

Salmon Age, Sex, and Length Catalog for the Kuskokwim Area, 2015

by

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and

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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code		all standard mathematical signs, symbols and abbreviations	
deciliter	dL		AAC		
gram	g	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H _A
hectare	ha			base of natural logarithm	<i>e</i>
kilogram	kg	all commonly accepted		catch per unit effort	CPUE
kilometer	km	professional titles	e.g., Dr., Ph.D., R.N., etc.	coefficient of variation	CV
liter	L			common test statistics	(F, t, χ^2 , etc.)
meter	m	at	@	confidence interval	CI
milliliter	mL	compass directions:		correlation coefficient (multiple)	R
millimeter	mm	east	E	correlation coefficient (simple)	r
Weights and measures (English)		north	N	covariance	cov
cubic feet per second	ft ³ /s	south	S	degree (angular)	°
foot	ft	west	W	degrees of freedom	df
gallon	gal	copyright	©	expected value	<i>E</i>
inch	in	corporate suffixes:		greater than	>
mile	mi	Company	Co.	greater than or equal to	≥
nautical mile	nmi	Corporation	Corp.	harvest per unit effort	HPUE
ounce	oz	Incorporated	Inc.	less than	<
pound	lb	Limited	Ltd.	less than or equal to	≤
quart	qt	District of Columbia	D.C.	logarithm (natural)	ln
yard	yd	et alii (and others)	et al.	logarithm (base 10)	log
		et cetera (and so forth)	etc.	logarithm (specify base)	log ₂ , etc.
Time and temperature		exempli gratia		minute (angular)	'
day	d	(for example)	e.g.	not significant	NS
degrees Celsius	°C	Federal Information Code	FIC	null hypothesis	H ₀
degrees Fahrenheit	°F	id est (that is)	i.e.	percent	%
degrees kelvin	K	latitude or longitude	lat or long	probability	P
hour	h	monetary symbols		probability of a type I error	
minute	min	(U.S.)	\$, ¢	(rejection of the null hypothesis when true)	α
second	s	months (tables and figures): first three letters	Jan.,...,Dec	probability of a type II error	
Physics and chemistry		registered trademark	®	(acceptance of the null hypothesis when false)	β
all atomic symbols		trademark	™	second (angular)	"
alternating current	AC	United States		standard deviation	SD
ampere	A	(adjective)	U.S.	standard error	SE
calorie	cal	United States of America (noun)	USA	variance	
direct current	DC	U.S.C.	United States Code	population sample	Var var
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm	U.S. state	use two-letter abbreviations		
parts per thousand	ppt, ‰		(e.g., AK, WA)		
volts	V				
watts	W				

REGIONAL INFORMATION REPORT 3A19-04

**SALMON AGE, SEX, AND LENGTH CATALOG FOR THE
KUSKOKWIM AREA, 2015**

by

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ABSTRACT

Pacific salmon *Oncorhynchus* spp. age, sex, and length (ASL) data have been collected from Kuskokwim Area harvests and escapements since 1961. Since 1995, the salmon age, sex, and length catalog for the Kuskokwim Area has been produced as a means to compile ASL data into historical summaries useful to Kuskokwim Area fishery managers, contributing project leaders, and other interested parties. This report provides (1) an overview of projects that collected ASL information in 2015, and highlights new data added to the Arctic-Yukon-Kuskokwim Database Management System or AYKDBMS, (2) a single source document for project specific data summaries produced in 2015, (3) a historical summary of ASL data for select long-term monitoring projects, and (4) a quick reference guide to the available historical ASL data archived in the AYKDBMS. This report presents details of ASL sampling efforts which occurred during the 2015 season at 15 project locations including commercial catch, subsistence catch, escapement, and test fishery. Sampling during the 2015 seasons resulted in 12,450 salmon sampled for age, sex, or length. Chum *O. keta* made up 36% of the samples collected, followed by sockeye *O. nerka* and Chinook *O. tshawytscha* salmon at 23%, and coho *O. kisutch* (18%).

Key words: Age, sex, length, ASL, Pacific salmon, *Oncorhynchus* spp., Kuskokwim River, Kuskokwim Bay, age class composition, sex composition, length composition, Arctic-Yukon-Kuskokwim Database Management System, AYKDBMS.

INTRODUCTION

Since 1961, age, sex, and length (ASL) data have been collected from Chinook *Oncorhynchus tshawytscha*, chum *O. keta*, sockeye *O. nerka*, and coho *O. kisutch* salmon returning to the Kuskokwim Management Area (Figure 1; Brannian et al. 2005). The Kuskokwim Area ASL sampling program collects data from salmon harvest and escapement monitoring projects operated throughout Kuskokwim River and Kuskokwim Bay. Standardized methods are used to collect ASL data (Eaton 2015) that can be used for a wide range of purposes including management evaluation, trend analysis, and brood table development.

ASL data are available from discontinuous time series of sample collections from commercial, subsistence, and sport harvests, escapement monitoring projects, test fisheries, mark-recapture studies, and other special projects. A variety of organizations including state, federal, tribal, and non-government groups have jointly funded and participated in the collection of Kuskokwim Area salmon ASL data. Primary data are archived in the Arctic-Yukon-Kuskokwim (AYK) Database Management System¹ (AYKDBMS). The AYKDBMS is an online clearinghouse maintained by the Alaska Department of Fish and Game (ADF&G) and provides a public interface for querying and downloading data. Since 1995, summarized data have been published by the ADF&G as part of the salmon ASL catalog for the Kuskokwim Area (Molyneaux and DuBois 1996, 1998, 1999; DuBois and Molyneaux 2000; Molyneaux and Folletti 2005, 2007; Molyneaux et al. 2006, 2008, 2009, 2010; Liller et al. 2013a; Brodersen et al. 2013; Liller et al. 2015; Liller et al. 2016). Prior to 2014, summarized ASL data was also reported in agency project reports and fisheries management reports. Beginning in 2014, ADF&G project reports only provide information regarding data collection efforts (e.g., Blain et al. 2016), and the salmon ASL catalog for the Kuskokwim Area is the only published source for ASL data summaries.

The 2015 ASL catalog format provides a single source document for all ASL data collected by ADF&G and partner organizations throughout the Kuskokwim Management Area. This document provides a general description of the methods used to collect ASL data (Eaton 2015)

¹ AYKDBMS [Arctic-Yukon-Kuskokwim Database Management System] Home Page.
<http://sf.adfg.state.ak.us/CommFishR3/WebSite/AYKDBMSWebsite/Default.aspx>.

and a detailed description of data processing, analysis, and archiving. This document provides standardized data summaries for all projects that operated in 2015 and historical summaries for select long-term projects. This report format complements the AYKDBMS by providing a quick reference guide to the archived data by species, project type (e.g., harvest or escapement), project name, and year.

A total of 15 Kuskokwim Area projects collected ASL data from Chinook, chum, sockeye, and coho salmon in 2015. Samples were collected from all salmon species harvested in commercial fisheries operated in the Kuskokwim Bay (Districts 4 and 5), and only coho were collected from the Kuskokwim River (District 1). With the exception of Kuskokwim River Chinook salmon, commercial harvest samples are assumed to be representative of the subsistence harvest due to similarity of gear and harvest timing. For Chinook salmon, the gear types used by subsistence fishermen and the timing of subsistence fishing activities are very different compared to the current commercial fishery. Therefore, dedicated sampling effort occurred for Chinook salmon harvested in the lower Kuskokwim River subsistence fishery where majority of the total subsistence harvest occurs. Chinook salmon were sampled from a test fishery that operated in the lower portion of the Kuskokwim River near Bethel. Samples collected from the test fishery are assumed to be reasonably representative of the total run. ASL data were collected for all salmon species monitored at 10 weirs located on select spawning tributaries. Weirs were operated on the Kwethluk and Tuluksak rivers by the U.S. Fish and Wildlife Service (USFWS) to index salmon escapement to the lower portion of the Kuskokwim River and ASL data were collected to represent age-sex-size composition of these portions of each species' run. ASL data collected from the Kwethluk and Tuluksak rivers in 2015 were processed by USFWS and data summaries are presented in Webber et al. 2016a and Webber et al. 2016b. Weirs operated on the George and Tatlawiksuk rivers index salmon escapement to the middle portion of the Kuskokwim River. Weirs operated on the Salmon and Kogrukluk rivers index salmon escapement to the Aniak and Holitna rivers respectively. The Telaquana River weir is used to index escapement of lake-spawning sockeye salmon. The Kanektok and Goodnews river weirs index salmon escapement to District 4 and 5, respectively in Kuskokwim Bay.

OBJECTIVES

The goal of this project was to process, compile, and analyze salmon scale, sex, and length samples collected in 2015 from Kuskokwim Area subsistence and commercial fisheries, escapement, and other projects.

Specific objectives of this report were to:

1. Provide an overview of projects and methods used to collect ASL information in 2015;
2. Provide a single source document for detailed project ASL data summaries produced in 2015;
3. Provide a historical summary of annual ASL composition estimates for select long-term monitoring projects; and
4. Provide a quick reference guide to the available historical ASL data archived in the AYKDBMS.

METHODS

In 2015, ASL samples were collected from 15 projects. Target species differed by project type and location (Table 1). Project types included commercial catch, test fishery, subsistence catch,

and escapement. Detailed operational and ASL collection methods are summarized in individual project reports (Table 2). In addition, project reports for the Kwethluk and Tuluksak River weirs describe all analytical methods and present resulting estimates of ASL composition (Webber et al. 2016a and 2016b). Capture gear and sampling and measurement methods varied by species and project (Tables 3–6).

SAMPLE SIZE

A minimum sample size was determined for each species to achieve 95% confidence intervals no wider than $\pm 10\%$ ($\alpha = 0.05$ and $d = 0.10$; Bromaghin 1993) for all major age-sex combinations (Table 7). Recommended sample sizes were increased by at least 20% to account for scales that could not be aged for a variety of reasons. This minimum sample size was required to estimate the age-sex composition for any location or temporal strata of interest. For less abundant species (e.g., Chinook salmon) collecting the minimum number of samples was often not practical. In the event that the sample size was inadequate, we provided a simple summary of the samples collected.

Sampling Strategies

Viewed from a fixed location, such as an escapement project or a fishing district, the ASL composition of an upstream-migrating salmon population often changes over the course of the season. The following are sampling strategies which were implemented to collect representative samples from the various project types.

Escapement Projects

ASL samples, from Kuskokwim Area escapement monitoring projects, were collected using weirs with an integrated trap. Weir designs and specifications varied by location (Blain et al. 2016; Webber et al. 2016a and 2016b), however, all weirs functioned as a complete barrier to upstream movement for target species. Target species passed upstream of the weir through a designated chute. A trap was integrated into the passage chute at the upstream side of the weir. The trap included an entrance and exit gate that could be manually closed to capture salmon for sampling.

A daily sampling strategy was used for all salmon species sampled at Kuskokwim River and Kuskokwim Bay escapement monitoring locations. Daily sample goals were determined pre-season by distributing the season total sample size proportional to historical run timing. Daily sample schedules were adjusted as needed in-season to account for observed run abundance. Furthermore, staff was given discretion to modify the timing and intensity of daily sampling activities to accommodate other work priorities, as long as the sum of the daily samples for each week of project operations met or exceeded the predetermined schedule.

Commercial Harvest

ASL samples from Kuskokwim Area commercial harvests were from drift gillnets with a mesh no larger than 6 inches stretched. The proportion of each mesh size used during any given commercial opener is unknown. Similarly, the exact mesh size used to harvest fish sampled for ASL is unknown.

Grab sampling is a stratified sampling design that was used for all species harvested in Kuskokwim Area commercial fisheries: Districts 1, 4, and 5. We attempted to collect a minimum sized sample (Table 7) from Chinook, chum, sockeye, and coho salmon harvested during at least

1 commercial opening during each third of the run. Samples were from commercial fish deliveries made to the Coastal Villages Seafood (CVS) processing plant in Platinum Alaska, which was the only commercial processor operating in 2015. Fish harvested by commercial fishermen were placed into large totes, where a single tote could contain the harvest from 1 fisherman or many. ADF&G staff informed CVS of the sampling priorities, and CVS staff selected enough fish totes to achieve the desired sample size. The selection of totes was opportunistic and was done in a way that minimized disruption to CVS operations.

Subsistence Harvest

Opportunistic sampling was used to collect samples from the Kuskokwim River Chinook salmon subsistence harvest (e.g., Liller et al. 2013b). ADF&G partnered with Orutsaramuit Tribal Native Council to recruit and train subsistence fishermen to sample their own harvest and the harvest of others. Samplers were paid for each fish sampled. All interested individuals were encouraged to participate regardless of their fishing practices. Subsistence samplers were encouraged to sample from their entire harvest of Chinook salmon. We assumed that a sufficiently large pool of subsistence fishermen would adequately represent the range of fishing practices implemented in the subsistence fishery. Therefore, we assumed the resulting samples adequately represent the total subsistence harvest in the lower Kuskokwim River.

In 2015, a total of 9 subsistence samplers participated in the program (Table 9). Samples were collected from harvests representing 2 communities. Samples collected from Chinook salmon subsistence harvests were from gillnets with mesh that ranged in size from 4 inch to 6 inch (Table 10).

Bethel Test Fishery

Census sampling was conducted for Chinook salmon harvested in the Bethel Test Fishery. We attempted to collect ASL samples from all fish harvested. Samples from Chinook salmon harvested in the test fishery were taken with 5 3/8 inch and 8 inch drift gillnets.

AGE, SEX AND LENGTH SAMPLING PROCEDURES

To the extent practicable sampling procedures were standardized across all projects (Eaton 2015; Tables 3–6). Scales were collected from the left side of the fish approximately 2 rows above the lateral line in an area crossed by a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (INPFC 1963). Because of the high rate of scale regeneration (i.e., lost and regrown) among Chinook and coho salmon, 3 scales were collected from each fish. Only 1 scale per fish was collected from chum salmon. The number of scales collected from each sockeye salmon differed by project (Table 5), with more scales collected from locations where reabsorption (i.e., deterioration of the outer scale edge) is prolific. The sex of each salmon sampled was verified by visual examination of the gonads (harvest projects) or visual examination of external characteristics (escapement projects). Fish length was measured from the mideye to tail fork (METF) to the nearest millimeter using a straight edge measuring device.

AGE ESTIMATION

Age was estimated from scales. Scales were mounted on gummed cards and impressions were made in cellulose acetate (Clutter and Whitesel 1956). Scale impressions were magnified using a microfiche reader with a 15 mm, 48 x, F/2.8 lens. Trained scale agers estimated total age by counting the number of annuli in the freshwater and saltwater zones. An annulus was defined as

a concentration and interruption in the growth pattern of the ridges (circuli) on the upper surface of the anterior field of the scale (Mosher 1969). Typically, annuli presented as 3 or more tightly spaced and broken circuli that appear to cross over each other. Freshwater age was estimated for all scales that had less than 10 mm of regeneration around the scale focus. Saltwater age was estimated for all scales that had at least some portion the outer edge of the scale visible. Total age was reported in European notation (Koo 1962); numerals preceding the decimal refer to the number of freshwater annuli and numerals following the decimal refer to the number of marine annuli. Total age from time of egg deposition, or brood year, is the sum of these 2 numbers plus 1 to account for incubation time.

ESTIMATES OF AGE, SEX, AND LENGTH COMPOSITION

Samples were used to estimate the ASL composition of the escapement or harvest, when adequate sample sizes were available and sampling occurred in proportion to abundance. Generally, it was not possible to collect samples in proportion to abundance, due to imperfect knowledge of the abundance and timing of escapement or harvest. Disproportionate sampling was addressed postseason by stratifying the total escapement/harvest by the timing of sample collection (Tables 11–14).

The number of salmon sampled (n) during stratum i with a valid age and sex determination were used to estimate the proportion of the stratum composition by age, sex, and age/sex category. Let c equal any age or sex category of interest. The proportion (p) of the total abundance (N) in stratum (i) which belonged to each category (c) was estimated as:

$$\hat{p}_{c,i} = n_{c,i} / n_i . \quad (1)$$

The percent of the season total abundance that belonged to each category (\hat{p}_c) was estimated from the weighted average across all strata as:

$$\hat{p}_c = \frac{1}{N} \sum_i N_i \hat{p}_{c,i} . \quad (2)$$

The variance (\hat{V}) of the season total percentage by category was estimated as:

$$\hat{V}(\hat{p}_c) = \frac{1}{N^2} \sum_i N_i^2 \hat{V}(\hat{p}_{c,i}) , \quad (3)$$

Where:

$$\hat{V}(\hat{p}_{c,i}) = \left(\frac{N_i - n_i}{N_i} \right) \left(\frac{\hat{p}_{c,i}(1 - \hat{p}_{c,i})}{n_i - 1} \right) . \quad (4)$$

Confidence intervals (95%) around the percent composition for each category were calculated as:

$$1.96 * \sqrt{\hat{V}(\hat{p}_c)} * 100 . \quad (5)$$

The season total abundance by category (\hat{N}_c) was estimated as the sum of all stratum estimates ($\hat{N}_{c,i}$) as:

$$\hat{N}_c = \sum_i \hat{N}_{c,i}, \quad (6)$$

where:

$$\hat{N}_{c,i} = \hat{p}_{c,i} N_i. \quad (7)$$

Seasonal mean length by sex and age category was estimated using all salmon samples (n) with a valid age, sex, and length. Let $y_{c,i,j}$ equal the length of the fish (j) in any age/sex category (c), sampled during stratum (i). The mean length of fish in any age/sex category ($\bar{y}_{c,i}$) was estimated as:

$$\bar{y}_{c,i} = \frac{\sum_j y_{c,i,j}}{n_{c,i}}. \quad (8)$$

Seasonal mean length by age/sex category was estimated as:

$$\bar{y}_c = \frac{1}{N_c} \sum_i N_{c,i} \bar{y}_{c,i}, \quad (9)$$

with a variance of:

$$\hat{V}(\bar{y}_c) = \frac{1}{N_c^2} \sum_i N_{c,i}^2 \hat{V}(\bar{y}_{c,i}), \quad (10)$$

Where:

$$\hat{V}(\bar{y}_{c,i}) = \left(\frac{\sum_j (y_{c,i,j} - \bar{y}_{c,i})^2 / (n_{c,i} - 1)}{n_{c,i}} \right). \quad (11)$$

Standardized data summaries were produced for all projects (Table 1). Each summary table consists of 2 parts. The top portion presents the age and sex composition, and the bottom portion presents length summaries for each age and sex class. In the event that sample sizes or timing were not adequate to estimate ASL composition, a summary of the samples collected was presented.

HISTORICAL DATA SUMMARIES

Historical ASL data summaries were produced for select projects as a convenient way to compile foundational data needed for additional analysis, such as development of brood tables. Each summary table presents total abundance, percent by age and sex, and mean length (mm METF) for each project year. Annual estimates of ASL composition prior to 2010 were obtained from Molyneux et al. 2010, with the exception of Chinook salmon subsistence harvest compositions which were recalculated in 2011 based on data archived in the AYKDBMS. Abundance information was obtained from multiple sources: harvest data from statewide electronic fish

ticket database² (ADF&G) and Kuskokwim Area Management Reports (e.g., Poetter and Tiernan 2017); escapement data on file with the ADF&G Kuskokwim Research Group.

ARCHIVING

Raw data forms, scale cards, and acetate impressions are archived in the Alaska Department of Fish and Game, Anchorage Regional Office. ASL data are archived in the AYKDBMS.

USER GENERATED REPORTS

ASL data are publicly accessible through the AYKDBMS. By following the “Search” link on the main database page, users are directed to a series of data filters that allow for focused searches by management area, data type, project type, and method type. An alphabetical list of all projects and associated date ranges that meet the user defined search criteria is available by selecting the “Go to Projects” link. Selection of a specific project yields a general project description and annual year notes that provide context (i.e., metadata) regarding the type, quality, quantity, and utility of the data available. ASL data for a specific project are available by selecting the “ASL” link and selecting from the range of years of available data. A report is generated with all associated data for each fish sampled, including information about data collection (e.g., date of sample, location, method of capture, method of sex determination, etc.), archival references (i.e., scale card number and fish number) and primary biological data such as fresh water age, saltwater age, sex, and length.

RESULTS

A total of 12,450 salmon were sampled for age, sex, or length during the 2015 season. Chum salmon made up 36% of the samples collected, followed by sockeye salmon (23%), Chinook salmon (23%), and coho salmon (18%). All projects attempted to collect paired age, sex, and length data from each fish. Although age samples were collected for majority of fish sampled, not all fish could be successfully aged (Tables 15–18).

Some scale samples could not be aged for at least 1 of 7 different reasons (Tables 19–22). Overall, the percentage of Chinook, chum, sockeye, and coho salmon scales that were not successfully aged was 10%, 3%, 12%, and 12% respectively. Collection of regenerated scales was the primary reason Chinook ($n = 251$, 87%), chum ($n = 82$, 62%), sockeye ($n = 245$, 82%), and coho salmon samples ($n = 241$, 94%) could not be aged. Presentation of age errors was intended as feedback to project leaders but may also be useful when considering sample sizes needed to achieve desired statistical accuracy and precision.

ASL data collected in 2015 were summarized by project for each salmon species sampled (Table 1). Chinook salmon summaries include commercial harvest composition for 2 Kuskokwim Bay subdistricts (Tables 23 and 24), 1 test fishery operated near Bethel (Table 25), subsistence harvest composition from the lower Kuskokwim River (Tables 26 and 27), 2 escapement monitoring weirs operated in tributaries that drain into Kuskokwim Bay (Tables 28 and 29), and 5 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 30–34). Chum salmon summaries include commercial harvest composition for 2 Kuskokwim Bay subdistricts (Tables 35 and 36), 2 escapement monitoring

² ADF&G (Alaska Department of Fish and Game). Statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK: ADF&G, Division of Commercial Fisheries. (cited September 10, 2012). [URL not publically available as some information is confidential].

weirs operated in tributaries that drain into Kuskokwim Bay (Tables 37 and 38), and 4 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 39–42). Sockeye salmon summaries include commercial harvest composition for 2 Kuskokwim Bay subdistricts (Tables 43 and 44), 2 escapement monitoring weirs operated in tributaries that drain into Kuskokwim Bay (Tables 45 and 46), and 2 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 47 and 48). Coho salmon summaries include commercial harvest composition for 1 Kuskokwim River (Table 49) and 2 Kuskokwim Bay subdistricts (Tables 50 and 51), and 4 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 52–55).

HISTORICAL DATA SUMMARIES

Historical summaries were produced for select projects. Historical ASL data summaries for Chinook salmon include commercial harvest composition from 1 Kuskokwim River (Table 56) and 2 Kuskokwim Bay (Tables 57 and 58) subdistricts, 1 test fishery near Bethel (Table 59), subsistence harvest composition from the lower Kuskokwim River (Table 60), 2 escapement monitoring weir projects located on tributaries that drain into Kuskokwim Bay (Tables 61 and 62), and 5 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 63–67). Historical ASL summaries for chum salmon include commercial harvest composition from 1 Kuskokwim River (Table 68) and 2 Kuskokwim Bay subdistricts (Tables 69 and 70), 2 escapement monitoring weir projects located on tributaries that drain into Kuskokwim Bay (Tables 71 and 72), and 4 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 73–76). Historical ASL summaries for sockeye salmon include commercial harvest composition from 1 Kuskokwim River (Table 77) and 2 Kuskokwim Bay subdistricts (Tables 78 and 79), and 2 escapement monitoring weir projects located on tributaries that drain into Kuskokwim Bay (Tables 80 and 81). Historical ASL summaries for coho salmon include commercial harvest composition from 1 Kuskokwim River (Table 82) and 2 Kuskokwim Bay subdistricts (Tables 83 and 84), and 4 escapement monitoring weirs operated in tributaries throughout the middle and upper Kuskokwim River (Tables 85–88).

KUSKOKWIM AREA ASL DATA IN THE AYKDBMS

The goal of the AYKDBMS is to provide managers, researchers, and the public involved in fisheries in the AYK Region with a system to enter and process new data, as well as to retrieve historical data. The AYKDBMS provides access to Kuskokwim Area project descriptions and biological measurements of salmon age, sex, and length. For each salmon species, we provided a comprehensive list of all Kuskokwim Area projects that have collected salmon ASL data and highlighted the years for which at least some data are available. Tables were developed by querying data directly from the AYKDBMS. Overview tables provide a quick reference for agency staff and members of the public who may be interested in Kuskokwim Area ASL data for independent research but are unfamiliar with the scope of the data available. The AYKDBMS contains Chinook salmon ASL data collected from 27 different projects (Table 89), chum salmon data from 24 projects (Table 90), sockeye salmon data from 27 projects (Table 91), and coho salmon data from 19 projects (Table 92). For each salmon species, ASL data are available from a range of project types including commercial catch, subsistence catch, escapement monitoring, mark–recapture experiments, and test fisheries. The length and continuity of the time series of available data varies considerably within and between project types (Tables 89–92).

DISCUSSION

SOURCES OF BIAS

Users of Kuskokwim Area ASL data are responsible for ensuring that all data used are appropriate for the intended purpose. Since 1961, numerous changes have occurred regarding how fisheries and fisheries monitoring projects are executed, including how ASL data are collected, processed, and analyzed. Examples of differences between project types or between years at the same project include: (1) changes in harvest regulation including time, area, and gear restrictions; (2) changes in capture methods including weir picket spacing and gillnet dimensions and mesh sizes; (3) differences in length measurement methods including cloth tape, hard rulers, fish cradles, and calipers; (4) changes in method used to sex fish including using internal or external characteristics; (5) changes in staff responsible for collection and processing ASL samples; and (6) changes in study design including assumptions and sample size requirements. Prospective users are encouraged to review the original reports or other sources to understand the methods used for specific ASL data collections, including any changes in methodology. Previous versions of the Kuskokwim Area ASL catalog also provide some examples of bias and data quality concerns (e.g., Molyneaux et al. 2010).

DATA QUALITY, AYKDBMS

The AYKDBMS was populated with data archived in a variety of formats, including paper data forms, digital scan forms, spreadsheets, and other database programs. Considerable care was taken to reduce transcription errors during the data upload process. However, most of the Kuskokwim Area ASL data in the AYKDBMS has not been reviewed for errors. As such, we acknowledge that some unknown level of data transcription errors, incorrect labeling, and erroneous data may exist in the database. ADF&G stock biologists, who regularly use the database, generally agree that fewer errors exist for data collected after 2000. Earlier data should be used with caution, and if a data quality concern exists, users are encouraged to contact agency staff for assistance.

The AYKDBMS provides project leaders with tools for archiving metadata. To date, the level of metadata available for database users is not sufficient. Kuskokwim Area ADF&G staff provides general project descriptions, methods, and project year notes in the AYKDBMS. However, the AYKDBMS does not currently provide details regarding aging or methods to estimate ASL composition. Users of the database should review annual project reports or consult ADF&G staff for information regarding data collection and limitations.

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TABLES AND FIGURES

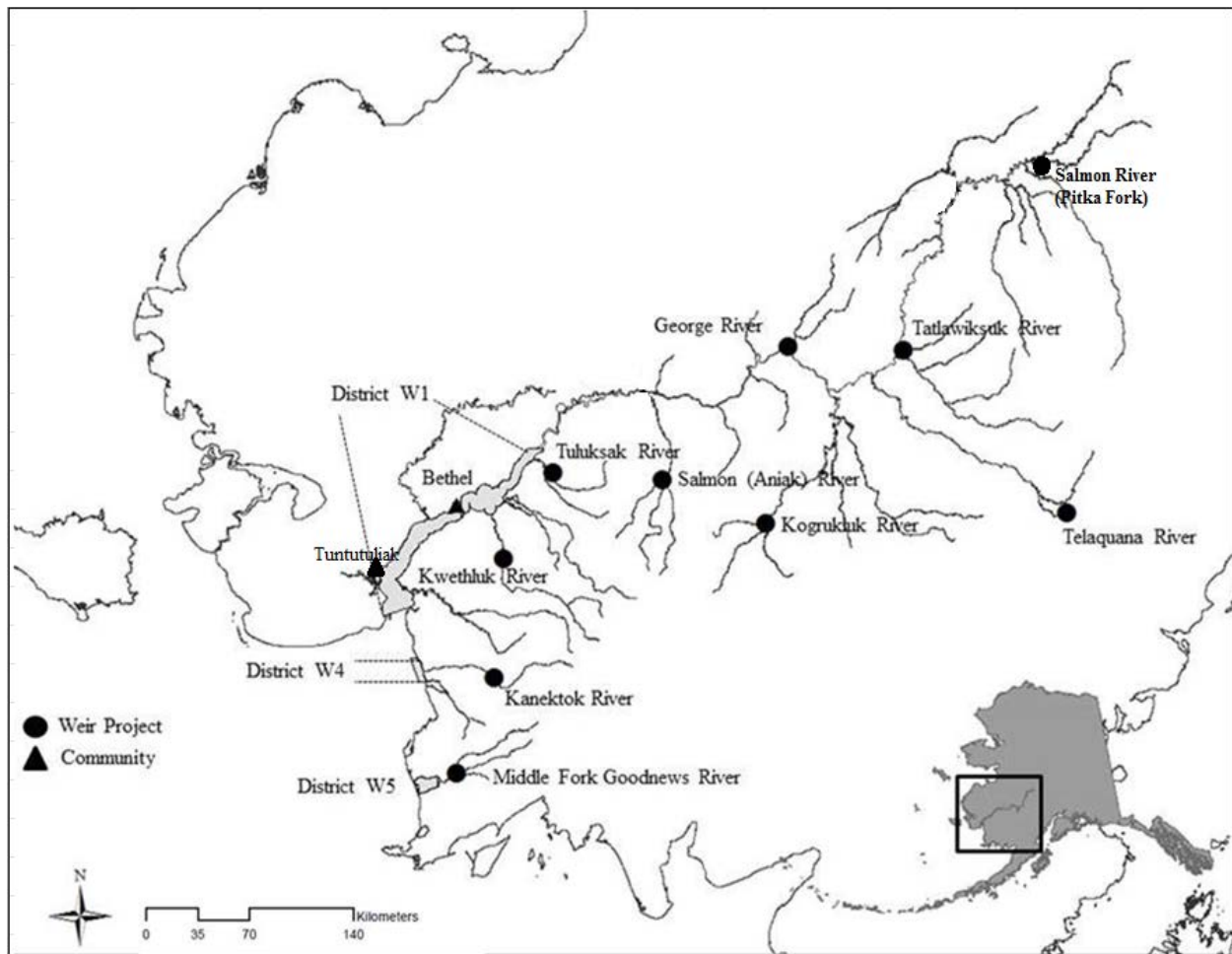


Figure 1.—Project locations where ASL data were collected in 2015.

Table 1.–Projects and salmon species for which age, sex, and length data were collected in 2015.

Project type	Location	River km	Species			
			Chinook	Sockeye	Chum	Coho
Commercial Catch	W1(Subdistrict 1)	- ^a				X
	W4 (Subdistrict 4)	- ^b	X	X	X	X
	W5 (Goodnews Bay Subdistrict)	- ^c	X	X	X	X
Test fishery	Bethel - subdistrict W1A (Above Bethel)	111	X			
Subsistence catch	Lower Kuskokwim River	- ^d	X			
Escapement	Goodnews River (Middle Fork)	- ^e	X	X	X	
	Kanektok River	- ^f	X	X	X	
	Kwethluk River ^g	216	X	X	X	X
	Tuluksak River ^g	248	X	X	X	X
	Salmon River (Aniak)	404	X		X	X
	Salmon River (Pitka Fork)	916	X			
	George River	453	X		X	X
	Tatlawiksuk River	568	X		X	X
	Kogrukluk River	710	X	X	X	X
	Telaquana River	772		X		

Note: "X" designates that samples were collected. All escapement projects were weirs. Harvest and test fisheries used gillnets of variable mesh size.

^a District W1 is located in the lower Kuskokwim River and extends from the southernmost tip of Eek Island to the Bogus Creek, a distance of 203 rkm.

^b District W4 consists of Kuskokwim Bay between the mouth of Weelung Creek and the Arolik River.

^c District W5 consists of Goodnews Bay.

^d The lower Kuskokwim river consists of all waters between the Kuskokwim Bay and the Village of Tuluksak and approximates District W1.

^e Flows into Goodnews Bay and District W5.

^f Flows into Kuskokwim Bay and District W4.

^g Data were collected and processed by U.S. Fish and Wildlife Service and are not presented in this report. Data will be added to the Arctic Yukon Kuskokwim Database Management System.

Table 2.—Reporting status and contact persons for salmon monitoring projects that collected ASL data from the Kuskokwim Area in 2015.

Project type and location	Report status	Contact person
Commercial catch		
W1 (Subdistrict 1)	No report ^a	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
W4 (Subdistrict 4)	No report ^a	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
W5 (Goodnews Bay Subdistrict)	No report ^a	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
Test fishery	Published ^b	Aaron Tiernan, Kuskokwim Area Commercial Fisheries Management Biologist, ADF&G, Anchorage, Alaska.
Subsistence catch		
Lower Kuskokwim River	In prep ^c	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
Escapement		
Goodnews River (Middle Fork)	Published	Aaron Tiernan, Assistant Kuskokwim Area Commercial Fisheries Management Biologist, ADF&G, Anchorage, Alaska.
Kanektok River	Published	Aaron Tiernan, Assistant Kuskokwim Area Commercial Fisheries Management Biologist, ADF&G, Anchorage, Alaska.
Kwethluk River	Published	Aaron Webber, U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge, Soldotna, Alaska
Tuluksak River	Published	Aaron Webber, U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge, Soldotna, Alaska
Salmon River (Aniak)	Published	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
Salmon River (Pitka Fork)	Published	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
George River	Published	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
Tatlawiksuk River	Published	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
Kogruluk River	Published	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.
Telaquana River	Published	Nick Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, Alaska.

^a No annual report has been designated. Methods followed guidelines presented in the salmon age, sex, and length catalog for the Kuskokwim Area, 2015.

^b Reporting for this project is included in the annual management report for the Kuskokwim Area.

^c Reporting for this project occurs every 4 years. This multi-year report is in draft form and on file with the funding agency.

Table 3.–Summary of Chinook salmon age, sex, and length sampling methods by project, 2015.

Project type	Location	Capture gear		Sample design		Length measurement	Sexing		Scales per fish		
		Gillnet ^a	Weir	Census ^b	Daily ^c	Grab ^d	Opportunistic ^e	Caliper	Straight edge ^f	External ^g	Internal ^h
Commercial catch	W4 (Subdistrict 4)	X				X		X		X	X
	W5 (Goodnews Bay Subdistrict)	X				X		X		X	X
Test Fishery	Bethel - subdistrict W1A (above Bethel)	X		X				X		X	X
Subsistence catch	Lower Kuskokwim River	X					X		X		X
Escapement	Goodnews River (Middle Fork)		X		X			X	X		X
	Kanektok River		X		X			X	X		X
	Salmon River (Aniak)		X		X			X	X		X
	Salmon River (Pitka Fork)		X		X			X	X		X
	George River		X		X			X	X		X
	Tatlawiksuk River		X		X			X	X		X
	Kogruklu River		X		X			X	X		X

Note: "X" designates the primary method used.

^a Includes a range of mesh sizes.

^b Intent was to sample all harvested fish.

^c Season sampling goal was stratified such that small numbers of samples were collected daily in proportion to historic run timing.

^d Target sample goals were collected opportunistically over a short period of time throughout the duration of the migration.

^e Samples were collected by self-selected subsistence fishermen who sampled opportunistically from their own harvest or the harvest of others.

Table 4.–Summary of chum salmon age, sex, and length sampling methods by project, 2015.

Project type	Location	Capture gear					Length measurement ^d	Sexing		Scales per fish
		Gillnet ^a	Weir	Daily ^b	Grab ^c	Caliper		External ^e	Internal ^f	
Commercial catch	W4 (Subdistrict 4)	X			X	X			X	X
	W5 (Goodnews Bay Subdistrict)	X			X	X			X	X
Escapement	Goodnews River (Middle Fork)		X	X			X	X		X
	Kanektok River		X	X			X	X		X
	Salmon River (Aniak)		X	X			X	X		X
	George River		X	X			X	X		X
	Tatlawiksuk River		X	X			X	X		X
	Kogruklu River		X	X			X	X		X

Note: "X" designates the primary method used.

^a Includes a range of mesh sizes.

^b Season sampling goal was stratified such that small numbers of samples were collected daily in proportion to historic run timing.

^c Target sample goals were collected opportunistically over a short period of time throughout the duration of the migration.

^d Includes a variety of straight-edge measuring devices such as fish cradles, meter sticks, and fish measuring boards.

^e Based on external sexual characteristics such as kype development, roundness of belly, and egg or milt secretion.

^f Abdominal cavity was cut and visually inspected for gonads.

Table 5.–Summary of sockeye salmon age, sex, and length sampling methods by project, 2015.

Project type	Location	Capture gear					Length measurement ^d	Sexing		Scales per fish	
		Gillnet ^a	Weir	Daily ^b	Grab ^c	Caliper		External ^e	Internal ^f	One	Three
Commercial catch	W4 (Subdistrict 4)	X			X	X			X	X	
	W5 (Goodnews Bay Subdistrict)	X			X	X			X	X	
Escapement	Goodnews River (Middle Fork)		X	X			X	X			X
	Kanektok River		X	X			X	X		X	
	Kogruklu River ^g		X	X			X	X			
	Telaquana River ^g		X	X			X	X			

Note: "X" designates the primary method used.

^a Includes a range of mesh sizes.

^b Season sampling goal was stratified such that small numbers of samples were collected daily in proportion to historic run timing.

^c Target sample goals were collected opportunistically over a short period of time throughout the duration of the migration.

^d Includes a variety of straight-edge measuring devices such as fish cradles, meter sticks, and fish measuring boards.

^e Based on external sexual characteristics such as kype development, roundness of belly, and egg or milt secretion.

^f Abdominal cavity was cut and visually inspected for gonads.

^g No scales collected.

Table 6.–Summary of coho salmon age, sex, and length sampling methods by project, 2015.

Project type	Location	Capture gear					Length measurement	Sexing	Scales per fish
		Gillnet ^a	Weir	Daily ^b	Grab ^c	Caliper			
Commercial catch	W1 (Subdistrict 1)	X			X	X			X
	W4 (Subdistrict 4)	X			X	X			X
	W5 (Goodnews Bay Subdistrict)	X			X	X			X
Escapement	Salmon River (Aniak)		X	X			X	X	X
	George River		X	X			X	X	X
	Kogrukluk River		X	X			X	X	X
	Tatlawiksuk River		X	X			X	X	X

Note: "X" designates the primary method used.

^a Includes a range of mesh sizes.

^b Season sampling goal was stratified such that small numbers of samples were collected daily in proportion to historic run timing.

^c Target sample goals were collected opportunistically over a short period of time throughout the duration of the migration.

^d Includes a variety of straight-edge measuring devices such as fish cradles, meter sticks, and fish measuring boards.

^e Based on external sexual characteristics such as kype development, roundness of belly, and egg or milt secretion.

^f Abdominal cavity was cut and visually inspected for gonads.

Table 7.–Minimum sample size requirements to estimate salmon age, sex, and length composition in 2015.

Species	Number categories ^a	Sample size ^b	Adjusted sample size ^c	Age classes ^d
Chinook	11	190	230	1.1, 1.2, 1.3, 1.4 and other
Sockeye	7	205	230	0.3, 1.2, 1.3, 2.2, 1.4, 2.3, and other
Chum	5	180	220	0.2, 0.3, 0.4, and 0.5
Coho	3	168	200	1.1, 2.1, and 3.1

Note: Minimum recommended sample sizes are shown. It is common for projects to increase sample size to accommodate specific project objectives or to accommodate uncertainty in salmon timing.

^a Age/sex categories.

^b From Bromaghin 1993, $\alpha = 0.05$, $d = 0.1$. Does not include correction for small population size.

^c Increased by approximately 20% to account for un-ageable scales.

^d Common age classes that make up at least 1% of historical average. Other category is comprised of all minor age classes which in aggregate generally account for <1% of historical average.

Table 8.—Recruitment of subsistence samplers by village, 2015.

Year	Section	Village	Flyer date ^b	Individual contact ^c	Training ^a		No. sampling packets distributed	No. of samples collected
					Date	No. of participants		
2015 th	Lower River	Kongiganak	5/27/2015	-	-	-	-	-
		Tuntutuliak	5/27/2015	2	-	-	-	19
		Eek	5/27/2015	2	-	-	-	-
		Kasigluk	5/27/2015	-	-	-	-	-
		Nunapitchuk	5/27/2015	-	-	-	-	-
		Atmauthluak	5/27/2015	-	-	-	-	-
		Napakiak	5/27/2015	2	-	-	-	-
		Napaskiak	5/27/2015	-	-	-	-	-
		Oscarville	5/27/2015	-	-	-	-	-
		Bethel ^d	-	1	6/9/2015	10	9	281
		Kwethluk	5/27/2015	1	-	-	-	-
		Akiachak	6/10/2015	-	-	-	-	-
		Akiak	5/27/2015	-	-	-	-	-
		Tuluksak	5/27/2015	2	-	-	-	-
	Middle River	Aniak	-	1	-	-	-	-

Note: Only villages that ADF&G was responsible for coordinating recruitment are shown. Lower Kuskokwim River subsistence fishery was managed by U.S. Fish and Wildlife Service. Season was characterized by severe fishing restrictions including lengthy fishing closures. Given a general lack of interest in participation, training was coordinated in Bethel rather than traveling to communities.

^a ADF&G traveled to villages to conduct hands-on age, sex, and length training.

^b Date recruitment flier was faxed or mailed to Tribal Council offices or similar community organization.

^c Number of individual subsistence fishermen contacted by ADF&G staff. Most were past samplers. Contact was made to solicit continued involvement and renew sampling materials as needed.

^d Recruitment effort was in addition to the extensive outreach and training conducted by Orutsaramuit Native Council.

Table 9.—Sample collections by community residents used to represent the age, sex, and length composition of Chinook salmon harvested in lower Kuskokwim River subsistence fishery, 2015.

Location	River km	Number of samplers	Harvests sampled ^a	Sample size ^b	Percent
Tuntutuliak	45	1	1	19	6.4%
Bethel	106	8	11	280	93.6%
Total		9	12	299	100.0%

^a Participants were encouraged to sample from as many households as possible.

^b Sample sizes include Chinook salmon whose age could not be determined.

Table 10.—Percent of samples collected by gillnet mesh size in the lower Kuskokwim River Chinook salmon subsistence fishery, 2015.

Mesh size ^a		Bethel (<i>n</i> = 280)	Tuntutuliak (<i>n</i> = 19)	Total (<i>n</i> = 299)
Small				
	4 inch	17.7%	0.0%	17.7%
	5.5 inch	18.7%	0.0%	18.7%
	5.63 inch	6.4%	0.0%	6.4%
	6 inch	48.2%	6.4%	54.5%
	Subtotal	91.0%	6.4%	97.3%
Unknown				
	Subtotal	2.7%	0.0%	2.7%
	Total	93.6%	6.4%	100.0%

Note: Sample sizes include Chinook salmon whose age could not be determined.

^a Drift and set gillnets combined.

Table 11.–Postseason stratification used to account for disproportionate sampling of Chinook salmon at age, sex, and length monitoring projects in the Kuskokwim Area, 2015.

Project location	Stratum	Sample size	Escapement / harvest	Stratum dates	Sample dates
W-4 Commercial	1	200	3,152	7/03-7/09	7/03
	2	102	4,395	7/10-8/24	7/10
W-5 Commercial	1	108	149	7/03-7/09	7/03
	2	90	556	7/10-8/14	7/10
Bethel Test Fishery ^a	5.4 inch	275			5/25-5/26, 5/29, 6/01-6/02, 6/04, 6/06-7/24, 7/26-7/27, 8/01-8/02, 8/04, 8/06
	8 inch	155			5/26, 5/28, 5/30-6/02, 6/04-6/24, 6/26, 6/28-7/07, 7/09, 7/11, 7/14-7/15
Subsistence catch	≤4 inch	40		5/30-6/13	5/30, 6/4, 6/11-6/13
	> 4 and ≤6 inch	189		6/10-6/30	6/10-6/15, 6/23-6/24, 6/30
	Unknown	6		6/13-6/15	6/13, 6/15
George River	1	45	442	6/16-7/03	6/24-7/03
	2	73	982	7/04-7/10	7/04-7/10
	3	56	858	7/11-9/04	7/11-18, 21, 23-28
Goodnews River Middle Fork ^a	1	111			6/29-7/12, 7/14-7/16, 7/18, 7/20-7/22, 7/25, 7/29-7/30
Kanektok River	1	55	831	6/23-7/07	6/28, 6/30-7/07
	2	69	2,467	7/08-7/17	7/08-7/17
	3	99	3,614	7/18-7/26	7/18-7/26
	4	51	2,425	7/27-8/04	7/27-7/31, 8/03
	5	37	1,079	8/05-8/15	8/05, 8/07-8/09
Kogruluk River	1	67	1,597	6/22-7/10	7/01-7/05, 7/07-7/09
	2	69	2,445	7/11-7/17	7/11-7/15
	3	89	4,039	7/18-9/17	7/20-7/25, 7/27, 7/29-8/01
Salmon River (Aniak)	1	70	745	6/21-7/16	7/07-7/08, 7/10-7/16
	2	37	990	7/17-7/25	7/17-7/20, 7/22-7/24
	3	42	669	7/26-8/27	7/27-8/07
Salmon River (Pitka Fork)	1	58	1,493	6/27-7/08	7/01-7/02, 7/04-7/07
	2	88	2,800	7/09-7/18	7/10-7/14, 7/16-7/17
	3	49	2,443	7/19-8/15	7/20-7/23, 7/25, 7/27-7/28
Tatlawiksuk River	1	31	131	6/21-7/01	6/29-6/30
	2	97	1,460	7/02-7/11	7/03-7/06, 7/08-7/11
	3	48	513	7/12-9/03	7/12-7/15, 7/17-7/18

Note: Disproportionate sampling was addressed postseason by stratifying the total escapement/harvest by the timing of sample collection. Stratum estimates were weighted by the proportion of the total escapement/harvest and combined to estimate the overall age and sex composition and mean length of the entire escapement/harvest.

^a Only a summary of the samples was generated for this project.

Table 12.–Postseason stratification used to account for disproportionate sampling of chum salmon at age, sex, and length monitoring projects in the Kuskokwim Area, 2015.

Project location	Stratum	Sample size	Escapement / harvest	Stratum dates	Sample dates
W-4 Commercial	1	94	1,167	7/03	7/03
	2	115	1,341	7/04-7/13	7/10
	3	130	13,543	7/14-8/24	7/17
W-5 Commercial	1	198	316	7/03	7/03
	2	212	728	7/4-7/10	7/10
	3	220	2,935	7/11-8/14	7/17-7/18
George River	1	82	1565	6/15-7/07	6/27-6/28, 7/02-7/06
	2	161	1466	7/08-7/13	7/08-7/13
	3	108	3509	7/14-7/19	7/14-7/18
	4	187	6519	7/20-7/29	7/21-7/27
	5	93	4492	7/30-9/14	7/31, 8/07-8/08
Goodnews River Middle Fork	1	89	3,376	6/25-7/17	7/03, 7/07, 7/09, 7/11, 7/14-7/16
	2	84	2,652	7/18-7/24	7/18, 7/20
	3	110	3,764	7/25-8/02	7/30-8/01
	4	162	1,725	8/03-8/31	8/04-8/08
Kanektok River	1	133	1,248	6/23-7/10	6/29-6/30, 7/04, 7/06-7/08
	2	192	2,783	7/11-7/18	7/11-7/18
	3	117	3,129	7/19-7/24	7/19-7/24
	4	142	4,475	7/25-8/01	7/25-7/31
	5	78	3,413	8/02-8/15	8/03, 8/05, 8/07-8/08
Kogrukuk River	1	119	1,659	6/22-7/10	7/01-7/04, 7/07-7/09
	2	144	2,662	7/11-7/17	7/11-7/15
	3	240	7,590	7/18-7/25	7/20-7/25
	4	99	10,887	7/26-8/02	7/27, 7/29-7/31, 8/01
	5	99	6,592	8/03-8/10	8/05-8/08, 8/10
	6	98	3,811	8/11-9/18	8/12, 8/14, 8/16-8/17
Salmon River (Aniak)	1	77	508	6/23-7/14	7/09-7/14
	2	135	1,242	7/15-7/20	7/15-7/19
	3	107	1,111	7/21-7/25	7/21-7/24
	4	151	1,223	7/26-7/31	7/26-7/31
	5	100	1,573	8/01-8/31	8/01-8/08
Tatlawiksuk River	1	59	2,601	6/18-7/09	6/30, 7/03, 7/06, 7/08-7/09
	2	82	1,835	7/10-7/13	7/10-7/13
	3	89	3,203	7/14-7/20	7/14-7/15, 7/17-7/18
	4	67	2,740	7/21-9/11	7/23, 8/02-8/06

Note: Disproportionate sampling was addressed postseason by stratifying the total escapement/harvest by the timing of sample collection. Stratum estimates were weighted by the proportion of the total escapement/harvest and combined to estimate the overall age and sex composition and mean length of the entire escapement/harvest.

Table 13.–Postseason stratification used to account for disproportionate sampling of sockeye salmon at age, sex, and length monitoring projects in the Kuskokwim Area, 2015.

Project location	Stratum	Sample size	Escapement/harvest	Stratum dates	Sample dates
W-4 Commercial	1	197	4,816	7/03	7/03
	2	155	6,139	7/04-7/13	7/10
	3	199	19,314	7/14-8/24	7/17
W-5 Commercial	1	216	2,428	7/03	7/03
	2	210	6,967	7/04-7/13	7/10
	3	204	16,466	7/15-8/14	7/17
Goodnews River Middle Fork ^a	1	425			6/27-6/28, 6/30-7/03, 7/05, 7/07-7/09, 7/11, 8/01
Kanektok River	1	106	8,608	6/22-7/05	6/28, 6/30-7/02, 7/04
	2	130	10,563	7/06-7/10	7/06-7/10
	3	129	29,667	7/11-7/16	7/11-7/16
	4	89	19,548	7/17-7/21	7/17-7/20
	5	128	38,365	7/22-8/15	7/23-7/30
Kogruluk River ^{ab}	1	105			7/03, 7/08, 7/12, 7/21-7/22, 7/24-7/25, 7/27, 7/29-8/01, 8/03-8/08, 8/10, 8/12
Telaquana River	1	63	8,710	7/09-7/17	7/13-7/17
	2	82	28,392	7/18-7/23	7/18-7/22
	3	66	31,830	7/24-7/28	7/24-7/28
	4	81	26,584	7/29-8/26	7/29-8/07

Note: Disproportionate sampling was addressed postseason by stratifying the total escapement/harvest by the timing of sample collection. Stratum estimates were weighted by the proportion of the total escapement/harvest and combined to estimate the overall age and sex composition and mean length of the entire escapement/harvest.

^a Only a summary of the samples was generated for this project.

^b No scales taken.

Table 14.–Postseason stratification used to account for disproportionate sampling of coho salmon at age, sex, and length monitoring projects in the Kuskokwim Area, 2015.

Project location	Stratum	Sample size	Escapement/ harvest	Stratum dates	Sample dates
W-1B Commercial	1	171	50,979	8/10-8/17	8/10
	2	178	14,055	8/21	8/21
W-4 Commercial	1	174	37,300	7/22-8/14	8/10
	2	179	38,985	8/17-8/24	8/21
W-5 Commercial	1	171	7,030		8/10
George River	1	101	3,040	7/25-8/23	8/13-8/19, 8/22-8/23
	2	84	9,969	8/24-8/27	8/24-8/27
	3	89	3,933	8/28-9/03	8/28-8/29, 8/31-9/03
	4	73	13,607	9/04-9/10	9/04-9/05, 9/07, 9/09
	5	53	5,263	9/11-9/20	9/11-9/13
Kogruklu River	1	99	3,038	7/26-8/29	8/17, 8/19-8/21, 8/24-8/26
	2	93	15,570	8/30-9/06	9/01, 9/03-9/06
	3	66	10,056	9/07-9/13	9/09-9/10, 9/12-9/13
	4	93	3,829	9/14-9/25	9/15-9/22
Salmon River (Aniak) ^a	1	9			8/13-8/14
Tatlawiksuk River	1	43	1,329	7/23-8/13	8/04-8/06, 8/10-8/12
	2	78	3,156	8/14-8/18	8/14-8/18
	3	88	3,492	8/19-8/24	8/20-8/24
	4	54	5,195	8/25-8/30	8/25-8/27
	5	69	4,529	8/31-9/20	8/31-9/02, 9/09

Note: Disproportionate sampling was addressed postseason by stratifying the total escapement/harvest by the timing of sample collection. Stratum estimates were weighted by the proportion of the total escapement/harvest and combined to estimate the overall age and sex composition and mean length of the entire escapement/harvest.

^a Sample size was not sufficient to stratify and apply to escapement. Only a summary of the samples was generated for this project.

Table 15.–Summary of Chinook salmon age, sex, and length samples collected from Kuskokwim Area projects, 2015.

Project type	Location	Age samples	Number aged	Number sexed	Number lengths
Commercial catch	W4 (Subdistrict 4)	334	302	334	334
	W5 (Goodnews Bay Subdistrict)	217	198	217	217
Test fishing	Bethel - subdistrict W1A (Above Bethel)	477	431	476	476
Subsistence catch	Lower Kuskokwim River	287	258	270	279
Escapement	George River	191	174	192	192
	Goodnews River (Middle Fork)	123	115	121	121
	Kanektok River	351	311	355	355
	Kogruklu River	245	225	246	246
	Salmon River (Aniak)	157	149	157	157
	Salmon River (Pitka Fork)	229	195	229	229
	Tatlawiksuk River	209	176	209	209
Totals		2,820	2,534	2,806	2,815

Table 16.–Summary of chum salmon age, sex, and length samples collected from Kuskokwim Area projects, 2015.

Project type	Location	Age samples	Number aged	Number sexed	Number lengths
Commercial catch	W4 (Subdistrict 4)	350	339	350	350
	W5 (Goodnews Bay Subdistrict)	650	630	641	641
Escapement	George River	643	631	643	643
	Goodnews River (Middle Fork)	487	445	487	487
	Kanektok River	662	662	662	662
	Kogrukluk River	817	799	817	817
	Salmon River (Aniak)	581	570	581	581
	Tatlawiksuk River	315	297	315	315
Totals		4,505	4,373	4,496	4,496

Table 17.–Summary of sockeye salmon age, sex, and length samples collected from Kuskokwim Area projects, 2015.

Project type	Location	Age samples	Number aged	Number sexed	Number lengths
Commercial catch	W4 (Subdistrict 4)	640	552	640	641
	W5 (Goodnews Bay Subdistrict)	710	649	690	710
Escapement	Goodnews River (Middle Fork)	454	425	454	454
	Kanektok River	700	582	700	700
	Kogrukluk River	0	0	105	105
	Telaquana River	0	0	292	292
Totals		2,504	2,208	2,881	2,902

Table 18.–Summary of coho salmon age, sex, length samples collected from Kuskokwim Area projects in 2015.

Project type	Location	Age samples	Number aged	Number sexed	Number lengths
Commercial catch	W1 (Subdistrict 1)	399	349	399	399
	W4 (Subdistrict 4)	400	353	400	400
	W5 (Goodnews Bay Subdistrict)	199	171	200	200
Escapement	George River	438	400	439	439
	Kogrukluk River	384	351	384	384
	Salmon River (Aniak)	9	9	9	9
	Tatlawiksuk River	392	332	392	392
Totals		2,221	1,965	2,223	2,223

Table 19.—Aging errors for Chinook salmon scale samples collected in the Kuskokwim Management Area, 2015.

Project type	Location	Age samples	Number age errors	% Age errors	Resorbed ^a	Illegible ^b	Missing ^c	Regenerated ^d	Wrong species ^e	Not preferred ^f
Commercial catch	W4 (Subdistrict 4)	334	32	10%		1		31		
	W5 (Goodnews Bay Subdistrict)	217	19	9%				19		
Subsistence catch	Lower Kuskokwim River	288	30	10%	1	4		24	1	
Escapement	George River	191	17	9%	2	2	1	12		
	Goodnews River (Middle Fork)	123	8	7%	2			6		
	Kanektok River	352	41	12%	2	7		31	1	
	Kogrukluk River	245	21	9%			1	20		
	Salmon River (Aniak)	157	8	5%	2			6		
	Salmon River (Pitka Fork)	229	34	15%		1	1	32		
	Tatlawiksuk River	209	33	16%	4	1		28		
Test fishery	Bethel - subdistrict W1A (Above Bethel)	477	47	10%		2	2	42		1
Totals		2,822	290	10%	13	18	5	251	2	1

Note: More than 1 age error may apply to a single scale. Age samples includes wrong species.

^a Resorbed scales show deterioration along the outer edge and are missing age information necessary to estimate saltwater age.

^b Illegible scales have debris or scratches on the gummed card or acetate that obscure the circuli.

^c Missing scales were collected but fell off of the gummed card before an impression was made.

^d Regenerated scales have a missing or inadequate age information near the center inhibiting estimation of freshwater age. As a general rule, scales with an area of regeneration > 10 mm in diameter were not aged. Regenerated scales presented in this table are the sum of age error codes 3 and 9 as reported in the AYKDBMS.

^e Wrong Species are scales collected from another species other than what was labeled on the gummed card.

^f Scale was not taken from the "preferred area" on fish, which can affect quality and ageability.

Table 20.—Aging errors for chum salmon scale samples collected in the Kuskokwim Management Area, 2015.

Project type	Location	Age samples	Number age errors	% Age errors	Resorbed ^a	Illegible ^b	Inverted ^c	Missing ^d	Regenerated ^e	Wrong species ^f
Commercial Catch	W4 (Subdistrict 4)	350	11	3%				2	9	
	W5 (Goodnews Bay Subdistrict)	650	20	3%			1		10	9
Escapement	George River	643	12	2%	1	4	1	3	3	
	Goodnews River (Middle Fork)	487	42	9%	1	5	3	4	29	
	Kanektok River	662	0	0%						
	Kogruklu River	817	18	2%	2	1	2	2	11	
	Salmon River (Aniak)	581	11	2%			1	1	9	
	Tatlawiksuk River	315	18	6%			7		11	
Totals		4,505	132	3%	4	10	15	12	82	9

Note: More than 1 age error may apply to a single scale. Age samples includes wrong species.

^a Resorbed scales show deterioration along the outer edge and are missing age information necessary to estimate saltwater age.

^b Illegible scales have debris or scratches on the gummed card or acetate that obscure the circuli.

^c Inverted scales are mounted on the gummed card so that their circuli are facing the gummed paper, and an impression cannot be made.

^d Missing scales were collected, but fell off of the gummed card before an impression was made.

^e Regenerated scales have a missing or inadequate age information near the center inhibiting estimation of freshwater age. As a general rule, scales with an area of regeneration > 10 mm in diameter were not aged. Regenerated scales presented in this table are the sum of age error codes 3 and 9 as reported in the AYKDBMS.

^f Wrong species are scales collected from another species other than what was labeled on the gummed card.

Table 21.—Aging errors for sockeye salmon scale samples collected in the Kuskokwim Management Area, 2015.

Project type	Location	Age samples	Number age errors	% Age errors	Resorbed ^a	Illegible ^b	Inverted ^c	Missing ^d	Regenerated ^e	Wrong species ^f
Commercial Catch	W4 (Subdistrict 4)	643	91	14%	3		2		83	3
Escapement	W5 (Goodnews Bay Subdistrict)	710	61	9%	5				56	
	Goodnews River (Middle Fork)	454	29	6%	1			1	27	
	Kanektok River	700	118	17%	18	4	10	7	79	
Totals		2,507	299	12%	27	4	12	8	245	3

Note: More than 1 age error may apply to a single scale. Age samples includes wrong species.

^a Resorbed scales show deterioration along the outer edge and are missing age information necessary to estimate saltwater age.

^b Illegible scales have debris or scratches on the gummed card or acetate that obscure the circuli.

^c Inverted scales are mounted on the gummed card so that their circuli are facing the gummed paper, and an impression cannot be made.

^d Missing scales were collected, but fell off of the gummed card before an impression was made.

^e Regenerated scales have a missing or inadequate age information near the center inhibiting estimation of freshwater age. As a general rule, scales with an area of regeneration >10 mm in diameter were not aged. Regenerated scales presented in this table are the sum of age error codes 3 and 9 as reported in the AYKDBMS.

^f Wrong species are scales collected from another species other than what was labeled on the gummed card.

Table 22.—Aging errors for coho salmon scale samples collected in the Kuskokwim Management Area, 2015.

Project type	Location	Age samples	Number age errors	% Age errors	Illegible ^a	Inverted ^b	Regenerated ^c	Wrong species ^d
Commercial catch	W1 (Subdistrict 1)	400	51	13%			50	1
	W4 (Subdistrict 4)	400	47	12%	2		45	
Escapement	W5 (Goodnews Bay Subdistrict)	199	28	14%			28	
	George River	438	38	9%	2	1	35	
	Kogruklu River	384	33	9%	1		32	
	Salmon River (Aniak)	9	0	0%				
	Tatlawiksuk River	392	60	15%	5	4	51	
Totals		2,222	257	12%	10		241	1

Note: More than 1 age error may apply to a single scale. Age samples includes wrong species.

^a Illegible scales have debris or scratches on the gummed card or acetate that obscure the circuli.

^b Inverted scales are mounted on the gummed card so that their circuli are facing the gummed paper, and an impression cannot be made.

^c Regenerated scales have a missing or inadequate age information near the center inhibiting estimation of freshwater age. As a general rule, scales with an area of regeneration >10 mm in diameter were not aged. Regenerated scales presented in this table are the sum of age error codes 3 and 9 as reported in the AYKDBMS.

^d Wrong species, are scales collected from another species other than what was labeled on the gummed card.

Table 23.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon harvested in the District W4 (Subdistrict 4) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

		Brood year (age)																
		2012		2011		2010		2010		2009		2009		2008				
Sample		1.1		1.2		0.4		1.3		1.4		2.3		1.5		Total		
Sample dates	size	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
7/03, 7/10	302	Male	482	6.4	4,642	61.5	0	0.0	950	12.6	122	1.6	16	0.2	0	0.0	6,212	82.3
		Female	0	0.0	0	0.0	43	0.6	715	9.5	545	7.2	0	0.0	32	0.4	1,335	17.7
		Total	482	6.4	4,642	61.5	43	0.6	1,665	22.1	667	8.8	16	0.2	32	0.4	7,547	100.0
		95% CI (± %)	3.3		6.1		1.1		5.3		3.7		0.4		0.6		0.1	
		Male Mean Length	403		568		-		735		820		700		-			
		SE	11.46		4		-		14		16		0		-			
		Range	358-461		424-723		-		595-877		775-911		700-700		-			
		n	15		194		-		36		6		1		-			
		Female Mean Length	-		-		848		776		827		-		845			
		SE	-		-		-		10		27		-		76			
		Range	-		-		848-848		697-834		592-955		-		769-920			
		n	-		-		1		28		19		-		2			

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 24.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon harvested in the District W5 (Subdistrict 5) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

Sample dates	Sample size		Brood year (age)								Total	
			2012		2011		2010		2009			
			1.1		1.2		1.3		1.4		N	%
7/3, 7/10	198	Male	1	0.2	506	71.7	138	19.6	21	3.0	666	94.5
		Female	0	0.0	1	0.2	25	3.5	12	1.8	39	5.5
		Total	1	0.2	507	71.9	163	23.1	34	4.8	705	100.0
		95% CI (± %)		0.2		6.7		6.2		3.4		0.1
		Male Mean Length	462		578		722		796			
	SE	-		5		13		17				
	Range	462-462		461-733		627-853		650-855				
	n	1		137		41		5				
	Female Mean Length	-		644		760		810				
	SE	-		-		28		47				
	Range	-		644-644		680-818		763-856				
	n	-		1		11		2				

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 25.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon harvested in the Bethel test fishery by gillnet mesh size, 2015.

Mesh size	Sample size		Brood year (age)														Total	
			2011		2010		2010		2010		2009		2009		2008		2008	
			1.2		0.4		1.3		2.2		1.4		2.3		1.5		2.4	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
5.375 inch	275	Male	198	72.0	0	0.0	36	13.1	1	0.4	13	4.7	0	0.0	0	0.0	0	0.0
		Female	1	0.4	0	0.0	8	2.9	0	0.0	17	6.2	0	0.0	1	0.4	0	0.0
		Subtotal	199	72.4	0	0.0	44	16.0	1	0.4	30	10.9	0	0.0	1	0.4	0	0.0
		Male Mean Length	555		-		690		556		801		-		-		-	
		SE	3		-		9		-		22		-		-		-	
		Range	456-673		-		521-770		556-556		674-1025		-		-		-	
		n	198		-		36		1		13		-		-		-	
		Female Mean Length	638		-		775		-		806		-		1001		-	
		SE	-		-		27		-		13		-		-		-	
		Range	-		-		651-870		-		704-921		-		-		-	
		n	1		-		8		-		17		-		1		-	
8 inch	155	Male	17	11.0	1	0.6	44	28.4	0	0.0	29	18.7	1	0.6	1	0.6	0	0.0
		Female	0	0.0	0	0.0	19	12.3	0	0.0	41	26.5	0	0.0	1	0.6	1	0.6
		Subtotal	17	11.0	1	0.6	63	40.6	0	0.0	70	45.2	1	0.6	2	1.3	1	0.6
		Male Mean Length	597		760		744		-		801		733		768		-	
		SE	13		-		9		-		12		-		-		-	
		Range	503-688		760-760		603-974		-		711-944		733-733		768-768		-	
		n	17		1		44		-		29		1		1		-	
		Female Mean Length	-		-		768		-		851		-		953		765	
		SE	-		-		8		-		7		-		-		-	
		Range	-		-		698-824		-		763-980		-		-		765-765	
		n	-		-		19		-		41		-		1		1	
Total All Mesh Combined	430	Male	215	50.0	1	0.2	80	18.6	1	0.2	42	9.8	1	0.2	1	0.2	0	0.0
		Female	1	0.2	0	0.0	27	6.3	0	0.0	58	13.5	0	0.0	2	0.5	1	0.2
		Total	216	50.2	1	0.2	107	24.9	1	0.2	100	23.3	1	0.2	3	0.7	1	0.2
		Male Mean Length	559		760		720		556		801		733		768		-	
		SE	3		-		7		-		11		-		-		-	
		Range	456-688		760-760		521-974		556-556		674-1025		733-733		768-768		-	
		n	215		1		80		1		42		1		1		-	
		Female Mean Length	638		-		770		-		838		-		977		765	
		SE	-		-		9		-		7		-		24		-	
		Range	-		-		651-870		-		704-980		-		953-1001		-	
		n	1		-		27		-		58		-		2		1	

Note: ASL samples were not applied to the total harvest. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 26.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon harvested in the lower Kuskokwim River subsistence gillnet fishery, 2015.

			Brood year (age)																Total	
			2011		2012		2011		2011		2010		2009		2009		2008			
			0.2		1.1		1.2		2.1		1.3		1.4		2.3		1.5		N	%
Sample dates	Sample size		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
5/30, 6/04, 6/10-6/15, 6/23-6/24, 6/30	235	Male	0	0.0	3	1.3	64	27.2	1	0.4	48	20.4	25	10.6	3	1.3	0	0.0	144	61.3
		Female	1	0.4	0	0.0	11	4.7	0	0.0	38	16.2	40	17.0	0	0.0	1	0.4	91	38.7
		Total	1	0.4	3	1.3	75	31.9	1	0.4	86	36.6	65	27.7	3	1.3	1	0.4	235	100.0
		Male Mean Length	-		494		547		373		677		763		625		-			
		SE	-		105		9		-		15		24		62		-			
		Range	-		375-704		309-710		-		408-910		490-920		500-694		-			
		n	-		3		64		1		48		25		3		-			
		Female Mean Length	560		-		603		-		751		822		-		802			
		SE	-		-		36		-		10		9		-		-			
		Range	-		-		401-809		-		590-870		607-910		-		-			
		n	1		-		11		-		38		39		-		1			

Note: Sample summary includes the samples collected from the communities of Tuntutuliak and Bethel. Samples were collected by subsistence fishermen who sampled their own harvests or the harvests of others. Samples were from gillnets with known mesh sizes. Known mesh sizes ranged from 4.0 to 6.0 inches. ASL samples were not applied to the total harvest. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 27.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon harvested in the lower Kuskokwim River subsistence fishery by gillnet mesh size, 2015.

Sample dates	Sample size		Brood year (age)																Total	
			2012		2012		2011		2011		2010		2009		2009		2008			
			0.2		1.1		1.2		2.1		1.3		1.4		2.3		1.5		N	%
5/30, 6/04, 6/11-6/13 (4 inch mesh)	40	Male	0	0.0	1	2.5	15	37.5	1	2.5	13	32.5	4	10.0	1	2.5	0	0.0	35	87.5
		Female	0	0.0	0	0.0	0	0.0	0	0.0	4	10.0	1	2.5	0	0.0	0	0.0	5	12.5
		Subtotal	0	0.0	1	2.5	15	37.5	1	2.5	17	42.5	5	12.5	1	2.5	0	0.0	40	100.0
		Male Mean Length	-		375		517		373		585		801		500		-			
		SE	-		-		25		-		33		35		-		-			
		Range	-		-		309-710		-		408-790		702-851		-		-			
		n	-		1		15		1		13		4		1		-			
		Female Mean Length	-		-		-		-		679		838		-		-			
		SE	-		-		-		-		53		-		-		-			
		Range	-		-		-		-		590-815		-		-		-			
		n	-		-		-		-		4		1		-		-			
6/10-6/15, 6/23-6/24, 6/30 (5, 5.625, 6 inch mesh)	189	Male	0	0.0	2	1.1	48	25.4	0	0.0	33	17.5	21	11.1	2	1.1	0	0.0	106	56.1
		Female	1	0.5	0	0.0	11	5.8	0	0.0	32	16.9	38	20.1	0	0.0	1	0.5	83	43.9
		Subtotal	1	0.5	2	1.1	59	31.2	0	0.0	65	34.4	59	31.2	2	1.1	1	0.5	189	100.0
		Male Mean Length	-		553		556		-		708		756		687		-			
		SE	-		151		8		-		12		27		7		-			
		Range	-		402-704		403-709		-		570-910		490-920		680-694		-			
		n	-		2		48		-		33		21		2		-			
		Female Mean Length	560		-		603		-		758		820		-		802			
		SE	-		-		36		-		9		10		-		-			
		Range	-		-		401-809		-		620-870		607-910		-		-			
		n	1		-		11		-		32		37		-		1			

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			Brood year (age)																Total	
			2012		2012		2011		2011		2010		2009		2009		2008			
			0.2		1.1		1.2		2.1		1.3		1.4		2.3		1.5			
			N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Sample dates	Sample size																			
6/13, 6/15	6	Male	0	0.0	0	0.0	1	16.7	0	0.0	2	33.3	0	0.0	0	0.0	0	0.0	3	50.0
(Unknown mesh)		Female	0	0.0	0	0.0	0	0.0	0	0.0	2	33.3	1	16.7	0	0.0	0	0.0	3	50.0
		Subtotal	0	0.0	0	0.0	1	16.7	0	0.0	4	66.7	1	16.7	0	0.0	0	0.0	6	100.0
		Male Mean Length	-		-		570		-		775		-		-		-			
		SE	-		-		-		-		15		-		-		-			
		Range	-		-		-		-		760-790		-		-		-			
		n	-		-		1		-		2		-		-		-			
		Female Mean Length	-		-		-		-		785		870		-		-			
		SE	-		-		-		-		35		-		-		-			
		Range	-		-		-		-		750-820		-		-		-			
		n	-		-		-		-		2		1		-		-			

Note: Sample summary includes the samples collected from the communities of Tuntutuliak and Bethel. Samples were collected by subsistence fishermen who sampled their own harvests or the harvests of others. Samples were from gillnets with known mesh sizes. Known mesh sizes ranged from 4.0 to 6.0 inches. ASL samples were not applied to the total harvest. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 28.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at the Goodnews River (Middle Fork) weir, 2015.

Sample dates	Sample size		Brood year (age)								Total	
			2012		2011		2010		2009			
			1.1		1.2		1.3		1.4		N	%
6/29-7/12, 7/14-7/16, 7/18, 7/20-7/22, 7/25, 7/29-7/30	111	Male	4	3.6	62	55.9	13	11.7	1	0.9	80	72.1
		Female	0	0.0	3	2.7	4	3.6	24	21.6	31	27.9
		Total	4	3.6	65	58.6	17	15.3	25	22.5	111	100.0
		Male Mean Length	364		553		732		770			
		SE	10		7		21		-			
		Range	342-388		404-676		634-834		-			
		n	4		62		13		1			
		Female Mean Length	-		579		752		838			
		SE	-		7		30		11			
		Range	-		567-590		672-818		743-938			
		n	-		3		4		24			

Note: ASL samples were not applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 29.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at the Kanektok River weir, 2015.

Sample dates	Sample size		Brood year (age)										Total	
			2012		2011		2010		2009		2008			
			1.1		1.2		1.3		1.4		1.5		N	%
6/28, 6/30-7/31, 8/03, 8/05, 8/07-8/09	311	Male	948	9.1	5,022	48.2	1,462	14.0	255	2.4	0	0.0	7,687	73.8
		Female	0	0.0	342	3.3	823	7.9	1,549	14.9	15	0.1	2,729	26.2
		Total	948	9.1	5,364	51.5	2,285	21.9	1,804	17.3	15	0.1	10,416	100.0
		95% CI (± %)		3.3		5.7		4.7		4.3		0.3		0.1
		Male Mean Length	393		570		747		839		-			
		SE	6		5		10		22		-			
		Range	317-477		400-700		623-876		762-940		0-0			
		n	27		147		45		7		-			
		Female Mean Length	-		577		789		839		910			
		SE	-		28		10		7		0			
		Range	0-0		476-677		669-888		725-932		910-910			
		n	-		10		27		47		1			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 30.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at the Salmon River (Aniak) weir, 2015.

Sample dates	Sample size		Brood year (age)										Total	
			2012		2011		2010		2009		2009			
			1.1		1.2		1.3		1.4		2.3		N	%
7/07-7/08, 7/10-7/16, 7/27-8/07	149	Male	32	1.3	1,322	55.0	533	22.2	230	9.6	0	0.0	2,116	88.0
		Female	0	0.0	0	0.0	37	1.6	240	10.0	11	0.4	288	12.0
		Total	32	1.3	1,322	55.0	570	23.7	470	19.5	11	0.4	2,404	100.0
		95% CI (± %)		1.8		8.4		6.9		6.9		0.8		0.2
		Male Mean Length	447		528		675		781		-			
		SE	2		8		12		25		-			
		Range	445-449		426-676		520-794		644-884		-			
		n	2		80		37		12		-			
		Female Mean Length	-		-		748		834		800			
		SE	-		-		-		14		-			
		Range	-		-		737-776		770-900		-			
		n	-		-		2		15		1			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 31.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at the George River weir, 2015.

		Brood year (age)										
		2012		2011		2010		2009		Total		
		1.2		1.3		2.2		1.4				
Sample dates	Sample size	N	%	N	%	N	%	N	%	N	%	
6/24-7/18, 7/21, 7/23-7/28	174	Male	39	1.7	1,115	48.8	385	16.9	189	8.3	1,727	75.7
		Female	0	0.0	31	1.3	108	4.7	417	18.3	555	24.3
		Total	39	1.7	1,145	50.2	493	21.6	606	26.5	2,282	100.0
		95% CI (± %)		1.9		7.3		5.9		6.5		0.2
		Male Mean Length	362		523		704		814			
	SE	0		6		11		26				
	Range	340-383		413-668		594-839		624-975				
	n	3		86		31		14				
	Female Mean Length	-		482		791		847				
	SE	-		39		19		7				
	Range	-		443-520		715-847		724-926				
	n	-		2		8		30				

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 32.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at the Tatlawiksuk River weir, 2015.

			Brood year (age)						Total	
			2011		2010		2009			
			1.2		1.3		1.4			
Sample dates	Sample size		N	%	N	%	N	%	N	%
6/29-6/30, 7/03-7/06, 7/08-7/15, 7/17-7/18	176	Male	780	37.1	680	32.3	82	3.9	1,542	73.3
		Female	34	1.6	361	17.1	167	7.9	562	26.7
		Total	815	38.7	1,040	49.5	249	11.8	2,104	100.0
		95% CI (± %)		7.3		7.5		4.9		0.2
		Male Mean Length	541		683		856			
		SE	5		8		33			
		Range	477-670		523-812		727-949			
		n	66		58		6			
		Female Mean Length	654		709		816			
		SE	51		14		20			
		Range	601-720		527-861		690-915			
		n	3		29		14			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 33.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at Kogruklu River weir, 2015.

Sample dates	Sample size		Brood year (age)						Total	
			2011		2010		2009			
			1.2		1.3		1.4		N	%
7/01-7/05, 7/09, 7/11-7/15, 7/20-7/25, 7/27, 7/29-7/31, 8/1	225	Male	4,714	58.3	2,068	25.6	83	1.0	6,865	84.9
		Female	0	0.0	676	8.4	541	6.7	1,216	15.1
		Total	4,714	58.3	2,743	33.9	624	7.7	8,081	100.0
		95% CI (± %)		6.6		6.3		3.6		0.1
		Male Mean Length	558		686		873			
		SE	5		9		34			
		Range	426-693		540-847		791-911			
		n	129		59		3			
		Female Mean Length	-		760		885			
		SE	-		16		9			
		Range	-		545-877		789-937			
		n	-		20		14			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 34.—Age-sex composition and mean length (mm) of Kuskokwim Area Chinook salmon sampled at the Salmon River (Pitka Fork) weir, 2015.

Sample dates	Sample size		Brood year (age)								Total	
			2011		2010		2009		2008			
			1.2		1.3		1.4		1.5		N	%
7/01-7/02, 7/04-7/07, 7/10-7/14, 7/16-7/17, 7/20-7/23, 7/25, 7/27-7/28	195	Male	1,430	21.2	1,521	22.6	1,194	17.7	100	1.5	4,245	63.0
		Female	58	0.9	711	10.6	1,722	25.6	0	0.0	2,491	37.0
		Total	1,487	22.1	2,233	33.1	2,916	43.3	100	1.5	6,736	100.0
		95% CI (± %)		6.1		6.7		7.1		2.0		0.2
		Male Mean Length	544		705		818		882			
		SE	5		12		11		34			
		Range	489-624		517-899		620-946		848-915			
		n	37		45		37		2			
		Female Mean Length	514		743		794		-			
		SE	-		13		7		-			
		Range	505-521		630-855		672-897		-			
		n	2		22		50		-			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 35.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon harvested in the District W4 (Subdistrict 4) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

		Sample	Brood year (age)								Total	
			2012		2011		2010		2009			
			0.2		0.3		0.4		0.5		N	%
Sample dates	size		N	%	N	%	N	%	N	%	N	%
7/3, 7/10, 7/17	339	Male	233	1.5	7,519	46.8	1,224	7.6	25	0.2	9,001	56.1
		Female	12	0.1	5,847	36.4	1,180	7.4	12	0.1	7,050	43.9
		Total	245	1.5	13,365	83.3	2,404	15.0	37	0.2	16,051	100.0
		95% CI (± %)		1.8		5.2		5.0		0.2		0.3
		Male Mean Length	499		566		601		594			
		SE	5		3		6		0			
		Range	491-529		509-633		559-659		594-594			
		n	4		143		40		2			
		Female Mean Length	513		546		557		580			
		SE	-		3		5		-			
		Range	-		502-607		523-614		-			
		n	1		119		29		1			

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 36.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon harvested in the District W5 (Subdistrict 5) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

			Brood year (age)								Total	
			2012		2011		2010		2009			
			Sample dates	Sample size	N	%	N	%	N	%	N	%
7/3, 7/10, 7/17-7/18	630	Male	331	7.3	2,403	53.3	548	12.2	52	1.2	3,334	73.9
		Female	37	0.8	844	18.7	254	5.6	42	0.9	1,176	26.1
		Total	368	8.1	3,247	72.0	802	17.8	94	2.1	4,510	100.0
		95% CI (± %)		2.8		4.4		3.6		1.3		0.1
		Male Mean Length	532		563		581		585			
		SE	5		2		4		12			
		Range	472-586		482-652		525-658		555-644			
		n	37		311		105		14			
		Female Mean Length	537		550		567		585			
		SE	7		2		4		24			
		Range	527-556		497-601		514-614		546-621			
		n	4		109		44		6			

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 37.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon sampled at the Goodnews River (Middle Fork) weir, 2015.

		Brood year (age)										
		2012		2011		2010		2009				
Sample dates	Sample size	0.2		0.3		0.4		0.5		Total		
		N	%	N	%	N	%	N	%	N	%	
7/03, 7/07, 7/09, 7/11, 7/14-7/16, 7/18, 7/20, 7/30-8/1, 8/04-8/08	445	Male	575	5.0	4,634	40.2	1,871	16.2	0	0.0	7,080	61.5
		Female	211	1.8	3,116	27.1	1,078	9.4	32	0.3	4,437	38.5
		Total	787	6.8	7,750	67.3	2,949	25.6	32	0.3	11,517	100.0
		95% CI (± %)		2.3		4.8		4.4		0.5		0.1
		Male Mean Length	549		574		590				-	
		SE	5		2		4		-			
		Range	500-604		460-652		494-679		-			
		n	26		193		65		-			
		Female Mean Length	524		549		561		562			
		SE	9		3		6		0			
		Range	488-571		420-612		486-629		-			
		n	11		115		34		1			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 38.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon sampled at the Kanektok River weir, 2015.

		Brood year (age)										
		2012		2011		2010		2009		Total		
		0.2		0.3		0.4		0.5				
Sample dates	Sample size	N	%	N	%	N	%	N	%	N	%	
6/29-6/30, 7/04, 7/06-7/08, 7/11-7/31, 8/03, 8/05, 8/07-8/08	662	Male	111	0.7	5,713	38.0	1,993	13.2	57	0.4	7,875	52.3
		Female	145	1.0	5,647	37.5	1,345	8.9	36	0.2	7,173	47.7
		Total	257	1.7	11,360	75.5	3,338	22.2	93	0.6	15,048	100.0
		95% CI (± %)		1.1		3.3		3.2		0.5		0.1
		Male Mean Length	530		576		600		614			
		SE	0		2		4		6			
		Range	482-592		486-682		516-682		587-651			
		n	4		232		106		5			
		Female Mean Length	506		545		556		580			
		SE	17		2		4		0			
	Range	451-542		455-633		495-620		559-587				
	n	6		233		74		2				

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 39.–Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon sampled at the Salmon River (Aniak) weir, 2015.

		Brood year (age)										
		2012		2011		2010		2009				
Sample dates	Sample size	0.2		0.3		0.4		0.5		Total		
		N	%	N	%	N	%	N	%	N	%	
7/09-7/19, 7/21-24, 7/26-8/08	570	Male	76	1.3	2,354	41.6	1,621	28.7	57	1.0	4,108	72.6
		Female	34	0.6	884	15.6	631	11.2	0	0.0	1,549	27.4
		Total	110	1.9	3,237	57.2	2,252	39.8	57	1.0	5,657	100.0
		95% CI (± %)		1.2		4.0		3.9		0.7		0.1
		Male Mean Length	466		528		549		576			
		SE	16		2		3		17			
		Range	405-509		444-623		467-625		514-623			
		n	6		232		170		7			
		Female Mean Length	478		503		517		-			
		SE	0		3		4		-			
		Range	460-514		443-592		461-596		-			
		n	3		86		66		-			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 40.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon that escaped past the George River weir, 2015.

		Brood year (age)										
		2012		2011		2010		2009				
Sample dates	Sample size	0.2		0.3		0.4		0.5		Total		
		N	%	N	%	N	%	N	%	N	%	
6/27-6/28, 7/02-7/06, 7/08-7/18, 7/21-7/27, 7/31, 8/07-8/08	631	Male	421	2.4	5,187	29.6	2,492	14.2	63	0.4	8,163	46.5
		Female	175	1.0	6,412	36.5	2,717	15.5	83	0.5	9,388	53.5
		Total	597	3.4	11,599	66.1	5,209	29.7	146	0.8	17,551	100.0
		95% CI (± %)		1.7		3.9		3.7		0.7		0.1
		Male Mean Length	492		539		563		546			
		SE	9		2		3		-			
		Range	446-541		428-646		493-634		512-594			
		n	11		185		117		3			
		Female Mean Length	478		519		526		557			
		SE	5		2		3		9			
		Range	468-494		446-598		405-610		513-575			
		n	5		203		103		4			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 41.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon sampled at the Tatlawiksuk River weir, 2015.

		Brood year (age)													
		2012		2011		2010		2009		2008					
Sample dates	Sample Size	0.2		0.3		0.4		0.5		0.6		Total			
		N	%	N	%	N	%	N	%	N	%	N	%		
6/30, 7/03, 7/06, 7/08-7/15, 7/17-7/18, 7/23, 8/02-8/06	297	Male	118	1.1	4,213	40.6	2,115	20.4	44	0.4	0	0.0	6,491	62.5	
		Female	165	1.6	2,561	24.7	1,083	10.4	36	0.3	44	0.4	3,888	37.5	
		Total	283	2.7	6,774	65.3	3,198	30.8	80	0.8	44	0.4	10,379	100.0	
		95% CI (± %)		2.0		5.4		5.2		1.1		0.8		0.2	
		Male Mean Length	509		539		563		582		-				
	SE	30		3		4		-		-					
	Range	473-568		471-619		500-645		-		-					
	n	3		116		62		1		-					
	Female Mean Length	485		508		526		540		533					
	SE	12		3		6		-		-					
	Range	421-540		445-568		490-607		-		-					
	n	4		77		32		1		1					

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 42.—Age-sex composition and mean length (mm) of Kuskokwim Area chum salmon sampled at the Kogrukluk River weir, 2015.

			Brood year (age)								Total	
			2012		2011		2010		2009			
			Sample dates	Sample size	N	%	N	%	N	%	N	%
7/01-7/04, 7/07-7/09, 7/11-7/15, 7/20-7/25, 7/27, 7/29-8/01, 8/05-8/08, 8/10, 8/12, 8/14, 8/16-8/17	799	Male	1,687	5.1	13,589	40.9	4,237	12.8	140	0.4	19,653	59.2
		Female	2,092	6.3	9,840	29.6	1,615	4.9	0	0.0	13,548	40.8
		Total	3,780	11.4	23,428	70.6	5,853	17.6	140	0.4	33,201	100.0
		95% CI (± %)		2.8		3.7		2.8		0.5		0.1
		Male Mean Length	491		542		561		528			
		SE	6		2		3		3			
		Range	437-574		458-614		478-644		492-582			
		n	28		327		159		5			
		Female Mean Length	481		517		552		-			
		SE	4		2		5		-			
		Range	432-530		454-603		491-610		-			
		n	38		191		51		-			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 43.—Age-sex composition and mean length (mm) of Kuskokwim Area sockeye salmon harvested in the District W4 (Subdistrict 4) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

		Brood year (age)																	
		2011		2011		2010		2010		2010		2009		2009					
Sample dates	Sample size	0.3		1.2		0.4		1.3		2.2		1.4		2.3		Total			
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
7/03, 7/10, 7/17	551	Male	469	1.5	1,932	6.4	97	0.3	12,444	41.1	1,606	5.3	283	0.9	265	0.9	17,096	56.5	
		Female	606	2.0	314	1.0	0	0.0	11,029	36.4	653	2.2	298	1.0	273	0.9	13,173	43.5	
	Total	1,075	3.6	2,246	7.4	97	0.3	23,474	77.6	2,259	7.5	580	1.9	538	1.8	30,269	100.0		
	95% CI (± %)	1.5		2.6		0.6		4.1		2.7		1.3		1.2		0.1			
	Male Mean Length	553		508		605		568		522		571		584					
	SE	6		4		-		1		4		23		5					
	Range	519-580		400-549		-		468-613		501-562		535-601		560-607					
	n	12		32		1		231		21		5		6					
	Female Mean Length	521		503		-		538		486		547		532					
	SE	6		11		-		2		8		3		11					
	Range	499-565		473-565		-		482-584		456-509		527-555		513-554					
	n	17		8		-		199		10		5		4					

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 44.—Age-sex composition and mean length (mm) of Kuskokwim Area sockeye salmon harvested in the District W5 (Subdistrict 5) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

		Brood year (age)																	
		2011		2011		2010		2010		2010		2009		2009					
Sample dates	Sample size	0.3		1.2		0.4		1.3		2.2		1.4		2.3		Total			
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
7/03, 7/10, 7/17	630	Male	1,065	4.1	1,908	7.4	78	0.3	14,772	57.1	554	2.1	236	0.9	806	3.1	19,419	75.1	
		Female	283	1.1	492	1.9	0	0.0	4,640	17.9	375	1.4	0	0.0	651	2.5	6,442	24.9	
		Total	1,348	5.2	2,401	9.3	78	0.3	19,413	75.1	928	3.6	236	0.9	1,458	5.6	25,861	100.0	
		95% CI (± %)	1.9		2.9		0.4		4.1		1.7		0.8		2.2		0.1		
		Male Mean Length	552		499		593		558		513		587		555				
		SE	4		4		3		1		6		4		3				
		Range	514-594		391-556		590-597		472-608		466-569		540-601		528-593				
		n	29		39		3		351		19		7		21				
		Female Mean Length	532		471		-		534		477		-		530				
		SE	9		10		-		2		8		-		9				
		Range	511-550		444-506		-		448-580		449-517		-		498-580				
		n	7		9		-		123		7		-		15				

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 45.—Age-sex composition and mean length (mm) of Kuskokwim Area sockeye salmon sampled at the Goodnews River (Middle Fork) weir, 2015.

			Brood year (age)												Total	
			2011		2011		2010		2010		2009		2009			
			0.3		1.2		1.3		2.2		1.4		2.3		N	%
Sample dates	Sample size		N	%	N	%	N	%	N	%	N	%	N	%	N	%
6/27-6/28, 6/30-7/03, 7/05, 7/07-7/09, 7/11, 8/01	425	Male	1	0.2	19	4.5	164	38.6	1	0.2	2	0.5	1	0.2	188	44.2
		Female	3	0.7	24	5.6	203	47.8	2	0.5	3	0.7	2	0.5	237	55.8
		Total	4	0.9	43	10.1	367	86.4	3	0.7	5	1.2	3	0.7	425	100.0
		Male Mean Length	514		499		555		531		552		573			
		SE	-		8		2		-		4		-			
		Range	-		431-545		417-610		-		548-556		-			
		n	1		19		164		1		2		1			
		Female Mean Length	513		468		525		467		531		531			
		SE	14		4		2		10		6		34			
		Range	485-531		426-498		438-573		457-476		519-541		497-565			
		n	3		24		203		2		3		2			

Note: ASL samples were not applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 46.—Age-sex composition and mean length (mm) of Kuskokwim Area sockeye salmon sampled at the Kanektok River weir, 2015.

Sample dates	Sample size		2011		2011		2010		2010		2009		2009		Total	
			0.3		1.2		1.3		2.2		1.4		2.3			
			N	%	N	%	N	%	N	%	N	%	N	%	N	%
6/28, 6/30-7/02, 7/04, 7/06-7/20, 7/23-7/30	582	Male	81	0.1	5,900	5.5	36,903	34.6	7,034	6.6	439	0.4	382	0.4	50,739	47.5
		Female	381	0.4	7,381	6.9	39,991	37.5	7,184	6.7	773	0.7	301	0.3	56,012	52.5
		Total	462	0.4	13,281	12.4	76,893	72.0	14,219	13.3	1,213	1.1	683	0.6	106,751	100.0
		95% CI (\pm %)	0.6		3.1		4.0		3.2		0.9		0.6		0.1	
		Male Mean Length	586		521		567		534		604		575			
		SE	0		7		2		4		4		0			
		Range	586-586		457-590		457-643		484-578		600-608		541-592			
		n	1		30		216		27		2		3			
		Female Mean Length	526		481		535		497		546		551			
		SE	0		5		2		4		2		0			
		Range	520-547		433-538		442-592		470-537		504-563		550-553			
		n	2		32		234		28		5		2			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 47.—Age-sex composition and mean length (mm) of Kuskokwim Area sockeye salmon sampled at the Kogrukluk River weir, 2015.

Sample dates	Sample size		N	%
7/03, 7/08, 7/12, 7/21-7/22, 7/24-7/25, 7/27, 7/29-8/01, 8/03-8/08, 8/10, 8/12	105	Male	37	35.2
		Female	68	64.8
		Total	105	100.0
		Male Mean Length	549	
		SE	5	
		Range	470-593	
		n	37	
		Female Mean Length	507	
		SE	3	
		Range	439-550	
		n	68	

Note: Age samples were not collected at this project. Sex and length samples were not applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 48.—Age-sex composition and mean length (mm) of Kuskokwim Area sockeye salmon sampled at the Telaquana River weir, 2015.

Sample dates	Sample size		N	%
7/13-7/22, 7/24-8/07	292	Male	39,785	41.7
		Female	55,731	58.3
		Total	95,516	100.0
		95% CI (\pm %)		0.2
		Male Mean Length	538	
		SE	5	
		Range	390-635	
		n	127	
		Female Mean Length	513	
		SE	3	
		Range	411-594	
		n	165	

Note: Age samples were not collected at this project. Sex and length samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition by sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 49.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon harvested in the District W1 restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

		Brood year (age)								
		2012		2011		2010				
Sample dates	Sample size	1.1		2.1		3.1		Total		
		N	%	N	%	N	%	N	%	
8/10, 8/21	349	Male	3,692	5.7	28,098	43.2	1,350	2.1	33,140	51.0
		Female	2,859	4.4	26,852	41.3	2,184	3.4	31,894	49.0
		Total	6,551	10.1	54,949	84.5	3,534	5.4	65,034	100.0
		95% CI (± %)		3.7		4.5		2.8		0.2
	Male Mean Length	567		575		564				
	SE	10		3		16				
	Range	490-642		454-659		470-612				
	n	19		156		6				
	Female Mean Length	573		571		568				
	SE	9		3		8				
	Range	506-643		435-622		517-597				
	n	14		143		11				

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 50.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon harvested in the District W4 (Subdistrict 4) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

		Brood year (age)								
		2012		2011		2010		Total		
		1.1		2.1		3.1				
Sample dates	Sample size	N	%	N	%	N	%	N	%	
8/10, 8/21	353	Male	6,479	8.5	34,110	44.7	861	1.1	41,450	54.3
		Female	4,322	5.7	29,646	38.9	868	1.1	34,835	45.7
		Total	10,801	14.2	63,756	83.6	1,729	2.3	76,285	100.0
		95% CI (± %)		3.6		3.9		1.6		0.1
		Male Mean Length	567		594		611			
		SE	7		3		10			
		Range	479-637		446-681		582-630			
		n	30		158		4			
		Female Mean Length	586		592		573			
		SE	5		3		15			
		Range	551-627		480-654		528-595			
		n	20		137		4			

Note: Samples were used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 51.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon harvested in the District W5 (Subdistrict 5) restricted mesh (≤ 6 inch) commercial gillnet fishery, 2015.

Sample date	Sample size		2012		2011		2010		Total	
			1.1		2.1		3.1			
			N	%	N	%	N	%	N	%
8/10	171	Male	37	21.6	73	42.7	2	1.2	112	65.5
		Female	9	5.3	49	28.7	1	0.6	59	34.5
		Total	46	26.9	122	71.3	3	1.8	171	100.0
		Male Mean Length	574		577		599			
		SE	7.41		4.94		49.50			
		Range	466-646		465-658		549-648			
		n	37		73		2			
		Female Mean Length	604		597		593			
		SE	5.15		3.74		-			
		Range	574-624		536-642		593-593			
		n	9		49		1			

Note: Samples were not used to estimate total number and percent of harvest by age and sex category. Samples were used to estimate mean length and summary statistics for each age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 52.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon sampled at the Salmon River (Aniak) weir, 2015.

Sample dates	Sample size		Brood year (age)				Total	
			2011		2010			
			2.1		3.1		N	%
			N	%	N	%		
8/13-/14	9	Male	4	44.4	2	22.2	6	66.7
		Female	2	22.2	1	11.1	3	33.3
		Total	6	66.7	3	33.3	9	100.0
		Male Mean Length	498		443			
		SE	48		6			
		Range	400-608		437-449			
		n	4		2			
		Female Mean Length	441		587			
		SE	1		-			
		Range	440-442		587			
		n	2		1			

Note: ASL samples were not applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 53.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon sampled at the George River weir, 2015.

Sample dates	Sample size		Brood year (age)						Total	
			2012		2011		2010			
			1.1		2.1		3.1		N	%
			N	%	N	%	N	%	N	%
8/13-8/19, 8/22-8/29, 8/31-9/5, 9/7, 9/9, 9/11-9/13	400	Male	1,181	3.3	17,878	49.9	416	1.2	19,475	54.4
		Female	403	1.1	15,697	43.8	237	0.7	16,337	45.6
		Total	1,583	4.4	33,575	93.8	653	1.8	35,812	100.0
		95% CI (± %)		2.5		2.8		1.3		0.2
		Male Mean Length	552		539		557			
		SE	11		4		11			
		Range	452-624		372-634		487-592			
		n	12		209		5			
		Female Mean Length	565		558		574			
		SE	21		3		4			
		Range	541-589		436-649		493-598			
		n	3		167		4			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 54.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon sampled at the Kogruklu River weir, 2015.

Sample dates		Sample size	Brood year (age)							
			2012		2011		2010		Total	
			1.1		2.1		3.1			
			N	%	N	%	N	%	N	%
8/17, 8/19-8/21, 8/24-8/26, 9/01, 9/03-9/06, 9/09-9/10, 9/12-9/13, 9/15-9/22	351	Male	1,343	4.1	14,327	44.1	41	0.1	15,711	48.4
		Female	966	3.0	15,622	48.1	194	0.6	16,782	51.6
		Total	2,309	7.1	29,949	92.2	235	0.7	32,493	100.0
		95% CI (± %)		3.2		3.3		1.0		0.2
		Male Mean Length	542		535		483			
		SE	12		5		-			
		Range	430-602		381-630		-			
		n	14		149		1			
		Female Mean Length	517		555		582			
		SE	20		3		0			
		Range	410-560		442-626		559-588			
		n	10		175		2			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 55.—Age-sex composition and mean length (mm) of Kuskokwim Area coho salmon sampled at the Tatlawiksuk River weir, 2015.

		Brood year (age)								
		2012		2011		2010				
Sample		1.1		2.1		3.1		Total		
Sample dates	size	N	%	N	%	N	%	N	%	
8/04-8/06, 8/10-8/12, 8/14-8/18, 8/20-8/27, 8/31-9/02, 9/09	332	Male	208	1.2	9,032	51.0	96	0.5	9,335	52.7
		Female	242	1.4	7,720	43.6	403	2.3	8,366	47.3
		Total	450	2.5	16,752	94.6	500	2.8	17,701	100.0
		95% CI (± %)		1.8		2.7		2.1		0.2
		Male Mean Length	588		567		609			
		SE	2		4		-			
		Range	562-615		360-640		-			
		n	5		184		1			
		Female Mean Length	532		569		538			
		SE	0		3		17			
		Range	489-591		451-624		484-594			
		n	4		131		7			

Note: ASL samples were applied to the total escapement. Statistics shown represent the number, mean length, and percent composition of the samples by age and sex category. Discrepancies in sums or statistics are attributed to rounding errors.

Table 56.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvested in the W1 commercial gillnet fishery, 1964–2015.

Year	Sample size	Total harvest	Percent by age class														Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1964	535	17,149	0.0	0.0	0.0	0.5	0.0		19.6	1.0	58.8	4.3	9.0	6.8	0.0	0.0	52.8	911
1965	322	21,989	0.0	0.0	0.0	0.0	0.0		43.4	0.0	27.5	5.0	12.8	9.4	0.0	1.9	45.1	884
1966	468	25,545	0.0	0.0	0.0	0.2	0.0	0.0	12.4	0.0	85.1	0.0	2.3	0.0	0.0	0.0	50.3	911
1967	654	29,986	0.0	0.0	0.0	0.1	0.0	0.0	8.2	0.0	74.4	0.0	17.3	0.0	0.0	0.0	55.8	880
1968	540	34,278	0.0	0.0	0.0	3.9	0.0	0.0	25.1	0.0	49.2	2.0	19.0	0.8	0.0	0.0	42.6	848
1969 ^a	0	43,997																
1970 ^a	0	39,290																
1971	791	40,274	0.0	0.0	0.0	2.9	0.1	0.0	23.0	0.0	73.3	0.0	0.7	0.0	0.0	0.0	53.0	865
1972	500	39,454	0.0	0.0	0.0	0.0	0.0	0.0	20.3	0.0	74.7	0.0	5.0	0.0	0.0	0.0	50.4	877
1973	470	32,838	0.0	0.0	0.0	2.3	0.0	0.0	25.7	0.0	65.4	0.0	6.6	0.0	0.0	0.0	55.3	857
1974 ^b	42	18,664	0.0	0.0	0.0	38.1	0.0	0.0	45.2	0.0	9.5	0.0	7.1	0.0	0.0	0.0	7.1	645
1975	307	20,816	0.0	0.0	2.2	0.2	0.0	1.7	81.3	0.0	13.5	0.0	1.3	0.0	0.0	0.0	25.6	765
1976 ^a	0	30,735																
1977	234	35,830	0.0	0.0	0.0	0.7	0.0	0.0	31.2	0.0	65.3	0.0	2.8	0.0	0.0	0.0	36.3	836
1978	289	45,641	0.0	0.0	0.0	0.2	0.0	0.0	12.8	0.0	82.2	0.0	4.8	0.0	0.0	0.0	58.2	856
1979	302	36,053	0.0	0.0	0.0	23.5	0.0	0.0	42.1	0.0	28.6	0.0	5.7	0.0	0.0	0.0	41.9	248
1980	273	35,881	0.0	0.0	0.0	10.9	0.0	0.0	65.1	0.0	20.7	0.0	3.2	0.0	0.0	0.0	29.0	759
1981	467	47,663	0.0	0.0	0.0	7.7	0.0	0.0	40.5	0.0	48.5	0.0	3.3	0.0	0.0	0.0	39.0	794
1982	715	48,234	0.0	0.3	0.0	10.4	0.0	0.0	23.2	0.0	63.1	0.0	2.8	0.1	0.0	0.0	41.1	791
1983	1,255	33,174	0.0	1.5	0.0	21.1	0.0	0.0	19.5	0.0	52.2	0.0	5.1	0.6	0.0	0.0	36.8	812
1984	664	31,742	0.0	0.7	0.0	12.3	0.1	0.0	39.0	0.4	36.7	1.3	8.1	1.4	0.0	0.0	29.9	783
1985	634	37,847	0.0	0.0	0.0	34.5	0.0	0.0	29.7	0.4	31.8	0.0	3.6	0.0	0.0	0.0	36.2	713
1986	141	19,413	0.0	2.2	0.0	12.5	0.0	0.0	56.5	0.0	24.2	0.0	4.6	0.0	0.0	0.0	32.0	715
1987	549	35,340	0.0	0.0	0.0	47.2	0.0	0.0	15.7	0.0	35.7	0.0	1.5	0.0	0.0	0.0	21.9	632
1988	645	55,769	0.0	0.0	0.0	30.9	0.0	0.0	44.0	0.0	19.1	0.0	6.0	0.0	0.0	0.0	35.5	699
1989	353	43,128	0.0	0.0	0.0	33.1	0.0	0.0	24.8	3.5	29.7	1.4	5.2	2.2	0.0	0.0	28.2	719
1990	408	53,502	0.0	0.0	0.0	41.4	0.0	0.0	37.7	0.0	17.4	0.0	3.5	0.0	0.0	0.0	18.0	691
1991	420	37,778	0.2	0.0	0.0	33.0	0.0	0.0	30.5	1.9	28.4	1.5	2.8	1.3	0.0	0.5	36.0	712
1992	717	46,848	0.0	1.2	0.0	45.7	0.0	0.0	27.7	0.2	24.0	0.0	1.0	0.1	0.0	0.0	22.6	658
1993	102	8,735	0.0	0.0	0.0	61.6	0.0	0.0	21.5	0.0	9.6	4.8	0.5	1.0	0.0	1.0	6.3	621

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Year	Sample size	Total harvest	Percent by age class														Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1994	208	16,211	0.0	0.5	0.0	17.3	0.0	0.0	50.3	1.9	26.0	1.0	2.0	1.0	0.0	0.0	23.7	708
1995	578	30,846	0.0	0.1	0.0	34.2	0.0	0.0	15.9	0.0	49.0	0.0	0.8	0.0	0.0	0.0	31.2	715
1996	592	6,973	0.0	0.3	0.0	27.7	0.0	0.0	42.6	0.0	19.9	0.1	9.4	0.0	0.1	0.0		686
1997	162	10,441	0.0	0.0	0.0	52.5	0.0	0.0	16.7	0.0	30.2	0.0	0.6	0.0	0.0	0.0	18.5	673
1998	437	17,359	0.0	1.1	0.0	23.8	0.0	0.0	59.0	0.0	13.9	0.0	2.2	0.0	0.0	0.0	22.0	692
1999	190	4,705	0.0	0.5	0.0	29.5	0.0	0.0	23.2	0.0	45.8	0.0	1.1	0.0	0.0	0.0	28.4	704
2000 ^a	0	444																
2001 ^b	20	90																
2002 ^a	0	72																
2003 ^a	0	158																
2004	353	2,305	0.0	1.2	0.0	58.2	0.0	0.0	25.4	0.0	14.6	0.0	0.6	0.0	0.0	0.0	11.6	645
2005	488	4,784	0.0	0.0	0.0	36.8	0.0	0.0	48.0	0.2	14.8	0.0	0.2	0.0	0.0	0.0	16.0	667
2006 ^c	184	2,777	0.0	1.1	0.0	60.9	0.0	0.0	27.2	0.0	10.3	0.0	0.5	0.0	0.0	0.0	7.1	617
2007 ^a	0	179																
2008	455	8,865	0.0	0.0	0.0	40.3	0.0	0.0	46.6	0.3	10.0	1.3	1.5	0.0	0.0	0.0	10.4	627
2009	388	6,664	0.0	0.0	0.0	41.9	0.0	0.0	30.0	0.5	26.3	0.0	1.0	0.2	0.0	0.0	20.1	673
2010	290	2,731	0.0	0.0	0.0	35.6	0.0	0.0	38.7	0.0	24.9	0.0	0.3	0.4	0.0	0.0	29.0	660
2011 ^{bd}	13	49																
2012 ^{ad}	0	14																
2013 ^{ad}	0	1																
2014 ^{ad}	0	0																
2015 ^{ad}	0	2																

Note: Harvest totals are Districts W1 and W2 combined. From 1964-1971 mesh size was unrestricted, from 1972-1984, both restricted (≤ 6 inch) and unrestricted mesh sizes were used, since 1985 mesh size has been restricted (≤ 6 inch). Harvest totals exclude fish kept for personal use.

^a ASL data were not collected.

^b Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^c Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

^d Sale of Chinook salmon was prohibited.

Table 57.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvested in the W4 commercial gillnet fishery, 1969–2015.

Year	Sample size	Total harvest	Percent by age class															Percent females	Mean length (mm)
			(0.1)	(0.2)	(1.1)	(0.3)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1969	204	16,802	0.0	0.0	1.7	0.0	31.1	0.0	0.0	19.3	0.0	39.8	0.0	6.7	1.3	0.0	0.0	39.1	709
1970	259	18,269	0.0	0.0	0.0	0.0	19.4	0.0	0.0	34.6	0.2	34.5	2.4	7.7	1.1	0.0	0.0	30.1	727
1971 ^a	0	4,185																	
1972 ^a	0	15,880																	
1973	213	14,993	0.0	0.0	0.0	0.0	6.1	0.0	0.0	11.0	0.0	70.8	0.0	12.1	0.0	0.0	0.0	53.8	848
1974	150	8,704	0.0	0.0	1.4	0.0	30.9	0.0	0.0	13.6	0.0	25.0	0.0	29.1	0.0	0.0	0.0	32.8	771
1975	198	3,928	0.0	0.0	1.1	0.0	33.3	0.0	0.0	44.6	0.0	16.3	0.0	4.7	0.0	0.0	0.0	26.1	679
1976	349	14,110	0.0	0.0	0.0	0.0	49.5	0.0	0.0	32.2	0.0	17.5	0.0	0.7	0.0	0.0	0.0	23.8	656
1977	480	19,090	0.0	0.0	0.0	0.0	2.5	0.0	0.0	39.0	0.0	56.5	0.0	2.0	0.0	0.0	0.0	49.0	818
1978	234	12,335	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	91.9	0.0	4.3	0.0	0.8	0.0	52.4	887
1979 ^b	377	11,144																	
1980	495	10,387	0.0	0.0	4.6	0.0	29.6	0.0	0.0	40.8	0.2	20.2	0.8	3.6	0.2	0.0	0.0	43.1	705
1981	612	24,524	0.0	0.0	0.1	0.0	55.1	0.0	0.0	23.6	0.0	19.2	0.0	1.9	0.0	0.0	0.0	57.9	667
1982 ^b	715	22,106																	
1983	762	46,385	0.0	0.0	0.3	0.0	26.2	0.0	0.0	7.2	0.0	64.0	0.0	2.3	0.0	0.0	0.0	39.1	779
1984	583	33,663	0.0	0.0	0.0	0.0	12.7	0.0	0.0	55.0	0.0	25.1	0.0	7.2	0.0	0.0	0.0	15.2	719
1985	568	30,401	0.0	0.0	0.0	0.0	19.4	0.0	0.0	23.1	0.0	55.3	0.0	2.2	0.0	0.0	0.0	32.3	778
1986	502	22,835	0.0	0.0	1.6	0.0	5.8	0.0	0.0	45.5	0.0	35.1	0.0	12.1	0.0	0.0	0.0	28.8	771
1987	524	26,022	0.0	0.0	0.5	0.0	27.0	0.0	0.0	17.5	0.0	52.5	0.0	2.5	0.0	0.0	0.0	16.3	738
1988	591	13,893	0.0	0.0	0.0	0.0	24.0	0.0	0.0	33.4	0.0	30.5	0.0	12.1	0.0	0.0	0.0	38.6	749
1989	422	20,820	0.0	0.0	2.2	0.0	20.4	0.0	0.0	18.8	0.0	53.3	0.0	5.3	0.0	0.0	0.0	46.0	780
1990	349	27,644	0.0	0.0	0.0	0.0	21.8	0.0	0.0	34.9	0.0	31.2	0.1	10.7	0.3	0.5	0.1	38.8	743
1991	503	9,480	0.0	0.0	0.1	0.0	18.5	0.0	0.0	25.8	0.0	48.4	0.4	6.6	0.0	0.0	0.1	39.5	768
1992	501	17,197	0.0	0.0	4.9	0.0	31.3	0.0	0.0	35.3	0.0	24.7	0.0	3.7	0.0	0.0	0.0	66.1	N/A
1993	337	15,784	0.0	0.0	0.0	0.0	36.4	0.0	0.0	27.9	0.3	30.9	1.0	3.3	0.2	0.0	0.0	38.5	706

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Table 57.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class															Percent females	Mean length (mm)
			(0.1)	(0.2)	(1.1)	(0.3)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1994	326	8,564	0.0	0.0	1.1	0.0	17.2	0.0	0.0	40.3	0.0	36.6	0.0	4.4	0.3	0.0	0.0	45.1	739
1995	603	38,584	0.0	0.0	0.0	0.0	23.6	0.0	0.0	15.8	0.0	60.0	0.0	0.6	0.0	0.0	0.0	44.4	761
1996 ^c	399	14,165																	
1997	573	35,492	0.0	0.0	1.1	0.0	35.2	0.1	0.0	12.0	0.0	51.0	0.0	0.6	0.0	0.0	0.0	35.0	710
1998	724	23,158	0.0	0.0	3.1	0.0	24.1	0.0	0.0	51.3	0.0	19.4	0.0	2.1	0.0	0.0	0.0	20.7	692
1999	662	18,426	0.0	0.0	0.4	0.0	29.8	0.0	0.0	22.2	0.1	45.6	0.0	1.6	0.2	0.0	0.0	30.2	718
2000	480	21,229	0.0	0.0	0.7	0.0	13.3	0.0	0.0	43.0	0.0	40.5	0.0	2.4	0.0	0.0	0.0	30.4	734
2001	570	12,775	0.0	0.0	0.3	0.0	9.6	0.0	0.0	13.5	0.0	75.3	0.0	1.2	0.0	0.0	0.0		791
2002	436	11,486	0.0	0.0	1.0	0.0	30.8	0.0	0.0	27.6	0.0	36.3	0.0	4.3	0.0	0.0	0.0	23.3	687
2003	547	14,444	0.0	0.0	2.9	0.0	27.6	0.0	0.0	34.3	0.0	32.6	0.0	2.5	0.0	0.0	0.0	23.7	681
2004	208	25,365	0.0	0.0	0.5	0.0	46.6	0.0	0.0	29.4	0.0	21.7	0.0	1.9	0.0	0.0	0.0	14.0	677
2005	866	24,195	0.0	0.0	0.5	0.0	22.1	0.0	0.0	49.4	0.0a	27.3	0.0	0.7	0.0	0.0	0.0	25.8	717
2006	658	19,184	0.0	0.0	0.2	0.0	32.9	0.0	0.0	30.9	0.3	33.4	0.0	2.3	0.0	0.0	0.0	26.9	696
2007	615	19,573	0.0	0.0	0.4	0.0	36.0	0.0	0.0	23.2	0.0	38.0	0.2	1.6	0.6	0.0	0.0	26.9	687
2008	529	13,812	0.0	0.0	0.0	0.0	30.3	0.0	0.0	42.4	0.0	25.7	0.0	1.1	0.5	0.0	0.0	24.0	678
2009	567	13,920	0.0	0.0	1.5	0.0	44.5	0.0	0.0	26.9	0.5	26.0	0.1	0.4	0.1	0.0	0.0	17.6	657
2010	479	14,233	0.0	0.0	2.0	0.0	22.7	0.0	0.0	50.3	0.0	24.5	0.0	0.5	0.0	0.0	0.0	28.4	692
2011	749	15,387	0.0	0.0	1.4	0.0	42.0	0.0	0.0	32.7	0.5	22.1	0.4	0.8	0.2	0.0	0.0	20.1	658
2012	789	6,675	0.0	0.4	0.5	0.1	28.8	0.1	0.0	38.5	0.5	30.5	0.0	0.6	0.0	0.0	0.0	33.6	700
2013	257	2,054	0.8	0.9	0.3	0.0	19.3	0.0	0.0	37.0	0.3	40.5	0.0	1.0	0.0	0.0	0.0	39.9	732
2014 ^c	105	2,265																	
2015	302	7,547	0.0	0.0	6.4	0.0	61.5	0.0	0.6	22.1	0.0	8.8	0.2	0.4	0.0	0.0	0.0	17.7	624

Note: From 1969-1971 mesh size was unrestricted, from 1972-1984 both restricted (≤ 6 inch) and unrestricted mesh sizes were used, and since 1985 mesh size has been restricted mesh (≤ 6 inch).

^a ASL data were not collected.

^b Samples were not summarized in Molyneaux et al. 2010.

^c Sampling was not appropriate to estimate ASL composition for the season.

Table 58.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvest in the W5 commercial gillnet fishery, 1990–2015.

Year	Sample size	Total harvest	Percent by age class												Percent females	Mean length (mm)
			(0.2)	(1.1)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(2.5)		
1990 ^a	148	3,303	0.0	0.0	39.2	0.0	0.0	20.3	0.0	36.5	0.7	3.4	0.0	0.0	25.7	
1991	258	912	0.0	0.0	27.9	0.0	0.0	41.5	0.2	24.1	0.0	3.6	2.3	0.4	38.6	N/A
1992	140	3,528	0.0	0.7	29.9	0.0	0.0	35.3	1.1	30.5	0.0	1.5	1.1	0.0	35.2	N/A
1993 ^a	152	2,117	0.0	0.0	32.2	0.0	0.0	27.6	0.0	36.2	0.0	3.9	0.0	0.0	60.5	
1994 ^a	150	2,570	0.0	0.0	18.7	0.0	0.0	37.3	0.0	41.3	0.0	2.7	0.0	0.0	52.0	
1995 ^a	196	2,922	0.0	0.0	44.9	0.0	0.0	13.3	0.0	41.3	0.0	0.5	0.0	0.0	31.6	
1996 ^b	0	1,375														
1997	471	2,039	0.0	0.8	46.6	0.0	0.0	12.3	0.0	38.8	0.0	1.4	0.0	0.0	32.1	714
1998	404	3,675	0.0	1.0	16.2	0.0	0.0	57.6	0.0	22.3	0.0	2.4	0.0	0.0	25.8	722
1999 ^a	312	1,888	0.0	0.0	26.5	0.0	0.0	13.6	0.0	58.5	0.0	1.4	0.0	0.0	51.7	
2000	376	4,442	0.0	0.0	20.4	0.0	0.0	58.4	0.0	19.5	0.0	1.7	0.0	0.0	51.7	705
2001	262	1,519	0.0	0.4	12.5	0.0	0.0	22.4	0.0	63.1	0.0	1.8	0.0	0.0	60.1	775
2002	164	979	0.0	0.6	38.2	0.0	0.0	31.4	0.0	27.9	0.0	1.7	0.0	0.0	22.0	644
2003 ^a	142	1,412	0.0	1.4	23.9	0.0	0.0	31.0	0.0	40.8	0.0	2.8	0.0	0.0		742
2004	129	2,565	0.0	0.0	53.2	0.0	0.0	26.1	0.0	16.3	0.0	4.5	0.0	0.0		655
2005 ^a	208	2,035	0.0	0.5	27.9	0.0	0.0	58.7	0.0	13.0	0.0	0.0	0.0	0.0	13.0	683
2006	182	2,892	0.0	0.0	33.0	0.0	0.0	45.1	0.0	20.3	0.0	1.6	0.0	0.0	17.6	674
2007	369	3,112	0.0	0.0	39.8	0.0	0.0	21.9	0.0	35.0	0.6	0.4	2.3	0.0	27.5	696
2008 ^b	0	1,281														
2009	515	1,509	0.0	0.2	52.9	0.0	0.0	19.2	0.2	26.1	0.8	0.5	0.0	0.0	21.3	643
2010	621	1,759	0.0	1.6	32.3	0.0	0.0	50.8	0.2	13.7	0.0	0.9	0.0	0.0	23.4	666
2011	540	2,092	0.2	0.2	62.6	0.0	0.0	21.4	0.3	15.1	0.0	0.4	0.0	0.0	12.1	611
2012	664	1,531	0.0	0.0	19.2	0.0	0.0	65.6	0.2	15.1	0.0	0.0	0.0	0.0	28.7	703
2013	106	495	0.0	0.0	25.5	0.0	0.9	37.7	0.0	35.8	0.0	0.0	0.0	0.0	37.7	718
2014 ^c	17	205														
2015	198	705	0.0	0.2	71.9	0.0	0.0	23.1	0.0	4.8	0.0	0.0	0.0	0.0	5.5	624

Note: From 1990 to 2012 restricted mesh (≤ 6 inch) gillnets were used. ASL samples are available discontinuously back to 1973 but summaries have not been produced.

^a Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^b ASL data were not collected.

^c Sampling was not appropriate to estimate ASL composition for the season.

Table 59.—Estimated age and sex composition, mean length, and total number of Chinook salmon harvest in the Bethel test fishery, 2001–2015.

	Sample	Total	Percent by age class								Percent	Mean	
Year	size	harvest	(1.1)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	females	length (mm)
2001	75	86	0.0	30.8	0.0	26.6	0.0	33.2	0.0	6.6	2.7	24.0	723
2002	197	288	0.0	33.4	0.0	33.1	1.6	31.4	0.0	0.5	0.0	14.8	689
2003	311	409	0.3	35.8	0.0	39.9	0.0	20.0	0.0	3.9	0.0	13.9	674
2004	322	691	0.0	38.3	0.0	41.7	0.6	17.7	0.0	1.6	0.0	12.1	684
2005	335	557	0.0	28.7	0.0	43.0	0.0	27.0	0.3	1.1	0.0	24.0	708
2006	244	352	0.0	28.4	0.0	30.2	0.0	37.1	0.0	4.4	0.0	29.6	744
2007	98	305	0.0	34.1	0.0	37.0	0.0	24.5	0.0	4.3	0.0	28.1	720
2008 ^a	30	420											
2009 ^b	0	470											
2010 ^b	0	292											
2011	216	337	0.0	38.8	0.0	30.0	0.0	29.2	0.0	1.9	0.0	29.1	693
2012	228	321	0.0	19.3	0.0	56.6	0.0	22.8	0.4	0.4	0.4	25.0	717
2013	146	201	0.0	28.0	0.0	35.8	0.0	34.3	0.0	1.9	0.0	33.2	723
2014	408	520	0.0	19.3	0.0	50.2	0.2	30.0	0.0	0.2	0.0	29.4	719
2015	430	477	0.0	50.2	0.2	24.9	0.2	23.3	0.2	0.7	0.2	20.7	665

Note: Bethel test fishery uses a 5 3/8 inch and 8.0 inch drift gillnet to index run timing and relative abundance of Chinook salmon.

^a Sampling was not appropriate to estimate ASL composition for the season.

^b ASL data were not collected.

Table 60.—Estimated age and sex composition, mean length, and total number of Chinook salmon harvest in the lower Kuskokwim River subsistence fishery, 2001–2015.

Year	Number of samplers	Sample size	Total harvest	Percent by age class												Percent females	Mean length (mm)
				0.1	0.2	1.1	1.2	2.1	1.3	2.2	1.4	2.3	1.5	2.4	1.6		
2001	20	1,052	78,174	0.0	0.0	0.1	4.1	0.0	29.4	0.0	62.1	0.0	4.1	0.1	0.0	33.9	780
2002	24	1,489	81,169	0.0	0.0	0.0	7.8	0.0	34.0	0.0	53.3	0.0	4.8	0.0	0.1	41.6	769
2003	32	1,941	67,737	0.0	0.0	0.2	7.1	0.0	43.7	0.0	42.7	0.0	6.3	0.0	0.0	37.8	770
2004	22	2,277	96,788	0.0	0.0	0.1	15.1	0.0	35.8	0.3	45.9	0.0	2.6	0.0	0.0	32.6	758
2005	30	2,826	85,863	0.0	0.0	0.0	5.4	0.0	49.8	0.0	42.7	0.2	1.8	0.1	0.0	37.0	775
2006	20	1,972	90,812	0.0	0.0	0.2	6.3	0.0	35.9	0.1	53.2	0.2	4.0	0.1	0.0	41.6	786
2007	28	2,475	94,898	0.0	0.0	0.0	6.6	0.0	37.5	0.0	52.4	0.3	2.6	0.6	0.0	41.7	782
2008	48	3,397	88,912	0.0	0.0	0.2	8.2	0.0	53.9	0.0	34.2	0.6	2.6	0.2	0.0	34.5	752
2009	55	4,218	79,896	0.0	0.0	0.1	9.9	0.0	34.6	0.1	53.8	0.1	1.3	0.1	0.0	38.4	769
2010	37	2,153	67,286	0.0	0.0	0.2	8.2	0.0	49.1	0.1	39.5	0.0	3.0	0.0	0.0	41.7	769
2011	21	1,482	62,366	0.0	0.0	0.3	13.6	0.0	47.5	0.0	36.5	0.2	1.8	0.0	0.1	33.0	749
2012	9	407	22,544	0.0	0.0	0.0	12.6	0.0	52.4	0.0	32.3	0.3	2.4	0.0	0.0	32.0	739
2013	16	873	47,113	0.0	0.0	0.2	5.8	0.0	29.9	0.0	62.3	0.5	1.2	0.2	0.0	42.2	779
2014	4	131	11,234	1.1	0.0	24.2	33.7	0.0	25.3	1.1	14.7	0.0	0.0	0.0	0.0	29.7	577
2015	9	299	16,124	0.0	0.4	1.6	34.1	0.4	35.7	0.0	26.4	1.2	0.4	0.0	0.0	38.1	677

Note: Samples were collected by subsistence fishermen who sampled their own harvests or the harvests of others. Age and sex percentages and mean length were calculated separately using all fish and may differ from annual summaries that are based on a subset of fish with a complete record of paired age, sex, and length data.

Table 61.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Middle Fork Goodnews River weir, 1991–2015.

Year	Sample size	Total escapement	Percent by age class									Percent females	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(2.5)		
1991	279	2,080	0.0	17.3	32.0	0.0	39.1	0.0	11.0	0.3	0.3	44.7	N/A
1992 ^a	70	1,445	1.4	7.1	27.1	1.4	58.6	0.0	4.3	0.0	0.0	54.3	
1993 ^a	31	2,132	0.0	12.9	22.6	0.0	54.8	0.0	9.7	0.0	0.0	67.7	
1994 ^a	208	3,061	0.5	3.8	33.2	0.0	50.0	0.0	10.6	1.9	0.0	46.6	
1995	308	4,678	0.0	17.4	17.5	0.0	64.3	0.0	0.8	0.0	0.0	43.8	798
1996 ^{ab}	42	2,004	4.6	11.8	42.1	0.0	37.5	0.0	3.9	0.0	0.0	45.4	
1997	121	2,897	0.6	60.3	9.1	0.0	30.0	0.0	0.0	0.0	0.0	25.0	691
1998 ^a	8	3,553											
1999 ^a	28	3,703											
2000	214	2,670	1.1	11.9	63.9	0.0	22.2	0.0	0.9	0.0	0.0	32.0	738
2001 ^a	39	5,351	0.0	12.8	12.8	0.0	71.8	0.0	0.0	2.6	0.0	46.2	
2002	199	3,025	0.0	31.0	23.7	0.0	41.1	0.0	4.2	0.0	0.0	32.2	713
2003	241	2,248	3.2	13.6	44.1	0.0	34.4	0.0	4.7	0.0	0.0	41.6	742
2004 ^a	174	4,438	4.0	52.0	23.4	0.6	20.0	0.0	0.0	0.0	0.0	30.3	
2005 ^a	155	4,781	1.3	14.7	52.6	0.0	30.8	0.0	0.0	0.6	0.0	36.5	
2006 ^a	57	4,572	1.8	33.3	26.3	0.0	36.8	0.0	1.8	0.0	0.0	47.4	
2007	209	3,914	1.2	33.7	27.2	0.0	34.8	0.3	1.2	1.6	0.0	37.2	713
2008	123	2,223	7.8	17.5	42.0	0.0	26.1	0.0	6.5	0.0	0.0	46.6	718
2009 ^a	57	1,669	0.0	28.1	14.0	0.0	57.9	0.0	0.0	0.0	0.0	47.4	
2010 ^a	76	2,176	13.8	29.2	40.0	0.0	13.8	1.5	1.5	0.0	0.0	32.3	
2011 ^a	44	2,045	0.0	31.8	36.4	0.0	31.8	0.0	0.0	0.0	0.0	34.1	
2012 ^a	45	524	0.0	8.9	66.7	0.0	24.4	0.0	0.0	0.0	0.0	48.9	
2013	175	1,187	0.5	14.8	22.4	0.0	60.8	0.0	1.0	0.5	0.0	56.7	795
2014 ^a	74	750	1.4	13.5	48.6	0.0	33.8	0.0	1.4	1.4	0.0	44.6	
2015 ^a	111	1,494	3.6	58.6	15.3	0.0	22.5	0.0	0.0	0.0	0.0	27.9	

Note: N/A designates years when length data were not available or not summarized.

^a Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 62.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Kanektok River weir, 2002–2015.

Year	Sample size	Total escapement	Percent by age class								Percent females	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
2002	188	5,304	2.3	22.9	25.0	0.0	43.1	0.0	6.6	0.0	37.5	712
2003	174	8,211	2.3	23.6	35.3	0.0	36.7	0.0	2.0	0.0	32.7	704
2004	428	19,569	0.2	58.3	25.2	0.0	15.6	0.0	0.7	0.0	13.6	658
2005 ^a	224	14,177										
2006 ^b												
2007	431	13,965	0.9	32.9	19.1	0.0	44.2	0.0	2.7	0.2	34.9	706
2008 ^a	34											
2009	468	7,065	0.4	26.2	23.2	0.2	49.5	0.0	0.2	0.2	37.3	740
2010	224	6,537	0.9	35.2	44.0	0.4	19.1	0.0	0.5	0.0	23.7	659
2011	159	5,170	0.0	59.2	27.9	0.0	12.9	0.0	0.0	0.0	22.0	617
2012 ^a	48	1,561										
2013	153	3,569	0.0	35.2	25.7	0.0	37.8	0.5	0.8	0.0	36.8	689
2014 ^a	117	3,594										
2015	311	10,416	9.1	51.5	21.9	0.0	17.3	0.0	0.1	0.0	26.2	651

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate.

Table 63.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Salmon River (Aniak) weir, 2006–2015.

Year	Sample size	Total escapement	Percent by age class									Percent females	Mean length (mm)
			(1.1)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
2006	345	7,075	0.4	36.1	0.0	29.6	0.0	30.3	0.0	3.5	0.0	22.9	680
2007	403	6,255	0.2	47.8	0.0	23.9	0.0	25.9	0.8	0.1	1.4	15.0	628
2008	219	2,376	0.0	21.9	0.0	50.7	0.0	23.6	1.3	2.5	0.0	28.5	684
2009	0	1,656											
2010 ^b													
2011 ^b													
2012 ^{ac}	48	473	0.0	12.5	0.0	45.8	0.0	37.5	0.0	4.2	0.0	27.1	740
2013 ^a	76	625	0.0	46.1	1.3	26.3	1.3	23.7	0.0	1.3	0.0	30.3	673
2014 ^a	45	1,757	0.0	13.3	0.0	51.1	2.2	33.3	0.0	0.0	0.0	31.1	683
2015	149	2,404	1.3	55.0	0.0	23.7	0.0	19.5	0.4	0.0	0.0	12.0	619

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate.

^c Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 64.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim River Chinook salmon past the George River weir, 1996–2015.

Year	Sample size	Total escapement	Percent by age class									Percent females	Mean length (mm)
			(0.2)	(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
1996	191	7,770	0.0	0.0	7.1	23.2	0.4	39.8	0.0	29.4	0.0	44.3	816
1997	269	7,810	0.0	0.0	34.6	11.7	0.0	53.7	0.0	0.0	0.0	37.4	736
1998 ^{ab}	75	2,505	0.0	0.0	30.7	50.7	0.0	17.6	0.0	0.0	0.0	25.7	671
1999 ^{ab}	54	2,439	0.0	0.0	9.3	14.8	0.0	75.9	0.0	0.0	0.0	53.7	799
2000 ^a	72	2,959	0.0	0.0	9.7	20.8	0.0	68.1	0.0	1.4	0.0	52.8	805
2001 ^a	62	3,277	0.0	0.0	12.9	24.2	0.0	53.2	0.0	9.7	0.0	38.7	762
2002	315	2,443	0.0	0.0	12.6	18.3	0.0	60.9	0.0	8.2	0.0	40.6	759
2003 ^{ab}	23	975											
2004	269	5,488	0.0	0.5	25.9	21.2	0.0	49.6	0.0	2.7	0.0	37.7	763
2005	471	3,845	0.0	0.0	10.6	43.9	0.0	40.7	1.2	3.3	0.3	35.7	756
2006	223	4,355	0.0	0.2	24.9	28.2	0.0	35.8	0.0	10.8	0.0	35.1	736
2007	249	4,011	0.0	0.0	54.0	22.2	0.0	22.0	0.0	1.3	0.5	16.8	623
2008	288	2,563	0.0	0.0	19.8	48.7	0.0	27.3	1.0	3.2	0.0	27.9	699
2009	152	3,663	0.0	0.0	21.1	25.0	0.0	52.0	0.0	1.0	0.9	41.9	762
2010	163	1,498	0.0	1.1	35.8	27.9	0.0	29.9	0.0	5.3	0.0	30.6	647
2011	167	1,547	0.0	1.2	35.2	33.5	0.0	27.7	0.4	1.7	0.4	37.5	686
2012	138	2,201	0.6	0.0	30.2	41.2	0.0	25.6	1.4	1.1	0.0	30.5	695
2013 ^a	85	1,292	0.0	0.0	16.5	30.6	0.0	51.8	0.0	1.2	0.0	60.0	643
2014	155	2,993	0.0	0.0	12.9	21.7	0.7	61.4	0.7	2.6	0.0	54.6	705
2015	174	2,282	0.0	1.7	50.2	21.6	0.0	26.5	0.0	0.0	0.0	24.3	643

^a Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 65.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Tatlawiksuk River weir, 1998–2015.

Year	Sample size	Total escapement	Percent by age class								Percent Females	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
1998 ^{ab}	15	970										
1999 ^b	7	1,484										
2000 ^b	7	807										
2001 ^b	74	1,978	0.0	12.2	39.2	0.0	44.6	0.0	4.1	0.0	39.2	733
2002	279	2,237	0.0	23.2	19.7	0.4	52.9	0.0	3.6	0.0	36.8	716
2003 ^{ab}	39	601	0.0	7.7	56.4	0.0	28.2	0.0	7.7	0.0	38.5	765
2004	301	2,833	0.0	26.5	40.6	0.0	32.9	0.0	0.0	0.0	32.6	716
2005	384	2,864	0.0	13.4	49.5	0.0	35.6	0.0	1.4	0.0	42.6	729
2006	178	1,700	0.0	21.0	44.1	0.0	30.4	0.0	4.6	0.0	41.4	682
2007	275	2,032	0.4	34.7	43.9	0.0	19.7	0.0	1.0	0.4	27.2	653
2008	93	1,075	0.0	10.3	57.4	0.0	32.3	0.0	0.0	0.0	39.0	709
2009	93	1,071	0.0	31.7	40.1	0.0	27.5	0.0	0.0	0.8	40.0	730
2010	80	546	1.0	29.4	43.2	0.0	23.3	0.0	2.0	1.1	39.4	706
2011	123	992	0.0	45.5	30.2	0.0	21.7	0.0	1.7	0.8	25.5	664
2012	91	1,116	0.0	21.9	61.4	0.0	16.7	0.0	0.0	0.0	42.8	713
2013 ^b	66	495	0.0	7.6	37.9	0.0	53.0	0.0	1.5	0.0	53.0	704
2014 ^b	94	1,904	0.0	13.8	42.6	0.0	43.6	0.0	0.0	0.0	58.5	750
2015	176	2,104	0.0	38.7	49.5	0.0	11.8	0.0	0.0	0.0	26.7	649

^a Weir did not operate for most of the season. Only observed escapement counts are presented.

^b Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

Table 66.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Kogruklu River weir, 1976–2015.

Year	Sample size	Total escapement	Percent by age class									Percent females	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)		
1976	347	5,638	0.0	7.6	40.7	0.4	50.8	0.0	0.4	0.0	0.0	44.7	815
1977 ^{ab}	0	1,385											
1978	516	14,533	0.2	17.0	10.5	0.0	55.9	1.4	3.0	12.1	0.0	46.2	849
1979	383	11,393	0.0	66.2	14.4	0.0	16.3	0.0	3.1	0.0	0.0	13.3	691
1980 ^{ac}	118	843	0.0	21.2	51.7	0.0	19.5	0.0	7.6	0.0	0.0	29.7	755
1981	797	16,809	0.3	7.4	30.3	0.0	58.2	0.0	3.9	0.0	0.0	44.0	830
1982	392	13,126	0.0	4.1	24.5	0.0	66.3	0.0	5.1	0.0	0.0	51.7	779
1983 ^a	448	1,080	0.2	20.0	19.6	0.0	55.9	0.0	4.2	0.0	0.0	30.5	763
1984	1,376	4,922	0.1	22.5	47.5	0.0	26.4	0.0	3.5	0.0	0.1	21.0	701
1985	1,042	4,442	0.0	16.2	35.7	0.0	44.9	0.0	3.2	0.0	0.1	31.5	745
1986 ^a	679	2,968	0.4	8.6	50.9	0.0	32.8	0.0	7.2	0.0	0.0	30.4	726
1987 ^{ac}	117	770	0.0	25.6	24.8	0.0	48.7	0.0	0.9	0.0	0.0	28.2	743
1988	867	8,028	0.0	8.0	52.7	0.0	31.4	0.0	8.0	0.0	0.0	35.3	728
1989 ^{ac}	217	4,911	0.0	14.7	25.3	0.0	58.1	0.0	1.8	0.0	0.0	34.6	781
1990 ^d	367	10,093	2.7	23.7	62.3	0.0	11.2	0.0	0.2	0.0	0.0	22.2	714
1991	315	6,835	0.0	6.4	29.8	0.3	62.4	0.0	1.1	0.0	0.0	49.3	830
1992	349	6,563	0.0	21.3	40.3	0.0	36.5	0.0	1.7	0.0	0.0	32.6	762
1993 ^c	313	12,377	0.0	34.5	24.9	0.0	35.5	0.0	4.8	0.3	0.0	29.7	729
1994 ^{ac}	222	8,310	0.0	9.9	59.0	0.2	29.7	0.0	0.9	0.0	0.0	28.4	771
1995	533	20,662	0.0	19.1	25.5	0.0	55.1	0.1	0.2	0.1	0.0	42.9	796
1996	480	13,771	0.0	12.6	54.9	0.0	25.3	0.4	6.8	0.0	0.0	24.0	761
1997	472	13,190	0.0	33.7	20.4	0.0	45.4	0.0	0.4	0.0	0.0	31.4	758
1998 ^{ac}	86	3,009	0.0	4.7	54.7	0.0	38.4	0.0	2.3	0.0	0.0	44.2	794
1999	305	5,543	0.3	5.4	25.2	0.3	67.3	0.0	1.5	0.0	0.0	53.2	782
2000	98	3,242	0.0	9.9	49.2	0.0	39.1	0.0	1.8	0.0	0.0	41.2	743
2001	397	7,475	0.0	15.3	39.3	0.0	43.8	0.0	1.5	0.0	0.0	28.5	739
2002	466	10,025	0.0	17.4	50.0	0.0	31.2	0.0	1.4	0.0	0.0	25.5	719
2003	373	12,008	0.0	18.7	42.6	0.0	36.0	0.0	2.8	0.0	0.0	31.3	732
2004	731	19,819	0.0	44.7	36.2	0.0	18.5	0.0	0.6	0.0	0.0	16.4	675
2005	734	21,819	0.3	24.3	46.5	0.0	28.1	0.0	0.9	0.0	0.0	34.7	714
2006	711	20,205	0.5	34.9	30.9	0.0	29.4	0.0	4.3	0.0	0.0	33.4	705
2007 ^a	289	6,923	0.0	32.3	33.0	0.0	31.7	0.0	2.9	0.0	0.0	28.4	699
2008	296	9,750	0.5	35.9	43.4	0.0	19.1	0.2	1.0	0.0	0.0	23.2	676
2009	245	9,528	0.0	22.2	52.4	0.7	22.9	0.4	1.4	0.0	0.0	28.2	730
2010	298	5,812	0.0	44.0	28.8	0.0	25.6	0.0	1.5	0.0	0.0	26.2	672
2011	268	6,731	0.0	47.2	32.6	0.3	19.5	0.3	0.0	0.0	0.0	20.1	673
2012 ^{ac}	87	1,156	0.0	5.7	56.3	0.0	36.8	1.1	0.0	0.0	0.0	54.0	765
2013 ^c	61	1,819	0.0	26.2	36.1	0.0	37.7	0.0	0.0	0.0	0.0	49.2	636
2014 ^c	106	3,732	0.9	17.0	49.1	0.0	31.1	0.9	0.9	0.0	0.0	37.7	732
2015	225	8,081	0.0	58.3	33.9	0.0	7.7	0.0	0.0	0.0	0.0	15.1	632

^a Weir did not operate for most of the season. Only observed escapement counts are presented.

^b ASL samples were not collected.

^c Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^d All 1990 scales need to be re-aged due to potential errors.

Table 67.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Salmon River (Pitka Fork) weir, 1998–2015.

Year	Sample size	Total escapement	Percent by age class								Percent females	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
1981	132	1,700	0.0	0.8	9.8	0.0	78.0	0.0	10.6	0.0	47.0	852
1982	142	730	0.0	4.9	16.2	0.0	71.1	0.0	7.7	0.0	51.0	793
2015	195	6,736	0.0	22.1	33.1	0.0	43.3	0.0	0.0	0.0	37.0	722

Note: In 1981 and 1982 the weir was located 200 m upstream from the of the south fork. The weir was reestablished in 2015 immediately downriver of the south and north forks.

Table 68.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W1 commercial gillnet fishery, 1972–2015.

Year	Sample size	Total harvest	Percent by age class				Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
1972	542	78,619	3.1	39.4	57.5	0.0	54.9	585
1973	534	148,746	0.4	60.8	35.8	2.9	46.5	583
1974	163	171,887	1.3	46.8	47.1	4.9	47.7	553
1975	527	184,171	1.0	85.6	13.0	0.4	53.5	575
1976 ^a	514	177,864						
1977	679	248,721	9.6	83.0	7.3	0.1	56.6	581
1978	877	248,656	6.0	64.8	29.0	0.2	54.5	579
1979 ^a	962	261,874						
1980	507	483,751	0.5	98.1	1.4	0.0	56.8	557
1981	855	418,677	1.8	37.0	61.1	0.1	51.3	580
1982	888	278,306	1.0	67.8	29.7	1.4	53.5	583
1983	1,705	276,698	0.8	47.0	50.8	1.3	52.8	587
1984	1,834	423,718	0.8	89.1	9.7	0.7	60.0	576
1985	1,063	199,563	0.8	36.8	62.0	0.4	54.1	585
1986	1,064	309,048	0.4	76.5	22.6	0.5	53.1	581
1987	1,312	570,708	1.5	52.9	44.8	0.8	57.0	581
1988	2,404	1,384,267	0.8	79.3	19.1	0.8	49.1	577
1989	655	748,338	0.2	36.9	61.8	1.1	52.1	584
1990	558	459,974	0.6	70.6	27.5	1.3	51.8	576
1991	1,630	431,798	2.2	64.9	32.8	0.1	55.6	566
1992	1,677	344,470	0.0	44.5	53.5	2.0	48.9	555
1993	318	43,337	1.4	32.2	60.2	6.2	45.9	554
1994	1,389	271,115	0.7	72.5	24.7	2.0	56.7	546
1995	1,811	605,918	3.6	58.0	37.0	1.4	54.5	557
1996	2,169	200,298	0.3	73.0	24.5	2.2	53.7	565
1997	355	17,026	3.3	52.1	42.2	2.4	47.6	571
1998	1,433	207,809	0.8	87.2	11.8	0.1	57.1	557
1999	268	23,006	0.0	58.0	41.9	0.0	50.7	576
2000	253	11,571	2.4	73.6	23.0	1.0	52.6	566
2001 ^b	118	1,273						
2002 ^b	93	1,900						
2003 ^b	118	2,764						
2004	737	20,150	30.7	42.2	27.1	0.0	47.3	551
2005	779	69,139	0.9	93.1	5.9	0.1	53.4	558
2006 ^c	392	44,070	0.4	49.9	49.7	0.0	45.9	571
2007 ^b	201	10,763						
2008	865	30,516	0.3	20.7	74.3	4.7	41.9	563
2009	1,199	76,790	2.1	66.6	29.1	2.2	42.6	564
2010	1,265	93,148	2.8	72.6	23.5	1.1	44.7	552
2011	903	118,256	0.3	63.9	35.0	0.8	43.2	553
2012	668	65,171	1.7	73.2	23.3	1.7	56.8	547
2013	196	52,235	0.0	81.6	17.3	1.0	48.0	555
2014	202	19,080	2.5	37.1	57.9	2.5	40.1	556
2015 ^d	0	507						

^a ASL samples were not summarized in Molyneaux et al. 2010.

^b Sampling was not appropriate to estimate ASL composition for the season.

^c Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

^d ASL data were not collected.

Table 69.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W4 commercial gillnet fishery, 1984–2015.

Year	Sample size	Total harvest	Percent by age class					Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1984	464	50,422	0.3	75.5	23.6	0.6	0.0	54.1	589
1985	457	20,418	0.0	46.2	53.1	0.7	0.0	53.5	597
1986	398	29,700	0.0	58.6	41.4	0.0	0.0	53.8	584
1987 ^a	241	8,557							
1988	593	29,247	1.3	68.0	29.3	1.4	0.0	49.6	583
1989	703	39,395	0.0	49.0	49.7	1.3	0.0	53.4	590
1990	618	47,717	0.8	77.3	21.3	0.6	0.0	55.0	584
1991	656	54,493	1.0	72.5	26.5	0.0	0.0	52.0	565
1992	546	73,383	0.2	35.4	62.9	1.5	0.0	52.3	590
1993	398	40,924	0.9	42.2	47.1	9.8	0.0	51.1	550
1994 ^a	547	61,301							
1995	598	81,462	7.6	48.5	43.1	0.8	0.0	64.1	574
1996 ^a	615	81,505							
1997	1,221	38,435	1.5	37.5	59.9	1.1	0.0	54.4	582
1998	857	45,095	0.7	89.0	9.6	0.7	0.0	58.5	574
1999	814	38,091	0.2	70.0	29.6	0.2	0.0	57.7	583
2000	1,043	30,553	0.5	54.0	44.9	0.6	0.0	54.3	595
2001	576	17,209	0.4	49.9	49.5	0.2	0.0	59.0	575
2002	449	29,319	4.0	56.9	36.8	2.2	0.0	63.8	574
2003	243	27,868	1.1	88.0	9.7	1.3	0.0	52.1	562
2004	225	25,850	4.2	40.2	55.0	0.6	0.0	44.3	586
2005	958	13,529	0.6	86.0	12.7	0.7	0.0	48.0	561
2006 ^b	1,320	39,151	4.6	43.7	51.4	0.4	0.0	50.5	559
2007	1,134	61,228	0.0	79.1	19.2	1.8	0.0	55.6	549
2008	585	57,033	0.8	34.6	60.5	4.2	0.0	47.3	580
2009	1,101	91,158	2.6	69.3	27.1	1.1	0.0	55.4	573
2010	1,174	106,610	1.0	66.8	31.0	1.2	0.0	46.9	566
2011	903	104,959	1.6	61.2	36.3	1.0	0.0	50.2	567
2012	921	61,140	0.6	72.8	24.9	1.7	0.0	54.3	570
2013	667	58,079	0.0	43.0	55.9	0.9	0.2	54.6	568
2014	341	14,563	2.2	29.9	64.8	3.2	0.0	54.4	568
2015	339	16,051	1.5	83.3	15.0	0.2	0.0	43.9	562

Note: Commercial chum salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets.

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

Table 70.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W5 commercial gillnet fishery, 1984–2015.

Year	Sample size	Total harvest	Percent by age class				Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
1984 ^a	459	14,340						
1985 ^a	270	4,784						
1986	353	10,356	0.4	69.3	29.4	1.0	48.5	588
1987	430	20,381	0.0	68.2	31.8	0.0	46.7	589
1988	469	33,059	0.3	17.4	80.5	1.7	54.4	606
1989	543	13,622	0.1	45.2	52.5	2.2	39.4	597
1990	359	13,194	0.4	77.6	21.8	0.2	43.9	583
1991	565	15,892	2.0	79.8	18.2	0.0	52.3	571
1992	418	18,520	0.0	14.5	83.5	2.0	59.4	573
1993 ^a	191	10,657						
1994 ^a	512	28,477						
1995 ^a	355	19,832						
1996 ^a	190	11,093						
1997	805	11,729	0.6	30.0	69.0	0.4	51.9	585
1998	469	14,155	0.5	85.7	13.3	0.5	48.6	576
1999	455	11,562	0.2	77.0	22.5	0.3	55.0	579
2000	598	7,450	0.0	42.5	57.1	0.4	60.4	601
2001	647	3,412	0.2	56.9	42.9	0.0	61.4	583
2002	234	3,799	0.3	50.3	47.9	15.0	56.1	590
2003	296	5,593	0.0	88.0	9.3	2.7	44.1	564
2004 ^a	76	5,965						
2005 ^a	105	2,568						
2006 ^{ab}	193	11,568						
2007 ^a	543	7,519						
2008 ^c	0	10,340						
2009	1,268	16,985	2.1	40.1	55.6	2.3	37.9	579
2010	752	26,914	1.8	74.5	21.0	2.6	36.2	564
2011	644	13,191	0.2	43.7	55.2	1.0	33.1	567
2012	1,288	24,487	0.3	65.7	30.8	3.2	0.0	570
2013	782	12,651	0.0	38.6	58.7	2.7	40.1	572
2014	330	3,403	0.0	32.3	65.3	2.4	42.5	569
2015	630	4,510	8.1	72.0	17.8	2.1	26.1	565

Note: Commercial chum salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets.

^a Samples were not appropriate to estimate ASL composition for the season.

^b Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

^c ASL Samples were not collected.

Table 71.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Middle Fork Goodnews River weir, 1991–2015.

Year	Sample size	Total escapement	Percent by age class				Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
1991	291	27,632	0.0	73.1	26.9	0.0	40.5	566
1992 ^a	493	21,096						
1993 ^a	236	14,581						
1994 ^a	207	35,652						
1995 ^a	280	33,559						
1996 ^{ab}	311	26,719						
1997	526	17,151	0.4	31.5	67.8	0.2	44.4	589
1998	705	26,996	0.3	86.1	13.4	0.2	49.9	578
1999	672	21,818	0.0	65.4	34.3	0.3	49.9	587
2000 ^a	418	14,405						
2001	768	26,820	0.7	70.6	28.7	0.1	55.5	587
2002	725	29,905	2.9	37.1	58.6	1.4	55.0	600
2003	556	21,778	0.7	84.5	12.6	2.3	45.6	572
2004	1,220	32,442	4.2	59.3	36.4	0.1	51.8	579
2005	907	26,501	1.5	83.4	15.0	0.1	52.9	571
2006	776	54,689	1.3	69.7	28.6	0.3	23.9	574
2007	865	50,232	0.8	54.1	44.2	0.9	51.4	570
2008	1,241	39,548	0.3	44.9	49.0	5.7	61.5	578
2009 ^a	196	19,236						
2010	189	24,789	2.1	74.5	22.7	0.7	59.7	564
2011	447	19,974	0.6	44.2	52.6	2.6	43.0	572
2012 ^a	347	9,065						
2013	494	27,682	0.0	32.8	64.5	2.7	44.4	585
2014	284	11,518	0.2	35.8	55.7	8.3	38.8	588
2015	445	11,517	6.8	67.3	25.6	0.3	38.5	564

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 72.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Kanektok River weir, 2002–2015.

Year	Sample size	Total escapement	Percent by age class				Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
2002	738	41,912	2.5	43.1	53.0	1.4	57.5	586
2003	733	40,086	0.8	86.8	10.4	1.9	49.6	566
2004	736	46,008	5.7	49.9	44.2	0.3	48.2	568
2005 ^a	894	55,340						
2006 ^b								
2007	1,121	131,000	0.1	63.3	34.7	2.0	48.4	566
2008 ^{ac}	725	53,077						
2009	631	55,846	0.6	68.0	29.4	2.1	35.9	591
2010	663	68,186	1.2	65.1	32.3	1.4	51.5	573
2011	936	53,050	0.2	44.7	53.8	1.3	51.9	570
2012	382	28,726	0.0	56.1	38.1	5.8	47.7	582
2013	573	43,040	0.0	26.0	70.3	3.7	45.1	582
2014 ^a	314	18,602						
2015	662	15,048	1.7	75.5	22.2	0.6	47.7	569

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate.

^c Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 73.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Salmon River (Aniak) weir, 2006–2015.

Year	Sample size	Total escapement	Percent by age class				Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
2006	846	42,825	1.6	51.9	46.2	0.4	36.8	559
2007	759	25,340	2.1	62.2	33.6	2.1	38.8	554
2008	668	9,459	0.2	24.1	70.0	5.7	30.2	564
2009	0	9,392						
2010 ^a								
2011 ^a								
2012 ^{bc}	253	3,134	2.0	51.4	39.1	7.5	36.4	554
2013	653	7,723	0.0	55.0	41.1	3.8	19.0	563
2014 ^b	124	2,890	0.8	27.4	67.7	4.0	8.1	566
2015	570	5,657	1.9	57.2	39.8	1.0	27.4	529

^a Weir did not operate.

^b Sampling was not appropriate to estimate ASL composition for the season.

^c Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 74.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the George River weir, 1996–2015.

Year	Sample size	Total escapement	Percent by age class					Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1996	765	24,214	1.6	59.9	36.8	1.7	0.0	46.1	582
1997	641	5,906	0.7	51.4	46.3	1.6	0.0	42.8	562
1998 ^{ab}	322	6,391							
1999 ^a	611	8,684							
2000	235	3,507	1.4	46.7	50.4	1.6	0.0	43.5	580
2001	782	11,287	0.0	66.3	33.7	0.0	0.0	53.8	556
2002	955	6,534	6.4	46.3	45.8	1.5	0.0	47.3	571
2003	597	33,648	1.5	88.2	10.0	0.3	0.0	49.7	540
2004	923	15,012	9.2	38.6	52.0	0.2	0.0	47.9	555
2005	985	14,834	5.2	89.8	4.5	0.6	0.0	46.8	539
2006	934	42,318	3.5	50.8	45.5	0.2	0.0	57.5	542
2007 ^a	705	61,531							
2008	787	29,396	0.6	17.4	78.8	3.2	0.0	48.4	551
2009	690	7,944	10.6	52.7	30.6	6.1	0.0	50.0	545
2010	1,067	26,275	3.9	87.8	7.5	0.7	0.1	51.6	531
2011	1,023	46,650	0.8	50.0	48.8	0.4	0.0	48.2	547
2012	672	33,310	0.0	58.2	33.8	7.9	0.0	52.4	553
2013	547	37,879	0.6	36.9	61.0	1.4	0.0	55.1	549
2014	370	17,148	0.0	42.1	49.8	7.7	0.4	51.8	546
2015	631	17,551	3.4	66.1	29.7	0.8	0.0	53.5	538

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 75.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Tatlawiksuk River weir, 1998–2015.

Year	Sample size	Total escapement	Percent by age class					Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1998 ^{ab}	330	5,726							
1999	856	9,739	0.1	72.1	27.5	0.3	0.0	52.6	575
2000	705	7,076	2.0	57.6	39.9	0.5	0.0	48.2	577
2001	847	23,863	0.4	65.7	33.5	0.4	0.0	51.0	571
2002	1,346	24,539	6.7	58.6	33.2	1.5	0.0	50.3	567
2003 ^{ab}	57	479							
2004	1,299	21,245	14.6	42.1	43.1	0.2	0.0	38.7	565
2005	1,075	55,599	5.2	89.4	5.4	0.0	0.0	58.1	557
2006	935	32,776	1.8	55.6	42.3	0.3	0.0	42.1	560
2007	920	83,484	3.3	80.2	15.8	0.6	0.0	52.3	549
2008	799	30,129	0.5	21.3	76.2	2.0	0.0	52.3	559
2009	829	19,975	7.8	64.4	23.9	3.8	0.0	51.9	540
2010	1,082	37,737	8.9	82.7	7.9	0.5	0.0	51.6	551
2011	938	88,202	0.5	67.9	31.3	0.3	0.0	52.5	554
2012	593	44,569	0.6	45.7	49.2	4.5	0.0	54.7	560
2013	553	32,249	0.1	40.1	57.5	2.2	0.2	50.0	558
2014	211	12,455	0.6	30.6	58.1	10.7	0.0	36.2	568
2015	297	10,379	2.7	65.3	30.8	0.8	0.4	37.5	534

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 76.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Kogrukluk River weir, 1976–2015.

Year	Sample size	Total escapement	Percent by age class				Percent females	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
1976	219	8,477	0.3	37.8	60.5	1.4	18.7	602
1977 ^{ab}	0	10,388						
1978	322	50,710	0.8	49.9	49.3	0.0	44.2	597
1979 ^c	59	16,424						
1980 ^b	83	6,323	0.0	90.5	9.5	0.0	10.2	572
1981	191	56,693	0.0	15.0	84.4	0.6	40.0	601
1982	259	58,219	0.0	59.9	40.0	0.1	48.8	577
1983 ^{bc}	484	3,375						
1984	1,252	41,418	0.0	81.4	17.4	1.3	36.3	572
1985	874	14,611	0.2	27.9	71.3	0.5	41.7	574
1986	566	12,785	0.5	71.5	25.7	2.3	39.3	574
1987 ^{bc}	160	2,349						
1988 ^d	665	29,408						
1989 ^{bc}	147	15,543						
1990	371	26,556	1.4	65.5	31.7	1.4	20.9	585
1991	293	23,093	0.4	57.9	41.6	0.0	15.8	580
1992	362	42,569	2.7	42.9	53.7	0.8	33.0	582
1993	361	30,163	0.0	34.0	61.0	5.0	18.4	589
1994 ^{bc}	125	23,756						
1995	848	32,967	1.4	45.9	51.8	0.8	13.3	587
1996	827	48,238	1.8	67.8	28.8	1.6	15.4	605
1997	641	7,975	0.4	42.9	56.0	0.6	4.1	603
1998 ^{bc}	193	13,013						
1999	737	14,134	0.0	49.3	50.4	0.3	8.5	593
2000	583	11,416	1.2	67.4	31.0	0.3	15.3	586
2001	738	31,587	0.5	58.5	41.0	0.0	17.4	583
2002	999	52,973	0.2	75.7	23.1	1.1	15.1	579
2003	1,014	23,779	1.8	65.9	31.7	0.6	8.9	573
2004	1,033	24,405	9.2	59.4	30.9	0.5	9.2	565
2005	1,198	194,887	4.0	90.5	5.6	0.0	45.1	545
2006	1,275	188,003	1.6	62.2	36.0	0.3	38.2	550
2007	640	52,961	2.9	59.2	34.9	3.0	37.6	555
2008	524	44,744	1.5	53.8	42.0	2.6	34.9	560
2009	806	82,483	2.6	74.8	21.8	0.8	44.8	561
2010	746	69,258	2.8	62.2	34.1	0.8	45.3	553
2011	788	76,823	1.8	64.2	32.7	1.2	42.0	552
2012 ^{be}	229	14,297	0.9	71.4	26.0	1.7	23.2	550
2013	661	65,644	0.1	55.3	43.9	0.7	46.8	555
2014	302	30,763	0.2	23.4	70.7	5.6	39.4	562
2015	799	33,201	11.4	70.6	17.6	0.4	40.8	539

^a ASL data were not collected.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

^c Sampling was not appropriate to estimate ASL composition for the season.

^d Historical data summary not available.

^e Samples were applied to observed escapement.

Table 77.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W1 commercial gillnet fishery, 1984–2015.

Year	Sample size	Total harvest	Percent by age class													Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(3.2)	(1.5)	(2.4)	(3.3)		
1984	296	48,575	0.3	0.3	6.8	9.4	0.3	56.9	6.8	0.6	18.6	0.0	0.0	0.0	0.0	52.6	N/A
1985	893	106,659	0.0	0.0	2.7	5.7	1.1	65.6	10.9	1.1	12.9	0.0	0.0	0.0	0.0	55.9	N/A
1986	535	95,363	0.0	0.0	2.4	4.6	1.3	64.4	11.6	1.3	14.5	0.0	0.0	0.0	0.0	50.3	N/A
1987	567	136,160	0.0	0.0	1.4	6.7	0.4	75.7	1.3	1.3	13.2	0.0	0.0	0.0	0.0	53.0	N/A
1988	453	92,538	0.0	0.0	0.2	1.4	0.0	73.0	1.4	2.2	21.0	0.0	0.0	0.4	0.4	56.5	N/A
1989	175	42,484	0.0	0.0	0.0	3.4	0.0	59.0	10.3	4.5	21.1	0.0	0.0	1.1	0.6	55.5	590
1990	250	84,414	0.0	0.4	0.4	3.6	0.8	77.2	4.8	2.8	10.0	0.0	0.0	0.0	0.0	51.2	576
1991	513	108,946	0.3	0.0	1.6	10.0	0.8	81.1	0.8	2.0	3.5	0.0	0.0	0.0	0.0	49.8	N/A
1992	504	92,174	0.0	0.0	2.4	6.1	0.8	69.2	3.2	6.3	12.0	0.0	0.0	0.0	0.0	51.1	553
1993	186	27,008	0.0	0.0	1.6	22.1	1.1	55.3	9.1	2.2	8.6	0.0	0.0	0.0	0.0	50.0	557
1994	173	49,365	0.0	0.0	0.6	1.8	0.0	72.0	0.6	1.8	22.0	0.0	0.0	1.2	0.0	49.7	571
1995	419	92,500	0.0	0.0	1.8	7.8	0.3	81.8	1.7	2.5	4.0	0.0	0.0	0.0	0.0	58.3	564
1996	520	33,517	0.2	0.3	6.3	3.5	0.0	82.1	1.5	1.5	4.7	0.0	0.0	0.0	0.0	42.9	566
1997	89	21,989	0.0	0.0	0.0	25.8	0.0	50.6	11.2	2.2	10.1	0.0	0.0	0.0	0.0	50.6	566
1998	493	60,906	0.0	0.0	1.4	5.9	0.1	62.6	9.4	1.5	18.7	0.0	0.0	0.4	0.0	49.6	563
1999	189	16,976	0.0	0.0	0.0	4.2	0.0	65.6	5.8	5.3	19.0	0.0	0.0	0.0	0.0	58.7	578
2000	170	4,130	0.0	0.0	2.9	9.4	0.0	60.0	2.4	0.0	25.3	0.0	0.0	0.0	0.0	57.1	574
2001 ^b	0	84															
2002 ^b	0	84															
2003 ^b	0	282															
2004 ^c	416	8,532															
2005	551	27,645	0.0	0.0	1.4	8.9	0.0	80.7	0.8	1.2	7.0	0.0	0.0	0.0	0.0	54.3	562
2006 ^{cd}	179	12,618															572
2007 ^b	0	703															
2008	509	15,601	0.0	0.0	2.5	5.2	0.0	84.5	0.1	4.6	3.0	0.0	0.0	0.0	0.0	53.2	550
2009	525	25,673	0.0	0.0	6.9	6.3	0.0	67.4	1.8	12.8	4.8	0.0	0.0	0.0	0.0	52.3	557
2010	1,120	22,428	0.0	0.0	3.8	17.3	1.9	66.3	0.3	8.9	1.3	0.0	0.0	0.0	0.0	52.5	564
2011	682	13,482	0.0	0.0	13.3	2.5	2.6	64.6	0.6	13.1	2.8	0.0	0.1	0.3	0.0	54.7	562
2012	315	2,857	0.0	0.0	4.8	5.7	1.5	72.7	0.8	10.8	3.5	0.0	0.3	0.0	0.0	49.3	552
2013	183	768	0.0	0.0	4.4	7.1	0.0	47.5	1.6	4.4	29.5	0.5	0.0	1.1	3.8	47.0	555
2014	52	2,720	0.0	0.0	1.9	32.7	1.9	40.4	3.8	15.4	3.8	0.0	0.0	0.0	0.0	34.6	543
2015 ^b	0	130															

-continued-

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Note: Harvest data were from Districts W1 and W2 combined. The commercial sockeye salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. N/A designates years when length data were not available or not summarized.

^a Age class was represented in samples but percent composition was <0.05 .

^b ASL data were not collected.

^c Sampling was not appropriate to estimate ASL composition for the season.

^d Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

Table 78.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W4 commercial gillnet fishery, 1990–2017.

Year	Sample size	Total harvest	Percent by age class												Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(3.2)	(2.4)	(3.3)		
1990	573	83,681	0.2	0.1	6.7	49.3	0.3	41.7	0.1	0.3	1.2	0.0	0.0	0.0	44.0	N/A
1991	420	53,657	0.2	0.0	11.0	10.8	0.9	74.2	0.0	2.6	0.2	0.0	0.0	0.0	57.9	N/A
1992 ^a	255	60,929														
1993	535	80,878	0.9	0.0	8.0	24.2	3.5	55.3	1.4	4.8	1.9	0.0	0.0	0.0	42.6	N/A
1994	527	72,314	0.0	0.0	10.0	14.0	0.3	68.4	0.2	4.4	2.6	0.0	0.1	0.0	46.2	N/A
1995	620	68,194	0.7	0.0	0.0	37.6	0.0	49.8	6.3	4.3	1.3	0.0	0.0	0.0	46.8	540
1996	509	57,665	0.2	0.0	5.8	16.6	0.0	68.1	2.5	0.6	5.8	0.0	0.0	0.3	57.0	559
1997	952	69,508	0.2	0.0	3.2	17.9	3.4	55.2	1.3	10.4	8.5	0.0	0.0	0.0	51.1	561
1998	757	41,382	0.3	0.0	4.0	23.4	0.4	65.3	2.4	1.2	2.9	0.0	0.2	0.0	53.0	544
1999	539	41,315	0.0	0.0	1.7	46.2	0.3	45.4	1.1	3.6	1.7	0.0	0.0	0.0	43.6	545
2000	880	68,557	0.0	0.0	0.6	22.5	0.1	74.1	0.5	0.2	1.9	0.0	0.0	0.0	54.8	559
2001	713	33,807	0.0	0.0	1.0	2.7	0.0 ^b	89.8	0.2	1.8	4.5	0.0	0.0	0.0	44.0	568
2002 ^b	307	17,820	2.6	0.0	0.3	49.7	0.3	38.0	3.0	2.1	3.9	0.0	0.0	0.0	46.1	530
2003	365	33,941	0.0	0.0	0.2	26.5	0.0	66.2	2.8	1.8	2.5	0.0	0.0	0.0	45.7	558
2004	217	34,437	0.0	0.0	2.2	30.9	1.1	59.0	0.6	5.6	0.6	0.0	0.0	0.0	47.1	547
2005	937	68,801	0.1	0.0	2.0	28.6	0.0	66.6	0.5	1.0	1.3	0.0	0.0	0.0	45.8	538
2002 ^b	807	106,308	0.1	0.0	0.9	22.9	0.2	73.2	0.2	2.0	0.4	0.0	0.0	0.0	33.1	528
2007	1,005	109,343	0.0 ^c	0.0	4.4	45.7	0.0	45.8	0.1	2.4	1.6	0.0	0.0	0.0	44.6	524
2008	488	69,743	0.0	0.0	2.5	19.6	0.5	74.1	0.3	2.2	0.8	0.0	0.0	0.0	47.0	542
2009	976	112,153	0.0	0.0	2.4	53.8	0.1	40.5	0.5	1.5	1.2	0.0	0.0	0.0	51.7	540
2010	844	138,362	0.0 ^c	0.0	2.8	14.5	1.2	78.7	0.2	2.0	0.6	0.0	0.0	0.0	49.0	549
2011	602	38,543	0.3	0.0	5.3	29.3	1.6	50.1	5.3	4.2	3.5	0.2	0.2	0.0	48.9	541
2012	836	37,688	0.2	0.0	2.3	12.2	0.2	78.3	0.2	1.2	5.1	0.0	0.2	0.0	52.1	540
2013	602	26,393	0.0	0.3	1.7	60.2	0.4	29.8	1.4	2.2	4.0	0.0	0.0	0.0	54.3	520
2014	345	58,879	0.0	0.0	1.7	43.8	0.0	47.8	5.6	0.6	0.2	0.2	0.0	0.0	55.9	522
2015	551	30,269	0.0 ^c	0.0	3.6	7.4	0.3	77.6	7.5	1.9	1.8	0.0	0.0	0.0	43.5	545

Note: Commercial sockeye salmon fishery was executed using restricted mesh (≤6 inch) gillnets. N/A designates years when length data were not available or not summarized.

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

^c Age class was represented in samples but percent composition was <0.05.

Table 79.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W5 commercial gillnet fishery, 1985–2015.

Year	Sample size	Total harvest	Percent by age class												Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(2.4)	(3.3)	(3.4)		
1985	485	6,698	0.0	0.0	0.0	25.1	0.0	73.8	1.1	0.0	0.0	0.0	0.0	0.0	46.8	570
1986	548	25,112	0.0	0.0	0.0	7.6	0.0	91.8	0.7	0.0	0.0	0.0	0.0	0.0	43.5	586
1987	545	27,758	0.0	0.0	0.0	7.0	0.0	93.0	0.0	0.0	0.0	0.0	0.0	0.0	51.9	584
1988	738	36,368	0.1	0.0	0.4	3.9	0.4	90.0	0.4	4.5	0.2	0.1	0.0	0.0	43.6	597
1989	577	19,299	0.0	0.0	0.0	8.9	0.3	86.0	0.5	2.9	1.4	0.0	0.0	0.0	48.2	584
1990	458	35,823	0.0	0.0	5.9	11.2	0.5	63.7	8.0	1.5	9.3	0.0	0.0	0.0	33.7	575
1991	564	39,838	0.1	0.0	2.3	3.1	0.9	78.7	4.6	0.9	9.5	0.0	0.0	0.0	45.2	564
1992	573	39,194	4.6	0.6	9.1	23.3	1.4	53.4	0.9	3.5	2.5	0.8	0.0	0.0	42.6	575
1993	489	59,293	0.2	0.0	6.5	26.8	0.7	53.3	2.5	1.6	8.1	0.4	0.0	0.0	54.4	560
1994	485	69,490	0.0	0.0	5.3	1.8	0.2	83.4	0.6	1.8	6.8	0.1	0.0	0.0	53.4	567
1995 ^a	369	37,351	0.0	0.0	0.3	7.0	0.3	71.5	7.9	3.5	9.5	0.0	0.0	0.0	42.8	
1996 ^a	343	30,717	0.3	0.0	5.5	7.3	0.0	77.8	2.3	0.6	5.8	0.0	0.3	0.0	55.1	
1997	833	31,451	0.4	0.0	2.5	13.8	1.4	56.4	3.2	6.8	14.9	0.6	0.0	0.0	48.6	563
1998	840	27,161	0.0	0.0	3.1	8.9	0.1	72.9	3.9	0.5	10.4	0.1	0.2	0.0	45.7	555
1999	532	22,910	0.0	0.0	1.3	18.5	0.0	68.9	2.2	3.5	5.7	0.0	0.0	0.0	41.3	556
2000	715	37,252	0.0	0.0	1.1	7.5	0.0	82.1	5.1	0.0	4.3	0.0	0.0	0.0	40.2	575
2001	576	25,654	0.0	0.0	0.4	2.2	0.0	90.3	0.0	2.2	5.0	0.0	0.0	0.0	51.0	581
2002	539	6,304	0.0	0.0	2.8	19.4	0.0	51.6	6.5	8.9	10.7	0.3	0.0	0.0	46.4	562
2003	329	29,423	0.0	0.0	0.4	7.2	0.0	71.9	2.6	1.4	16.6	0.0	0.0	0.0	32.5	579
2004	182	20,523	0.0	0.0	0.0	21.1	0.0	62.6	6.8	1.7	7.9	0.0	0.0	0.0	29.8	547
2005 ^a	191	23,933	0.0	0.0	0.5	17.3	0.0	70.7	4.7	1.0	5.8	0.0	0.0	0.0	39.8	
2006 ^{ab}	95	29,857	0.0	0.0	8.4	8.4	0.0	74.7	0.0	3.2	2.3	0.0	0.0	0.0	32.6	
2007	705	43,716	0.0	0.0	4.2	10.0	0.0	71.4	2.0	3.6	8.7	0.0	0.0	0.0	37.7	549
2008 ^c	0	27,236														
2009	1,353	32,544	0.1	0.0	3.9	14.0	1.3	64.2	3.4	2.8	10.4	0.0	0.0	0.0	41.9	557
2010	685	41,074	0.0	0.0	2.2	13.2	1.1	79.6	0.8	2.3	0.8	0.0	0.0	0.0	36.9	550
2011	607	24,573	0.3	0.0	3.2	13.3	0.8	74.0	3.7	1.7	2.9	0.0	0.0	0.0	42.3	553
2012	1,217	50,635	0.0	0.0	0.7	7.7	0.3	70.3	5.1	1.6	13.8	0.0	0.4	0.0	46.1	550
2013	735	24,521	0.0	0.0	3.3	3.4	0.2	42.2	1.5	1.9	43.1	0.8	3.3	0.4	45.5	556
2014	338	20,515	0.0	0.3	2.4	41.1	2.1	33.2	9.7	1.5	8.8	0.3	0.6	0.0	36.8	527
2015	630	25,861	0.0	0.0	5.2	9.3	0.3	75.1	3.6	0.9	5.6	0.0	0.0	0.0	24.9	546

Note: Commercial sockeye salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets.

^a Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^b Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

^c ASL data were not collected.

Table 80.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area sockeye salmon past the Middle Fork Goodnews River weir, 1991–2015.

Year	Sample size	Total escapement	Percent by age class												Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(3.2)	(2.4)	(3.3)		
1991 ^a	272	41,656	1.1	0.0	2.9	7.1	0.4	83.2	1.1	2.1	2.1	0.0	0.0	0.0	56.4	
1992 ^{ab}	204	15,133	1.5	0.0	0.0	38.7	0.0	51.5	1.0	5.9	1.5	0.0	0.0	0.0	60.8	
1993 ^a	312	24,957	0.6	0.3	5.1	19.2	0.3	67.0	1.0	3.5	2.6	0.0	0.3	0.0	60.9	
1994 ^a	160	56,503	0.0	0.0	3.1	1.9	0.0	87.5	1.3	6.3	0.0	0.0	0.0	0.0	49.4	
1995	454	37,776	0.0	0.0	0.2	13.7	0.0	76.8	2.8	2.7	3.8	0.0	0.0	0.0	50.4	543
1996 ^{ab}	246	38,343	0.0	0.0	3.3	2.0	0.0	89.4	0.0	1.2	4.1	0.0	0.0	0.0	47.6	
1997	733	34,322	0.2	0.0	1.4	20.9	0.7	63.2	2.4	2.5	8.2	0.0	0.4	0.0	54.0	543
1998 ^a	542	38,493	0.0	0.0	2.4	19.9	0.0	64.2	5.4	0.9	7.2	0.0	0.0	0.0	55.5	
1999	789	49,321	0.0	0.0	1.2	11.6	0.2	77.9	2.0	1.7	5.1	0.0	0.3	0.0	48.4	548
2000	607	40,828	0.0	0.0	1.3	2.0	0.0	91.2	1.4	1.4	2.7	0.0	0.0	0.0	54.1	560
2001	432	21,194	0.0	0.0	0.9	2.1	0.0	79.2	0.6	9.6	7.7	0.0	0.0	0.0	48.9	572
2002	485	21,329	0.0	0.0	0.5	54.5	0.2	27.6	8.8	2.6	5.4	0.0	0.2	0.1	55.7	520
2003	657	37,933	0.0	0.0	0.6	8.5	0.0	86.6	0.4	1.7	2.3	0.0	0.0	0.0	45.6	575
2004	806	54,035	0.0	0.0	1.4	31.8	0.0	55.8	2.9	5.6	2.5	0.0	0.0	0.0	54.5	540
2005	955	118,969	0.0	^c 0.0	0.1	13.5	0.0	79.0	2.7	1.1	3.6	0.0	0.0	0.0	54.3	543
2006	576	127,245	0.0	0.0	2.4	18.7	0.0	70.4	0.7	3.5	4.3	0.0	0.0	0.0	57.1	533
2007	727	73,768	0.6	0.0	8.1	12.2	0.4	70.0	1.6	3.0	4.2	0.0	0.0	0.0	50.1	550
2008	512	43,879	0.0	0.0	4.3	9.0	0.2	78.7	1.0	3.3	3.4	0.0	0.0	0.0	56.8	540
2009 ^a	161	27,494	0.0	0.0	4.3	31.7	0.0	54.7	1.9	2.5	5.0	0.0	0.0	0.0	57.8	540
2010	307	36,574	0.0	0.0	2.0	4.6	0.0	85.8	1.0	2.6	3.9	0.0	0.0	0.0	54.6	539
2011	440	19,643	0.0	0.0	3.0	6.4	0.2	84.1	0.2	3.9	2.0	0.0	0.2	0.0	56.1	550
2012	331	29,531	0.0	0.0	1.5	6.7	0.0	77.2	4.5	2.6	7.0	0.4	0.0	0.0	56.0	539
2013	625	23,545	0.1	0.0	1.8	6.8	0.0	52.5	3.1	6.4	21.4	0.0	2.6	5.3	56.3	549
2014	494	41,473	0.0	0.0	0.1	8.4	0.0	80.6	2.7	4.0	4.0	0.1	0.1	0.0	55.5	552
2015 ^a	425	57,809	0.0	0.0	0.9	10.1	0.0	86.4	0.7	1.2	0.7	0.0	0.0	0.0	55.8	532

^a Sampling was not appropriate to estimate ASL composition for the season. Composition, if shown, represents samples collected only.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

^c Age class was represented in samples but percent composition was <0.05.

Table 81.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area sockeye salmon past the Kanektok River weir, 2002–2015.

Year	Sample size	Total escapement	Percent by age class											Percent females	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(2.4)	(3.3)		
2002	663	60,228	0.0	0.0	0.5	56.2	0.3	34.7	1.1	2.3	4.1	0.5	0.3	57.7	529
2003	403	128,030	0.0	0.0	0.2	26.6	0.0	69.0	0.2	2.0	2.0	0.0	0.0	50.6	551
2004	470	105,135	0.2	0.0	0.2	48.3	0.0	46.5	3.3	1.0	0.5	0.0	0.0	43.5	530
2005 ^a	688	268,537													
2006 ^b															
2007	793	304,086	0.5	0.0	2.9	45.3	0.0	48.3	0.0	2.2	0.8	0.0	0.0	36.0	542
2008 ^{ac}	307	68,192												36.8	558
2009	585	305,756	0.0	0.0	1.9	62.1	0.0	34.9	0.4	0.1	0.5	0.0	0.0	51.7	538
2010	819	204,954	0.0	0.0	0.8	8.5	0.4	87.8	0.2	2.2	0.1	0.0	0.0	45.8	563
2011	697	88,177	0.9	0.0	3.9	40.0	0.2	48.0	4.1	1.7	1.1	0.0	0.1	50.8	543
2012	575	115,021	0.0	0.0	1.2	18.3	0.0	75.4	0.5	0.5	4.2	0.0	0.0	52.8	546
2013	601	128,761	0.0	0.0	0.2	71.1	0.0	24.6	1.1	2.4	0.6	0.0	0.0	55.7	519
2014	168	259,406	0.0	0.0	0.0	29.2	0.0	67.3	3.0	0.6	0.0	0.0	0.0	50.0	539
2015	582	106,751	0.0	0.0	0.4	12.4	0.0	72.0	13.3	1.1	0.6	0.0	0.0	52.5	541

^a Sampling was not appropriate to estimate ASL composition for the season.

^b Weir did not operate.

^c Weir did not operate for most of the season. Only observed escapement counts are presented.

Table 82.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W1 commercial gillnet fishery, 1984–2015.

Year	Sample size	Total harvest	Percent by age class				Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(4.1)		
1984	1,333	623,447	4.4	92.5	3.1	0.0	48.2	N/A
1985	1,119	335,551	8.5	86.8	4.7	0.0	45.8	N/A
1986	841	659,708	4.8	92.0	3.2	0.0	46.1	N/A
1987	820	399,380	7.2	76.9	15.9	0.0	53.1	N/A
1988	1,427	525,502	4.4	94.1	1.5	0.0	50.1	N/A
1989	743	477,955	8.9	88.3	2.8	0.0	45.5	N/A
1990	389	409,053	4.8	90	5.2	0.0	43.1	N/A
1991	573	500,824	4.7	87.4	7.9	0.0	33.8	554
1992	804	666,170	13.5	81.6	4.9	0.0	50.3	563
1993	540	610,667	5.8	91.2	3.0	0.0	48.1	549
1994	826	724,721	6.7	83.7	9.6	0.0	39.5	566
1995	565	471,461	12.3	79.3	8.4	0.0	44.7	558
1996	666	936,066	4.3	94.4	1.3	0.0	48.6	570
1997 ^a	324	130,631						
1998	1,194	210,481	4.9	93.0	2.1	0.0	49.5	572
1999	151	23,593	4.6	82.1	13.2	0.0	43.7	550
2000	2,616	261,379	3.5	94.4	2.1	0.0	53.2	555
2001	422	193,154	6.7	82.6	10.8	0.0	56.8	573
2002	428	83,463	1.0	93.2	5.8	0.0	51.7	572
2003 ^b	0	284,064						
2004	662	435,407	1.1	89.1	9.8	0.0	48.2	550
2005	412	142,319	7.3	83.5	9.2	0.0	50.2	552
2006	411	185,598	14.1	82.2	3.8	0.0	50.7	539
2007	448	141,049	5.0	90.5	4.5	0.0	53.5	548
2008	493	142,862	5.6	78.3	16.0	0.0	50.4	554
2009	669	104,546	5.0	87.4	7.5	0.0	50.0	563
2010	425	58,031	7.7	89.1	3.2	0.0	51.3	549
2011	667	74,108	15.1	79.3	5.5	0.0	48.6	555
2012	702	86,389	15.8	78.8	5.4	0.1	45.7	522
2013	351	114,069	6.1	81.3	12.6	0.0	53.2	560
2014	536	117,588	5.3	86.8	7.6	0.3	58.6	543
2015	349	65,034	10.1	84.5	5.4	0.0	49.0	574

Note: Harvest data are from Districts W1 and W2 combined. The commercial coho salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. N/A designates years when length data were not available or not summarized.

^a Sampling was not appropriate to estimate ASL composition for the season.

^b ASL data were not collected.

Table 83.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W4 commercial gillnet fishery, 1990–2015.

Year	Sample size	Total harvest	Percent by age class			Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)		
1990	607	26,926	5.8	88.4	5.8	42.4	N/A
1991	535	42,571	13.2	74.5	12.3	50.2	N/A
1992	590	86,404	16.9	79.1	4.0	46.6	N/A
1993	300	55,817	3.6	92.5	3.9	45.3	N/A
1994	429	83,912	6.6	89.7	3.7	52.8	N/A
1995	653	66,203	8.6	84.3	7.2	45.0	N/A
1996	556	118,718	6.0	92.5	1.5	43.1	596
1997 ^a	359	32,862					
1998	446	80,183	6.0	93.2	0.9	57.4	601
1999 ^b	0	6,184					
2000	285	30,529	1.4	97.0	1.6	49.2	580
2001	415	18,531	7.8	85.2	7.0	39.3	596
2002	460	26,695	1.4	89.1	9.6	50.3	599
2003	153	49,833	7.1	82.9	10.1	32.3	582
2004	186	82,710	4.8	94.3	0.9	46.3	573
2005	666	51,708	15.6	79.3	5.1	43.5	564
2006 ^c	377	26,831	13.3	84.8	1.9	48.8	538
2007 ^a	224	34,710					
2008	499	94,257	8.6	87.5	3.9	47.9	568
2009 ^a	198	48,115					
2010	189	13,690	11.6	85.8	2.6	46.4	566
2011	482	30,457	26.8	69.3	3.9	46.9	569
2012	519	31,214	13.1	83.5	3.5	52.4	547
2013	186	21,126	6.5	88.3	5.2	47.3	582
2014	166	52,317	17.7	77.3	5.1	44.3	553
2015	353	76,285	14.2	83.6	2.3	45.7	591

Note: Commercial coho salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. N/A designates years when length data were not available or not summarized.

^a Sampling was not appropriate to estimate ASL composition for the season.

^b ASL data were not collected.

^c Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

Table 84.– Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W5 commercial gillnet fishery, 1990–2015.

Year	Sample size	Total harvest	Percent by age class				Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(4.1)		
1990	250	7,804	5.2	91.6	3.2	0	42.8	N/A
1991	430	13,312	7.5	85.4	7.2	0.0	24.1	N/A
1992	404	19,875	12.0	85.5	2.6	0.0	42.7	N/A
1993	429	20,014	2.9	92.5	4.6	0.0	52.4	N/A
1994	415	47,499	9.0	86.5	4.5	0.0	48.1	N/A
1995	299	17,875	3.1	92.4	4.5	0.0	49.6	N/A
1996	457	43,836	6.3	90.2	3.5	0.0	52.3	622
1997 ^a	271	2,983						
1998	315	21,246	9.9	87.7	2.5	0.0	52.5	611
1999	205	2,474	10.3	84.9	4.8	0.0	47.7	592
2000	439	15,531	0.7	97.6	1.8	0.0	52.1	598
2001	414	9,275	4.8	89.6	5.5	0.0	47.4	619
2002 ^b	0	3,041						
2003 ^a	109	12,658						
2004 ^c	163	24,089	12.5	84.2	3.3	0.0	38.9	584
2005 ^a	69	11,735						
2006 ^b	0	12,436						
2007 ^b	0	13,689						
2008 ^b	0	22,547						
2009 ^a	43	8,406						
2010	600	4,900	10.6	87.3	2.2	0.0	40.7	572
2011	558	15,358	15.4	77.8	6.8	0.0	45.1	573
2012	542	25,515	9.8	85.7	4.6	0.0	44.6	551
2013	345	21,581	3.0	91.5	5.5	0.0	52.3	589
2014	341	52,158	6.0	88.0	5.4	0.6	51.1	575
2015 ^a	171	7,030						

Note: Commercial coho salmon fishery was executed using small mesh (≤ 6 inch) gillnets. N/A designates years when length data were not available or not summarized.

^a Sampling was not appropriate to estimate ASL composition for the season.

^b ASL data were not collected.

^c Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS.

Table 85.— Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Salmon River (Aniak) weir, 2008–2015.

Year	Sample size	Total escapement	Percent by age class			Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)		
2008	467	10,974	1.4	91.5	7.1	48.5	541
2009	652	6,351	2.1	91.4	6.5	47.3	551
2010 ^a							
2011 ^a							
2012 ^b	0	2,209					
2013	267	2,797	8.0	74.5	17.5	25.8	568
2014	251	8,254	0.6	89.6	9.8	34.5	527
2015 ^{bc}	9	267					

^a Weir did not operate.

^b Weir did not operate for most of the season. Only observed escapement counts are presented.

^c Sampling was not appropriate to estimate ASL composition for the season.

Table 86.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the George River weir, 1997–2015.

Year	Sample size	Total escapement	Percent by age class					Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(3.2)	(4.1)		
1997	205	9,392	2.2	95.9	1.9	0.0	0.0	42.2	557
1998 ^a									
1999	338	8,914	2.7	69.8	27.4	0.0	0.0	40.9	547
2000	365	11,269	1.3	97.6	1.1	0.0	0.0	43.2	548
2001	371	16,724	0.8	65.6	33.6	0.0	0.0	53.3	557
2002 ^b	72	6,759							
2003	171	32,873	0.9	88.0	11.0	0.0	0.0	52.7	556
2004	191	12,499	1.3	89.8	8.9	0.0	0.0	36.6	538
2005	463	8,294	1.0	80.2	18.8	0.0	0.0	48.6	539
2006	440	12,705	4.4	88.0	7.7	0.0	0.0	50.5	525
2007 ^b	442	28,398							
2008	429	21,931	0.5	63.4	36.2	0.0	0.0	52.3	543
2009	524	12,490	1.6	92.8	5.6	0.0	0.0	44.7	553
2010	559	12,639	2.7	89.6	7.7	0.0	0.0	51.5	545
2011	552	29,120	4.9	90.0	5.0	0.1	0.0	51.2	552
2012	366	14,478	1.9	73.6	24.6	0.0	0.0	48.1	505
2013	275	15,308	5.3	63.0	31.4	0.0	0.2	50.7	562
2014	389	35,771	1.5	85.9	12.6	0.0	0.0	52.1	528
2015	400	35,812	4.4	93.8	1.8	0.0	0.0	45.6	544

^a Weir was inoperable during coho salmon season.

^b Sampling was not appropriate to estimate ASL composition for the season.

Table 87.– Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Kogrukluk River weir, 1989–2015.

Year	Sample size	Total escapement	Percent by age class			Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)		
1989 ^{ab}	75	1,272					
1990 ^b	173	3,446					
1991	377	7,206	1.8	96.0	2.2	42.5	558
1992 ^{ab}	158	2,715					
1993 ^{ab}	157	4,437	2.5	94.3	3.1	40.1	564
1994	463	28,110	1.5	90.1	8.3	47.8	581
1995 ^{ab}	364	18,924	4.1	88.5	7.0	39.1	557
1996	639	50,003	3.0	94.9	2.1	37.0	594
1997 ^c	0	11,883					
1998	455	22,987	1.6	94.1	4.2	40.9	580
1999	343	10,908	2.5	88.1	9.4	17.0	563
2000	604	33,063	1.0	96.9	2.1	30.5	568
2001	504	19,983	1.5	91.3	7.2	49.1	577
2002	423	14,515	0.0	86.4	13.6	30.9	561
2003	161	74,915	1.6	81.5	16.8	40.2	566
2004	176	26,078	0.6	87.6	11.7	29.8	547
2005	447	25,407	6.0	84.9	9.1	49.7	543
2006	426	16,268	10.6	86.5	2.8	55.0	514
2007	394	26,423	3.5	90.7	5.8	44.6	542
2008	455	29,237	2.9	81.4	15.7	55.1	536
2009	520	22,289	1.5	90.2	8.2	56.5	541
2010	549	14,689	4.7	87.4	7.9	49.1	551
2011	535	21,800	4.5	87.3	8.2	51.1	545
2012 ^b	187	13,421					
2013	346	21,207	3.0	86.2	10.8	58.0	548
2014	257	52,975	2.2	84.2	13.7	57.2	506
2015	351	32,493	7.1	92.2	0.7	51.6	538

^a Weir did not operate for most of the season. Only observed escapement counts are presented.

^b Sampling was not appropriate to estimate ASL composition for the season.

^c ASL Samples were not collected.

Table 88.– Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Tatlawiksuk River weir, 1999–2015.

Year	Sample size	Total escapement	Percent by age class			Percent females	Mean length (mm)
			(1.1)	(2.1)	(3.1)		
1999	287	3,621	8.0	79.1	12.9	43.3	550
2000 ^a	188	5,646	0.0	100.0	0.0	39.9	564
2001 ^a	518	5,669	2.2	91.2	6.6	52.1	571
2002	596	11,156	1.2	89.3	9.5	38.7	565
2003 ^b							
2004	361	16,446	3.1	94.4	2.5	50.6	544
2005	476	7,076	4.4	89.7	5.9	48.2	557
2006 ^{ac}	155	2,362					
2007 ^c	419	8,500					
2008	485	11,022	3.8	84.3	11.9	52.7	542
2009	508	10,148	6.3	83.9	9.8	47.8	551
2010	517	3,773	5.4	92.9	1.7	53.6	534
2011	359	14,184	5.0	87.5	7.5	56.3	560
2012	323	8,015	7.8	90.4	1.8	49.2	516
2013 ^c	170	12,764					
2014	344	19,814	2.8	90.8	6.4	43.3	539
2015	332	17,701	2.5	94.6	2.8	47.3	565

^a Weir did not operate for most of the season. Only observed escapement counts are presented.

^b Weir did not operate during coho season.

^c Sampling was not appropriate to estimate ASL composition for the season.

Table 89.–List of years for which Chinook salmon age, sex, and length data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.

Project type / name	Years with available ASL data
Commercial Catch	
W1 (Subdistrict 1)	1964-1968, 1971-1975, 1977-1999, 2001, 2004, 2005, 2008-2011
W4 (Subdistrict 4)	1968-1970, 1973-2005, 2007-2015
W5 (Goodnews Bay Subdistrict)	1973, 1974, 1977, 1978, 1980-1995, 1997-2005, 2007, 2009-2015
Subsistence Catch	
Upper Kuskokwim River	1987, 1992, 2001-2003, 2012
Middle Kuskokwim River	1975, 1992, 2001-2003, 2014
Lower Kuskokwim River	1964, 1968, 1970, 1986, 1987, 1991-1995, 2001-2015
Kuskokwim Bay	1975, 2007, 2014
Escapement	
Aniak River	1980-1983, 1985, 1989, 1996, 2007
Eek River	1989
George River	1996-2015
Goodnews River (Middle Fork)	1983-1985, 1987-2015
Kanektok River	1983-1987, 1989, 1997, 2002-2005, 2007-2015
Kipchuk River	1989
Kisaralik River	1986, 2001
Kogruklu River	1968, 1969, 1971-1973, 1976, 1978-2015
Kwethluk River	1989, 1991, 1992, 2000-2004, 2006-2015
NYAC weir	1988
Salmon River (Aniak)	1989, 2006-2008, 2012, 2014-2015
Salmon River (Pitka Fork)	1981, 1982, 1989, 2015
Takotna River	2000-2013
Tatlawiksuk River	1998-2015
Tuluksak River	1991-1994, 2001-2014
Mark/Recapture	
Kalskag Fish Wheel	2007
Sport Catch (freshwater)	
Kanektok River	1983, 1985
Sport Catch (marine)	
W5 (Goodnews Bay Subdistrict)	1996
Test Fishing	
Kwegooyuk (Village/City)	1967, 1969, 1972-1976, 1978-1980, 1982, 1983
W1 (Subdistrict 1)	1981, 1993-1995, 2001-2008, 2011-2015

Table 90.–List of years for which chum salmon age, sex, and length data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.

Project type / name	Years with available ASL data
Commercial Catch	
Aniak River	1992
W1 (Subdistrict 1)	1966-1968, 1972-2005, 2007-2014
W4 (Subdistrict 4)	1965, 1967-1970, 1973-2005, 2007-2015
W5 (Goodnews Bay Subdistrict)	1974, 1978, 1980-2005, 2007, 2009-2015
Subsistence Catch	
Lower Kuskokwim River	1964, 1984-1986, 1993
Upper Kuskokwim River	1987, 1992
Escapement	
Aniak River	1980-1982, 1984, 1985, 1989, 1994-2011
George River	1996-2015
Goodnews River (Middle Fork)	1983-2015
Kanektok River	1983-1987, 1989, 1997, 2002-2005, 2007-2015
Kisaralik River	1986
Kogruklu River	1971-1973, 1976, 1978-2015
Kwethluk River	1989, 1991, 1992, 1997, 2000-2014
Nikolai (Village/City)	2004
NYAC weir	1988
Salmon River (Aniak)	2006-2008, 2014-2015
Salmon River (Pitka Fork)	1981, 1982
Takotna River	2000-2013
Tatlawiksuk River	1998-2015
Tuluksak River	1991-1994, 2001-2014
Mark/Recapture	
Birch Tree Crossing	2002
Kalskag Fish Wheel	2002
Test Fishing	
Kwegooyuk (Village/City)	1967, 1969, 1971-1975, 1977-1981
W1 (Subdistrict 1)	1981, 1993-1995, 2000-2005, 2007, 2008

Table 91.–List of years for which sockeye salmon age, sex, and length data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.

Project type / name	Years with available ASL data
Commercial Catch	
W1 (Subdistrict 1)	1969, 1972, 1975, 1977, 1980-2000, 2004, 2005, 2008-2014
W4 (Subdistrict 4)	1964, 1965, 1967-1970, 1974-1978, 1980-1985, 1987-2001, 2003-2005, 2007-2015
W5 (Goodnews Bay Subdistrict)	1969, 1974, 1977, 1978, 1980-2005, 2007, 2009-2015
Subsistence Catch	
Upper Kuskokwim River	1987
Middle Kuskokwim River	2014
Kuskokwim Bay	1980
Escapement	
Aniak River	1981, 1983, 1985, 2007
George River	2007
Goodnews River (Middle Fork)	1983, 1985-2015
Goodnews River (North Fork)	1989
Kanektok River	1984, 1985, 1987, 1989, 1997, 2002-2005, 2007-2015
Kisaralik River	1986
Kogruklu River	1968, 1976, 1978, 1980-1994, 2007, 2009-2015
Kwethluk River	1991, 1992, 2000, 2003, 2004, 2006-2014
Salmon River (Aniak)	2007, 2008, 2013, 2014
Stony River	1989
Takotna River	2007
Tatlawiksuk River	2007
Telaquana River	2010-2015
Tuluksak River	1991-1994, 2002, 2003, 2007-2014
Mark/Recapture	
Birch Tree Crossing	2002
Kalskag Fish Wheel	2002, 2005-2007, 2012
Salmon River (Aniak)	2012
Kogruklu River	2012
Telaquana River	2012
Test Fishing	
W1 (Subdistrict 1)	1981, 1994, 1995, 2001-2005, 2012-2014
Kwegooyuk (Village/City)	1967, 1971-1981

Table 92.–List of years for which coho salmon age, sex, and length data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.

Project type / name	Years with available ASL data
Commercial Catch	
W1 (Subdistrict 1)	1961, 1965-1969, 1971-1978, 1980-2002, 2004-2015
W4 (Subdistrict 4)	1967, 1968, 1974-1978, 1980-1998, 2000-2005, 2007-2015
W5 (Goodnews Bay Subdistrict)	1974, 1977, 1980-2001, 2003, 2005, 2009-2015
Subsistence Catch	
Lower Kuskokwim River	1989, 1992
Escapement	
Aniak River	1980
George River	1997, 1999-2015
Goodnews River (Middle Fork)	1988, 1991, 1995, 1996, 1998-2001, 2003-2014
Kanektok River	1983, 1997, 2001-2005, 2007-2014
Kisaralik River	1986
Kogruklu River	1981-1996, 1998-2015
Kwethluk River	1989, 2000-2004, 2006-2014
Salmon River (Aniak)	2008, 2009, 2013-2015
Takotna River	2000-2013
Tatlawiksuk River	1999-2002, 2004-2015
Tuluksak River	1991-1994, 2001-2014
Mark/Recapture	
Kalskag Fish Wheel	2008, 2009
Test Fishing	
Aniak River	1995
Kwegooyuk (Village/City)	1974, 1975
W1 (Subdistrict 1)	1980, 1994, 1995