Fishery Management Report No. 22-31

Fishery Management Report for Sport Fisheries in the Kuskokwim-Goodnews Management Area, 2021

by

John Chythlook

December 2022

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

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

Mathematics, statistics

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

FISHERY MANAGEMENT REPORT NO. 22-31

FISHERY MANAGEMENT REPORT FOR SPORT FISHERIES IN THE KUSKOKWIM-GOODNEWS MANAGEMENT AREA, 2021

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

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ABSTRACT

Information specific to sport fisheries in the Kuskokwim-Goodnews Management Area in 2021 and preliminary information for 2022 is presented. Estimates of fishing effort, total harvest, and catch are summarized through the 2021 season. This information is provided to the Alaska Board of Fisheries, as well as to the general public and interested parties. Major fisheries within the area are detailed, including descriptions of the performance of these fisheries, regulatory actions by Alaska Board of Fisheries, social and biological issues, and descriptions of ongoing research and management activities.

Keywords: Southwest Alaska, Bethel, Kuskokwim River, Aniak, Kuskokwim Bay, Kanektok River, Holitna River, sport fisheries, sport fishery management, subsistence, Chinook salmon, coho salmon, sockeye salmon, chum salmon

EXECUTIVE SUMMARY

This document provides a wide array of information specific to the sport fishing opportunities that exist within the Kuskokwim–Goodnews Management Area (KGMA). Information specific to the proposals that the Alaska Board of Fisheries (BOF) will address at its January 2023 meeting are contained within this report. To assist BOF members in acquiring information in a timely manner, Appendix B has been constructed. This table guides the reader to specific information contained within the text, tables, and figures that will be useful in evaluating regulatory proposals.

INTRODUCTION

This area management report provides information regarding the Kuskokwim-Goodnews Management Area and is one in a series of reports annually updating fisheries management information within Region III. The report is provided for the Alaska Board of Fisheries, Fish and Game Advisory Committees (ACs), the general public, and other interested parties. It presents fisheries assessment information and the management strategies that are developed from that information.

The mission of the Division of Sport Fish of the Alaska Department of Fish and Game (ADF&G) is to protect and improve the state's fishery resources. This is achieved by managing for sustainable yield of wild stocks of sport fish, providing diverse sport fishing opportunities, and providing information to assist the BOF in optimizing social and economic benefits from sport fisheries. In order to implement these goals, the division has in place a fisheries management process.

A regional review is conducted annually, during which the status of important area fisheries is considered and research needs are identified. Fisheries stock assessment projects are developed, scheduled, and implemented to meet information needs identified by fisheries managers. Projects are planned within a formal operational planning process. Biological information gathered from these research projects is combined with effort information and input from user groups to assess the need for and development of fisheries management plans, and to propose regulatory strategies.

Division of Sport Fish management and research activities are funded by Fish and Game and Federal Aid in Fisheries Restoration funds. Fish and Game funds are derived from the sale of state sport fishing licenses. Federal Aid funds are derived from federal taxes on fishing tackle and equipment established by the Federal Aid in Sport Fish Restoration Act (also referred to as the Dingell–Johnson Act or D–J Act). D–J funds are provided to the states at a match of up to 3-to-1 with the Fish and Game funds. Additional funding specified for providing, protecting, and managing access to fish and game is provided through a tax on boat gas and equipment established by the Wallop–Breaux (W–B) Act. Other peripheral funding sources may include contracts with

various government agencies and the private sector or, in a few cases, State of Alaska general funds (GF).

This area management report provides information regarding the KGMA and its fisheries for 2021, with preliminary information from the 2022 season. This report is organized into 2 primary sections: a management area overview including a description of the KGMA and a summary of effort, harvest, and catch for the area (based on data from the SWHS), and a section on significant area fisheries, including specific harvest and catch by species and geographical region or drainage.

Sport fishing effort and harvest of sport fish species in Alaska have been estimated and reported annually since 1977 using a mail survey. The Alaska Sport Fishing Survey (commonly referred to as the Statewide Harvest Survey [SWHS])[1] is designed to provide estimates of effort, harvest, and catch on a site-by-site basis. It is not designed to provide estimates of effort directed towards a single species. Species-specific catch-per-unit-effort (CPUE) information can seldom be derived from the survey data. A questionnaire is mailed to a stratified random sample of households containing at least 1 individual with a valid fishing license (resident or nonresident). Currently, information gathered from the survey includes participation (number of anglers and days fished) and number of fish caught and number harvested by species and site for guided and unguided fishing. These surveys estimate the number of angler-days of fishing effort expended by sport anglers fishing Alaska waters, as well as the sport harvest. Survey results for each year are not available until the following year; therefore, the results for 2021 were not available until fall 2022. Additionally, creel surveys have been selectively used to verify the mail survey for fisheries of interest or for fisheries that require more detailed information or inseason management.

The utility of SWHS estimates depends on the number of responses received for a given site (Mills and Howe 1992). In general, estimates from smaller fisheries with low participation are less precise than those of larger fisheries with high participation for estimates from 1977 to 1990. Therefore, the following guidelines were implemented for evaluating survey data:

1. Estimates based on fewer than 12 responses should not be used other than to document that sport fishing occurred.
2. Estimates based on 12 to 29 responses can be useful in indicating relative orders of magnitude and for assessing long-term trends.
3. Estimates based on 30 or more responses are generally representative of levels of fishing effort, catch, and harvest.

More recently, SWHS estimates were compared to onsite creel surveys for estimates from 1996 to 2006, and using coefficient of variation (CV) of harvest estimates was recommended to determine precision of estimates. CVs of harvest estimates from the SWHS should be 0.30 or less before using the estimates for evaluating long-term trends and CVs of 0.20 or less before use in stock assessments.

[1] Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

SECTION I: MANAGEMENT AREA OVERVIEW

MANAGEMENT AREA DESCRIPTION

The KGMA includes all waters of the Kuskokwim River drainage and all drainages in Kuskokwim Bay (Figures 1, 2). Additionally, the KGMA includes all drainages that flow into the Bering Sea north of Cape Newenham and south of the westernmost point of the Naskonat Peninsula (approximately Hooper Bay) to the north. Nunivak, St. Matthew, and adjacent islands are also included within the area. The KGMA is partitioned into 2 sections for management sport fisheries: the Kuskokwim River and Kuskokwim Bay (Figure 2).

The KGMA includes substantial parts of 2 National Wildlife Refuges: the Yukon-Kuskokwim Delta Refuge and the Togiak Refuge. Nearly half of the Yukon-Kuskokwim Delta Refuge is within the KGMA, as are several thousand acres of the Togiak Refuge in the headwaters of Kuskokwim Bay streams.

FISHERY RESOURCES

The Kuskokwim Bay tributaries contribute to most of the angling effort in the KGMA area. Fishing effort on the Kanektok River averages about 7,000 angler-days annually based on a 10-year average (Tables 1–4). The Goodnews River is also popular, with approximately 4,300 angler-days. Rainbow trout are the species most desired by anglers on the Kanektok River and other resident species, such as Arctic grayling and Dolly Varden are targeted. Salmon fishing is popular, especially for Chinook and coho salmon.

Important rainbow trout sport fisheries also occur in the Lower Kuskokwim River tributaries, including the Kisaralik, Kasigluk, Kwethluk, and Aniak Rivers. Fishing for the 5 Pacific salmon species occurs throughout much of the Kuskokwim River and Kuskokwim Bay drainages. The rivers that drain into the central and Upper Kuskokwim River, such as the Holitna River, attract a moderate number of sport anglers (Table 4). Most other rivers in the area do not receive enough fishing effort to be reported consistently in the SWHS.

Most sport angling effort in the area is catch-and-release (Tables 1 and 2). Angling effort in the Kuskokwim River drainage and Kuskokwim Bay reached a high of 27,913 angler-days in 1998 and has fluctuated between 17,000 and 27,000 in recent years, suggesting a fairly stable amount of fishing effort (Tables 3 and 4). Effort was about 27,000 angler-days in 2019 and dropped off drastically in 2020, probably in reaction to travel restrictions to rural areas related to the COVID-19 pandemic (Table 4).

Subsistence fisheries for salmon have a long history on the Kuskokwim River with harvests documented throughout the river dating as far back as 1922 (Burkey et al. 1997–2001). The subsistence fishery for Chinook salmon is the most important, regularly reaching harvests of over 80,000 for the entire Kuskokwim River drainage based on recent 10- and 15-year averages (Simon et al. 2007; Hamazaki 2011; Carroll and Hamazaki 2012, Hamazaki and Liller 2015, Smith 2019). Recent poor returns of Chinook salmon have resulted in restrictions and subsequent reduced harvests in the subsistence fishery, to as little as an estimated 11,000 in 2014. Subsistence harvest of Chinook salmon in 2021 was estimated at 28,365 fish (N. Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

Commercial fisheries in recent years in the Kuskokwim-Goodnews drainages have been nearly nonexistent in recent years due to the combined factors of low Chinook salmon *O. tshawytscha*

and chum salmon *O. keta* runs, and lack of a commercial buyer. There have been no commercial salmon fisheries on the mainstem Kuskokwim River other than some very small catcher/seller operations in the region from 2016–2021. There was a limited commercial fishery prosecuted in 2020 and 2021 in Kuskokwim Bay, but the harvest was small due to a small processor/buyer and COVID-19 restrictions (N. Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication). There were no commercial fish buyers in 2022.

ESTABLISHED MANAGEMENT PLANS AND POLICIES

Regulations governing fisheries in the KGMA are found in 5 AAC 71.010 through 5 AAC 71.995, 5 AAC 75.001 through 5 AAC 75.995 (sport fishing), 5 AAC 01.250 through 5 AAC 01.295 (subsistence fishing), and 5 AAC 07.001 through 5 AAC 07.650 (commercial fishing and management plans).

Fisheries-specific management objectives for the management area have been identified in management plans for Arctic grayling and lake trout. In addition, a series of general divisional criteria have been prepared to guide establishment of fishery objectives. These include the following:

1. **Management and protection of existing fish resources**. Divisional activities should strive to manage and protect Alaska's wild fish stock resources for future generations;
2. **Public use and benefits of existing fish resources**. Alaska's fishery resources should be made available for public use and benefit on a sustained yield basis;
3. **Rehabilitation of depressed stocks and damaged habitat**. Divisional activities should strive to restore and maintain fish stocks and habitat damaged by human activities; and
4. **Enhancement of natural production or creation of new opportunities**. The division should pursue creation of new sport fishing opportunities through rehabilitation of natural stocks or creation of new fisheries where these opportunities do not negatively affect other fisheries.

Currently, there are 3 management plans specific to nonsalmon sport fisheries in the KGMA: the *Southwest Rainbow Trout Plan* (now an informal plan that directed regulations and management in the Kuskokwim and Bristol Bay regions), the *Wild Arctic Grayling Management Plan* (5 AAC 71.055), and the *Wild Lake Trout Management Plan* (5 AAC 71.040). The objectives are to distribute the opportunity to harvest a small proportion of the sustainable surplus over the fishing season without unnecessary disruptions to the sport fishery.

Salmon management in the KGMA is governed by subsistence regulations and several management plans directed at controlling commercial fisheries harvests. Consequently, managers from the Division of Commercial Fisheries take a lead role in management of salmon in this area of the state. Most subsistence and commercial fishing regulations are interconnected to provide opportunity to harvest salmon surpluses in the Kuskokwim River drainage.

Salmon Management Plans

Subsistence fishing seasons and periods are the guiding regulations in the harvest of salmon in the Kuskokwim River (5 AAC 01.260). There are 2 salmon management plans that guide subsistence, commercial, and sport fishing management in the KGMA, including streams in Kuskokwim Bay:

1. *Kuskokwim River Salmon Management Plan* (5 AAC 07.365); and
2. *District 4 (Quinhagak) Salmon Management Plan* (5 AAC 07.367).

The *Policy for the Management of Sustainable Salmon Fisheries* (SSFP; 5 AAC 39.222) provides guidance for the salmon management plans of the Kuskokwim River and Kuskokwim Bay. In 2001, comprehensive rebuilding measures were instituted for Chinook and chum salmon in the *Kuskokwim River Salmon Rebuilding Management Plan* (5 AAC 07.365, 2001) by placing windows of salmon passage in migratory routes in freshwater and marine environments. Many of the existing and a few new restrictions in the Aniak River drainage sport fishery were included within the *Kuskokwim River Salmon Rebuilding Management Plan*, including continuation of the Chinook salmon season from May 1 to July 25, with a bag limit of 2 Chinook salmon 20 inches or greater and an annual limit of 2 Chinook salmon 20 inches or greater. In the Aniak River drainage, a combined bag and possession limit of 3 other salmon species (pink *O. gorbuscha*, sockeye *O. nerka*, and coho salmon) per day remains in effect. Inclusion of chum salmon in the aggregate bag limit was reinstated in the Aniak River drainage by BOF action in 2007. A correction of the *Kuskokwim River Salmon Rebuilding Management Plan* at the 2010 AYK BOF meeting reflected continuation of the same action. In 2013, changes in the *Kuskokwim River Salmon Rebuilding Management Plan* resulted in the inclusion of a drainagewide escapement goal range for the Kuskokwim River, as well as reduced goals for many of the rivers that have salmon escapement goal projects. The *Kuskokwim River Salmon Rebuilding Management Plan* was renamed the *Kuskokwim River Salmon Management Plan* in 2013. In 2016, the subsistence salmon fishery was shortened by BOF action (in consultation with a Kuskokwim-based subcommittee) to open only after June 12.

SPORT FISHING EFFORT, HARVEST, AND CATCH

Effort, harvest, and catch statistics for KGMA sport fisheries have been estimated from responses to the SWHS since 1977 and reported under the headings of the *Kuskokwim River/Kuskokwim Bay drainages* (Area V). Estimates of angling effort in the KGMA averaged over 21,000 angler-days during the last 5-year (2016–2020) and 10-year (2011–2020) periods (Table 3). The data show a relatively stable fishery, though slightly decreased likely due to lack of opportunity to catch Chinook salmon in the sport fishery since 2011 because of conservation concerns (Tables 2–4).

The majority of the sport fishing effort occurs in 3 areas: Kuskokwim Bay tributaries (including the Kanektok, Goodnews, and Arolik Rivers), the Aniak River, and the lower Kuskokwim River tributaries near Bethel (Kwethluk and Kisaralik Rivers, Tables 2 and 3). Some sport fishing effort takes place in the Holitna River, but, considering the large size of this drainage and its many angling opportunities, effort remains exceptionally low, probably due to difficulty of access.

Coho salmon accounted for an average of 46% of the total annual harvest of all fish species in the KGMA for the previous 10 years (2016–2020; Table 1). The 10-year average catch Dolly Varden/Arctic char (66,590 fish) surpasses that of coho salmon (41,547 fish), but the vast majority of Dolly Varden/Arctic char are released (Tables 2 and 3).

SECTION II: FISHERIES

This section provides a summary of significant salmon sport fisheries in the KGMA in 2021. Discussion of each fishery will address the following: 1) historical perspective; 2) recent fishery performance (stock status); 3) fishery objectives and management; 4) current issues; 5) recent actions by the BOF; and 6) ongoing and recommended management and research activities. Recent fishery performance will focus on data from 2021.

SALMON FISHERIES

Chinook Salmon

Background and Historical Perspective

Chinook salmon are present in most streams throughout the KGMA but are predominantly caught and harvested in tributaries of Kuskokwim Bay and tributaries of the Lower Kuskokwim River. The largest sport fisheries for Chinook salmon are located in the Kanektok, Goodnews, and Aniak Rivers. These sport fisheries in the Kanektok and Goodnews Rivers support approximately 7,000 and 4,000 angler-days of effort respectively, for all fish species, according to the 5- and 10-year averages (Table 3). The recent 5- and 10-year average effort in the Aniak River has ranged from 1,800–2,000 angler-days (Table 4). The 2020 year was an anomaly across all systems due to COVID restrictions and precautions on travel to rural areas.

Very few Chinook salmon are caught and harvested in the sport fisheries in the Upper Kuskokwim River tributaries, including the Holitna River due to the low overall fishing pressure in the upper river.

Sport harvest and catch of Chinook salmon are estimated through the SWHS and are summarized in previous fishery management reports (FMRs; Lafferty 2001, 2003; Lafferty and Bingham, 2002; Chythlook 2006, 2009, 2011, 2012, 2014, 2015*a* and *b*, 2017, 2018, 2020, 2021). Additional KGMA commercial and subsistence harvest information can be found in Lipka et al. (2016) and Smith (2019). The Division of Sport Fish has monitored both the Kanektok and Aniak River sport fisheries with additional inseason harvest surveys and stock assessment projects in the past (Minard 1987; Minard and Brookover 1988; Dunaway and Bingham 1992; Dunaway and Fleischman 1995; Dunaway 1997; Lafferty and Bingham 2002). Additionally, the USFWS–Togiak National Wildlife Refuge staff has archived age and size data from Chinook salmon spawning populations in the Kanektok River (Lisac and MacDonald 1995; MacDonald 1996; M. Lisac, retired Fisheries Biologist, USFWS, Dillingham, personal communication).

Sport harvests of Chinook salmon are minor in comparison to the commercial and subsistence harvests of the area (Tables 5–7). However, there is angler desire to participate in the Chinook salmon fisheries of the KGMA. In the Kuskokwim Bay sport fisheries, the 10-year average is about 12,000 angler-days annually (Table 3), which is about 40% less total annual effort on average than is found in the major fisheries in the Kuskokwim River drainages (Table 4).

Historically, approximately 15% of Chinook salmon caught in the KGMA sport fishery were harvested annually (Tables 1 and 2). Catch and harvest numbers in the Kuskokwim River and Kuskokwim Bay tributaries have been low in the last few years due to harvest restrictions, up to and including complete closures of the fisheries in 2014 and 2015, and closure in the Kuskokwim River drainages (excluding the Kuskokwim Bay freshwater drainages) in 2016–2022. Catches in the Kuskokwim Bay drainages peaked at about 17,500 Chinook salmon in 2019; and from 2011

through 2020, catches ranged from 1,200 to 17,500 Chinook salmon (Table 10), with the 2020 year being an anomaly reflecting the COVID-19 travel restrictions and precautions through most of the season. Higher catches in the Kuskokwim Bay streams reflect that those sport fisheries remained open, whereas the Kuskokwim River drainage streams have been closed by emergency order (EO), thus redirecting effort to areas where Chinook salmon can be legally caught.

The estimated harvest of Chinook salmon in the Kuskokwim River drainage sport fisheries has remained low in recent years and estimated at zero in the years 2012 through 2021 (Table 8). This is due in part to recent restrictions and also thought to be related to the care taken by anglers to carefully release incidentally sport-caught Chinook salmon by adhering to the unbaited, single-hook, artificial lure requirements in the Kuskokwim River drainages.

Recent Fishery Performance

In 2021, the Chinook salmon run was expected to be below average, and it was anticipated that escapement goals may not be met. Preseason actions included sport fish closure for Chinook salmon in the Kuskokwim River drainage, excluding the Kuskokwim Bay drainages. This EO (3-KS-V-01-21; Appendix A) was issued April 1, prior to the Chinook salmon season, in cooperation with conservation measures taken by the Division of Commercial Fisheries and USFWS.

During 2016–2022 in expectation of low Chinook salmon numbers, commercial fishing would have been curtailed through the Chinook salmon season, had there been a buyer/processor available. The sport fishery for Chinook salmon remained closed the entire season during these years (Appendix A).

There was a limited commercial fishery for chum salmon in the Kuskokwim Bay districts in 2020 and 2021 that incidentally caught a small number of Chinook salmon. This fishery did not operate in 2022 due to lack of processor.

In 2021, Chinook salmon escapements at the Kogrukluk River weir and the George River weir met their Sustainable Escapement Goal (SEG) ranges of 4,800–8,800 fish at the Kogrukluk River and 1,300 fish at the George River weir, respectively. Three other tributaries have aerial survey SEGs; however, aerial surveys were not conducted in 2021 due to lack of pilot availability (Table 9). The estimate of Chinook salmon past the Kuskokwim River sonar near Bethel was 102,552 in 2021. The estimate of Chinook salmon escapement through the run reconstruction model produced an estimate of 129,000 Chinook salmon after a subsistence harvest of approximately 28,000 fish, surpassing the drainagewide goal of 65,000–120,000 fish (N. Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

Beginning June 1, 2021, the USFWS implemented a Special Action (SA) that closed all Chinook salmon fishing to non-federally qualified users within the boundaries of the Yukon Delta National Wildlife Refuge (YKDNWR). This SA was rescinded effective July 22, 2021. The USFWS implemented six 12-hour gillnet subsistence fishing periods during the SA. The Division of Commercial Fisheries implemented concurrent subsistence gillnet fishing opportunities above the YKDNWR boundary at Aniak, as well as dip net and fishwheel opportunities.

In 2022, the combination of SAs by the federal managers and Eos by the state managers resulted in the subsistence fishery for Chinook salmon in the Kuskokwim River being restricted for extended periods of time. There was no commercial fishery for any salmon species due to lack of market interest. The sport fishery for Chinook salmon remained closed all season in the Kuskokwim River. The Kuskokwim River drainagewide SEG (65,000–120,000 fish) was

achieved, with a preliminary estimate of 105,774 (N. Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

Kuskokwim Bay Tributaries

In 2021, there was a limited commercial fishery in the Kuskokwim Bay drainages at Goodnews and Quinhagak, largely aimed at harvesting sockeye salmon. The sport fishery remained open to 3 Chinook salmon per day, 20 inches or longer, only 2 of which may be 28 inches or longer. A Kanektok River aerial survey counted 4,115 fish (SEG 3,900–12,000 fish). The North Fork Goodnews aerial survey goal was met with a count of 2,273 fish (SEG 640–3,300 fish; N. Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

In 2022, no commercial fisheries were prosecuted in these areas, and aerial surveys were not flown due to poor weather and pilot availability.

Fishery Objectives and Management

ADF&G has assessed Chinook salmon escapements and harvest through several programs in the Kuskokwim River area. Commercial harvest monitoring is conducted through fish tickets, and surveys are utilized to estimate harvests from the subsistence and sport fisheries. Salmon escapement is monitored through aerial surveys, test fishing, sonar, and weirs in the Kuskokwim River and tributaries. The primary Chinook salmon escapement programs in the Kuskokwim River drainage are weirs located on the Kwethluk, Kogrukluk, George, and Salmon (tributary of Aniak River) Rivers. A recently added weir on the Pitka Fork of the Kuskokwim River near the headwaters may contribute to a better understanding of Kuskokwim River drainage escapements (Schaberg et al. 2012). These systems contribute to a run reconstruction model that compares and contrasts the sonar information.

Most Kuskokwim River Chinook salmon escapement goals are based on aerial survey information. Often, these aerial surveys are sporadic because of aircraft availability or weather conditions, and this method has been insufficient for evaluating escapements and future production. Therefore, ADF&G has invested in weir operations where feasible. Generally, location of these weirs is not based on the proportion of the total run using a tributary but on suitability of the site for weir operation and maintenance. Many of the larger tributaries and the larger stocks of Chinook salmon, such as the Aniak and Holitna Rivers (Schaberg et al. 2012), are not completely assessed but are assessed with opportunistic aerial surveys of Chinook salmon and weir counts on the Kogrukluk and Salmon Rivers, which serve as indices for these drainages. Test fishing in the Lower Kuskokwim River near Bethel provides relative abundance and run timing, as well as sex, age, and size composition near Bethel, but not a measure of escapement.

Current Issues and Fishery Outlook

Kuskokwim River and Tributaries

Some of the lowest recorded aerial surveys of Chinook salmon in the Kuskokwim River drainage have occurred during the past 10 years (Table 9). This has resulted in closures to sport fisheries, restriction to subsistence fisheries, and delay of chum salmon directed commercial fisheries to avoid incidental catch of Chinook salmon. Although the 2021 and 2022 (preliminary) Chinook salmon runs were stronger than in recent years, the estimated escapement was still predicted to be lower than average. These counts mean that restrictions to the subsistence fishery will probably occur in 2023 and with them closures of the sport fishery. The commercial fishery was not

prosecuted during 2016–2022 due to lack of market and is unlikely to be prosecuted in 2023 for the same reasons.

Recent Board of Fisheries Actions

At the January 2016 BOF meeting, a board-generated proposal to restrict the subsistence Chinook salmon fishery until after June 12 was adopted. The lone Kuskokwim Area sport fish proposal was submitted by the Native Village of Kwinhagak to restrict certain fly-fishing gear to 9-weight rods and low tensile strength line. That proposal was not adopted. During the 2019 BOF meeting, there were 4 proposals from the public to limit the sport fishery in the Kuskokwim River and Lower Kuskokwim tributaries, none of which were adopted.

Current or Recommended Research and Management Activities

The mainstem Kuskokwim River sonar project has operated since 2018. Although it has operated successfully for 5 years, this is a relatively new project, and it is difficult to compare results to the more established method of estimating escapement on the Kuskokwim River: the postseason run reconstruction analysis. Postseason run reconstruction uses the existing weirs to re-evaluate salmon runs and estimate drainagewide escapement postseason. Weirs have been used to enumerate Chinook salmon escapements on the Kwethluk, Tuluksak, George, Kogrukluk, Tatlawiksuk, and Takotna Rivers (Whitmore et al. 2008; Brazil et al. 2011). Aerial surveys conducted by the Division of Commercial Fisheries remain an important component of Chinook salmon assessment in the Kuskokwim-Goodnews area (Table 9).

In the Kuskokwim Bay and the Kanektok and Goodnews Rivers, weirs have been discontinued due to lack of funding: the Kanektok River as of 2016 and the Goodnews River after 2019. Escapement estimates have then been made solely from aerial survey counts if the weather cooperates.

Coho Salmon

Background and Historic Perspective

Coho salmon are present in most area streams and are caught and harvested in tributaries of Kuskokwim Bay and the Kuskokwim River. There has historically been a large commercial harvest of coho salmon in the Kuskokwim River and Kuskokwim Bay; however, there has only been a sporadic commercial fishery in the Kuskokwim Bay districts beginning in 2016 due to a lack of a commercial buyer. Those fisheries at Quinhagak and Goodnews operated in 2020 and 2021 but not 2022. The recent commercial harvest averages of coho salmon in the Kuskokwim River from 2006 to 2015 has averaged approximately 109,000 coho salmon in the Kuskokwim River for the 10-year average. The 5-year average was approximately 91,000 from 2011 to 2015. For the Kuskokwim Bay, the 5- and 10-year average commercial coho salmon harvests were approximately 50,000 for the Quinhagak District, and 46,600 for the years 2011–2016 and 2006–2015 respectively; for the Goodnews District, the 5- and 10-year averages for the same time period were approximately 24,000 and 18,000 (Table 11; N. Smith, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication). The largest coho salmon sport fisheries are in the Kanektok, Goodnews, and Aniak Rivers (Tables 13 and 14).

Commercial and subsistence harvests are managed by the Division of Commercial Fisheries (Burkey et al. 1997–2001; Ward et al. 2003; Whitmore et al. 2005; Bavilla et. al 2010; Brazil et al. 2011). The Kanektok River has the most complete information on commercial, subsistence,

and sport harvest of coho salmon in the area (Table 11). Division of Sport Fish has monitored both the Kanektok and Aniak Rivers with additional inseason harvest surveys and stock assessment projects in the past (Minard 1987; Minard and Brookover 1988; Dunaway and Bingham 1992; Dunaway 1997; Dunaway and Fleischman 1995; Lafferty and Bingham 2002). Data from the Division of Sport Fish Guide Logbook program, collected from 2006 to 2018, provide separate but additional information to the catch and harvest estimates from the SWHS. Additionally, USFWS staff from the Togiak National Wildlife Refuge archived age and size data from coho salmon spawning in the Kanektok Rivers (Lisac and MacDonald 1995; MacDonald 1996).

Prior to 1987, sport fishing limits for coho salmon were 15 fish per day and 30 fish in possession. These liberal bag and possession limits were adopted to accommodate subsistence fishers who were using hook and line attached to a rod or pole for subsistence purposes but were required to purchase a sport fishing license, which many did not do. In 1987, the BOF recognized the potential to overexploit coho salmon in the Kanektok River sport fishery and reduced the bag and possession limit to 5 fish. These limits have remained the standard for most of the area, except for special regulations in the Aniak River where there is an aggregate limit of 3 salmon, of which only 2 can be Chinook salmon with no size limit and no annual limit. On-site creel surveys conducted on the Kanektok River indicated that sport anglers rarely (7–15%) took a full bag limit of coho salmon and most of the anglers (61–66%) elected to take no fish, even though 95% of them had caught and released a fish (Dunaway and Bingham 1992; Dunaway and Fleischman 1995).

Recent Fishery Performance

Sport harvests of coho salmon are very small in comparison to the commercial harvests in the area (Tables 11–13). However, angler desire to participate in coho salmon fisheries is high. In the KGMA, for the recent 5-year average (2016–2020), approximately 3,600 coho salmon were harvested, while approximately 42,000 coho salmon were caught (Tables 1 and 2).

In 2021, sport fish catches of coho salmon were well below average throughout Kuskokwim Bay and above average for the Kuskokwim River drainage (Tables 2 and 14), probably due to restrictions on travel to villages during the COVID-19 pandemic. Sport harvest for the entire management area at the end of the 2021 season was well below average (Table 1).

In 2021 and 2022, high water conditions made assessment of coho salmon escapement difficult throughout the Kuskokwim River drainage and Kuskokwim Bay. In 2022, coho salmon sport fishing was closed by EO on August 17 following the announcement of subsistence closures. In late July and early August 2022, inseason assessment results indicated that coho salmon escapement goals at the Kwethluk and Kogrukluk River weirs would not be met. Subsistence fishing was closed in all flowing waters of the Kuskokwim River and its tributaries between August 17 and September 15, 2022.

Fishery Objectives and Management

ADF&G assesses salmon escapements and harvests through several programs in KGMA. Harvest monitoring is conducted through commercial fishing tickets and both household and mailout surveys designed to estimate harvest from subsistence and effort, catch, and harvest in sport fisheries. Salmon escapement is monitored through aerial surveys, test fishing, and weirs in the Kuskokwim River drainage. The primary coho salmon escapement programs in the Kuskokwim River drainage are aerial surveys and the Kogrukluk River weir. The Bethel test fishery in the

lower mainstem Kuskokwim River only provides relative abundance and run timing as fish swim upriver at Bethel.

Current Issues and Fishery Outlook

Coho salmon escapement is evaluated at 2 Middle Kuskokwim River weirs, one on the George River and the other on the Kogrukluk River. In the Lower Kuskokwim, the Yukon Delta National Wildlife Refuge operates the Kwethluk River weir, which has an SEG of 19,000 coho salmon, but this has operated sporadically due to high water events or operational periods that do not encompass the entire run, or in more recent years COVID-19 precautions. In 2021, the George River weir coho salmon escapement of 31,491 fish was above the most recent 10-year average (2011–2020) of 22,462 fish. At the Kogrukluk River weir in 2021, 14,373 coho salmon were counted compared to the most recent 10-year average of 24,393, and which met the SEG range of 13,000–28,000 fish (N. Smith Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

Recent Board of Fisheries Actions

During the 2019 BOF meeting, there were 4 proposals from the public to limit the sport fishery on the Kuskokwim River and Lower Kuskokwim tributaries, none of which were adopted.

Current or Recommended Research and Management Activities

In the Kuskokwim Bay, the Kanektok and Goodnews River weirs have been discontinued due to lack of funding: the Kanektok River as of 2016 and the Goodnews River after 2019. There is no escapement goal for these systems, and weather conditions often preclude the possibility of aerial surveys.

Studies that evaluate mortality related to nonretention (Stuby 2002) of coho salmon in KGMA sport fisheries may be useful in interpreting total fishing mortality. Such studies may answer questions raised by the general public regarding angling-related mortality of released fish.

Chum Salmon

Background and Historic Perspective

In the KGMA, chum salmon are primarily harvested for subsistence and commercial uses. There has been a long history of subsistence use of chum salmon in the Kuskokwim River communities. Chum salmon were documented as being used for subsistence as early as 1922 (Burkey et al. 2000). In the past, the subsistence fishery has had few restrictions and most of the harvest has been taken using gillnets, either drift or setnet. Recent gillnet restrictions aimed at conservation of Chinook salmon have influenced the harvest of chum salmon in the subsistence fishery.

Directed commercial fishing for chum salmon in the Kuskokwim River began in 1971. This fishery continued and expanded, with a record harvest of 1.4 million fish in 1988 (Burkey et. al. 2000). Commercial harvests declined to less than 100,000 fish in the late 1990s and since 2001 have ranged broadly from 0 to 118,000 fish/year (Table 15). This decline was in part due to low returns in the late 1990s, then largely due to low market demand during the mid-2000s, and most recently due to gear restrictions and delayed openings to conserve Chinook salmon. There has been no directed commercial fishery for chum salmon since 2015. There was a limited commercial fishery that was prosecuted in 2020 and 2021 in Kuskokwim Bay, but the harvest was small because of low processor capacity and extreme social distancing measures taken due to COVID-19.

Recent Fishery Performance

In 2021, chum salmon escapement was the lowest on record at all weir projects. The preliminary escapement count of 4,153 fish at the Kogrukluk River weir did not meet the established SEG range of 15,000–49,000 fish, and passage at all other weir projects was well below average. The cumulative chum salmon passage estimate at the mainstem Kuskokwim River sonar near Bethel was 25,689 fish (95% CI = 14,549–36,829).

Beginning June 1, 2021, the USFWS implemented a new SA that closed all Chinook salmon fishing to non-federally qualified users within the boundaries of the Yukon Delta National Wildlife Refuge (YKDNWR). This did not have a direct impact on the sport fishery for chum salmon, but closures of other salmon species indirectly influence the chum salmon fishery because they are usually not the desired target species. This SA was rescinded effective July 22, 2021. The USFWS implemented six 12-hour gillnet periods during the SA. The Division of Commercial Fisheries implemented opportunities above the concurrent management actions, and additional opportunities above the YKDNWR boundary above Aniak.

The sport fishery for chum salmon closed by EO on July 1, 2021 (Appendix A). On average, sport harvest of chum salmon represents less than 1 percent of total KGMA chum salmon harvest (Table 15). During the recent 10-year average, approximately 300 chum salmon were harvested, and 14,800 chum salmon were caught annually from 2011 to 2020 (Tables 1 and 2).

In 2022, both state and federal entities reduced the amount of subsistence salmon fishing time to conserve both Chinook and chum salmon. Chum salmon returns were characterized as late and poor, and the primary assessment project at Kogrukluk River weir did not meet the established SEG range of 15,000–49,000 fish, with a preliminary count of 13,471 fish. The chum salmon sport fishery was closed by EO on July 1, 2022, for the remainder of the season.

Fishery Objectives and Management

ADF&G has focused on assessing salmon escapements and harvests through several programs in the KGMA. Harvest monitoring is conducted through commercial fish tickets and surveys designed to estimate harvests from the subsistence and sport fisheries. Salmon escapement is monitored through aerial surveys, test fishing, sonar, and weirs in the Kuskokwim River drainage.

Restrictions to the subsistence and commercial fisheries aimed at curbing Chinook salmon harvests in 2011–2022 probably increased chum salmon escapement, but even with severe restrictions on harvest, escapements were still well below average.

Current Issues and Fishery Outlook

In 2021, chum salmon escapement at all weir projects were the lowest on record. In 2022, chum salmon escapement at all weir projects was poor. The preliminary escapement estimate of 13,471 fish at the Kogrukluk River weir did not meet the established SEG range of 15,000–49,000 fish, and passage at all other weir projects was well below average. This is predicted to continue into 2023. There was no commercial fishery for any salmon during 2016–2022 and likely will not be one in 2023 because there is currently no large-scale commercial buyer available. Chum salmon are not generally surveyed in the Kuskokwim Bay rivers (Kanektok and Goodnews), and there are no escapement goals for those systems.

There is a 2023 BOF proposal that seeks to close the sport fishery for chum salmon to nonresident anglers in the Kanektok River from June 1 to July 15 (Appendix B). There are aerial survey

escapement goals for Chinook salmon and sockeye salmon on the Kanektok River, but not for chum salmon. A small commercial fishery operated outside of the mouth of the Kanektok River in 2020 and 2021 (the first since 2015) and did not operate in 2022 due to lack of a fish processor. Neither subsistence fishing nor sport fishing for chum salmon have been restricted because of conservation concerns in the Kanektok River since at least 2000.

Concern by the Central Kukokwim Advisory Committee over boat traffic resulted in a BOF proposal to restrict all fishing on the Buckstock River (an Aniak tributary) from June 14 through September 1 (Appendix B). The concern was expressed that wakes created by jetboats can dislodge and kill salmon eggs that have been deposited in the redds. However, results from an experiment designed to measure egg mortality caused by boat traffic concluded that jetboat-induced embryo mortality is not measurably different relative to other mortality factors and should be expected to be considerably lower than that caused by natural, density-independent factors such as freezing, flooding, dewatering, and channel scouring.[2] In addition, mortality from egg displacement by jetboats was found to be negligible at water depths of greater than 23 cm (9 inches).

The Buckstock River drains the Buckstock River Valley over a distance of approximately 33 miles into the Aniak River. Relatively low water levels generally limit boat traffic to an approximately 10-mile stretch of the lower river. During a 2009 comprehensive household subsistence survey in the village of Aniak, the ADF&G Division of Subsistence gathered spatial harvest data for all species. Residents traveled well past the 1.5-mile mark in search of whitefish, salmon, moose, migratory birds, and small land mammals. The Division of Sport Fish Statewide Harvest Survey (SWHS) has documented recreational fishing effort on the Aniak River drainage since 1996. The effort and harvest estimates pool all the tributaries of the Aniak River, including the Buckstock River. Effort has been comparatively low with a recent 5-year (2016–2020) average of only 2,024 angler-days (Table 4). Sport and subsistence anglers do not tend to target chum salmon. The estimated recent 5-year average annual harvest (2016–2020) was 490 chum salmon caught and 34 harvested for the entire Aniak River drainage, including the Buckstock River (Table 17). The last in-depth creel survey of recreational angling for the Aniak River drainage occurred during 2001. This department survey did not single out the Buckstock River but concentrated mostly on the Aniak River and documented recreational and subsistence angler effort, and information on salmon and resident species catch and harvest in the entire drainage (Lafferty and Bingham 2002).

Recent Board of Fisheries Actions

There were no proposals regarding sport fishing for the chum salmon fishery during the 2019 AYK BOF meeting, although there were some proposals that aimed to restrict sport fisheries in general in select Lower Kuskokwim tributaries. These proposals were not adopted.

Current or Recommended Research and Management Activities

The Kuskokwim River sonar project has operated since 2018. This is still a relatively new project, but it has now been running for 4 years, so any early challenges with site location and apportionment have been addressed.

[2] Horton, G. 1994. Effects of jet boats on salmon reproduction in Alaskan streams. Alaska Cooperative Fish and Wildlife Research Unit draft publication.

Sockeye Salmon

Background and Historic Perspective

Sockeye salmon are present in the Kuskokwim River drainage but more abundant in Kuskokwim Bay tributaries. The sockeye salmon stocks of the Kanektok and Goodnews Rivers are the largest in the KGMA. Sockeye salmon stocks of the Kuskokwim River are relatively small and located sporadically throughout the drainage, with the largest occurring in the Holitna River drainage and at Telaquana Lake in the Stony River drainage (Gilk et al. 2007). Most anglers venturing to western Alaska are interested in Chinook salmon and rainbow trout opportunities; however, sockeye and coho salmon opportunities have become increasingly important to recreational anglers. During the Chinook salmon season anglers also target sockeye salmon in the Kanektok and Goodnews Rivers. Sport harvest, catch, and effort are estimated through the SWHS, whereas commercial and subsistence harvests are managed and reported by Division of Commercial Fisheries (Smith 2019).

As with the other Pacific salmon, sport harvests of sockeye salmon represent less than 1 percent of the total KGMA sockeye salmon harvests (Tables 1, 18). Commercial fisheries of Kuskokwim Bay sockeye salmon peaks in July. Following the 2015 season, there were no substantial commercial harvests in the KGMA due to lack of a processor. There was a very small commercial gillnet fishery in the Kuskokwim Bay in 2020 and 2021, but it was limited due to COVID-19 restrictions and low processor capacity (N. Smith, fisheries biologist, ADF&G Division of Commercial Fisheries, personal communication).

Recent Fishery Performance

With stronger returns recently, sport anglers in the Kuskokwim Bay streams have caught more sockeye salmon, with an average catch of over 7,500 fish during 2016–2020 (Table 19). In 2021, the sport fish catch was below average at about 5,100 fish. The 2020 and 2021 data reflect the low amount of travel to the area due to COVID-19 travel restrictions and precautions. Harvest of sockeye salmon in Kuskokwim Bay rivers has not proportionally increased as much as catch. In general, less than 15% of sockeye salmon caught in the sport fishery is harvested in the Goodnews and Kanektok Rivers (Table 19). A small sport fishery for sockeye salmon exists on Lower Kuskokwim River tributaries such as the Aniak, Kisaralik, and Kwethluk Rivers. The 2021 sport fish catch of sockeye salmon in Lower Kuskokwim River tributaries was above average at 3,003 fish and harvest was 443 fish (Table 20). Historically, catches within the KGMA have averaged 7,000–8,000 fish, with 2006 as a standout year with over 16,000 sockeye salmon caught (Table 2).

Fishery Objectives and Management

Sockeye salmon management of Kuskokwim Bay is outlined under the *District 4 Salmon Management Plan* (5 AAC 07.367). Sockeye salmon management in Goodnews Bay (District 5) follows a similar regulation pattern, although there is no formal management plan in regulation (Ward et al. 2003; Whitmore et al. 2005). Escapement-based management has been challenging in Kuskokwim Bay. In the past, escapements have been evaluated by aerial surveys; however, multiple salmon species and frequent poor survey conditions have made documenting salmon escapements difficult. Developing a reliable method of assessing salmon escapements has been difficult in the Kanektok River. Counting towers and sonar projects have been attempted but water conditions, staff availability, and budgetary constraints have limited the success of these projects. A resistance-board weir has been successful; unfortunately, the weir site is 42 miles upstream from

the mouth and commercial fishery, making timely inseason assessment difficult. In addition, this weir has not been funded since 2016. The Goodnews River weir was also discontinued after the 2019 season. Aerial surveys are still used to estimate sockeye salmon escapement in other tributaries of the Goodnews River drainage. The Kanektok River aerial survey SEG for sockeye salmon is 14,000 to 34,000 fish. Aerial surveys have historically been used to count sockeye salmon escapement in the Kanektok and Goodnews Rivers, but surveys have not been successful every year, and this has made escapement-based management difficult. However, commercial fisheries management has followed a simple fishing schedule based on fishery performance in relation to the historic mean harvest and CPUE of the commercial fishery, and this method has worked to provide sustained yields.

Current Issues and Fishery Outlook

During 2016–2019, lack of any commercial buyer prevented a commercial fishery, and subsequently resulted in larger escapements than anticipated in Kuskokwim Bay. In 2020 and 2021, there was a small fishery in Kuskokwim Bay. In 2021 95,020 sockeye were counted on the North Fork Goodnews River aerial survey (SEG 9,600–18,000). On the Kanektok River, 53,690 sockeye salmon were counted in the aerial survey (SEG 15,300–41,000).

In the Kuskokwim River in 2021, sockeye salmon escapement was mixed throughout the drainage with above-average lake-spawning type sockeye escapement and near average to slightly below average river-type sockeye salmon escapement. The preliminary Kogrukluk River weir escapement of 13,534 sockeye salmon met the established SEG range of 4,400–17,000 fish. The Telaquana River weir observed the fifth highest escapement of sockeye salmon since the project was established in 2010 with a count of 123,958 fish. Kogrukluk River sockeye salmon escapement was characterized as well above average overall, with a count near the top of the SEG range at 31,816 fish (N. Smith, fisheries biologist, ADF&G Division of Commercial Fisheries, personal communication).

In 2022, the sockeye salmon escapement was estimated to be average in the Kuskokwim River, and the Kogrukluk River exceeded the escapement goal with an estimate of 10,278 fish (SEG range 4,800–8,800). Efforts to conserve Chinook salmon probably permitted greater sockeye salmon escapement. Aerial surveys throughout the region were not conducted. The Kuskokwim River mainstem sonar enumerated 614,712 sockeye salmon in 2022, which was 30% below the 2021 estimate of 869,268 (N. Smith, fisheries biologist, ADF&G Division of Commercial Fisheries, personal communication).

Recent Board of Fisheries Actions

At the 2016 AYK BOF meeting, there was a proposal for the Kanektok River that aimed to restrict sport fish gear types. This proposal was not adopted. During the 2019 BOF meeting, there were 4 proposals submitted by the public to limit the sport fishery in the Kuskokwim River and Lower Kuskokwim tributaries, none of which passed.

Current or Recommended Research and Management Activities

Division of Commercial Fisheries has undertaken sockeye salmon radiotelemetry projects and sampling for genetics (Gilk et. al. 2007). Approximately half of the sockeye salmon in the Kuskokwim River have origins in the Holitna River drainage, followed by the Aniak River and, distantly, by other smaller drainages.

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REFERENCES CITED

ADF&G (Alaska Department of Fish and Game). 1990. Southwest Alaska rainbow trout management plan. Alaska Department of Fish and Game, Division of Sport Fish, Anchorage.

Bavilla, J., D. Bue, H. Carroll, T. Elison, D. Taylor, J. Estensen, and C. Brazil. 2010. 2009 Kuskokwim area management report. Alaska Department of Fish and Game, Fishery Management Report No. 10-56, Anchorage.

Brazil, C., D. Bue, H. Carroll, T. Elison. 2011. 2010 Kuskokwim area management report. Alaska Department of Fish and Game, Fishery Management Report No. 11-67, Anchorage.

Burkey Jr., C., C. Anderson, M. Coffing, M. Fogarty, D. Huttunen, D. B. Molyneaux, and C. Uttermole. 1997. Annual management report for the subsistence and commercial fisheries of the Kuskokwim area, 1995. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 3A97-22, Anchorage.

Burkey Jr., C., M. Coffing, J. Menard, D. B. Molyneaux, P. Salomone, C. Utermohle and T. Vania. 1998. Annual management report for the subsistence and commercial fisheries of the Kuskokwim area, 1997. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A99-12, Anchorage.

Burkey Jr., C., M. Coffing, J. Menard, D. B. Molyneaux, P. Salomone, C. Utermohle, and T. Vania. 1999. Annual management report for the commercial fisheries of the Kuskokwim area, 1998. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A99-36, Anchorage.

Burkey Jr., C., M. Coffing, J. Menard, D. B. Molyneaux, P. Salomone, C. Utermohle, and T. Vania. 2000. Annual management report for the subsistence and commercial fisheries of the Kuskokwim area, 1999. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A00-29, Anchorage.

Burkey Jr., C., M. Coffing, J. Menard, D.B. Molyneaux, P. Salomone, and C. Utermohle. 2001. Annual management report for the subsistence and commercial fisheries of the Kuskokwim area, 2000. Alaska Department of Fish and Game, Division of Commercial Fisheries. Regional Informational Report No. 3A01-34.

Carroll, H. C., and T. Hamazaki. 2012. Subsistence salmon harvests in the Kuskokwim area, 2010. Alaska Department of Fish and Game, Fishery Data Series No. 12-38 Anchorage.

Chythlook, J. 2006. Fishery management report for sport fisheries in the Kuskokwim Management Area for 2003–2005. Alaska Department of Fish and Game, Fishery Management Report Series No. 06-65, Anchorage.

Chythlook, J. 2009. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area for 2007. Alaska Department of Fish and Game, Fishery Management Report Series No. 09-45, Anchorage.

Chythlook, J. 2011. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area, 2009. Alaska Department of Fish and Game, Fishery Management Report Series No. 11-48, Anchorage.

Chythlook, J. 2012. Fishery Management Report for Sport Fisheries in the Kuskokwim-Goodnews Management Area, 2011. Alaska Department of Fish and Game, Fishery Management Report Series No. 12-43, Anchorage.

Chythlook, J. 2014. Fishery Management Report for Sport Fisheries in the Kuskokwim-Goodnews Management Area, 2012. Alaska Department of Fish and Game, Fishery Management Report Series No. 14-27, Anchorage.

Chythlook, J. 2015a. Fishery management report for sport fisheries in the Kuskokwim–Goodnews Management Area, 2013. Alaska Department of Fish and Game, Fishery Management Report Series No. 15-38, Anchorage.

Chythlook, J. 2015b. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area, 2014. Alaska Department of Fish and Game, Fishery Management Report Series No. 15-44, Anchorage.

Chythlook, J. 2017. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area, 2015. Alaska Department of Fish and Game, Fishery Management Report Series No. 17-31, Anchorage.

Chythlook, J. 2018. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area, 2016. Alaska Department of Fish and Game, Fishery Management Report Series No. 18-19, Anchorage.

REFERENCES CITED (Continued)

Chythlook, J. 2018. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area, 2017. Alaska Department of Fish and Game, Fishery Management Report Series No. 18-29, Anchorage.

Chythlook, J. 2021. Fishery management report for sport fisheries in the Kuskokwim-Goodnews Management Area, 2019. Alaska Department of Fish and Game, Fishery Management Report Series No. 21-22, Anchorage.

Dunaway, D. O. 1997. Monitoring the sport fisheries in the Aniak River, Alaska, 1996. Alaska Department of Fish and Game, Sport Fisheries Division, Fisheries Management Report 97-4, Anchorage.

Dunaway, D. O., and A. E. Bingham. 1992. Creel surveys on Chinook and coho salmon sport fisheries on the lower Kanektok River, 1991. Alaska Department of Fish and Game, Sport Fisheries Division, Fishery Data Series No. 92-23, Anchorage.

Dunaway, D. O., and S. J. Fleischman. 1995. Creel surveys on Chinook and coho salmon sport fisheries in the Kanektok River, 1994. Alaska Department of Fish and Game, Sport Fisheries Division, Fishery Data Series 95-22, Anchorage.

Elison, T. B., K. L. Schaberg, and D. J. Bergstrom. 2012. Kuskokwim River salmon stock status and Kuskokwim area fisheries 2012: a report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Special Publication No. 12-27, Anchorage.

Gilk, S. E., D. B. Molyneaux, and Z. W. Liller, editors. 2007. Kuskokwim River sockeye salmon investigations. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11-04, Anchorage.

Hamazaki, T., and Z. Liller. 2015. Kuskokwim River Chinook salmon run reconstruction and model revisions, 2014. Alaska Department of Fish and Game, Regional Information Report No. 3A15-05, Anchorage.

Hamazaki, T. 2011. Reconstruction of subsistence salmon harvests in the Kuskokwim Area, 1990–2009. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11-09 Anchorage.

Lafferty, R. 2001. Fishery management report for the sport fisheries in the lower Yukon and lower Kuskokwim management area for 1999 and 2000. Alaska Department of Fish and Game, Division of Sport Fisheries, Fishery Management Report No. 1-2, Anchorage.

Lafferty, R. 2003. Fishery management report for the sport fisheries in the lower Yukon and lower Kuskokwim management area for 2001. Alaska Department of Fish and Game, Division of Sport Fisheries, Fishery Management Report No. 3-7, Anchorage.

Lafferty, R., and A. E. Bingham. 2002. Survey of the rod-reel fisheries in the Aniak River, Alaska, 2001. Alaska Department of Fish and Game, Division of Sport Fisheries, Fishery Data Series No. 2-16, Anchorage.

Lipka, C., A. Tiernan, and A. D. Poetter. 2016. 2014 Kuskokwim area management report. Alaska Department of Fish and Game, Fishery Management Report No. 16-37, Anchorage.

Lisac, M. J., and R. MacDonald. 1995. Age distribution of Chinook salmon escapement samples, Togiak National Wildlife Refuge, Alaska, 1994. U.S. Fish and Wildlife Service, Fishery Data Series 95-4, Dillingham.

MacDonald, R. 1996. Age distribution of Chinook salmon escapement samples, Togiak National Wildlife Refuge, Alaska, 1995. U.S. Fish and Wildlife Service, Fishery Data Series No. 96-6, Dillingham.

Mills, M. J., and A. L. Howe. 1992. An evaluation of estimates of sport fish harvest from the Alaska statewide mail survey. Alaska Department of Fish and Game, Special Publication No. 92-2, Anchorage.

Minard, R. E. 1987. Effort and catch statistics for the sport fishery in the lower Kanektok River, 1986. Alaska Department of Fish and Game, Sport Fisheries Division, Fishery Data Series No. 29, Juneau.

Minard, R. E., and T. E. Brookover. 1988. Effort and catch statistics for the sport fishery for Chinook salmon in the lower Kanektok River, 1987. Alaska Department of Fish and Game, Sport Fisheries Division, Fishery Data Series No. 44, Juneau.

Schaberg, K. L., Z. W. Liller, D. B. Molyneaux, B. G. Bue, and L. Stuby. 2012. Estimates of total annual return of Chinook salmon to the Kuskokwim River, 2002–2007. Alaska Department of Fish and Game, Fishery Data Series No. 12-36, Anchorage.

REFERENCES CITED (Continued)

Simon, J., T. Krauthoefer, D. Koster, and D. Caylor. 2007. Subsistence salmon harvest monitoring report, Kuskokwim Fisheries Management Area, Alaska, 2004. Alaska Department of Fish and Game, Technical Report No. 313, Anchorage.

Smith, N. J. 2019. 2018 Kuskokwim River Chinook salmon run reconstruction and 2019 forecast. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A19-02, Anchorage.

Stuby, L. 2002. An investigation of how catch-and-release mortality of coho salmon in the Unalakleet River varies with distance from Norton Sound. Alaska Department of Fish and Game, Fishery Data Series No. 02-26, Anchorage.

Ward, C. T., M. Coffing, J. L. Estensen, R. Fisher, and D. B. Molyneaux. 2003. Annual management report for the subsistence and commercial fisheries of the Kuskokwim area, 2002. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A03-27, Anchorage.

Whitmore, C., M. M. Martz, D. G. Bue, J. C. Linderman Jr., and R. L. Fisher. 2005. Annual management report for the subsistence and commercial fisheries of the Kuskokwim Area, 2003. Alaska Department of Fish and Game, Fishery Management Report No. 05-72, Anchorage.

Whitmore, C., M. M. Martz, J. C. Linderman Jr., R. L. Fisher and D. G. Bue. 2008. Annual management report for the subsistence and commercial fisheries of the Kuskokwim Area, 2004. Alaska Department of Fish and Game, Fishery Management Report No. 08-25, Anchorage.

TABLES AND FIGURES

Table 1.–Kuskokwim-Goodnews Management Area (including Kuskokwim Bay drainages) sport fishing harvest by species, 2001–2021.

Year	Chinook salmon	Coho salmon	Sockeye salmon	Pink salmon	Chum salmon	Rainbow trout	Lake trout	Dolly Varden /Arctic char	Arctic grayling	Northern pike	Whitefish	Burbot	Sheefish
2001	1,384	4,474	422	11	176	17	63	1,698	807	474	20	50	124
2002	1,397	4,265	267	143	598	76	134	2,026	1,464	443	54	15	81
2003	734	5,297	289	46	67	204	244	2,710	1,259	783	89	87	45
2004	1,197	7,096	512	416	117	457	497	2,539	1,953	1,543	975	111	182
2005	1,092	5,591	792	66	608	141	233	2,135	1,287	3,749	209	75	1,079
2006	1,277	3,793	864	187	158	107	83	1,937	637	406	58	0	173
2007	2,543	3,802	876	0	439	232	42	1,492	827	346	342	0	435
2008	1,037	6,344	1,109	32	262	219	22	2,038	713	165	96	0	191
2009	1,399	4,724	394	337	351	197	29	2,176	1,307	981	664	0	161
2010	906	3,527	459	80	235	106	11	1,565	530	909	54	92	67
2011	1,733	3,713	662	0	354	13	24	1,231	713	247	70	0	114
2012	632	4,972	639	136	406	137	39	2,301	1,096	837	1,216	1,857	60
2013	132	5,946	471	39	351	377	14	2,032	1,002	321	1,482	597	74
2014	0	4,280	755	91	191	69	18	2,309	409	1,445	424	259	93
2015	0	4,877	171	0	185	20	50	1,247	475	332	0	0	107
2016	103	5,889	1,210	419	596	179	0	1,038	197	732	0	0	8
2017	167	4,497	1,467	34	230	18	52	858	242	17	0	0	8
2018	124	2,692	1,149	102	338	20	19	911	59	176	0	0	65
2019	587	3,373	842	0	418	295	30	1,556	832	1,464	0	0	68
2020	0	1,355	200	40	17	0	21	527	174	136	19	0	117
2021	597	4,418	1,900	72	264	525	30	1,087	1,031	489	112	0	126
Average 2011–2020	348	4,159	757	86	309	113	27	1,401	520	571	322	271	71
Average 2016–2020	196	3,561	974	119	320	102	24	978	301	505	5	0	53

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Table 2.–Kuskokwim-Goodnews Management Area sport fishing catch by species, 2001–2021.

Year	Chinook salmon	Coho salmon	Sockeye salmon	Pink salmon	Chum salmon	Rainbow trout	Lake trout	Dolly Varden/Arctic char	Arctic grayling	Northern pike	Whitefish	Burbot	Sheefish
2001	18,480	42,689	5,102	1,031	12,430	14,494	243	36,550	22,813	4,081	814	50	742
2002	9,116	33,454	5,086	708	20,019	28,170	1,629	48,913	34,740	3,915	284	20	446
2003	9,242	68,545	7,527	1,128	15,513	16,902	3,435	50,250	26,782	2,645	433	97	768
2004	10,719	63,233	3,422	18,212	13,161	22,979	6,941	76,194	31,680	10,613	1,331	111	938
2005	13,143	40,420	7,854	2,454	15,457	17,128	1,951	49,353	11,599	10,425	334	75	3,933
2006	13,414	30,962	16,599	10,778	35,174	36,755	515	61,570	16,493	4,917	894	0	524
2007	21,013	28,406	6,544	1,128	19,563	29,150	655	42,337	20,907	4,606	769	0	452
2008	10,313	45,382	9,824	19,854	19,292	54,877	807	83,835	35,486	2,779	380	0	1,046
2009	6,879	23,143	3,595	1,650	14,398	49,534	654	57,625	35,693	4,354	957	0	768
2010	6,812	25,413	7,646	10,320	16,327	35,470	1,215	55,241	27,870	4,359	688	216	280
2011	13,448	36,033	8,301	1,105	17,247	37,049	485	64,818	29,418	4,129	555	6	1,593
2012	6,885	36,540	4,802	10,950	17,247	26,511	971	79,406	30,625	2,292	1,270	2,076	388
2013	5,357	43,413	5,734	1,299	17,001	40,530	450	90,132	42,005	2,954	1,560	607	358
2014	1,600	29,712	7,768	8,604	13,477	36,466	280	83,114	15,971	1,445	485	291	111
2015	4,335	58,373	7,441	2,747	17,796	35,390	250	66,036	21,952	2,529	537	0	226
2016	5,121	50,573	6,790	12,391	10,714	38,878	174	62,076	11,501	2,662	522	0	469
2017	5,074	60,953	10,306	4,443	11,511	44,408	168	77,075	15,029	953	219	0	154
2018	9,442	44,230	11,138	13,105	19,268	26,525	119	71,757	17,227	2,783	173	0	361
2019	19,373	50,156	10,031	3,392	18,572	59,282	152	67,921	33,286	5,757	161	8	440
2020	300	4,589	1,379	447	945	5,503	211	3,563	4,146	2,349	22	0	0
2021	7,802	22,692	8,148	5,616	6,638	33,146	862	24,614	22,611	1,406	444	0	488
Average 2011–2020	7,091	41,547	7,369	5,848	14,836	35,054	326	66,590	22,116	2,785	550	332	410
Average 2016–2020	7,862	42,100	7,929	6,756	12,202	34,919	165	56,478	16,238	2,901	219	2	285

Source: Alaska Sport Fishing Survey database [Internet]. 2001– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Table 3.–Sport fishing effort (angler-days) in the Kuskokwim Bay drainage, 2001–2021.

	Kuskokwim Bay			
Year	Kanektok	Goodnews	Other	Total
2001	9,063	2,826	201	12,206
2002	5,885	3,215	271	10,136
2003	7,655	3,622	133	11,659
2004	6,364	2,499	410	10,729
2005	5,789	2,612	32	8,854
2006	7,861	2,833	342	11,682
2007	5,071	3,375	960	9,406
2008	8,024	3,738	969	12,731
2009	3,267	2,212	1,031	6,510
2010	5,307	2,258	1,122	8,867
2011	7,235	3,064	1,431	11,730
2012	7,790	5,658	1,165	14,613
2013	8,792	4,517	0	13,309
2014	6,456	5,651	711	12,818
2015	9,346	4,961	216	14,523
2016	8,707	4,263	1,505	14,475
2017	8,314	1,750	1,205	11,269
2018	7,846	3,917	1,419	13,182
2019	9,033	8,705	2,053	19,791
2020	61	314	22	77
2021	5,071	3,514	1,497	10,082
Average 2011–2020	7,358	4,280	973	12,579
Average 2016–2020	6,792	3,790	1,241	11,579

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Table 4.–Sport fishing effort (angler-days) in select Kuskokwim River tributaries, 2001–2021.

Year	Aniak	Kisaralik	Kwethluk	Holitna	Other	KGMA Area Total
2001	2,121	1,304	1,069	1,853	258	20,673
2002	2,688	2,410	920	1,296	1,620	20,645
2003	2,998	1,439	2,646	1,748	3,548	24,369
2004	4,186	2,071	2,021	993	340	25,406
2005	2,497	714	2,022	1,452	525	19,447
2006	3,096	ND	1,922	9,034	1,867	22,389
2007	3,363	ND	1,067	9,217	4,414	21,206
2008	4,559	2,576	1,092	10,185	1,958	25,862
2009	2,611	2,235	1,387	7,346	1,203	17,791
2010	2,909	2,056	1,453	575	975	19,455
2011	1,715	2,417	369	2,673	92	22,141
2012	2,315	1,420	1,152	386	1,539	23,477
2013	2,189	1,871	1,117	166	1,341	21,642
2014	882	3,187	645	202	3,049	20,010
2015	1,528	662	609	964	1,275	20,917
2016	1,380	1,709	1,803	227	1,765	21,387
2017	652	978	1,468	43	797	20,715
2018	3,403	501	152	512	5,276	18,308
2019	3,155	1,832	829	1,086	593	27,286
2020	592	1,242	766	814	2,604	6,033
2021	2,426	1,932	1,827	374	2,853	19,853
Average 2011–2020	1,781	1,663	960	683	1,670	21,534
Average 2016–2020	2,024	1,136	971	566	1,941	21,723

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Table 5.–Harvest of Chinook salmon in the commercial, subsistence, test, and sport fisheries of the Kuskokwim River, 2001–2021.

	Harvest				
Year	Commercial [a]	Subsistence [b]	Test Fishery	Sport	Total
2001	90	78,009	86	290	78,475
2002	72	80,983	288	319	81,662
2003	158	67,228	409	401	68,196
2004	2,305	97,110	691	857	100,963
2005	4,784	85,097	608	572	91,061
2006	2,777	90,094	352	444	93,677
2007	179	96,139	503	1,683	98,504
2008	8,865	98,099	420	739	108,123
2009	6,664	78,225	470	917	86,276
2010	2,731	66,053	292	354	69,430
2011	748	62,368	337	757	64,210
2012	14	22,527	321	0	22,862
2013	1	47,113	201	0	47,315
2014	0	11,234	638	0	11,872
2015	2	16,124	472	0	16,598
2016	0	30,677	683	0	31,360
2017	0	16,380	374	0	16,754
2018	0	22,264	451	0	22,715
2019	0	37,940	559	0	38,049
2020	0	35,847	345	0	38,608
2021	0	28,365	390	21	28,776
Average 2011–2020	77	30,249	438	76	30,822
Average 2016–2020	0	28,622	482	0	29,497

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Districts 1 and 2.

[b] Estimated subsistence harvest expanded from villages surveyed. Methodology changed starting in 2008.

Table 6.–Harvest of Chinook salmon in the commercial, subsistence, and sport fisheries in the Goodnews River, 2001–2021.

	Harvest			
Year	Commercial [a]	Subsistence [b]	Sport	Total
2001	1,519	863	147	2,529
2002	979	723	224	1,926
2003	1,412	807	10	2,229
2004	2,565	863	100	3,528
2005	2,035	869	0	2,904
2006	2,892	713	79	3,684
2007	3,126	647	177	3,950
2008	1,281	1,012	78	2,371
2009	1,509	585	31	2,125
2010	1,752	480	0	2,232
2011	2,092	784	51	2,977
2012	1,531	389	41	1,961
2013	495	413	102	1,010
2014	205	431	0	636
2015	705	220	0	925
2016	0	654	68	722
2017	0	457	57	514
2018	0	555	20	575
2019	0	864	192	1,056
2020	442	766	109	1,317
2021	114	388	196	698
Average 2011–2020	547	535	59	1,147
Average 2016–2020	88	633	84	717

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Goodnews District commercial harvest (Nicholas Smith, Fisheries Biologist, ADF&G Division of Commercial Fisheries, Anchorage, personal communication)

[b] Subsistence harvest by the community of Goodnews (Nicholas Smith, Fisheries Biologist, ADF&G Division of Commercial Fisheries, Anchorage, personal communication)

Table 7.–Harvest of Chinook salmon in the commercial, subsistence, and sport fisheries in the Kanektok River, 2001–2021.

	Harvest			
Year	Commercial [a]	Subsistence [b]	Sport	Total
2001	12,775	3,177	947	16,899
2002	11,480	2,649	779	14,908
2003	14,444	2,563	323	17,330
2004	25,465	4,563	228	30,526
2005	24,195	3,505	520	28,220
2006	19,184	5,163	754	25,101
2007	19,573	4,686	633	24,892
2008	13,812	3,923	220	17,735
2009	13,920	2,976	400	17,296
2010	14,230	2,692	552	17,474
2011	15,387	2,177	891	18,455
2012	6,675	2,396	591	9,662
2013	2,054	3,143	30	5,227
2014	2,265	3,723	0	5,988
2015	7,547	3.082	0	10,629
2016	0	4,822	17	4,839
2017	0	5,217	110	5,327
2018	0	3,592	64	3,656
2019	0	5,690	348	6,038
2020	4,345	4,757	**0**	9,102
2021	2,468	2,656	304	5,428
Average 2011–2020	3,827	3,760	228	7,758
Average 2016–2020	869	4,830	135	4,965

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Kanektok District commercial harvest (N. Smith, Commercial Fisheries biologist, ADF&G, Anchorage, personal communication)

[b] Subsistence harvest by the community of Quinhagak (N. Smith, Commercial Fisheries biologist, ADF&G, Anchorage, personal communication)

Table 8.–Sport fishing harvest and catch of Chinook salmon in the Aniak, Kisaralik, Kwethluk, and other Kuskokwim Rivers, 2001–2021.

	Aniak River		Kisaralik River		Kwethluk River		Holitna River		Kuskokwim River Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	12	713	0	62	43	77	73	823	290	4,657
2002	135	1,759	46	531	30	195	53	210	319	3,225
2003	12	874	75	552	103	861	48	272	391	5,020
2004	335	1,103	58	1,774	150	778	136	619	857	5,427
2005	189	594	40	907	65	385	**180**	**470**	572	2,652
2006	29	1,201	**86**	**359**	183	493	**16**	**173**	444	3,480
2007	162	5,380	**446**	**1,096**	93	733	86	171	1,683	11,224
2008	26	3,614	148	1,583	149	845	122	992	739	7,382
2009	10	796	51	287	42	499	0	676	917	3,586
2010	0	1,902	0	717	136	584	39	130	354	3,564
2011	51	1,069	17	**864**	**0**	**0**	318	1,641	579	4,249
2012	0	135	0	97	**0**	**86**	**0**	**0**	0	415
2013	0	328	0	0	**0**	**211**	**0**	**0**	0	662
2014	**0**	**241**	0	111	**0**	**18**	**0**	**0**	0	370
2015	0	66	0	**20**	**0**	**0**	0	129	0	300
2016	**0**	**35**	0	141	0	477	**0**	**0**	0	1,174
2017	**0**	**0**	0	**18**	0	147	**0**	**0**	0	165
2018	**0**	**61**	0	**439**	**0**	**20**	**0**	**20**	0	459
2019	0	671	0	**151**	**0**	**339**	**0**	**0**	0	1,244
2020	**0**	**0**	**0**	**60**	**0**	**33**	**0**	**0**	0	216
2021	0	91	0	1,037	0	935	**0**	**22**	0	2,128
Average 2011–2020	5	290	2	205	0	144	32	199	76	925
Average 2016–2020	0	192	0	187	0	246	0	5	0	652

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Alaska Sport Fishing Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

Table 9.–Peak aerial survey index counts of Chinook salmon in tributaries of the Lower Kuskokwim River, 2001–2021.

Year	Eek River	Kwethluk River	Kisaralik River	Tuluksak River	Aniak River	Kipchuk River [a]	Salmon River [a]
2001							598
2002		1,795	2,285		1,856	1,615	1,236
2003	1,236	2,628	654	94	3,514	1,493	1,242
2004	4,653	6,801	6,913	1,196	5,569	1,868	2,177
2005		5,002	4,081	672		1,944	4,097
2006			4,734		5,639	1,618	
2007			692	173	3,984	2,147	1,458
2008		487	1,074		3,222	1,061	589
2009 [b]							
2010			235				
2011	249		534			116	79
2012			610			193	49
2013	240		597	83	754	261	154
2014	206		622		3,201	1,220	497
2015			709			917	810
2016			622		718	898	
2017					1,781	889	423
2018			584		1,534	1,123	441
2019					3,160	1,344	950
2020		721	350		1,264	723	269
2021 [b]							
Aerial survey index goal (SEG)		580–1,800	400–1,200		1,200–2,300		600

Note: Estimates are from peak aerial surveys conducted between July 20 and July 31 under fair, good, or excellent conditions. Blank cells indicate years in which surveys were not flown. SEG = sustainable escapement goal.

[a] Tributaries of Aniak River.

[b] Lower Kuskokwim drainages not surveyed in 2009 due to poor weather conditions, and during 2021 due to COVID.

Table 10.–Sport fishing harvest and catch of Chinook salmon in the Kuskokwim Bay Rivers, 2001–2021.

	Kanektok River		Goodnews River		Other Rivers		Kuskokwim Bay Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	947	10,842	147	2,769	**0**	**212**	1,094	13,823
2002	779	3,815	224	1,594	75	482	1,078	5,891
2003	323	3,480	10	695	**0**	**36**	333	4,222
2004	228	2,758	100	1,754	**12**	**1,074**	340	5,586
2005	520	10,116	0	375	**0**	**0**	520	10,491
2006	754	7,292	79	2,243	**0**	**399**	833	9,934
2007	633	6,331	177	1,461	**50**	**1,997**	860	9,789
2008	78	2,490	78	367	**0**	**69**	298	2,931
2009	400	2,522	31	561	51	210	482	3,293
2010	552	2,619	0	547	0	82	552	3,248
2011	891	6,911	51	1,000	34	1,288	976	9,199
2012	591	4,322	41	1,674	0	444	632	6,440
2013	30	3,215	102	1,480	**0**	**0**	132	4,695
2014	0	633	0	597	**0**	**0**	0	1,230
2015	0	3,236	0	193	**0**	**665**	0	4,094
2016	17	3,002	68	698	**18**	**247**	103	3,947
2017	110	3,078	37	1,750	**0**	**81**	147	4,909
2018	64	5,537	20	2,206	**40**	**1,119**	124	8,862
2019	348	13,694	192	3,043	47	761	587	17,498
2020	**0**	**0**	**0**	**84**	**0**	**0**	**0**	**84**
2021	304	3,121	196	968	97	1,794	597	5,833
Average 2011–2020	205	4,848	51	1,405	14	512	270	6,096
Average 2016–2020	108	6,327	63	1,924	12	552	92	7,060

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

Table 11.–Harvest of coho salmon in the commercial, subsistence, and sport fisheries in the Kuskokwim River, 2001–2021.

	Harvest			
Year	Commercial	Subsistence [a,b]	Sport	Total
2001	192,998	31,089	1,204	225,291
2002	83,463	42,617	2,030	128,110
2003	284,064	33,291	3,459	320,814
2004	435,407	48,898	4,996	489,301
2005	142,319	33,351	3,539	176,261
2006	185,598	41,272	1,474	228,344
2007	141,049	35,212	2,504	176,261
2008	142,862	46,461	3,893	193,216
2009	104,546	29,559	3,526	137,631
2010	58,031	32,094	1,549	91,854
2011	74,108	32,172	1,693	107,973
2012	86,389	28,294	1,752	116,435
2013	114,069	26,409	1,239	141,717
2014	117,557	49,736	1,326	168,619
2015	65,034	33,939	1,412	100,385
2016	0	36,787	1,686	38,473
2017	0	37,788	976	38,764
2018	0	19,981	416	20,397
2019	0	31,167	1,154	32,321
2020	0	31,958	1,246	33,204
2021	0	22,555	1,674	24,229
Average 2011–2020	45,716	32,823	1,290	79,829
Average 2016–2020	0	31,536	1,096	32,632

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Estimated subsistence harvest expanded from villages surveyed.

[b] 2021 may be preliminary numbers (N. Smith, Commercial Fisheries biologist, ADF&G, Anchorage, personal communication).

Table 12.–Harvest of coho salmon in the commercial, subsistence, and sport fisheries in the Kanektok River, 2001–2021.

	Harvest			
Year	Commercial	Subsistence [a]	Sport	Total
2001	18,531	1,719	2,448	22,698
2002	26,695	1,133	1,784	29,612
2003	49,833	1,868	1,076	52,777
2004	82,398	1,435	1,362	85,195
2005	51,708	1,558	1,006	54,344
2006	26,831	1,315	1,742	29,888
2007	34,710	1,550	1,087	36,260
2008	94,257	2,217	1,541	44,597
2009	48,115	1,703	876	50,773
2010	13,690	1,547	1,280	16,517
2011	30,457	1,369	981	32,799
2012	31,214	1,380	2,533	35,127
2013	58,079	1,631	2,509	62,219
2014	52,317	1,956	2,240	56,513
2015	76,285	2,238	1,356	79,879
2016	0	2,014	3,234	5,248
2017	0	1,734	1,842	3,576
2018	0	1,486	1,355	2,841
2019	0	1,791	1,284	3,075
2020	29,374	1,395	**0**	30,769
2021	13,012	1,103	562	14,677
Average 2011–2020	27,806	1,699	1,926	31,205
Average 2016–2020	5,875	1,684	1,929	9,102

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

[a] Estimated subsistence harvest expanded from villages surveyed.

Table 13.–Harvest of coho salmon in the commercial, subsistence, and sport fisheries in the Goodnews River, 2001–2021.

	Harvest			
Year	Commercial [a]	Subsistence [b]	Sport	Total
2001	9,275	666	822	10,763
2002	3,041	294	429	3,764
2003	12,730	1,372	42	14,102
2004	23,690	1,808	622	26,120
2005	11,735	857	1,046	13,638
2006	12,436	721	553	13,157
2007	13,689	599	211	14,499
2008	22,547	1,075	220	23,842
2009	8,406	349	284	9,039
2010	4,900	516	597	6,013
2011	15,358	416	733	16,507
2012	25,515	506	624	26,645
2013	21,581	382	2,152	24,115
2014	52,158	295	998	53,451
2015	7,030	611	1,916	9,557
2016	0	558	900	1,458
2017	0	396	1,656	2,052
2018	0	201	789	990
2019	0	328	833	1,161
2020	10,928	155	109	11,192
2021	1,192	222	1,636	2,251
Average 2011–2020	13,527	410	1,178	14,713
Average 2016–2020	2,424	308	1,093	3,529

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Goodnews Bay (District 5) commercial harvest.

[b] Subsistence harvests by the communities of Goodnews Bay and Platinum.

Table 14.–Sport fishing harvest and catch of coho salmon in Kuskokwim Bay drainages, 2001–2021.

	Kanektok River		Goodnews River		Other Rivers		Kuskokwim Bay Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	2,448	21,941	822	8,431	**0**	**783**	3,270	31,204
2002	1,784	10,922	429	6,889	22	1,353	2,235	19,164
2003	1,076	19,257	681	15,845	**58**	**231**	1,815	35,333
2004	1,362	23,845	622	10,985	**65**	**3,656**	2,049	38,486
2005	1006	13,279	1,046	11,541	**0**	**2,397**	2,052	27,217
2006	1,742	12,282	553	7,091	**0**	**243**	2,295	19,640
2007	1,087	12,768	211	3,528	**0**	**625**	1,298	16,921
2008	1,541	18,086	220	5,425	552	949	2,313	24,460
2009	876	6,896	284	2,805	38	2,252	1,198	11,953
2010	1,280	7,192	597	10,164	101	1,090	1,978	18,446
2011	981	11,506	733	11,253	306	1,299	2,020	24,058
2012	2,533	16,998	624	9,234	63	2,918	3,220	29,150
2013	2,509	17,062	2,152	16,597	**46**	**1,559**	4,661	33,569
2014	1,956	10,022	998	10,340	**10**	**510**	2,964	20,872
2015	1,356	26,235	1,916	20,662	**193**	**4,839**	3,645	51,736
2016	3,234	30,689	900	9,738	**69**	**1,435**	4,203	41,862
2017	1,842	33,921	1,656	20,761	**23**	**1,501**	3,521	56,183
2018	1,355	13,393	789	28,672	**132**	**377**	2,276	42,442
2019	1,284	26,626	833	8,226	102	4,135	2,219	38,987
2020	**0**	**23**	**109**	**304**	**0**	**0**	109	11,742
2021	562	5,163	1,636	6,173	0	406	2,198	37,651
Average 2011–2020	1,705	20,717	1,071	15,054	94	2,064	2,866	37,651
Average 2016–2020	1,543	26,157	857	16,849	65	1,862	32,466	44,869

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

Table 15.–Harvest of chum salmon in the commercial, subsistence, test, and sport fisheries in the Kuskokwim River, 2001–2021.

	Harvest				
Year	Commercial [a]	Subsistence [b,c]	Test fishery	Sport	Total
2001	1,272	56,005	1,743	112	59,132
2002	1,900	86,406	2,666	53	91,025
2003	2,764	41,217	1,713	53	45,747
2004	20,429	64,899	1,810	84	86,943
2005	69,139	58,020	4,459	500	132,118
2006	44,070	89,500	3,547	13	137,130
2007	10,763	73,561	3,237	403	87,964
2008	30,798	68,678	2,954	121	102,269
2009	78,205	43,621	2,204	285	124,315
2010	93,148	46,143	2,872	85	142,248
2011	118,316	49,717	2,289	83	170,405
2012	65,171	79,513	2,730	106	147,520
2013	114,069	53,627	2,615	31	170,342
2014	19,048	68,398	3,394	36	90,876
2015	16,051	42,612	1,487	102	60,252
2016	0	44,858	683	103	45,644
2017	0	52,589	3,471	29	56,089
2018	0	45,918	3,621	0	49,539
2019	0	34,571	1,230	0	35,798
2020	0	26,920	345	0	27,265
2021	0	9,621	390	0	10,011
Average 2011–2020	33,266	49,872	2,187	49	85,373
Average 2016–2020	0	40,971	1,870	26	42,867

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Districts 1 and 2 only; no chum harvests reported in District 3.

[b] Estimated subsistence harvest expanded from villages surveyed.

[c] 2021 estimates may be preliminary (N. Smith, Commercial Fisheries biologist, ADF&G, Anchorage, personal communication).

Table 16.–Sport fishing harvest and catch of chum salmon in the Kuskokwim Bay drainages, 2001–2021.

	Kanektok River		Goodnews River		Other Rivers		Kuskokwim Bay Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	43	6,457	21	2,188	**0**	**136**	64	8,781
2002	446	10,779	99	4,059	0	695	545	15,533
2003	14	7,138	0	3,195	0	3,195	14	13,528
2004	33	4,715	0	1,757	**0**	**2,309**	33	8,781
2005	108	9,241	0	1,481	**0**	**0**	108	10,722
2006	145	21,528	0	5,566	**0**	**0**	145	27,094
2007	15	7,971	0	3,026	**0**	**1,362**	15	12,359
2008	48	9,232	26	922	**67**	**1,113**	141	11,267
2009	44	3,802	22	3,193	**0**	**542**	66	7,537
2010	150	10,298	0	1,334	0	430	150	12,062
2011	271	9,541	0	2,762	0	859	271	13,162
2012	127	11,397	51	2,730	7	686	300	15,467
2013	320	10,330	0	2,067	**0**	**0**	320	12,397
2014	110	7,935	45	2,892	**0**	**112**	155	13,085
2015	83	14,771	0	1,570	**0**	**0**	83	16,341
2016	466	6,943	27	2,138	**0**	**162**	493	9,243
2017	201	7,186	0	2,264	**0**	**176**	201	9,526
2018	226	14,790	0	3,033	**0**	**246**	226	18,069
2019	400	14,285	18	1,432	0	311	418	16,028
2020	0	0	0	11	0	0	0	11
2021	230	5,549	16	422	0	0	246	5,971
Average 2011–2020	233	9,718	14	2,155	0	255	247	12,107
Average 2016–2020	259	8,641	9	1,776	0	179	268	13,841

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

Table 17.–Sport fishing harvest and catch of chum salmon in the Aniak, Kisaralik, Kwethluk, and Holitna Rivers, 2001–2021.

	Aniak River		Kisaralik River		Kwethluk River		Holitna River		Kuskokwim River Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	0	1,899	0	106	71	425	73	222	112	3,656
2002	0	2,096	0	745	34	455	53	331	53	4,486
2003	0	2,347	28	450	0	50	48	209	39	5,073
2004	0	1,602	0	606	70	308	136	426	84	4,380
2005	0	788	0	247	0	414	**180**	**1,638**	500	4,633
2006	0	2,135	**0**	**80**	0	918	**0**	**802**	13	8,188
2007	0	3,191	**0**	**140**	0	21	0	0	40	7,204
2008	45	2,427	31	2,446	0	961	45	408	121	7,312
2009	156	1,487	22	778	0	1,218	0	538	285	6,861
2010	0	1,360	24	2,069	61	524	0	37	85	4,265
2011	15	1,178	**0**	**681**	0	804	0	928	**83**	**4,085**
2012	0	5,268	0	584	18	**144**	**0**	123	**93**	**6,361**
2013	31	3,220	0	762	0	**268**	**0**	17	31	4,382
2014	**18**	**1,060**	0	1,105	0	**181**	**0**	0	36	2,382
2015	0	307	**0**	**98**	0	**224**	**0**	311	102	1,179
2016	**58**	**558**	0	240	0	**314**	**17**	86	103	1,476
2017	**0**	**116**	**0**	**161**	0	709	0	0	29	1,512
2018	**112**	**857**	**0**	**0**	0	**0**	0	51	112	1,199
2019	0	820	**0**	**514**	0	**188**	0	895	0	2,544
2020	**0**	**97**	**0**	**168**	**17**	**228**	0	432	17	934
2021	0	53	**0**	**161**	0	**148**	0	0	264	380
Average 2011–2020	23	1,324	0	431	4	306	2	284	62	2,605
Average 2016–2020	34	490	0	217	3	288	3	293	52	1,533

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

Table 18.–Harvest of sockeye salmon in the commercial, subsistence, test, and sport fisheries in the Kuskokwim River, 2001–2021.

	Harvest				
Year	Commercial	Subsistence [a]	Test Fishery	Sport	Total
2001	84	53,245	510	231	54,070
2002	84	32,272	228	26	32,610
2003	282	32,237	646	289	32,808
2004	8,532	40,405	742	512	50,191
2005	27,645	41,517	1,062	792	71,016
2006	12,618	43,143	519	187	56,467
2007	703	47,272	488	382	48,845
2008	15,601	58,732	584	273	75,190
2009	25,673	34,943	515	631	61,762
2010	22,428	38,130	495	419	61,472
2011	13,497	43,251	380	98	57,226
2012	2,857	47,231	861	196	51,145
2013	768	39,382	462	85	40,697
2014	2,714	48,372	867	270	52,223
2015	130	36,781	1,045	14	37,970
2016	0	51,580	2,444	175	53,770
2017	0	48,462	1,354	40	49,856
2018	0	35,448	1,007	17	36,472
2019	0	48,745	1,230	329	50,304
2020	0	43,499	461	192	44,152
2021	0	44,264	730	443	45,347
Average 2011–2018	1,997	44,725	840	142	43,300
Average 2016–2020	0	43,024	578	245	46,747

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Estimated subsistence harvest expanded from villages surveyed.

Table 19.–Sport fishing harvest and catch of sockeye salmon in the Kanektok, Goodnews, Arolik, and other Kuskokwim Bay Rivers, 2001–2021.

	Kanektok River		Goodnews River		Other Rivers		Kuskokwim Bay Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	83	1,415	108	1,128	0	68	191	2,901
2002	73	1,423	149	3,080	3	161	225	4,830
2003	107	5,082	42	1,128	**0**	**60**	149	6,644
2004	112	1,330	0	891	**0**	**226**	112	2,552
2005	156	5,692	0	683	**0**	**0**	156	6,418
2006	523	11,450	98	2,798	**12**	**276**	633	14,524
2007	385	3,481	84	903	**0**	**0**	469	4,384
2008	654	6,776	104	1,186	**78**	**485**	836	6,331
2009	75	768	111	1,205	46	623	232	2,596
2010	404	4,872	15	1,134	0	438	419	6,555
2011	429	5,193	135	1,126	0	250	564	6,667
2012	146	2,262	286	1,752	11	100	443	4,343
2013	159	2,616	227	1,835	**0**	**0**	386	4,451
2014	220	3,795	265	2,206	**0**	**198**	485	6,001
2015	107	4,451	32	2,029	**16**	**331**	14	6,811
2016	451	2,776	584	2,754	**0**	**384**	1,035	5,914
2017	1,027	5,842	400	3,100	**0**	**335**	1,427	9,277
2018	1,077	8,360	0	1,539	**55**	**799**	1,132	10,699
2019	373	6,139	125	1,240	15	4,135	513	11,514
2020	**8**	41	**0**	180	**0**	**0**	8	221
2021	528	1,917	827	2,344	**0**	**587**	1,355	5,107
Average 2011–2020	400	4,148	205	1,776	10	653	601	6,590
Average 2016–2020	587	4,632	222	1,763	14	1,131	823	7,525

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

Table 20.–Sport fishing harvest and catch of sockeye salmon in the Aniak, Kisaralik, Kwethluk, and Holitna Rivers, 2001–2021.

	Aniak River		Kisaralik River		Kwethluk River		Holitna River		Kuskokwim River Total	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2001	24	210	34	156	0	37	48	927	220	2201
2002	26	54	0	16	0	67	16	0	42	256
2003	0	390	74	74	42	42	0	105	140	883
2004	119	185	22	45	65	218	124	259	400	870
2005	0	606	22	22	0	112	**345**	**467**	636	1436
2006	16	1,042	**67**	**160**	0	0	**136**	**431**	231	2075
2007	0	118	**0**	**179**	0	25	0	81	407	2160
2008	102	450	171	410	0	188	0	42	273	3,493
2009	0	203	10	82	12	130	20	91	162	999
2010	0	577	0	312	0	0	0	71	40	1,091
2011	0	171	**14**	**759**	**0**	**0**	26	319	98	1,634
2012	11	219	0	0	**121**	**154**	**22**	**22**	196	459
2013	0	616	64	290	**21**	**150**	**0**	**0**	85	1,283
2014	**234**	**427**	18	1,004	**0**	**18**	**0**	**0**	270	1,569
2015	0	303	**0**	**71**	**0**	**175**	0	67	14	630
2016	**43**	**112**	30	60	15	383	**0**	**0**	175	876
2017	**0**	**80**	**0**	**264**	0	619	**0**	**0**	0	129
2018	**0**	**136**	**0**	**287**	**0**	**0**	**0**	**17**	17	440
2019	152	635	**59**	**1,403**	**0**	**166**	**0**	**0**	329	2,156
2020	**76**	**616**	**8**	**183**	**41**	**273**	**0**	**8**	192	1,158
2021	0	546	**0**	**700**	**0**	**874**	**0**	**11**	443	3,003
Average 2011–2020	52	332	19	432	20	194	7	43	138	1,123
Average 2016–2020	54	316	19	439	11	288	3	5	143	1,132

Source: Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 20, 2022). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: Harvest data are from the Statewide Harvest Survey. Although data are presented for all years, data in bold result from fewer than 12 respondents and are subject to high variance and as presented only indicate that sport fishing occurred in these waters.

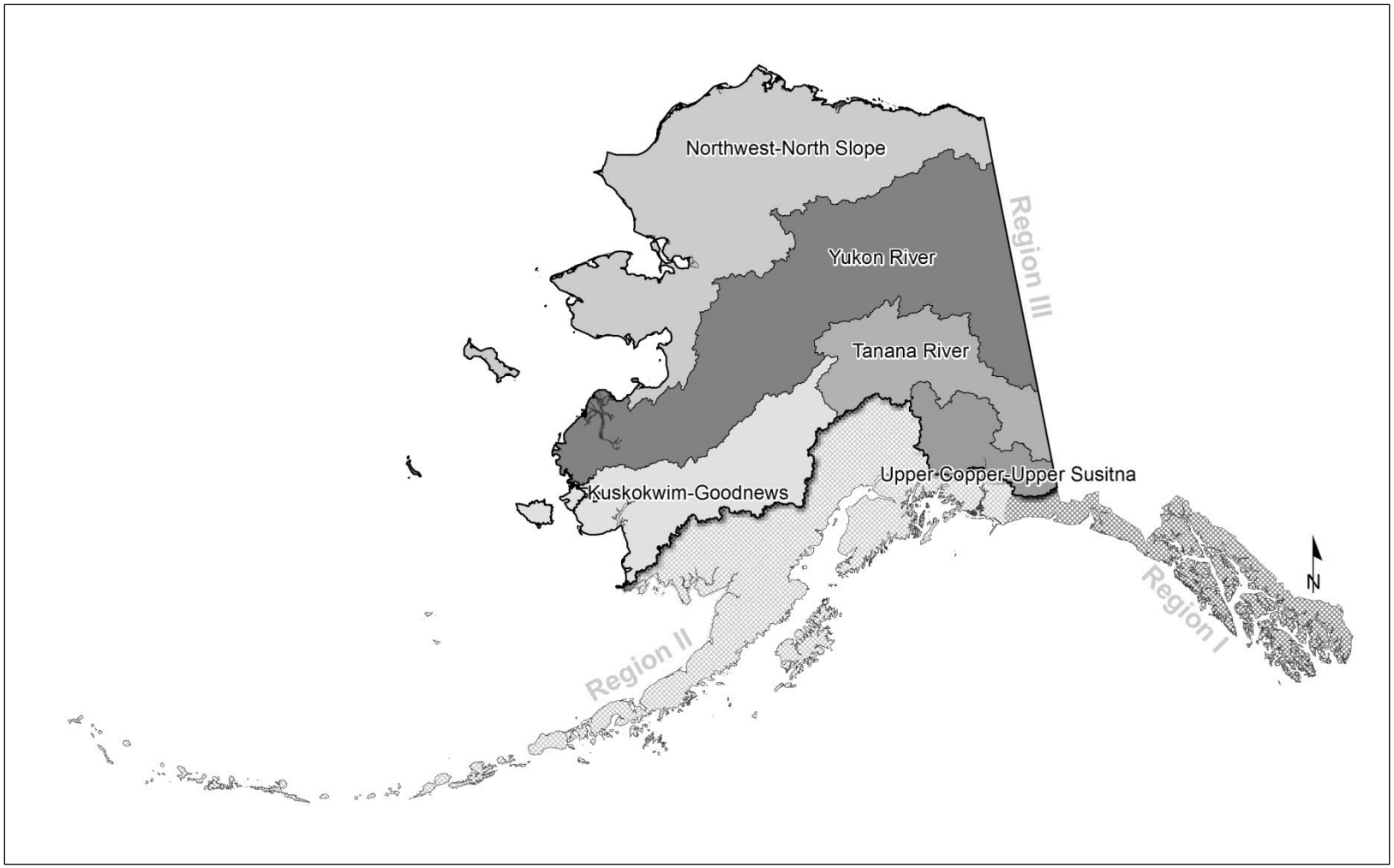

Figure 1.–Map of the sport fish regions in Alaska and the 5 Region III management areas.

Kuskokwim-Goodnews Drainages

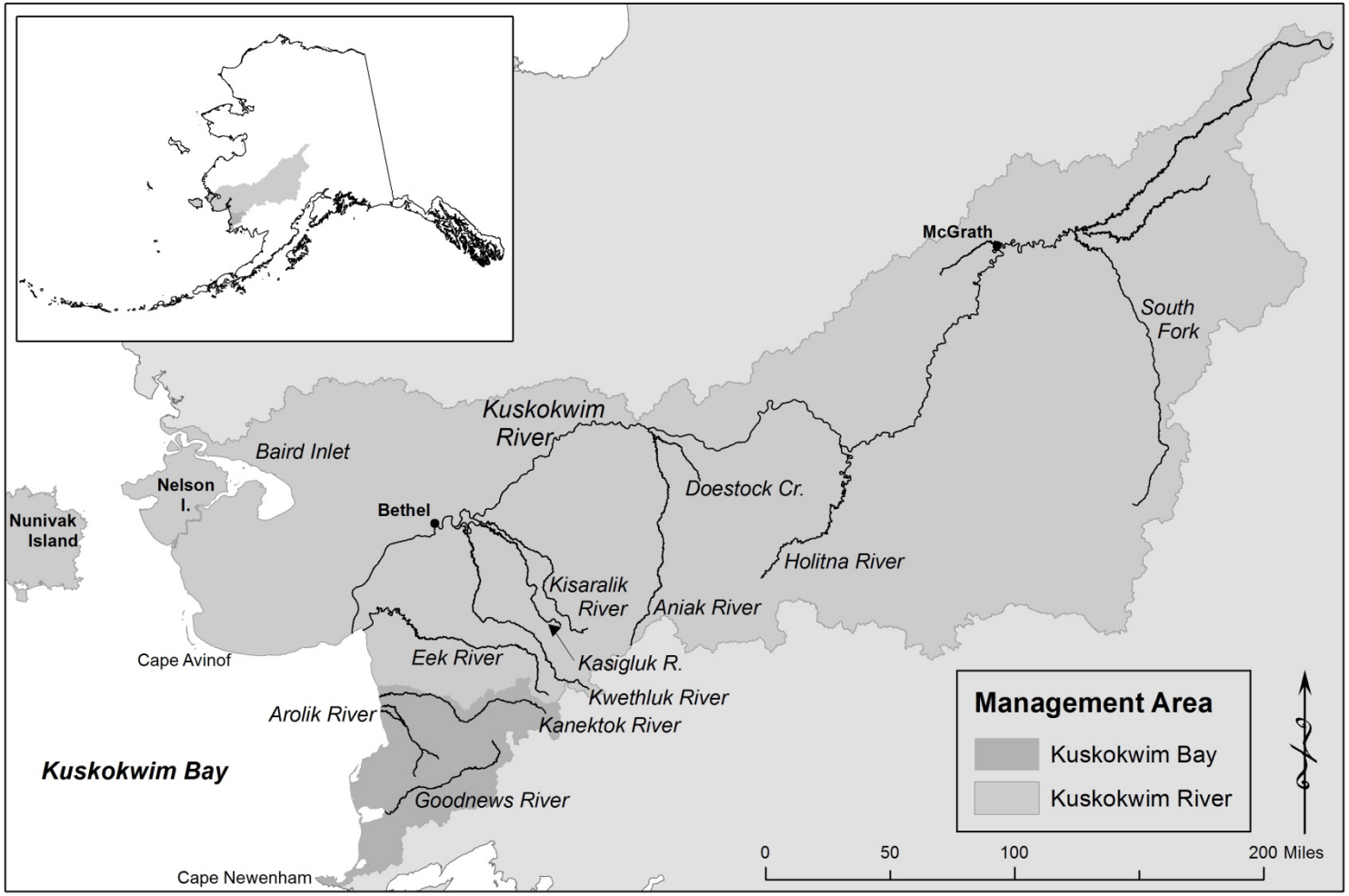

Figure 2.–Kuskokwim-Goodnews Management Area.

APPENDICES

Appendix A.–Emergency orders issued for KGMA sport fisheries from 2013 through 2022.

Year	E. O. Number	Explanation
2013	3-KS-02-13	This emergency order closes all waters to sport fishing for Chinook salmon in Kuskokuak Slough between the upstream and downstream mouth of the slough including all waters of the old Kuskokuak slough; the Kisaralik, Kasigluk, and Kwethluk River drainages to their confluence with Kuskokuak Slough; the Tuluksak River drainage including its confluence with the Kuskokwim River and downstream approximately 1-mile to ADF&G regulatory markers; and the Aniak River drainage, effective 12:01 a.m. Saturday, June 1, 2013.
2013	3-KS-03-13	This emergency order reduces the sport fishing bag and possession limit for Chinook salmon to 1 fish in all tributaries of Kuskokwim Bay effective 12:01 a.m. Monday, May 27, 2013.
2013	3-KS-05-13	This emergency order closes the mainstem Kuskokwim River to Chinook salmon fishing from the mouth of the river to a line between ADF&G regulatory markers located at the downstream edge of Chuathbaluk, effective 12:01 a.m. Saturday, June 29, 2013. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. In addition, this emergency order also requires only unbaited, single-hook artificial lures be used in the mainstem Kuskokwim River downstream of the line between ADF&G regulatory markers located at the downstream edge of Chuathbaluk. These restrictions will remain in effect through 11:59 p.m. Thursday, July 25, 2013.
2013	3-KS-07-13	This emergency order supersedes Emergency Order No. 3-KS-03-13. This emergency order prohibits the retention of Chinook salmon in all tributaries of Kuskokwim Bay effective 12:01 a.m. Wednesday, July 10, 2013.
2014	3-KS-01-14	This emergency order closes all waters of the Kuskokwim-Goodnews Area to sport fishing for Chinook salmon, effective 12:01 a.m. Thursday, May 1, 2014. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim–Goodnews Area. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately These restrictions will remain in effect through 11:59 p.m. Friday, July 25, 2014.

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Year	E. O. Number	Explanation
2015	3-KS-01-15	This emergency order closes all waters of the Kuskokwim-Goodnews Area to sport fishing for Chinook salmon, effective 12:01 a.m. Wednesday, April 1. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim-Goodnews Area. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. These restrictions will remain in effect through 11:59 p.m. Saturday, July 25, 2015.
2015	3-CS-01-15	This emergency order closes the Kuskokwim River drainage to sport fishing for chum salmon, effective 12:01 a.m. Monday, July 6, 2015. All chum salmon caught while fishing for other species may not be removed from the water and must be released immediately. In addition, only unbaited, single-hook, artificial lures may be used in the entire Kuskokwim River drainage. These restrictions will remain in effect through 11:59 p.m. Monday, August 31, 2015.
2016	3-KS-01-16	This emergency order closes the Kuskokwim River drainage (excluding Kuskokwim Bay) to sport fishing for Chinook salmon, effective 12:01 a.m. Sunday, May 1, 2016. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim-Goodnews Area. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. These restrictions will remain in effect through 11:59 p.m. Monday, July 25, 2016.
2016	3-KS-02-16	This emergency order reduces the sport fishing bag and possession limit for Chinook salmon to one fish in all tributaries of Kuskokwim Bay effective 12:01 a.m. Sunday, May 1, 2016.
2017	3-KS-V-02-17	This emergency order closes the Kuskokwim River drainage (excluding Kuskokwim Bay) to sport fishing for Chinook salmon, effective 12:01 a.m. Monday, May 1, 2017. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim-Goodnews Area. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. These restrictions will remain in effect through 11:59 p.m. Tuesday, July 25, 2017.

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Year	E. O. Number	Explanation
2018	3-KS-V-01-18	This emergency order closes the Kuskokwim River drainage (excluding Kuskokwim Bay) to sport fishing for Chinook salmon, effective 12:01 a.m. Tuesday, May 1, 2018. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim-Goodnews Area. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. These restrictions will remain in effect through 11:59 p.m. Wednesday, July 25, 2018.
2019	3-KS-V-01-19	The Division of Sport Fish is closing the entire Kuskokwim River drainage (including all tributaries) to sport fishing for Chinook salmon, effective 12:01 a.m. Wednesday, May 1, 2019. This does not include Kuskokwim Bay drainages. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim River drainage. These restrictions will remain in effect through 11:59 p.m. Thursday, July 25, 2019.
2020	3-KS-V-02-20	The Division of Sport Fish is extending the closure to sport fishing for Chinook salmon for the entire Kuskokwim River drainage (including all tributaries) through 11:59 p.m. Saturday, July 25, 2020. This does not include Kuskokwim Bay drainages. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim River drainage. These restrictions will remain in effect unless superseded by new information inseason.
2021	3-KS-V-03-21	The Division of Sport Fish is extending the closure to sport fishing for Chinook salmon for the entire Kuskokwim River drainage (including all tributaries) through 11:59 p.m. Sunday, July 25, 2020. This does not include Kuskokwim Bay drainages. All Chinook salmon caught while fishing for other species may not be removed from the water and must be released immediately. In addition, anglers may use only one unbaited, single-hook, artificial lure in the Kuskokwim River drainage. These restrictions will remain in effect unless superseded by new information inseason.

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Year	E. O. Number	Explanation
2021	3-CS-V-3-2021	Under this emergency order, the following provisions are effective 12:01 a.m. Thursday, July 1 through 11:59 p.m. Friday, December 21, 2001: This emergency order closes all waters of the Kuskokwim River drainage (excluding the Kuskokwim Bay) to sport fishing for chum salmon. All chum salmon caught incidentally in the Kuskokwim River drainage while fishing for other species may not be removed from the water and must be released immediately.
2022	3-KS-V-09-22	This emergency order extends the regulatory action taken in Emergency Order 3-KS-V02-22 issued May 1, 2022, and maintains the Chinook salmon sport fishing closure in the Kuskokwim River drainage (excluding Kuskokwim Bay drainages). Effective 12:01 a.m. Sunday, June 12, 2002, through 11:59 p.m. July 25, 2022.
	3-CS-V-17-22	The Alaska Department of Fish and Game is closing the entire Kuskokwim River drainage to sport fishing for chum salmon, effective 12:01 a.m. Friday, July 1, 2022. This closure prohibits all sport fishing for chum salmon, including catch-and-release fishing. All chum salmon caught incidentally while fishing for other species may not be removed from the water and must be released immediately. In addition, only unbaited, single-hook, artificial lures may be used in the entire Kuskokwim River drainage. Effective 12:01 a.m. Friday, July 1, 2022, through 11:59 p.m. Saturday, December 31, 2022.
	3-SS-V-24-22	The Alaska Department of Fish and Game is closing the entire Kuskokwim River drainage to sport fishing for coho salmon, effective 12:01 a.m. Wednesday, August 17, 2022. This closure prohibits all sport fishing for coho salmon, including catch-and-release fishing. All coho salmon caught incidentally while fishing for other species may not be removed from the water and must be released immediately. In addition, only one unbaited, single-hook, artificial lure may be used when sport fishing for any species in the entire Kuskokwim River drainage. Effective 12:01 a.m. Wednesday, August 17, 2022, through 11:59 p.m. Saturday, December 31, 2022.

Appendix B.–References to information specific to 2023 Alaska Board of Fisheries proposals.

Proposal	Proposal subject	Table	Figure	Appendix
94	Close sport fishing for chum salmon to nonresidents in the Kanektok River from June 1 to July 15.	17	2	A1
93	Close the Buckstock River upstream of a point (-159.219607, 61.342717) between June 14 and September 1 to all fishing.	16	2	A1