2,143	132	0	132	15	0	15
2010	2,464	0	2,464	787	0	787	1,049	0	1,049
2011	2,098	0	2,098	53	0	53	125	0	125
2012	2,444	0	2,444	1,619	0	1,619	880	0	880
2013	809 [a]	0	809	115 [a]	0	115	140 [a]	0	140
2014	2,635 [a]	0	2,635	3,292 [a]	49,317	52,609	920 [a]	5,434	6,354
2015	1,865 [a]	0	1,865	388 [a]	7,326	7,714	363 [a]	52	415
2016	6,497 [a]	0	6,497	1,800 [a]	125,070	126,870	249 [a]	2,268	2,517
2011-2015 Average	1,970	0	1,970	1,093	11,329	12,422	486	1,097	1,583
2006-2015 Average	2,260	0	2,260	1,094	7,003	8,097	560	620	1,180

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	District 3				Lower Yukon Area Subtotals			
Year	Subsistence	Commercial	Commercial Related [b]	Total	Subsistence	Commercial	Commercial Related [b]	Total
1996	180	0	100	280	5,073	0	100	5,173
1997	0	–	0	0	449	0	0	449
1998	1,617	0	0	1,617	8,489	0	0	8,489
1999	0	0	0	0	679	0	0	679
2000	28	–	0	28	1,562	0	0	1,562
2001	0	–	–	0	403	–	–	403
2002	0	–	0	0	8,202	0	0	8,202
2003	130	–	0	130	1,924	0	0	1,924
2004	6	–	0	6	9,685	0	0	9,685
2005	0	–	0	0	3,127	0	0	3,127
2006	25	0	0	25	4,853	0	0	4,853
2007	3	0	0	3	2,118	0	0	2,118
2008	456	–	–	456	8,313	14,100	–	22,413
2009	9	–	–	9	2,299	0	–	2,299
2010	2	–	–	2	4,302	0	–	4,302
2011	9	–	–	9	2,285	0	–	2,285
2012	100	–	–	100	5,043	0	–	5,043
2013	12 [a]	–	–	12	1,076 [a]	0	–	1,076
2014	11 [a]	–	–	11	6,858 [a]	54,751	–	61,609
2015	0 [a]	–	–	0	2,616 [a]	7,378	–	9,994
2016	11 [a]	–	–	11	8,557 [a]	127,338	–	135,895
2011-2015 Average	26			26	3,576	12,426		16,001
2006-2015 Average	63	0	0	63	3,976	7,623	0	11,599

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Year	District 4 Subsistence	Commercial	Commercial Related [b]	Total	District 5 Subsistence	Commercial	Commercial Related [b]	Total
1996	59	0	0	59	0	0	0	0
1997	34	0	0	34	0	0	0	0
1998	700	–	0	700	0	0	0	0
1999	2	0	0	2	0	0	0	0
2000	31	–	–	31	0	–	–	0
2001	0	–	–	0	0	–	–	0
2002	221	–	–	221	0	0	0	0
2003	243	0	0	243	0	0	0	0
2004	12	–	–	12	0	0	0	0
2005	7	–	–	7	0	0	0	0
2006	1	–	–	1	0	0	0	0
2007	0	0	0	0	0	0	0	0
2008	1,023	0	0	1,023	276	0	0	0
2009	2	0	0	2	0	–	–	0
2010	0	0	0	0	0	–	–	0
2011	40	–	–	40	0	0	0	0
2012	104	0	0	104	3	0	0	0
2013	0 [a]	0	0	0	0 [a]	0	0	0
2014	66 [a]	0	0	66	8 [a]	0	0	8
2015	16 [a]	–	0	16	13 [a]	0	0	13
2016	117 [a]	–	0	117	34 [a]	0	0	34
2011-2015 Average	45	0	0	45	5	0	0	4
2006-2015 Average	125	0	0	125	30	0	0	2

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	District 6				Upper Yukon Area Subtotals			
Year	Subsistence	Commercial	Commercial Related [b]	Total	Subsistence	Commercial	Commercial Related [b]	Total
1996	0	0	0	0	59	0	0	59
1997	0	0	0	0	34	0	0	34
1998	0	0	0	0	700	0	0	700
1999	0	0	0	0	2	0	0	2
2000	0	–	–	0	31	0	0	31
2001	0	–	–	0	0	–	0	0
2002	0	0	0	0	221	0	0	221
2003	0	0	0	0	243	0	0	243
2004	0	0	0	0	12	0	0	12
2005	0	0	0	0	7	0	0	7
2006	0	0	0	0	1	0	0	1
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	1,299	0	0	1,299
2009	0	0	0	0	2	0	0	2
2010	0	0	0	0	0	0	0	0
2011	0	0	0	0	40	0	0	40
2012	0	0	0	0	107	0	0	107
2013	0 [a]	0	0	0	0 [a]	0	0	0
2014	0 [a]	0	0	0	74 [a]	0	0	74
2015	0 [a]	0	0	0	29 [a]	0	0	29
2016	0 [a]	0	0	0	151 [a]	0	0	151
2011-2015 Average	0	0	0	0	50	0	0	50
2006-2015 Average	0	0	0	0	155	0	0	155

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	Alaska Yukon Area Totals				
Year	Subsistence	Commercial	Commercial Related [b]	Sport Fish	Total
1996	5,132	0	100	30	5,262
1997	483	0	0	0	483
1998	9,189	0	0	85	9,274
1999	681	0	0	0	681
2000	1,593	0	0	0	1,593
2001	403	0	0	0	403
2002	8,423	0	0	0	8,423
2003	2,167	0	0	24	2,191
2004	9,697	0	0	33	9,730
2005	3,134	0	0	0	3,134
2006	4,854	0	0	54	4,908
2007	2,118	0	0	0	2,118
2008	9,612	14,100	0	0	23,712
2009	2,301	0	0	0	2,301
2010	4,302	0	0	0	4,302
2011	2,325	0	0	0	2,325
2012	5,150	0	0	51	5,201
2013	1,076 [a]	0	0	0	1,076
2014	6,932 [a]	54,751	0	0	61,683
2015	2,645 [a]	7,378	0	136	10,159
2016	8,708 [a]	127,338	0	[c]	136,046
2011-2015 Average	3,626	12,426	0	37	16,089
2006-2015 Average	4,132	7,623	0	24	11,779

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

[a] Data are preliminary.

[b] Commercial related refers to the estimated number of females and males harvested to produce roe sold.

[c] Data are unavailable at this time.

Appendix A17.–Salmon fishery projects conducted in the Alaska portion of the Yukon River drainage in 2016.

Project Name	Location, River Mile (RM)	Primary Objective(s)	Duration	Agency	Responsibility
Commercial Catch and Effort Assessment	Alaska portion of the Yukon River drainage	1) Document and estimate the catch and associated effort of the Alaska Yukon River and; 2) Commercial salmon fishery via receipts (fish tickets) of commercial sales of salmon.	June-Oct.	ADF&G	All aspects
Commercial Catch Sampling and Monitoring	Alaska portion of the Yukon River drainage	1) Determine age, sex and size of Chinook, chum and coho salmon harvested in Alaska Yukon River commercial fisheries and; 2) Monitor Alaska commercial fishery openings and closures.	June-Oct.	ADF&G, ADPS	All aspects Enforcement
Subsistence and Personal Use Catch and Effort Assessment	Alaska portion of the Yukon River drainage	Document and estimate the catch and associated effort of the Alaska Yukon River subsistence salmon fishery via interviews, catch calendars, mail-out questionnaires, telephone interviews, and subsistence fishing permits, and of the personal use fishery based on fishery permits.	Ongoing	ADF&G, YRDFA	All aspects Assistants in Communities
Sport Catch, Harvest and Effort Assessment	Alaska portion of the Yukon River drainage	Document and estimate the catch, harvest, and associated effort of the Alaska Yukon River sport fishery via post-season mail-out questionnaires.	Postseason	ADF&G	All aspects
Biological Sampling of Yukon River Salmon	Yukon, RM 17-1,002	Collect genetics samples and age, sex, and length information from subsistence caught Chinook salmon. Districts 1-5	June - Aug	Spearfish Research, ADFG	All aspects Funded by R&E
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
Yukon Delta Smolt	Yukon Delta (mouths and delta platform)	1) Determine the composition and spatio-temporal 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 spatio-temporal differences in juvenile Chinook salmon condition, size, and energy content.	May-August	ADF&G NOAA-AFSC & Spearfish Research	All aspects

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Project Name	Location, River Mile (RM)	Primary Objective(s)	Duration	Agency	Responsibility
Local and Traditional Knowledge (LTK) of Freshwater Aspects of Chinook Salmon Life Cycle, Yukon River	St. Marys, Anvik, Huslia, Allakaket, and Fort Yukon	1) Identify and map the specific fresh-water habitat areas where local residents have personal experience through fishing or other activities;2) Conduct in-depth ethnographic interviews to document LTK of these areas regarding such factors as spawning density and behavior, water quality, migratory access; 3) Compare ethnographic data to results of area enumeration projects for potential correlation; 4) Consult the Anadromous Waters Catalog regarding identified areas and compare with results of key respondent interviews/maps.	December 2013 – June 2016	ADF&G	All aspects
Patterns and Trends in Subsistence Salmon Fishing on the Yukon River	Alakanuk, Marshall, Nulato, Galena, Beaver, and Eagle.	1) Compare community and household harvest databases; conduct quality and control assessment; 2) Analyze the databases to identify harvest patterns and trends that influence harvest activities for three salmon species (Chinook, summer chum and fall chum salmon) in six communities.	December 2013 – January 2017	ADF&G, APU	All aspects. APU statistical analysis macro-level patterns
Yukon River Chinook Salmon Mixed-Stock Analysis	Pilot Station, RM 123	Estimate the stock compositions of Chinook salmon using samples collected from Pilot Station sonar test fisheries.	May – Aug.	ADFG	All aspects Funded by R&E
Yukon River Chum Salmon Mixed-Stock Analysis	Pilot Station, RM 123	Estimate the stock compositions of chum salmon using samples collected from Pilot Station sonar test fisheries.	May – Aug.	USFWS	All aspects TI Funding summer, OSM Funding -fall
YRDFA Weekly Teleconferences	Yukon River drainage	Acts as a forum for fishermen along the Yukon River to interact with state and federal managers for the collection and dissemination of fisheries information.	May – Sept.	YRDFA	All aspects R&E & 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, size composition information.	June – Sept.	ADF&G, YDFDA	All aspects
Lower Yukon River Drift Test Fishing	South, Middle, and North 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, size composition information.	June – 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, size composition information.	July – Sept.	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.	June – 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.	June – July	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; provide regular updates to managers; and 4) currently producing report outlining results.	May – Jan.	ADF&G	All aspects
Yukon River Sonar	Pilot Station, RM 123	Estimate Chinook and summer and fall chum salmon passage in the mainstem Yukon River. Apportionment of species including coho salmon and other finfish.	May – Sept.	ADF&G	All aspects
Gisasa River Weir	RM 3 Gisasa River, Koyukuk River drainage, RM 567	1) Estimate daily escapement of Chinook and summer chum salmon into the Gisasa River and; 2) Estimate age, sex, and size composition of the Chinook and summer chum salmon escapements.	June – Aug.	USFWS	All aspects OSM Funding
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.	June – Aug.	TCC, USFWS-OSM	All aspects oversight & funding report write-up
Koyukuk River Chum salmon Radio Telemetry	RM 18 Koyukuk River drainage, RM 527 Yukon River drainage	1) Estimate abundance and distribution of chum salmon in the Koyukuk River; project operated 2014–2016.	Jun–Aug	USFWS, TCC	All aspects/tag recovery OSM Funding
Chandalar River Sonar	RM 14 Chandalar River, Yukon RM 996	1) Estimate fall chum salmon passage using DIDSON sonar 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.	July – Oct.	ADF&G, DFO	All aspects, technical support, TI Funding, R&E Funding
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.	Sept. – Oct.	ADF&G	All aspects
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.	July – Aug.	ADF&G	All aspects AYKSSF 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.	July – Aug.	ADF&G	All aspects R&M Funding

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Project Name	Location, River Mile (RM)	Primary Objective(s)	Duration	Agency	Responsibility
Upper Tanana Escapement Surveys	Tanana River drainage, RM 991-1,053	Aerial and boat surveys for numbers and distribution of chum and coho salmon in the side sloughs and tributaries of the Tanana River drainage.	Nov.	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.	July – 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.	June – 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.	June – Sept.	YRDFA, USFWS	All aspects OSM funding
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.	June – 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 send to lab to extract data tag. (Appendix A17)	May-Sept	ADF&G	Decoding

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Acronyms:

ADF&G	= Alaska Department of Fish and Game
ADPS	= Alaska Department of Public Safety
AFSC	= Alaska Fisheries Science Center
APU	= Alaska Pacific University
ATC	= Asacarsarmiut Tribal Council
AVCP	= Association of Village Council Presidents, Inc.
AYKSSF	= Arctic-Yukon-Kuskokwim Sustainable Salmon Fund
BSFA	= Bering Sea Fishermen's Association
DFO	= Department of Fisheries and Oceans (Canada)
DNA	= Deoxyribonucleic acid
NOAA	= National Oceanic and Atmospheric Association
OSM	= Office of Subsistence Management
R&E	= Yukon River Panel Restoration and Enhancement Program
R&M	= Research and Management Fund
TCC	= Tanana Chiefs Conference, Inc.
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 A18.–List of harvest/escapement monitoring and incubation/rearing projects involving salmon in the Canadian portion of the Yukon River drainage in 2016.

Project Name	Location, River Mile (RM)	Primary Objective(s)	Duration	Agency	Responsibility
Aboriginal Catch Monitoring	Yukon communities	1) To determine weekly catches and effort in the aboriginal fishery, and; 2) To implement components of the UFA and AFS.	July – Oct.	YFN's 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) Salmon caught are reported through the YSCCC program.	July – Oct.	DFO	All aspects
Commercial Catch Monitoring	Yukon River mainstem	1) To determine weekly catches and effort in the Canadian commercial fishery (Chinook and chum) and; 2) to collect other information as required.	July – Oct.	DFO	All aspects
Escapement Surveys and Biological Sampling	Throughout upper Yukon River drainage	1) To conduct surveys of spawning fish by foot, boat, air etc.; 2) To collect ASL and genetic tissue samples from spawning population, and; 3) To count and recover tags in terminal areas.	July – Oct.	R&E Projects DFO YFNs AFS	All aspects
Porcupine River Chum Salmon Radio Tagging and Telemetry	Porcupine River and tributaries (Including Fishing Branch) upstream of Old Crow.	1) To estimate the percent of Porcupine River chum salmon spawning upstream of the Fishing Branch weir site, to allow comparison of Old Crow hydroacoustic estimates to historic weir counts; and 2) To identify chum spawning locations in the Porcupine River upstream of Old Crow.	Aug. – Oct.	VGFN & EDI	Joint Project
Porcupine River Sonar - Chinook	Old Crow	1) Installation and operation of two ARIS sonars to 1) estimate Chinook salmon daily passage, and 2) conduct biological sampling for species apportionment, age, sex and length.	Aug. – Oct.	EDI & VGFN	All aspects
Porcupine River Sonar - Chum	Old Crow	1) Operation of two ARIS sonars to 1) estimate chum salmon daily passage, and 2) conduct biological sampling for species apportionment, age, sex and length.	Aug. – Oct.	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.	July – Aug.	YF&GA	All aspects
Blind Creek Weir	Pelly River	1) To enumerate Chinook salmon escapement, recover tags and; 2) collect ASL data and DNA samples.	July – Aug.	JW&A	All aspects
Big Salmon Sonar	Big Salmon River	1) Installation and operation of a DIDSON sonar program for enumeration of Chinook salmon providing daily passage, and; 2) obtain carcass survey, ASL, and genetic samples.	July – Aug.	Metla Env. Inc. & JW&A	All aspects

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Project Name	Location, River Mile (RM)	Primary Objective(s)	Duration	Agency	Responsibility
Teslin River Sonar	Teslin River	Installation and operation of a DIDSON sonar program for Chinook salmon enumeration.	July – Oct.	Metla Env. Inc.	All aspects
Whitehorse Rapids Fish Hatchery and Coded-Wire Tagging Project	Whitehorse	1) To rear and release ~150K Chinook salmon fry produced from Whitehorse Rapids Fishway broodstock, and; 2) To mark fry with a CWT, adipose clip, and release upstream of the Whitehorse hydroelectric facility.	Ongoing	GY and YEC, YF&GA	All aspects Coded-wire tagging
McIntyre Incubation Facility and Coded-Wired Tagging Project	Whitehorse	1) To incubate up to 120K Chinook salmon eggs from brood stock collected in Yukon River spawning tributaries, and/or the Whitehorse Rapids Fishway, and; 2) To 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
Fox Creek Restoration Program	Whitehorse Area	Rear, tag and release Whitehorse Rapids Chinook salmon fry in Fox Creek.	Ongoing	TKC	All aspects
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 2) sample juvenile chinook salmon to monitor change in size through the season.	May – Aug.	DFO & Metla Env. Inc.	All aspects

Acronyms:

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 = Jane Wilson & Associates
NRI = Northern Research Institute
R&E = Yukon Panel Restoration and Enhancement Program
TKC = Ta'an Kwa'chin Council
VGG = Vuntut Gwitchin Government
YC = Yukon College
YEC = Yukon Energy Corporation
YFN's = Yukon First Nation's
YF&GA = Yukon Fish and Game Association

Appendix A19.–Selected environmental and salmon catch information, Yukon River drainage, 1996–2016.

Year	Average Nome April Air Temp (°F)		Tanana River Nenana Ice Breakup		Iceout Yukon Delta Area		First Chinook Caught Yukon Delta Area [a]	First Summer Chum Caught Yukon Delta Area [a]	First District 1 Commercial Period
1996	21		5/5		5/19		5/24	5/24	6/10
1997	27	[b]	4/30		5/15		5/22	5/25	6/11
1998	26		4/20		5/22		5/28	5/25	6/15
1999	17		4/29	[c]	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	[d]	5/2		5/29		6/6	6/7	6/19
2007	27	[d]	4/27		5/18		6/3	6/12	6/18
2008	15	[d]	5/5		5/24		6/3	6/16	7/2
2009	17	[d]	5/1		5/26		6/5	6/10	6/20
2010	20	[d]	4/29		5/22	[e]	6/9	6/10	6/28
2011	18	[f]	5/4		5/22		5/31	6/4	6/24
2012	20	[f]	4/23		5/25		6/8	6/9	6/29
2013	21	[f]	5/20		6/3		6/10	6/10	6/18
2014	28		4/25		5/9		5/19	5/15	6/9
2015	21	[g]	4/24		5/19		5/27	5/24	6/11
2016	34		4/23		5/3		5/23	5/16	6/7
1995–2015 Average	21		4/30		5/22		5/30	6/2	6/19

[a] Subsistence or test fishery.

[b] Average April air temperature was 9 degrees fahrenheit above normal.

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

[d] Source: http://climate.gi.alaska.edu/AKCityClimo/AK_Climate_Sum.html

[e] Though breakup on the Lower River occurred May 22, shore-fast sea ice persisted until later than usual in the season.

[f] Source: http://akclimate.org/AKCityClimo/2011/Apr/Apr_2011.html

[g] Source: http://www.aoos.org/2016-yukon-chinook-forecasting/

Appendix A20.–List of emergency orders pertaining to the Summer Yukon Districts 1–6 Chinook and chum salmon fishery, Yukon Area, 2016.

EO Number: 3-S-SY-01-16 Effective Date: May 29, 2016

Effective 6:00 p.m. Sunday, May 29, gillnets are restricted to 6-inch or smaller mesh in the Southern Portion of the Coastal District of the Yukon Area, from the Naskonat Peninsula north to 62 degrees north latitude. Subsistence fishing is open 24 hours a day, seven days per week.

EO Number: 3-S-SY-02-16 Effective Date: May 29, 2016

Gillnets with a mesh size of 4-inches or less may not be longer than 60 feet in length when fishing for non-salmon species during subsistence salmon closures in Districts 1–6 and the Coastal District.

EO Number: 3-S-SY-03-16 Effective Date: May 29, 2016

Effective 6:00 p.m. Sunday, May 29, subsistence salmon fishing closes 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) in order to conserve Chinook salmon.

Additionally, subsistence salmon fishing closes in District 2 effective 6:00 p.m. Tuesday, May 31, in order to conserve Chinook salmon.

EO Number: 3-S-SY-04-16 Effective Date: May 31, 2016

Subsistence salmon fishing with dip nets and beach seine gear opens in District 1 and District 2 effective 6:00 p.m. Monday, May 30, and 6:00 p.m. Wednesday, June 1, respectively. All Chinook salmon caught in dip net and beach seine gear must be released to the water alive. Subsistence fishing is open 24 hours a day, seven days per week. Subsistence fishing in the Northern Portion of the Coastal District remains closed.

EO Number: 3-S-SY-05-16 Effective Date: June 3, 2016

Effective at 6:00 p.m. Friday, June 3, subsistence salmon fishing closes in District 3 in order to conserve Chinook salmon.

EO Number: 3-S-SY-06-16 Effective Date: June 4, 2016

Subsistence salmon fishing with dip nets and beach seine gear opens in District 3 effective 6:00 p.m. Saturday, June 4. All Chinook salmon caught in dip net and beach seine gear must be released to the water alive. Subsistence fishing is open 24 hours a day, seven days per week.

EO Number: 3-S-SY-07-16 Effective Date: June 6, 2016

Effective 6:00 p.m. Monday, June 6, subsistence salmon fishing closes in the lower portion of Subdistrict 4-A, from ¾ miles downstream of Old Paradise Village upstream to Stink Creek, including the Anvik River Management Area, in order to conserve Chinook salmon

Additionally, subsistence salmon fishing closes in the upper portion of Subdistrict 4-A, from Stink Creek upstream to Cone Point, effective at 6:00 p.m. Friday, June 10.

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EO Number: 3-S-SY-08-16 Effective Date: June 7, 2016

Subsistence salmon fishing with dip nets, beach seines, and live-release fish wheels opens in the lower portion of Subdistrict 4-A, including the Anvik Special Management Area, effective 6:00 p.m. Tuesday, June 7. Additionally, subsistence salmon fishing with dip nets, beach seines, and live-release fish wheels opens in the upper portion of Subdistrict 4-A effective 6:00 p.m. Saturday, June 11.

Fish wheels must be closely attended and all Chinook salmon must be immediately released to the water alive from the livebox. All Chinook salmon caught in dip net and beach seine gear must also be released to the water alive. Subsistence fishing is open 24 hours a day, seven days per week.

EO Number: 3-S-SY-09-16 Effective Date: June 7, 2016

Opens the commercial salmon fishing season and prohibits the sale of Chinook salmon in District 1 effective 6:00 p.m. Tuesday, June 7.

EO Number: 3-S-SY-10-16 Effective Date: June 7, 2016

Salmon may be taken for commercial purposes in District 1 from 6:00 p.m. Tuesday, June 7, until 6:00 a.m. Wednesday, June 8. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

Subsistence salmon fishing in District 1 closes effective 4:00 p.m. Tuesday, June 7, until 8:00 a.m. Wednesday, June 8.

EO Number: 3-S-SY-11-16 Effective Date: June 12, 2016

Effective 6:00 p.m. Sunday, June 12, subsistence salmon fishing closes in Subdistricts 4-B and 4-C, from Cone Point to Illinois Creek, in order to conserve Chinook salmon.

EO Number: 3-S-SY-12-16 Effective Date: June 13, 2016

Subsistence salmon fishing with dip nets, beach seines, and live-release fish wheels opens in Subdistricts 4-B and 4-C effective 6:00 p.m. Monday, June 13.

Fish wheels must be closely attended and all Chinook salmon must be immediately released to the water alive from the livebox. All Chinook salmon caught in dip net and beach seine gear must also be released to the water alive. Subsistence fishing is open 24 hours a day, seven days per week.

EO Number: 3-S-SY-13-16 Effective Date: June 10, 2016

Salmon may be taken for commercial purposes in District 1 from 1:00 p.m. Friday, June 10, until 1:00 a.m. Saturday, June 11, and from 1:00 p.m. Saturday, June 11, until 1:00 a.m. Sunday, June 12. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

Subsistence salmon fishing in District 1 closes effective 12:00 p.m. noon Friday, June 10. Subsistence salmon fishing will reopen for a 10-hour period from 2:00 a.m. Saturday, June 11, until 12:00 p.m. noon Saturday, June 11. Effective 2:00 a.m. Sunday, June 12, subsistence salmon fishing with dip nets and beach seines will reopen 24 hours a day, seven days per week.

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EO Number: 3-S-SY-14-16 Effective Date: June 16, 2016

Effective 6:00 p.m. Thursday, June 16, subsistence salmon fishing closes in Subdistricts 5-A, 5-B, and 5-C, from the western edge of the mouth of Illinois Creek upstream to the Alaska Department of Fish and Game regulatory marker located approximately two miles downstream of Waldron Creek, in order to conserve Chinook salmon.

EO Number: 3-S-SY-15-16 Effective Date: June 17, 2016

Subsistence salmon fishing with dip nets, beach seines, and live-release fish wheels opens in Subdistricts 5-A, 5-B, and 5-C effective 6:00 p.m. Friday, June 17.

Fish wheels must be closely attended and all Chinook salmon must be immediately released to the water alive from the livebox. All Chinook salmon caught in dip net and beach seine gear must also be released to the water alive. Subsistence fishing is open 24 hours a day, seven days per week.

EO Number: 3-S-SY-16-16 Effective Date: June 13, 2016

Salmon may be taken for commercial purposes in District 1 from 3:00 p.m. until 3:00 a.m. each day, Monday, June 13, through Friday, June 17. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

Subsistence salmon fishing in District 1 closes effective 2:00 p.m. Monday, June 13. Subsistence salmon fishing will reopen from 4:00 a.m. until 2:00 p.m. each day, Tuesday, June 14, through Friday, June 17. Effective 4:00 a.m. Saturday, June 18, subsistence salmon fishing with dip nets and beach seines will reopen 24 hours a day, seven days per week.

EO Number: 3-S-SY-17-16 Effective Date: June 14, 2016

Opens the commercial salmon fishing season and prohibits the sale of Chinook salmon in District 2 effective 12:00 p.m. noon Tuesday, June 14.

EO Number: 3-S-SY-18-16 Effective Date: June 14, 2016

Salmon may be taken for commercial purposes in District 2 from 12:00 p.m. noon until 12:00 a.m. midnight Tuesday, June 14, and from 12:00 p.m. noon until 12:00 a.m. midnight Thursday, June 16. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

Subsistence salmon fishing in District 2 closes effective 11:00 a.m. Tuesday, June 14. Subsistence salmon fishing will reopen from 1:00 a.m. Wednesday, June 15, until 11:00 a.m. Thursday, June 16. Effective 1:00 a.m. Friday, June 17, subsistence salmon fishing with dip nets and beach seines will reopen 24 hours a day, seven days per week.

EO Number: 3-S-SY-19-16 Effective Date: June 19, 2016

Restricts gillnets to 6-inch or smaller mesh size effective 6:00 p.m. Sunday, June 19, in Subdistrict 5-D lower; effective 6:00 p.m. Wednesday, June 22, in Subdistrict 5-D middle; and effective 6:00 p.m. Friday, June 24, in Subdistrict 5-D upper. Subsistence fishing remains open 24 hours a day, seven days per week.

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EO Number: 3-S-SY-20-16 Effective Date: June 20, 2016

Restricts gillnets to 6-inch or smaller mesh size for personal use salmon fishing in Subdistrict 6-C effective 6:00 p.m. Monday, June 20. Personal use fishermen may also use dip nets and fish wheels. Fish wheels must be manned at all times of operation, or be equipped with a live box that must be checked at least once every six hours. All Chinook salmon caught in fish wheels and dip nets must be released alive.

EO Number: 3-S-SY-21-16 Effective Date: June 20, 2016

Restricts gillnets to 6-inch or smaller mesh size effective 6:00 p.m. Monday, June 20, in the Koyukuk River.

EO Number: 3-S-SY-22-16 Effective Date: June 20, 2016

Restricts gillnets to 6-inch or smaller mesh size effective 6:00 p.m. Monday, June 20, in the Innoko River.

EO Number: 3-S-SY-23-16 Effective Date: June 18, 2016

Salmon may be taken for commercial purposes in District 1 from 3:00 p.m. until 3:00 a.m. each day: Saturday, June 18; Sunday, June 19; Tuesday, June 21; and Wednesday, June 22. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

Subsistence salmon fishing opens from 4:00 a.m. until 2:00 p.m. Saturday, June 18, with dip nets and beach seines. All Chinook salmon caught in dip net and beach seine gear must be released alive immediately. Effective 2:00 p.m. Saturday, June 18, subsistence salmon fishing with dip nets and beach seines will close.

This emergency order also opens a subsistence only fishing period from 8:00 p.m. Monday, June 20, until 2:00 p.m. Tuesday, June 21, with 6-inch or smaller mesh gillnets.

EO Number: 3-S-SY-24-16 Effective Date: June 17, 2016

Salmon may be taken for commercial purposes in District 2 from 12:00 p.m. noon until 12:00 a.m. midnight Friday, June 17, and Saturday, June 18. The third and fourth commercial fishing periods will be open from 3:00 p.m. until 3:00 a.m. Monday, June 20, and Tuesday, June 21. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

Subsistence salmon fishing opens from 1:00 a.m. until 11:00 a.m. Friday, June 17, and Saturday, June 18, with dip nets and beach seines. All Chinook salmon caught in dip net and beach seine gear must be released alive immediately. Effective 11:00 a.m. Saturday, June 18, subsistence salmon fishing with dip nets and beach seines will close.

This emergency order also opens a subsistence only fishing period from 8:00 p.m. Sunday, June 19, until 2:00 p.m. Monday, June 20, with 6-inch or smaller mesh gillnets.

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EO Number: 3-S-SY-25-16 Effective Date: June 22, 2016

Establishes an 18-hour subsistence salmon fishing period in District 3 with 6-inch or smaller mesh gillnets from 8:00 p.m. Wednesday, June 22, until 2:00 p.m. Thursday, June 23. Chinook salmon caught in a 6-inch or smaller mesh gillnet gear may be retained for subsistence use.

Effective 8:00 p.m. Wednesday, June 22, the dip net and beach seine subsistence fishery is discontinued.

EO Number: 3-S-SY-26-16 Effective Date: June 22, 2016

Effective 6:00 p.m. Wednesday, June 22, in the lower portion of Subdistrict 4-A, salmon may be taken for subsistence using 6-inch or smaller mesh gillnets and fish wheels from 6:00 p.m. Wednesdays to 6:00 p.m. Thursdays and from 6:00 p.m. Sundays to 6:00 p.m. Mondays. Fishermen in the lower portion of Subdistrict 4-A may use set or drift gillnets.

Effective 6:00 p.m. Monday, June 27, in the upper portion of Subdistrict 4-A, salmon may be taken for subsistence using 6-inch or smaller mesh gillnets and fish wheels from 6:00 p.m. Mondays to 6:00 p.m. Tuesdays and from 6:00 p.m. Thursdays to 6:00 p.m. Fridays. Fishermen in the upper portion of Subdistrict 4-A may use set or drift gillnets.

The use of dip nets, beach seines, and live-release fish wheels for subsistence salmon fishing is being discontinued in Subdistrict 4-A with the start of the gillnet subsistence schedule. All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-27-16 Effective Date: June 20, 2016

Establishes an 18-hour subsistence salmon fishing period in District 1 with 6-inch or smaller mesh gillnets from 8:00 p.m. Thursday, June 23, until 2:00 p.m. Friday, June 24. Additionally, establishes an 18-hour subsistence salmon fishing period in District 2 with 6-inch or smaller mesh gillnets from 8:00 p.m. Wednesday, June 22, until 2:00 p.m. Thursday, June 23. Chinook salmon caught in a 6-inch or smaller mesh gillnet gear may be retained for subsistence use.

Effective 8:00 p.m. Monday, June 20, the dip net and beach seine subsistence fishery is discontinued in Districts 1 and 2.

EO Number: 3-S-SY-28-16 Effective Date: June 26, 2016

Establishes an 18-hour subsistence salmon fishing period in District 3 with 6-inch or smaller mesh gillnets from 8:00 p.m. Sunday, June 26, until 2:00 p.m. Monday, June 27. Chinook salmon caught in a 6-inch or smaller mesh gillnet gear may be retained for subsistence use. Subsistence salmon fishing is closed between gillnet periods.

EO Number: 3-S-SY-29-16 Effective Date: June 24, 2016

Salmon may be taken for commercial purposes in District 1 from 3:00 p.m. Friday, June 24, until 3:00 a.m. Saturday, June 25. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

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EO Number: 3-S-SY-30-16 Effective Date: June 23, 2016

Salmon may be taken for commercial purposes in District 2 from 3:00 p.m. until 3:00 a.m. each day, Thursday, June 23; Friday, June 24; and Saturday, June 25. Fishermen may use dip nets and beach seines and all Chinook salmon must be released alive. Commercial fishermen must record Chinook salmon caught and released alive on a fish ticket.

EO Number: 3-S-SY-31-16 Effective Date: June 28, 2016

Subsistence salmon fishing closes effective 6:00 p.m. Tuesday, June 28, in Subdistrict 5-D lower; effective 6:00 p.m. Friday, July 1, in Subdistrict 5-D middle; and effective 6:00 p.m. Sunday, July 3 in Subdistrict 5-D upper. Fishermen may use 4-inch or smaller mesh gillnets not exceeding 60 feet in length to target non-salmon species during subsistence salmon closures.

EO Number: 3-S-SY-32-16 Effective Date: July 3, 2016

Effective 6:00 p.m. Sunday, July 3, in Subdistricts 4-B and 4-C, salmon may be taken for subsistence using 6-inch or smaller mesh gillnets and fish wheels from 6:00 p.m. Sundays to 6:00 p.m. Mondays and from 6:00 p.m. Wednesdays to 6:00 p.m. Thursdays. All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

The use of dip nets, beach seines, and live-release fish wheels for subsistence salmon fishing is being discontinued in Subdistricts 4-B and 4-C with the start of the gillnet subsistence schedule.

EO Number: 3-S-SY-33-16 Effective Date: June 26, 2016

Effective 8:00 p.m. Sunday, June 26, in District 3, salmon may be taken for subsistence using 6-inch or smaller mesh gillnets from 8:00 p.m. Sundays to 2:00 p.m. Mondays and from 8:00 p.m. Wednesdays to 2:00 p.m. Thursdays. All salmon caught in gillnet gear may be retained for subsistence use.

EO Number: 3-S-SY-34-16 Effective Date: June 28, 2016

Effective 6:00 p.m. Tuesday, June 28, subsistence fishing in the Koyukuk River is open 24 hours a day, seven days per week with 7.5-inch or smaller mesh gillnets.

EO Number: 3-S-SY-35-16 Effective Date: June 25, 2016

Effective 6:00 p.m. Saturday, June 25, subsistence fishing in the Innoko River is open 24 hours a day, seven days per week with 7.5-inch or smaller mesh gillnets.

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EO Number: 3-S-SY-36-16 Effective Date: June 25, 2016

Salmon may be taken for commercial purposes in District 1 from 6:00 p.m. until 12:00 a.m. midnight Saturday, June 25. Fishermen may use 5.5-inch or smaller mesh gillnets not exceeding 30 meshes in depth to target summer chum salmon. Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

Additionally, salmon may be taken for subsistence use period in District 1 from 3:00 p.m. until 12:00 a.m. midnight Sunday, June 26, with 6-inch or smaller mesh gillnets. Any Chinook salmon caught in gillnet gear may be retained for subsistence use. Subsistence fishing is closed between subsistence gillnet periods.

EO Number: 3-S-SY-37-16 Effective Date: June 26, 2016

Effective 3:00 p.m. until 12:00 a.m. midnight Sunday, June 26, in District 2, salmon may be taken for subsistence using 6-inch or smaller mesh gillnets. All salmon caught in gillnet gear may be retained for subsistence use.

Additionally, salmon may be taken for commercial purposes in District 2 from 12:00 p.m. noon until 4:00 p.m. Monday, June 27, with 6-inch or smaller mesh gillnets. Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

EO Number: 3-S-SY-38-16 Effective Date: July 5, 2016

Effective 6:00 p.m. Tuesday, July 5, in Subdistricts 5-A, 5-B, and 5-C, salmon may be taken for subsistence using 6-inch or smaller mesh gillnets and fish wheels 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. All salmon caught in gillnet gear or fish wheels may be retained for subsistence use.

The use of dip nets, beach seines, and live-release fish wheels for subsistence salmon fishing is being discontinued in Subdistricts 5-A, 5-B and 5-C with the start of the gillnet subsistence schedule.

EO Number: 3-S-SY-39-16 Effective Date: July 1, 2016

Effective 6:00 p.m. Friday, July 1, subsistence fishing in the Southern Portion of the Coastal District is open 24 hours a day, seven days per week with 7.5-inch or less mesh gillnets.

EO Number: 3-S-SY-40-16 Effective Date: June 26, 2016

Effective 3:00 p.m. Sunday, June 26, in District 1, salmon may be taken for subsistence 24 hours a day, seven days per week with 6-inch or smaller mesh gillnets except for six hours before, during, and six hours after a commercial fishing period. All salmon caught in gillnet gear may be retained for subsistence use.

Additionally, salmon may be taken for commercial purposes in the South Mouth only of District 1 from 8:00 p.m. until 12:00 a.m. midnight Monday, June 27, and Tuesday, June 28, with 5.5-inch or smaller mesh gillnets not exceeding 30 meshes in depth. Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

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EO Number: 3-S-SY-41-16 Effective Date: June 28, 2016

Establishes a 4-hour subsistence salmon fishing period in District 2 with 7.5-inch or smaller mesh gillnets from 7:00 p.m. until 11:00 p.m. Tuesday, June 28.

Additionally, effective 12:01 a.m. Wednesday, June 29, in District 2, salmon may be taken for subsistence 24 hours a day, seven days per week with 6-inch or smaller mesh gillnets except for six hours before, during, and six hours after a commercial fishing period. All salmon caught in gillnet gear or fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-42-16 Effective Date: July 1, 2016

Establishes a 4-hour subsistence salmon fishing period in District 3 with 7.5-inch or smaller mesh gillnets from 7:00 p.m. until 11:00 p.m. Friday, July 1.

EO Number: 3-S-SY-43-16 Effective Date: July 1, 2016

Establishes a 6-hour subsistence salmon fishing period in Subdistrict 4-A with 7.5-inch or smaller mesh gillnets from 6:00 p.m. until 12:00 a.m. midnight Friday, July 1, in the lower portion and from 6:00 p.m. to 12:00 a.m. midnight Wednesday, July 6, in the upper portion. Fishermen in Subdistrict 4-A may use set or drift gillnets.

EO Number: 3-S-SY-44-16 Effective Date: July 1, 2016

Effective 6:00 p.m. Friday, July 1, gillnets are restricted to 6-inch or smaller mesh size in Subdistricts 6-A and 6-B. Subsistence fishing is open on the regulatory schedule of two 42-hour periods per week.

EO Number: 3-S-SY-45-16 Effective Date: July 1, 2016

Effective 6:00 p.m. Friday, July 1, subsistence fishing in the Northern Portion of the Coastal District is open 24 hours a day, seven days per week with 6-inch or smaller mesh gillnets.

EO Number: 3-S-SY-46-16 Effective Date: June 29, 2016

Salmon may be taken for commercial purposes in District 1 from 6:00 p.m. until 12:00 a.m. midnight Wednesday, June 29, and Thursday, June 30, in the South Mouth of District 1 only. Fishermen may use 5.5-inch or smaller mesh gillnets not exceeding 30 meshes in depth to target summer chum salmon.

Additionally, salmon may be taken for commercial purposes in District 2 from 6:00 p.m. until 10:00 p.m. Wednesday, June 29, with 6-inch or smaller mesh gillnets.

Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

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EO Number: 3-S-SY-47-16 Effective Date: July 8, 2016

Establishes a 6-hour subsistence salmon fishing period in Subdistricts 4-B and 4-C with 7.5-inch or smaller mesh gillnets and fish wheels from 6:00 p.m. until 12:00 a.m. midnight Friday, July 8. All salmon caught in gillnets and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-48-16 Effective Date: July 1, 2016

Salmon may be taken for commercial purposes in District 2 from 6:00 p.m. until 10:00 p.m. Friday, July 1, and Sunday, July 3, with 6-inch or smaller mesh gillnets.

Additionally, salmon may be taken for commercial purposes in District 1 from 8:00 p.m. Saturday, July 2, until 2:00 a.m. Sunday, July 3, and from 8:00 p.m. Sunday, July 3, until 2:00 a.m. Monday, July 4. Fishermen may use 5.5-inch or smaller mesh gillnets not exceeding 30 meshes in depth to target summer chum salmon.

Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

EO Number: 3-S-SY-49-16 Effective Date: July 10, 2016

Establishes a 6-hour subsistence salmon fishing period in Subdistricts 5-A, 5-B and 5-C with 7.5-inch or smaller mesh gillnets and fish wheels from 6:00 p.m. until 12:00 a.m. midnight Sunday, July 10. All salmon caught in gillnets and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-50-16 Effective Date: July 1, 2016

Salmon may be taken for commercial purposes in District 1 from 8:00 p.m. Friday, July 1, until 2:00 a.m. Saturday, July 2, with 5.5-inch or smaller mesh gillnets not exceeding 30 meshes in depth to target summer chum salmon. Additionally, salmon may be taken for commercial purposes in District 1 with 6-inch or smaller mesh gillnets from 8:00 p.m. Tuesday, July 5, until 2:00 a.m. Wednesday, July 6, and from 8:00 p.m. Wednesday, July 6, until 2:00 a.m. Thursday, July 7. Subsistence salmon fishing will be open until the start of the commercial fishing period on July 1.

Additionally, salmon may be taken for commercial purposes in District 2 from 6:00 p.m. until 10:00 p.m. Tuesday, July 5, and Thursday, July 7, with 6-inch or smaller mesh gillnets.

Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

EO Number: 3-S-SY-51-16 Effective Date: July 1, 2016

This emergency order cancels a commercial fishing period in both Districts 1 and 2. The commercial period in District 1 from 8:00 p.m. Sunday, July 3, until 2:00 a.m. Monday, July 4, and the commercial period in District 2 from 6:00 p.m. to 10:00 p.m. Sunday, July 3, are no longer in effect.

Salmon may be taken for commercial purposes in District 1 from 8:00 p.m. Monday, July 4, until 2:00 a.m. Tuesday, July 5, with 5.5-inch or smaller mesh gillnets not exceeding 30 meshes in depth to target summer chum salmon. Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

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EO Number: 3-S-SY-52-16 Effective Date: July 10, 2016

Effective 8:00 p.m. Sunday, July 10, in District 3 salmon may be taken for subsistence using 6-inch or smaller mesh gillnets 24 hours a day, seven days per week. All salmon caught in gillnet gear may be retained for subsistence use.

EO Number: 3-S-SY-53-16 Effective Date: July 8, 2016

Salmon may be taken for commercial purposes with 6-inch or smaller mesh gillnets in District 1 on the following schedule: 6:00 p.m. Friday, July 8, to 3:00 a.m. Saturday, July 9; 6:00 p.m. Saturday, July 9, to 3:00 a.m. Sunday, July 10; 6:00 p.m. Sunday, July 10, to 3:00 a.m. Monday, July 11; 6:00 p.m. Monday, July 11, to 3:00 a.m. Tuesday, July 12; 6:00 p.m. Wednesday, July 13, to 3:00 a.m. Thursday, July 14; and 6:00 p.m. Friday, July 15, to 3:00 a.m. Saturday, July 16.

Additionally, salmon may be taken for commercial purposes in District 2 with 6-inch or smaller mesh gillnets on the following schedule: 4:00 p.m. to 10:00 p.m. each day, Saturday, July 9; Sunday, July 10; Tuesday, July 12; Thursday, July 14; Saturday, July 16; and Sunday, July 17.

Chinook salmon may be retained from commercial gillnet gear for subsistence use and must be recorded on a fish ticket as kept but not sold.

EO Number: 3-S-SY-54-16 Effective Date: July 13, 2016

Effective 6:00 p.m. Wednesday, July 13, in the lower portion of Subdistrict 4-A and at 6:00 p.m. Thursday, July 14, in the upper portion of Subdistrict 4-A, salmon may be taken for subsistence use five days per week with 6-inch or smaller mesh gillnets and fish wheels. Subsistence fishing is open from 6:00 p.m. Tuesdays to 6:00 p.m. Sundays. Fishermen in Subdistrict 4-A may use set or drift gillnets. All salmon caught in gillnet gear or fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-55-16 Effective Date: July 11, 2016

Effective 9:00 p.m. Monday, July 11, in Subdistrict 5-D lower, salmon may be taken for subsistence with 6-inch or smaller mesh gillnets and fish wheels from 9:00 p.m. Monday, July 11, to 9:00 a.m. Tuesday, July 12.

Effective 9:00 p.m. Wednesday, July 13, in Subdistrict 5-D middle, salmon may be taken for subsistence with 6-inch or smaller mesh gillnets and fish wheels from 9:00 p.m. Wednesday, July 13, to 9:00 a.m. Thursday, July 14.

Effective 9:00 p.m. Friday, July 15, in Subdistrict 5-D upper, salmon may be taken for subsistence with 6-inch or smaller mesh gillnets and fish wheels from 9:00 p.m. Friday, July 15, to 9:00 a.m. Saturday, July 16.

All salmon caught in gillnets and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-56-16 Effective Date: July 11, 2016

Effective 6:00 p.m. Monday, July 11, subsistence salmon fishing in Subdistricts 6-A and 6-B is open with 7.5-inch or smaller mesh gillnets and fish wheels.

Additionally, effective 6:00 p.m. Friday, July 15, personal use salmon fishing in Subdistrict 6-C is open with 7.5-inch or smaller mesh gillnets and fish wheels.

Subsistence and personal use fishing remain on the regulatory schedule of two 42-hour periods per week.

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EO Number: 3-S-SY-57-16 Effective Date: July 17, 2016

Effective 6:00 p.m. Sunday, July 17, in Subdistricts 4-B and 4-C salmon may be taken for subsistence use five days per week with 6-inch or smaller mesh gillnets and fish wheels. Subsistence fishing is open from 6:00 p.m. Sundays to 6:00 p.m. Fridays. All salmon caught in gillnet gear or fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-58-16 Effective Date: July 11, 2016

Opens the commercial salmon fishing season and prohibits the sale of Chinook salmon in District 6 effective 6:00 p.m. Monday, July 11.

EO Number: 3-S-SY-59-16 Effective Date: July 11, 2016

Effective 6:00 p.m. Monday, July 11, salmon may be taken for commercial purposes with 7.5-inch or smaller mesh gillnets and fish wheels in District 6 from 6:00 p.m. Mondays to 12:00 p.m. noon Wednesdays and from 6:00 p.m. Fridays to 12:00 p.m. noon Sundays. Chinook salmon caught in gillnet gear or fish wheels may be retained for personal use and must be recorded on a fish ticket.

EO Number: 3-S-SY-60-16 Effective Date: July 15, 2016

Effective 9:00 p.m. Friday, July 15, in Subdistrict 5-D upper, salmon may be taken for subsistence with 6-inch or smaller mesh gillnets and fish wheels from 9:00 p.m. Friday, July 15, to 9:00 a.m. Sunday, July 17.

Additionally, subsistence salmon fishing in Subdistricts 5-D lower and middle is open for one 24-hour period from 7:00 p.m. Sunday, July 17, to 7:00 p.m. Monday, July 18.

All salmon caught in gillnets and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-61-16 Effective Date: July 20, 2016

Effective 9:00 p.m. Wednesday, July 20, subsistence salmon fishing in Subdistrict 5-D will be open for one 3.5-day period with 6-inch or smaller mesh gillnets and fish wheels from 9:00 p.m. Wednesday, July 20, to 9:00 a.m. Sunday, July 24. All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-62-16 Effective Date: July 19, 2016

Effective 6:00 p.m. Tuesday, July 19, subsistence salmon fishing in Subdistricts 5-A, 5-B, and 5-C is open from 6:00 p.m. Tuesdays to 6:00 p.m. Thursdays and from 6:00 p.m. Fridays to 6:00 p.m. Sundays with 6-inch or smaller mesh gillnets and fish wheels. All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-63-16 Effective Date: July 19, 2016

Effective 7:00 p.m. Tuesday, July 19, in Subdistrict 5-D, salmon may be taken for subsistence with 6-inch or smaller mesh gillnets and fish wheels until 9:00 a.m. Sunday, July 24. All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

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EO Number: 3-S-SY-64-16 Effective Date: July 24, 2016

Effective 9:00 a.m. Sunday, July 24, subsistence salmon fishing in Subdistrict 5-D is open for one 24-hour period with 7.5-inch or smaller mesh gillnets and fish wheels from 9:00 a.m. Sunday, July 24, until 9:00 a.m. Monday, July 25.

Additionally, subsistence salmon fishing in Subdistrict 5-D will open 24 hours a day, seven days per week with 6-inch or smaller mesh gillnets and fish wheels effective 9:00 a.m. Monday, July 25.

All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-65-16 Effective Date: July 21, 2016

Effective 6:00 p.m. Thursday, July 21, in Subdistricts 5-A, 5-B, and 5-C salmon may be taken for subsistence with 6-inch or smaller mesh gillnets and fish wheels from 6:00 p.m. Tuesdays to 6:00 p.m. Sundays. All salmon caught in gillnets gear and fish wheels may be retained for subsistence use.

EO Number: 3-S-SY-66-16 Effective Date: July 26, 2016

Effective 6:00 p.m. Tuesday, July 26, in all of District 5 salmon may be taken for subsistence with 7.5-inch or smaller mesh gillnets and fish wheels. Subdistricts 5-A, 5-B, and 5-C will remain on the subsistence salmon fishing schedule of five days per week and Subdistrict 5-D will remain on its schedule of 24 hours a day, seven days per week. All salmon caught in gillnet gear and fish wheels may be retained for subsistence use.

Appendix A21.–List of emergency orders pertaining to the Fall Yukon Districts 1–6 chum and coho salmon fishery, Yukon Area, 2016.

EO Number: 3-S-FY-01-16	Effective Date: July 16, 2016

Effective 9:00 a.m. Saturday, July 16, emergency order 3-S-SY-02-16 that restricted 4 inch mesh or less gillnets to a maximum of 60 feet in length for subsistence fishing is rescinded.

EO Number: 3-S-FY-02-16	Effective Date: July 17, 2016

Effective 12:01 a.m. Sunday, July 17, the boundary of the portion of District 1, from Apoon Pass to its terminus at Point Romanof, is extended to three nautical miles seaward from any grassland bank.

EO Number: 3-S-FY-03-16	Effective Date: July 18, 2016

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. Monday, July 18, until 12:00 midnight Monday, July 18, in District 1 including the Set Net Only Area. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-04-16	Effective date: July 20, 2016

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Wednesday, July 20, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-05-16	Effective Date: July 21, 2016

A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. Thursday, July 21, until 12:00 midnight Thursday, July 21, in District 1 including the Set Net Only Area. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-06-16	Effective Date: July 24, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Sunday, July 24, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-07-16	Effective Date: July 25, 2016

A 12-hour commercial salmon fishing period is scheduled from 12:00 p.m. Monday, July 25, until 12:00 midnight Monday, July 25 in the Set Net Only Area of District 1. A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. Monday, July 25, until 12:00 midnight Monday, July 25 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-08-16	Effective Date: July 26, 2016

Effective 6:00 p.m. Tuesday, July 26, subsistence salmon fishing in Subdistrict 4A is open seven days a week, 24 hours per day.

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EO Number: 3-S-FY-09-16 Effective Date: July 27, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Wednesday, July 27, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-10-16 Effective Date: July 31, 2016

Effective 6:00 p.m. Sunday, July 31, subsistence salmon fishing in Subdistricts 4-B and 4-C is open seven days a week, 24 hours per day.

EO Number: 3-S-FY-11-16 Effective Date: July 28, 2016

A 12-hour commercial salmon fishing period is scheduled from 12:00 p.m. Thursday, July 28, until 12:00 midnight, Thursday, July 28 in the Set Net Only Area of District 1. A 9-hour commercial salmon fishing period is scheduled from 3:00 p.m. Thursday, July 28, until 12:00 midnight Thursday, July 28 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-12-16 Effective Date: August 2, 2016

Effective 6:00 p.m. Tuesday, August 2, subsistence salmon fishing in Subdistricts 5-A, 5-B, and 5-C is open seven days a week, 24 hours per day.

EO Number: 3-S-FY-13-16 Effective Date: July 30, 2016

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Saturday, July 30 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. Saturday, July 30 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence salmon fishing will be open concurrent with this commercial period and will remain open before and after this commercial period.

EO Number: 3-S-FY-14-16 Effective Date: July 31, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Sunday, July 31, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-15-16 Effective Date: August 1, 2016

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Monday, August 1 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, August 1 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-16-16 Effective Date: August 3, 2016

A 7-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 9:00 p.m. Wednesday, August 3, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

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EO Number: 3-S-FY-17-16 Effective Date: August 4, 2016

A 12-hour commercial salmon fishing period is scheduled from 10:00 a.m. until 10:00 p.m. Thursday, August 4 in the Set Net Only Area of District 1. A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Thursday, August 4 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-18-16 Effective Date: August 7, 2016

A 8-hour commercial salmon fishing period is scheduled from 12:00 p.m. until 8:00 p.m. Sunday, August 7, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-19-16 Effective Date: August 8, 2016

In subdistricts 5-B and 5-C, commercial salmon fishing is scheduled to open on 6:00 p.m. Monday, August 8 for 24 hours a day, seven days a week. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Commercial fishing will occur concurrently with the current subsistence fishing.

EO Number: 3-S-FY-20-16 Effective Date: August 8, 2016

A 12-hour commercial salmon fishing period is scheduled from 10:00 a.m. until 10:00 p.m. Monday, August 8 in the Set Net Only Area of District 1. A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Monday, August 8 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-21-16 Effective Date: August 10, 2016

A 8-hour commercial salmon fishing period is scheduled from 12:00 p.m. until 8:00 p.m. Wednesday, August 10, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-22-16 Effective Date: August 12, 2016

This emergency order rescinds 3-S-SY-59-16 and establishes a commercial salmon fishing schedule in District 6 of two 42-hour periods per week from 6:00 p.m. Fridays until 12:00 p.m. Sundays and from 6:00 p.m. Mondays until 12:00 p.m. Wednesdays with gillnets restricted to 6 inch or smaller mesh. Commercial fishing periods will occur concurrently with the subsistence fishing periods.

EO Number: 3-S-FY-23-16 Effective Date: August 11, 2016

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Thursday, August 11 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 11 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

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EO Number: 3-S-FY-24-16 Effective Date: August 13, 2016

A 6-hour commercial salmon fishing period is scheduled from 2:00 p.m. until 8:00 p.m. Saturday, August 13, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-25-16 Effective Date: August 14, 2016

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Sunday, August 14 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. Sunday, August 14 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-26-16 Effective Date: August 16, 2016

A 7-hour commercial salmon fishing period is scheduled from 5:00 p.m. Tuesday, August 16 until 12:00 midnight Tuesday, August 16 in the Set Net Only Area of District 1. A 5-hour commercial salmon fishing period is scheduled from 5:00 p.m. until 10:00 p.m. Tuesday, August 16 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-27-16 Effective Date: August 16, 2016

A 5-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 8:00 p.m. Tuesday, August 16, in District 2. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 2 will close at 12:00 p.m. Tuesday, August 16, and reopen at 8:00 a.m. Wednesday, August 17.

EO Number: 3-S-FY-28-16 Effective Date: August 18, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Thursday, August 18, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-29-16 Effective Date: August 18, 2016

A 9-hour commercial salmon fishing period is scheduled from 12:00 p.m. until 9:00 p.m. Thursday, 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. Thursday, August 18 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-30-16 Effective Date: August 19, 2016

A 5-hour commercial salmon fishing period is scheduled from 4:00 p.m. until 9:00 p.m. Friday, August 19, in District 2. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 2 will close at 4:00 p.m. Friday, August 19, and reopen at 9:00 a.m. Saturday, August 20.

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EO Number: 3-S-FY-31-16 Effective Date: August 21, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Sunday, August 21, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-32-16 Effective Date: August 21, 2016

A 9-hour commercial salmon fishing period is scheduled from 12:00 p.m. until 9:00 p.m. Sunday, August 21 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, August 21 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 1 will close at 12:00 p.m. Sunday, August 21, and reopen at 9:00 a.m. Monday, August 22.

EO Number: 3-S-FY-33-16 Effective Date: August 23, 2016

A 5-hour commercial salmon fishing period is scheduled from 3:00 p.m. until 8:00 p.m. Tuesday, August 23, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-34-16 Effective Date: August 23, 2016

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Tuesday, August 23 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. Tuesday, August 23 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

EO Number: 3-S-FY-35-16 Effective Date: August 24, 2016

A 9-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 10:00 p.m. Wednesday, August 24 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. Wednesday, August 24 in the remainder of District 1. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 1 will close at 1:00 p.m. Wednesday, August 24, and reopen at 10:00 a.m. Thursday, August 25.

EO Number: 3-S-FY-36-16 Effective Date: August 26, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Friday, August 26, in District 2. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

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EO Number: 3-S-FY-37-16 Effective Date: August 26, 2016

This emergency order establishes three commercial salmon fishing periods in District 1. In the Set Net Only Area portion of District 1, three 9-hour periods are scheduled for 9:00 a.m. to 6:00 p.m. each day from Friday, August 26 through Sunday, August 28. In the remainder of District 1, three 6-hour periods are scheduled for 12:00 p.m. to 6:00 p.m. each day from Friday, August 26 through Sunday, August 28. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

Subsistence fishing in District 1 will be open on the following schedule:

- Thursday, August 25 from 10:00 a.m. until Friday, August 26 at 9:00 a.m.
- Friday, August 26 from 12:00 p.m. to 6:00 p.m.
- Friday, August 26 from 10:00 p.m. until Saturday, August 27 at 9:00 a.m.
- Saturday, August 27 from 12:00 p.m. to 6:00 p.m.
- Saturday, August 27 from 10:00 p.m. until Sunday, August 28 at 9:00 a.m.
- Sunday, August 28 from 12:00 p.m. to 6:00 p.m.

EO Number: 3-S-FY-38-16 Effective Date: August 27, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Saturday, August 27, 2016, in District 2. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 2 will close at 1:00 p.m. Saturday, August 27, and reopen at 9:00 a.m. Sunday, August 28.

EO Number: 3-S-FY-39-16 Effective Date: August 31, 2016

Effective 12:01 a.m. Wednesday, August 31, subsistence salmon fishing in the mainstem Porcupine River will close. Subsistence salmon fishing in tributaries of Porcupine River such as Sheenjek, Black, and Coleen rivers will remain open.

EO Number: 3-S-FY-40-16 Effective Date: August 28, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Sunday, August 28, 2016, in District 2. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 2 will close at 9:00 p.m. Sunday, August 28, and reopen at 11:00 p.m. Sunday, August 28.

EO Number: 3-S-FY-41-16 Effective Date: August 29, 2016

This emergency order establishes three commercial salmon fishing periods in District 1. In the Set Net Only Area portion of District 1, three 9-hour periods are scheduled for 9:00 a.m. to 6:00 p.m. each day from Monday, August 29 through Wednesday, August 31. In the remainder of District 1, three 6-hour periods are scheduled for 12:00 p.m. to 6:00 p.m. each day from Monday, August 29 through Wednesday, August 31. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 1 will be open daily from 9:00 p.m. until 9:00 a.m. from Sunday, August 28 until 9:00 a.m. Thursday, September 1.

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EO Number: 3-S-FY-42-16 Effective Date: August 30, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Tuesday, August 30, 2016, in District 2. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 2 will close at 1:00 p.m. Tuesday, August 30, and reopen at 9:00 a.m. Wednesday, August 31.

EO Number: 3-S-FY-43-16 Effective Date: August 31, 2016

A 8-hour commercial salmon fishing period is scheduled from 1:00 p.m. until 9:00 p.m. Wednesday, August 31, 2016, in District 2. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Subsistence fishing in District 2 will close at 1:00 p.m. Wednesday, August 31, and reopen at 9:00 a.m. Thursday, September 1.

EO Number: 3-S-FY-44-16 Effective Date: September 2, 2016

This emergency order establishes three commercial salmon fishing periods in Districts 1 and 2. In the Set Net Only Area portion of District 1, three 12-hour periods are from 9:00 a.m. to 9:00 p.m. on Friday, September 2, Sunday, September 4, and Tuesday, September 6. In the remainder of District 1, three 9-hour periods are from 12:00 p.m. to 9:00 p.m. Friday, September 2, Sunday, September 4, and Tuesday, September 6. In District 2, three 9-hour periods are from 12:00 p.m. to 9:00 p.m. Friday, September 2, Sunday, September 4, and Tuesday, September 6. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

Subsistence fishing in Districts 1 and 2 will be open from 9:00 a.m. until 9:00 p.m. on Thursday, September 1, Saturday, September 3, and Monday, September 5.

EO Number: 3-S-FY-45-16 Effective Date: September 8, 2016

This emergency order establishes two commercial salmon fishing periods in Districts 1 and 2. In the Set Net Only Area portion of District 1, two 12-hour periods are scheduled from 9:00 a.m. to 9:00 p.m. on Thursday, September 8 and on Saturday, September 10. In the remainder of District 1, two periods (9 and 12-hours) are scheduled from 12:00 p.m. to 9:00 p.m. Thursday, September 8 and from 9:00 a.m. to 9:00 p.m. Saturday, September 10. In District 2, two periods (9 and 12-hours) are scheduled from 12:00 p.m. to 9:00 p.m. Thursday, September 8 and from 9:00 a.m. to 9:00 p.m. Saturday. Commercial fishing gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited.

Subsistence fishing in Districts 1 and 2 will be open from 9:00 a.m. until 9:00 p.m. on Wednesday, September 7 and Friday, September 9. Effective 9:00 am Sunday, September 11, subsistence fishing will be open 24 hours a day, seven days a week.

EO Number: 3-S-FY-46-16 Effective Date: September 19, 2016

Effective 12:00 p.m. Monday, September 19, subsistence salmon fishing in the mainstem Porcupine River will be open on a 72-hour period per week schedule from 12:00 p.m. Mondays until 12:00 p.m. Thursdays.

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EO Number: 3-S-FY-47-16 Effective Date: September 28, 2016

Effective 12:00 p.m. Wednesday, September 28, subsistence salmon fishing in District 6 will be open seven days a week, 24 hours per day.

EO Number: 3-S-FY-48-16 Effective Date: September 28, 2016

Effective 12:00 p.m. Wednesday, September 28, personal use salmon fishing in Subdistrict 6-C will be open seven days a week, 24 hours a day.

EO Number: 3-S-FY-49-16 Effective Date: September 28, 2016

The commercial fishing period in District 6 scheduled to close at 12:00 p.m. Wednesday, September 28 will remain open until 6:00 p.m. Friday, September 30. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. Commercial fishing periods will occur concurrently with the subsistence fishing periods.

EO Number: 3-S-FY-50-16 Effective Date: September 30, 2016

Effective 12:00 p.m. Friday, September 30, subsistence salmon fishing in the mainstem Porcupine River will be open for seven days a week, 24 hours a day.

EO Number: 3-S-FY-51-16 Effective Date: October 1, 2016

Effective 12:01 a.m. Saturday, October 1, the coho salmon directed commercial fishing season will open in District 6. In District 6, commercial salmon fishing will be open for 66 hours from 6:00 p.m. Sunday, October 2, until 12:00 p.m. Wednesday, October 5. Gillnets are restricted to 6-inch or smaller mesh size. The sale of Chinook salmon is prohibited. This commercial fishing period will occur concurrently with the subsistence fishing periods.

EO Number: 3-S-FY-52-16 Effective Date: October 1, 2016

This emergency order opens the coho salmon directed commercial fishing season in Subdistricts 5-B and 5-C. The current commercial salmon fishing period, scheduled to close at 11:59 p.m. Friday, September 30, will now remain open until 11:59 p.m. Wednesday, October 5.

APPENDIX B

Appendix B1.–Commercial catches of Chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1996–2016.

		Unrestricted mesh size [a,b]				7.5-inch maximum mesh size [a,c]				6.0-inch maximum mesh size [a]	
		Chinook			Summer chum	Chinook			Summer chum	Chinook	Summer chum
Year	[d]	District 1	District 2	Total	Districts 1 and 2	District 1	District 2	Total	Districts 1 and 2	Districts 1 and 2	Districts 1 and 2
1996		56,642	30,209	86,851	123,233						
1997		63,062	39,052	102,114	49,953					3,611	28,204
1998		24,202	16,806	41,008	20,314					1,211	7,804
1999		37,145	27,119	64,264	27,883						
2000		4,735	3,783	8,518	6,624						
2001		–	–	–	–	–	–	–	–	–	–
2002		11,089	11,440	22,529	10,354						
2003		22,708	14,220	36,928	6,162						
2004		28,401	24,145	52,546	19,775						
2005		16,619	13,413	30,032	32,278						
2006		23,728	19,356	43,084	35,574					478	11,785
2007		13,558	9,238	22,796	11,311					9,121	164,911
2008										4,348	125,598
2009	[e]									131	157,906
2010										9,897	183,215
2011	[e]									0	266,510
2012	[e]									0	207,849
2013	[e,f]									0	189,935
2014	[e,f]									0	154,498
2015	[e,f]									0	126,872
2016	[e,f]									0	340,643
2011–2015 Average										0	189,133
2006–2015 Average		18,643	14,297	32,940	23,443					2,664	162,467

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.

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

[b] Primarily 8.0 to 8.5 inch mesh size used from early June to early July.

[c] In 2010, the BOF adopted new regulation stating the maximum mesh size of gillnets to be used within the Yukon River drainage was 7.5 inches. This went into effect for the 2011 fishing season.

[d] ADF&G test fishery sales not included in total.

[e] In summer chum directed commercial fisheries with gillnets restricted to 6.0 inch maximum mesh size, the sale of incidentally caught Chinook salmon was prohibited throughout portions or all of the summer season.

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

Appendix B2.–Commercial Chinook salmon harvest (in numbers of fish) for fall and summer seasons combined by statistical area, Lower Yukon Area, 1996–2016.

	District 1								
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1996	6,079	6,858	3,791	3,297	8,850	4,478	16,789	6,500	56,642
1997	4,570	5,865	2,844	6,648	12,460	4,703	21,443	7,851	66,384
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
2011–2015 Average	0	2	0	0	1	3	1	0	7
2006–2015 Average	367	481	354	241	1,008	489	1,424	713	5,076

	District 2						District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1996	8,265	9,134	2,749	3,626	6,435	30,209	0	0	0
1997	13,939	13,344	2,280	6,104	3,696	39,363	–	–	–
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	–	–	–
2011–2015 Average	0	3	1	4	0	9			
2006–2015 Average	742	1,643	678	626	280	3,969	253	0	253

Note: En dash indicates no commercial fishing activity occurred. Blank cells indicate insufficient information to generate average. ADF&G test fishery sales not included. Values include Chinook salmon harvested in both summer and fall seasons. ADF&G test fishery sales not included.

Appendix B3.–Commercial summer chum salmon harvest (in numbers of fish) by statistical area, Lower Yukon Area, 1996–2016.

	District 1								
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1996	19,432	17,769	6,837	5,611	13,111	2,831	17,864	9,051	92,506
1997	10,764	9,519	6,190	10,374	5,429	1,650	10,719	5,270	59,915
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
Avg 2011–2015	7,980	42,497	17,162	29,411	14,107	5,105	53,103	9,233	178,598
Avg 2006–2015	5,375	26,717	12,237	18,990	11,998	5,612	36,960	8,378	126,266

	District 2						District 3 (334-31)		
Year	334-21	334-22	334-23	334-24	334-25	Total	Number	Roe	Estimated Harvest [a]
1996	9,177	13,056	4,965	2,479	1,050	30,727	0	162	465
1997	7,126	7,938	673	1,667	838	18,242	–	–	–
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	–	–	–
Avg 2011–2015	15,412	62,727	31,321	36,855	2,074	148,389			
Avg 2006–2015	14,323	44,236	21,897	23,889	1,914	106,258	59	0	59

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] 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, 1996–2016.

	District 1									
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	334-19	Total
1996	0	2,686	2,333	1,243	4,561	9,976	8,504	4,326	–	33,629
1997	0	2,870	3,452	3,768	3,943	1,596	6,747	5,107	–	27,483
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	–	226,576
2011-2015 Average	2,529	19,122	4,741	9,236	17,902	13,280	30,931	7,570		105,311
2006-2015 Average	1,289	13,626	4,866	7,056	10,828	8,731	21,807	6,479		74,682

	District 2						District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1996	1,960	14,349	4,184	7,634	1,524	29,651	–	–	–
1997	5,040	9,827	2,316	5,972	1,171	24,326	–	–	–
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	–	129,284	–	–	–
2013	18,476	27,663	16,379	40,955	2,801	106,274	–	–	–
2014	5,949	19,112	11,186	22,891	–	59,138	–	–	–
2015	8,450	20,433	21,486	22,702	1,143	74,214	–	–	–
2016	37,155	104,917	44,412	7,383	19,358	213,225	–	–	–
2011-2015 Average	12,314	27,101	18,764	34,427	2,204	93,928			
2006-2015 Average	8,469	19,329	12,639	18,610	1,065	59,898			

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

Appendix B5.–Commercial coho salmon harvest (in numbers of fish) by statistical area, Lower Yukon Area, 1996–2016.

	District 1								
Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	Total
1996	0	1,555	1,564	854	3,995	9,634	8,068	2,035	27,705
1997	0	1,355	2,322	2,414	2,742	4,153	5,180	3,284	21,450
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	113,669
2011-2015 Average	1,395	6,364	1,895	3,366	8,127	6,662	15,289	3,548	46,646
2006-2015 Average	702	3,973	1,546	2,242	4,768	5,996	9,938	2,359	31,524

	District 2						District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	334-31	334-32	Total
1996	761	12,155	2,755	4,409	894	20,974	–	–	–
1997	2,197	6,449	1,238	3,025	147	13,056	–	–	–
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	–	29,063	–	–	–
2013	3,951	11,041	7,225	8,911	330	31,458	–	–	–
2014	5,397	19,757	12,310	11,138	–	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	–	–	–
2011-2015 Average	5,369	14,139	8,636	9,009	801	37,633			
2006-2015 Average	3,683	9,757	5,548	5,277	418	24,599			

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

Appendix B6.–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, 2016.

Chinook salmon in 8.5" set gillnets							
	2016					Average 1989–2015 [a]	
Date	Daily catch		Daily CPUE	Cumulative CPUE	Proportion	Cumulative CPUE	Proportion
5/24	6	[b]	0.25	0.25	0.01	0.00	0.00
5/25	0	[b]	0.00	0.25	0.01	0.00	0.00
5/26	3	[b]	0.13	0.38	0.01	0.00	0.00
5/27	0	[b]	0.00	0.38	0.01	0.03	0.00
5/28	2	[b]	0.08	0.46	0.01	0.05	0.00
5/29	5	[b]	0.21	0.67	0.02	0.07	0.00
5/30	11	[b]	0.46	1.13	0.03	0.12	0.01
5/31	17	[b]	0.71	1.83	0.05	0.18	0.01
6/1	16	[b]	0.67	2.50	0.07	0.33	0.01
6/2	10	[b]	0.42	2.92	0.08	0.48	0.02
6/3	22		0.46	3.38	0.09	0.24	0.01
6/4	25		0.69	4.07	0.11	0.67	0.03
6/5	0	[b]	0.17	4.24	0.11	0.85	0.04
6/6	15		0.52	4.75	0.13	1.12	0.05
6/7	43		0.90	5.65	0.15	1.42	0.06
6/8	20		0.42	6.07	0.16	1.78	0.08
6/9	66		1.38	7.44	0.20	2.37	0.10
6/10	59		1.23	8.67	0.23	2.87	0.13
6/11	38		0.79	9.46	0.25	3.40	0.15
6/12	52		1.08	10.55	0.28	4.05	0.18
6/13	96		2.00	12.55	0.33	4.80	0.21
6/14	69		1.44	13.98	0.37	5.54	0.25
6/15	47		0.98	14.96	0.40	6.31	0.28
6/16	27		0.56	15.52	0.41	7.26	0.32
6/17	29		0.60	16.13	0.43	8.15	0.36
6/18	87		1.81	17.94	0.48	9.07	0.40
6/19	82		1.71	19.65	0.52	9.95	0.44
6/20	100		2.08	21.73	0.58	10.75	0.48
6/21	88		1.83	23.57	0.63	11.72	0.52
6/22	74		1.54	25.11	0.67	12.70	0.56
6/23	55		1.15	26.25	0.70	13.61	0.60
6/24	48		1.00	27.25	0.73	14.64	0.65
6/25	72		1.50	28.75	0.77	15.50	0.69
6/26	47		0.98	29.73	0.79	16.35	0.72
6/27	50		1.04	30.77	0.82	17.08	0.76
6/28	30		0.63	31.40	0.84	17.82	0.79
6/29	44		0.92	32.32	0.86	18.50	0.82
6/30	44	[c]	0.92	33.23	0.89	19.04	0.84
7/1	25		1.04	34.27	0.91	19.50	0.86
7/2	18		0.75	35.02	0.93	19.96	0.88
7/3	24		1.00	36.02	0.96	20.35	0.90
7/4	16		0.67	36.69	0.98	20.68	0.92
7/5	3		0.13	36.82	0.98	21.01	0.93
7/6	4		0.17	36.98	0.99	21.31	0.94
7/7	1		0.04	37.02	0.99	21.56	0.96

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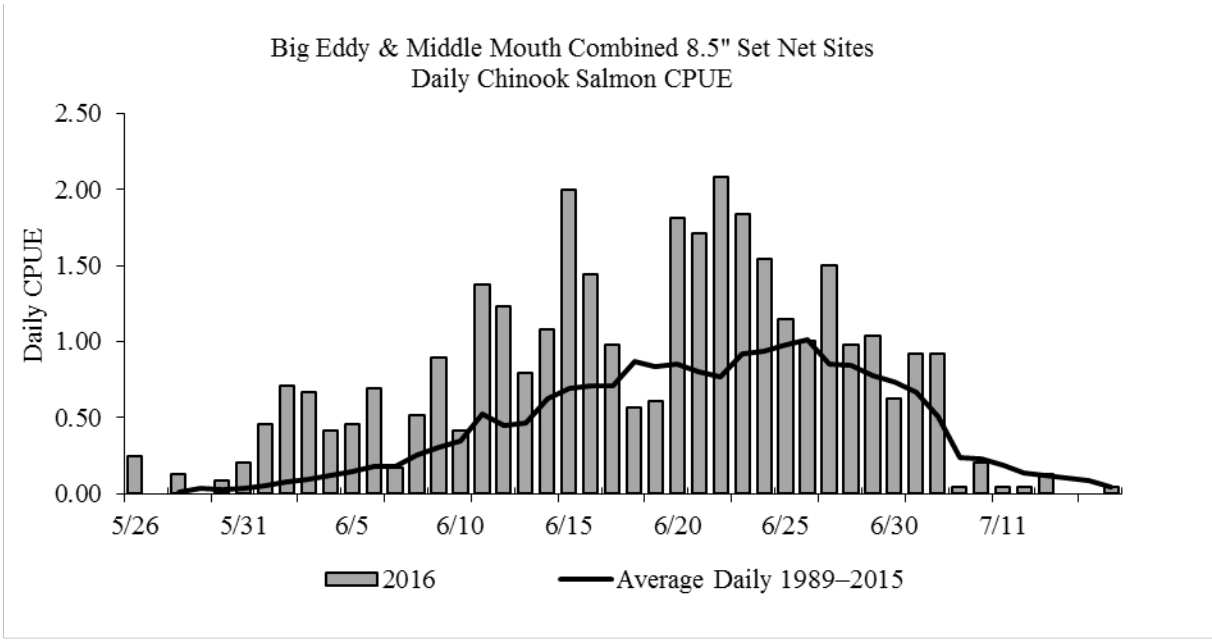
Chinook salmon in 8.5" set gillnets						
	2016				Average 1989–2015 [a]	
Date	Daily catch	Daily CPUE	Cumulative CPUE	Proportion	Cumulative CPUE	Proportion
7/8	5	0.21	37.23	0.99	21.79	0.97
7/9	1	0.04	37.27	0.99	21.97	0.97
7/10	1	0.04	37.32	1.00	22.12	0.98
7/11	3	0.13	37.44	1.00	22.24	0.99
7/12	0	0.00	37.44	1.00	22.34	0.99
7/13	0	0.00	37.44	1.00	22.43	0.99
7/14	1	0.04	37.48	1.00	22.50	1.00
7/15	0	0.00	37.48	1.00	22.57	1.00
Total	1,601		37.48		22.57	

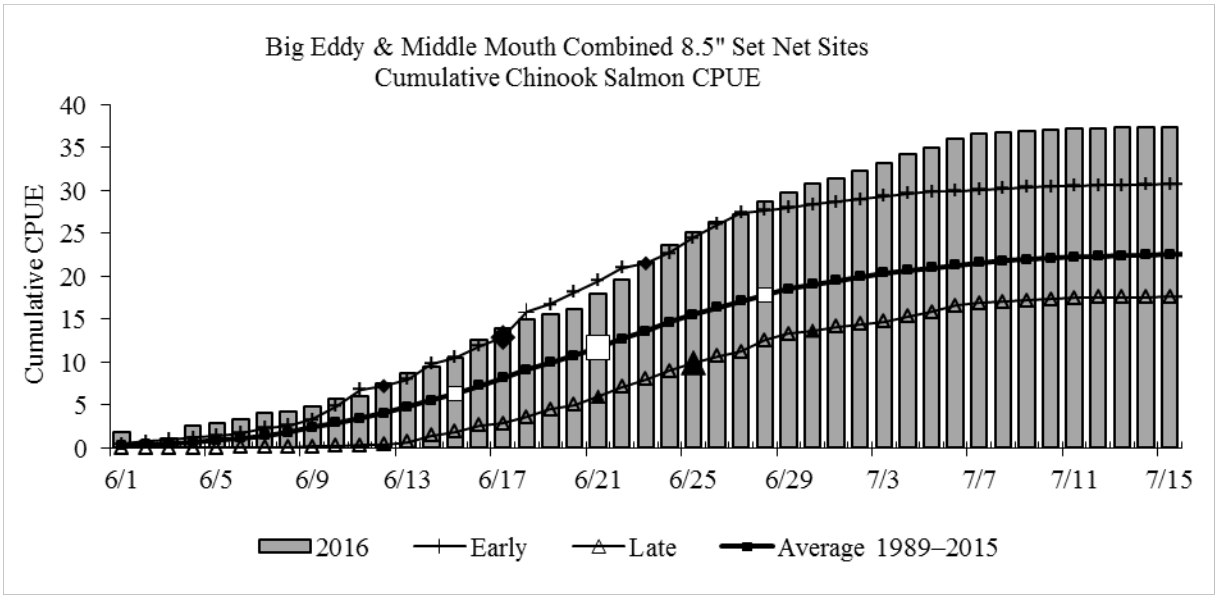
Note: The box within the cumulative CPUE column indicates the first quarter point, midpoint, and third quarter point of the cumulative CPUE.

[a] Historical average does not include the years 2001, 2009, and 2012–2015.

[b] Only one set net site in the Big Eddy of the South Mouth was operated.

[c] Last day of operation for the Big Eddy set net site.





Appendix B7.–Daily and cumulative CPUE for the 2016 Chinook salmon set gillnet test fishery compared to the average daily and cumulative CPUE, 1989–2015.

Appendix B8.–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, 2016.

	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	
5/22	5	10.26	0.00	10.26					5	10.26	0.00	10.26	a
5/23	0	0.00	0.00	10.26					0	0.00	0.00	10.26	a
5/24	0	0.00	0.00	10.26					0	0.00	0.00	10.26	
5/25	1	1.50	0.00	11.76					1	1.50	0.00	11.76	
5/26	4	6.15	0.00	17.91					4	6.15	0.00	17.91	
5/27	0	0.00	0.00	17.91					0	0.00	0.00	17.91	a
5/28	1	1.54	0.00	19.45					1	1.54	0.00	19.44	
5/29	0	0.00	0.00	19.45					0	0.00	0.00	19.44	
5/30	4	0.00	0.00	19.45					4	0.00	0.00	19.44	b
5/31	13	19.54	0.00	38.99					13	19.54	0.00	38.98	
6/1	7	10.35	0.00	49.34					7	10.35	0.00	49.34	
6/2	40	79.65	0.01	128.99					40	79.65	0.01	128.99	a
6/3	27	54.00	0.02	182.99					27	54.00	0.02	182.99	
6/4	63	151.75	0.03	334.74	5	14.63	0.01	14.63	68	166.39	0.03	349.37	c
6/5	21	32.52	0.04	367.26	5	7.72	0.02	22.35	26	40.24	0.03	389.61	
6/6	18	27.01	0.04	394.26	3	4.74	0.02	27.09	21	31.74	0.04	421.35	
6/7	30	45.63	0.04	439.90	0	0.00	0.02	27.09	30	45.63	0.04	466.98	
6/8	6	12.05	0.05	451.95	1	1.54	0.02	28.63	7	13.59	0.04	480.57	a
6/9	9	55.38	0.05	507.33	8	11.41	0.03	40.04	17	66.79	0.05	547.36	b
6/10	79	203.69	0.07	711.02	26	38.07	0.06	78.11	105	241.76	0.07	789.12	
6/11	67	211.79	0.09	922.81	3	4.58	0.07	82.68	70	216.37	0.09	1,005.49	a
6/12	79	273.64	0.12	1,196.45	7	10.11	0.07	92.79	86	283.75	0.12	1,289.24	a
6/13	52	498.33	0.17	1,694.79	19	27.71	0.10	120.50	71	526.04	0.16	1,815.29	b
6/14	143	980.38	0.27	2,675.17	34	52.40	0.14	172.91	177	1,032.79	0.25	2,848.08	a
6/15	71	251.58	0.29	2,926.75	15	22.77	0.16	195.68	86	274.35	0.28	3,122.42	
6/16	29	44.94	0.30	2,971.69	3	4.62	0.16	200.30	32	49.55	0.28	3,171.98	
6/17	16	24.24	0.30	2,995.92	3	4.50	0.16	204.80	19	28.74	0.29	3,200.72	
6/18	289	1,423.89	0.44	4,419.81	25	33.86	0.19	238.65	314	1,457.75	0.42	4,658.46	a
6/19	97	173.56	0.46	4,593.38	59	83.08	0.26	321.74	156	256.65	0.44	4,915.11	

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Appendix B8.–Page 2 of 2.

Summer chum salmon in 5.5" 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	
6/20	110	246.15	0.49	4,839.53	35	48.03	0.29	369.76	145	294.18	0.46	5,209.29	
6/21	120	279.01	0.51	5,118.54	51	69.90	0.35	439.66	171	348.91	0.50	5,558.20	
6/22	92	1,044.00	0.62	6,162.54	70	95.50	0.43	535.17	162	1,139.50	0.60	6,697.70	
6/23	39	59.69	0.63	6,222.23	4	5.71	0.43	540.88	43	65.41	0.60	6,763.11	
6/24	21	32.00	0.63	6,254.23	2	2.82	0.43	543.70	23	34.82	0.61	6,797.93	
6/25	140	1,135.14	0.74	7,389.38	60	91.43	0.50	635.13	200	1,226.57	0.72	8,024.51	[d]
6/26	61	322.50	0.78	7,711.88	85	124.06	0.60	759.19	146	446.56	0.76	8,471.06	
6/27	31	48.17	0.78	7,760.05	4	5.85	0.61	765.04	35	54.02	0.76	8,525.09	
6/28	5	7.69	0.78	7,767.74	3	4.71	0.61	769.76	8	12.41	0.76	8,537.49	
6/29	81	316.00	0.81	8,083.74	25	37.38	0.64	807.14	106	353.38	0.79	8,890.88	
6/30	16	25.35	0.82	8,109.09	30	41.69	0.67	848.83	46	67.04	0.80	8,957.91	
7/1	84	175.71	0.83	8,284.80	65	76.63	0.74	925.45	149	252.33	0.82	9,210.25	
7/2	122	356.49	0.87	8,641.28	54	74.13	0.79	999.59	176	430.62	0.86	9,640.86	[a]
7/3	76	183.91	0.89	8,825.19	64	90.70	0.87	1,090.29	140	274.61	0.89	9,915.48	
7/4	29	102.62	0.90	8,927.82	38	55.10	0.91	1,145.39	67	157.72	0.90	10,073.20	
7/5	5	7.39	0.90	8,935.21	7	9.77	0.92	1,155.15	12	17.16	0.90	10,090.36	
7/6	52	95.62	0.91	9,030.83	2	2.96	0.92	1,158.12	54	98.58	0.91	10,188.94	
7/7	25	39.15	0.91	9,069.97	4	5.85	0.93	1,163.97	29	45.00	0.91	10,233.94	
7/8	173	446.16	0.96	9,516.14	3	4.22	0.93	1,168.19	176	450.38	0.95	10,684.32	
7/9	3	4.74	0.96	9,520.87	4	5.33	0.93	1,173.52	7	10.07	0.95	10,694.39	
7/10	89	217.78	0.98	9,738.65	3	4.22	0.94	1,177.74	92	222.00	0.97	10,916.39	
7/11	112	176.84	1.00	9,915.49	30	44.20	0.97	1,221.95	142	221.04	0.99	11,137.44	
7/12	13	20.53	1.00	9,936.02	9	13.52	0.98	1,235.46	22	34.04	1.00	11,171.48	
7/13	0	0.00	1.00	9,936.02	7	10.39	0.99	1,245.86	7	10.39	1.00	11,181.87	
7/14	4	6.32	1.00	9,942.34	8	11.86	1.00	1,257.71	12	18.17	1.00	11,200.05	
7/15	2	3.16	1.00	9,945.49	0	0.00	1.00	1,257.71	2	3.16	1.00	11,203.20	
Total	2,671			9,945.49	883			1,257.71	3,554			11,203.20	

Note: The box within the cumulative index column indicates the first quarter point, midpoint, and third quarter point of the cumulative index.

[a] Only three drifts at Big Eddy.

[b] Only two drifts at Big Eddy.

[c] Only three drifts at Middle Mouth.

[d] Only three drifts at Big Eddy and Middle Mouth.

Appendix B9.–Fall chum and coho salmon, daily and cumulative catch-per-unit-effort (CPUE), cooperative drift gillnet (6.0 inch) test fishery, Big Eddy and Middle Mouth sites combined, Lower Yukon Area, 2001 to 2015 compared to 2016.

	2001 to 2015 Median			2016					2001 to 2015 Median			2016				
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	15.82	0.01	15.82	1	0.75	0.00	0.75		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/17	14.63	0.02	44.23	6	4.48	0.00	5.23		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/18	5.51	0.05	68.82	6	8.51	0.01	13.74	[a]	0.00	0.00	0.00	0	0.0	0.00	0.00	[a]
7/19	7.55	0.07	83.93	102	77.21	0.05	90.95		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/20	4.74	0.08	105.20	98	76.09	0.09	167.04		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/21	3.66	0.08	106.69	12	17.47	0.10	184.51	[a]	0.00	0.00	0.00	0	0.0	0.00	0.00	[a]
7/22	4.52	0.09	117.10	51	37.58	0.12	222.09		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/23	2.97	0.10	132.19	74	53.08	0.15	275.17		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/24	6.00	0.11	141.94	17	12.48	0.15	287.65		0.00	0.00	0.00	0	0.0	0.00	0.00	
7/25	7.24	0.12	144.23	12	17.06	0.16	304.71	[a]	0.00	0.00	0.00	0	0.0	0.00	0.00	[a]
7/26	3.79	0.12	150.84	3	2.21	0.16	306.92		0.00	0.00	0.72	0	0.0	0.00	0.00	
7/27	8.67	0.14	235.66	1	0.77	0.16	307.69		0.00	0.00	0.72	0	0.0	0.00	0.00	
7/28	25.61	0.17	274.94	0	0.00	0.16	307.69	[a]	0.86	0.00	2.52	0	0.0	0.00	0.00	[a]
7/29	18.17	0.21	311.25	2	1.54	0.16	309.23		0.79	0.01	3.64	0	0.0	0.00	0.00	
7/30	7.54	0.22	316.83	42	55.68	0.19	364.91	[a]	1.46	0.02	4.17	1	1.3	0.00	1.30	[a]
7/31	6.89	0.23	321.69	16	11.68	0.20	376.59		0.79	0.02	6.93	0	0.0	0.00	1.30	
8/1	32.59	0.30	324.04	128	88.22	0.25	464.81		2.01	0.03	11.03	0	0.0	0.00	1.30	
8/2	14.67	0.34	417.53	28	18.84	0.26	483.65		1.50	0.04	15.05	0	0.0	0.00	1.30	
8/3	12.56	0.39	490.42	15	11.22	0.26	494.87		2.20	0.06	18.73	1	0.7	0.00	2.04	
8/4	2.13	0.39	548.32	9	12.86	0.27	507.73	[a]	0.75	0.06	18.94	0	0.0	0.00	2.04	[a]
8/5	6.00	0.43	560.31	1	0.77	0.27	508.50		4.37	0.07	25.41	0	0.0	0.00	2.04	
8/6	3.95	0.43	588.66	10	7.35	0.27	515.85		2.91	0.08	32.07	1	0.8	0.01	2.81	
8/7	15.28	0.45	601.44	3	2.57	0.27	518.42		1.50	0.08	33.34	0	0.0	0.01	2.81	
8/8	16.55	0.45	610.51	0	0.00	0.27	518.42	[a]	4.68	0.13	42.08	0	0.0	0.01	2.81	[a]
8/9	18.15	0.49	614.30	0	0.00	0.27	518.42		5.63	0.14	48.00	0	0.0	0.01	2.81	
8/10	12.46	0.53	694.78	81	56.96	0.30	575.38		4.41	0.17	62.12	7	6.8	0.02	9.63	
8/11	2.20	0.54	709.20	88	61.11	0.34	636.49		7.62	0.20	68.06	8	5.5	0.03	15.12	
8/12	19.80	0.58	784.44	118	77.07	0.38	713.56		10.21	0.26	103.59	10	6.5	0.04	21.60	
8/13	20.94	0.62	784.44	88	58.71	0.41	772.27		16.41	0.29	115.90	32	20.8	0.08	42.45	
8/14	17.26	0.62	839.56	209	133.39	0.48	905.66		10.42	0.34	120.22	50	33.3	0.14	75.77	
8/15	9.27	0.64	877.32	344	218.40	0.59	1,124.06		5.50	0.35	130.90	33	21.75	0.18	97.52	

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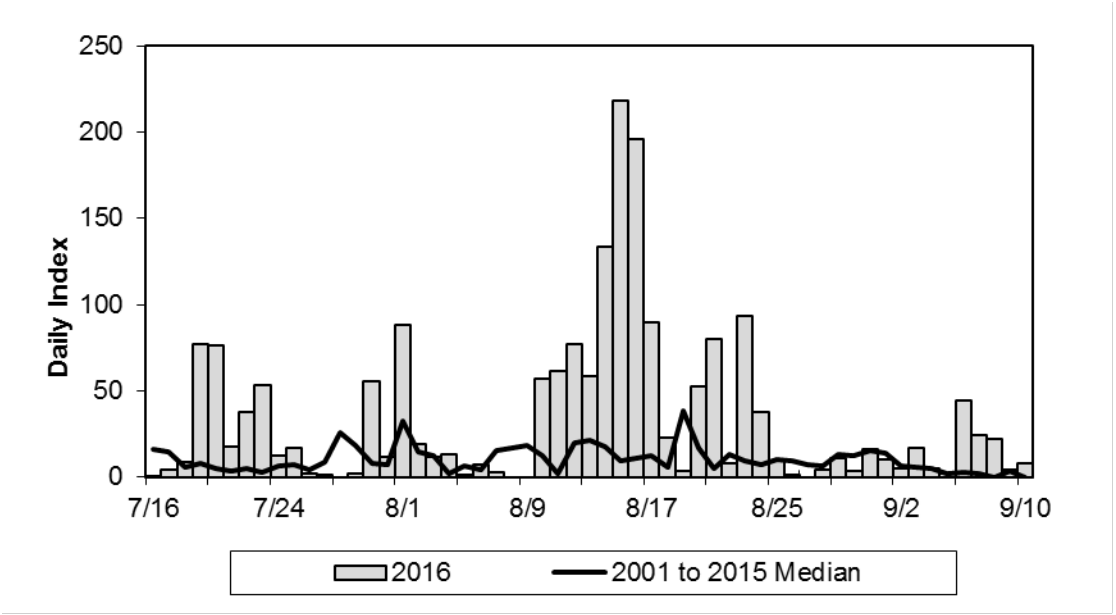
Appendix B9.–Page 2 of 2.

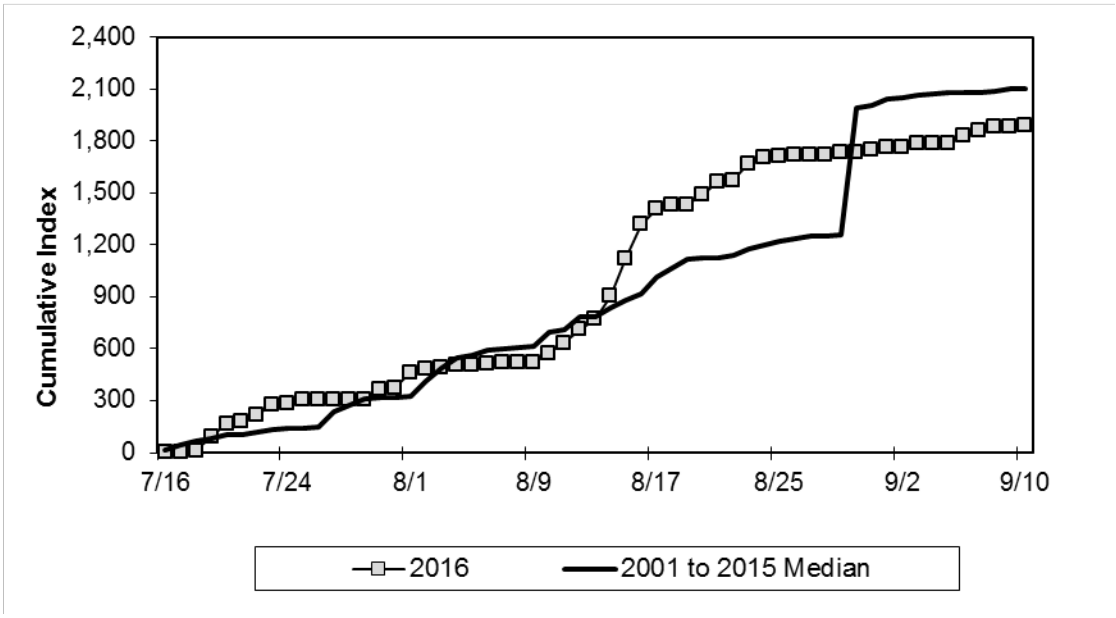
	2001 to 2015 Median			2016					2001 to 2015 Median			2016				
Date	Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE		Daily CPUE	Proportion	Cumulative CPUE	Daily catch	Daily CPUE	Proportion	Cumulative CPUE	
8/16	11.03	0.71	920.23	166	195.99	0.70	1,320.05	[a]	10.10	0.42	172.06	13	15.58	0.21	113.10	[a]
8/17	12.61	0.75	1,014.99	125	89.76	0.74	1,409.82		11.14	0.48	179.76	24	17.35	0.25	130.45	
8/18	5.87	0.81	1,069.58	16	22.74	0.76	1,432.56	[a]	10.89	0.52	200.28	1	1.50	0.25	131.95	[a]
8/19	38.61	0.84	1,116.13	4	3.00	0.76	1,435.56		22.75	0.63	224.96	5	3.79	0.26	135.73	
8/20	16.92	0.86	1,124.41	81	52.23	0.79	1,487.79		18.20	0.65	272.09	38	23.94	0.30	159.67	
8/21	5.12	0.87	1,128.18	62	80.25	0.83	1,568.04	[a]	8.26	0.73	286.77	39	49.93	0.40	209.61	[a]
8/22	13.04	0.90	1,139.80	11	8.02	0.83	1,576.06		12.19	0.75	298.96	12	10.05	0.41	219.66	
8/23	9.23	0.90	1,176.44	77	93.66	0.88	1,669.72	[a]	7.69	0.81	325.92	26	31.41	0.47	251.07	[a]
8/24	7.37	0.91	1,196.31	29	37.50	0.90	1,707.22	[a]	6.98	0.85	339.24	31	39.50	0.55	290.57	[a]
8/25	10.32	0.92	1,223.67	13	9.47	0.91	1,716.69		6.73	0.86	364.62	21	14.70	0.58	305.28	
8/26	9.13	0.95	1,232.80	1	1.43	0.91	1,718.12	[a]	5.06	0.92	370.73	2	2.89	0.58	308.17	[a]
8/27	7.32	0.98	1,249.15	0	0.00	0.91	1,718.12	[a]	5.07	0.95	373.75	6	9.32	0.60	317.48	[a]
8/28	6.23	1.00	1,249.15	3	4.43	0.91	1,722.55	[a]	4.54	0.97	379.46	2	2.86	0.60	320.34	[a]
8/29	12.75	1.00	1,261.64	7	10.77	0.92	1,733.32	[a]	9.23	0.82	411.38	4	6.15	0.62	326.49	[a]
8/30	12.28	0.95	1,988.07	2	3.16	0.92	1,736.48	[a]	10.76	0.84	436.85	7	11.05	0.64	337.55	[a]
8/31	14.98	0.97	2,005.11	10	15.79	0.93	1,752.27	[a]	8.82	0.87	449.93	12	18.95	0.67	356.49	[a]
9/1	13.98	0.98	2,043.94	13	10.00	0.93	1,762.27		18.25	0.90	469.34	25	19.23	0.71	375.73	
9/2	6.54	0.98	2,053.40	3	4.62	0.93	1,766.88	[a]	6.92	0.93	474.72	8	12.31	0.73	388.03	[a]
9/3	5.69	0.99	2,067.97	22	17.02	0.94	1,783.91		9.95	0.94	485.45	24	18.60	0.77	406.64	
9/4	4.87	0.99	2,075.59	3	4.74	0.94	1,788.64	[a]	3.56	0.95	487.75	17	26.72	0.82	433.36	[a]
9/5	1.54	0.99	2,076.36	2	1.76	0.95	1,790.40	[b]	4.62	0.96	491.21	8	7.19	0.83	440.55	[b]
9/6	2.31	0.99	2,077.51	28	44.21	0.97	1,834.61	[a]	3.85	0.96	493.14	7	11.05	0.85	451.60	[a]
9/7	1.54	0.99	2,078.28	31	24.47	0.98	1,859.09		3.08	0.96	494.68	44	34.74	0.92	486.34	
9/8	0.00	0.99	2,090.78	14	22.11	0.99	1,881.19	[a]	3.34	0.97	503.14	18	28.42	0.97	514.76	[a]
9/9	3.08	1.00	2,098.67	5	3.95	1.00	1,885.14		3.03	0.98	518.11	10	7.89	0.99	522.66	
9/10	0.00	1.00	2,098.98	5	7.89	1.00	1,893.03	[a]	1.52	0.98	527.72	5	7.89	1.00	530.55	[a]
Total				2,298			1,893.03					552			530.55	

Note: The box within the cumulative index column indicates the first quarter point, midpoint, and third quarter point of the cumulative index.

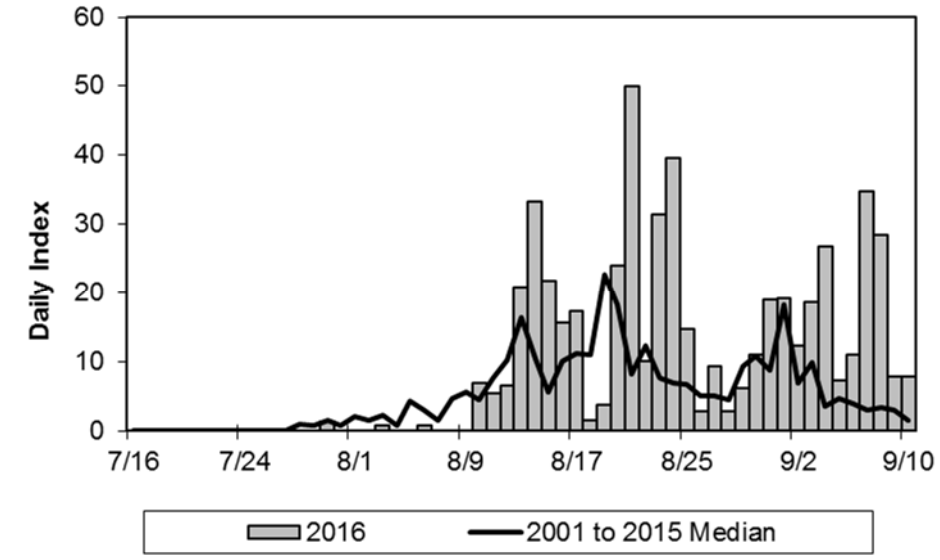
[a] One or more drifts cancelled due to commercial period.

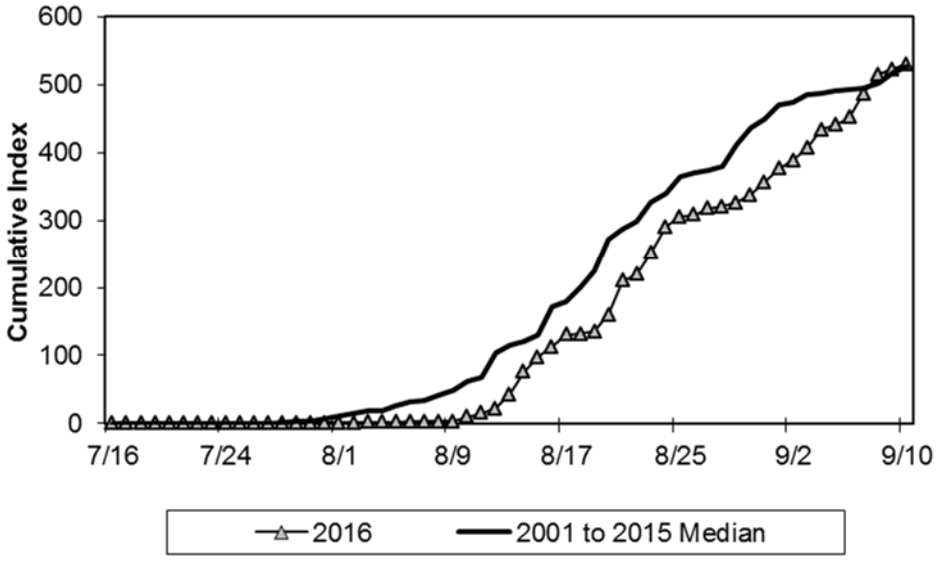
[b] One or more drifts cancelled due to hazardous weather.





Appendix B10.–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, 2001–2015 compared to 2016.





Appendix B11.–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, 2001–2015 compared to 2016.

APPENDIX C

Appendix C1.–Commercial salmon harvest by statistical area and gear type, Upper Yukon Area, 2016.

Statistical area	Number of fishermen [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	–	–	–	–	–	–	–	–	–	–	–	–	–
334-47	–	–	–	–	–	–	–	–	–	–	–	–	–
Subtotal District 4	–	–	–	–	–	–	–	–	–	–	–	–	–
334-51	–	–	–	–	–	–	–	–	–	–	–	–	–
334-52	4	–	–	–	–	–	–	6,833	709	7,542	54	0	54
334-53	0	–	–	–	–	–	–	0	0	0	0	0	0
334-54	–	–	–	–	–	–	–	–	–	–	–	–	–
334-55	–	–	–	–	–	–	–	–	–	–	–	–	–
Subtotal District 5	4	–	–	–	–	–	–	6,833	709	7,542	54	0	54
334-61	0	0	0	0	0	0	0	0	0	0	0	0	0
334-62	3	0	0	0	4,020	0	4,020	12,990	0	12,990	13,285	0	13,285
334-63	2	0	0	0	0	0	0	5,063	0	5,063	7,266	0	7,266
Subtotal District 6	5	0	0	0	4,020	0	4,020	18,053	0	18,053	20,551	0	20,551
Upper Yukon Area Total	9	0	0	0	4,020	0	4,020	24,886	709	25,595	20,605	0	20,605

Note: En dash indicates no commercial fishing activity occurred. FW= Fish wheel, SGN = Set gillnet.

[a] The number of fishermen 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, 1996–2016.

	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]
1996	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0
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	–	–	–	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	334-42			334-43			Total		
Year	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]
1996	11	202	103	34	0	34	45	202	137
1997	326	14	333	1,124	0	1,124	1,450	14	1,457
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	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	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]
1996	0	0	0	898	455	1,216	1,151	63	1,183	2,049	518	2,399
1997	0	0	0	1,314	0	1,314	1,757	0	1,757	3,071	0	3,071
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	–	–	–	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	334-54			334-55			Total		
Year	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]
1996	58	0	58	390	0	390	448	0	448
1997	262	0	262	345	0	345	607	0	607
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	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	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]
1996	0	0	0	110	645	255	168	105	192	278	750	447
1997	38	0	38	1,662	2,816	2,334	266	395	356	1,966	3,211	2,728
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
2011–2015 Average	0	0	0	0	0	0	0	0	0	0	0	0
2006–2015 Average	0	0	0	11	0	11	26	0	26	37	0	37

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 C7.–Commercial summer chum salmon sales and estimated harvest by statistical area, Subdistrict 4–A, Upper Yukon Area, 1996–2016.

		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]
1996		0	31,186	26,210	34,592	60,802	0	40,692	30,785	45,483	76,268
1997		0	14,188	10,905	15,118	26,023	0	526	342	570	912
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		–	–	–	–	–	–	–	–	–	–
2011–2015 Average											
2006–2015 Average		4,625				4,625	699			699	699

-continued-

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Year		334-46 Number [a]	334-46 Roe expansion Roe [b]	334-46 Roe expansion Males [c]	334-46 Roe expansion Females [d]	334-46 Estimated harvest [e]	Subtotal 334-44, 45, and 46 Number [a]	Subtotal 334-44, 45, and 46 Roe expansion Roe [b]	Subtotal 334-44, 45, and 46 Roe expansion Males [c]	Subtotal 334-44, 45, and 46 Roe expansion Females [d]	Subtotal 334-44, 45, and 46 Estimated harvest [e]
1996		0	109,172	98,926	120,942	219,868	0	181,050	155,921	201,017	356,938
1997		0	41,587	29,207	44,247	73,454	0	56,301	40,454	59,935	100,389
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		–	–	–	–	–	–	–	–	–	–
2011–2015 Average		101,705				101,705	101,705				101,705
2006–2015 Average		62,502				62,502	54,994				54,994

-continued-

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Year		334-47 (Anvik River) Roe expansion Number [a]	Roe [b]	Females [d]	Estimated harvest [e]	Total (Subdistrict 4-A and Anvik) Roe expansion Number [a]	Roe [b]	Males [c]	Females [d]	Estimated harvest [e]
1996		0	76,318	84,663	84,663	0	257,368	155,921	285,680	441,601
1997		0	13,067	13,548	13,548	0	69,368	40,454	73,483	113,937
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		–	–	–	–	–	–	–	–	–
2011–2015 Average						101,705				101,705
2006–2015 Average						54,994				54,994

-continued-

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, 1996–2016.

	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]
1996	0	36,927	39,156	67,012	0	895	939	1,627	0	37,822	40,095	28,544	68,639
1997	1,942	4,786	5,199	10,484	120	77	81	250	2,062	4,863	5,280	5,454	12,796
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	–	–	–	–	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	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]
1996	0	0	0	0	0	0	0	188	209	0	188	209
1997	0	0	0	0	0	0	125	0	125	125	0	125
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	–	–	–	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	334-54			334-55			Total		
Year	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]
1996	0	114	127	0	0	0	0	114	127
1997	12	0	12	0	0	0	12	0	12
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	–	–	–	–	–	–	–	–	–

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, 1996–2016.

	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]
1996	3,194	0	3,194	12,632	13,139	30,206	6,534	5,193	13,490	22,360	18,332	46,890
1997	3,162	0	3,162	9,168	6,525	16,709	2,556	2,511	5,416	14,886	9,036	25,287
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
2011–2015 Average	0	0	0	5,111	0	5,111	844	0	704	5,955	0	5,955
2006–2015 Average	59	0	59	8,558	0	8,558	1,799	0	1,799	10,415	0	10,416

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, 1996–2016.

	334-41 [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]
1996	–	–	–	2,918	0	2,918	0	0	0	2,918	0	2,918
1997	–	–	–	463	0	463	1,995	0	1,995	2,458	0	2,458
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	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–	–	–	–
2008	0	0	0	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–	–	–	–
2012	811[f]	0	811[f]	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–	–	–	–

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. Because this is the same area and because no harvest has occurred in Subdistrict 4-A, all data are recorded under 334-41.

[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

[f] Harvest occurred in 334-46.

Appendix C13.–Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistricts 5-A, 5-B, and 5-C, Upper Yukon Area, 1996–2016.

	334-51			334-52			334-53			Unapportioned		Total		
Year	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]	Number [a]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]
1996	0	181	208	5,898	8,317	15,670	1,583	0	1,583	0	0	7,481	8,498	17,461
1997	0	0	0	1,595	1,194	3,069	0	0	0	0	0	1,595	1,194	3,069
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
2011-2015 Average				1,404		1,404	0	0	0			1,404	0	1,404
2006-2015 Average				1,708		1,708	1,259	0	1,259			2,754	0	2,754

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.

Appendix C14.–Commercial fall chum salmon sales and estimated harvest by statistical area, Subdistricts 5-D, Upper Yukon Area, 1996–2016.

	334-54			334-55			Total		
Year	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]	Number [a]	Roe [b]	Harvest [c]
1996	890	0	890	3,507	0	3,507	4,397	0	4,397
1997	40	0	40	811	0	811	851	0	851
1998	–	–	–	–	–	–	–	–	–
1999	–	–	–	–	–	–	–	–	–
2000	–	–	–	–	–	–	–	–	–
2001	–	–	–	–	–	–	–	–	–
2002	–	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–	–
2008	–	–	–	–	–	–	–	–	–
2009	–	–	–	–	–	–	–	–	–
2010	–	–	–	–	–	–	–	–	–
2011	–	–	–	–	–	–	–	–	–
2012	–	–	–	–	–	–	–	–	–
2013	–	–	–	–	–	–	–	–	–
2014	–	–	–	–	–	–	–	–	–
2015	–	–	–	–	–	–	–	–	–
2016	–	–	–	–	–	–	–	–	–

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. Since 1990, efforts were made to separate coho salmon 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. 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.

Appendix C15.–Commercial fall chum salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1996–2016.

	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]
1996	663	236	934	8,491	4,906	14,332	1,112	1,031	2,308	10,266	6,173	17,574
1997	–	–	–	–	–	–	–	–	–	–	–	–
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
2011-2015 Average	1,188	0	1,188	13,464	0	13,464		0		13,953	0	13,953
2006-2015 Average	1,923	182	2,075	12,188	0	12,188		0		11,745	55	11,805

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 6 sampling program that estimated average roe weight per female by period.

Appendix C16.–Commercial coho salmon sales and estimated harvest by statistical area, District 4, Upper Yukon Area, 1996–2016.

	334-41			334-42			334-43			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]
1996	–	–	–	161	0	161	0	0	0	161	0	161
1997	–	–	–	19	0	19	795	0	795	814	0	814
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	–	–	–	–	–	–	–	–	–	–	–	–

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 6 sampling program that estimated average roe weight per female by period.

Appendix C17.–Commercial coho salmon sales and estimated harvest by statistical area, District 6, Upper Yukon Area, 1996–2016.

	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]
1996	182	0	182	3,403	4,571	6,557	218	258	403	3,803	4,829	7,142
1997	–	–	–	–	–	–	–	–	–	–	–	–
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
2011-2015 Average	383	0	383	5,777	0	5,777				5,931	0	5,931
2006-2015 Average	846	65	917	4,816	0	4,816				4,673	26	4,701

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 6 sampling program that estimated average roe weight per female by period.

Appendix C18.–Commercial pink salmon harvest by statistical area, District 1, Lower Yukon Area, 1996–2016.

Year	334-11	334-12	334-13	334-14	334-15	334-16	334-17	334-18	334-19	Total
1996	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0
2001	–	–	–	–	–	–	–	–	–	–
2002	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	1,341	4,128	858	1,095	2,376	1,858	1,441	294	0	13,391
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	7,531	26,685	2,265	3,391	3,318	56	5,678	393	0	49,317
2015	4,139	2,484	44	72	187	248	100	52	0	7,326
2016	16,494	61,702	7,173	3,934	7,758	12,585	14,469	955	0	125,070
2011-2015 Average	2,334	5,834	462	693	701	61	1,156	89	0	11,329
2006-2015 Average	1,301	3,330	317	456	588	216	722	74	0	7,003

Note: En dash indicates no commercial fishing activity occurred.

Appendix C19.–Commercial pink salmon harvest by statistical area, District 2, Lower Yukon Area, 1996–2016.

Year	334-21	334-22	334-23	334-24	334-25	Total
1996	0	0	0	0	0	0
1997	0	0	0	0	0	0
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
2011-2015 Average	247	850	1	0	0	1,097
2006-2015						

Note: En dash indicates no commercial fishing activity occurred.

APPENDIX D

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, Yukon Area, 2006–2016.

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Hooper Bay	376	430	388	183	584	252	1,090	1,210	455	534	284	392	708
Scammon Bay	507	768	1,104	722	716	517	1,014	332	108	432	602	763	481
Coastal District total	883	1,198	1,492	905	1,300	769	2,104	1,542	563	966	886	1,156	1,189
Nunam Iqua	371	907	163	200	404	250	195	12	62	210	190	409	146
Alakanuk	690	1,257	1,238	634	944	1,464	1,081	275	214	436	470	953	694
Emmonak	2,311	2,326	2,696	1,634	2,194	2,172	1,864	553	463	612	939	2,232	1,133
Kotlik	1,750	1,569	2,066	1,657	2,314	2,369	1,173	794	617	661	1,187	1,871	1,123
District 1 subtotal	5,122	6,059	6,163	4,125	5,856	6,255	4,313	1,634	1,356	1,919	2,786	5,465	3,095
Mountain Village	1,659	2,077	1,645	1,482	1,601	2,063	1,789	266	178	370	809	1,693	933
Pitkas Point	274	320	544	265	580	246	261	37	79	44	156	397	133
St. Marys	2,233	3,573	1,756	1,929	2,800	1,734	2,344	215	68	261	1,043	2,458	924
Pilot Station	1,976	2,028	1,597	1,258	1,585	1,340	1,078	258	163	382	639	1,689	644
Marshall	1,897	2,555	3,284	1,201	2,110	2,686	1,409	328	128	128	512	2,209	936
District 2 subtotal	8,039	10,553	8,826	6,135	8,676	8,069	6,881	1,104	616	1,185	3,159	8,446	3,571
Russian Mission	1,851	1,301	2,949	978	924	1,550	1,711	236	16	365	321	1,601	776
Holy Cross	3,165	2,902	2,509	1,745	3,098	2,231	576	204	0	68	557	2,684	616
Shageluk	358	448	397	201	277	353	75	4	32	14	22	336	96
District 3 subtotal	5,374	4,651	5,855	2,924	4,299	4,134	2,362	444	48	447	900	4,621	1,487
Lower Yukon River total	18,535	21,263	20,844	13,184	18,831	18,458	13,556	3,182	2,020	3,551	6,845	18,531	8,153
Anvik	958	1,321	1,433	796	1,069	1,052	435	121	0	58	241	1,115	333
Grayling	1,702	1,500	1,761	1,133	2,122	1,374	1,081	226	3	22	370	1,644	541
Kaltag	2,833	1,456	2,403	1,970	3,191	2,488	1,346	348	10	119	1,358	2,371	862
Nulato	2,707	2,431	1,250	1,551	2,989	1,538	1,955	602	0	33	1,957	2,186	826
Koyukuk	835	811	513	982	867	1,349	614	898	52	26	612	802	588
Galena	2,380	2,511	2,232	1,370	1,357	1,434	742	275	1	372	993	1,970	565
Ruby/Kokrines	304	1,594	637	542	1,102	482	1,316	357	6	68	344	836	446
District 4 subtotal	11,719	11,624	10,229	8,344	12,697	9,717	7,489	2,827	72	698	5,875	10,923	4,161
Huslia	258	146	255	969	65	121	165	62	38	34	77	339	84
Hughes	8	8	61	101	63	10	0	6	13	4	17	48	7
Allakaket	23	53	58	90	63	42	5	6	8	35	45	57	19
Alatna	14	0	16	10	0	3	0	0	0	0	1	8	1
Bettles	0	0	0	0	0	0	3	0	1	0	0	0	1
Koyukuk River subtotal	303	207	390	1,170	191	176	173	74	60	73	140	452	111
District 4 total (incl. Koyukuk R.)	12,022	11,831	10,619	9,514	12,888	9,893	7,662	2,901	132	771	6,015	11,375	4,272

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Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Tanana	3,794	5,498	3,981	2,950	3,215	2,936	2,100	1,200	88	141	2,129	3,888	1,293
Rampart	429	250	136	528	262	201	190	35	0	1	35	321	85
Fairbanks [b]	2,184	2,510	1,898	1,509	1,670	2,186	558	610	14	263	1,318	1,954	726
Stevens Village	1,245	610	753	405	469	415	330	239	0	0	178	696	197
Birch Creek	174	113	32	15	73	49	0	0	0	0	0	81	10
Beaver	830	1,244	546	516	198	356	71	107	0	69	165	667	121
Fort Yukon	3,144	4,076	1,991	846	1,683	2,472	2,141	1,561	93	480	1,283	2,348	1,349
Circle	694	1,057	519	372	324	297	280	157	0	129	207	593	173
Central	130	334	48	167	90	66	66	21	0	56	53	154	42
Eagle	2,303	1,999	1,068	446	867	728	167	175	76	395	864	1,337	308
Other [c]	330	472	362	541	779	777	477	125	0	7	306	497	277
District 5 subtotal (excluding Chandalar and Black Rivers)	15,257	18,163	11,334	8,295	9,630	10,483	6,380	4,230	271	1,541	6,538	12,536	4,581
Venetie	667	1,002	292	622	767	10	86	311	12	308	536	670	145
Chalkyitsik	0	0	0	0	0	0	0	0	5	0	50	0	1
Chandalar/Black River subtotal	667	1,002	292	622	767	10	86	311	17	308	586	670	146
District 5 total	15,924	19,165	11,626	8,917	10,397	10,493	6,466	4,541	288	1,849	7,124	13,206	4,727
Manley	361	333	106	345	337	287	174	165	92	121	230	296	168
Minto	31	82	12	0	43	61	99	60	0	23	35	34	49
Nenana	712	893	322	458	658	681	296	87	139	263	464	609	293
Fairbanks [d]	125	409	108	396	91	330	58	49	41	33	87	226	102
Other [e]	0	0	57	86	14	8	0	6	11	0	0	31	5
District 6 Tanana R. total	1,229	1,717	605	1,285	1,143	1,367	627	367	283	440	816	1,196	617
Upper Yukon River total	29,175	32,713	22,850	19,716	24,428	21,753	14,755	7,809	703	3,060	13,955	25,776	9,616
Alaska, Yukon River total [f]	47,710	53,976	43,694	32,900	43,259	40,211	28,311	10,991	2,723	6,611	20,800	44,308	17,769
Alaska, Yukon Area total	48,593	55,174	45,186	33,805	44,559	40,980	30,415	12,533	3,286	7,577	21,686	45,463	18,958
Personal Use (District 6) [g]	89	136	126	127	162	89	71	42	1	5	57	128	42

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] Harvest by Fairbanks subsistence permit holders who fished in the Tanana River.

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

[f] Does not include the Coastal District for use in U.S./Canada negotiations.

[g] 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, Yukon Area, 2006–2016.

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Hooper Bay	19,468	12,234	12,007	9,195	17,020	13,460	15,799	13,629	13,236	11,870	6,324	13,985	13,599
Scammon Bay	4,703	3,887	6,113	3,602	5,405	4,845	7,442	9,506	6,068	8,598	5,520	4,742	7,292
Coastal District total	24,171	16,121	18,120	12,797	22,425	18,305	23,241	23,135	19,304	20,468	11,844	18,727	20,891
Nunam Iqua	2,903	2,325	1,949	2,280	2,267	2,077	1,977	2,651	2,010	2,239	2,130	2,345	2,191
Alakanuk	7,790	7,611	6,881	5,152	7,722	7,447	9,012	7,520	9,120	4,469	6,595	7,031	7,514
Emmonak	11,899	9,256	9,646	9,038	10,918	12,468	15,829	8,209	7,143	9,973	8,976	10,151	10,724
Kotlik	5,289	5,017	4,291	7,528	4,265	6,598	8,552	10,136	5,621	4,960	9,000	5,278	7,173
District 1 subtotal	27,881	24,209	22,767	23,998	25,172	28,590	35,370	28,516	23,894	21,641	26,701	24,805	27,602
Mountain Village	13,119	8,104	7,559	7,204	7,071	9,355	9,031	11,861	7,059	6,063	8,750	8,611	8,674
Pitkas Point	680	515	1,246	994	633	585	1,153	2,186	1,588	1,225	1,485	814	1,347
St. Marys	7,394	8,107	6,451	5,831	7,443	6,760	10,763	9,167	5,570	8,216	7,377	7,045	8,095
Pilot Station	6,070	3,711	6,012	4,888	6,196	4,182	5,716	5,299	5,728	4,702	4,405	5,375	5,125
Marshall	4,392	3,070	3,023	2,172	2,395	3,810	5,903	3,986	6,189	4,351	5,180	3,010	4,848
District 2 subtotal	31,655	23,507	24,291	21,089	23,738	24,692	32,566	32,499	26,134	24,557	27,197	24,856	28,090
Russian Mission	1,328	759	2,400	849	528	1,225	2,508	3,967	3,181	2,626	1,798	1,173	2,701
Holy Cross	825	320	441	194	463	363	1,147	262	97	421	991	449	458
Shageluk	1,381	977	130	103	350	1,145	5,035	463	470	80	264	588	1,439
District 3 subtotal	3,534	2,056	2,971	1,146	1,341	2,733	8,690	4,692	3,748	3,127	3,053	2,210	4,598
Lower Yukon River total	63,070	49,772	50,029	46,233	50,251	56,015	76,626	65,707	53,776	49,325	56,951	51,871	60,290
Anvik	387	5,250	340	277	451	220	1,371	830	2,052	777	1,117	1,341	1,050
Grayling	644	641	660	1,429	1,612	838	2,616	618	1,617	509	878	997	1,240
Kaltag	159	109	916	50	102	163	186	67	954	216	467	267	317
Nulato	838	356	468	133	416	246	254	401	158	6	1,001	442	213
Koyukuk	394	995	1,104	1,378	352	890	828	4,459	300	0	119	845	1,295
Galena	1,205	571	758	1,718	1,702	3,414	718	179	377	1,059	1,689	1,191	1,149
Ruby/Kokrines	1,714	416	655	603	1,971	775	3,891	681	29	88	678	1,072	1,093
District 4 subtotal	5,341	8,338	4,901	5,588	6,606	6,546	9,864	7,235	5,487	2,655	5,949	6,155	6,357
Huslia	1,122	3,243	4,377	2,554	1,349	3,166	7,306	3,241	2,325	3,110	3,568	2,529	3,830
Hughes	3,254	1,213	944	1,723	878	954	428	829	889	1,499	1,196	1,602	920
Allakaket	5,170	3,451	3,229	4,924	2,864	2,368	3,850	2,116	1,276	2,455	2,150	3,928	2,413
Alatna	110	11	66	163	23	132	100	340	0	58	639	75	126
Bettles	0	0	0	6	0	0	7	0	4	0	0	1	2
Koyukuk River subtotal	9,656	7,918	8,616	9,370	5,114	6,620	11,691	6,526	4,494	7,122	7,553	8,135	7,291
District 4 total (incl. Koyukuk R.)	14,997	16,256	13,517	14,958	11,720	13,166	21,555	13,761	9,981	9,777	13,502	14,290	13,648

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Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Tanana	5,474	5,229	2,877	4,665	1,856	4,381	4,333	9,565	2,612	3,162	3,742	4,020	4,811
Rampart	135	25	27	112	161	67	71	5	70	0	39	92	43
Fairbanks [b]	1,341	564	119	44	427	688	172	1,350	300	575	461	499	617
Stevens Village	972	254	163	6	28	43	188	50	0	0	500	285	56
Beaver	117	41	27	22	22	393	27	12	0	0	23	46	86
Fort Yukon	2,165	2,365	230	275	722	1,297	0	225	19	0	13	1,151	308
Circle	58	200	5	0	37	48	0	66	0	0	0	60	23
Central	2	0	0	2	0	0	0	0	0	0	0	1	0
Eagle	974	15	14	0	25	2	0	50	0	0	0	206	10
Other [c]	117	81	25	29	144	790	101	94	91	8	180	79	217
District 5 subtotal (Excluding Chandalar and Black Rivers)	11,355	8,774	3,487	5,155	3,422	7,709	4,892	11,417	3,092	3,745	4,958	6,439	6,171
Venetie	475	107	50	143	0	0	0	0	0	0	0	155	0
Chalkyitsik	0	0	0	0	133	0	0	0	16	0	0	27	3
Chandalar/Black River subtotal	475	107	50	143	133	0	0	0	16	0	0	182	3
District 5 total	11,830	8,881	3,537	5,298	3,555	7,709	4,892	11,417	3,108	3,745	4,958	6,620	6,174
Manley	89	140	144	367	102	142	58	45	182	9	32	168	87
Minto	460	82	9	1	8	27	64	258	24	0	4	112	75
Nenana	388	1,419	753	506	83	471	370	642	275	60	19	630	364
Fairbanks [d]	73	255	94	372	183	185	114	143	237	183	41	195	172
Other [e]	0	0	311	7	46	0	72	6	13	0	0	73	18
District 6 Tanana R. total	1,010	1,896	1,311	1,253	422	825	678	1,094	731	252	96	1,178	716
Upper Yukon River total	27,837	27,033	18,365	21,509	15,697	21,700	27,125	26,272	13,820	13,774	18,556	22,088	20,538
Alaska, Yukon River total [f]	90,907	76,805	68,394	67,742	65,948	77,715	103,751	91,979	67,596	63,099	75,679	73,959	80,828
Alaska, Yukon Area total	115,078	92,926	86,514	80,539	88,373	96,020	126,992	115,114	86,900	83,567	87,523	92,686	101,719
Personal Use (District 6) [g]	262	184	138	308	319	439	321	138	235	220	176	242	271

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] Harvest by Fairbanks subsistence permit holders who fished in the Tanana River.

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

[f] Does not include the Coastal District for use in U.S./Canada negotiations.

[g] 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, Yukon Area, 2006–2016.

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Hooper Bay	146	64	329	41	116	267	1	91	137	79	105	139	115
Scammon Bay	41	170	57	117	70	48	10	58	115	119	657	91	70
Coastal District total	187	234	386	158	186	315	11	149	252	198	762	230	185
Nunam Iqua	735	152	59	41	143	51	210	93	128	210	111	226	138
Alakanuk	624	1,348	423	116	860	881	449	328	593	1,067	748	674	664
Emmonak	2,056	2,360	1,670	1,589	1,718	1,540	5,890	2,165	2,465	3,244	2,501	1,879	3,061
Kotlik	487	530	671	171	481	962	1,073	1,087	886	1,356	1,225	468	1,073
District 1 subtotal	3,902	4,390	2,823	1,917	3,202	3,434	7,622	3,673	4,072	5,877	4,585	3,247	4,936
Mountain Village	2,398	1,073	926	926	133	800	685	2,174	1,484	1,398	1,204	1,091	1,308
Pitkas Point	5	44	101	76	10	30	9	65	400	172	232	47	135
St. Marys	417	825	830	106	387	611	1,423	1,009	2,037	1,611	1,021	513	1,338
Pilot Station	785	741	917	265	833	575	1,031	777	796	1,346	913	708	905
Marshall	410	789	748	190	56	562	184	853	1,100	1,731	1,106	439	886
District 2 subtotal	4,015	3,472	3,522	1,563	1,419	2,578	3,332	4,878	5,817	6,258	4,476	2,798	4,573
Russian Mission	251	530	578	205	104	11	282	804	365	449	235	334	382
Holy Cross	224	248	920	627	21	94	339	855	1,840	763	583	408	778
Shageluk	5	147	323	105	1,200	249	16	105	252	176	171	356	160
District 3 subtotal	480	925	1,821	937	1,325	354	637	1,764	2,457	1,388	989	1,098	1,320
Lower Yukon River total	8,397	8,787	8,166	4,417	5,946	6,366	11,591	10,315	12,346	13,523	10,050	7,143	10,828
Anvik	118	429	317	176	169	202	569	763	1,028	680	527	242	648
Grayling	691	317	1,012	490	202	1,152	804	471	1,451	1,184	499	542	1,012
Kaltag	823	910	620	200	658	196	2,830	583	2,828	1,255	680	642	1,538
Nulato	751	1,345	729	552	1,049	652	2,729	2,995	3,839	2,248	2,681	885	2,493
Koyukuk	1,147	927	1,177	578	792	1,388	1,331	5,308	998	2,838	297	924	2,373
Galena	1,632	1,471	1,364	4,306	1,968	2,739	2,947	602	3,368	2,542	3,319	2,148	2,440
Ruby/Kokrines	227	1,959	657	134	1,026	592	4,408	2,505	972	713	526	801	1,838
District 4 subtotal	5,389	7,358	5,876	6,436	5,864	6,921	15,618	13,227	14,484	11,460	8,529	6,185	12,342
Huslia	313	272	64	86	403	183	1,909	722	579	736	333	228	826
Hughes	240	0	127	288	0	64	2	535	348	490	621	131	288
Allakaket	393	939	1,345	572	521	92	508	687	510	524	391	754	464
Alatna	0	7	0	0	0	0	18	20	15	64	0	1	23
Bettles	0	0	0	0	0	0	0	0	0	0	0	0	0
Koyukuk River subtotal	946	1,218	1,536	946	924	339	2,437	1,964	1,452	1,814	1,345	1,114	1,601
District 4 total (incl. Koyukuk R.)	6,335	8,576	7,412	7,382	6,788	7,260	18,055	15,191	15,936	13,274	9,874	7,299	13,943

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Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Tanana	23,167	21,596	17,478	19,595	14,984	21,728	20,465	31,546	14,131	19,627	21,204	19,364	21,499
Rampart	250	250	1,000	1,000	735	340	190	100	0	186	0	647	163
Fairbanks [b]	5,269	2,126	659	229	822	1,696	793	1,160	1,406	2,454	2,143	1,821	1,502
Stevens Village	50	199	643	770	2,706	911	277	840	6,700	0	4,500	874	1,746
Beaver	0	354	13	120	37	122	174	21	323	76	228	105	143
Ft. Yukon	5,178	8,264	14,252	2,829	6,006	7,188	12,659	16,453	8,025	6,257	7,527	7,306	10,116
Circle	664	1,286	3,198	110	927	299	161	1,397	1,277	1,652	1,288	1,237	957
Central	0	0	0	0	0	0	0	0	0	0	18	0	0
Eagle	16,801	18,676	15,269	10,941	15,008	17,455	18,731	18,871	17,450	17,185	15,765	15,339	17,938
Other [c]	44	46	3,183	71	120	208	443	121	222	229	17	693	245
District 5 subtotal (Excluding Chandalar and Black Rivers)	51,423	52,797	55,695	35,665	41,345	49,947	53,893	70,509	49,534	47,666	52,690	47,385	54,310
Venetie	520	721	1,563	2,373	2,989	1,938	295	5,340	1,538	2,423	5,358	1,633	2,307
Chalkyitsik	215	213	0	45	0	0	162	249	125	171	550	95	141
Chandalar/Black River subtotal	735	934	1,563	2,418	2,989	1,938	457	5,589	1,663	2,594	5,908	1,728	2,448
District 5 total	52,158	53,731	57,258	38,083	44,334	51,885	54,350	76,098	51,197	50,260	58,598	49,113	56,758
Manley	3,374	3,419	2,490	4,126	2,696	2,333	2,164	1,539	2,579	1,697	414	3,221	2,062
Minto	242	155	28	0	70	1,500	2	593	472	140	40	99	541
Nenana	10,530	21,863	6,585	7,623	6,802	5,268	8,665	3,112	2,810	3,151	2,269	10,681	4,601
Fairbanks [d]	1,311	3,325	340	3,460	678	4,317	3,876	5,651	5,190	3,496	884	1,823	4,506
Other [e]	1,468	1,131	6,692	870	1,145	958	595	736	1,747	861	1,275	2,261	979
District 6 Tanana R. total	16,925	29,893	16,135	16,079	11,391	14,376	15,302	11,631	12,798	9,345	4,882	18,085	12,690
Upper Yukon River total	75,418	92,200	80,805	61,544	62,513	73,521	87,707	102,920	79,931	72,879	73,637	74,496	83,392
Alaska, Yukon River total [f]	83,815	100,987	88,971	65,961	68,459	79,887	99,298	113,235	92,277	86,402	83,687	81,639	94,220
Alaska, Yukon Area total	84,002	101,221	89,357	66,119	68,645	80,202	99,309	113,384	92,529	86,600	84,449	81,869	94,405
Personal Use (District 6) [g]	333	173	181	78	3,209	347	410	383	278	80	283	795	300

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] Harvest by Fairbanks subsistence permit holders who fished in the Tanana River.

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

[f] Does not include the Coastal District for use in U.S./Canada negotiations.

[g] 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, Yukon Area, 2006–2016.

Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Hooper Bay	175	26	66	24	45	0	7	73	118	95	121	67	59
Scammon Bay	160	84	50	222	79	55	86	214	86	79	234	119	104
Coastal District total	335	110	116	246	124	55	93	287	204	174	355	186	163
Nunam Iqua	392	92	24	71	73	23	18	83	153	229	58	130	101
Alakanuk	101	857	157	194	449	431	252	167	443	581	184	352	375
Emmonak	450	1,032	717	401	362	472	2,660	517	613	852	717	592	1,023
Kotlik	234	284	313	181	238	201	420	457	573	438	274	250	418
District 1 subtotal	1,177	2,265	1,211	847	1,122	1,127	3,350	1,224	1,782	2,100	1,233	1,324	1,917
Mountain Village	1,856	1,027	518	413	127	261	256	271	202	723	437	788	343
Pitkas Point	16	38	130	45	116	37	53	41	123	72	22	69	65
St. Marys	171	97	591	151	92	230	141	124	408	391	115	220	259
Pilot Station	225	263	268	203	189	145	329	136	568	305	136	230	297
Marshall	191	922	490	245	33	150	567	508	468	1,511	409	376	641
District 2 subtotal	2,459	2,347	1,997	1,057	557	823	1,346	1,080	1,769	3,002	1,119	1,683	1,604
Russian Mission	19	259	372	96	300	0	319	152	124	154	6	209	150
Holy Cross	16	213	38	120	0	0	237	0	103	246	134	77	117
Shageluk	48	267	0	105	53	36	0	219	113	28	0	95	79
District 3 subtotal	83	739	410	321	353	36	556	371	340	428	140	381	346
Lower Yukon River total	3,719	5,351	3,618	2,225	2,032	1,986	5,252	2,675	3,891	5,530	2,492	3,389	3,867
Anvik	0	807	40	137	28	19	214	97	197	46	184	202	115
Grayling	224	271	25	318	132	119	26	34	403	212	35	194	159
Kaltag	106	204	45	40	0	258	928	306	514	18	53	79	405
Nulato	214	130	195	171	242	118	41	125	454	48	0	190	157
Koyukuk	330	189	84	198	254	137	62	3,267	50	416	1	211	786
Galena	137	425	558	2,353	549	1,013	276	170	718	654	201	804	566
Ruby/Kokrines	11	168	291	314	148	312	1,806	345	335	185	226	186	597
District 4 subtotal	1,022	2,194	1,238	3,531	1,353	1,976	3,353	4,344	2,671	1,579	700	1,868	2,785
Huslia	105	592	100	323	289	70	165	342	265	294	93	282	227
Hughes	150	100	0	89	0	13	0	18	17	16	0	68	13
Allakaket	25	66	152	43	88	13	38	236	109	40	33	75	87
Alatna	0	0	0	0	0	0	0	0	0	12	0	0	2
Bettles	0	0	0	0	0	0	0	0	0	0	0	0	0
Koyukuk River subtotal	280	758	252	455	377	96	203	596	391	362	126	424	330
District 4 total (incl. Koyukuk R.)	1,302	2,952	1,490	3,986	1,730	2,072	3,556	4,940	3,062	1,941	826	2,292	3,114

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Community	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 [a]	2016 [a]	2006-2010 Average	2011-2015 Average
Tanana	3,619	2,369	1,511	2,373	2,314	312	3,060	1,135	1,788	2,434	639	2,437	1,746
Rampart	0	50	0	0	24	0	0	0	0	2	2	15	0
Fairbanks [b]	79	26	7	13	2	2	0	0	0	0	101	25	0
Stevens Village	0	0	0	90	428	0	0	0	0	0	50	104	0
Beaver	0	354	6	0	1	0	2	0	2	0	0	72	1
Fort Yukon	35	567	1,618	2	244	1,040	4	7	201	2	1	493	251
Circle	22	0	0	13	164	0	5	150	0	0	38	40	31
Central	0	0	0	0	0	0	0	0	0	0	0	0	0
Eagle	0	0	0	0	1	1	0	0	1	0	0	0	0
Other [c]	0	0	61	7	0	0	21	0	0	0	0	14	4
District 5 subtotal (Excluding Chandalar and Black Rivers)	3,755	3,366	3,203	2,498	3,178	1,355	3,092	1,292	1,992	2,438	831	3,200	2,034
Venetie	24	0	0	0	159	34	0	6	0	24	0	37	13
Chalkyitsik	0	0	0	0	267	0	0	0	38	0	30	53	8
Chandalar/Black River subtotal	24	0	0	0	426	34	0	6	38	24	30	90	20
District 5 total	3,779	3,366	3,203	2,498	3,604	1,389	3,092	1,298	2,030	2,462	861	3,290	2,054
Manley	1,671	1,126	1,901	2,308	1,832	1,482	1,374	447	1,177	1,263	323	1,768	1,149
Minto	14	155	0	0	0	0	0	266	37	270	0	34	115
Nenana	7,032	4,487	2,775	3,475	2,313	3,304	5,904	1,762	2,138	2,712	2,293	4,016	3,164
Fairbanks [d]	745	609	230	577	212	1,109	1,502	2,576	3,689	3,108	978	475	2,397
Other [e]	1,109	1,468	3,522	691	1,198	947	760	206	870	647	677	1,598	686
District 6 Tanana River total	10,571	7,845	8,428	7,051	5,555	6,842	9,540	5,257	7,911	8,000	4,271	7,890	7,510
Upper Yukon Area total	15,652	14,163	13,121	13,535	10,889	10,303	16,188	11,495	13,003	12,403	5,958	13,472	12,678
Alaska, Yukon River total [f]	19,371	19,514	16,739	15,760	12,921	12,289	21,440	14,170	16,894	17,933	8,450	16,861	16,545
Alaska, Yukon Area total	19,706	19,624	16,855	16,006	13,045	12,344	21,533	14,457	17,098	18,107	8,805	17,047	16,708
Personal Use (District 6) [g]	279	135	50	70	1,062	232	100	109	174	145	266	319	152

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] Harvest by Fairbanks subsistence permit holders who fished in the Tanana River.

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

[f] Does not include the Coastal District for use in U.S./Canada negotiations.

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

Appendix D5.–Estimated pink salmon subsistence harvest by residents of surveyed communities, with community and district totals, Yukon Area, 2006–2016.

Community	2006	2007	2008	2009	2010	2011	2012 [a]	2013	2014 [a]	2015 [b]	2016 [a, b]	Estimated Total Even Years Average	Estimated Total Odd Years Average	Estimated Total All Years Average
Hooper Bay	1,433	113	1,013	957	219	210	1,101	302	712	451	4,007	896	407	651
Scammon Bay	1,381	1,435	2,766	1,186	2,245	1,888	1,343	507	1,923	1,414	2,490	1,932	1,286	1,609
Coastal District	2,814	1,548	3,779	2,143	2,464	2,098	2,444	809	2,635	1,865	6,497	2,827	1,693	2,260
Nunam Iqua	555	170	757	61	306	8	1,051	0	670	352	352	668	118	393
Alakanuk	115	32	494	24	151	13	174	92	970	15	715	381	35	208
Emmonak	225	51	641	5	206	0	199	0	588	7	228	372	13	192
Kotlik	219	129	1,161	42	124	32	195	23	1,064	14	505	553	48	300
District 1	1,114	382	3,053	132	787	53	1,619	115	3,292	388	1,800	1,973	214	1,094
Mountain Village	616	87	500	6	217	24	207	0	233	57	89	355	35	195
Pitkas Point	44	66	15	0	143	0	2	2	45	288	48	50	71	61
St. Mary's	236	32	367	5	543	1	643	0	614	18	104	481	11	246
Pilot Station	1	0	34	3	22	0	23	131	27	0	3	21	27	24
Marshall	3	0	26	0	21	66	5	7	1	0	5	11	15	13
District 2	900	185	942	14	946	91	880	140	920	363	249	918	159	538
Russian Mission	8	3	436	0	2	0	76	12	8	0	0	106	3	55
Holy Cross	17	0	20	0	0	0	0	0	0	0	2	7	0	4
Shageluk	0	0	0	9	0	9	24	0	3	0	9	5	4	5
District 3	25	3	456	9	2	9	100	12	11	0	11	119	7	63
Anvik	0	0	23	2	0	0	0	0	0	0	0	5	0	3
Grayling	0	0	200	0	0	40	0	0	39	0	33	48	8	28
Kaltag	0	0	383	0	0	0	0	0	0	0	73	77	0	38
Nulato	1	0	35	0	0	0	0	0	8	0	0	9	0	4
Koyukuk	0	0	67	0	0	0	0	0	0	0	0	13	0	7
Galena	0	0	31	0	0	0	3	0	6	16	11	8	3	6
Ruby	0	0	184	0	0	0	0	0	13	0	0	39	0	20
Huslia	0	0	100	0	0	0	101	0	0	0	0	40	0	20
Hughes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Allakaket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alatna	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bettles	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District 4	1	0	1,023	2	0	40	104	0	66	16	117	239	12	125

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Community	2006	2007	2008	2009	2010	2011	2012 [a]	2013	2014 [a]	2015 [b]	2016 [a, b]	Estimated Total Even Years Average	Estimated Total Odd Years Average	Estimated Total All Years Average
Tanana	0	0	80	0	0	0	3	0	8	13	34	18	2	10
Stevens Village	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Birch Creek	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	0	0	196	0	0	0	0	0	0	0	0	39	0	20
Venetie	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chalkyitsik	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District 5	0	0	276	0	0	0	3	0	8	13	34	57	2	30
Survey Totals	4,854	2,118	9,529	2,300	4,199	2,291	5,150	1,076	6,932	2,645	8,708	6,133	1,918	4,109
CI (95%)	990	739	1,818	1,184	1,209	918	1,155	387	1,356	612	3,097	–	705	1,037

Source: Jallen et al. 2017.

[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, 2006–2016.

	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
2006	173	168	97%	129	6,243	2,744	23,133	101	437	60	35	72	93	419
2007	187	171	91%	118	6,999	890	22,681	76	723	58	47	84	193	488
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 [a]	106	105	99%	55	792	583	21,706	2	487	143	14	76	7	96
2016 [a]	146	145	99%	100	2,820	680	19,231	141	667	53	9	52	10	55
2011-2015 Average	137	133	97%	76	1,619	944	20,895	36	580	110	13	57	47	145
2006-2015 Average	161	154	96%	96	3,351	955	20,160	68	549	89	29	66	73	245

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, 2006–2016.

	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
2006	125	101	219	97%	133	926	1,010	16,766	10,182	2,675	15	88	934	493	87
2007	135	118	239	94%	125	1,472	1,896	16,298	6,647	2,603	24	52	2,009	50	37
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 [a]	128	120	245	99%	119	348	234	9,273	7,815	3,004	22	9	814	28	34
2016 [a]	110	201	301	97%	180	636	96	3,701	3,048	2,620	16	34	1,131	23	1
2011-2015 Average	142	96	228	1	115	521	672	11,581	6,911	3,121	24	50	559	114	55
2006-2015 Average	144	105	237	1	122	783	894	12,614	6,956	2,964	25	50	818	135	63

Note: Reported information from permits issued in the Tanana River includes the Kantishna River and Tolovana River 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, 2006–2016.

	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
2006	60	7	67	100%	39	89	262	333	279	287	5	4	2	184	1
2007	65	3	66	97%	32	136	184	173	135	4	1	0	1	0	0
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[b]	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
2011-2015 Average	54	15	68	98%	33	42	271	300	157	120	1	0	1	217	0
2006-2015 Average	57	11	67	98%	34	85	256	547	238	118	2	1	2	181	1

Note: Reported information from permits issued in the salmon and whitefish/sucker fishery (combined harvest).

[a] Data are preliminary.

Appendix D9.–Estimated and reported subsistence and personal use harvest of miscellaneous fish species, Yukon Area, 2006–2016.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016[a]	5-year average 2006-2010	5-year average 2011-2015
Survey estimates [b]													
Whitefish [c]	60,923	64,338	54,729	51,778	50,232	44,890	70,486	64,766	84,889	79,740	70,051	56,400	68,954
Northern pike	28,133	25,947	16,053	8,061	14,086	14,270	18,450	11,264	14,852	20,109	24,592	18,456	15,789
Sheefish	12,745	13,203	10,154	7,861	9,231	10,139	17,094	15,553	12,583	12,828	14,459	10,639	13,639
Survey reported													
Burbot	5,069	3,500	3,273	2,027	2,743	2,477	2,422	2,115	2,016	3,364	2,502	3,322	2,479
Arctic lamprey	2,092	12,584	803	1,699	10,863	6,037	1,243	2,608	19,888 [d]	42,237 [d]	17,609	5,608	14,403
Tomcod	13,652	7,121	6,391	2,709	3,978	6,797	4,023	5,221	10,020	4,697	5,795	6,770	6,152
Arctic grayling	1,145	2,296	857	667	1,571	1,273	2,674	1,435	1,772	1,832	1,518	1,307	1,797
Longnose suckers	105	225	25	59	273	286	95	180	90	–	–	137	163
Arctic char	345	181	184	43	148	205	216	167	–	–	–	180	196
Alaska blackfish	218,695	131,712	110,356	47,320	68,873	87,064	62,731	63,235	92,080	97,586	90,207	115,391	80,539
Sockeye salmon	333	493	213	216	263	279	405	258	–	–	–	304	314
Herring [e]	–	–	–	–	–	–	10,449	9,082	17,164	24,591	15,959	–	15,322
Permit Reported													
Whitefish [b]	3,399	3,330	3,403	4,039	3,112	4,907	4,016	2,766	3,747	3,771	3,558	3,457	3,841
Northern pike	1,008	2,094	1,678	736	267	329	827	403	648	891	1,186	1,157	620
Sheefish	80	83	111	76	160	103	147	48	215	166	70	102	136
Burbot	127	99	89	119	45	140	68	68	27	23	43	96	65
Arctic grayling	507	525	488	363	201	475	104	210	83	131	62	417	201
Longnose suckers	770	243	298	518	170	420	396	347	371	358	214	400	378
Yukon Area totals from subsistence survey communities and permit areas													
Whitefish [b]	64,322	67,668	58,132	55,817	53,344	49,797	74,502	67,532	88,636	83,511	73,609	59,857	72,796
Northern pike	29,141	28,041	17,731	8,797	14,353	14,599	19,277	11,667	15,500	21,000	25,778	19,613	16,409
Sheefish	12,825	13,286	10,265	7,937	9,391	10,242	17,241	15,601	12,798	12,994	14,529	10,741	13,775
Burbot	5,196	3,599	3,362	2,146	2,788	2,617	2,490	2,183	2,043	3,387	2,545	3,418	2,544
Arctic grayling	1,652	2,821	1,345	1,030	1,772	1,748	2,778	1,645	1,855	1,963	1,580	1,724	1,998

Source: Jallen et al. 2017.

Note: En dash indicates information was not collected.

[a] Data are preliminary.

[b] Subsistence whitefish, pike, and a 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 non-salmon 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.

[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

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, 2016.

Stream (method)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Atchuelinguk River (fixed wing)					–	–	ADF&G
Andreafsky River							
East Fork (weir count) [a]	6/17–7/31	–	2,676	50,362	–	–	USFWS
Andreafsky Subtotal			*2,676*	*50,362*	–	–	
Yukon River Near Pilot Station (sonar)	5/30–9/7	–	(176,898)	(1,921,748)	(994,760)	(168,297)	ADF&G
Anvik River (sonar)	6/16–7/26	–	–	337,821	–	–	ADF&G
Anvik Subtotal			–	*337,821*	–	–	
Total Lower Yukon River (downstream of Koyukuk River)			*2,676*	*388,183*	–	–	
Koyukuk River Drainage							
Gisasa River (weir project) [b]	6/17–7/31	–	1,395	66,670	–	–	USFWS
Henshaw Creek (weir project)	6/24–8/5	–	1,354	286,780	–	–	TCC
Koyukuk River Drainage Subtotal			*2,749*	*353,450*	–	–	
Total Yukon River (downstream of Tanana River)			*5,425*	*741,633*	–	–	
Tanana River Drainage							
Kantishna River Drainage (helicopter)							
Barton Creek	10/25	Poor	–	–	0	161	ADF&G
Toklat River	10/25	Fair	–	–	10,272	544	ADF&G
Kantishna Subtotal			–	–	*10,272*	*544*	
Nenana River Drainage (helicopter)							
Nenana River (Teklanika R.–upstream 8 miles)	10/24	Fair	–	–	1	1,680	ADF&G
Seventeenmile Slough	10/24	Fair	–	–	0	2,746	ADF&G
Lost Slough (eastern floodplain)	10/24	Incomplete	–	–	74	324	ADF&G
Julius Creek	10/24	Incomplete	–	–	0	0	ADF&G
Clear Creek	10/24	Fair	–	–	0	27	ADF&G
Glacier Creek	10/24	Fair	–	–	0	20	ADF&G
Wood Creek	10/24	Fair	–	–	0	1,327	ADF&G
Teklanika River Spings	10/24	Fair	–	–	–	223	ADF&G
Nenana Subtotal			–	–	*75*	*6,347*	

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Stream (method)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Chena River (counting tower/sonar) [c]	6/26–27, 7/19	–	6,665	6,493	–	–	ADF&G
Salcha River (counting tower/sonar) [d]	6/26–7/3 & 7/11–17,7/30	–	2,675	2,897	–	–	ADF&G
Richardson Clearwater River (helicopter)	11/8	Fair	–	–	57	1,350	ADF&G
Mainstem Tanana Sloughs (helicopter)							
Benchmark No 735 Slough	11/8	Fair	–	–	604	346	ADF&G
Andersen Slough to Whitestone Slough	11/8	Fair	–	–	290	1	ADF&G
Whitestone Slough	11/8	Fair	–	–	20	3	ADF&G
Rika's Roadhouse vicinity	11/8	Fair	–	–	3,427	18	ADF&G
Bluff Cabin Slough	11/8	Fair	–	–	4,936	2	ADF&G
Clearwater Lake Outlet Slough	11/8	Fair	–	–	2,222	40	ADF&G
One Mile Slough (OMS)	11/8	Fair	–	–	0	0	ADF&G
Pearse Slough and vicinity (OMS to Pearse Sl.)	11/8	Fair	–	–	0	0	ADF&G
Mainstem Tanana Sloughs Subtotal			–	–	*11,499*	*410*	
Delta River							
Foot Survey (peak count)	11/3, 11/9	Good	–	–	21,913	443	ADF&G
Blue Creek (foot survey)	11/3	Good	–	–	220	120	ADF&G
Blue Creek (helicopter)	11/8	Fair	–	–	(65)	(53)	ADF&G
Goodpaster River (counting tower)	–	–	2,435	–	–	–	BSFA
Bluff Cabin Creek (helicopter)	11/8	Good	–	–	88	167	ADF&G
Delta Clearwater River Index Area (boat survey)	9/29	Fair	–	–	(1)	(1,133)	ADF&G
Delta Clearwater River Index Area (boat survey)	10/26	Fair	–	–	35	6,767	ADF&G
Delta Clearwater Lake							
Clearwater Lake Outlet (helicopter)	11/8	Fair	–	–	20	1,421	ADF&G
Total Tanana River			*11,775*	*9,390*	*44,122*	*17,569*	
Chandalar River (sonar) [e]	8/6–9/27, 10/9	–	–	–	295,023	–	USFWS
Porcupine River Drainage (U.S.)							
Sheenjek River	9/29	–	–	–	4,500	–	USFWS
Sheenjek River	10/5				(4,275)		ADF&G
Yukon River near Eagle (sonar) [e]	6/27–10/6, 10/17	–	(72,329)	–	(161,027)	–	ADF&G/DFO
Total Alaska Portion of Drainage Observed Escapements			17,200	751,023	343,645	17,569	

-continued-

Stream (method)	Date	Survey rating	Chinook	Summer chum	Fall chum	Coho	Agency
Yukon Territory Streams							
Porcupine River Drainage (Canada)							
Porcupine River (sonar minus Canada Harvest) [e]	6/23–10/11	–	6,280	–	51,390	–	DFO [f]
Fishing Branch (weir) [e]	8/26–10/25	–	–	–	(29,396)	–	DFO [f]
Mainstem Yukon River Sites - Canada							
Blind Creek (weir)	7/15–8/15	–	(664)	–	–	–	DFO [f]
Big Salmon River (sonar)	7/11–8/19	–	(6,691)	–	–	–	DFO [f]
Whitehorse Fishway (fish ladder with window)	7/23–9/3	–	(1,556)	–	–	–	DFO [f]
Subtotal Mainstem Sites			*(8,911)*	–	–	–	
Canadian Mainstem Yukon River							
Border Passage Estimate (Eagle sonar minus U.S. harvest)			(71,567)	–	(148,012)	–	ADF&G/DFO
Canadian Escapement Estimate (Border Passage minus Canada Harvest) [g]			68,798	–	145,267	–	ADF&G/DFO
Total Yukon Territory [h]			75,078	–	196,657	–	
Yukon River Drainage Total Observed Escapements			85,998	751,023	488,912	17,569	

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. (http://sf.adfg.state.ak.us/CommFishR3/WebSite/AYKDBMSWebsite/Default.aspx).

[a] East Fork Andreafsky River weir documented 1,071 live sockeye salmon, 2016.

[b] Gisasa River weir documented 70 live sockeye salmon, 2016.

[c] Visual counts were conducted for only 1 day (June 26) due to high water and flooding on the Chena River. Sonars operated through the peak of the Chinook salmon run, but were pulled on July 19 because of flooding. Estimate is based on DIDSON sonar counts and a mixture model was used for species apportionment. A Bayesian Hierarchical Model was used to estimate missed counts

[d] Tower and sonar pulled July 19 because of flooding. Visual counts were conducted for approximately 2 weeks between high water events. Estimate is based on DIDSON sonar counts and a mixture model was used for species apportionment. A Bayesian Hierarchical Model was used to estimate missed counts.

[e] Includes expansion for end of run for fall chum salmon.

[f] Yukon Territory counts provided by DFO but are operated by various contractors mostly funded by Restoration and Enhancement Funds.

[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, Yukon River drainage, 1995 and 1997–2016.

	Chinook			Chum						
Year [a]	Large [b]	Small	Total	Summer	Fall [c]	Total	Coho [c]	Pink	Other [d]	Total
1995	173,437	47,920	221,357	3,620,102	1,148,916	4,769,018	115,569	53,165	716,201	5,875,310
1997	114,519	85,244	199,763	1,359,117	579,767	1,938,884	118,065	3,872	376,841	2,637,425
1998	88,129	19,909	108,038	824,901	375,222	1,200,123	146,365	103,416	210,677	1,768,619
1999	159,805	24,413	184,218	969,459	451,505	1,420,964	76,174	3,947	337,701	2,023,004
2000	48,321	6,239	54,560	448,665	273,206	721,871	206,365	61,389	262,627	1,306,812
2001 [e]	104,060	17,029	121,089	442,546	408,961	851,507	160,272	2846	265,749	1,401,463
2002	111,290	40,423	151,713	1,097,769	367,886	1,465,655	137,077	123,698	405,534	2,283,677
2003	287,729	30,359	318,088	1,183,009	923,540	2,106,549	280,552	11,370	379,651	3,096,210
2004	138,317	62,444	200,761	1,344,213	633,368	1,977,581	207,844	399,339	391,939	3,177,464
2005 [f]	227,347	31,867	259,214	2,572,586	1,894,078	4,466,664	194,622	61,122	424,531	5,406,153
2006	192,296	36,467	228,763	3,780,760	964,238	4,744,998	163,889	183,006	531,047	5,851,703
2007	119,622	50,624	170,246	1,875,491	740,195	2,615,686	192,406	126,282	761,657	3,866,277
2008	138,220	36,826	175,046	1,849,553	636,525	2,486,078	145,378	580,127	306,225	3,692,854
2009 [e]	128,154	49,642	177,796	1,477,186	274,227	1,751,413	240,779	34,529	589,916	2,794,433
2010	118,335	26,753	145,088	1,415,027	458,103	1,873,130	177,724	917,731	569,905	3,683,578
2011	117,213	31,584	148,797	2,051,501	873,877	2,925,378	149,533	9,754	453,537	3,686,999
2012	106,529	21,026	127,555	2,136,476	778,158	2,914,634	130,734	420,344	464,058	4,057,325
2013	120,536	16,269	136,805	2,849,683	865,295	3,714,978	110,515	6,126	732,009	4,700,433
2014	120,060	43,835	163,895	2,020,309	706,630	2,726,939	283,421	679,126	584,831	4,438,212
2015	105,063	41,796	146,859	1,591,505	669,483	2,260,988	121,193	39,690	853,989	3,422,719
2016	135,013	41,885	176,898	1,921,748	994,760	2,916,508	168,297	1,364,849	355,365	4,981,917

Note: The Yukon River sonar project did not operate at full capacity in 1996 thus there are no passage estimates for this year.

[a] Estimates for all years were generated with the most current apportionment model in 2016 and differ from earlier estimates.

[b] Chinook salmon > 655 mm METF.

[c] 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.

[d] Includes sockeye salmon, cisco, whitefish, sheefish, burbot, suckers, Dolly Varden, and Northern pike.

[e] High water levels were experienced at Pilot Station all season in 2001, and in 2009 during the summer season with extreme low water during the fall season, and therefore, passage estimates are considered speculative.

[f] 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 Alaska portion of the Yukon River drainage, 1996–2016.

	Andreafsky River		Anvik River		Nulato River			Gisasa River
Year	East Fork	West Fork	Drainagewide Total	Index Area [a]	North Fork [b]	South Fork	Both Forks	
1996		[c] 624	839	709		[c] 100 [d]	100	
1997	1,140	1,510	3,979	2,690		[c]	[c]	144 [d]
1998	1,027	1,249 [d]	709 [d]	648 [d]	507	546	1,053	889 [d]
1999		[c] 870 [d]	950 [d]	950 [d]		[c]	[c]	[c]
2000	1,018		1,721	1,394		[c]	[c]	[c]
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 [d]	1,578	973 [d]	973 [d]		[c]	[c]	[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 [d]	824	1,886	1,776 [f]	620	672	1,292	843
2007	1,758	976	1,529	1,497	1,928	1,078	2,583	593
2008	278 [d]	262 [d]	992 [d]	827 [d]	463	543	922	487
2009	84 [d]	1,678	832	590	1,418	842	2,260	515
2010	537 [d]	858	974	721	356	355	711	264
2011	620	1,173	642	501	788	613	1,401	906
2012		[c] 227 [d]	722	451	682	692	1,374	[c]
2013	1,441	1,090	940	656	586	532	1,118	201 [d]
2014		[c] 1,695	1,584	800		[c]	[c]	[c]
2015	2,167 [d]	1,356 [d]	2,616		999	565	1,564	558
2016	[c]							
SEG	[g]	[h] 640–1,600	1,100–1,700			[e]	940–1,900	[h]
Average								
1996–2015	1,180	1,066	1,556	1,206	809	593	1,315	635
2006–2015	935	1,014	1,272	869	871	655	1,469	546
2011–2015	1409	1,108	1301	602	764	601	1,364	555

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] Aerial survey was not flown due to run timing and/or water/weather conditions.

[d] Incomplete, poor timing, and/or poor survey conditions resulting in minimal or inaccurate counts.

[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] Sustainable Escapement Goal.

[h] Aerial escapement goal was discontinued in 2010. The 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, 1996–2016.

Year	East Fork Andreafsky River Weir		Nulato River Tower	Henshaw Creek Weir		Gisasa River Weir		Chena River Tower		Salcha River Tower		Goodpaster River Tower
	No. Fish	% Fem.	No. Fish	No. Fish	% Fem.	No. Fish	% Fem.	No. Fish	% Fem.	No. Fish	% Fem.	No. Fish
1996	2,955	41.9	756			1,991	19.5	7,153 [b]	26.8	7,570 [b]	26.2	
1997	3,186	36.8	4,766			3,764	26.0	13,390	25.6	18,514	41.8	
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 [i]	5,474	39.7		2,391	40.7	1,319	29.5	6,294	39.0	6,288 [j]	37.0	2,353
2016 [i]	2,676	49.7		1,354	47.5	1,395	27.2	6,665 [g]	22.8	2,675 [g]	38.8	2,435
BEG [k]								2,800–5,700		3,300–6,500		
SEG [l]	2,100–4,900											
Average												
1996–2015	3,845	39	2,044	1,062	37	2,124	28	6,057	31	9,054	38	1,928
2006–2015	4,034	39		1,070	39	1,822	26	3,607	32	7,657	38	1,714
2011–2015	4,230	35		1,470	41	1,610	24	4,391	35	6,530	43	1,278

-continued-

Note: Unless otherwise noted blank cells indicate years when project did not operate.

[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 incomplete and represents minimum escapement.

[h] Project operated for 18 days due to high water.

[i] Data are preliminary.

[j] 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.

[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, 1996–2016.

Year	Tincup Creek	Tatchun Creek	Little Salmon River	Big Salmon River	Nisutlin River	Ross River	Wolf River	Blind Creek	Chandindu River	Big Salmon Sonar	Klondike River Sonar	Teslin River Sonar
1996	150	423	1,150	2,565	719	102	705					
1997	193	1,198	1,025	1,345	277		322	957				
1998	53	405	361	523	145		66	373	132			
1999		252	495	353	330		131	892	239			
2000	19	276	46	113	20		32		4			
2001	39		1,035	1,020	481		154		129			
2002			526	1,149	280		84					
2003			1,658	3,075	687		292	1,115	185			
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		
IMEG												
Averages												
1996–2015	91	511	738	1,049	400	233	173	586	138	5,489	2,377	12,807
2006–2015			475	822	381		83	464		5,359	2,377	12,807
2011–2015			38	405			81	479		5,475	1,181	12,807

-continued-

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	Whitehorse Fishway			Canadian Mainstem		
Year	Count	Percent hatchery contribution	Border passage estimate [n]	Harvest	Spawning escapement estimate	[o]
1996	2,958	35	93,606	19,546	74,060	
1997	2,084	24	69,538	15,717	53,821	
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	
IMEG					42,500–55,000	[p]
Averages						
1995–2015	1,316	56	57,127	6,884	50,037	
2006–2015	1,082	57	51,565	3,330	48,235	
2011–2015	1,354	62	52,647	1,920	50,727	

-continued-

Note: Blank cells indicate no data. En dashes indicate not enough information to generate an average.

[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] Counts for Big Timber Creek to Sheldon Lake.

[h] Resistance board weir tested for 3 weeks.

[i] Foot survey.

[j] Conventional weir July 1 to September 8, but was breached from July 31–August 7.

[k] High water delayed project installation, therefore, counts are incomplete.

[l] Combination resistance board weir and conduit weir tested and operational from July 10–30.

[m] Data are preliminary.

[n] 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 2005–2015.

[o] 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.

[p] Interim Management Escapement Goal (IMEG) range of 42,500–55,000 was established in 2010 and continued through 2015.

Appendix E7.–Summer chum salmon escapements for selected spawning areas in the Alaska portion of the Yukon River drainage, 1996–2016.

	Andreafsky River			Anvik River	Rodo River	Kaltag Creek	Nulato River		
	East Fork		West Fork				South Fork	North Fork [a]	Mainstem
Year	Aerial [b]	Weir	Aerial [b]	Sonar	Aerial [b]	Tower	Aerial [b]	Aerial [b]	Tower
1996	–	108,450	–	933,240	4,380	51,269	8,490 [c]	–	129,694
1997	–	51,139	–	605,752	2,775 [c]	48,018	–	–	157,975
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
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 [e]	6,004 [c]	48,809	2,836 [c]	374,968	3,685	–	4,102	9,525	–
2016	–	50,362	–	337,821	–	–	–	–	–
Escapement Objective		>40,000 [f]		350,000–700,000 [g]					
Averages									
1996–2015	5,884	52,715	12,032	449,938	5,513	18,161	10,202	9,495	69,002
2006–2015	6,425	61,581	11,038	450,799	6,481	–	10,392	9,495	–
2011–2015	9,953	60,998	7,514	495,852	8,434	–	11,963	11,549	–

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Year	Henshaw Creek	Gisasa River		Hogatza River			Tozitna River	Chena River			Salcha River		
				Clear & Caribou Cr.		Clear Creek							
	Weir	Aerial	b	Weir	Aerial	b Tower	Weir and Aerial	b Aerial	b	Tower	Aerial	b	Tower
1996		–		158,752	27,090	h 100,912	2,310	2,061		12,810 d	9,722		74,827
1997		686	c	31,800	1,821	c 76,454	428 d	594	c	9,439 d	3,968	c	35,741
1998		–		21,142	120	c,i 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	4320		194,933
2006	–	1,000		261,305	–	29,166 j	22,629	469		35,109 d	152		113,960
2007	44,425	–		46,257	–	6,029 j	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	i –	8,434	–		16,516	–		31,035
2010	105,398	1,096		47,669	840	i –	–	–		7,560	–		22,185
2011	248,247	13,228		95,796	3,665	i –	11,351	4,600		– d	819		d
2012	292,082	–	d	83,423	23,022	i –	–	–	c	6,882 k	–	c	46,252
2013	285,008	9,300	d	80,055	–	– c	–	–	c	21,372	–	c	60,981
2014	– d	–		32,523	–	–	–	–		13,303 l	–		– d
2015	238,529	5,601		42,747	6,080	–	–	–		8,620 l	–	c	12,812 l
2016	286,780	–		66,670	–	–	–	–		6,493 l	–		2,897 l
Escapement Objective													
Averages													
1996–2015	135,514	6,555		63,671	8,327	25,708	11,982	863		10,258	2,201		44,636
2006–2015	183,419	7,394		75,262	7,518	17,598	12,003	1,702		12,851	486		37,813
2011–2015	265,967	9,376		66,909	10,922	–	11,351	4,600		12,544	819		40,015

-continued-

Note: Unless otherwise noted blank cells indicate years prior to the project being operational. An en dash indicates years when 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] BLM helicopter survey.

[i] Consists of Clear Creek only.

[j] Project operated as a video monitoring system on Clear Creek. Video was also conducted on Caribou Creek from 2004–2007 (15,345; 14,605; 24,039; and 17,728 respectively).

[k] Estimate includes an expansion for missed counting days based on using two DIDSON sonars to assess chum salmon passage.

[l] 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 Alaska portions of the Yukon River Drainage, 1996–2016.

		Alaska																	
			Tanana River Drainage													Upper Yukon River Drainage			
Year	Yukon River mainstem sonar estimate		Toklat River		Kantishna River abundance estimate		Delta River		Bluff Cabin Slough		Upper Tanana River abundance estimate		Tanana River estimate		Chandalar River		Sheenjek River	
1996			18,264				19,758		7,074	c	134,563		132,922		230,450		246,889	
1997	579,767		14,511				7,705		5,707	c	71,661		88,641		211,914		80,423	i
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	j	34,844		55,983		71,048		30,084	k
2001	408,961		6,007	l	22,992		8,103		1,808		96,556	m	116,012		112,664		53,932	
2002	367,886		28,519		56,665		11,992		3,116	j	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	n
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	o	107,719		28,132		11,964		337,755		372,758		526,838		485,886	p,q
2006	964,238				71,135		14,055				202,669		233,193		254,778		175,620	p,q
2007	740,195				81,843		18,610				320,811		357,016		243,805		69,184	p,q
2008	636,525						23,055		1,198	j			264,200		178,278		50,348	p,q
2009	274,227	r					13,492		2,900				159,828				54,126	p,q
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	p,q
2012	778,158						9,377	j					102,096		205,791		104,701	p,q
2013	865,295		9,161	d			31,955		5,554				275,089		252,710			
2014	706,630						32,480	j	4,095				215,393		221,421			
2015	669,483		8,422	d			33,401	j	6,020				149,265		164,486			
2016	994,760	s	16,885	d			21,913	j	4,936				199,639		295,023			
Escapement	300,000	t	15,000	u			6,000				46,000	v	61,000		74,000		50,000	u
Objective	600,000		33,000				13,000				103,000		136,000		152,000		104,000	
Average																		
1996–2015	700,002	w	15,725		61,392		18,437		5,134		148,862		190,591		200,115		96,158	
2006–2015	743,612	w	–		76,489		21,806		3,433		261,740		223,959		220,780		82,375	
2011–2015	778,689		8,792		–		26,170		4,581		–		202,538		228,526		101,339	

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Note: Yukon River mainstem sonar historical estimates were revised in 2016, using selectivity parameters.

[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 1995-1998 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 in 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] Data interpolated due to high water from 29 August until 3 September 1997, during buildup to peak passage.

[j] Peak foot survey count.

[k] Project ended early (September 12) because of low water.

[l] Minimal estimate because Sushana River was breached by the main channel and uncountable.

[m] Low numbers of tags deployed and recovered resulted in an estimate with an extremely large confidence interval (95% CI +/- 41,072).

[n] Project ended on peak daily passages due to late run timing, estimate was expanded based on run timing (87%) at Rampart.

[o] Minimal estimate because of late timing of ground surveys with respect to peak of spawning.

[p] Sonar counts include both banks in 1985-1987, 2005-2009, and 2011-2012.

[q] 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).

[r] 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.

[s] Data are preliminary.

[t] Escapement Goal (EG) includes individual tributary BEGs and drainagewide SEG.

[u] EG discontinued in 2010 for Toklat River and 2016 for Sheenjek River.

[v] 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 broke out for comparison to the upper Tanana River abundance estimates.

[w] 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, 1996–2016.

	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]
1996	77,302		4,977	14,431	315	143,758	21,329	122,429
1997	27,031		2,189	3,350	207	94,725	9,306	85,419
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		35,615 [k]				204,149	3,887	200,262
2014		17,756 [k]				159,846	3,050	156,796
2015	8,351	21,396				112,555	3,050	109,505
2016 [l]	29,397	54,395				148,012	2,745	145,267
EO [m]	50,000-120,000							>80,000
IMEG	22,000-49,000 [n]							70,000-104,000 [o]
Average								
1996–2015	28,215	–	5,322	14,079	256	151,158	7,149	144,010
2006–2015	20,908	–	–	–	–	169,409	4,710	164,699
2011–2015	14,612	24,922	–	–	–	165,999	4,041	161,958

-continued-

[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, 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 "SPAS" analysis.
[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] Preliminary data.
[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.
[o] Interim Management Escapement Goal (IMEG) established for 2010 based on brood table of Canadian origin mainstem stocks (1982–2003).

Appendix E10.–Yukon River fall chum salmon estimated brood year production and return per spawner estimates 1974–2016.

				Estimated brood year return								(R)	(R/P)
	(P)	Estimated annual totals		Number of salmon [a]				Percent				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	678,200	478,875	1,157,075	112,408	656,949	96,549	0	0.13	0.76	0.11	0.00	865,906	1.28
1975	2,219,000	473,062	2,692,062	198,569	1,722,378	68,040	125.3257	0.10	0.87	0.03	0.00	1,989,112	0.90
1976	563,000	339,043	902,043	143,450	651,004	139,112	4,891	0.15	0.69	0.15	0.01	938,456	1.67
1977	731,600	447,918	1,179,518	113,761	1,091,462	199,096	5,027	0.08	0.77	0.14	0.00	1,409,346	1.93
1978	561,800	434,030	995,830	22,559	376,496	108,701	0	0.04	0.74	0.21	0.00	507,755	0.90
1979	1,347,000	615,377	1,962,377	46,592	923,435	313,850	4,045	0.04	0.72	0.24	0.00	1,287,922	0.96
1980	344,500	488,305	832,805	10,053	414,407	217,068	3,892	0.02	0.64	0.34	0.01	645,420	1.87
1981	571,000	682,257	1,253,257	52,465	992,802	346,710	9,576	0.04	0.71	0.25	0.01	1,401,552	2.45
1982	253,900	373,175	627,075	11,767	498,573	179,671	713.285	0.02	0.72	0.26	0.00	690,724	2.72
1983	522,200	525,016	1,047,216	15,653	943,158	234,813	2,408	0.01	0.79	0.20	0.00	1,196,032	2.29
1984	368,400	412,322	780,722	7,638	428,756	181,336	10,137	0.01	0.68	0.29	0.02	627,867	1.70
1985	710,200	515,481	1,225,681	49,003	910,622	322,579	3,239	0.04	0.71	0.25	0.00	1,285,442	1.81
1986	546,800	318,028	864,828	0	511,573	373,759	5,293	0.00	0.57	0.42	0.01	890,625	1.63
1987	733,900	406,143	1,140,043	14,776	626,311	353,608	8,333	0.01	0.62	0.35	0.01	1,003,027	1.37
1988	359,600	353,685	713,285	41,587	213,108	164,459	13,070 [c]	0.10	0.49	0.38	0.03	432,224	1.20
1989	549,200	545,166	1,094,366	3,337	305,356	414,071 [c]	22,193	0.00	0.41	0.56	0.03	744,958	1.36
1990	506,800	352,264	859,064	766.264	695,189 [c]	457,688	32,670	0.00	0.59	0.39	0.03	1,186,313	2.34
1991	605,800	439,096	1,044,896	4,394 [c]	1,120,901	396,023	12,952	0.00	0.73	0.26	0.01	1,534,271	2.53
1992	426,500	148,846	575,346	7,398	701,321	209,786	4,121	0.01	0.76	0.23	0.00	922,625	2.16
1993	387,900	91,015	478,915	8,310	480,440	108,027	3,225	0.01	0.80	0.18	0.01	600,002	1.55
1994	957,500	169,225	1,126,725	4,601	237,574	149,078	1,691 [c]	0.01	0.60	0.38	0.00	392,944	0.41
1995	1,147,000	461,180	1,608,180	2,501	266,154	72,706 [c]	374.926	0.01	0.78	0.21	0.00	341,736	0.30
1996	877,400	260,923	1,138,323	418.876	174,798 [c]	134,111	8,318	0.00	0.55	0.42	0.03	317,647	0.36

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Appendix E10.–Page 2 of 2.

	(P)	Estimated annual totals		Estimated brood year return								(R)	(R/P)
				Number of salmon [a]				Percent				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
1997	537,700	170,079	707,779	3,257 [c]	239,803	118,676	3,403	0.01	0.66	0.33	0.01	365,139	0.68
1998	281,400	70,823	352,223	637.374	270,412	59,203	7,107	0.00	0.80	0.18	0.02	337,359	1.20
1999	287,700	131,176	418,876	29,178	720,246	185,167	13,029	0.03	0.76	0.20	0.01	947,620	3.29
2000	223,900	28,553	252,453	8,627	315,305	109,657	0	0.02	0.73	0.25	0.00	433,589	1.94
2001	329,900	45,026	374,926	144,417	2,048,733	703,335	34,004	0.05	0.70	0.24	0.01	2,930,489	8.88
2002	399,100	27,485	426,585	0	462,695	239,502	13,871	0.00	0.65	0.33	0.02	716,068	1.79
2003	712,400	79,079	791,479	25,255	859,961	461,389	17,381	0.02	0.63	0.34	0.01	1,363,987	1.91
2004	575,700	76,296	651,996	0	352,915	157,639	2,063	0.00	0.69	0.31	0.00	512,617	0.89
2005	1,881,000	290,418	2,171,418	2,409	402,064	93,858	5,348	0.00	0.80	0.19	0.01	503,679	0.27
2006	920,800	270,486	1,191,286	26,434	394,056	344,344	30,210	0.03	0.50	0.43	0.04	795,044	0.86
2007	927,800	205,667	1,133,467	83,028	855,695	189,480	6,491	0.07	0.75	0.17	0.01	1,134,695	1.22
2008	612,600	217,983	830,583	10,088	845,264	400,935	7,617	0.01	0.67	0.32	0.01	1,263,904	2.06
2009	510,200	93,319	603,519	12,035	772,640	413,477	22,899	0.01	0.63	0.34	0.02	1,221,051	2.39
2010	493,000	80,005	573,005	1,894	491,063	244255.4	9,164	0.00	0.66	0.33	0.01	746,376	1.51
2011	888,100	327,376	1,215,476	23,960	481,681	181,926	5,920	0.03	0.69	0.26	0.01	693,486 [d]	>0.78
2012	680,400	396,589	1,076,989	68,551	1,163,350	561,648		0.04	0.65	0.31		1,793,549 [e]	>2.64
2013	824,000	357,960	1,181,960	29,093									
2014	723,200	212,917	936,117										
2015	534,800	282,586	817,386										
2016	828,800	554,732	1,383,532										
Average-15	674,117	302,244	976,361										
Min-10	223,900	27,485	252,453	0	174,798	59,203	0	0.00	0.41	0.03	0.00	317,647	0.27
Max-10	2,219,000	682,257	2,692,062	198,569	2,048,733	703,335	34,004	0.15	0.87	0.56	0.04	2,930,489	8.88
	666,551	All Brood Years (1974-2010)		32,953	647,936	242,210	8,889	0.03	0.68	0.28	0.01	931,987	1.75
	523,732	Even Brood Years (1974-2010)		21,596	457,445	208,782	8,149	0.03	0.66	0.30	0.01	695,972	1.50
	817,306	Odd Brood Years (1974-2010)		44,941	849,009	277,495	9,670	0.03	0.71	0.25	0.01	1,181,114	2.00

Note: Minimum and maximum indicate year with the lowest and highest values through 2010. Current brood year data is preliminary as is 2016 harvest estimate. In 2016 estimates of escapement were based on Bayesian analysis.

[a] The estimated number of salmon which returned are based upon annual age composition observed in lower Yukon test gillnets each year, weighted by test fish catch per unit effort.

[b] Contrast in escapement data is 9.91.

[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 fish, indicate that production (R/P) from brood year 2011 was at least 0.78. Recruits estimated for incomplete brood year.

[e] Brood year return for 3 and 4 year fish, indicate that production (R/P) from brood year 2012 was at least 2.64. Recruits estimated for incomplete brood year.

Appendix E11.–Coho salmon passage estimates or escapement estimates for selected spawning areas in the Alaska portion of the Yukon River drainage, 1996–2016.

Year	Yukon River mainstem sonar estimate	Nenana River Drainage								Upper Tanana River Drainage					
		Lost Slough		Nenana Mainstem		Wood Creek		Seventeen Mile Slough		Delta Clearwater River		Clearwater Lake and Outlet		Richardson Clearwater River	
1996		2,040	(h)	2,171	(h)	201	(u)	3,668	(g/b)	14,075	(b)	1,125	(b)		
1997	118,065	1,524	(h)	1,446	(h)		[e]	1,996	(h)	11,525	(b)	2,775	(b)		
1998	146,365	1,360	(h)	2,771	(h)		[e]	1,413	(g/b)	11,100	(b)	2,775	(b)		
1999	76,174	1,002	(h)	745	(h)	370	(h)	662	(h)	10,975	(b)				
2000	206,365	55	(h)	68	(h)		[e]	879	(h)	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 [g]	168,297	334	(h)	1,680	(h)	1,327	(h)	2,746	(h)	6,767	(b)	1,421	(h)	1,350	(h)
SEG [h]										5,200-17,000					
Averages															
1996–2015	166,785 [f]	618		858		792		1,965		21,011		2,769		1,946	
2006–2015	163,866 [f]	532		682		594		1,322		10,307		2,075		967	
2011–2015	159,079	432		758		708		1,402		8,818		1,168		1,711	

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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 confluence's of Lost Slough and Teklanika River.

[c] Index area is lower 17.5 miles of system surveys conducted during the period October 21 through 27.

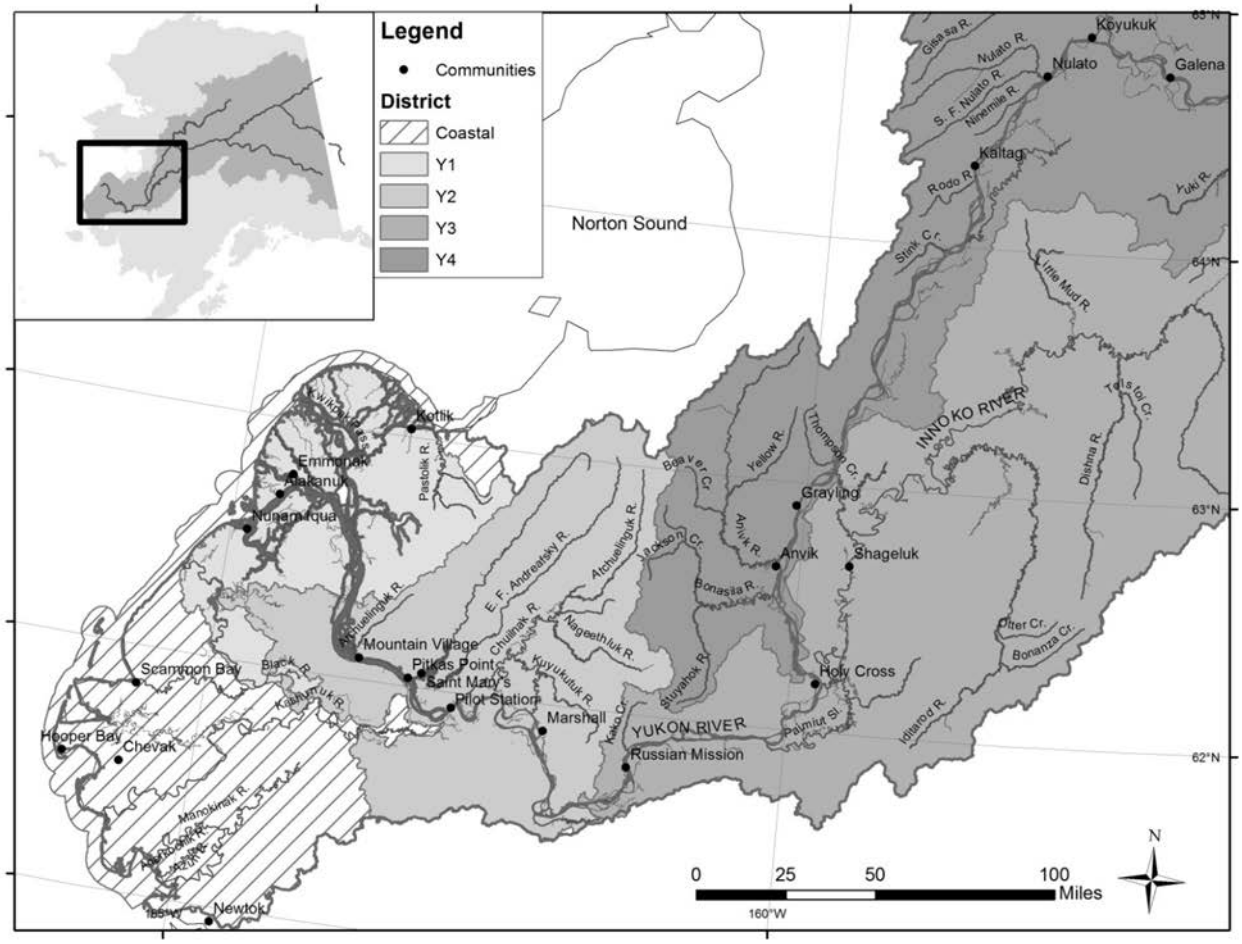
[d] Poor survey.

[e] No survey of Wood Creek due to obstructions in creek.

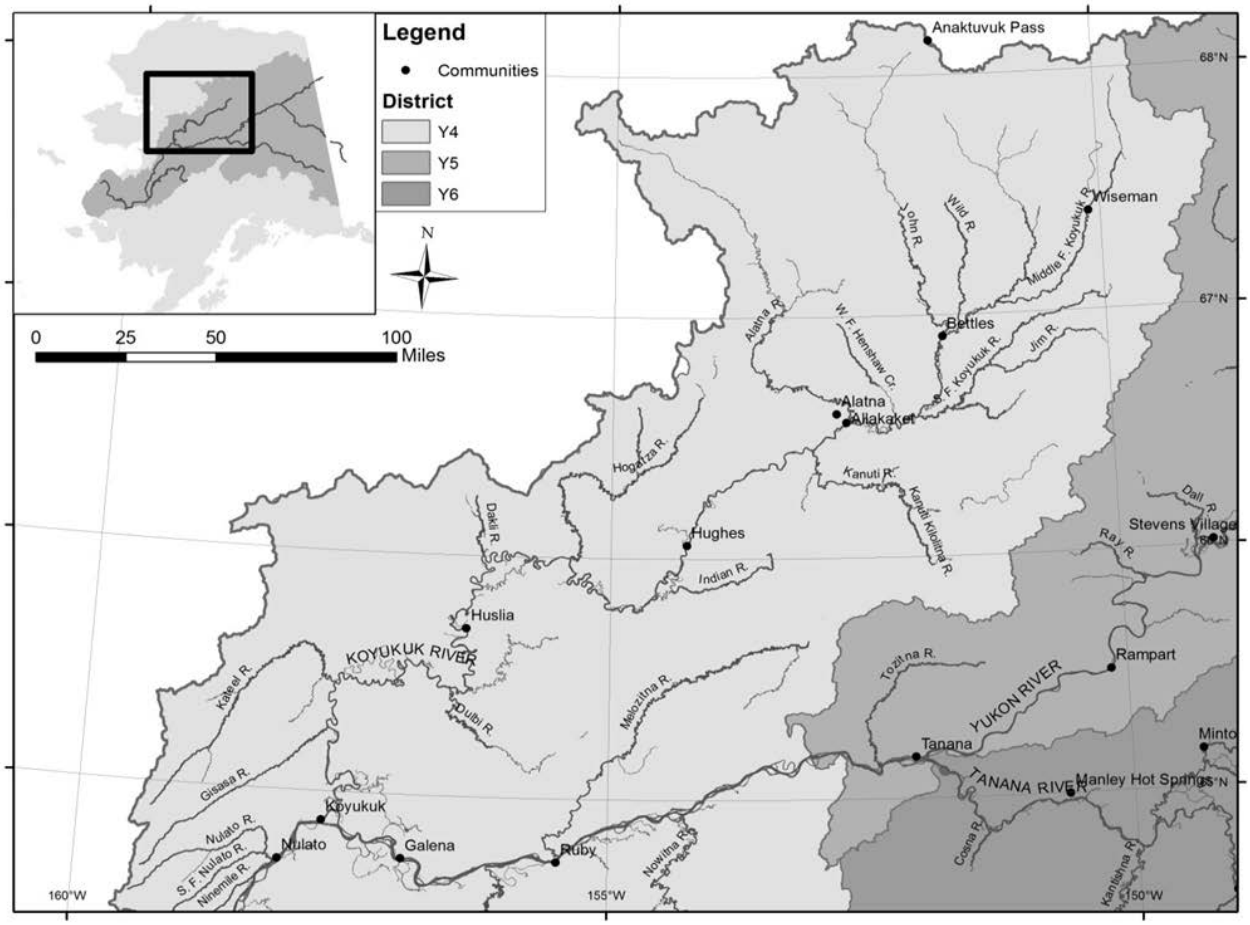
[f] Pilot Station sonar project encountered record low water levels during the fall season causing difficulties with species apportionment and catchability. Coho salmon are suspected of being over estimated therefore this value should not be used in averages or run reconstructions.

[g] Data are preliminary.

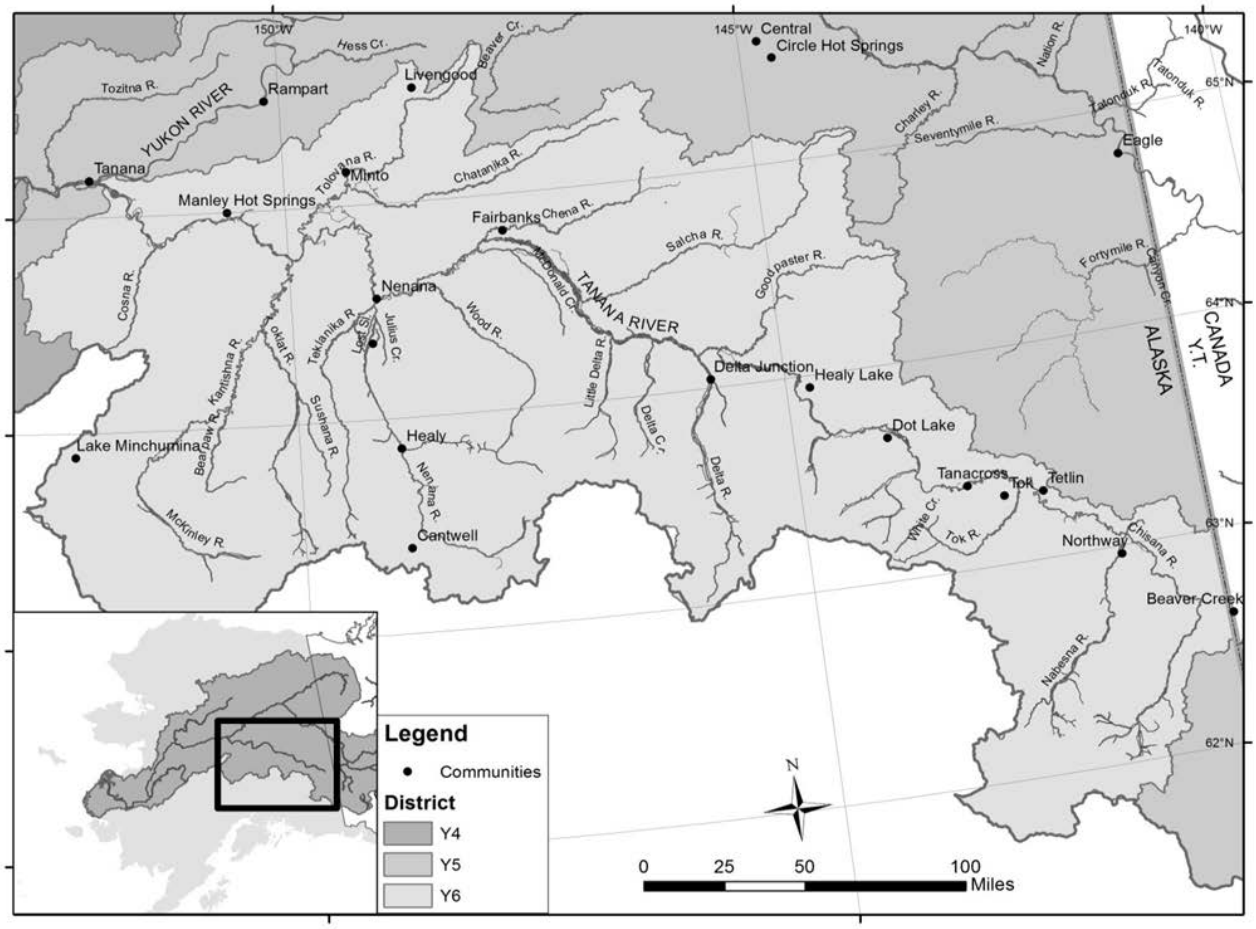
[h] Sustainable escapement goal (SEG) established January 2004 (replaces BEG of greater than 9,000 fish established March, 1993).



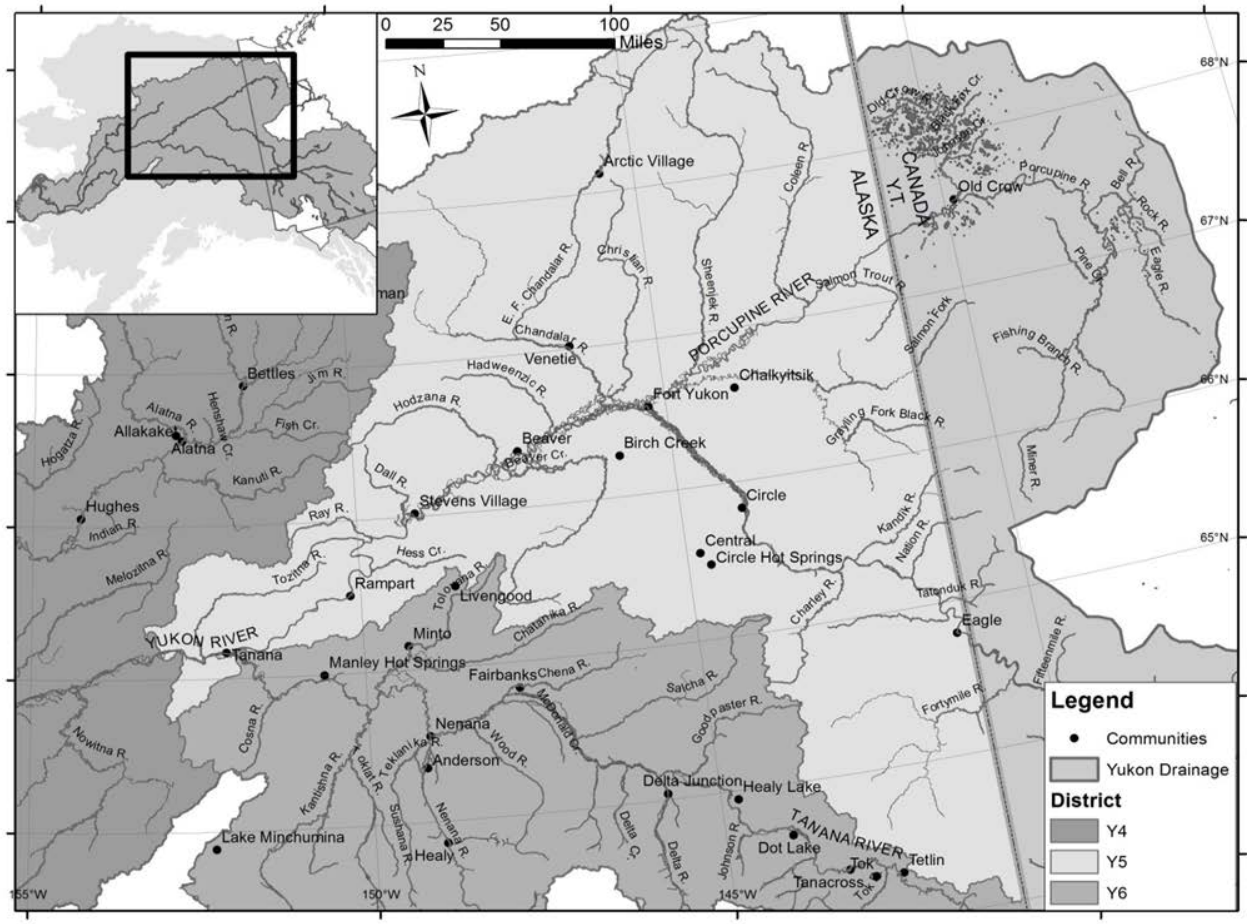
Appendix E12.–The Lower Yukon River drainage.



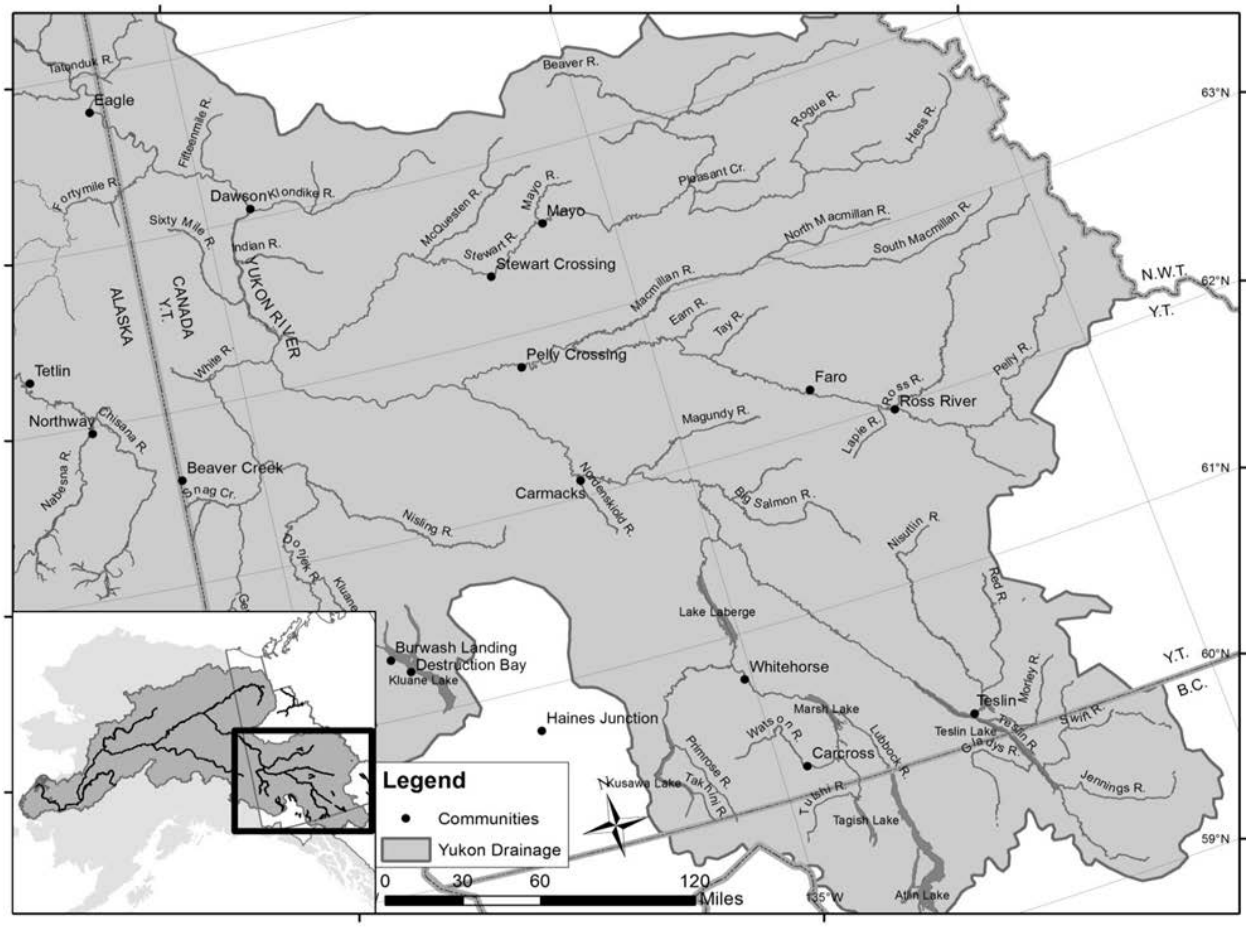
Appendix E13.–The Koyukuk River drainage.



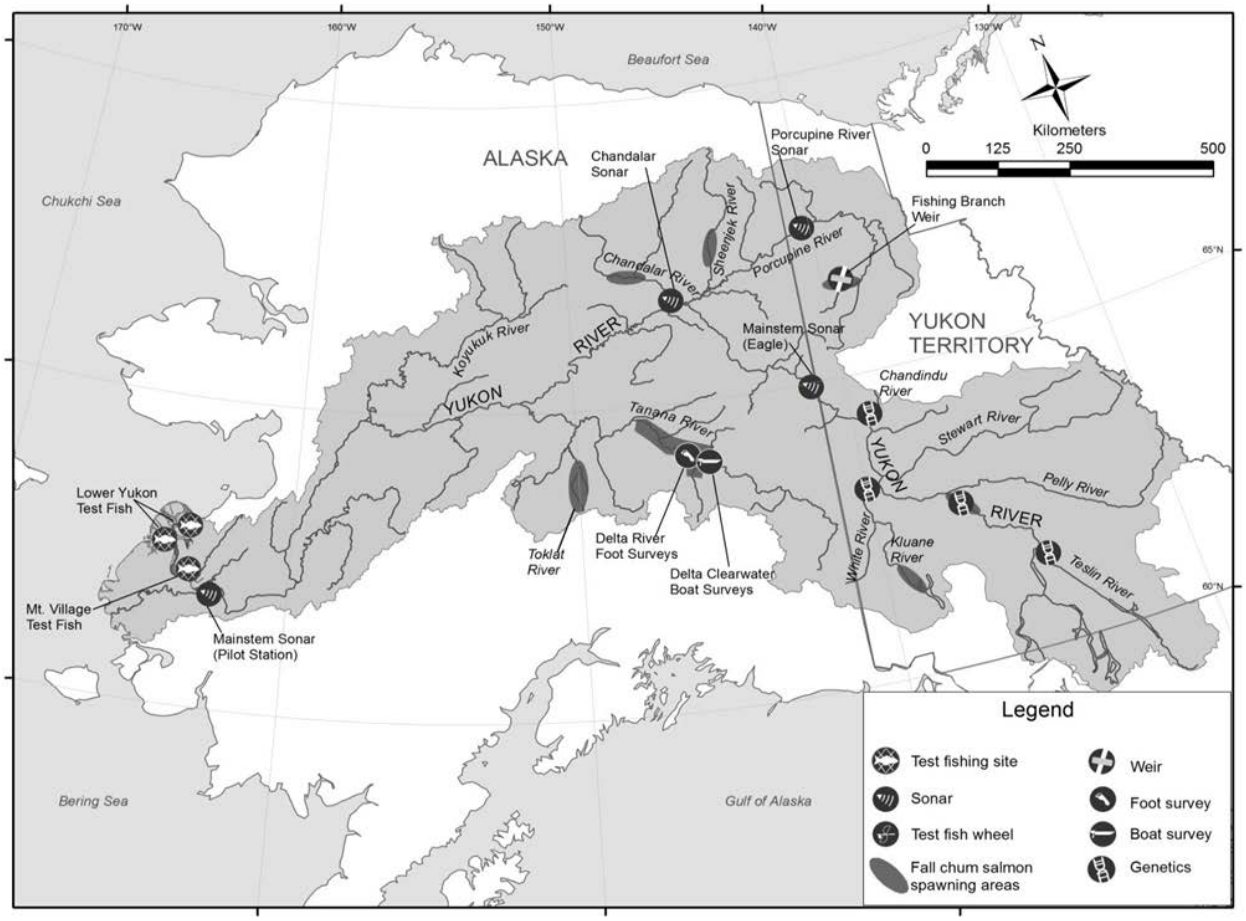
Appendix E14.–The Tanana River drainage.



Appendix E15.–The Middle Yukon River and Porcupine River drainages.



Appendix E16.–The Upper Yukon River drainage in Canada.



Appendix E17.–Select fall chum salmon monitoring projects, Yukon River drainage.

APPENDIX F

Appendix F1.–Commercial freshwater finfish harvest, Lower Yukon Area, 1995–2016.

Year	Permits Fished	Sheefish Number	Sheefish Pounds	Bering Cisco Number	Bering Cisco Pounds		Other Whitefish [a] Number	Other Whitefish [a] Pounds	Lamprey Number		Lamprey Pounds
1995	0	–	–	–	–		–	–	–		–
1996	0	–	–	–	–		–	–	–		–
1997	0	–	–	–	–		–	–	–		–
1998	0	–	–	–	–		–	–	–		–
1999	0	–	–	–	–		–	–	–		–
2000	0	–	–	–	–		–	–	–		–
2001	0	–	–	–	–		–	–	–		–
2002	0	–	–	–	–		–	–	–		–
2003	23	–	–	–	–		–	–	84,965	[b]	23,960
2004	0	–	–	–	–		–	–	0		0
2005	13	266	1,688	241	362	[c]	2,669	4,265	0		0
2006	23	472	2,912	4,497	5,519		1,932	2,832	3,056	[b]	715
2007	23	416	2,906	2,451	2,951		1,748	3,145	0		0
2008	16	0	0	8,642	9,380		695	692	0		0
2009	31	0	0	9,066	9,743		750	763	1,520	[d]	465
2010	21	0	0	14,048	14,945	[e]	420	439	0		0
2011	19	0	0	11,386	12,523		253	258	0		0
2012	20	0	0	11,099	12,705		231	237	0		0
2013	17	0	0	16,901	19,442		120	123	0		0
2014	38	0	0	25,604	31,268		42	50	52,512	[b]	15,386
2015	30	0	0	23,670	28,391		15	16	23,232	[b]	4,298
2016	33	0	0	26,329	30,764		13	12	8,830	[b]	2,031
2011–2015 Average	24.8	0	0	17,732	20,866		132	137	15,149		3,937
2006–2015 Average	24	89	582	12,736	14,687		621	855	8,032		2,086

Note: En dash indicates no commercial fishing activity occurred.

[a] Other whitefish species include general whitefish, least cisco, broad whitefish, and humpback whitefish. From 2008 onward, only includes least cisco.

[b] Number of lamprey equals pounds of lamprey divided by the average lamprey weight from St. Marys or Mountain Village (0.282 pounds in 2003; 0.234 pounds in 2006; 0.293 pounds in 2014; 0.185 pounds in 2015; and 0.23 pounds in 2016).

[c] In response to market conditions, commercial whitefish fishing began to target Bering Cisco; therefore harvest of this species is separated from other whitefish species.

[d] Number of lamprey equals pounds of lamprey divided by the average lamprey weight in Grayling (0.306 pounds).

[e] Includes 160 pounds of Bering cisco harvested in January 2010 under permit authorized in fall 2009.

[f] Includes 1,543 pounds of lamprey that were harvested in the YDFDA test fishery but were unable to be distributed for subsistence. These fish were purchased from the test fishery catch but were not were not included in the value of the fishery.

Appendix F2.–Commercial freshwater finfish harvest, Upper Yukon Area, 1995–2016.

		Upper Yukon Area				
		Whitefish [a]		Lamprey		
Year	Permits Fished	Number	Pounds	Number	Pounds	Avg weight (lbs) [b]
1995	0	0	0	–	–	
1996	0	0	0	–	–	
1997	– [c]	908	1,160	–	–	
1998	0	–	– [d]	–	–	
1999	0	–	–	–	–	
2000	0	–	–	–	–	
2001	0	–	–	–	–	
2002	0	–	–	–	–	
2003	15	–	–	99,624	25,697	0.258
2004	0	–	–	0	0	
2005	0	–	–	0	0	
2006	9	–	–	33,933	7,481	0.220
2007	1	–	–	191 [e]	42	0.220 [e]
2008	10	–	–	41,749	11,137	0.267
2009	11	–	–	48,117	14,745	0.306
2010	22	–	–	108,837	30,713	0.282
2011	3	–	–	2,660 [f]	783	0.294 [f]
2012	4	–	–	1,539	336	0.218
2013	11	–	–	45,805	11,613	0.254
2014	17	–	–	91,785	28,734	0.313
2015	11	–	–	149,371	33,260	0.223
2016	5	–	–	8,679	2,031	0.234
2011–2015 Average	11			58,232	14,945	0.260
2006–2015 Average	9			52,399	13,884	0.260

Note: En dash indicates no commercial fishing activity occurred. Blanks indicate not enough information to generate average.

[a] Whitefish species include general whitefish, least cisco, broad whitefish, humpback whitefish, and sheefish.

[b] Average weight of lamprey harvested in Grayling used to calculate number of lamprey harvested in the commercial fishery.

[c] Number of permits issued not reported.

[d] Requests for commercial whitefish fishing permits were denied because of the additional pressure placed on non-salmon species during poor salmon runs.

[e] No harvest sampling was conducted; the average lamprey weight in Grayling from 2006 was used to calculate the number of lamprey harvested.

[f] 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.

Appendix F3.–Freshwater finfish sales during the commercial salmon fishing season by district, Yukon Area, 1995–2016.

	Lower Yukon Area	Lower Yukon Area		Upper Yukon Area	District 4		District 5				District 6	
		Sheefish			Whitefish		Whitefish		Sheefish		Whitefish	
Year	Permits fished	Number	Pounds	Permits fished	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1990					0	0	266	266	25	170	2	15
1991					2,600	4,055	0	0	0	0	-	-
1992					2,635	2,455	1,864	1,379 [a]	0	0	199	499
1995	0	0	0	4	0	0	95	95	0	0	183	387
1996	19	38	657	4	0	0	22	66	0	0	103	292
1997	0	0	0	3	0	0	270	301	0	0	4	8
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	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	0
2011–2015 Average	0	0	0	2	0	0	3	8	14	162	74	208
2006–2015 Average	2	3	46	2	0	0	36	39	15	164	64	195

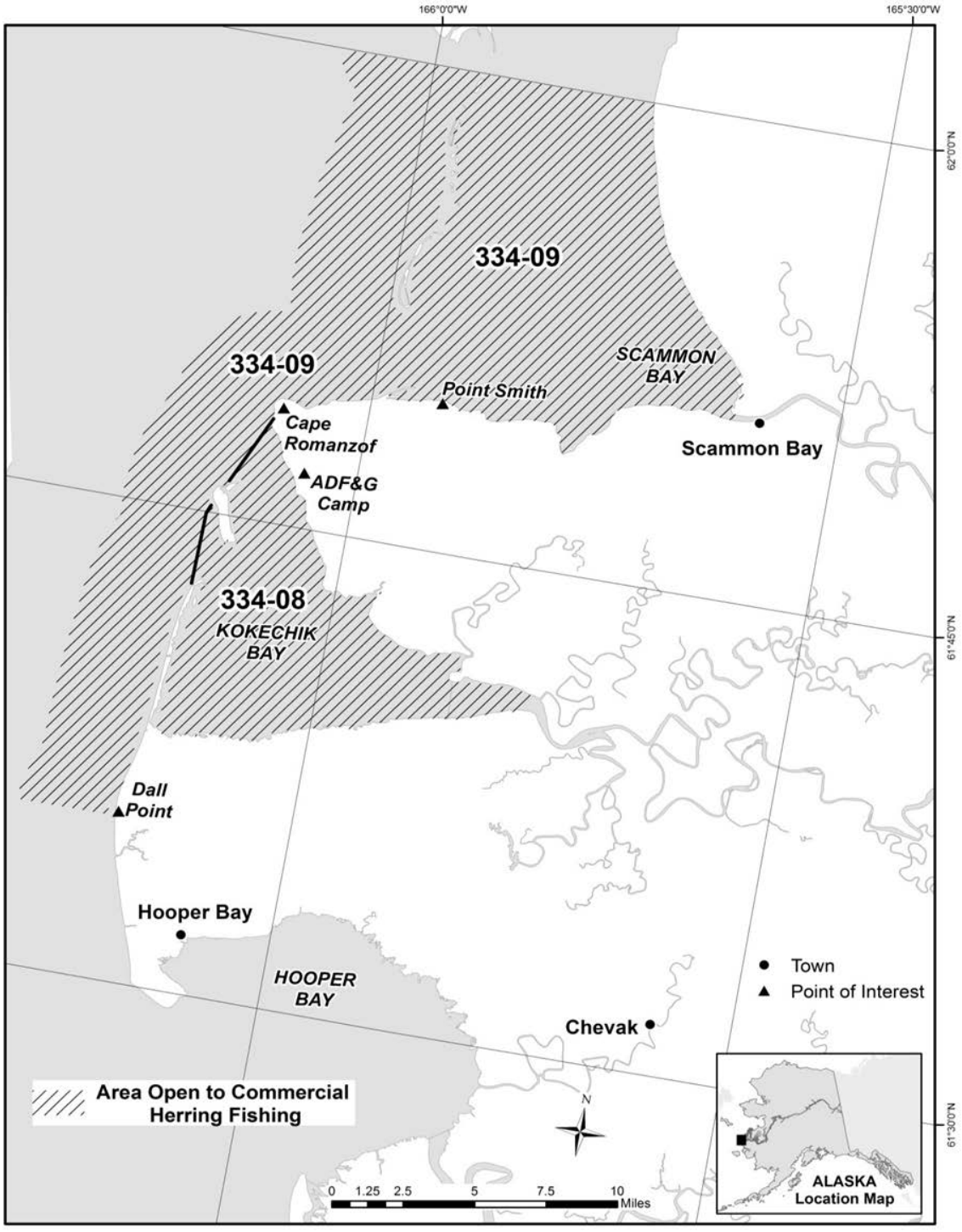
Note: En dash indicates no commercial fishing activity occurred.

[a] Two sheefish (28 pounds) and two pike (17 pounds) were also sold.

[b] The sale of fish sold did not include 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, one broad whitefish, and one general whitefish.

APPENDIX G



Appendix G1.–Waters open to commercial herring fishing in the Cape Romanzof District.