

Regional Information Report 3A21-03

Salmon Age, Sex, and Length Catalog for the Kuskokwim Area, 2019

by

Courtney L. Berry

and

Sean Larson

April 2021

Alaska Department of Fish and Game

Division of Commercial Fisheries



Symbols and Abbreviations

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

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

REGIONAL INFORMATION REPORT 3A21-03

**SALMON AGE, SEX, AND LENGTH CATALOG FOR THE
KUSKOKWIM AREA, 2019**

by

Courtney L. Berry and Sean Larson

Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

Alaska Department of Fish and Game
Division of Commercial Fisheries
333 Raspberry Road, Anchorage, Alaska, 99518-1565

April 2021

The Regional Information Report Series was established in 1987 and was redefined in 2007 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as area management plans, budgetary information, staff comments and opinions to Alaska Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at: <http://www.adfg.alaska.gov/sf/publications/>.

Product names used in this publication are included for completeness and do not constitute product endorsement. The Alaska Department of Fish and Game does not endorse or recommend any specific company or their products

*Courtney L. Berry and Sean Larson
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Rd, Anchorage, Alaska, 99518, USA*

This document should be cited as follows:

Berry, C. L., and S. Larson. 2021. Salmon age, sex, and length catalog for the Kuskokwim Area, 2019. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A21-03, Anchorage.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526

U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648,
(Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Division of Sport Fish, Research and Technical Services, 333 Raspberry Rd, Anchorage AK 99518 (907) 267-2375

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	ii
ABSTRACT	1
INTRODUCTION	1
OBJECTIVES.....	2
METHODS	2
Sample Size	2
Escapement Projects	3
Commercial Harvest	3
Subsistence Harvest.....	3
Bethel Test Fishery	4
Age, Sex, and Length Sampling Procedures.....	4
Age Estimation	4
Estimates of Age, Sex, and Length Composition	4
Historical Data Summaries	6
Archiving and User Generated Reports	6
RESULTS	7
2019 Season.....	7
Historical Data Summaries	7
Kuskokwim Area ASL Data in the AYKDBMS	8
DISCUSSION.....	8
Sources of Bias	8
Data Quality, AYKDBMS.....	9
ACKNOWLEDGEMENTS.....	9
REFERENCES CITED	9
TABLES AND FIGURES	13

LIST OF TABLES

Table	Page
1 Projects and salmon species for which ASL data were collected in 2019.....	14
2 Minimum sample size requirements to estimate salmon ASL composition in 2019.....	14
3 Sample collections by community residents used to represent the ASL composition of Chinook salmon harvested in lower Kuskokwim River subsistence fishery, 2019.	15
4 Percent of samples collected by gillnet mesh size in the lower and middle Kuskokwim River Chinook salmon subsistence fishery, 2019.	15
5 Postseason stratification used to account for disproportionate sampling of Chinook salmon at ASL escapement projects in the Kuskokwim Area, 2019.....	16
6 Postseason stratification used to account for disproportionate sampling of chum salmon at ASL monitoring projects in the Kuskokwim Area, 2019.....	17
7 Postseason stratification used to account for disproportionate sampling of sockeye salmon at ASL monitoring projects in the Kuskokwim Area, 2019.....	18
8 Postseason stratification used to account for disproportionate sampling of coho salmon at ASL monitoring projects in the Kuskokwim Area, 2019.....	18
9 Number of Chinook salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.	19
10 Number of chum salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.	19
11 Number of sockeye salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.	20
12 Number of coho salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.	20
13 ASL (mm) composition of Kuskokwim Area Chinook salmon caught in the Bethel drift gillnet fishery, 2019.....	21
14 ASL (mm) composition of Kuskokwim Area Chinook salmon harvested in the lower Kuskokwim River subsistence gillnet fishery, 2019.....	23
15 ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the Goodnews River (Middle Fork) weir, 2019.	26
16 ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the George River weir, 2019.....	27
17 ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past Kogruklu River weir, 2019.....	28
18 ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the Takotna River weir, 2019.....	29
19 ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the Salmon River (Pitka Fork) weir, 2019.	30
20 ASL (mm) composition of Kuskokwim Area chum salmon that escaped past the Goodnews River (Middle Fork) weir, 2019.	31
21 ASL (mm) composition of Kuskokwim Area chum salmon that escaped past the George River weir, 2019.....	32
22 ASL (mm) composition of Kuskokwim Area chum salmon that escaped past the Kogruklu River weir, 2019.....	33
23 ASL (mm) composition of Kuskokwim Area sockeye salmon that escaped past the Goodnews River (Middle Fork) weir, 2019.	34
24 Sex and length (mm) composition of Kuskokwim Area sockeye salmon sampled at the Kogruklu River weir, 2019.....	35
25 Sex and length (mm) of Kuskokwim Area sockeye salmon sampled at the Telaquana River weir, 2019. ...	36
26 ASL (mm) composition of Kuskokwim Area coho salmon that escaped past the George River weir, 2019.....	37
27 ASL (mm) composition of Kuskokwim Area coho salmon that escaped past the Kogruklu River weir, 2019.....	38
28 Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvested in the W1 commercial drift gillnet fishery, 1964–2019.....	39

LIST OF TABLES (Continued)

Table	Page
29 Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvested in the W4 commercial drift gillnet fishery, 1969–2019.....	41
30 Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvest in the W5 commercial drift gillnet fishery, 1990–2019.....	43
31 Estimated age and sex composition, mean length, and total number of Chinook salmon harvest in the Bethel test fishery, 2001–2019.	45
32 Estimated age and sex composition, mean length, and total number of Chinook salmon harvest in the lower Kuskokwim River subsistence fishery, 2001–2019.....	46
33 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Goodnews River (Middle Fork) weir, 1991–2019.....	47
34 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Kanektok River weir, 2002–2019.	49
35 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Salmon River (Aniak) weir, 2006–2019.....	50
36 Estimated age and sex composition, mean length, and total escapement of Kuskokwim River Chinook salmon past the George River weir, 1996–2019.....	51
37 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Tatlawiksuk River weir, 1998–2019.....	52
38 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Kogrukluk River weir, 1976–2019.	53
39 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Salmon River (Pitka Fork) weir, 1981–1982 and 2015–2019.	55
40 Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W1 commercial drift gillnet fishery, 1972–2019.	56
41 Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W4 commercial drift gillnet fishery, 1984–2019.	58
42 Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W5 commercial drift gillnet fishery, 1984–2019.	59
43 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Goodnews River (Middle Fork) weir, 1991–2019.....	60
44 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Kanektok River weir, 2002–2019.....	61
45 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Salmon River (Aniak) weir, 2006–2019.....	62
46 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the George River weir, 1996–2019.....	63
47 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Tatlawiksuk River weir, 1998–2019.....	64
48 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Kogrukluk River weir, 1976–2019.	65
49 Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W1 commercial drift gillnet fishery, 1984–2019.....	67
50 Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W4 commercial gillnet fishery, 1990–2019.....	69
51 Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W5 commercial drift gillnet fishery, 1985–2019.	71
52 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area sockeye salmon past the Middle Fork Goodnews River weir, 1991–2019.	73
53 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area sockeye salmon past the Kanektok River weir, 2002–2019.....	75
54 Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W1 commercial drift gillnet fishery, 1984–2019.	76

LIST OF TABLES (Continued)

Table	Page
55 Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W4 commercial drift gillnet fishery, 1990–2019.	77
56 Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W5 commercial drift gillnet fishery, 1990–2019.	78
57 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Salmon River (Aniak) weir, 2008–2019.	79
58 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the George River weir, 1997–2019.	80
59 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Kogrukluk River weir, 1989–2019.	81
60 Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Tatlawiksuk River weir, 1999–2019.	82
61 List of years for which Chinook salmon ASL data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.	83
62 List of years for which chum salmon ASL data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.	84
63 List of years for which sockeye salmon ASL data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.	85
64 List of years for which coho salmon ASL data was collected from Kuskokwim Management Area projects and archived in the Arctic Yukon Kuskokwim Database Management System.	86

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 ASL catalog for the Kuskokwim Area has been produced to compile data summaries useful to Kuskokwim Area fishery managers, project leaders, and other interested parties. This report provides (1) an overview of projects that collected ASL data in 2019, (2) a single source document for project specific data summaries produced in 2019, (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 Arctic-Yukon-Kuskokwim Database Management System. This report presents details of ASL sampling efforts that occurred during the 2019 season for the subsistence harvest, test fishery harvest, and escapement. Sampling during the 2019 season resulted in 6,707 salmon sampled for ASL. Chinook salmon *O. tshawytscha* made up 44% of the samples collected, followed by chum salmon *O. keta* at 26%, sockeye salmon *O. nerka* at 20%, and coho salmon *O. kisutch* at 10%.

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

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 2016) 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 collecting 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 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. 2013; Brodersen et al. 2013; Liller et al. 2015, 2016; Froning and Liller 2019a, 2019b). Before 2014, summarized ASL data was also reported in ADF&G project reports and fisheries management reports. Beginning in 2014, ADF&G project reports only provided information regarding data collection efforts (e.g., Head and Smith 2018). The salmon ASL catalog for the Kuskokwim Area is the only published source for ASL data summaries.

Salmon ASL data were collected at 9 projects within the Kuskokwim Area during 2019 (Table 1). Chinook salmon caught in the subsistence fishery were sampled for ASL throughout the 2019 season. The gear types used by subsistence fishermen and the timing of subsistence fishing activities were different compared to other sources of harvest (e.g., test fisheries). Therefore, dedicated sampling effort occurred for Chinook salmon harvested in the Lower Kuskokwim River

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

subsistence fishery, where most of the total subsistence harvest occurs (Liller et al. 2019). Chinook salmon were also sampled from a test fishery that operated in the lower portion of the Kuskokwim River near Bethel. Samples collected from the test fishery were assumed to be reasonably representative of the total run. ASL data were collected for all salmon species monitored at 7 weirs located on select spawning tributaries. The Goodnews River (Middle Fork) weir indexed salmon escapement to District 5 in Kuskokwim Bay. A weir operated on the George River indexed salmon escapement to the middle portion of the Kuskokwim River. A weir operated on the Kogruluk River indexed salmon escapement to the Holitna river. The Telaquana River weir was used to index escapement of lake-spawning sockeye salmon. The Salmon (Pitka Fork) and Takotna river weirs provided an index of escapement to the headwaters of the Kuskokwim River drainage. A weir was operated on the Kwethluk River by the U.S. Fish and Wildlife Service (USFWS) to index salmon escapement to the lower portion of the Kuskokwim River. Data summaries for ASL data collected at the Kwethluk River weir in 2019 were published by USFWS and are not presented in this report.

The 2019 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 and a detailed description of data processing, analysis, and archiving. This document provides standardized data summaries for all projects in 2019 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.

OBJECTIVES

The goal of this project was to analyze and report salmon ASL samples collected from the Kuskokwim Area subsistence fishery, a test fishery, and escapement projects in 2019.

Specific objectives of this report were as follows:

1. Provide an overview of projects and methods used to collect ASL information in 2019,
2. Provide a single source document for detailed project ASL data summaries produced in 2019,
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 2019, ASL samples were collected from 9 projects. Target species differed by project type and location (Table 1). Project types included a test fishery, subsistence catch, and escapement.

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 2). Recommended sample sizes were increased by at least 20% to account for scales that could not be aged for various reasons. This minimum sample size was required to estimate the age-

sex composition for any location or temporal strata of interest. 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 season; therefore, sampling occurred throughout the season.

ESCAPEMENT PROJECTS

ASL samples were collected using weirs with an integrated trap. Weir designs and specifications varied by location (Head and Smith 2018; Harper et al. 2018; and Webber and Harper 2018); 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 Area escapement monitoring locations. Daily sample goals were determined preseason by distributing the season's total sample size proportional to historical run timing. Daily sample schedules were adjusted as needed to account for observed run abundance. Furthermore, ADF&G staff were given the discretion to modify the timing and intensity of daily sampling activities to accommodate other work priorities if the sum of the daily samples for each week of project operations met or exceeded a predetermined schedule.

COMMERCIAL HARVEST

There was no large-scale commercial harvest and only limited commercial opportunity for fishermen registered as catcher/sellers in the Kuskokwim Area during 2019. Therefore, there were no ASL summaries produced for commercial harvests for 2019. In prior years, samples were collected from commercial fish deliveries made to local processing plants in Bethel, Quinhagak, and Platinum, Alaska.

SUBSISTENCE HARVEST

Opportunistic sampling was used to collect samples from the Chinook salmon subsistence harvest in the Lower Kuskokwim River (e.g., Liller et al. 2019). ADF&G partnered with Orutsaramuit Native Council to recruit and train subsistence fishermen to sample their 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. It was assumed that a sufficiently large pool of subsistence fishermen would adequately represent the range of fishing practices implemented in the subsistence fishery. Samples collected in 2019 probably represented the total subsistence harvest in the Lower Kuskokwim River.

In 2019, a total of 25 people participated in the subsistence sampling program and sampled 1,508 Chinook salmon from 29 individual harvesters (Table 3). Most samples were collected from residents of Bethel (84%). The remaining samples were collected from Tuntutuliak (6%), Oscarville (1%), and Napakiak (9%). Samples were collected from Chinook salmon caught in gillnets with stretched mesh ranging from 5.25-inches to 7.5-inches (Table 4).

BETHEL TEST FISHERY

Census sampling was conducted for Chinook salmon harvested in the Bethel Test Fishery. An attempt was made to collect ASL samples from all fish harvested. Samples were collected from Chinook salmon harvested in the test fishery using 5.375 and 8.0-inch drift gillnets.

AGE, SEX, AND LENGTH SAMPLING PROCEDURES

To the extent practical, sampling procedures were standardized across all projects (Eaton 2016). A minimum of 3 scales for Chinook and coho salmon and 1 scale for chum and sockeye salmon were removed from the preferred area of the fish and mounted on gum cards for age determination by ADF&G staff. The preferred area was located on the left side of the fish, 2 rows of scales 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). Scales collected from the preferred area are less affected by scale regeneration or loss relative to other areas of the body and are a more complete record of total age. The sex of each salmon sampled was verified by visual examination of the gonads (harvest and test fishery projects) or visual examination of external characteristics (escapement projects). Fish length was measured from the mid eye to tail fork (METF) to the nearest millimeter using a straight edge measuring device.

AGE ESTIMATION

Scales were used to determine the age of Chinook and chum salmon. Scales were mounted on gum cards during sampling and later impressed into cellulose acetate (Clutter and Whitesel 1956). Scale impressions were magnified and examined using a Microfiche reader. Age was determined by counting the number of freshwater and marine annuli. Annuli are the regions of the scale where the circuli, or growth rings, are tightly spaced relative to the preceding and proceeding circuli, representing slower growth rates associated with winter conditions (Mosher 1969). Freshwater annuli are distinguishable from saltwater annuli because the circuli formed in freshwater are finer and closer together than those formed while the fish was in the ocean (Major et al. 1972). Ages were recorded using European notation (Koo 1962), where the number of freshwater annuli is followed by a decimal and then the number of marine annuli. Total age from the brood year is the sum of freshwater and marine annuli plus 1 to account for time spent in the gravel before hatching.

ESTIMATES OF AGE, SEX, AND LENGTH COMPOSITION

The ASL composition of a returning salmon population often changes over the course of the season (Molyneaux et al. 2006); therefore, sample proportions may not be representative if samples were not collected in proportion to the run, harvest, or escapement. Samples collected from escapement projects were grouped into time strata, and the sample proportions from each stratum were applied to the escapement for each respective stratum, to account for seasonal changes in ASL composition (Tables 5–8). Attempts were made to include a sufficient sample size within each stratum to estimate the proportion of each major age class and obtain a 95% confidence interval width no greater than 10% of the estimate (Bromaghin 1993). The escapement or harvest by date was provided by project leaders and ADF&G fish ticket harvest reports.

For projects where sample ASL estimates were applied to the escapement, the proportion of fish of age class (a) of sex (s) during the stratified period (i) was estimated as:

$$\hat{p}_{a,s,i} = \frac{n_{a,s,i}}{n_i}, \quad (1)$$

where $n_{a,s,i}$ is the number of samples for age class (a) of sex (s) in stratified period (i), and n_i is the number of samples in stratified period (i).

The number of fish of specific age class (a) and sex (s) during a stratified period (i) was estimated as:

$$\hat{N}_{a,s,i} = \hat{p}_{a,s,i} N_i, \quad (2)$$

where N_i is the number of fish during the stratified period (i).

When data for all strata were available, the season total proportion of fish of specific age (a) and sex (s) was estimated as:

$$\hat{p}_{a,s} = \frac{1}{N} \sum_i N_i \hat{p}_{a,s,i}, \quad (3)$$

where:

$$N = \sum_i N_i. \quad (4)$$

The season total number of fish of specific age (a) and sex (s) was estimated as:

$$\hat{N}_{a,s} = \sum_i \hat{N}_{a,s,i}. \quad (5)$$

The season total age proportion was estimated as:

$$\hat{p}_a = \frac{1}{N} \sum_i \sum_s N_i \hat{p}_{a,s,i}. \quad (6)$$

The season total female proportion was estimated as:

$$\hat{p}_{s=f} = \frac{1}{N} \sum_i \sum_a N_i \hat{p}_{a,s=f,i}. \quad (7)$$

Mean length for fish of age (a) and sex (s) in stratified period (i) was estimated as:

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

where $y_{a,s,i,j}$ is the length of fish (j) of age (a) and sex (s), sampled during period (i), with a standard error (se) of:

$$se = \sqrt{\frac{s_{a,s,i}^2}{n_{a,s,i}}}, \quad (9)$$

where:

$$s_{a,s,i}^2 = \frac{\sum_j (y_{a,s,i,j} - \bar{y}_{a,s,i})^2}{n_{a,s,i} - 1}. \quad (10)$$

When data for all strata were available, season total mean length for fish of age (a) and sex (s) were estimated as:

$$\bar{y}_{a,s} = \frac{1}{N_{a,s}} \sum_i N_{a,s,i} \bar{y}_{a,s,i}, \quad (11)$$

with a standard error of:

$$se = \sqrt{\hat{V}(\bar{y}_{a,s})}, \quad (12)$$

where:

$$\hat{V}(\bar{y}_{a,s}) = \frac{1}{N_{a,s}^2} \sum_i N_{a,s,i}^2 \hat{V}(\bar{y}_{a,s,i}), \quad (13)$$

and

$$\hat{V}(\bar{y}_{a,s,i}) = \left(\frac{s_{a,s,i}^2}{n_{a,s,i}} \right). \quad (14)$$

Season total ASL summaries were produced for each project. For each project, data summaries were presented in a consistent manner using a table format which included sample dates, sample size, numbers of fish, percentage of fish, and mean length organized by brood year (age) for males, females, and both sexes combined. Additional summary information was provided about the 2019 ASL data collection at each project, including the total number of each data type (age, sex, or length) collected, the number of scale samples successfully aged, and the percentage of samples used to estimate ASL composition (Tables 9–12).

HISTORICAL DATA SUMMARIES

Historical ASL data summaries were produced to allow identification of temporal trends in ASL composition at select projects. Each historical summary presents the sample size, percent by age and sex, and mean length for each year the project operated for samples that contained all 3 ASL components. Data used to produce historical summaries were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. The unweighted historical estimates provided in this report may differ from historical ASL data summaries published in other reports, which may be weighted or had adjustment factors applied. Historical estimates provided here match the publicly available estimates in the AYKDBMS; however, weighted estimates can be produced independently or found in annual project reports.

ARCHIVING AND USER GENERATED REPORTS

Raw data forms, scale cards, and acetate impressions were archived in the ADF&G, Anchorage Regional Office, and ASL data were archived and made publicly accessible in the AYKDBMS. By selecting the “Search” link on the main database page, users will be directed to a series of data filters that allow for focused searches by management area, data type, project type, species group, and species. The user can also access an alphabetical list of all available projects by selecting the “Go to Projects” link on the data filters page. Selection of a specific project will yield 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. An ASL link will be visible under “Available Data Views by Data Type” if ASL data are available for the selected project. If data are available

and the “ASL” link is selected, the user will be prompted to select a specific year(s) for which ASL data are desired. Once the year(s) is selected and the user selects “Go to Data View”, a report will be generated with all the data associated with 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 (e.g., freshwater age, saltwater ASL). The reports are generated online; however, users can export them into Microsoft Excel or other formats (CSV, tab delimited, PDF etc.). Similarly, information pertaining to many of the assessment projects where ASL samples are collected are also available within the AYKDBMS. Assessment information includes metadata, year operational notes, CPUE from test fisheries, and escapement estimates.

RESULTS

2019 SEASON

A total of 6,707 salmon were sampled for age, sex, or length during the 2019 season. Chinook salmon made up 44% of the samples collected, followed by chum salmon (26%), sockeye salmon (20%), and coho salmon (10%). All projects attempted to collect paired ASL data from each fish. Although age samples were collected for most fish sampled, not all fish could be successfully aged (Tables 9–12). Overall, the percentage of Chinook, chum, sockeye, and coho salmon scales that were successfully aged was 86%, 95%, 84%, and 78%, respectively.

ASL data collected in 2019 were summarized by project for each salmon species sampled. Chinook salmon summaries include 1 test fishery operated near Bethel (Table 13), subsistence harvest composition from the Lower Kuskokwim River (Table 14), 1 weir operated in Kuskokwim Bay (Table 15), and 4 weirs operated in tributaries throughout the Middle and Upper Kuskokwim River (Tables 16–19). Chum salmon summaries include 1 weir operated in Kuskokwim Bay (Table 20) and 2 weirs operated in tributaries of the Middle Kuskokwim River (Tables 21–22). Sockeye salmon summaries include 1 weir operated in Kuskokwim Bay (Table 23) and 2 weirs operated in tributaries of the Middle Kuskokwim River (Tables 24–25). Coho salmon summaries include 2 weirs operated in tributaries of the Middle Kuskokwim River (Tables 26–27).

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 28) and 2 Kuskokwim Bay (Tables 29–30) subdistricts, 1 test fishery near Bethel (Table 31), subsistence harvest composition from the Lower Kuskokwim River (Table 32), 2 escapement monitoring weir projects located on tributaries that drain into Kuskokwim Bay (Tables 33–34), and 5 escapement monitoring weirs operated in tributaries throughout the Middle and Upper Kuskokwim River (Tables 35–39). Historical ASL summaries for chum salmon include commercial harvest composition from 1 Kuskokwim River (Table 40) and 2 Kuskokwim Bay (Tables 41–42) subdistricts, 2 escapement monitoring weir projects located on tributaries that drain into Kuskokwim Bay (Tables 43–44), and 4 escapement monitoring weirs operated in tributaries throughout the Middle Kuskokwim River (Tables 45–48). Historical ASL summaries for sockeye salmon include commercial harvest composition from 1 Kuskokwim River (Table 49) and 2 Kuskokwim Bay (Tables 50–51) subdistricts, and 2 escapement monitoring weir projects located on tributaries that drain into Kuskokwim Bay (Tables 52–53). Historical ASL summaries for coho salmon include commercial harvest composition from 1 Kuskokwim River (Table 54) and 2

Kuskokwim Bay (Tables 55–56) subdistricts, and 4 escapement monitoring weirs operated in tributaries throughout the Middle Kuskokwim River (Tables 57–60).

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 ASL. A comprehensive list of all Kuskokwim Area projects that have collected salmon ASL data and the years data are available for each salmon species. Tables were developed by querying data directly from the AYKDBMS. Overview tables provide a quick reference for ADF&G 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 61), chum salmon data from 24 projects (Table 62), sockeye salmon data from 27 projects (Table 63), and coho salmon data from 19 projects (Table 64). 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 vary considerably within and between project types (Tables 61–64).

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 have been 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 ADF&G 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.

There is potential for bias caused by small sample sizes and scale absorption and collection methods. The collection of regenerated scales was the primary reason some ages could not be read in 2019. Scale absorption refers to the margin of the scale being absorbed as an energy reserve in the last few weeks of a salmon’s life (Clutter and Whitesel 1956). Scale absorption normally becomes more pronounced the farther upriver the samples are collected and can lead to underestimating saltwater age because less of the outermost annulus remains. Vertebra or otolith sampling can alleviate issues with resorbed scales but are more time-consuming methods of collection and reading. Bias may also exist in weir sampling towards smaller fish when larger fish are more reluctant to enter a confined weir trap structure and be available for live sampling. Though “trap shyness” has yet to be scientifically evaluated, users of these data should be aware

that this potential bias exists. 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 various 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, some of the Kuskokwim Area ASL data in the AYKDBMS has not been reviewed for errors. As such, 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 ADF&G 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 for estimating ASL composition. Users of the database should review annual project reports or consult ADF&G staff for information regarding data collection and limitations.

ACKNOWLEDGEMENTS

We would like to acknowledge the many technicians from ADF&G, Orutsararmiut Native Council, Native Village of Napaimute, MTNT Ltd., and USFWS who participated in salmon monitoring activities. We also thank Bobette Dickerson for providing estimates of escapement, and Bill Bechtol of the Bering Sea Fisherman's Association, and Janessa Esquible of Orutsararmiut Native Council for their assistance in the subsistence sampling program. We would like to thank Jim O'Rourke for aging thousands of Kuskokwim Area salmon. Lastly, thanks to Toshihide Hamazaki for reviewing estimation methods and data analysis templates.

REFERENCES CITED

- Brannian, L. K., S. Darr, H. A. Krenz, S. StClair, and C. Lawn. 2005. Development of the Arctic-Yukon-Kuskokwim salmon database management system through June 30, 2005. Alaska Department of Fish and Game, Special Publication No. 05-10, Anchorage.
- Brodersen, A. B., Z. W. Liller, and C. L. Truesdale. 2013. Salmon age, sex, and length catalog for the Kuskokwim Area, 2012. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 13-07, Anchorage.
- Bromaghin, J. F. 1993. Sample size determination for interval estimation of multinomial probabilities. *The American Statistician* 47(3):203-206.
- Clutter, R. and L. Whitesel. 1956. Collection and interpretation of sockeye salmon scales. *Bulletin of the International North Pacific Fisheries Commission* 9, Westminster, British Columbia, Canada.

REFERENCES CITED (Continued)

- DuBois, L., and D. B. Molyneaux. 2000. Salmon age, sex, and length catalog for the Kuskokwim area, 1999 progress report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A00-18, Anchorage.
- Eaton, S. M. 2015. Salmon age, sex, and length (ASL) sampling procedures for the Arctic-Yukon-Kuskokwim Region. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A15-04, Anchorage.
- Froning, K. E., and Z. W. Liller. 2019a. Salmon age, sex, and length catalog for the Kuskokwim Area, 2015. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A19-04, Anchorage.
- Froning, K. E., and Z. W. Liller. 2019b. Salmon age, sex, and length catalog for the Kuskokwim Area, 2016. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A.19-03, Anchorage.
- Head J. M., and N. J. Smith. 2018. Salmon escapement monitoring in the Kuskokwim Area, 2017. Alaska Department of Fish and Game, Fishery Data Series No. 18-11, Anchorage.
- INPFC (International North Pacific Fisheries Commission). 1963. Annual report, 1961. International North Pacific Fisheries Commission, Vancouver, British Columbia.
- Koo, T. S. Y. 1962. Age designation in salmon. Pages 37–48 [In]: T. S. Y. Koo, editor, Studies of Alaska red salmon. University of Washington Press, Seattle, Washington.
- Liller, Z. W., A. B. Brodersen, and J. L. Clark. 2013a. Salmon age, sex, and length catalog for the Kuskokwim Area, 2010 and 2011. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A13-01, Anchorage.
- Liller, Z. W., A. B. Brodersen, and C. L. Truesdale. 2015. Salmon age, sex, and length catalog for the Kuskokwim Area, 2013. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A15-07, Anchorage.
- Liller, Z. W., A. B. Brodersen, and K. E. Froning. 2016. Salmon age, sex, and length catalog for the Kuskokwim Area, 2014. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A.16-02, Anchorage.
- Liller, Z. W., K. E. Froning, N. J. Smith, and J. Esquible. 2019. Age, sex, and length composition of Chinook salmon harvested in the 2016 and 2017 Lower Kuskokwim River subsistence fishery. Alaska Department of Fish and Game, Fishery Data Series No. 19-18, Anchorage.
- Lipka, C., A. Tiernan. 2018. 2017 Kuskokwim area management report. Alaska Department of Fish and Game, Fishery Management Report No. 18-22, Anchorage.
- Harper, K. C., P. A. Webber, and J. Boersma. 2018. Abundance and run timing of adult Pacific Salmon in the Kwethluk River, Yukon Delta National Wildlife Refuge, Alaska, 2017. Alaska Fisheries Data Series, 2018-6, U.S. Fish and Wildlife Service.
- Major, R. L., K. H. Mosher, and J. E. Mason. 1972. Identification of stocks of Pacific salmon by means of scale features. Pages 209-231 [In]: R. C. Simon and P. A. Larkin, editors. The stock concept in Pacific Salmon. H.R. MacMillan Lectures in Fisheries, Univ. B.C., Inst. Fish., Vancouver, B.C.
- Mosher, K. H. 1969. Identification of Pacific salmon and steelhead trout by scale characteristics. United States Department of the Interior, United States Fish and Wildlife Service, Bureau of Commercial Fisheries, Circular 317, Washington, D.C.

REFERENCES CITED (Continued)

- Molyneaux, D. B. and L. DuBois. 1996. Salmon age, sex, and length catalog for the Kuskokwim area, 1995 progress report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A96-31, Anchorage.
- Molyneaux, D. B., and L. DuBois. 1998. Salmon age, sex, and length catalog for the Kuskokwim area, 1996–1997 progress report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A98-15, Anchorage.
- Molyneaux, D. B., and L. DuBois. 1999. Salmon age, sex, and length catalog for the Kuskokwim area, 1998 progress report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A99-15, Anchorage.
- Molyneaux, D. B., and D. Folletti. 2005. Salmon age, sex, and length catalog for the Kuskokwim Area, 2004. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A05-03 Anchorage.
- Molyneaux, D. B., and D. L. Folletti. 2007. Salmon age, sex, and length catalog for the Kuskokwim Area, 2006. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A07-09, Anchorage.
- Molyneaux, D. B., A. R. Brodersen, and C. A. Shelden. 2009. Salmon age, sex, and length catalog for the Kuskokwim Area, 2008. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A09-06, Anchorage.
- Molyneaux, D. B., A. R. Brodersen, and C. A. Shelden. 2010. Salmon age, sex, and length catalog for the Kuskokwim Area, 2009. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A10-05, Anchorage.
- Molyneaux, D. B., D. L. Folletti, and A. R. Brodersen. 2008. Salmon age, sex, and length catalog for the Kuskokwim Area, 2007. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A08-05, Anchorage.
- Molyneaux, D. B., D. L. Folletti, and C. A. Shelden. 2006. Salmon age, sex, and length catalog for the Kuskokwim Area, 2005. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A06-01, Anchorage.
- Webber, P. A, and K. C. Harper. 2018. Abundance and run timing of adult Pacific Salmon in the Tuluksak River, Yukon Delta National Wildlife Refuge, Alaska, 2014. Alaska Fisheries Data Series, 2018-5, U.S. Fish and Wildlife Service.

TABLES AND FIGURES

Table 1.—Projects and salmon species for which ASL data were collected in 2019.

Project type	Location	River km	Species			
			Chinook	Sockeye	Chum	Coho
Test fishery	Bethel	111	X			
Subsistence catch	Lower Kuskokwim River	^a	X			
Escapement	Goodnews (Middle Fork)	^b	X	X	X	
	Kwethluk River ^c	216	X	X	X	
	George River	453	X		X	X
	Kogruklu River	710	X	X	X	X
	Takotna River	752	X			
	Telaquana River	772		X		
	Salmon River (Pitka Fork)	916	X			

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

^a The Lower Kuskokwim River consists of all waters between the Kuskokwim Bay and the Village of Tuluksak and approximates District W1.

^b Flows into Goodnews Bay and District W5.

^c 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.—Minimum sample size requirements to estimate salmon ASL composition in 2019.

Species	Number categories ^a	Sample size ^b	Adjusted sample size ^c	Age classes ^d
Chinook	8	190	230	1.1, 1.2, 1.3, 1.4, and other
Sockeye	6	205	230	0.3, 1.2, 1.3, 2.2, 1.4, and 2.3
Chum	4	180	220	0.2, 0.3, 0.4, and other
Coho	3	168	200	1.1, 2.1, and 3.1

^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 unagable scales

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

Table 3.–Sample collections by community residents used to represent the ASL composition of Chinook salmon harvested in lower Kuskokwim River subsistence fishery, 2019.

Location	River km	Number of samplers	Harvests sampled ^a	Sample size ^b	Percent
Tuntutuliak	45	1	2	87	6
Bethel	106	22	25	1,260	84
Oscarville	132	1	1	21	1
Napakiak	143	1	1	140	9
Total		25	29	1,508	100

^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 4.–Percent of samples collected by gillnet mesh size in the lower and middle Kuskokwim River Chinook salmon subsistence fishery, 2019.

	Tuntutuliak	Oscarville	Bethel	Napakiak	Total
Mesh size ^a	(n = 87)	(n = 21)	(n = 1,260)	(n = 140)	(n = 1,508)
5.25 inch			2.0%		2.0%
5.5 inch	0.7%		21.1%	9.2%	31.0%
5.625 inch			1.5%		1.5%
5.875 inch	0.3%		8.8%		9.1%
6.0 inch	1.3%	1.4%	50.2%		52.9%
7.0 inch	0.6%				0.6%
7.5 inch	2.9%				2.9%
Total	5.8%	1.4%	83.6%	9.2%	100.0%

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

^a Drift and set gillnets combined.

Table 5.—Postseason stratification used to account for disproportionate sampling of Chinook salmon at ASL escapement projects in the Kuskokwim Area, 2019.

Project location	Stratum	Sample size	Escapement	Stratum dates	Sample dates
Goodnews River (Middle Fork)	1	41	684	6/22–7/4	6/27–7/1, 7/3–7/4
	2	100	800	7/5–7/31	7/5–7/16, 7/18–7/19, 7/21, 7/23–7/26
George River	1	36	897	6/15–6/29	6/24–6/28
	2	59	874	6/30–7/7	6/30–7/7
	3	74	1,005	7/8–7/14	7/8–7/9, 7/11–7/14
	4	61	842	7/15–9/20	7/15–7/17, 7/19–7/24, 7/26–7/29, 8/1–8/5
Kogruklu River	1	135	2,912	6/26–7/11	6/27–6/28, 7/1–7/3, 7/5–7/6, 7/8–7/11
	2	78	3,696	7/12–7/21	7/13–7/20
	3	45	3,690	7/22–9/18	7/22–7/26, 7/28–7/29, 7/31–8/1, 8/3
Takotna River ^a	1	87	540	7/1–8/5	7/1–7/2, 7/7–7/10, 7/12–7/31, 8/2
Salmon River (Pitka Fork)	1	73	2,215	6/17–7/8	6/30–7/2, 7/5–7/8
	2	108	2,579	7/9–8/13	7/9–7/10, 7/12–7/14, 7/16–7/25, 7/30–7/31, 8/3

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

^a Sample size was not sufficient to stratify and apply to escapement.

Table 6.—Postseason stratification used to account for disproportionate sampling of chum salmon at ASL monitoring projects in the Kuskokwim Area, 2019.

Project location	Stratum	Sample size	Escapement	Stratum dates	Sample dates
Goodnews River (Middle Fork)	1	43	9,102	6/22–7/8	7/3–7/8
	2	153	9,061	7/9–7/15	7/9–7/13, 7/15
	3	233	9,674	7/16–7/22	7/16–7/22
	4	187	10,340	7/23–7/31	7/23–7/26, 7/28
George River	1	362	13,390	6/15–7/30	7/3–7/17, 7/19–7/30
	2	33	11,351	7/31–8/7	8/1–8/2
	3	49	15,336	8/8–9/20	8/8, 8/11–8/14, 8/17
Kogrukluk River	1	436	17,570	6/26–7/21	6/28, 7/1, 7/3, 7/7–7/20
	2	98	15,157	7/22–7/27	7/22–7/26
	3	68	19,277	7/28–8/2	7/28–7/29, 7/31, 8/2
	4	42	18,580	8/3–9/18	8/4, 8/6, 8/8, 8/10, 8/12

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

Table 7.—Postseason stratification used to account for disproportionate sampling of sockeye salmon at ASL monitoring projects in the Kuskokwim Area, 2019.

Project location	Stratum	Sample size	Escapement	Stratum dates	Sample dates
Goodnews River (Middle Fork)	1	93	31,845	6/22–7/1	6/27–7/1
	2	66	27,811	7/2–7/4	7/3–7/4
	3	122	34,445	7/5–7/8	7/5–7/8
	4	96	36,030	7/9–7/14	7/9–7/12
	5	161	36,974	7/15–7/31	7/18–7/20, 7/22–7/23, 7/25
Kogruklu River ^a	1	326	31,816	6/26–9/18	7/3, 7/5, 7/7, 7/9–7/20, 7/22–7/26, 7/28–7/29, 7/31, 8/2, 8/4, 8/6, 8/8, 8/10
Telaquana River ^a	1	400	190,265	7/3–8/20	7/9–7/10, 7/13–8/6, 8/8–8/16

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

^a No scales were collected.

Table 8.—Postseason stratification used to account for disproportionate sampling of coho salmon at ASL monitoring projects in the Kuskokwim Area, 2019.

Project location	Stratum	Sample size	Escapement	Stratum dates	Sample dates
George River	1	99	3890	6/15–9/1	8/10, 8/12–8/15, 8/17–8/18, 8/22–8/24, 8/26–8/29, 8/31–9/1
	2	79	4923	9/2–9/7	9/2–9/4
	3	54	4,464	9/8–9/20	9/8–9/14, 9/16
Kogruklu River	1	148	4,718	6/26–9/2	8/15, 8/17, 8/19–8/20, 8/22–8/23, 8/27, 8/29, 8/31–9/2
	2	92	5,941	9/3–9/8	9/4, 9/6, 9/8
	3	51	5,811	9/9–9/18	9/10, 9/12, 9/14–9/15

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

Table 9.—Number of Chinook salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.

Project type	Location	Capture gear	Number sampled	Age		Sex ID		Length	
				Number	Percent	Number	Percent	Number	Percent
Test fishery	Bethel	Drift gillnet	559	489	87	559	100	559	100
Subsistence catch	Lower Kuskokwim River	Gillnet	1,508	1,208	80	1,472	98	1,502	100
Escapement	Goodnews River (Middle Fork)	Weir	141	133	94	141	100	141	100
	George River	Weir	229	229	100	228	100	228	100
	Kogruklu River	Weir	258	224	87	258	100	258	100
	Takotna River	Weir	87	87	100	86	99	87	100
	Salmon River (Pitka Fork)	Weir	181	181	100	181	100	181	100
Total			2,963	2,551	86	2,925	99	2,956	100

Table 10.—Number of chum salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.

Project type	Location	Capture gear	Number sampled	Age		Sex ID		Length	
				Number	Percent	Number	Percent	Number	Percent
Escapement	Goodnews River (Middle Fork)	Weir	614	593	97	614	100	614	100
	George River	Weir	444	424	95	444	100	444	100
	Kogruklu River	Weir	653	611	94	652	100	652	100
Total			1,711	1,628	95	1,710	100	1,710	100

Table 11.—Number of sockeye salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.

Project type	Location	Capture gear	Number sampled	Age		Sex ID		Length	
				Number	Percent	Number	Percent	Number	Percent
Escapement	Goodnews River (Middle Fork)	Weir	637	538	84	637	100	637	100
	Kogruklu River ^a	Weir	326			326	100	326	100
	Telaquana River ^a	Weir	401			401	100	401	100
Total			1,364	538	84	1,364	100	1,364	100

^a No scales were collected.

Table 12.—Number of coho salmon samples collected from Kuskokwim Area projects and percent used to determine ASL, 2019.

Project type	Location	Capture gear	Number sampled	Age		Sex ID		Length	
				Number	Percent	Number	Percent	Number	Percent
Escapement	George River	Weir	264	232	88	264	100	264	100
	Kogruklu River	Weir	405	291	72	405	100	405	100
Total			669	523	78	669	100	669	100

Table 13.—ASL (mm) composition of Kuskokwim Area Chinook salmon caught in the Bethel drift gillnet fishery, 2019.

Sample dates (Mesh size)	Sample size	Brood year Age	2016	2015	2014	2013	2013	2012	Total
			1.1	1.2	1.3	1.4	2.3	1.5	
5/29–5/31, 6/1, 6/3, 6/5–6/18, 6/20–7/1, 7/3–7/4, 7/6–7/9, 7/11–7/14, 7/16–7/18, 7/21, 7/23, 7/28 (5.375")	276	Male n	2	155	47	1	1	0	206
		Female n	0	11	41	18	0	0	70
		Total n	2	166	88	19	1	0	276
		Male %	0.7	56.2	17.0	0.4	0.4	0.0	74.6
		Female %	0.0	4.0	14.9	6.5	0.0	0.0	25.4
		Total %	0.7	60.1	31.9	6.9	0.4	0.0	100.0
		Male mean length	397	562	690	711	723		
		SD	18	42	54	0	0		
		Range	384–410	470–685	534–787	711–711	723–723		
		n	2	155	47	1	1	0	
		Female mean length		569	745	777			
		SD		29	56	45			
		Range		517–620	580–838	683–851			
		n	0	11	41	18	0	0	
5/30–5/31, 6/3–6/4, 6/6–7/1, 7/3, 7/5–7/15 (8.0")	213	Male n	1	39	62	20	0	1	123
		Female n	0	3	49	38	0	0	90
		Total n	1	42	111	58	0	1	213
		Male %	0.5	18.3	29.1	9.4	0.0	0.5	57.7
		Female %	0.0	1.4	23.0	17.8	0.0	0.0	42.3
		Total %	0.5	19.7	52.1	27.2	0.0	0.5	100.0
		Male mean length	487	583	728	810		868	
		SD	0	54	58	69		0	
		Range	487–487	481–718	628–880	664–940		868–868	
		n	1	39	62	20	0	1	
		Female mean length		597	759	790			
		SD		60	47	43			
		Range		542–661	670–843	694–877			
		n	0	3	49	38	0	0	

-continued-

Table 13.–Page 2 of 2.

Total (All mesh sizes)	Sample size	Brood year Age	2016	2015	2014	2013	2013	2012	Total
			1.1	1.2	1.3	1.4	2.3	1.5	
	489	Male n	3	194	109	21	1	1	329
		Female n	0	14	90	56	0	0	160
		Total n	3	208	199	77	1	1	489
		Male %	0.6	39.7	22.3	4.3	0.2	0.2	67.3
		Female %	0.0	2.9	18.4	11.5	0.0	0.0	32.7
		Total %	0.6	42.5	40.7	15.7	0.2	0.2	100.0
		Male mean length	427	566	712	806	723	868	
		SD	54	45	59	71			
		Range	384–487	470–718	534–880	664–940	723–723	868–868	
		n	3	194	109	21	1	1	
		Female mean length		575	753	786			
		SD		37	52	43			
		Range		517–661	580–843	683–877			
		n	0	14	90	56	0	0	

Note: Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 14.–ASL (mm) composition of Kuskokwim Area Chinook salmon harvested in the lower Kuskokwim River subsistence gillnet fishery, 2019.

Sample dates (Mesh size)	Sample size	Brood year Age	2016	2016	2015	2014	2014	2013	2012	2012	Total
			0.2	1.1	1.2	1.3	2.2	1.4	1.5	2.4	
6/8, 6/12, 6/15, 6/19, 6/22, 6/26 (5.25"–5.50")	383	Male n	0	0	180	99	1	11	0	0	291
		Female n	0	0	34	47	0	11	0	0	92
		Total n	0	0	214	146	1	22	0	0	383
		Male %	0	0.0	47.0	25.8	0.3	2.9	0.0	0.0	76.0
		Female %	0	0.0	8.9	12.3	0.0	2.9	0.0	0.0	24.0
		Total %	0	0.0	55.9	38.1	0.3	5.7	0.0	0.0	100.0
		Male mean length			565	656	480	707			
		SD			45	72	0	107			
		Range			420–710	520–830	480–480	535–900			
		n	0	0	180	99	1	11	0	0	
		Female mean length			611	687		753			
		SD			78	88		110			
		Range			490–790	520–830		550–850			
		n	0	0	34	47	0	11	0	0	
Sample dates (Mesh size)	Sample size	Brood year Age	2016	2016	2015	2014	2014	2013	2012	2012	Total
			0.2	1.1	1.2	1.3	2.2	1.4	1.5	2.4	
6/12–6/15, 6/19, 6/22 (5.625"–5.875")	128	Male n	1	0	57	32	0	5	0	0	95
		Female n	0	0	10	14	0	9	0	0	33
		Total n	1	0	67	46	0	14	0	0	128
		Male %	0.7812	0.0	44.5	25.0	0.0	3.9	0.0	0.0	74.2
		Female %	0	0.0	7.8	10.9	0.0	7.0	0.0	0.0	25.8
		Total %	0.7812	0.0	52.3	35.9	0.0	10.9	0.0	0.0	100.0
		Male mean length	520		603	697		654			
		SD	0		61	89		83			
		Range	520–520		510–889	530–970		530–750			
		n	1	0	57	32	0	5	0	0	
		Female mean length			703	782		811			
		SD			83	74		117			
		Range			570–790	670–930		610–960			
		n	0	0	10	14	0	9	0	0	

–continued–

Table 14.–Page 2 of 3.

Sample dates (Mesh size)	Sample size	Brood year Age	2016	2016	2015	2014	2014	2013	2012	2012	Total
			0.2	1.1	1.2	1.3	2.2	1.4	1.5	2.4	
6/1, 6/8, 6/12–6/13, 6/15, 6/19, 6/22, 6/26– 6/27, 7/5 (6.00")	637	Male n	0	3	333	181	0	22	2	0	541
		Female n	0	0	21	41	0	33	0	1	96
		Total n	0	3	354	222	0	55	2	1	637
		Male %	0	0.5	52.3	28.4	0.0	3.5	0.3	0.0	84.9
		Female %	0	0.0	3.3	6.4	0.0	5.2	0.0	0.2	15.1
		Total %	0	0.5	55.6	34.9	0.0	8.6	0.3	0.2	100.0
		Male mean length		383	575	671		744	830		
		SD		15	47	67		78	85		
		Range		370–400	390–820	500–876		560–900	770–890		
		n	0	3	333	181	0	22	2	0	
		Female mean length			610	705		777		730	
		SD			97	55		80		0	
		Range								730–	
		n	0	0	21	41	0	33	0	1	
6/8, 6/12 (7.00"–7.50")	30	Male n	0	0	2	8	0	2	0	0	12
		Female n	0	0	5	9	0	4	0	0	18
		Total n	0	0	7	17	0	6	0	0	30
		Male %	0	0.0	6.7	26.7	0.0	6.7	0.0	0.0	40.0
		Female %	0	0.0	16.7	30.0	0.0	13.3	0.0	0.0	60.0
		Total %	0	0.0	23.3	56.7	0.0	20.0	0.0	0.0	100.0
		Male mean length			610	708		700			
		SD			42	33		99			
		Range			580–640	640–740		630–770			
		n	0	0	2	8	0	2	0	0	
		Female mean length			668	711		735			
		SD			86	54		62			
		Range			550–760	640–820		650–800			
		n	0	0	5	9	0	4	0	0	

-continued-

Table 14.–Page 3 of 3.

Total (All mesh sizes)	Sample size	Brood year Age	2016 0.2	2016 1.1	2015 1.2	2014 1.3	2014 2.2	2013 1.4	2012 1.5	2012 2.4	Total
	1,178	Male n	1	3	572	320	1	40	2	0	939
		Female n	0	0	70	111	0	57	0	1	239
		Total n	1	3	642	431	1	97	2	1	1178
		Male %	0.0849	0.3	48.6	27.2	0.1	3.4	0.2	0.0	79.7
		Female %	0	0.0	5.9	9.4	0.0	4.8	0.0	0.1	20.3
		Total %	0.0849	0.3	54.5	36.6	0.1	8.2	0.2	0.1	100.0
		Male mean length	520	383	575	670	480	720	830		
		SD		15	49	71		90	85		
		Range	520–520	370–400	390–889	500–970	480–480	530–900	770–890		
		n	1	3	572	320	1	40	2	0	
		Female mean length			628	708		775		730	
		SD			90	78		92			
		Range			490–950	520–930		500–960		730–730	
		n	0	0	70	111	0	57	0	1	

Note: Samples were collected by subsistence fishermen who sampled their own harvests or the harvests of others. Known mesh sizes ranged from 5.25 to 7.50 inches. ASL samples were not applied to the total harvest. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 15.—ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the Goodnews River (Middle Fork) weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	2013	Total
			1.1	1.2	1.3	1.4	
6/27–7/1, 7/3–7/16, 7/18–7/19, 7/21, 7/23–7/26	133	Male n	1,048	2,006	487	260	3,801
		Female n	0	72	1,650	897	2,619
		Total n	1,048	2,078	2,137	1,157	6,420
		Male %	16.3	31.2	7.6	4.0	59.2
		Female %	0.0	1.1	25.7	14.0	40.8
		Total %	16.3	32.4	33.3	18.0	100.0
		Male mean length	380	536	728	861	
		SE	1	1	4	2	
		Range	333–456	429–672	590–821	805–893	
		n	1,048	2,006	487	260	
		Female mean length		562	783	799	
		SE		0	1	1	
		Range		562–562	665–851	729–877	
		n	0	72	1,650	897	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 16.—ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the George River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	2013	Total
			1.1	1.2	1.3	1.4	
6/24–6/28, 6/30–7/9, 7/11–7/17, 7/19–7/24, 7/26–7/29, 8/1–8/5	204	Male n	60	1,828	942	162	2,992
		Female n	0	51	270	513	834
		Total n	60	1,879	1,212	675	3,826
		Male %	1.6	47.8	24.6	4.2	78.2
		Female %	0.0	1.3	7.1	13.4	21.8
		Total %	1.6	49.1	31.7	17.6	100.0
		Male mean length	410	541	697	776	
		SE	1	1	2	6	
		Range	392–423	437–733	589–851	603–857	
		n	60	1,828	942	162	
		Female mean length		598	767	783	
		SE		0	2	2	
		Range		555–667	703–819	675–845	
		n	0	51	270	513	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 17.—ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past Kogruklu River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	2013	Total
			1.1	1.2	1.3	1.4	
6/27–6/28, 7/1–7/3, 7/5–7/6, 7/8–7/11, 7/13–7/20, 7/22–7/26, 7/28–7/29, 7/31–8/1, 8/3	224	Male n	838	6,280	1,453	0	8,571
		Female n	0	0	1,213	517	1,730
		Total n	838	6,280	2,666	517	10,301
		Male %	8.1	61.0	14.1	0.0	83.2
		Female %	0.0	0.0	11.8	5.0	16.8
		Total %	8.1	61.0	25.9	5.0	100.0
		Male mean length	422	568	740		
		SE	3	1	1		
		Range	315–562	440–689	635–870		
		n	838	6,280	1,453	0	
		Female mean length			775	833	
		SE			1	2	
		Range			697–865	755–935	
		n	0	0	1,213	517	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 18.—ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the Takotna River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	2013	Total
			1.1	1.2	1.3	1.4	
7/1–7/2, 7/7–7/10, 7/12–7/31, 8/2	69	Male n	16	321	104	0	441
		Female n	0	24	72	16	112
		Total n	16	345	176	16	553
		Male %	2.9	58.0	18.8	0.0	79.7
		Female %	0.0	4.3	13.0	2.9	20.3
		Total %	2.9	62.4	31.8	2.9	100.0
		Male mean length	392	562	674		
		SE	4	2	8		
		Range	380–405	470–632	522–827		
		n	16	321	104	0	
		Female mean length		510	720	782	
		SE		2	8	5	
		Range		499–523	618–800	768–797	
		n	0	24	72	16	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 19.—ASL (mm) composition of Kuskokwim Area Chinook salmon that escaped past the Salmon River (Pitka Fork) weir, 2019.

Sample dates	Sample size	Brood year Age	2015	2014	2013	2012	Total
			1.2	1.3	1.4	2.4	
6/30–7/2, 7/5–7/8, 7/9–7/10, 7/12–7/14, 7/16, 7/25, 7/30–7/31, 8/3	151	Male n	771	1,418	939	0	3,128
		Female n	0	578	1,058	30	1,666
		Total n	771	1,996	1,997	30	4,794
		Male %	16.1	29.6	19.6	0.0	65.2
		Female %	0.0	12.1	22.1	0.6	34.8
		Total %	16.1	41.6	41.7	0.6	100.0
		Male mean length	556	695	795		
		SE	2	2	2		
		Range	460–660	537–918	642–906		
		n	771	1,418	939	0	
		Female mean length		707	772	848	
		SE		2	2	0	
		Range		636–773	666–896	848–848	
		n	0	578	1,058	30	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 20.—ASL (mm) composition of Kuskokwim Area chum salmon that escaped past the Goodnews River (Middle Fork) weir, 2019.

Sample dates	Sample size	Brood year	2016	2015	2014	2013	Total
		Age	0.2	0.3	0.4	0.5	
7/3–7/13, 7/15–7/26, 7/28	593	Male n	104	19,072	2,620	99	21,895
		Female n	114	14,257	1,909	0	16,280
		Total n	218	33,329	4,529	99	38,175
		Male %	0.3	50.0	6.9	0.3	57.4
		Female %	0.3	37.3	5.0	0.0	42.6
		Total %	0.6	87.3	11.9	0.3	100.0
		Male mean length	540	566	574	564	
		SE	0	0	1	0	
		Range	509–585	500–690	507–702	530–611	
		n	104	19,072	2,620	99	
		Female mean length	488	535	546		
		SE	1	0	1		
		Range	478–497	415–605	507–596		
		n	114	14,257	1,909	0	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 21.—ASL (mm) composition of Kuskokwim Area chum salmon that escaped past the George River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	2013	Total
			0.2	0.3	0.4	0.5	
7/3–7/17, 7/19–7/30, 8/1–8/2, 8/8, 8/11–8/14, 8/17	424	Male n	39	14,176	6329	0	20,544
		Female n	39	17,991	4382	116	22,528
		Total n	78	32,167	10711	116	43,072
		Male %	0.1	32.9	14.7	0.0	47.7
		Female %	0.1	41.8	10.2	0.3	52.3
		Total %	0.2	74.7	24.9	0.3	100.0
		Male mean length	493	538	555		
		SE	0	0	0		
		Range	493–493	472–645	480–650		
		n	39	14,176	6,329	0	
		Female mean length	492	516	518	536	
		SE	0	0	0	4	
		Range	492–492	456–590	470–590	509–587	
		n	39	17,991	4,382	116	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 22.—ASL (mm) composition of Kuskokwim Area chum salmon that escaped past the Kogrukluk River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	2013	Total
			0.2	0.3	0.4	0.5	
6/28, 7/1, 7/3, 7/7–7/20, 7/22–7/26, 7/28–7/29, 7/31, 8/2, 8/4, 8/6, 8/8, 8/10, 8/12	610	Male n	0	36,694	9,022	170	45,886
		Female n	420	20,530	3,684	485	25,119
		Total n	420	57,224	12,706	655	71,005
		Male %	0	51.7	12.7	0.2	64.6
		Female %	0.6	28.9	5.2	0.7	35.4
		Total %	0.6	80.6	17.9	0.9	100.0
		Male mean length		551	560	609	
		SE		0	0	1	
		Range		450–655	492–665	593–620	
		n	0	36,694	9,022	170	
		Female mean length	506	528	544	522	
		SE	1	0	0	0	
		Range	489–602	475–592	480–638	522–522	
		n	420	20,530	3,684	485	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 23.—ASL (mm) composition of Kuskokwim Area sockeye salmon that escaped past the Goodnews River (Middle Fork) weir, 2019.

Sample dates	Sample size	Brood year Age	2015	2015	2014	2014	2013	2013	Total
			0.3	1.2	1.3	2.2	1.4	2.3	
6/27–7/1, 7/3–7/12, 7/18–7/20, 7/22–7/23, 7/25	537	Male n	1,698	657	73,793	230	282	4,837	81,497
		Female n	3,433	3,145	71,090	1,064	375	6,217	85,324
		Total n	5,131	3,802	144,883	1,294	657	11,054	166,821
		Male %	1.0	0.4	44.2	0.1	0.2	2.9	48.8
		Female %	2.1	1.9	42.5	0.7	0.2	3.7	51.2
		Total %	3.1	2.3	86.7	0.8	0.4	6.6	100.0
		Male mean length	545	472	546	474	585	547	
		SE	0	0	0	0	0	0	
		Range	517–575	457–491	442–590	474–474	585–585	528–571	
		n	1,698	657	73,793	230	282	4,837	
		Female mean length	530	451	517	467	523	507	
		SE	0	0	0	0	0	0	
		Range	498–573	426–479	417–557	437–502	523–523	465–543	
		n	3,433	3,145	71,090	1,064	375	6,217	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 24.—Sex and length (mm) composition of Kuskokwim Area sockeye salmon sampled at the Kogrukluk River weir, 2019.

Sample dates	Sample size		N
7/3, 7/5, 7/7, 7/9–7/20, 7/22–7/26, 7/28–7/29, 7/31, 8/2, 8/4, 8/6, 8/8, 8/10	326	Male n	103
		Female n	223
		Total n	326
		Male %	31.6
		Female %	68.4
		Total %	100.0
		Male Mean Length	553
		SD	31
		Range	405–599
		n	103
		Female Mean Length	515
		SD	25
		Range	434–575
		n	223

Note: Age samples were not collected at this project. Sex and length samples were not applied to the total escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 25.—Sex and length (mm) of Kuskokwim Area sockeye salmon sampled at the Telaquana River weir, 2019.

Sample dates	Sample size		N
7/9–7/10, 7/13–8/6, 8/8–8/16	401	Male n	181
		Female n	220
		Total n	401
		Male %	44.0
		Female %	56.0
		Total %	100.0
		Male mean length	537
		SD	61
		Range	385–626
		n	181
		Female mean length	524
		SD	32
		Range	285–590
		n	220

Note: Age samples were not collected at this project. Sex and length samples were applied to the total escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 26.—ASL (mm) composition of Kuskokwim Area coho salmon that escaped past the George River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	Total
			1.1	2.1	3.1	
8/10, 8/12–8/15, 8/17–8/18, 8/22–8/24, 8/26–8/29, 8/31–9/4, 9/8–9/14, 9/16	226	Male n	321	6,864	145	7,330
		Female n	141	5,602	204	5,947
		Total n	462	12,466	349	13,277
		Male %	2.4	51.7	1.1	55.2
		Female %	1.1	42.2	1.5	44.8
		Total %	3.5	93.9	2.6	100.0
		Male mean length	495	513	558	
		SE	3	1	0	
		Range	428–553	384–616	543–577	
		n	321	6,864	145	
		Female mean length	501	526	515	
		SE	0	0	1	
		Range	482–521	454–586	485–558	
		n	141	5,602	204	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 27.—ASL (mm) composition of Kuskokwim Area coho salmon that escaped past the Kogrukluk River weir, 2019.

Sample dates	Sample size	Brood year Age	2016	2015	2014	Total
			1.1	2.1	3.1	
8/15, 8/17, 8/19–8/20, 8/22–8/23, 8/27, 8/29, 8/31–9/2, 9/4, 9/6, 9/8, 9/10, 9/12, 9/14–9/15	291	Male n	884	5,848	307	7,039
		Female n	1,242	8,044	146	9,432
		Total n	2,126	13,892	453	16,471
		Male %	5.4	35.5	1.9	42.7
		Female %	7.5	48.8	0.9	57.3
		Total %	12.9	84.3	2.8	100.0
		Male mean length	493	511	488	
		SE	1	1	2	
		Range	413–567	385–614	441–576	
		n	884	5,848	307	
		Female mean length	519	519	525	
		SE	1	0	0	
		Range	446–579	408–606	490–535	
		n	1,242	8,044	146	

Note: Samples were weighted by escapement. Statistics shown represent the sample size (n), mean length (mm) with standard deviation (SD), and percent (%) composition of the samples by age and sex category.

Table 28.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvested in the W1 commercial drift gillnet fishery, 1964–2019.

Year	Sample size	Total harvest	Percent by age class												Percent female	Mean length (mm)
			(1.1)	(0.3)	(1.2)	(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	0.6	0.0	19.1	0.4	62.0	2.4	9.6	5.2	0.2	0.6	52.9	911
1965	322	21,989	0.0	0.0	0.0	0.0	44.1	0.0	27.6	5.3	12.4	8.7	0.0	1.9	44.4	884
1966	468	25,545	0.0	0.0	0.2	0.0	12.8	0.0	84.6	0.0	2.4	0.0	0.0	0.0	49.8	911
1967	654	29,986	0.0	0.2	0.3	0.0	9.8	0.0	74.0	0.0	15.7	0.0	0.0	0.0	54.5	882
1968	540	34,278	0.0	0.0	3.4	0.0	24.8	0.0	50.8	1.6	18.8	0.7	0.0	0.0	43.2	850
1969 ^a	0	43,997														
1970 ^a	0	39,290														
1971	791	40,274	0.0	0.0	6.4	0.0	22.8	0.1	68.0	0.8	1.0	1.0	0.0	0.0	50.2	860
1972	500	39,454	0.0	0.0	0.0	0.0	19.6	0.0	75.2	0.0	5.0	0.0	0.2	0.0	50.7	876
1973	470	32,838	0.0	0.4	2.5	0.8	22.7	0.0	66.4	0.0	7.1	0.0	0.0	0.0	55.7	861
1974 ^b	42	18,664	7.1	0.2	22.7	0.9	14.0	0.1	41.3	0.0	13.2	0.0	0.0	0.0	34.6	743
1975	307	20,816	0.0	1.5	0.5	2.1	78.9	0.0	13.4	0.0	3.6	0.0	0.0	0.0	26.8	773
1976 ^a	0	30,735														
1977	234	35,830	0.0	0.0	1.8	0.0	32.8	0.0	63.2	0.0	2.2	0.0	0.0	0.0	43.6	838
1978	289	45,641	0.0	0.0	0.3	0.0	13.1	0.0	80.3	0.0	6.2	0.0	0.0	0.0	55.7	857
1979	302	36,053	0.0	0.0	19.4	0.0	41.9	0.0	32.7	0.0	6.0	0.0	0.0	0.0	46.0	773
1980	273	35,881	0.0	0.0	10.6	0.0	64.1	0.0	22.3	0.0	2.9	0.0	0.0	0.0	28.6	761
1981	467	47,663	0.2	0.0	7.0	0.0	31.2	0.0	57.3	0.0	4.3	0.0	0.0	0.0	54.4	811
1982	715	48,234	0.3	0.0	10.9	0.0	23.4	0.0	62.2	0.0	3.1	0.1	0.0	0.0	40.8	791
1983	1,255	33,174	0.4	0.0	6.9	0.0	15.0	0.0	70.7	0.1	5.9	0.9	0.0	0.1	47.6	827
1984	664	31,742	0.3	0.0	10.4	0.2	35.2	0.3	41.1	1.1	9.0	2.0	0.0	0.5	32.8	782
1985	634	37,847	0.0	0.0	28.0	0.0	34.5	0.3	32.0	0.0	5.2	0.0	0.0	0.0	38.1	712
1986	141	19,413	2.1	0.0	12.7	0.0	54.9	0.0	24.6	0.0	4.9	0.0	0.7	0.0	33.8	719
1987	549	35,340	0.0	0.0	47.2	0.0	15.7	0.0	35.7	0.0	1.5	0.0	0.0	0.0	21.9	682
1988	645	55,769	0.0	0.0	28.3	0.0	47.8	0.0	17.2	0.0	6.7	0.0	0.0	0.0	39.9	696
1989	353	43,128	0.0	0.0	32.1	0.0	22.3	3.4	31.6	2.8	4.5	3.1	0.0	0.3	38.0	722
1990	408	53,502	0.0	0.0	41.5	0.0	37.6	0.0	17.4	0.0	3.4	0.0	0.0	0.0	17.9	691
1991	420	37,778	0.0	0.0	32.2	0.0	29.2	2.7	28.8	2.0	2.7	1.7	0.0	0.7	36.9	717
1992	717	46,848	1.0	0.0	45.3	0.0	28.0	0.3	24.1	0.0	1.1	0.1	0.0	0.0	22.3	658
1993	102	8,735	0.0	0.0	61.8	0.0	21.6	0.0	9.8	4.9	0.0	1.0	0.0	1.0	5.9	622
1994	208	16,211	0.5	0.0	17.3	0.0	50.5	1.9	26.0	1.0	1.9	1.0	0.0	0.0	23.6	708
1995	578	30,846	0.2	0.0	34.9	0.0	16.3	0.0	47.9	0.0	0.7	0.0	0.0	0.0	31.1	721
1996	592	6,973	0.3	0.0	29.1	0.0	41.9	0.0	20.3	0.2	8.1	0.0	0.2	0.0	19.8	683
1997	162	10,441	0.0	0.0	52.2	0.0	16.8	0.0	30.4	0.0	0.6	0.0	0.0	0.0	18.6	673

-continued-

Table 28.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class												Percent female	Mean length (mm)
			(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1998	437	17,359	1.1	0.0	24.3	0.0	58.3	0.0	14.0	0.0	2.3	0.0	0.0	0.0	22.5	693
1999	190	4,705	0.5	0.0	29.5	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	1.1	0.0	57.5	0.0	26.3	0.0	14.4	0.0	0.6	0.0	0.0	0.0	10.5	641
2005	488	4,784	0.0	0.0	37.6	0.0	46.8	0.2	14.9	0.2	0.2	0.0	0.0	0.0	15.7	666
2006 ^c	184	2,777	1.1	0.0	60.9	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	43.3	0.0	29.9	0.3	25.3	0.0	1.0	0.3	0.0	0.0	18.3	673
2009	388	6,664	0.0	0.0	42.8	0.0	36.2	0.0	20.0	0.0	0.7	0.3	0.0	0.0	22.8	652
2010	290	2,731	0.0	0.0	76.9	0.0	7.7	0.0	15.4	0.0	0.0	0.0	0.0	0.0	15.4	581
2011 ^{bd}	13	49														
2012 ^{ad}	0	14														
2013 ^{ad}	0	1														
2014 ^{ad}	0	0														
2015 ^{ad}	0	2														
2016 ^e																
2017 ^e																
2018 ^e																
2019 ^e																
Average (1964–2015)	330	22,370	0.4	0.1	24.1	0.1	30.7	0.3	38.4	0.6	4.5	0.7	0.0	0.1	33.4	749

Note: Harvest totals are Districts W1 and W2 combined. From 1964 to 1971 mesh size was unrestricted, from 1972 to 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. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a ASL data were not collected.

^b Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^d Sale of Chinook salmon was prohibited.

^e No commercial fishery occurred.

Table 29.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvested in the W4 commercial drift gillnet fishery, 1969–2019.

Year	Sample size	Total harvest	Percent by age class																	Percent female	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)	(1.7)			
1969	204	16,802	0.0	0.0	1.9	0.0	46.1	0.0	0.0	15.9	0.0	29.4	0.0	6.2	0.5	0.0	0.0	0.0	24.5	712	
1970	259	18,269	0.0	0.0	0.0	0.0	22.4	0.0	0.0	36.3	0.4	32.0	2.3	5.8	0.8	0.0	0.0	0.0	26.6	726	
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	10.8	0.0	70.9	0.0	12.2	0.0	0.0	0.0	0.0	54.0	848	
1974	150	8,704	0.0	0.0	1.3	0.7	30.5	0.0	0.0	13.2	0.0	25.2	0.0	29.1	0.0	0.0	0.0	0.0	32.5	771	
1975	198	3,928	0.0	0.0	1.5	0.0	33.3	0.0	0.0	44.4	0.0	16.2	0.0	4.5	0.0	0.0	0.0	0.0	26.3	678	
1976	349	14,110	0.0	0.0	0.0	0.0	53.0	0.0	0.0	30.7	0.0	15.8	0.0	0.6	0.0	0.0	0.0	0.0	22.3	655	
1977	480	19,090	0.0	0.0	0.0	0.0	3.5	0.0	0.0	40.8	0.0	54.4	0.0	1.3	0.0	0.0	0.0	0.0	48.8	819	
1978	234	12,335	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	88.1	0.0	5.5	0.0	0.4	0.0	0.4	56.6	893	
1979 ^c	377	11,144	0.0	0.0	0.3	0.0	16.7	0.0	0.0	42.3	0.0	35.5	0.0	5.1	0.0	0.0	0.0	0.0			
1980	495	10,387	0.0	0.0	5.9	0.0	29.1	0.0	0.0	40.7	0.2	19.8	0.8	3.2	0.2	0.0	0.0	0.0	40.7	706	
1981	612	24,524	0.0	0.0	0.3	0.0	57.7	0.0	0.0	20.8	0.0	20.1	0.0	1.1	0.0	0.0	0.0	0.0	55.1	668	
1982 ^c	715	22,106	0.0	0.0	0.0	0.0	4.8	0.0	0.0	64.5	0.0	27.7	1.6	1.3	0.0	0.0	0.0	0.0			
1983	762	46,385	0.0	0.0	0.4	0.0	26.3	0.0	0.0	6.7	0.0	64.4	0.0	2.2	0.0	0.0	0.0	0.0	38.8	780	
1984	583	33,663	0.0	0.0	0.0	0.0	12.0	0.0	0.0	54.2	0.0	24.9	0.0	8.9	0.0	0.0	0.0	0.0	16.6	721	
1985	568	30,401	0.0	0.0	0.0	0.0	19.3	0.0	0.0	23.4	0.0	55.0	0.0	2.3	0.0	0.0	0.0	0.0	31.5	776	
1986	502	22,835	0.0	0.0	1.8	0.0	5.8	0.0	0.0	45.0	0.0	35.5	0.0	12.0	0.0	0.0	0.0	0.0	29.3	770	
1987	524	26,022	0.0	0.0	0.4	0.2	26.6	0.0	0.0	17.9	0.0	52.7	0.0	2.3	0.0	0.0	0.0	0.0	17.3	737	
1988	591	13,893	0.0	0.0	0.0	0.0	22.5	0.0	0.0	33.6	0.0	30.9	0.0	12.8	0.0	0.2	0.0	0.0	40.0	748	
1989	422	20,820	0.0	0.0	2.1	0.0	17.5	0.0	0.0	17.5	0.0	56.4	0.0	6.4	0.0	0.0	0.0	0.0	51.7	783	
1990	349	27,644	0.0	0.0	0.0	0.0	19.5	0.0	0.0	36.1	0.0	30.7	0.3	11.5	0.6	1.1	0.3	0.0	38.1	742	
1991	503	9,480	0.0	0.0	0.4	0.0	19.7	0.0	0.0	25.4	0.0	46.1	0.2	8.0	0.0	0.0	0.2	0.0	37.8	762	
1992	501	17,197	0.0	0.0	2.4	0.0	32.8	0.0	0.0	32.0	0.0	28.4	0.0	4.3	0.0	0.0	0.0	0.0	55.2	706	
1993	337	15,784	0.0	0.0	0.0	0.0	36.2	0.0	0.0	28.2	0.3	30.9	0.9	3.3	0.3	0.0	0.0	0.0	38.0	707	
1994	326	8,564	0.0	0.0	0.6	0.0	18.4	0.0	0.0	40.2	0.0	36.2	0.0	4.3	0.3	0.0	0.0	0.0	47.5	737	
1995	603	38,584	0.0	0.0	0.0	0.0	25.7	0.0	0.0	15.9	0.0	57.7	0.0	0.7	0.0	0.0	0.0	0.0	45.9	759	
1996 ^b	399	14,165	0.0	0.0	0.8	0.0	17.0	0.0	0.0	46.6	0.0	28.1	0.0	7.5	0.0	0.0	0.0	0.0			
1997	573	35,492	0.0	0.0	2.6	0.0	35.4	0.2	0.0	10.9	0.0	50.4	0.0	0.5	0.0	0.0	0.0	0.0	35.7	747	
1998	724	23,158	0.0	0.0	3.2	0.0	24.6	0.0	0.0	50.6	0.0	19.5	0.0	2.1	0.0	0.0	0.0	0.0	20.6	692	
1999	662	18,426	0.0	0.0	0.6	0.0	28.0	0.0	0.0	22.8	0.2	46.6	0.0	1.5	0.3	0.0	0.0	0.0	31.3	718	
2000 ^c	480	21,229	0.0	0.0	0.6	0.0	12.1	0.0	0.0	45.6	0.0	39.8	0.0	1.9	0.0	0.0	0.0	0.0			
2001 ^c	570	12,775	0.0	0.0	0.4	0.0	9.5	0.0	0.0	13.3	0.0	75.6	0.0	1.2	0.0	0.0	0.0	0.0			

-continued-

Table 29.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class																	Percent female	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)	(1.7)			
2002 ^c	436	11,486	0.0	0.0	1.0	0.0	30.4	0.0	0.0	27.7	0.0	36.4	0.0	4.6	0.0	0.0	0.0	0.0		686	
2003 ^c	547	14,444	0.0	0.0	2.9	0.0	28.2	0.0	0.0	35.6	0.0	30.7	0.0	2.6	0.0	0.0	0.0	0.0		686	
2004 ^c	208	25,365	0.0	0.0	0.5	0.0	45.7	0.0	0.0	30.3	0.0	21.6	0.0	1.9	0.0	0.0	0.0	0.0		672	
2005	866	24,195	0.0	0.0	0.6	0.0	19.5	0.0	0.0	49.4	0.1	29.3	0.3	0.7	0.0	0.0	0.0	0.0	29.7	721	
2006	658	19,184	0.0	0.0	0.3	0.0	31.1	0.0	0.0	31.8	0.2	34.5	0.0	2.1	0.0	0.0	0.0	0.0	27.8	700	
2007	615	19,573	0.0	0.0	0.3	0.0	33.7	0.0	0.0	24.1	0.0	39.3	0.2	1.8	0.7	0.0	0.0	0.0	28.9	687	
2008	529	13,812	0.0	0.0	0.0	0.0	29.5	0.0	0.0	43.9	0.0	24.4	0.0	1.9	0.4	0.0	0.0	0.0	21.6	678	
2009	567	13,920	0.0	0.0	1.4	0.0	40.8	0.0	0.0	27.1	0.5	29.2	0.2	0.5	0.2	0.0	0.0	0.0	20.4	660	
2010	479	14,233	0.0	0.0	1.9	0.0	28.0	0.0	0.0	51.1	0.0	18.8	0.0	0.2	0.0	0.0	0.0	0.0	22.1	671	
2011	749	15,387	0.0	0.1	1.5	0.0	40.5	0.0	0.0	32.4	0.4	23.7	0.4	0.8	0.1	0.0	0.0	0.0	21.3	658	
2012	789	6,675	0.0	0.6	0.6	0.1	28.1	0.1	0.0	37.5	0.5	31.7	0.0	0.6	0.0	0.0	0.0	0.0	34.6	701	
2013	257	2,054	0.4	0.8	0.8	0.0	21.0	0.0	0.0	33.1	0.8	41.2	0.0	1.9	0.0	0.0	0.0	0.0	38.9	724	
2014 ^b	105	2,265	0.0	1.9	15.2	1.0	41.0	0.0	0.0	24.8	0.0	15.2	0.0	1.0	0.0	0.0	0.0	0.0			
2015	302	7,547	0.0	0.0	5.0	0.0	64.2	0.0	0.3	21.2	0.0	8.3	0.3	0.7	0.0	0.0	0.0	0.0	16.6	627	
2016 ^d																					
2017 ^d																					
2018 ^d																					
2019 ^d																					
Average (1969–2015)	455	17,513	0.0	0.1	1.3	0.0	26.5	0.0	0.0	31.2	0.1	36.2	0.2	4.2	0.1	0.0	0.0	0.0	34.0	726	

Note: From 1969 to 1971 mesh size was unrestricted, from 1972 to 1984 both restricted (≤ 6 inch) and unrestricted mesh sizes were used, and since 1985 mesh size has been restricted mesh (≤ 6 inch). Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a ASL data were not collected.

^b Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^c Only age composition and length data were collected.

^d No commercial fishery occurred.

Table 30.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area Chinook salmon harvest in the W5 commercial drift gillnet fishery, 1990–2019.

Year	Sample size	Total harvest	Percent by age class											Percent female	Mean length (mm)
			(0.2)	(1.1)	(1.2)	(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	39.0	0.0	19.9	0.0	37.0	0.7	3.4	0.0	0.0	26.0	710
1991	258	912	0.0	0.0	31.9	0.0	39.7	0.4	24.9	0.0	1.9	0.8	0.4	33.5	716
1992	140	3,528	0.0	0.7	31.4	0.0	33.6	0.7	30.7	0.0	2.1	0.7	0.0	37.9	709
1993 ^a	152	2,117	0.0	0.0	32.2	0.0	27.6	0.0	36.2	0.0	3.9	0.0	0.0	60.5	708
1994 ^a	150	2,570	0.0	0.0	18.7	0.0	37.3	0.0	41.3	0.0	2.7	0.0	0.0	52.0	755
1995 ^a	196	2,922	0.0	0.0	44.9	0.0	13.3	0.0	41.3	0.0	0.5	0.0	0.0	31.6	694
1996 ^b	0	1,375													
1997	471	2,039	0.0	0.8	46.5	0.0	13.3	0.0	38.1	0.0	1.3	0.0	0.0	31.3	714
1998	404	3,675	0.0	1.0	16.1	0.0	62.4	0.0	19.3	0.0	1.2	0.0	0.0	22.8	720
1999 ^a	312	1,888	0.0	0.0	26.5	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	18.9	0.0	58.0	0.0	21.5	0.0	1.6	0.0	0.0	46.0	711
2001	262	1,519	0.0	0.4	13.7	0.0	19.5	0.0	65.3	0.0	1.1	0.0	0.0	61.8	781
2002	164	979	0.0	0.6	34.8	0.0	31.7	0.0	31.1	0.0	1.8	0.0	0.0	24.4	679
2003 ^a	142	1,412	0.0	1.4	24.1	0.0	31.2	0.0	40.4	0.0	2.8	0.0	0.0	25.5	741
2004 ^c	129	2,565	0.0	0.0	51.9	0.0	27.1	0.0	16.3	0.0	4.7	0.0	0.0		652
2005 ^a	208	2,035	0.0	0.5	27.9	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	45.1	0.0	20.3	0.0	1.6	0.0	0.0	17.6	675
2007	369	3,112	0.0	0.0	38.4	0.0	22.3	0.0	35.7	0.6	0.6	2.5	0.0	29.2	691
2008 ^b	0	1,281													
2009	515	1,509	0.0	0.2	53.8	0.0	21.9	0.4	22.5	0.6	0.6	0.0	0.0	18.4	646
2010	621	1,759	0.0	1.6	32.9	0.0	52.0	0.3	12.2	0.0	1.0	0.0	0.0	21.1	666
2011	540	2,092	0.2	0.2	63.2	0.0	21.1	0.4	14.6	0.0	0.4	0.0	0.0	11.8	610
2012	664	1,531	0.0	0.0	19.9	0.0	64.2	0.2	15.8	0.0	0.0	0.0	0.0	27.9	702
2013	106	495	0.0	0.0	25.5	0.9	37.7	0.0	35.8	0.0	0.0	0.0	0.0	37.7	718
2014 ^a	17	205	0.0	5.9	70.6	0.0	17.6	0.0	5.9	0.0	0.0	0.0	0.0	11.8	591
2015	198	705	0.0	0.5	70.2	0.0	25.8	0.0	3.5	0.0	0.0	0.0	0.0	7.1	622
2016 ^d															
2017 ^d															
2018 ^d															
2019 ^d															
Average (1990–2015)	259	2,033	0.0	0.6	36.1	0.0	33.1	0.1	28.4	0.1	1.4	0.2	0.0	30.5	691

-continued-

Table 30.–Page 2 of 2.

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. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

- ^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.
- ^b ASL data were not collected.
- ^c Only age composition and length data were collected
- ^d No commercial fishery occurred.

Table 31.—Estimated age and sex composition, mean length, and total number of Chinook salmon harvest in the Bethel test fishery, 2001–2019.

Year	Sample size	Total harvest	Percent by age class									Percent female	Mean length (mm)
			(1.1)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
2001	75	86	0.0	30.7	0.0	26.7	0.0	33.3	0.0	6.7	2.7	24.0	704
2002	197	288	0.0	32.0	0.0	33.0	1.5	33.0	0.0	0.5	0.0	15.7	686
2003	311	409	0.3	36.0	0.0	39.9	0.0	19.9	0.0	3.9	0.0	13.8	677
2004	322	691	0.0	32.3	0.0	42.5	0.6	22.4	0.0	2.2	0.0	15.2	688
2005	335	557	0.0	25.1	0.0	43.9	0.0	29.6	0.3	1.2	0.0	26.3	712
2006	244	352	0.0	22.1	0.0	30.7	0.0	42.2	0.0	4.9	0.0	33.6	752
2007	98	305	0.0	24.5	0.0	41.8	0.0	28.6	0.0	5.1	0.0	37.8	723
2008 ^a	26	420	0.0	15.4	0.0	42.3	0.0	34.6	0.0	7.7	0.0	53.8	764
2009 ^b	0	470											
2010 ^b	0	292											
2011	214	337	0.0	39.7	0.0	29.9	0.0	28.5	0.0	1.9	0.0	28.5	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	26.0	0.0	36.3	0.0	35.6	0.0	2.1	0.0	34.2	723
2014	408	520	0.0	19.6	0.0	50.2	0.2	29.7	0.0	0.2	0.0	29.2	719
2015	430	477	0.0	50.2	0.2	24.9	0.2	23.3	0.2	0.7	0.2	20.7	667
2016	464	524	0.4	26.3	0.0	52.6	0.2	19.4	0.0	0.9	0.2	30.4	709
2017	248	284	0.8	33.9	0.0	41.5	0.4	22.2	0.4	0.4	0.4	25.8	697
2018	384	439	0.3	31.5	0.0	48.7	0.0	19.5	0.0	0.0	0.0	28.4	678
2019	489	559	0.6	42.5	0.0	40.7	0.0	15.7	0.2	0.2	0.0	32.7	669
Average (2001–2018)	229	387	0.1	29.0	0.0	40.1	0.2	27.8	0.1	2.4	0.2	27.7	707
5-yr Average (2014–2018)	387	449	0.3	32.3	0.0	43.6	0.2	22.8	0.1	0.4	0.2	26.9	694

Note: Bethel test fishery uses a 5.375 inch and 8.0 inch drift gillnet to index run timing and relative abundance of Chinook salmon. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b ASL data were not collected.

Table 32.—Estimated age and sex composition, mean length, and total number of Chinook salmon harvest in the lower Kuskokwim River subsistence fishery, 2001–2019.

Year	Number of samplers	Sample size	Total harvest	Percent by age class												Percent female	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	4.6	0.0	30.0	0.0	60.8	0.0	4.5	0.1	0.0	34.1	780
2002	24	1,489	81,169	0.0	0.0	0.0	7.8	0.0	32.9	0.0	54.1	0.0	5.2	0.0	0.0	40.7	769
2003	32	1,941	67,737	0.0	0.0	0.2	6.8	0.0	44.2	0.0	42.0	0.0	6.7	0.0	0.0	37.1	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	7.4	0.0	37.3	0.0	51.9	0.3	2.5	0.6	0.0	41.4	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	0.7	0.0	17.8	27.4	0.0	33.3	0.7	20.0	0.0	0.0	0.0	0.0	30.4	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
2016	9	261	30,693	0.0	0.0	0.4	41.9	0.0	48.9	0.4	7.4	0.9	0.0	0.0	0.0	13.0	654
2017	13	231	16,380	0.0	0.0	0.0	35.9	0.0	46.7	0.5	15.9	0.5	0.0	0.5	0.0	28.4	679
2018	26	552	22,266	0.0	0.0	1.2	49.5	0.0	34.8	0.0	14.5	0.0	0.0	0.0	0.0	25.1	656
2019	25	1,508	37,941	0.0	0.1	0.2	53.8	0.0	37.2	0.1	8.4	0.0	0.2	0.1	0.0	19.8	631
Average (2001–2018)	24	1,555	57,800	0.0	0.0	1.2	18.6	0.0	40.5	0.1	36.9	0.3	2.1	0.1	0.0	33.7	729
5-yr Average (2014–2018)	12	295	19,339	0.1	0.1	4.2	37.8	0.1	39.9	0.3	16.8	0.5	0.1	0.1	0.0	27.0	649

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 ASL data. Mesh sizes used in the subsistence fishery have changed over time. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates.

Table 33.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Goodnews River (Middle Fork) weir, 1991–2019.

Year	Sample size	Total escapement	Percent by age class										Percent female	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1991	272	2,108	0.0	15.4	43.8	0.0	33.1	0.0	6.6	0.4	0.4	0.4	34.6	766
1992 ^a	70	1,682	1.4	7.1	27.1	1.4	58.6	0.0	4.3	0.0	0.0	0.0	54.3	800
1993 ^a	31	2,163	0.0	12.9	22.6	0.0	54.8	0.0	9.7	0.0	0.0	0.0	67.7	790
1994 ^a	208	3,668	0.5	3.8	33.2	0.0	50.0	0.0	10.6	1.9	0.0	0.0	46.6	799
1995	308	4,662	0.0	17.2	14.9	0.0	67.2	0.0	0.6	0.0	0.0	0.0	47.7	796
1996 ^a	42	ND	4.6	11.8	42.1	0.0	37.5	0.0	3.9	0.0	0.0	0.0	45.4	759
1997	121	2,810	0.6	60.3	9.1	0.0	30.0	0.0	0.0	0.0	0.0	0.0	27.3	691
1998 ^a	8	3,192	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	607
1999 ^a	28	3,471	0.0	50.0	7.1	0.0	42.9	0.0	0.0	0.0	0.0	0.0	35.7	665
2000	214	2,555	0.9	11.2	64.0	0.0	22.9	0.0	0.9	0.0	0.0	0.0	31.8	740
2001 ^a	39	5,352	0.0	12.8	12.8	0.0	71.8	0.0	0.0	2.6	0.0	0.0	46.2	794
2002	197	3,001	0.0	29.9	23.9	0.0	41.6	0.0	4.6	0.0	0.0	0.0	33.5	716
2003	240	2,246	3.3	13.3	45.0	0.0	33.8	0.0	4.6	0.0	0.0	0.0	41.3	745
2004 ^a	175	4,550	4.0	52.0	23.4	0.6	20.0	0.0	0.0	0.0	0.0	0.0	30.3	675
2005 ^a	156	4,591	1.3	14.7	52.6	0.0	30.8	0.0	0.0	0.6	0.0	0.0	36.5	736
2006 ^a	57	4,558	1.8	33.3	26.3	0.0	36.8	0.0	1.8	0.0	0.0	0.0	47.4	712
2007	36	3,874	2.8	52.8	30.6	0.0	13.9	0.0	0.0	0.0	0.0	0.0	13.9	607
2008	123	2,329	3.3	15.4	47.2	0.0	30.9	0.0	3.3	0.0	0.0	0.0	49.6	741
2009 ^a	57	1,632	0.0	28.1	14.0	0.0	57.9	0.0	0.0	0.0	0.0	0.0	47.4	767
2010 ^a	65	1,968	13.8	29.2	40.0	0.0	13.8	1.5	1.5	0.0	0.0	0.0	32.3	651
2011 ^a	44	2,181	0.0	31.8	36.4	0.0	31.8	0.0	0.0	0.0	0.0	0.0	34.1	707
2012 ^a	45	1,131	0.0	8.9	66.7	0.0	24.4	0.0	0.0	0.0	0.0	0.0	48.9	764
2013	176	1,263	0.5	14.8	22.4	0.0	60.8	0.0	1.0	0.5	0.0	0.0	59.1	795
2014 ^a	74	750	1.4	13.5	48.6	0.0	33.8	0.0	1.4	1.4	0.0	0.0	44.6	757

-continued-

Table 33.–Page 2 of 2.

Year	Sample size	Total escapement	Percent by age class										Percent female	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
2015 ^a	111	1,543	3.6	58.6	15.3	0.0	22.5	0.0	0.0	0.0	0.0	0.0	27.9	639
2016 ^a	89	3,659	5.6	58.4	30.3	0.0	5.6	0.0	0.0	0.0	0.0	0.0	16.9	654
2017	234	6,775	9.8	20.9	65.0	0.4	3.0	0.9	0.0	0.0	0.0	0.0	50.9	667
2018 ^b														
2019	133	6,039	15.8	29.3	37.6	0.0	17.3	0.0	0.0	0.0	0.0	0.0	44.4	649
Average (1991–2018)	119	2,989	2.2	27.0	33.9	0.1	34.5	0.1	2.0	0.3	0.0	0.0	39.0	724
5-yr Average (2014–2018)	127	3,182	5.1	37.9	39.8	0.1	16.2	0.2	0.4	0.4	0.0	0.0	35.1	679

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Weir did not operate.

Table 34.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Kanektok River weir, 2002–2019.

Year	Sample size	Total escapement	Percent by age class								Percent female	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
2002	187	5,288	2.1	21.4	25.7	0.0	43.9	0.0	7.0	0.0	38.5	712
2003	174	8,158	2.3	24.1	35.1	0.0	36.8	0.0	1.7	0.0	31.0	705
2004	428	19,602	0.2	56.8	25.7	0.0	16.6	0.0	0.7	0.0	13.8	660
2005 ^a	224	13,281	1.3	20.1	51.3	0.0	26.3	0.0	0.9	0.0	38.4	719
2006 ^b												
2007	423	13,965	0.7	34.5	18.2	0.0	43.7	0.0	2.6	0.2	35.5	706
2008 ^a	34	4,688	0.0	26.5	38.2	0.0	32.4	0.0	2.9	0.0	52.9	690
2009	468	7,000	0.4	26.1	23.1	0.2	49.8	0.0	0.2	0.2	37.6	740
2010	224	6,457	0.9	36.2	43.3	0.4	18.8	0.0	0.4	0.0	23.7	661
2011	159	5,195	0.0	59.1	27.0	0.0	13.8	0.0	0.0	0.0	22.6	617
2012 ^a	48	1,495	0.0	27.1	37.5	0.0	33.3	0.0	0.0	2.1	33.3	68
2013	153	3,569	0.0	34.6	26.8	0.0	37.3	0.7	0.7	0.0	35.9	689
2014 ^a	117	3,594	0.9	18.8	28.2	0.0	50.4	0.0	1.7	0.0	50.4	754
2015	311	10,416	8.7	50.5	23.2	0.0	17.4	0.0	0.3	0.0	27.3	646
2016 ^b												
2017 ^b												
2018 ^b												
2019 ^b												
Average (2002–2015)	227	7,901	1.4	33.5	31.0	0.1	32.3	0.1	1.5	0.2	33.9	644

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Weir did not operate.

Table 35.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Salmon River (Aniak) weir, 2006–2019.

	Sample size	Total escapement	Percent by age class									Percent female	Mean length (mm)
Year			(1.1)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
2006	345	6,901	0.6	35.9	0.0	29.0	0.0	31.0	0.0	3.5	0.0	24.1	685
2007	403	6,214	0.2	55.3	0.0	21.3	0.0	21.8	0.5	0.2	0.5	17.4	632
2008	219	2,376	0.0	20.1	0.0	54.8	0.0	21.9	0.9	2.3	0.0	26.9	680
2009 ^a	0	1,823											
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	746
2013 ^a	76	711	0.0	46.1	1.3	26.3	1.3	23.7	0.0	1.3	0.0	30.3	663
2014 ^a	45	1,722	0.0	13.3	0.0	51.1	2.2	33.3	0.0	0.0	0.0	31.1	729
2015	149	2,401	1.3	53.7	0.0	26.2	0.0	18.1	0.7	0.0	0.0	12.1	618
2016 ^{ac}	36	503	0.0	22.2	0.0	50.0	0.0	25.0	0.0	2.8	0.0	50.0	663
2017	206	2,611	0.5	49.0	0.0	39.3	0.0	11.2	0.0	0.0	0.0	19.9	620
2018	202	2,252	2.0	44.6	0.0	46.0	0.0	7.4	0.0	0.0	0.0	22.3	630
2019 ^b													
Average (2006–2018)	157	2,544	0.5	35.3	0.1	39.0	0.4	23.1	0.2	1.4	0.0	26.1	667
5-yr Average (2006–2018)	128	1,898	0.8	36.6	0.0	42.5	0.4	19.0	0.1	0.6	0.0	27.1	652

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Weir did not operate.

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

Table 36.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim River Chinook salmon past the George River weir, 1996–2019.

	Sample	Total	Percent by age class									Percent	Mean
Year	size	escapement	(0.2)	(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	female	length (mm)
1996	191	7,501	0.0	0.0	7.9	24.1	0.5	39.3	0.0	28.3	0.0	53.4	816
1997	269	7,810	0.0	0.0	35.7	10.0	0.0	54.3	0.0	0.0	0.0	50.2	734
1998 ^{ab}	75	2,505	0.0	0.0	30.7	50.7	0.0	18.7	0.0	0.0	0.0	26.7	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	2,956	0.0	0.0	9.7	20.8	0.0	68.1	0.0	1.4	0.0	52.8	804
2001 ^a	62	3,313	0.0	0.0	12.9	24.2	0.0	53.2	0.0	9.7	0.0	38.7	762
2002	315	2,445	0.0	0.0	14.3	18.4	0.0	59.4	0.0	7.9	0.0	38.4	759
2003 ^{ab}	23	975	0.0	8.7	17.4	56.5	0.0	17.4	0.0	0.0	0.0	34.8	822
2004	269	5,392	0.0	0.4	21.9	20.4	0.4	54.3	0.0	2.6	0.0	40.9	767
2005	471	3,845	0.0	0.0	9.8	44.2	0.0	41.2	1.3	3.4	0.2	38.0	755
2006	223	4,359	0.0	0.4	21.5	24.2	0.0	43.0	0.0	10.8	0.0	39.9	732
2007	249	4,972	0.0	0.0	55.8	22.1	0.0	20.5	0.0	1.2	0.4	15.3	624
2008	288	3,383	0.0	0.0	20.1	47.9	0.0	27.8	1.0	3.1	0.0	28.5	699
2009	152	3,664	0.0	0.0	17.8	23.7	0.0	57.2	0.0	0.7	0.7	43.4	759
2010	163	1,500	0.0	1.2	38.7	28.2	0.0	27.6	0.0	4.3	0.0	27.6	649
2011	167	1,605	0.0	1.2	31.7	31.7	0.0	31.7	0.6	2.4	0.6	40.7	687
2012	138	2,362	0.7	0.0	30.4	39.1	0.0	26.8	1.4	1.4	0.0	31.2	695
2013 ^a	85	1,267	0.0	0.0	16.5	30.6	0.0	51.8	0.0	1.2	0.0	60.0	750
2014	155	2,988	0.0	0.0	12.3	21.9	0.6	61.9	0.6	2.6	0.0	54.8	773
2015	174	2,301	0.0	1.7	50.6	22.4	0.0	25.3	0.0	0.0	0.0	23.0	642
2016 ^a	43	2,218	0.0	0.0	32.6	55.8	0.0	11.6	0.0	0.0	0.0	27.9	657
2017	229	3,669	0.0	0.4	28.8	52.0	0.4	17.9	0.4	0.0	0.0	22.7	640
2018	222	3,322	0.0	4.5	38.3	36.0	0.0	21.2	0.0	0.0	0.0	19.4	638
2019	204	3,828	0.0	1.5	49.5	31.4	0.0	17.6	0.0	0.0	0.0	22.1	637
Average (1996–2018)	178	3,339	0.0	0.8	24.5	31.3	0.1	39.4	0.2	3.5	0.1	37.5	723
5-yr Average (2014–2018)	165	2,900	0.0	1.3	32.5	37.6	0.2	27.6	0.2	0.5	0.0	29.6	670

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

Table 37.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Tatlawiksuk River weir, 1998–2019.

Year	Sample size	Total escapement	Percent by age class								Percent female	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)		
1998 ^{ab}	15	970										
1999 ^a	7	1,484										
2000 ^a	7	808										
2001 ^a	74	2,013	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	21.2	21.2	0.4	53.6	0.0	3.6	0.0	39.6	720
2003 ^{ab}	39	601	0.0	7.7	56.4	0.0	28.2	0.0	7.7	0.0	38.5	764
2004	301	2,833	0.0	26.6	40.5	0.0	32.9	0.0	0.0	0.0	32.6	715
2005	384	2,858	0.0	11.2	46.6	0.0	40.6	0.0	1.6	0.0	48.7	733
2006	178	1,700	0.0	21.3	44.9	0.0	29.8	0.0	3.9	0.0	40.4	703
2007	275	2,058	0.4	34.1	44.2	0.0	19.9	0.0	1.1	0.4	28.3	653
2008	93	1,194	0.0	10.8	58.1	0.0	31.2	0.0	0.0	0.0	38.7	709
2009	93	1,071	0.0	17.2	25.8	0.0	55.9	0.0	0.0	1.1	59.1	730
2010	80	554	1.3	28.7	40.0	0.0	26.2	0.0	2.5	1.3	43.8	710
2011	123	1,011	0.0	46.3	30.1	0.0	21.1	0.0	1.6	0.8	25.2	662
2012	91	1,116	0.0	22.0	58.2	0.0	19.8	0.0	0.0	0.0	47.3	717
2013 ^a	66	495	0.0	7.6	37.9	0.0	53.0	0.0	1.5	0.0	53.0	752
2014 ^a	94	2,050	0.0	13.8	42.6	0.0	43.6	0.0	0.0	0.0	58.5	750
2015	176	2,131	0.0	39.2	49.4	0.0	11.4	0.0	0.0	0.0	26.1	651
2016 ^a	62	2,693	1.6	12.9	72.6	0.0	12.9	0.0	0.0	0.0	48.4	688
2017 ^a	130	2,146	0.8	23.1	54.6	0.0	20.8	0.8	0.0	0.0	30.8	682
2018 ^c												
2019 ^c												
Average (1998–2018)	128	1,601	0.2	20.9	44.8	0.0	32.1	0.0	1.6	0.2	41.1	710
5-yr Average (2014–2018)	116	2,255	0.6	22.3	54.8	0.0	22.2	0.2	0.0	0.0	41.0	693

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^c Weir did not operate.

Table 38.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Kogrukluk River weir, 1976–2019.

Year	Sample size	Total escapement	Percent by age class										Percent female	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
1976	367	5,822	0.0	7.4	40.9	0.3	51.2	0.0	0.3	0.0	0.0	0.0	44.1	816
1977 ^{ab}	0	1,385												
1978	518	13,436	0.4	16.6	10.0	0.0	55.4	1.7	3.1	12.4	0.0	0.4	47.5	849
1979	383	11,437	0.0	63.2	15.7	0.0	17.5	0.0	3.7	0.0	0.0	0.0	14.6	693
1980 ^{ac}	60	843	0.0	30.0	48.3	0.0	13.3	0.0	8.3	0.0	0.0	0.0	16.7	720
1981	795	16,075	1.4	7.5	27.2	0.0	60.1	0.0	3.8	0.0	0.0	0.0	48.7	828
1982	392	5,325	0.3	15.1	21.2	0.0	57.9	0.0	5.6	0.0	0.0	0.0	49.2	781
1983 ^a	448	1,080	0.2	20.1	23.9	0.0	51.1	0.0	4.7	0.0	0.0	0.0	29.0	759
1984	1,376	4,922	0.1	21.1	47.0	0.0	27.8	0.0	3.9	0.0	0.1	0.0	22.7	701
1985	1,042	4,479	0.0	17.0	34.7	0.0	45.2	0.0	3.0	0.0	0.1	0.0	32.1	742
1986 ^a	679	2,968	0.1	8.7	58.3	0.0	27.1	0.0	5.7	0.0	0.0	0.0	23.0	724
1987 ^{ac}	412	770	0.2	44.9	20.6	0.0	33.7	0.0	0.5	0.0	0.0	0.0	10.2	689
1988	867	8,603	0.0	9.0	51.2	0.0	31.1	0.0	8.7	0.0	0.0	0.0	37.4	774
1989 ^{ac}	217	4,911	0.0	14.7	25.3	0.0	58.1	0.0	1.8	0.0	0.0	0.0	34.6	781
1990 ^d	367	10,093	2.5	27.0	59.7	0.0	10.6	0.0	0.3	0.0	0.0	0.0	19.1	710
1991	315	7,602	0.0	7.0	29.2	0.3	61.9	0.0	1.6	0.0	0.0	0.0	53.7	829
1992	347	6,471	0.0	21.0	40.6	0.0	36.3	0.0	1.7	0.3	0.0	0.0	32.6	761
1993 ^c	313	12,157	0.0	34.5	24.9	0.0	35.5	0.0	4.8	0.3	0.0	0.0	29.7	729
1994 ^{ac}	222	8,310	0.0	9.9	59.0	0.5	29.7	0.0	0.9	0.0	0.0	0.0	28.4	770
1995	533	20,249	0.0	15.9	24.6	0.0	58.7	0.2	0.4	0.2	0.0	0.0	46.9	797
1996	482	13,900	0.0	9.5	51.5	0.0	30.3	0.2	8.5	0.0	0.0	0.0	29.0	765
1997	472	13,116	0.0	32.2	20.3	0.0	46.8	0.0	0.6	0.0	0.0	0.0	31.6	755
1998 ^{ac}	86	3,009	0.0	4.7	54.7	0.0	38.4	0.0	2.3	0.0	0.0	0.0	44.2	794
1999	305	5,567	0.3	5.6	25.9	0.3	66.2	0.0	1.6	0.0	0.0	0.0	49.5	781
2000	98	3,254	0.0	10.2	50.0	0.0	37.8	0.0	2.0	0.0	0.0	0.0	39.8	742
2001	397	8,151	0.0	15.9	34.8	0.0	47.6	0.0	1.8	0.0	0.0	0.0	30.0	742
2002	466	9,830	0.0	15.9	50.0	0.0	32.4	0.0	1.7	0.0	0.0	0.0	27.3	721
2003	419	11,751	0.0	18.4	41.1	0.0	37.5	0.0	3.1	0.0	0.0	0.0	32.9	734
2004	731	19,880	0.0	45.8	34.2	0.0	19.4	0.0	0.5	0.0	0.0	0.0	17.2	677

-continued-

Table 38.–Page 2 of 2.

Year	Sample size	Total escapement	Percent by age class										Percent female	Mean length (mm)
			(1.1)	(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)	(2.5)		
2005	745	21,686	0.3	25.4	46.4	0.0	27.0	0.0	0.9	0.0	0.0	0.0	33.4	712
2006	711	19,305	0.6	33.8	30.4	0.0	30.8	0.0	4.5	0.0	0.0	0.0	35.3	706
2007 ^c	289	6,923	0.0	32.2	32.5	0.0	31.5	0.0	3.8	0.0	0.0	0.0	29.1	698
2008	296	9,740	0.3	36.8	41.6	0.0	19.6	0.3	1.4	0.0	0.0	0.0	25.3	674
2009	245	9,201	0.0	23.3	50.2	0.8	24.1	0.4	1.2	0.0	0.0	0.0	28.2	728
2010	298	5,160	0.0	46.6	28.5	0.0	23.5	0.0	1.3	0.0	0.0	0.0	23.8	671
2011	268	6,926	0.0	45.9	34.0	0.4	19.4	0.4	0.0	0.0	0.0	0.0	19.4	670
2012 ^{ac}	87	1,156	0.0	5.7	56.3	0.0	36.8	1.1	0.0	0.0	0.0	0.0	54.0	765
2013 ^c	61	1,919	0.0	26.2	36.1	0.0	37.7	0.0	0.0	0.0	0.0	0.0	49.2	739
2014 ^c	106	3,726	0.9	17.0	49.1	0.0	31.1	0.9	0.9	0.0	0.0	0.0	37.7	732
2015	225	8,333	0.0	57.3	35.1	0.0	7.6	0.0	0.0	0.0	0.0	0.0	15.1	634
2016	201	7,062	0.0	24.4	63.7	0.0	11.9	0.0	0.0	0.0	0.0	0.0	27.4	699
2017 ^c	162	7,787	1.2	37.7	39.5	0.0	21.6	0.0	0.0	0.0	0.0	0.0	28.4	692
2018	213	6,292	6.6	34.7	43.2	0.0	15.0	0.5	0.0	0.0	0.0	0.0	31.0	659
2019	224	10,301	6.7	60.7	28.1	0.0	4.5	0.0	0.0	0.0	0.0	0.0	14.3	623
Average (1976–2018)	396	8,154	0	23.7	38.4	0.1	34.7	0.1	2.4	0.3	0.0	0.0	32.4	737
5-yr Average (2014–2018)	181	6,640	1.8	34.2	46.1	0.0	17.5	0.3	0.2	0.0	0.0	0.0	27.9	683

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

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

^b ASL data were not collected.

^c Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

Table 39.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area Chinook salmon past the Salmon River (Pitka Fork) weir, 1981–1982 and 2015–2019.

Year	Sample size	Total escapement	Percent by age class								Percent female	Mean length (mm)
			(1.2)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(1.6)		
1981	132	1,700	0.8	9.8	0.0	78.0	0.0	10.6	0.0	0.8	47.0	852
1982	141	730	4.9	16.2	0.0	71.1	0.0	7.7	0.0	0.0	52.3	794
2015	195	7,156	20.0	34.4	0.0	44.6	0.0	1.0	0.0	0.0	36.7	722
2016	258	6,371	9.7	65.5	0.4	24.0	0.4	0.0	0.0	0.0	52.1	715
2017	151	8,298	11.9	47.7	0.0	40.4	0.0	0.0	0.0	0.0	52.3	711
2018	220	5,354	14.1	55.0	0.0	30.5	0.0	0.5	0.0	0.0	43.3	680
2019	151	4,823	15.9	41.7	0.0	41.7	0.0	0.0	0.7	0.0	33.7	707
Average (1981–1982, 2015–2018)	183	4,935	10.2	38.1	0.1	48.1	0.1	3.3	0.0	0.1	47.3	746
4-yr Average (2015–2018)	206	6,795	13.9	50.6	0.1	34.9	0.1	0.4	0.0	0.0	46.1	707

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

Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

Table 40.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W1 commercial drift gillnet fishery, 1972–2019.

Year	Sample size	Total harvest	Percent by age class								Percent female	Mean length (mm)
			(0.1)	(0.2)	(0.3)	(0.4)	(1.3)	(0.5)	(1.4)	(0.6)		
1972	541	78,619	0.0	3.5	38.6	57.9	0.0	0.0	0.0	0.0	53.6	586
1973	534	148,746	0.0	0.4	60.9	36.0	0.0	2.8	0.0	0.0	48.7	584
1974	163	171,887	0.0	1.2	58.9	36.2	0.0	3.7	0.0	0.0	53.4	551
1975	555	184,171	0.0	1.1	87.9	10.6	0.0	0.4	0.0	0.0	56.2	575
1976	514	177,864										
1977	679	248,721	0.0	11.5	80.4	8.0	0.0	0.1	0.0	0.0	56.6	581
1978	1,357	248,656	0.0	4.9	62.0	32.9	0.0	0.3	0.0	0.0	57.8	582
1979	962	261,874										
1980	507	483,751	0.0	1.2	97.2	1.6	0.0	0.0	0.0	0.0	55.0	557
1981	855	418,677	0.0	2.0	39.1	58.8	0.0	0.1	0.0	0.0	49.9	582
1982	887	278,306	0.0	1.2	67.1	30.0	0.7	1.0	0.0	0.0	49.3	585
1983	1,708	276,698	0.1	0.9	44.7	53.0	0.0	1.2	0.1	0.0	50.2	590
1984	1,728	423,718	0.0	1.0	84.7	13.1	0.0	1.2	0.0	0.0	58.1	576
1985	1,039	199,563	0.0	0.8	35.0	63.8	0.0	0.4	0.0	0.0	54.0	586
1986	1,064	309,048	0.0	0.5	76.8	22.3	0.0	0.5	0.0	0.0	53.3	581
1987	1,312	570,708	0.0	1.7	52.2	45.2	0.0	0.9	0.0	0.0	57.4	581
1988	2,404	1,384,267	0.0	0.9	79.4	18.8	0.0	0.9	0.0	0.0	50.8	575
1989	654	748,338	0.0	0.3	38.1	60.1	0.0	1.4	0.0	0.2	54.6	585
1990	557	459,974	0.0	1.4	72.4	25.0	0.0	1.3	0.0	0.0	52.6	571
1991	1,349	431,798	0.0	2.1	67.4	30.5	0.0	0.1	0.0	0.0	59.2	551
1992	1,089	344,470	0.0	0.2	47.8	50.0	0.0	2.0	0.0	0.0	49.2	552
1993	318	43,337	0.0	2.2	36.8	55.7	0.0	5.3	0.0	0.0	49.7	550
1994	1,389	271,115	0.0	0.7	79.3	19.1	0.0	0.9	0.0	0.0	61.3	542
1995	1,811	605,918	0.0	5.1	57.5	36.1	0.0	1.3	0.0	0.0	52.9	557
1996	2,168	200,298	0.0	0.3	74.1	23.4	0.0	2.2	0.0	0.0	55.0	564
1997	362	17,026	0.0	4.7	58.0	34.8	0.0	2.5	0.0	0.0	50.8	566
1998	1,432	207,809	0.0	1.5	88.8	9.6	0.0	0.1	0.0	0.0	59.0	555

-continued-

Table 40.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class								Percent female	Mean length (mm)
			(0.1)	(0.2)	(0.3)	(0.4)	(1.3)	(0.5)	(1.4)	(0.6)		
1999	268	23,006	0.0	0.4	60.4	39.2	0.0	0.0	0.0	0.0	51.1	572
2000	249	11,571	0.0	3.6	75.1	20.5	0.0	0.8	0.0	0.0	54.6	564
2001 ^a	118	1,273	0.0	3.4	82.2	13.6	0.0	0.8	0.0	0.0		544
2002 ^b	93	1,900	0.0	22.6	73.1	4.3	0.0	0.0	0.0	0.0	60.2	547
2003 ^b	118	2,764	0.0	0.8	92.4	6.8	0.0	0.0	0.0	0.0	50.8	541
2004	737	20,150	0.0	33.4	40.8	25.8	0.0	0.0	0.0	0.0	47.6	550
2005	779	69,139	0.0	0.8	92.4	6.7	0.0	0.1	0.0	0.0	53.4	559
2006 ^c	392	44,070	0.0	1.0	55.1	43.9	0.0	0.0	0.0	0.0	52.6	563
2007 ^b	201	10,763	0.0	0.5	75.6	21.4	0.0	2.5	0.0	0.0	54.2	540
2008	865	30,516	0.0	0.7	24.2	71.1	0.0	3.9	0.0	0.1	44.9	561
2009	1,170	76,790	0.0	2.3	69.4	26.2	0.0	2.1	0.0	0.0	43.5	562
2010	1,295	93,148	0.0	3.5	72.0	23.6	0.0	1.0	0.0	0.0	43.9	549
2011	903	118,256	0.0	0.3	63.9	35.0	0.0	0.8	0.0	0.0	43.2	553
2012	668	65,171	0.0	1.9	74.4	21.9	0.0	1.8	0.0	0.0	56.4	548
2013	196	52,235	0.0	0.0	81.6	17.3	0.0	1.0	0.0	0.0	48.0	555
2014	202	19,080	0.0	2.5	37.1	57.9	0.0	2.5	0.0	0.0	40.1	555
2015 ^d	0	507										
2016 ^e												
2017 ^e												
2018 ^e												
2019 ^e												
Average (1972–2015)	823	223,539	0.0	3.1	64.7	30.9	0.0	1.2	0.0	0.0	52.3	564

Note: Commercial sockeye salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Only age composition and length data were collected

^b Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^c Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS. Composition, if shown, represents samples collected only.

^d ASL data were not collected.

^e No commercial fishery occurred.

Table 41.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W4 commercial drift gillnet fishery, 1984–2019.

Year	Sample size	Total harvest	Percent by age class					Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1984	464	50,422	0.2	73.7	25.4	0.6	0.0	52.6	592
1985	458	20,418	0.0	53.1	46.7	0.2	0.0	52.8	592
1986	398	29,700	0.0	64.3	35.7	0.0	0.0	60.3	585
1987 ^a	242	8,557	0.0	38.4	61.6	0.0	0.0	44.2	597
1988	592	29,247	1.2	65.0	31.8	2.0	0.0	50.5	585
1989	702	39,395	0.0	50.0	49.0	1.0	0.0	51.6	586
1990	633	47,717	4.4	80.9	14.4	0.3	0.0	57.0	580
1991	656	54,493	1.4	76.8	21.8	0.0	0.0	57.9	560
1992	544	73,383	0.2	35.1	63.1	1.7	0.0	52.6	590
1993	398	40,924	0.8	39.7	48.2	11.3	0.0	50.5	552
1994 ^a	547	61,301	0.0	67.3	32.0	0.7	0.0	51.0	551.7
1995	598	81,462	10.9	53.7	34.4	1.0	0.0	64.0	568
1996 ^a	615	81,505	0.3	88.8	10.4	0.5	0.0	60.3	574
1997	1,221	38,435	1.6	36.8	60.4	1.2	0.0	55.0	582
1998	857	45,095	0.8	87.3	11.2	0.7	0.0	56.5	574
1999	814	38,091	0.1	65.1	34.5	0.2	0.0	52.8	585
2000	1,042	30,553	0.6	49.4	49.1	0.9	0.0	52.2	596
2001 ^b	575	17,209	0.5	53.7	45.6	0.2	0.0		575
2002	449	29,319	9.8	57.9	31.0	1.3	0.0	62.1	573
2003	299	27,868	1.0	89.0	9.0	1.0	0.0	49.8	563
2004	225	25,850	3.1	34.7	61.8	0.4	0.0	44.4	585
2005	958	13,529	0.4	85.9	12.9	0.7	0.0	48.7	559
2006 ^c	1,320	39,151	5.8	45.0	48.9	0.4	0.0	51.8	559
2007	1,134	61,228	0.0	72.0	25.5	2.5	0.0	47.4	550
2008	584	57,033	0.7	35.6	58.9	4.8	0.0	50.7	580
2009	1,102	91,158	2.5	63.3	32.7	1.5	0.1	50.9	576
2010	1,174	106,610	1.1	68.1	29.7	1.1	0.0	47.9	566
2011	903	104,959	0.9	48.6	48.2	2.3	0.0	46.8	571
2012	921	61,140	0.7	70.7	26.6	2.1	0.0	55.5	569
2013	667	58,079	0.0	43.8	55.0	1.0	0.1	54.4	567
2014	341	14,563	2.1	29.3	65.4	3.2	0.0	53.7	568
2015	339	16,051	1.5	77.3	20.4	0.9	0.0	44.2	562
2016 ^d									
2017 ^d									
2018 ^d									
2019 ^d									
Average									
(1984–2018)	680	46,701	1.6	59.4	37.5	1.4	0.0	52.6	574

Note: Commercial chum salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Only age composition and length data were collected

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

^d No commercial fishery occurred.

Table 42.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area chum salmon harvested in the District W5 commercial drift gillnet fishery, 1984–2019.

Year	Sample size	Total harvest	Percent by age class					Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1984 ^a	459	14,340	0.4	69.5	27.7	2.4	0.0	52.1	580
1985 ^a	270	4,784	0.0	57.8	41.9	0.4	0.0	57.8	585
1986	353	10,356	0.8	73.7	24.6	0.8	0.0	49.6	588
1987	431	20,381	0.0	65.7	34.3	0.0	0.0	44.8	589
1988	470	33,059	0.9	23.2	74.5	1.5	0.0	54.9	602
1989	503	13,622	0.4	46.9	50.3	2.4	0.0	44.1	593
1990	359	13,194	0.3	75.8	23.7	0.3	0.0	45.4	586
1991	565	15,892	1.8	73.6	24.6	0.0	0.0	48.5	576
1992	418	18,520	0.0	22.7	76.1	1.2	0.0	57.9	566
1993 ^a	190	10,657	0.5	41.1	48.9	9.5	0.0	54.2	572
1994 ^a	511	28,477	0.8	69.3	27.2	2.7	0.0	72.8	571
1995 ^a	179	19,832	8.9	37.4	52.5	1.1	0.0	55.3	576
1996 ^a	190	11,093	0.0	88.9	8.9	2.1	0.0	73.7	579
1997	807	11,729	0.6	32.1	66.8	0.5	0.0	50.1	585
1998	469	14,155	0.4	84.4	14.5	0.6	0.0	45.8	579
1999	74	11,562	1.4	79.7	18.9	0.0	0.0	73.0	567
2000	598	7,450	0.0	43.8	55.7	0.5	0.0	61.5	601
2001	647	3,412	0.3	68.9	30.8	0.0	0.0	67.5	578
2002	234	3,799	0.4	50.0	47.4	2.1	0.0	59.0	588
2003	296	5,593	0.0	88.5	9.1	2.4	0.0	45.3	562
2004 ^a	76	5,965	2.6	56.6	40.8	0.0	0.0	34.2	571
2005 ^a	105	2,568	1.0	80.0	19.0	0.0	0.0	32.4	559
2006 ^{ab}	193	11,568	0.0	59.1	40.9	0.0	0.0	38.9	568
2007 ^a	543	7,519	0.2	53.2	45.5	1.1	0.0	41.6	563
2008 ^c	0	10,340							
2009	1,229	16,985	2.1	40.7	54.4	2.8	0.1	36.0	579
2010	752	26,914	1.9	76.2	19.8	2.1	0.0	37.5	564
2011	644	13,191	0.2	41.8	57.0	1.1	0.0	32.0	567
2012	1,288	24,487	0.4	65.2	31.2	3.1	0.1	49.5	570
2013	782	12,651	0.0	39.9	57.2	2.9	0.0	39.5	573
2014	330	3,403	0.0	30.9	66.7	2.4	0.0	38.5	572
2015	630	4,510	6.5	66.7	23.7	3.2	0.0	25.9	565
2016 ^d									
2017 ^d									
2018 ^d									
2019 ^d									
Average									
(1984–2018)	456	12,875	1.1	58.2	39.2	1.6	0.0	49.0	577

Note: Commercial chum salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^c ASL data were not collected.

^d No commercial fishery occurred.

Table 43.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Goodnews River (Middle Fork) weir, 1991–2019.

Year	Sample size	Total escapement	Percent by age class					Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1991	291	27,567	0.0	65.6	34.4	0.0	0.0	40.5	572
1992 ^a	492	20,906	0.0	28.0	71.1	0.8	0.0	62.4	546
1993 ^a	236	14,331	1.7	42.4	50.0	5.9	0.0	50.8	547
1994 ^a	199	35,909	0.0	51.3	43.2	5.0	0.5	41.2	581
1995 ^a	456	33,350	1.5	22.8	73.7	2.0	0.0	52.6	588
1996 ^{ab}	311	26,719	0.0	81.4	16.1	2.6	0.0	48.2	593
1997	534	16,667	0.6	31.3	67.8	0.4	0.0	46.1	587
1998	506	26,164	0.2	85.4	14.2	0.2	0.0	48.4	578
1999	672	20,784	0.0	64.7	35.0	0.3	0.0	49.7	588
2000 ^a	417	14,040	1.7	50.1	48.2	0.0	0.0	50.1	594
2001	768	26,823	0.7	68.8	30.5	0.1	0.0	54.7	587
2002	725	29,905	4.0	38.3	56.4	1.2	0.0	55.3	599
2003	566	21,664	0.5	83.7	13.1	2.7	0.0	44.3	575
2004	1,220	32,447	5.2	60.9	33.8	0.1	0.0	55.1	577
2005	907	26,411	2.5	85.3	12.0	0.1	0.0	53.0	568
2006	776	54,599	1.3	70.1	28.4	0.3	0.0	54.3	574
2007	864	48,973	0.6	54.3	44.3	0.8	0.0	51.7	570
2008	1,241	39,821	0.6	49.9	44.4	5.1	0.0	63.4	573
2009 ^a	196	18,503	2.6	53.6	39.3	4.6	0.0	58.7	580
2010	189	24,794	1.6	72.5	25.4	0.5	0.0	59.3	565
2011	447	19,974	0.7	45.9	51.7	1.8	0.0	43.4	571
2012 ^a	347	9,512	0.6	76.9	21.0	1.4	0.0	46.7	565
2013	494	27,692	0.0	32.2	65.2	2.6	0.0	42.7	586
2014	284	11,518	0.4	37.7	53.9	8.1	0.0	37.7	585
2015	445	11,475	8.3	69.2	22.2	0.2	0.0	36.2	565
2016	351	33,671	10.3	75.5	14.2	0.0	0.0	53.6	562
2017 ^a	592	44,876	1.4	75.7	22.6	0.3	0.0	55.1	569
2018 ^c									
2019	593	38,072	0.7	86.7	12.3	0.3	0.0	47.9	550
Average (1991–2018)	538	26,633	1.7	58.3	38.2	1.7	0.0	50.2	576
5-yr Average (2014–2018)	418	25,385	5.1	64.5	28.3	2.2	0.0	45.6	570

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^c Weir did not operate.

Table 44.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Kanektok River weir, 2002–2019.

Year	Sample size	Total escapement	Percent by age class					Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
2002	738	41,809	2.2	40.2	55.8	1.8	0.0	54.5	589
2003	734	40,063	0.7	85.7	11.4	2.2	0.0	49.7	566
2004	736	45,894	7.3	56.0	36.5	0.1	0.0	51.6	566
2005 ^a	894	54,218	2.3	88.6	8.7	0.3	0.0	36.5	570
2006 ^b									
2007	1,121	132,319	0.1	62.8	35.3	1.8	0.0	48.2	566
2008 ^{ac}	726	53,077	1.1	51.1	44.2	3.6	0.0	55.4	567
2009	633	54,987	0.6	68.4	28.8	1.9	0.3	34.6	591
2010	663	69,236	1.2	65.2	32.3	1.4	0.0	51.4	573
2011	936	53,202	0.2	46.2	52.2	1.4	0.0	52.6	568
2012	382	26,425	0.0	58.9	36.1	5.0	0.0	46.1	583
2013	573	43,040	0.0	25.7	70.7	3.7	0.0	45.4	582
2014 ^a	314	18,586	0.0	30.6	65.6	3.8	0.0	43.3	576
2015	662	15,048	1.5	70.2	27.2	1.1	0.0	47.6	569
2016 ^b									
2017 ^b									
2018 ^b									
2019 ^b									
Average (2002–2015)	701	49,839	1.3	57.7	38.8	2.1	0.0	47.5	574

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Weir did not operate.

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

Table 45.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Salmon River (Aniak) weir, 2006–2019.

Year	Sample size	Total escapement	Percent by age class				Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
2006	846	41,159	1.8	48.1	49.9	0.2	35.9	559
2007	759	25,228	1.7	60.3	34.9	3.0	38.5	554
2008	668	9,459	0.1	20.2	73.8	5.8	27.5	564
2009	0	9,336						
2010 ^a								
2011 ^a								
2012 ^{bc}	253	3,134	2.0	51.4	39.1	7.5	36.4	553
2013	653	7,685	0.0	57.9	38.4	3.7	17.2	565
2014 ^b	123	2,777	0.8	27.6	67.5	4.1	8.1	569
2015	570	5,511	1.6	55.8	41.4	1.2	27.2	530
2016 ^b	93	1,691	3.3	64.1	32.6	0.0	29.3	532
2017	333	9,754	0.3	60.4	36.6	2.7	31.5	523
2018	389	18,770	3.9	79.9	15.2	1.0	36.5	540
2019 ^a								
Average (2006–2018)	426	12,228	1.5	52.6	42.9	2.9	28.8	549
5-yr Average (2014–2018)	302	7,701	2.0	57.6	38.7	1.8	26.5	539

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Weir did not operate.

^b Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

Table 46.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the George River weir, 1996–2019.

Year	Sample size	Total escapement	Percent by age class					Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1996	765	19,368	2.0	63.9	33.2	0.9	0.0	46.7	581
1997	639	5,906	0.9	55.1	42.7	1.2	0.0	42.4	559
1998 ^{ab}	322	6,391	0.0	82.6	17.1	0.3	0.0	37.9	577
1999 ^a	611	9,834	0.0	64.3	35.2	0.5	0.0	47.8	565
2000	237	3,486	1.3	47.7	49.8	1.3	0.0	44.3	580
2001	782	11,298	0.0	71.9	28.1	0.0	0.0	55.5	555
2002	955	6,530	7.5	45.7	45.2	1.6	0.0	47.6	571
2003	597	30,944	1.7	87.6	10.4	0.3	0.0	50.8	541
2004	923	14,172	13.3	38.5	48.0	0.2	0.0	50.1	550
2005	985	14,847	6.6	88.8	4.1	0.5	0.0	49.2	535
2006	934	41,596	4.0	50.3	45.6	0.1	0.0	56.0	539
2007 ^a	705	62,681	2.4	80.3	15.3	2.0	0.0	47.5	543
2008	787	29,616	1.4	23.0	72.6	3.0	0.0	54.3	545
2009	690	7,940	12.9	58.3	24.9	3.9	0.0	51.4	539
2010	1,067	26,187	3.8	87.5	7.8	0.7	0.1	52.8	531
2011	1,023	45,257	0.7	50.3	48.6	0.4	0.0	50.0	547
2012	671	33,277	0.0	58.3	34.1	7.6	0.0	53.1	553
2013	547	37,945	0.5	41.1	57.0	1.3	0.0	56.3	547
2014	369	17,183	0.0	39.5	51.4	8.9	0.3	52.8	548
2015	631	17,554	2.5	61.5	34.9	1.1	0.0	49.9	538
2016	320	19,469	6.3	78.4	15.3	0.0	0.0	51.6	526
2017	408	39,971	2.7	68.6	28.2	0.5	0.0	54.2	537
2018	386	48,915	3.9	75.6	19.4	1.0	0.0	49.0	540
2019	424	43,072	0.5	73.1	25.7	0.7	0.0	47.4	538
Average (1996–2018)	668	23,929	3.2	61.7	33.4	1.6	0.0	50.0	550
5-yr Average (2014–2018)	423	28,618	3.1	64.7	29.8	2.3	0.1	51.5	538

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

Table 47.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Tatlawiksuk River weir, 1998–2019.

Year	Sample size	Total escapement	Percent by age class						Percent female	Mean length (mm)
			(0.1)	(0.2)	(0.3)	(0.4)	(0.5)	(0.6)		
1998 ^{ab}	335	5,726	0	0.0	83.6	16.1	0.3	0.0	37.9	582
1999	856	9,454	0.0	0.0	83.6	16.1	0.3	0.0	53.6	575
2000	736	6,982	0.0	0.1	74.1	25.6	0.2	0.0	51.9	575
2001	847	24,118	0.0	3.5	62.8	33.4	0.3	0.0	52.8	566
2002	1,346	24,539	0.0	0.7	69.2	29.9	0.2	0.0	51.9	561
2003 ^{ab}	57	479	0.0	0.0	84.2	12.3	3.5	0.0	21.1	592
2004	1,299	21,245	0.0	17.8	40.0	42.0	0.2	0.0	39.9	563
2005	1,077	55,432	0.0	5.6	89.8	4.6	0.0	0.0	57.8	551
2006	935	32,303	0.0	3.4	57.5	38.7	0.3	0.0	46.8	557
2007	920	82,821	0.0	3.4	79.2	16.7	0.7	0.0	52.2	549
2008	798	30,354	0.0	0.6	22.6	74.9	1.9	0.0	52.6	558
2009	829	19,975	0.0	8.6	66.0	22.4	3.0	0.0	53.8	538
2010	1,082	36,710	0.0	8.5	82.9	8.1	0.5	0.0	53.4	549
2011	938	85,723	0.0	0.5	65.8	33.4	0.3	0.0	50.3	556
2012	593	44,573	0.0	0.8	46.7	48.2	4.2	0.0	56.3	559
2013	553	32,253	0.0	0.2	34.7	62.5	2.4	0.2	50.1	560
2014	211	12,453	0.0	0.5	29.9	58.3	11.4	0.0	36.0	568
2015	297	10,382	0.0	2.4	65.0	31.6	0.7	0.3	38.7	533
2016	277	10,849	0.0	8.7	64.3	27.1	0.0	0.0	51.3	539
2017	399	30,174	0.8	2.8	76.9	18.8	0.8	0.0	52.4	548
2018 ^c										
2019 ^c										
Average (1998–2018)	719	28,827	0.0	3.4	63.9	31.0	1.6	0.0	48.0	559
5-yr Average (2014–2018)	296	15,965	0.2	3.6	59.0	34.0	3.2	0.1	44.6	547

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^c Weir did not operate.

Table 48.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area chum salmon past the Kogrukluk River weir, 1976–2019.

Year	Sample size	Total escapement	Percent by age class				Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
1976	213	8,508	0.5	37.1	61.5	0.9	19.7	598
1977 ^{ab}	0	10,388						
1978	322	50,595	1.9	53.4	44.7	0.0	41.9	597
1979 ^b	0	16,485						
1980 ^a	83	6,323	0.0	89.2	10.8	0.0	9.6	572
1981	191	56,496	0.0	24.6	74.9	0.5	36.6	598
1982	258	58,512	0.0	70.9	28.7	0.4	43.0	578
1983 ^{ac}	484	3,375	0.4	22.1	74.0	3.5	42.1	591
1984	1,252	41,418	0.0	77.7	19.5	2.8	32.6	573
1985	874	14,522	0.2	30.3	69.0	0.5	45.3	570
1986	568	12,880	0.4	69.7	27.5	2.5	36.8	575
1987 ^{ac}	160	2,349	0.0	22.5	69.4	8.1	45.0	558
1988 ^d	621	29,426	0.0	69.2	28.8	1.9	35.6	575
1989 ^{ac}	147	15,543	0.0	19.7	76.9	3.4	29.9	590
1990	371	26,556	1.1	61.5	35.8	1.6	22.4	586
1991	293	22,999	0.7	53.9	45.4	0.0	14.7	583
1992	362	36,085	2.5	41.7	55.0	0.8	32.9	582
1993	362	30,021	0.0	34.8	60.5	4.7	18.0	589
1994 ^{ac}	125	23,756	0.0	36.8	58.4	4.8	23.2	593
1995	847	32,466	3.5	51.6	44.2	0.7	15.3	583
1996	827	48,225	1.7	75.8	21.4	1.1	15.5	599
1997	643	7,957	0.5	44.6	54.3	0.6	3.9	602
1998 ^{ac}	194	13,013	0.0	90.2	9.8	0.0	11.3	594
1999	737	14,140	0.0	51.8	47.9	0.3	9.1	592
2000	583	11,426	1.7	70.0	28.0	0.3	14.4	586
2001	736	31,481	0.4	73.0	26.6	0.0	12.6	580
2002	1,065	52,912	0.4	73.5	24.7	1.4	14.6	580
2003	1,014	23,708	1.7	66.2	31.5	0.7	10.0	570
2004	1,033	24,429	12.3	59.9	27.4	0.4	8.7	565
2005	1,201	194,896	4.0	89.3	6.7	0.0	44.0	544
2006	1,275	183,743	2.2	60.9	36.7	0.2	39.1	549
2007	640	53,064	2.2	54.5	38.6	4.7	35.2	557
2008	525	44,717	1.1	46.7	48.6	3.4	34.1	561
2009	806	81,829	2.7	73.8	22.5	1.0	44.7	561
2010	746	63,612	1.7	52.7	44.1	1.5	39.5	556

-continued-

Table 48.–Page 2 of 2.

Year	Sample size	Total escapement	Percent by age class				Percent female	Mean length (mm)
			(0.2)	(0.3)	(0.4)	(0.5)		
2011	788	76,649	1.4	59.6	37.4	1.5	39.6	555
2012 ^{ae}	229	14,297	0.9	70.7	26.6	1.7	23.6	550
2013	611	65,648	0.2	53.2	46.0	0.7	43.4	558
2014	302	30,697	0.3	19.9	72.8	7.0	39.4	564
2015	799	33,091	8.3	64.8	26.3	0.6	35.0	539
2016	555	45,234	2.2	74.2	22.9	0.7	40.4	551
2017 ^c	376	85,793	0.0	49.2	49.5	1.3	30.1	554
2018	580	52,937	4.1	75.7	19.7	0.5	31.6	549
2019	610	71,006	0.7	73.9	24.6	0.8	29.5	562
Average (1976–2018)	553	40,749	1.5	56.5	40.4	1.6	28.4	573
5-yr Average (2014–2018)	522	49,550	3.0	56.8	38.2	2.0	35.3	552

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

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

^b ASL data were not collected.

^c Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^d Historical data summary not available.

^e Samples were applied to observed escapement.

Table 49.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W1 commercial drift gillnet fishery, 1984–2019.

Year	Sample size	Total harvest	Percent by age class														Percent female	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(3.2)	(1.5)	(2.4)	(3.3)		
1984	296	48,575	0.3	0.0	7.8	9.5	0.0	0.3	56.4	6.8	0.7	18.2	0.0	0.0	0.0	0.0	52.0	568
1985	892	106,659	0.0	0.0	2.8	5.8	0.0	1.0	65.9	10.9	1.0	12.6	0.0	0.0	0.0	0.0	56.3	578
1986	534	95,363	0.0	0.0	7.1	6.2	0.0	0.2	75.5	2.8	0.6	7.7	0.0	0.0	0.0	0.0	50.4	592
1987	567	136,160	0.0	0.0	3.0	6.7	0.0	0.2	76.0	1.8	1.6	10.8	0.0	0.0	0.0	0.0	57.0	592
1988	452	92,538	0.0	0.0	0.2	1.3	0.0	0.0	73.7	1.3	2.2	20.8	0.0	0.0	0.4	0.0	56.6	590
1989	175	42,484	0.0	0.0	0.0	3.4	0.0	0.0	58.9	10.3	4.6	21.1	0.0	0.0	1.1	0.6	55.4	590
1990	250	84,414	0.0	0.4	0.4	3.6	0.0	0.8	77.2	4.8	2.8	10.0	0.0	0.0	0.0	0.0	51.2	576
1991	268	108,946	0.0	0.0	3.0	12.7	0.0	1.1	76.5	0.7	2.2	3.7	0.0	0.0	0.0	0.0	52.6	565
1992	503	92,174	0.0	0.0	3.0	5.4	0.0	1.4	69.6	2.6	6.6	11.5	0.0	0.0	0.0	0.0	50.1	555
1993	186	27,008	0.0	0.0	1.6	22.0	0.0	1.1	55.4	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	1.7	0.0	0.0	72.3	0.6	1.7	22.0	0.0	0.0	1.2	0.0	49.7	571
1995	419	92,500	0.0	0.2	1.0	10.3	0.0	0.2	73.3	1.9	3.3	9.8	0.0	0.0	0.0	0.0	51.8	562
1996	520	33,517	0.2	0.2	6.2	3.5	0.0	0.0	82.5	1.5	1.3	4.6	0.0	0.0	0.0	0.0	42.7	567
1997	88	21,989	0.0	0.0	0.0	26.1	0.0	0.0	50.0	11.4	2.3	10.2	0.0	0.0	0.0	0.0	51.1	566
1998	494	60,906	0.0	0.0	1.6	5.5	0.0	0.2	61.7	8.9	1.8	19.6	0.0	0.0	0.6	0.0	49.8	563
1999	189	16,976	0.0	0.0	0.0	4.2	0.0	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	0.0	60.0	2.4	0.0	25.3	0.0	0.0	0.0	0.0	57.1	574
2001 ^a	0	84																
2002 ^a	0	84																
2003 ^a	0	282																
2004 ^b	416	8,532	0.2	0.0	0.3	28.1	0.2	0.0	54.4	10.6	2.4	3.6	0.0	0.0	0.0	0.0		546
2005	551	27,645	0.0	0.0	1.3	9.1	0.0	0.0	78.6	0.7	1.5	8.9	0.0	0.0	0.0	0.0	51.0	563
2006 ^{cd}	179	12,618	0.0	0.0	2.2	2.8	0.0	0.0	84.9	0.0	3.9	6.1	0.0	0.0	0.0	0.0	34.1	572
2007 ^a	0	703																
2008	510	15,601	0.0	0.0	2.2	5.7	0.0	0.0	83.9	0.2	4.9	2.9	0.0	0.0	0.2	0.0	54.1	547
2009	526	25,673	0.0	0.0	6.5	7.0	0.0	0.0	66.9	1.9	12.0	5.5	0.0	0.0	0.2	0.0	51.7	557
2010	1,055	22,428	0.0	0.0	0.0	17.6	0.0	0.0	70.8	0.3	9.8	1.5	0.0	0.0	0.0	0.0	51.1	565

-continued-

Table 49.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class														Percent female	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(2.1)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(3.2)	(1.5)	(2.4)	(3.3)		
2011	682	13,482	0.0	0.0	13.8	2.6	0.0	2.9	64.2	0.6	12.8	2.6	0.0	0.1	0.3	0.0	53.5	562
2012	315	2,857	0.0	0.0	4.4	4.8	0.0	1.3	74.3	0.6	10.8	3.5	0.0	0.3	0.0	0.0	50.2	551
2013	183	768	0.0	0.0	4.4	7.1	0.0	0.0	47.5	1.6	4.4	29.5	0.5	0.0	1.1	3.8	47.0	555
2014	59	2,720	0.0	0.0	1.7	32.2	0.0	1.7	35.6	6.8	13.6	6.8	1.7	0.0	0.0	0.0	33.9	540
2015 ^a	0	130																
2016 ^e																		
2017 ^e																		
2018 ^e																		
2019 ^e																		
Average (1984–2015)	333	38,978	0.0	0.0	2.9	9.4	0.0	0.5	67.1	4.0	4.3	11.4	0.1	0.0	0.2	0.2	50.7	567

Note: Harvest data are from Districts W1 and W2 combined. The commercial sockeye salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a ASL data were not collected.

^b Only age composition and length data were collected.

^c Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^e No commercial fishery occurred.

Table 50.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W4 commercial gillnet fishery, 1990–2019.

Year	Sample size	Total harvest	Percent by age class												Percent female	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	0.2	4.7	54.5	0.3	37.9	0.5	0.7	1.0	0.0	0.0	0.0	46.1	544
1991	419	53,657	0.2	0.0	12.4	8.8	0.7	74.7	0.0	2.6	0.5	0.0	0.0	0.0	53.7	564
1992 ^a	255	60,929	0.4	0.0	3.9	17.6	2.0	67.5	0.8	5.9	1.2	0.0	0.8	0.0	50.2	564
1993	535	80,878	0.9	0.0	6.2	29.9	2.8	50.5	3.2	4.3	2.2	0.0	0.0	0.0	46.2	543
1994	527	72,314	0.0	0.0	9.7	16.7	0.2	65.5	0.4	4.6	2.8	0.0	0.2	0.0	45.2	534
1995	620	68,194	0.2	0.0	0.0	43.5	0.0	45.2	7.6	2.6	1.0	0.0	0.0	0.0	49.0	541
1996	509	57,665	0.2	0.0	5.3	16.9	0.0	68.4	2.9	0.8	5.3	0.0	0.0	0.2	57.0	558
1997	940	69,508	0.2	0.0	3.4	24.9	3.0	49.8	1.3	9.5	8.0	0.0	0.0	0.0	53.0	560
1998	756	41,382	0.3	0.0	4.0	20.6	0.4	67.9	2.0	1.6	3.2	0.0	0.1	0.0	52.6	545
1999	539	41,315	0.0	0.0	2.4	40.6	0.4	49.0	1.1	4.3	2.2	0.0	0.0	0.0	43.2	546
2000 ^b	880	68,557	0.0	0.0	0.6	20.6	0.2	76.0	0.3	0.5	1.8	0.0	0.0	0.0		559
2001 ^b	714	33,807	0.0	0.0	0.8	4.1	0.1	87.0	0.7	1.8	5.3	0.0	0.1	0.0		568
2002 ^c	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 ^b	364	33,941	0.0	0.0	0.3	27.7	0.0	65.1	3.0	1.6	2.2	0.0	0.0	0.0		558
2004 ^b	217	34,437	0.0	0.0	2.3	28.6	0.9	61.8	0.5	5.5	0.5	0.0	0.0	0.0		547
2005	937	68,801	0.1	0.0	1.7	30.4	0.0	64.2	0.6	1.2	1.7	0.0	0.0	0.0	45.8	537
2006	807	106,308	0.1	0.0	1.2	25.9	0.4	69.8	0.4	1.9	0.4	0.0	0.0	0.0	33.1	527
2007	1,005	109,343	0.1	0.0	4.6	40.7	0.0	49.8	0.1	2.5	2.3	0.0	0.0	0.0	44.6	525
2008	688	69,743	0.0	0.0	2.2	22.4	0.4	71.8	0.4	1.9	0.9	0.0	0.0	0.0	47.0	542
2009	976	112,153	0.0	0.0	3.6	50.6	0.4	41.8	0.5	2.2	0.9	0.0	0.0	0.0	51.7	538
2010	813	138,362	0.0	0.0	0.0	12.8	0.0	84.1	0.2	2.2	0.6	0.0	0.0	0.0	49.0	548
2011	602	38,543	0.3	0.0	5.1	32.4	1.3	47.2	6.1	3.8	3.2	0.3	0.2	0.0	48.9	539
2012	836	37,688	0.1	0.0	1.9	21.2	0.4	69.7	0.5	1.1	5.0	0.0	0.1	0.0	52.1	540
2013	601	26,393	0.0	0.3	1.3	63.7	0.5	27.6	1.5	1.7	3.3	0.0	0.0	0.0	54.3	520
2014	342	58,879	0.0	0.0	2.3	41.5	0.0	49.1	5.6	0.9	0.3	0.3	0.0	0.0	55.9	524
2015	551	30,269	0.0	0.0	5.3	7.3	0.2	78.0	5.6	1.8	1.8	0.0	0.0	0.0	43.5	546

-continued-

Table 50.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class												Percent female	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)		
2016 ^d																
2017 ^d																
2018 ^d																
2019 ^d																
Average (1990–2015)	627	62,099	0.2	0.0	3.3	29.0	0.6	59.9	1.9	2.7	2.4	0.0	0.1	0.0	48.6	544

Note: Commercial sockeye salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Only age composition and length data were collected.

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

^d No commercial fishery occurred.

Table 51.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area sockeye salmon harvested in the District W5 commercial drift gillnet fishery, 1985–2019.

Year	Sample size	Total harvest	Percent by age class														Percent female	Mean length (mm)
			(0.1)	(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	3.2	(2.4)	(3.3)	(3.4)		
1985	492	6,698	0.2	0.0	0.0	0.0	24.0	0.0	74.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	45.5	573
1986	550	25,112	0.0	0.0	0.0	0.0	8.5	0.0	91.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	45.1	583
1987	546	27,758	0.0	0.0	0.0	0.0	7.0	0.0	93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.4	585
1988	735	36,368	0.0	0.1	0.0	0.7	3.5	0.4	88.8	0.4	5.6	0.3	0.0	0.1	0.0	0.0	41.4	596
1989	577	19,299	0.0	0.0	0.0	0.0	10.4	0.2	84.7	0.9	2.4	1.4	0.0	0.0	0.0	0.0	44.7	580
1990	459	35,823	0.2	0.0	0.0	4.8	10.5	0.2	67.5	6.5	1.5	8.7	0.0	0.0	0.0	0.0	32.0	572
1991	567	39,838	0.0	0.2	0.0	2.8	4.2	0.4	73.2	7.4	1.2	10.6	0.0	0.0	0.0	0.0	45.5	566
1992	572	39,194	0.9	3.8	0.9	7.2	23.4	1.4	54.7	0.7	3.5	2.4	0.2	0.9	0.0	0.0	43.5	575
1993	485	59,293	0.0	0.2	0.0	6.2	26.0	0.6	53.4	2.7	1.6	8.9	0.0	0.4	0.0	0.0	54.0	561
1994	484	69,490	0.0	0.0	0.0	6.0	2.3	0.2	80.8	0.6	1.4	8.5	0.0	0.2	0.0	0.0	49.2	567
1995 ^a	369	37,351	0.0	0.0	0.0	0.3	7.0	0.3	71.5	7.9	3.5	9.5	0.0	0.0	0.0	0.0	42.8	563
1996 ^a	343	30,717	0.0	0.3	0.0	5.5	7.3	0.0	77.8	2.3	0.6	5.8	0.0	0.3	0.0	0.0	55.1	569
1997	827	31,451	0.0	0.2	0.0	3.0	17.7	1.1	54.2	3.6	6.5	13.3	0.0	0.4	0.0	0.0	46.8	563
1998	740	27,161	0.0	0.0	0.0	3.1	8.8	0.1	73.2	3.8	0.5	10.1	0.0	0.1	0.1	0.0	45.7	555
1999	168	22,910	0.0	0.0	0.0	0.6	28.6	0.0	60.7	2.4	1.8	6.0	0.0	0.0	0.0	0.0	44.6	548
2000	716	37,252	0.0	0.0	0.0	1.0	7.3	0.0	84.9	3.4	0.0	3.5	0.0	0.0	0.0	0.0	41.6	574
2001	577	25,654	0.0	0.0	0.0	0.3	2.3	0.0	89.9	0.0	1.9	5.4	0.0	0.2	0.0	0.0	51.8	581
2002	541	6,304	0.0	0.0	0.0	2.6	19.2	0.0	52.5	7.4	7.4	10.7	0.0	0.2	0.0	0.0	43.3	565
2003 ^b	329	29,423	0.0	0.0	0.0	0.3	7.6	0.0	70.8	2.4	1.5	17.3	0.0	0.0	0.0	0.0		579
2004 ^b	182	20,523	0.0	0.0	0.0	0.0	20.8	0.0	61.7	7.1	1.6	8.2	0.0	0.5	0.0	0.0		547
2005 ^a	191	23,933	0.0	0.0	0.0	0.5	17.3	0.0	70.7	4.7	1.0	5.8	0.0	0.0	0.0	0.0	39.8	553
2006 ^{ac}	95	29,857	0.0	0.0	0.0	8.4	8.4	0.0	74.7	0.0	3.2	5.3	0.0	0.0	0.0	0.0	32.6	548
2007	781	43,716	0.0	0.0	0.0	4.9	9.3	0.1	69.9	1.9	3.5	10.4	0.0	0.0	0.0	0.0	40.5	549
2008 ^d	0	27,236																
2009	1,352	32,544	0.0	0.1	0.0	4.4	13.6	1.4	64.6	2.0	3.4	10.4	0.0	0.1	0.0	0.0	41.6	556
2010	660	41,074	0.0	0.0	0.0	0.0	15.9	0.0	79.8	1.1	2.4	0.8	0.0	0.0	0.0	0.0	34.7	550

-continued-

Table 51.–Page 2 of 2.

Year	Sample size	Total harvest	Percent by age class														Percent female	Mean length (mm)
			(0.1)	(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	3.2	(2.4)	(3.3)	(3.4)		
2011	607	24,573	0.0	0.3	0.0	3.3	13.5	0.7	73.6	4.0	1.5	3.1	0.0	0.0	0.0	0.0	41.0	553
2012	1,217	50,635	0.0	0.0	0.0	0.7	7.7	0.3	70.3	5.1	1.6	13.8	0.0	0.0	0.4	0.0	46.1	550
2013	735	24,521	0.0	0.0	0.0	3.4	3.7	0.1	41.1	1.4	1.6	44.1	0.0	1.0	3.4	0.3	46.1	556
2014	338	20,515	0.0	0.0	0.3	2.4	41.1	2.1	33.1	9.8	1.5	8.9	0.0	0.3	0.6	0.0	37.0	527
2015	630	25,861	0.0	0.0	0.0	5.7	7.6	0.5	75.2	4.1	1.1	5.7	0.0	0.0	0.0	0.0	25.6	547
2016 ^e																		
2017 ^e																		
2018 ^e																		
2019 ^e																		
Average (1985–2015)	544	31,358		0.2	0.0	2.6	12.8	0.3	70.4	3.2	2.1	8.0	0.0	0.2	0.2	0.0	43.1	563

Note: Commercial sockeye salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^e Only age composition and length data were collected.

^b Samples were collected, are archived at ADF&G, but data are not available through the AYKDBMS. Composition, if shown, represents samples collected only.

^c ASL data were not collected.

^d No commercial fishery occurred.

Table 52.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area sockeye salmon past the Middle Fork Goodnews River weir, 1991–2019.

Year	Sample size	Total escapement	Percent by age class													Percent female	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)		
1991 ^a	280	38,183	1.1	0.0	2.9	7.1	0.4	83.2	1.1	2.1	2.1	0.0	0.0	0.0	0.0	56.4	545
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	0.0	60.8	534
1993 ^a	312	19,144	0.6	0.3	5.1	19.2	0.3	67.0	1.0	3.5	2.6	0.0	0.0	0.3	0.0	60.9	550
1994 ^a	160	56,453	0.0	0.0	3.1	1.9	0.0	87.5	1.3	6.3	0.0	0.0	0.0	0.0	0.0	49.4	537
1995	454	37,782	0.0	0.0	0.2	13.4	0.0	76.4	2.4	3.3	4.2	0.0	0.0	0.0	0.0	51.3	544
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	0.0	47.6	562
1997	733	34,137	0.1	0.0	1.4	22.6	0.7	62.8	2.2	2.5	7.2	0.0	0.1	0.4	0.0	56.6	541
1998 ^a	542	36,597	0.0	0.0	2.4	19.9	0.0	64.2	5.4	0.9	7.2	0.0	0.0	0.0	0.0	55.5	532
1999	789	49,757	0.0	0.0	1.3	12.0	0.3	77.4	1.9	1.8	5.1	0.0	0.0	0.3	0.0	48.2	548
2000	607	37,358	0.0	0.0	1.3	2.6	0.0	90.3	1.3	1.3	3.1	0.0	0.0	0.0	0.0	52.4	560
2001	437	21,008	0.0	0.0	0.9	2.5	0.0	78.5	0.5	9.6	6.9	0.0	0.0	0.7	0.5	49.4	572
2002	487	21,127	0.0	0.0	0.6	56.7	0.2	26.5	8.0	2.5	5.3	0.0	0.0	0.2	0.0	57.7	521
2003	659	37,882	0.0	0.0	0.5	9.0	0.0	85.7	0.6	1.7	2.6	0.0	0.0	0.0	0.0	45.5	573
2004	809	53,131	0.0	0.4	1.0	40.9	0.0	47.7	3.2	4.7	2.1	0.0	0.0	0.0	0.0	58.6	537
2005	956	115,167	0.1	0.0	0.8	15.1	0.0	73.4	6.5	0.8	3.2	0.0	0.0	0.0	0.0	58.3	544
2006	576	126,734	0.0	0.0	3.0	20.0	0.0	68.8	0.7	2.8	4.9	0.0	0.0	0.0	0.0	58.3	533
2007	727	74,111	0.7	0.0	9.1	13.9	0.6	66.9	1.7	2.6	4.7	0.0	0.0	0.0	0.0	53.4	550
2008	512	41,228	0.0	0.0	3.7	14.1	0.6	74.4	1.2	2.5	3.5	0.0	0.0	0.0	0.0	58.6	541
2009 ^a	161	26,197	0.0	0.0	4.3	31.7	0.0	54.7	1.9	2.5	5.0	0.0	0.0	0.0	0.0	57.8	540
2010	301	37,273	0.0	0.0	0.0	5.3	0.0	86.7	1.0	3.0	4.0	0.0	0.0	0.0	0.0	54.8	549
2011	440	20,188	0.0	0.0	3.0	6.4	0.2	84.1	0.2	3.9	2.0	0.0	0.0	0.2	0.0	56.1	550
2012	331	30,352	0.0	0.0	1.5	7.3	0.0	77.0	4.2	2.4	7.3	0.3	0.0	0.0	0.0	55.9	538
2013	625	24,117	0.2	0.0	1.8	8.8	0.0	50.2	3.4	5.4	22.7	0.0	0.0	2.2	5.3	55.2	550
2014	494	41,473	0.0	0.0	0.2	12.3	0.0	76.1	3.0	4.7	3.2	0.2	0.0	0.2	0.0	55.7	552

-continued-

Table 52.–Page 2 of 2.

Year	Sample size	Total escapement	Percent by age class													Percent female	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)		
2015 ^a	425	54,757	0.0	0.0	0.9	10.1	0.0	86.4	0.7	1.2	0.7	0.0	0.0	0.0	0.0	55.8	532
2016	560	169,544	0.0	0.0	0.5	33.0	0.0	59.5	2.9	1.4	2.7	0.0	0.0	0.0	0.0	60.0	530
2017	551	182,043	0.5	0.0	0.9	15.2	0.0	78.6	0.0	1.1	3.3	0.0	0.0	0.2	0.2	54.6	529
2018 ^d																	
2019	538	162,711	0.0	0.0	3.0	2.6	0.0	86.8	0.9	0.4	6.1	0.0	0.0	0.2	0.0	51.7	529
Average (1991–2018)	495	53,304	0.2	0.0	2.0	15.9	0.1	71.8	2.1	2.9	4.5	0.0	0.0	0.2	0.2	55.0	544
Average (2014–2018)	508	111,954	0.1	0.0	1.1	14.7	0.0	77.5	1.5	1.7	3.2	0.0	0.0	0.1	0.0	56.5	536

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^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.

^d Weir did not operate.

Table 53.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area sockeye salmon past the Kanektok River weir, 2002–2019.

Year	Sample size	Total escapement	Percent by age class												Percent female	Mean length (mm)
			(0.2)	(1.1)	(0.3)	(1.2)	(0.4)	(1.3)	(2.2)	(1.4)	(2.3)	(1.5)	(2.4)	(3.3)		
2002	665	58,619	0.0	0.0	0.5	63.3	0.2	29.5	1.1	1.7	3.3	0.2	0.3	0.2	59.4	526
2003	403	128,415	0.0	0.0	0.2	30.5	0.0	65.5	0.2	1.7	1.7	0.0	0.0	0.0	51.1	550
2004	472	103,150	0.2	0.4	0.2	53.2	0.0	41.3	3.6	0.6	0.4	0.0	0.0	0.0	44.9	529
2005 ^a	688	235,450	0.0	0.0	0.0	62.2	0.0	35.3	1.3	0.6	0.6	0.0	0.0	0.0	30.2	545
2006 ^b																
2007	793	305,356	0.9	0.0	2.5	46.3	0.0	47.0	0.1	2.0	1.1	0.0	0.0	0.0	38.0	543
2008 ^{ac}	307	68,192	0.3	0.0	1.0	22.1	0.3	74.6	0.0	1.3	0.3	0.0	0.0	0.0	36.8	558
2009	585	294,212	0.0	0.0	2.1	61.4	0.0	35.4	0.3	0.2	0.7	0.0	0.0	0.0	52.5	538
2010	807	208,300	0.0	0.0	0.0	10.2	0.0	87.1	0.4	2.2	0.1	0.0	0.0	0.0	46.8	562
2011	697	87,303	1.1	0.0	5.5	39.9	0.3	46.1	4.2	1.6	1.3	0.0	0.0	0.1	52.4	542
2012	575	99,604	0.0	0.0	0.9	20.9	0.0	72.5	0.7	0.7	4.3	0.0	0.0	0.0	49.7	547
2013	601	128,761	0.0	0.0	0.2	70.5	0.0	25.3	1.0	2.5	0.5	0.0	0.0	0.0	55.9	519
2014	168	256,970	0.0	0.0	0.0	29.2	0.0	67.3	3.0	0.6	0.0	0.0	0.0	0.0	50.0	539
2015	582	106,751	0.0	0.0	0.5	10.7	0.0	77.3	9.5	1.2	0.9	0.0	0.0	0.0	52.1	542
2016 ^b																
2017 ^b																
2018 ^b																
2019 ^b																
Average (2002–2015)	565	160,083	0.2	0.0	1.0	40.0	0.1	54.2	1.9	1.3	1.2	0.0	0.0	0.0	47.7	542

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Weir did not operate.

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

Table 54.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W1 commercial drift gillnet fishery, 1984–2019.

Year	Sample size	Total harvest	Percent by age class				Percent female	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(4.1)		
1984	1,340	623,447	5.1	90.7	4.2	0.0	49.0	581
1985	1,119	335,551	10.5	84.5	4.9	0.0	47.0	581
1986	841	659,708	5.0	92.2	2.9	0.0	46.1	555
1987	821	399,380	7.7	75.9	16.4	0.0	51.3	576
1988	1,421	525,502	4.4	93.9	1.7	0.0	51.3	573
1989	708	477,955	9.3	87.6	3.1	0.0	46.2	571
1990	388	409,053	4.1	90.5	5.4	0.0	42.5	552
1991	478	500,824	5.4	88.1	6.5	0.0	41.4	551
1992	764	666,170	14.1	80.5	5.4	0.0	50.1	563
1993	540	610,667	6.1	91.5	2.4	0.0	48.9	550
1994	822	724,721	7.3	83.6	9.1	0.0	42.3	570
1995	564	471,461	11.2	80.3	8.5	0.0	46.6	562
1996	666	936,066	4.7	93.8	1.5	0.0	52.9	574
1997 ^a	321	130,631	2.2	94.1	3.7	0.0	53.3	574
1998	506	210,481	4.3	93.1	2.6	0.0	47.2	570
1999	151	23,593	4.6	82.1	13.2	0.0	43.7	550
2000	450	261,379	3.1	94.7	2.2	0.0	52.9	560
2001 ^b	422	193,154	6.9	82.0	11.1	0.0		573
2002 ^b	428	83,463	0.9	93.2	5.8	0.0		572
2003 ^c	0	284,064						
2004 ^c	663	435,407	1.1	89.6	9.4	0.0		550
2005	412	142,319	8.0	83.5	8.5	0.0	50.2	554
2006	411	185,598	13.6	82.2	4.1	0.0	48.4	537
2007	448	141,049	4.9	90.4	4.7	0.0	53.8	548
2008	493	142,862	5.7	78.5	15.8	0.0	50.7	554
2009	670	104,546	4.8	88.2	7.0	0.0	50.0	563
2010	425	58,031	7.1	89.9	3.1	0.0	50.1	548
2011	667	74,108	15.1	79.3	5.5	0.0	48.6	555
2012	704	86,389	14.6	79.5	5.7	0.1	45.9	524
2013	351	114,069	5.4	81.5	13.1	0.0	51.6	557
2014	536	117,588	5.2	87.3	7.1	0.4	50.0	538
2015	349	65,034	9.5	85.7	4.9	0.0	48.1	574
2016 ^d								
2017 ^d								
2018 ^d								
2019 ^d								
Average								
(1984–2015)	590	318,571	6.8	86.7	6.4	0.0	48.6	560

Note: Harvest data are from Districts W1 and W2 combined. The commercial coho salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b Only age composition and length data were collected.

^c ASL data were not collected.

^d No commercial fishery occurred.

Table 55.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W4 commercial drift gillnet fishery, 1990–2019.

Year	Sample size	Total harvest	Percent by age class				Percent female	Mean length (mm)
			(1.1)	(1.2)	(2.1)	(3.1)		
1990	607	26,926	5.6	0.0	87.8	6.6	39.9	572
1991	534	42,571	14.0	0.0	75.5	10.5	42.7	561
1992	590	86,404	16.9	0.0	79.2	3.9	46.1	580
1993	300	55,817	3.7	0.0	91.7	4.7	43.0	549
1994	429	83,912	6.3	0.2	90.4	3.0	49.0	583
1995	653	66,203	8.7	0.0	85.9	5.4	43.5	574
1996	556	118,718	5.8	0.0	92.6	1.6	43.7	599
1997 ^a	331	32,862	4.8	0.0	92.7	2.4	50.2	602
1998	274	80,183	5.1	0.0	93.8	1.1	47.8	598
1999 ^b	0	6,184						
2000	285	30,529	1.4	0.0	97.0	1.6	49.2	580
2001	417	18,531	7.2	0.0	85.6	7.2	43.6	597
2002	460	26,695	1.4	0.0	89.1	9.6	50.3	599
2003	153	49,833	7.1	0.0	82.9	10.1	32.3	582
2004	186	82,710	4.8	0.0	94.3	0.9	46.3	573
2005	666	51,708	17.0	0.0	79.1	3.9	39.3	560
2006 ^c	377	26,831	13.5	0.0	84.1	2.4	45.1	537
2007 ^a	224	34,710	16.5	0.0	82.1	1.3	50.4	555
2008	499	94,257	8.8	0.0	87.0	4.2	47.5	568
2009 ^a	198	48,115	2.0	0.0	89.9	8.1	44.4	568
2010	189	13,690	12.2	0.0	83.6	4.2	48.7	570
2011	482	30,457	26.8	0.0	69.3	3.9	46.9	569
2012	519	31,214	11.9	0.0	84.2	3.9	49.9	545
2013	186	21,126	7.5	0.0	87.6	4.8	45.7	580
2014	166	52,317	14.5	0.0	81.9	3.6	44.0	545
2015	353	76,285	14.2	0.0	83.6	2.3	45.6	591
2016 ^d								
2017 ^d								
2018 ^d								
2019 ^d								
Average (1990–2015)								
	371	49,569	9.5	0.0	86.0	4.4	45.4	573

Note: Commercial coho salmon fishery was executed using restricted mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b ASL data were not collected.

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

^d No commercial fishery occurred.

Table 56.—Estimated age and sex composition, mean length, and total number of Kuskokwim Area coho salmon harvested in the District W5 commercial drift gillnet fishery, 1990–2019.

Year	Sample size	Total harvest	Percent by age class				Percent female	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(4.1)		
1990	250	7,804	5.2	91.6	3.2	0.0	42.8	585
1991	430	13,312	8.1	85.1	6.7	0.0	23.7	578
1992	404	19,875	11.6	85.9	2.5	0.0	41.6	590
1993	438	20,014	3.4	91.3	5.3	0.0	50.9	590
1994	415	47,499	9.4	85.3	5.3	0.0	47.2	612
1995	299	17,875	3.0	93.0	4.0	0.0	46.8	586
1996	457	43,836	6.6	90.6	2.8	0.0	49.9	617
1997 ^a	244	2,983	7.8	89.8	2.5	0.0	49.2	614
1998	155	21,246	9.7	87.1	3.2	0.0	43.2	602
1999	203	2,474	9.9	85.2	4.9	0.0	48.3	593
2000	439	15,531	0.7	97.3	2.1	0.0	52.2	601
2001	416	9,275	4.6	90.6	4.8	0.0	46.4	617
2002 ^b	0	3,041						
2003 ^a	109	12,658	4.6	89.9	5.5	0.0	27.5	595
2004 ^c	163	24,089	12.5	84.2	3.3	0.0	38.9	584
2005 ^a	69	11,735	14.5	79.7	5.8	0.0	36.2	580
2006 ^b	0	12,436						
2007 ^b	0	13,689						
2008 ^b	0	22,547						
2009 ^a	43	8,406	11.6	83.7	4.7	0.0	48.8	598
2010	600	4,900	9.5	88.3	2.2	0.0	36.8	570
2011	558	15,358	15.4	77.8	6.8	0.0	45.0	572
2012	542	25,515	9.2	86.5	4.2	0.0	41.3	551
2013	345	21,581	2.6	91.9	5.5	0.0	53.0	591
2014	341	52,158	5.3	89.1	5.0	0.6	50.4	573
2015 ^a	171	7,030	26.9	71.3	1.8	0.0	34.5	584
2016 ^d								
2017 ^d								
2018 ^d								
2019 ^d								
Average (1990–2015)	273	17,572	8.7	87.1	4.2	0.0	43.4	590

Note: Commercial coho salmon fishery was executed using small mesh (≤ 6 inch) gillnets. Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^b ASL data were not collected.

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

^d No commercial fishery occurred.

Table 57.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Salmon River (Aniak) weir, 2008–2019.

Year	Sample size	Total escapement	Percent by age class				Percent female	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(4.1)		
2008	467	10,974	1.3	90.6	8.1	0.0	48.5	542
2009	652	6,351	1.7	91.0	7.4	0.0	47.3	552
2010 ^a								
2011 ^a								
2012 ^b	0	2,209						
2013	267	2,797	7.1	74.5	18.4	0.0	25.8	569
2014	252	8,254	0.4	88.9	10.3	0.4	34.5	527
2015 ^{bc}	9	267						
2016 ^d	0	560						
2017 ^e								
2018 ^e								
2019 ^c								
Average (2008–2018)	235	4,487	2.6	86.2	11.0	0.1	39.0	547
5-yr Average (2014–2018)	87	3,027	0.4	88.9	10.3	0.4	34.5	527

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^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 due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^d Samples were lost.

^e Weir did not operate during coho run.

Table 58.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the George River weir, 1997–2019.

Year	Sample size	Total escapement	Percent by age class					Percent female	Mean length (mm)
			(1.1)	(2.1)	(3.1)	(3.2)	(4.1)		
1997	204	9,483	1.5	96.6	2.0	0.0	0.0	40.7	553
1998 ^a									
1999	338	8,914	3.0	69.8	27.2	0.0	0.0	40.8	546
2000	365	11,280	1.4	97.5	1.1	0.0	0.0	42.5	546
2001	371	15,224	1.1	65.5	33.4	0.0	0.0	55.3	561
2002 ^b	72	6,759	0.0	90.3	9.7	0.0	0.0	27.8	543
2003	171	33,741	1.8	88.3	9.9	0.0	0.0	51.5	553
2004	191	12,499	1.0	90.6	8.4	0.0	0.0	34.0	536
2005	464	8,296	1.1	80.4	18.3	0.2	0.0	46.6	539
2006	440	12,693	4.3	88.6	7.0	0.0	0.0	51.6	525
2007 ^b	433	28,513	1.6	94.9	3.5	0.0	0.0	40.9	552
2008	430	21,931	0.5	63.3	36.3	0.0	0.0	52.6	543
2009	524	12,491	1.7	92.7	5.5	0.0	0.0	46.6	553
2010	559	12,866	3.0	89.6	7.3	0.0	0.0	52.1	544
2011	552	31,900	5.4	89.1	5.4	0.0	0.0	56.0	552
2012	366	14,844	1.9	73.8	24.3	0.0	0.0	47.8	505
2013	275	14,823	4.0	62.9	32.7	0.0	0.4	50.5	557
2014	389	35,771	1.5	85.6	12.9	0.0	0.0	54.0	526
2015	400	35,790	3.8	94.0	2.3	0.0	0.0	43.5	544
2016	42	17,239	4.8	66.7	28.6	0.0	0.0	42.9	511
2017 ^a	159	25,338	4.4	88.7	6.9	0.0	0.0	32.1	494
2018	261	8,993	7.7	87.0	5.4	0.0	0.0	43.7	542
2019	232	13,277	4.3	93.1	2.6	0.0	0.0	44.0	518
Average (1997–2018)	334	18,066	2.6	83.6	13.7	0.0	0.0	45.4	539
5-yr Average (2014–2018)	250	24,626	4.4	84.4	11.2	0.0	0.0	43.2	523

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Weir did not operate during coho run.

^b Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

Table 59.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Kogrukuk River weir, 1989–2019.

Year	Sample size	Total escapement	Percent by age class			Percent female	Mean length (mm)
			(1.1)	(2.1)	(3.1)		
1989 ^{ab}	29	1,272	3.4	96.6	0.0	41.4	553
1990 ^a	173	3,480	6.4	84.4	9.2	13.3	560
1991	377	7,903	2.9	92.3	4.8	39.3	551
1992 ^{ab}	158	2,715	26.6	67.7	5.7	30.4	563
1993 ^b	157	4,437	2.5	94.3	3.2	40.1	564
1994	462	28,044	1.7	88.7	9.5	48.5	581
1995 ^b	365	22,818	6.0	87.4	6.6	38.1	557
1996	639	50,486	2.7	94.2	3.1	39.4	594
1997 ^c	0	11,895					
1998	455	22,991	1.3	94.1	4.6	41.5	584
1999	343	11,048	2.6	88.6	8.7	18.4	561
2000	604	33,100	1.0	97.0	2.0	30.8	566
2001	504	19,926	1.6	91.3	7.1	48.8	576
2002	423	14,516	0.0	87.5	12.5	31.9	561
2003	162	74,903	1.2	82.1	16.7	35.8	562
2004	176	26,078	0.6	88.1	11.4	29.5	546
2005	447	25,313	6.0	85.0	8.9	49.7	542
2006	426	22,300	9.2	88.3	2.6	55.9	514
2007	383	26,798	3.1	90.9	6.0	45.4	542
2008	455	29,300	2.9	83.1	14.1	53.0	535
2009	520	22,544	1.5	90.4	8.1	56.9	540
2010	549	14,558	4.9	87.2	7.8	49.7	550
2011	535	21,950	4.5	87.3	8.2	51.4	545
2012 ^a	187	13,462	9.6	84.0	6.4	48.7	496
2013	346	23,800	2.9	86.4	10.7	55.2	544
2014	257	54,001	2.3	85.6	11.7	55.6	508
2015	351	32,900	6.8	92.3	0.9	53.3	539
2016 ^{bd}	0	2,286					
2017 ^{ab}	26	790	7.7	92.3	0.0	19.2	539
2018	356	8,169	6.7	84.8	8.4	39.3	510
2019	291	16,470	14.4	82.8	2.7	53.3	513
Average (1989–2018)	329	21,126	4.6	88.3	7.1	41.4	549
5-yr Average (2014–2018)	198	19,629	5.9	88.8	5.2	41.9	524

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

^a Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

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

^c ASL data were not collected.

^d Samples were lost.

Table 60.—Estimated age and sex composition, mean length, and total escapement of Kuskokwim Area coho salmon past the Tatlawiksuk River weir, 1999–2019.

Year	Sample size	Total escapement	Percent by age class			Percent female	Mean length (mm)
			(1.1)	(2.1)	(3.1)		
1999	286	4,327	7.3	79.4	13.3	44.4	550
2000 ^a	188	5,646	0.0	100.0	0.0	39.9	564
2001 ^a	518	5,669	1.5	92.3	6.2	53.7	571
2002	597	11,192	1.0	89.6	9.4	45.6	561
2003 ^b							
2004	361	16,448	1.7	95.6	2.8	49.0	540
2005	477	7,294	4.4	89.7	5.9	48.2	556
2006 ^{ac}	155	2,362	14.8	80.0	5.2	38.7	522
2007 ^c	419	8,434					
2008	487	11,037	4.1	79.3	16.6	54.4	543
2009	508	10,148	7.3	82.9	9.8	51.6	553
2010	372	3,940	4.8	90.9	4.3	58.9	558
2011	359	15,635	5.0	87.5	7.5	56.3	560
2012	322	8,001	7.5	90.7	1.9	48.8	516
2013 ^c	331	12,724	3.0	85.8	11.2	46.2	567
2014	344	19,822	3.2	91.0	5.8	44.5	537
2015	332	17,669	2.7	94.9	2.4	42.8	567
2016	208	11,719	14.4	75.0	10.6	57.2	528
2017 ^c	5	1,171					
2018 ^d							
2019 ^d							
Average (1999–2018)	348	9,624	5.2	87.8	7.1	48.8	550
5-yr Average (2014–2018)	222	12,595	6.8	87.0	6.3	48.2	544

Note: Data used were derived from the AYKDBMS and do not consider any adjustments for bias or weighting by project daily or annual estimates. Sample size is the number of fish that were successfully aged.

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

^b Weir did not operate during coho run.

^c Sampling was not appropriate to estimate ASL composition for the season due to insufficient sample sizes collected throughout the entire season or specific temporal strata.

^d Weir did not operate.

Table 61.–List of years for which Chinook salmon ASL 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	
District 1	1964–1968, 1971–1975, 1977–1999, 2001, 2004–2005, 2008–2011
District 4	1968–1970, 1973–1999, 2005–2015
District W5	1973–1974, 1977–1978, 1980–1995, 1997–2003, 2005–2007, 2009–2015
Subsistence catch	
Upper Kuskokwim River	1987, 1992, 2001–2003, 2018–2019
Middle Kuskokwim River	1975, 1992, 2001–2003, 2014
Lower Kuskokwim River	1964, 1968, 1970, 1986, 1987, 1991–1995, 2001–2018
Kuskokwim Bay	1975, 2007, 2014
Escapement	
Aniak River	1980–1983, 1985, 1989, 1996, 2007
Eek River	1989
George River	1996–2019
Goodnews River (Middle Fork)	1983–1985, 1987–2017, 2019
Kanektok River	1983–1987, 1989, 1997, 2002–2005, 2007–2015
Kipchuk River	1989
Kisaralik River	1986, 2001
Kogrukluk River	1968–1969, 1971–1973, 1976, 1978–2019
Kwethluk River	1989, 1991, 1992, 2000–2004, 2006–2019
NYAC weir	1988
Salmon River (Aniak)	1989, 2006–2008, 2012–2018
Salmon River (Pitka Fork)	1981, 1982, 1989, 2015–2019
Takotna River	2000–2012, 2018–2019
Tatlawiksuk River	1998–2017
Tuluksak River	1991–1994, 2001–2017
Mark–recapture	
Kalskag Fish wheel	2007
Sport catch (freshwater)	
Kanektok River	1983, 1985
Sport catch (marine)	
District W5	1996
Test fishing	
Kwegooyuk (Village/City)	1967, 1969, 1972–1976, 1978–1980, 1982, 1983
District 1	1981, 1993–1995, 2001–2008, 2011–2019

Table 62.–List of years for which chum salmon ASL 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
District 1	1966–1968, 1972–2000, 2004–2014
District 4	1965, 1967–1970, 1973–2000, 2002–2015
District 5	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	1996–2019
Goodnews River (Middle Fork)	1983–2017, 2019
Kanektok River	1983–1987, 1989, 1997, 2002–2005, 2007–2015
Kisaralik River	1986
Kogruluk River	1971–1973, 1976, 1978, 1980–2019
Kwethluk River	1989, 1991, 1992, 1997, 2000–2019
Nikolai (Village/City)	2004
NYAC weir	1988
Salmon River (Aniak)	2006–2008, 2014–2018
Salmon River (Pitka Fork)	1981, 1982
Takotna River	2000–2013
Tatlawiksuk River	1998–2017
Tuluksak River	1991–1994, 2001–2017
Mark–recapture	
Birch Tree Crossing	2002
Kalskag Fish wheel	2002
Test fishing	
Kwegooyuk (Village/City)	1967, 1969, 1971–1975, 1977–1981
District 1	1981, 1993–1995, 2000–2005, 2007, 2008

Table 63.–List of years for which sockeye salmon ASL 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	
District 1	1969, 1972, 1975, 1977, 1980–2000, 2004, 2005, 2008–2014
District 4	1964, 1965, 1967–1970, 1974–1978, 1980–1985, 1987–2001, 2003–2005, 2007–2015
District 5	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, 1985–2017, 2019
Goodnews River (North Fork)	1989
Kanektok River	1984, 1985, 1987, 1989, 1997, 2002–2005, 2007–2015
Kisaralik River	1986
Kogrukluk River	1968, 1976, 1978, 1980–1994, 2007, 2009–2018
Kwethluk River	1991, 1992, 2000, 2003, 2004, 2006–2019
Salmon River (Aniak)	2007, 2008, 2013, 2014
Stony River	1989
Takotna River	2007
Tatlawiksuk River	2007
Telaquana River	2010–2019
Tuluksak River	1991–1994, 2002, 2003, 2007–2017
Mark–recapture	
Birch Tree Crossing	2002
Kalskag Fish wheel	2002, 2005–2007, 2012
Salmon River (Aniak)	2012
Kogrukluk River	2012
Telaquana River	2012
Test fishing	
Kwegooyuk (Village/City)	1967, 1971–1981
District 1	1981, 1994, 1995, 2001–2005, 2012–2014

Table 64.–List of years for which coho salmon ASL 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	
District 1	1961, 1965–1969, 1971–1978, 1980–2002, 2004–2015
District 4	1967, 1968, 1974–1978, 1980–1998, 2000–2005, 2007–2015
District 5	1974, 1977, 1980–2001, 2003, 2005, 2009–2015
Subsistence catch	
Lower Kuskokwim River	1989, 1992
Escapement	
Aniak River	1980
George River	1997, 1999–2018
Goodnews River (Middle Fork)	1988, 1991, 1995, 1996, 1998–2001, 2003–2013
Kanektok River	1983, 1997, 2001–2005, 2007–2009
Kisaralik River	1986
Kogrukluk River	1981–1996, 1998–2015, 2018
Kwethluk River	1989, 2000–2004, 2006–2017
Salmon River (Aniak)	2008, 2009, 2013–2015
Takotna River	2000–2013
Tatlawiksuk River	1999–2002, 2004–2017
Tuluksak River	1991–1994, 2001–2017
Mark–recapture	
Kalskag Fish wheel	2008, 2009
Test fishing	
Aniak River	1995
Kwegooyuk (Village/City)	1974, 1975
District 1	1980, 1994, 1995