Special Publication No. 15-21

Kuskokwim River Salmon Stock Status and Kuskokwim Area Fisheries, 2015; a Report to the Alaska Board of Fisheries

by

Aaron D. Poetter

December 2015

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)

Measures (fisheries)

fork length	FL
mideye to fork	MEF
mideye to tail fork	METF
standard length	SL
total length	TL

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

SPECIAL PUBLICATION NO. 15-21

KUSKOKWIM RIVER SALMON STOCK STATUS AND KUSKOKWIM AREA FISHERIES, 2015; A REPORT TO THE ALASKA BOARD OF FISHERIES

by

Aaron D. Poetter

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

December 2015

The Special Publication series was established by the Division of Sport Fish in 1991 for the publication of techniques and procedures manuals, informational pamphlets, special subject reports to decision-making bodies, symposia and workshop proceedings, application software documentation, in-house lectures, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Special Publications are intended for fishery and other technical professionals. Special Publications are available through the Alaska State Library, Alaska Resources Library and Information Services (ARLIS) and on the Internet: http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm. This publication has undergone editorial and peer review.

Aaron D. Poetter
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage, AK 99518, USA

This document should be cited as follows:
Poetter, Aaron D. 2015. Kuskokwim River salmon stock status and Kuskokwim area fisheries, 2015; a report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Special Publication No.15-21, Anchorage.

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This report provides the Alaska Board of Fisheries (board) with information on Kuskokwim Area salmon stock status including escapement and harvest data for the January 2016 regulatory meeting. The Alaska Department of Fish and Game (department) is responsible for managing Kuskokwim Area salmon stocks for sustained yield. Subsistence fishing occurs throughout the area, while commercial salmon fishing is restricted to 4 districts within the Kuskokwim Area. Low runs of king salmon returning to the Kuskokwim River since 2010 have shaped the management of the Kuskokwim River fisheries. Severe restrictions in 2014 and 2015, and Federal special actions within the Yukon Delta National Wildlife Refuge to conserve king salmon, have led to subsistence king salmon harvests well below the board established amounts reasonably necessary for subsistence. Commercial fishing districts 1 and 2 are within the Kuskokwim River; Districts 4 and 5 are in Kuskokwim Bay and target salmon bound for the Kanektok and Goodnews rivers. This report presents an overview of Kuskokwim Area abundance, escapement, harvest trends, and fishery management for king, sockeye, chum, and coho salmon since 2013.

Key words: Kuskokwim Area, king salmon, *Oncorhynchus tshawytscha*, chum salmon, *O. keta*, sockeye salmon, *O. nerka*, coho salmon, *O. kisutch*, subsistence, commercial, fishing, stock status, Alaska Board of Fisheries.

INTRODUCTION

The Alaska Department of Fish and Game (department) is responsible for managing Kuskokwim Area salmon stocks for sustained yield by policies set forth by the Alaska Board of Fisheries (board), including the *Policy for the Management of Sustainable Salmon Fisheries* (5 AAC 39.222) and *Policy for Statewide Salmon Escapement Goal*s (5 AAC 39.223). For all statewide fisheries, the Alaska State Legislature has designated subsistence fishing as the highest priority among beneficial uses of the resource (AS 16.05.258 Subsistence use and allocation of fish and game).

The Kuskokwim Management Area (KMA) includes the Kuskokwim River drainage, all waters of Alaska that flow into the Bering Sea between Cape Newenham and the Naskonat Peninsula, and Nunivak and St. Matthew islands (Figure 1). There are 38 communities consisting of approximately 4,800 households within the KMA. Of those households, approximately 75% are situated within the drainage of the Kuskokwim River (Shelden et al. 2014). Much of the subsistence salmon fishing effort occurs within the mainstem of the Kuskokwim River; however, subsistence fishing also occurs in many of the tributaries that contain salmon. Residents of Quinhagak, Goodnews Bay, and Platinum, located along the south shore of Kuskokwim Bay, harvest salmon stocks primarily from the Kanektok, Arolik, and Goodnews river systems. Residents of Kipnuk, Kwigillingok, and Kongiganak, located on the north Kuskokwim Bay, harvest salmon from within the Kuskokwim River drainage and from local drainages that empty into Kuskokwim Bay. Residents of Toksook Bay, Nightmute, Tununak, Newtok, Chefornak, and Mekoryuk, which are situated near the Bering Sea coast, harvest salmon from coastal waters and local streams (Figure 1).

There are 4 commercial salmon fishing districts within the KMA (Figure 1). Districts 1 and 2 are within the Kuskokwim River; districts 4 and 5 are in Kuskokwim Bay and target salmon bound for the Kanektok and Goodnews rivers, respectively.

While sport fishing effort and harvests do occur, the harvest is much smaller and is covered in a separate report by Division of Sport Fish (Chythlook 2015).

The large size of the Kuskokwim River drainage, and the distances between the fisheries and the escapement monitoring projects throughout the drainage, adds complexity to the management of Kuskokwim River. King salmon *Oncorhynchus tshawytscha* begin entry into the Kuskokwim River

in late May, while sockeye *O. nerka* and chum salmon *O. keta* begin their entry in mid-June. King and sockeye salmon runs fall off in early July, while the chum salmon run begins to fall off in late July when coho salmon *O. kisutch* run entry begins (Figure 2). Coho salmon entry to the river falls off in late August to early September. Fishery management information on run size and timing by species is limited until the salmon are distributed throughout the drainage and on the spawning grounds hundreds of miles from and months after the lower river fisheries have been initiated.

Kuskokwim Bay salmon have similar run timing into the Kanektok, Goodnews, and Arolik rivers. These are small drainages in comparison to the Kuskokwim River. Although evaluation of run size and timing in Kuskokwim Bay rivers is not immediate, it is much timelier (typically 2–5 days from time of entry) than that of the Kuskokwim River. Many of the factors that make Kuskokwim River fisheries management difficult are not present in Kuskokwim Bay fisheries.

Salmon abundance in the KMA is primarily assessed with weirs and aerial surveys. Salmon escapements are evaluated by weirs on 10 tributary streams. Aerial surveys are flown during peak spawning abundances in up to 16 tributaries for king salmon and in 2 tributaries for sockeye salmon. In addition, drainagewide run reconstructions are completed for king and coho salmon.

FISHERIES AND SALMON STOCK STATUS

FISHERIES

Subsistence

The subsistence salmon fishery in the KMA is one of the largest and most important in the state and supports one of the largest subsistence salmon fisheries in North America. Many households throughout the region are involved in harvesting, processing, and preserving salmon for subsistence use. The movement of families from permanent winter communities to summer fish camps, situated along rivers and sloughs, is a significant element of annual subsistence harvest efforts. Approximately 2,400 households in the KMA annually harvest salmon for subsistence use (Shelden et al. 2014). Many other households, which are not directly involved in catching salmon, participate by assisting family and friends with cutting, drying, smoking, and associated preservation activities (salting, canning, and freezing). Since 1994, when the department began acquiring reasonably complete statewide coverage of subsistence harvest survey data, over 50% of king salmon harvested under subsistence regulations have been taken in the Kuskokwim Area, mostly in the Kuskokwim River drainage. Between 2010 and 2014 (study years 2009–2013), the Division of Subsistence conducted comprehensive subsistence harvest and use surveys in 23 Kuskokwim Management Area communities. The results indicate that, on average, salmon contribute 42% of the total wild resource harvest (in edible pounds) in the Lower Kuskokwim communities, 65% in the Central Kuskokwim communities, and 25% in the Upper Kuskokwim communities (Brown et al. 2012, 2013; Ikuta et al. 2014). The board made a positive customary and traditional use finding for each salmon species in the Kuskokwim River drainage and, in 2013, revised the amounts reasonably necessary for subsistence (ANS) to include 67,200–109,800 king salmon; 41,200–116,400 chum salmon; 32,200–58,700 sockeye salmon; 27,400–57,600 coho salmon; and 500–2,000 pink salmon *O. gorbuscha*.

Commercial

The KMA commercial fishery was relatively stable from 1987–1996, with harvests ranging from 740,000 to 2.3 million fish, participation between 714 to 824 permits fished, and exvessel value

ranging from $2.9 million to $12.7 million (Elison et al. 2015). Beginning in 1997, salmon markets began to decline, which led to a decreasing trend in fishing effort, number of fish harvested, and the exvessel value of the fishery. From 1997 through 2002, commercial salmon harvests in the area ranged from 185,000 fish in 2002 to 758,000 fish in 1998. Effort decreased from 707 permits in 1998 to 407 permits in 2002, and subsequent exvessel value of the fishery decreased from $1.6 million in 1998 to $324,000 in 2002. Poor king and chum salmon runs from 1999 through 2001 resulted in the Kuskokwim River having limited commercial salmon fishing opportunity in June and July (Elison et al. 2015). As Kuskokwim River king and chum salmon abundances rebounded in the mid-2000s, poor market conditions for chum salmon, and limited processing capacity, continued to limit commercial salmon fishing opportunity in District 1. The same factors limited commercial fishing opportunity during July in both districts 4 and 5, and led to registered buyers imposing harvest limits on fishermen (Elison et al. 2015). A fish processing plant located in Platinum began operation in 2009 and has improved processing capacity in the area. In 2014 and 2015, commercial fishing opportunity was considerably reduced due to the poor king and chum salmon runs and the increased dependence on other salmon species for subsistence uses.

SALMON ASSESSMENT PROJECTS

Bethel Test Fishery

In addition to inseason subsistence harvest reports and input from users' local knowledge, daily inseason assessment of Kuskokwim River relative salmon run strength and timing is assessed from a drift gillnet test fishery operated near Bethel. The Bethel Test Fishery (BTF) is located at river mile 80 of the Kuskokwim River, which is the midpoint of District 1 (Figure 2). The project began in 1984 and the methodology has remained largely unchanged (Bue and Brazil 2012). From early June through late August the test fish crew conducts systematic gillnet drifts beginning 1 hour after high tide. The drifts are done at 3 stations across the width of the channel. Each drift is 20 minutes in duration. Two 50-fathom gillnets are used; one net is hung with 5.375-inch mesh web and the other with 8-inch mesh. Both mesh sizes are operated from early June through about July 15 when king, sockeye, and chum salmon all occur in relatively high abundance. The 8-inch mesh is discontinued after July 15 when king salmon abundance diminishes. Test fishing with the 5.375-inch mesh continues until August 24.

The test fishing catch from each tide is tallied by species and distributed to charities. Catch statistics for king, sockeye, chum, and coho salmon are presented as daily CPUE indices and a season cumulative CPUE index by species. Comparisons are made with test fishing results from previous years and relationship to escapement projects to assess relative abundance and run timing. The comparisons are subjective in that managers need to consider variables such as water level, fishing patterns, and changing river morphology when comparing data from between years and even within years.

Kwethluk River Weir

The Kwethluk River weir (Figure 1) is operated by the U.S. Fish and Wildlife Service (USFWS) from approximately June 25 to September 10 to assess king, sockeye, coho, and chum salmon. Kwethluk River weir was operated in 1992 and then again from 2000–2015.

Tuluksak River Weir

The Tuluksak River weir is operated by USFWS from approximately June 25 to September 10 to assess king, sockeye, chum, and coho salmon. Tuluksak River weir has been in operation from 1991–1994 and then from 2001–2015.

Salmon River Weir

The Salmon River (Aniak) weir is operated from approximately June 15 to September 20 to assess king, chum, coho, and sockeye salmon. The Salmon River weir was first operated from 2006 to 2009 primarily as a king and coho salmon assessment project and was reinitiated in 2012 to assess all species.

George River Weir

The George River weir is operated from approximately June 15 to September 20 to monitor king, chum, and coho salmon. Due to its proximity to the mouth, the weir accounts for nearly all salmon migrating upstream to spawning habitat within the drainage. The George River weir has been in operation since 1996 through the joint effort of the department and Kuskokwim Native Association (KNA; Hansen and Blain 2014).

Kogrukluk River Weir

The Kogrukluk River weir is operated from approximately June 26 to September 25 to enumerate king, chum, coho, and sockeye salmon. The Kogrukluk River weir has been operated annually since 1976 and is the department's longest standing salmon assessment project in the KMA. Beginning in 1981, the weir operations were extended to include coho salmon (Baxter 1982). The Kogrukluk River provides an index of salmon spawning populations for the Holitna River drainage (Hansen and Blain 2014).

Telaquana River Weir

The Telaquana River weir has been operated cooperatively by the department and National Park Service since 2010. The weir is located approximately two-thirds of a mile downstream of the Telaquana Lake outlet. While all 5 salmon species have been observed at the weir site, only sockeye salmon returns to the system in considerable numbers; therefore, the Telaquana River weir was operated to encompass only the period of the sockeye salmon run. Aerial surveys and rafting reconnaissance have indicated that there are no spawning populations of sockeye salmon in the Telaquana River downstream of the weir site (Hansen and Blain 2014).

Tatlawiksuk River Weir

The Tatlawiksuk River weir is operated from approximately June 15 to September 20 to enumerate king, sockeye, chum, and coho salmon. The weir was operated annually from 1998–2014 through the joint effort of the department and KNA and in 2015 by the department.

Kanektok River Weir

The Kanektok River weir enumerates king, sockeye, and chum salmon during the June 25 to August 15 operational period. Escapement estimates for coho and pink salmon are incomplete because the project does not operate through the entire coho and pink salmon runs. The Kanektok River weir has been operated from 2001–2015 except for 2006 when the weir was not operational for the entire season.

Middle Fork Goodnews River Weir

The Middle Fork Goodnews River weir assesses king, sockeye, chum, and coho salmon during the June 25 to September 1 operational period. The Goodnews River weir has been in operation from 1991–2015.

Aerial Surveys

Aerial survey based escapement assessments do not represent the entire spawning population in the respective streams. The surveys are conducted one time each season during a window of time when the maximum numbers of fish are expected to be on the spawning grounds. Escapement goals developed from aerial surveys are based on the raw, unexpanded counts; therefore, each count serves as an index of abundance.

Aerial surveys are generally conducted on clearwater streams, lakes, and coastal streams throughout the KMA. Tributaries in the middle and upper Kuskokwim River are sometimes stained from organics or clouded by glacier runoff, both of which markedly affect the ability to enumerate fish. Aerial surveys are best directed at indexing spawning populations of king and sockeye salmon because these fish are typically more visible than chum and coho salmon.

STOCK STATUS

Kuskokwim River

King Salmon

Since 2010 there has been a sharp decline in king salmon abundance in the Kuskokwim River (Table 1). The 2013 king salmon return to the Kuskokwim River was the lowest estimated total run on record. King salmon runs in 2014 and 2015 showed improvement each year, respectively; however, they were still well below average. These poor returns have resulted in restriction to subsistence fisheries and delay of chum salmon directed subsistence and commercial fisheries to avoid incidental catch of king salmon. Kuskokwim River king salmon subsistence harvest has fallen below the established ANS since 2009. Analysis of the Kuskokwim River king salmon stock indicates that while recent escapement levels are low, similar escapements in past years have been highly productive (Schaberg et al. 2012; Bue et al. 2012).

Escapement

King salmon escapement is monitored with weirs operated in 6 tributary streams (Figure 1) and peak aerial survey counts at up to 16 tributaries distributed throughout the drainage. In 2013, the total run of king salmon to the Kuskokwim River from 1976–2011 was estimated (reconstructed) using a model developed for data-limited situations (Bue et al. 2012). From the king salmon run reconstruction work, a king salmon drainagewide Sustainable Escapement Goal (SEG) of 65,000–120,000 was established and 3 weir based tributary SEGs were revised in 2013. In addition to the drainagewide and weir-based SEGs, there are 7 tributary aerial survey-based SEGs within the Kuskokwim River Drainage (Table 2). Achievement of these goals over the past 3 years has been inconsistent which can be attributed to the recent low runs (Table 3).

Current escapement goals for Kuskokwim River king salmon stocks are as follows:

Stock unit	Enumeration method	Current escapement goal		
		Goal	Type	Year established
King Salmon				
Kuskokwim River	Run Reconstruction	65,000–120,000	SEG	2013
Aniak River	Aerial Survey	1,200–2,300	SEG	2005
Cheneetnuk River	Aerial Survey	340–1,300	SEG	2005
Gagaraya River	Aerial Survey	300–830	SEG	2005
George River	Weir	1,800–3,300	SEG	2013
Holitna River	Aerial Survey	970–2,100	SEG	2005
Kisaralik River	Aerial Survey	400–1,200	SEG	2005
Kogrukluk River	Weir	4,800–8,800	SEG	2013
Kwethluk River	Weir	4,100–7,500	SEG	2013
Pitka Fork Salmon River	Aerial Survey	470–1,600	SEG	2005
Salmon River (Aniak Drainage)	Aerial Survey	330–1,200	SEG	2005

Harvest

The subsistence fishery on the Kuskokwim River has constituted 90–99% of the total harvest of king salmon since 2000. The average annual subsistence harvest from 2006 to 2014 was approximately 66,000 fish (Table 4). Although subsistence salmon fishing was closed in several tributaries, subsistence fishing was allowed in the mainstem at the start of the king salmon run in 2013. However, by late June the run was assessed to be less than expected preseason and subsistence gillnets were restricted to 6 inches or less. Below average returns were projected for 2014 and 2015, which prompted a very conservative management approach to the king salmon fishery. Restrictions to the subsistence fishery included an early season subsistence fishing closure; limiting the use of gillnets, for targeting non-salmon species, to 4-inch mesh gillnets of 60 feet or less in length; gillnet closures in specific tributaries; the requirement of live release of king salmon from fish wheels and dip nets; rolling openings; a short opening for Alaskan residents 60 years of age or older in State waters; and limiting the length of 6-inch mesh gillnets during the chum and sockeye salmon season. Sport fishing for king salmon was also closed areawide for the entire season. In addition, Federal Special Actions restricted subsistence fishing to federally qualified users within the Yukon Delta National Wildlife Refuge and established a small community harvest allocation of king salmon to be taken in directed fisheries. Subsistence harvests of king salmon from 2013 and 2014 are some of the lowest recorded due to the low returns and restrictions placed on the subsistence fishery (Table 4). Because of subsistence restrictions in 2015, this harvest is also expected to be well below average.

King salmon are harvested incidentally in the chum salmon directed commercial fishery during late June and July under a guideline harvest range of 0–50,000 fish. King salmon are harvested incidentally in commercial fisheries directed at chum and sockeye salmon due to overlapping run timing of king, sockeye, and chum salmon (Figure 2). The majority of the king salmon caught in the commercial fishery since 2013 were not sold (Table 5). The buyers agreed to not purchase king salmon during most of the fishing seasons in 2013, 2014, and 2015 so that the incidental harvest could be used for subsistence purposes.

Chum Salmon

Kuskokwim River chum salmon escapements have been below average since 2013, though chum salmon escapement goals have been met on the Kuskokwim River. Exploitation from commercial harvest has been limited due to king salmon conservation measures in the last 5 years.

Escapement

Chum salmon escapement is monitored with weirs operated in 6 tributary streams (Figure 1). The only chum salmon escapement goal in the Kuskokwim River drainage is at the Kogrukluk River weir; it was established in 2005. This goal has been annually achieved or exceeded in all of the last 10 years (Table 6). In 2012, the Kogrukluk River weir was not operational for a majority of the run, so no estimate is available for that year. The department does not currently generate estimated total chum salmon returns for the Kuskokwim River.

Current escapement goal for Kuskokwim River chum salmon stock is as follows:

		Current escapement goal		
Stock unit	Enumeration method	Goal	Type	Year established
Chum Salmon				
Kogrukluk River	Weir	15,000–49,000	SEG	2005

Harvest

Since the late 1990s, this fishery has been constrained by low market interest in chum salmon, limited processing capacity, and, more recently, reduced opportunities due to king salmon conservation measures. In 2013 and 2014, a modest commercial harvest of 52,236 and 19,080 fish were taken, respectively (Table 5). Commercial chum salmon harvest from 2015 was well below historical average due to the below average run and the timing of commercial fishing periods in August to target coho salmon. From 2003 to 2012, commercial chum salmon harvest contribution ranged from less than 1% up to 46%, respectively, of the total exvessel value of the District 1 commercial salmon fishery. From 2013–2015 the District 1 commercial chum salmon exvessel value averaged 13%.

Average annual subsistence harvest from 1990 to 2012 was approximately 72,000 chum salmon (Table 7). The subsistence harvests in 2013 and 2014 were 55,828 and 70,687 chum salmon respectively; both of which were below average in light of the restrictions on king salmon harvest opportunity. Subsistence harvest information from 2015 has not been finalized; however, it is expected to be lower than most other recent years due to the smaller than average run size and restrictions to the chum salmon directed subsistence fishery in conjunction with conservative management of the king salmon run.

Sockeye Salmon

Understanding of sockeye salmon abundance in the Kuskokwim River has recently changed with incorporation of a monitoring project at Telaquana Lake. This project monitors the lake-type life history of sockeye salmon while all other weir projects monitor mostly river-type (McPhee et al. 2009). Telaquana Lake results have shown that it is a major contributor to overall Kuskokwim River sockeye salmon abundance (Table 8).

Escapement

Sockeye salmon escapements are monitored at 5 of the tributary weir projects operated throughout the Kuskokwim River drainage (Figure 1), although they are only prominent in Kogrukluk River, Salmon River off the Aniak River, Kogrukluk River, and Telaquana Lake. The only escapement goal for sockeye salmon is at Kogrukluk River weir and it has been achieved each of the last 10 years. Kogrukluk River weir estimates for 2012 are unavailable because it was inoperable for a large portion of the sockeye salmon run (Table 8). The department does not currently generate estimated total sockeye salmon returns for the Kuskokwim River.

Current escapement goal for Kuskokwim River sockeye salmon is as follows:

		Current escapement goal		
Stock unit	Enumeration method	Goal	Type	Year established
Sockeye Salmon				
Kogrukluk River	Weir	4,400–17,000	SEG	2010

Harvest

Kuskokwim River sockeye salmon are targeted in subsistence and commercial fisheries. Average annual subsistence harvest from 1990–2012 was approximately 45,000 fish (Table 9). The subsistence harvests were 39,382 and 48,372 sockeye salmon in 2013 and 2014, respectively.

In 2004, the board established a commercial guideline harvest level of 0–50,000 sockeye salmon. A total of 130 fish were commercially harvested in 2015, the lowest harvest since 2002. The small harvest was due to the late timing of commercial fishing periods (Table 5). From 2003 to 2012, commercial sockeye salmon harvest contribution ranged from less than 1% up to 24%, respectively, of the total exvessel value of the District 1 commercial salmon fishery. The sockeye salmon exvessel value, from 2013–2015, averaged 1% of the total District 1 exvessel value. The value of District 1 sockeye salmon in 2015 was the lowest since 2002.

Coho Salmon

Recent advances in estimating Kuskokwim River coho salmon run size are ongoing and preliminary. Bethel test fish and weir data indicate that the coho salmon run was large in 2014. Because of late run timing, BTF information for the 2015 coho salmon run is biased low while escapement and harvest information indicated the run was one of the larger runs in recent years.

Escapement

Coho salmon escapement is monitored with weirs operated in 6 tributary streams (Figure 1). The Kogrukluk River escapement goal has been annually achieved or exceeded in each of the last 10 years. Kwethluk River did not have full operations in 2013, but the escapement goal was achieved in 2014 and 2015 (Table 10).

Current escapement goals for Kuskokwim River coho salmon stocks are as follows:

	Enumeration	Current escapement goal		
Stock unit	method	Goal	Type	Year amended or established
Coho Salmon				
Kwethluk River	Weir	>19,000	SEG	2010
Kogrukluk River	Weir	13,000–28,000	SEG	2005

Harvest

Kuskokwim River coho salmon are harvested primarily in the commercial fishery, which has a most recent 10-year average harvest of 108,927 fish and has ranged from 58,031 to 185,598 fish during the same period. Commercial coho salmon harvests make up about 71% of total District 1 commercial salmon exvessel value, on average, and has been about 86% of the total exvessel value since 2013 (Table 5). Average annual subsistence harvest from 1990 to 2012 was approximately 39,000 fish (Table 11). The subsistence harvest was 27,841 and 52,587 coho salmon in 2013 and 2014, respectively.

KUSKOKWIM BAY

Quinhagak (District 4)

Escapement

A salmon enumeration weir is operated on Kanektok River at river mile 45 from approximately June 25 to August 15 (Taylor 2014b). Given the relatively short data series from this project, no formal escapement goals for any species have been developed for this weir (Table 12). Comparison of escapement among years is problematic because a substantial number of king, chum, and coho salmon spawn downstream of the weir. Since the weir project ceases operations in mid-August, coho salmon counts are incomplete. Aerial survey escapement goals have been established for king and sockeye salmon (Table 13). Sockeye salmon escapement goals have been achieved or exceeded in each of the last 10 years that aerial survey data are available. Aerial survey data for king salmon are available in 4 of the last 10 years, with the escapement goal being met in only 1 of those 4 years. The aerial survey goal was met in 2015 because there was a considerable increase in the king salmon return to the Kanektok River.

Current escapement goals for Kanektok River salmon stocks are as follows:

	Enumeration	Current escapement goal		
Stock unit	method	Goal	Type	Year amended or established
King Salmon	Aerial Survey	3,500–8,000	SEG	2005
Sockeye Salmon	Aerial Survey	14,000–34,000	SEG	2005

Harvest

Overall, District 4 commercial salmon harvests were below average in 2013, 2014, and 2015 (Table 14). King salmon harvests have been slightly below average since 2012 and fell well below average in 2013 and 2014 due to the delayed start of the commercial fishery to conserve

king salmon during low returns. Sockeye salmon harvests in 2013, 2014, and 2015 were below average due to the delayed start of the commercial fishery. The chum salmon harvest was average in 2013, though commercial harvests in 2014 and 2015 were well below average and the lowest since 2005. Coho salmon harvests have been increasing steadily since 2013 with the 2014 and 2015 harvests being some of the largest since 2000. Value of the commercial salmon fishery has been below average since 2013 (Table 14). Relative to the commercial harvest, subsistence harvests of these stocks are small with king salmon making up the largest portion of subsistence harvest (Tables 4, 7, 9, and 11). The subsistence fishery was restricted to 6-inch or less mesh gillnets, for the conservation of king salmon; it was also closed for 1 day a week in 2014 and 3 days per week in 2015.

GOODNEWS BAY

Goodnews Bay (District 5)

Escapement

Salmon escapement into the Goodnews River drainage is assessed by an enumeration weir on the Middle Fork Goodnews River (Taylor 2014a) and by aerial survey. Weir-based escapement goals have been established for king, sockeye, chum, and coho salmon (Table 15). Only sockeye salmon have consistently met or exceeded the weir-based escapement goal since 2013. For years with available data, sockeye salmon consistently achieve or exceed the goal and king salmon escapements are variable, with 2 of the last 3 years being below the goal, or the aerial survey not meeting acceptable criteria (Table 16). The coho salmon escapement goal has become not applicable due to changes in weir project operational dates.

Current escapement goals for Goodnews River salmon stocks are as follows:

	Enumeration	Current escapement goal		
Stock unit	method	Goal	Type	Year amended or established
King Salmon				
Goodnews River (Main Fork)	Aerial Survey	640–3,300	SEG	2005
Middle Fork Goodnews River	Weir	1,500–2,900	BEG	2005
Chum Salmon				
Middle Fork Goodnews River	Weir	>12,000	SEG	2005
Coho Salmon				
Middle Fork Goodnews River	Weir	>12,000	SEG	2005
Sockeye Salmon				
Goodnews River (Main Fork)	Aerial Survey	5,500–19,500	SEG	2005
Middle Fork Goodnews River	Weir	18,000–40,000	BEG	2007

Harvest

Total commercial salmon harvest was well above average in 2013 and 2014 but less than half the average value in 2015. Harvests of all salmon species have been below average since 2013 except for the coho salmon harvest in 2014 (Table 17). The low harvests can be partially attributed to the conservative approach (delaying the start of the commercial fishery and confining fishermen to the western half of Goodnews Bay) to managing the king salmon return

to Goodnews Bay from 2013 to 2015. Despite the below average harvests, the value of the commercial salmon fishery in 2013 and 2014 was some of the highest on record (Table 17). Relative to the commercial harvest, subsistence harvests of these stocks are small, with sockeye salmon making up the largest portion of subsistence harvest (Tables 4, 7, 9, and 11). The subsistence fishery was restricted to 6-inch or less mesh gillnets for the conservation of king salmon; it was also closed for 1 day a week in 2014 and 3 days per week in 2015.

REFERENCES CITED

Baxter, R. 1982. 1981 Ignatti weir study. Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Salmon Escapement Report No. 25, Anchorage.

Brown, C. L., H. Ikuta, D. S. Koster, and J. S. Magdanz. 2013. Subsistence harvests in 6 communities in the Kuskokwim River drainage, 2010. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 379, Fairbanks.

Brown, C. L., J. S. Magdanz, D. S. Koster, and N. S. Braem. 2012. Subsistence harvests in 8 communities in the central Kuskokwim River drainage, 2009. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 365, Fairbanks.

Bue, B. G., K. L. Schaberg, Z. W. Liller, and D. B. Molyneaux. 2012. Estimates of the historic run and escapement for the Chinook salmon stock returning to the Kuskokwim River, 1976-2011. Alaska Department of Fish and Game, Fishery Data Series No. 12-49, Anchorage.

Bue, D. G., and C. Brazil. 2012. Characterization of the 2010 salmon run in the Kuskokwim River based on test fishing at Bethel. Alaska Department of Fish and Game, Fishery Management Report No. 12-53, Anchorage.

Chythlook, J. 2015. 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.

Elison, T. B., A. Tiernan, and D. V. Taylor. 2015. 2012 Kuskokwim area management report. Alaska Department of Fish and Game, Fishery Management Report No. 15-29, Anchorage.

Hansen, T. R., and B. J. Blain. 2014. Salmon escapement monitoring in the Kuskokwim River, 2013. Alaska Department of Fish and Game, Fishery Data Series No. 14-54, Anchorage.

Ikuta, H., C. L. Brown, and D. S. Koster. 2014. Subsistence harvests in 8 communities in the Kuskokwim River drainage and lower Yukon River, 2011. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 396, Fairbanks.

McPhee, M. V., T. H. Tappenbeck, D. C. Whited, and J. A. Stanford. 2009. Genetic diversity and population structure in the Kuskokwim River drainage support the recurrent evolution hypothesis for sockeye salmon life histories. Transactions of the American Fisheries Society 138(6):1481–1489.

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.

Shelden, C. A., T. Hamazaki, M. Horne-Brine, G. Roczicka, M. J. Thalhauser, and H. Carroll. 2014. Subsistence salmon harvests in the Kuskokwim area, 2011 and 2012. Alaska Department of Fish and Game, Fishery Data Series No. 14-20, Anchorage.

Taylor, D. V. 2014a. Goodnews River salmon monitoring and assessment, 2013. Alaska Department of Fish and Game, Fishery Data Series No. 14-44, Anchorage.

Taylor, D. V. 2014b. Kanektok River salmon monitoring and assessment, 2013. Alaska Department of Fish and Game, Fishery Data Series No. 14-46, Anchorage.

TABLES AND FIGURES

Table 1.–Kuskokwim River king salmon estimated total run and estimated escapement, 1976–2015.

Year	Estimated total un	Estimated escapement
1976	233,967	143,420
1977	295,559	201,852
1978	264,325	180,853
1979	253,970	157,668
1980	300,573	203,605
1981	389,791	279,392
1982	187,354	80,353
1983	166,333	84,188
1984	188,238	99,062
1985	176,292	94,365
1986	129,168	58,556
1987	193,465	89,222
1988	207,818	80,055
1989	241,857	115,704
1990	264,802	100,614
1991	218,705	105,589
1992	284,846	153,573
1993	269,305	169,816
1994	365,246	242,616
1995	360,513	225,595
1996	302,603	197,092
1997	303,189	211,247
1998	213,873	113,627
1999	189,939	112,082
2000	136,618	65,180
2001	223,707	145,232
2002	246,296	164,635
2003	248,789	180,687
2004	388,136	287,178
2005	366,601	275,598
2006	307,662	214,004
2007	273,060	174,943
2008	237,074	128,978
2009	204,747	118,478
2010	118,507	49,073
2011	133,059	72,097
2012	99,807	76,074
2013	94,166	47,315
2014	135,749	123,987
2015 [a]	158,000	138,000
10-year Avg. (2005–2014)	197,043	128,055

[a] Preliminary and subject to change.

Table 2.–King salmon spawning aerial survey index estimates, Kuskokwim River Drainage, 1975–2015.

	Lower Kuskokwim River [a]					Middle Kuskokwim River [a]					Upper Kuskokwim River [a]	
Year	Kwethluk Canyon C.	Kisaralik	Aniak	Kipchuk	Salmon (Aniak)	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Bear (Pitka)	Salmon (Pitka)
1975											36	
1976								2,571			182	
1977	2,075								897	2,407		1,930
1978	1,722	2,417			289			2,766	504	268	227	1,100
1979												682
1980					1,186							
1981			9,074								93	
1982		81			126			521			127	413
1983	471		1,909		231			1,069		173		572
1984										1,177		545
1985		63								1,002		620
1986			424		336			650				
1987				193	516		193			317		
1988	622	869	954		244		80					474
1989	1,157	152	2,109	1,598	631							452
1990		631	1,255	537	596		113					
1991		217	1,564	885	583							
1992			2,284	670	335		91	2,022	328	1,050		2,536
1993			2,687	1,248	1,082	233	103	1,573	419	678		1,010
1994		1,243		1,520	1,218				807	1,206		1,010
1995		1,243	3,171	1,215	1,446		326	1,887	1,193	1,565		1,911
1996					985							
1997		439	2,187	855	980		1,470	2,093	364	345		
1998		457	1,930	443	425							
1999							98	741				
2000			714	182	238			301				362
2001					598	52		4,156	143		175	1,033
2002	1,795	1,727		1,615	1,236	513	295	733		730	211	

-continued-

Table 2.–Page 2 of 2.

	Lower Kuskokwim River [a]				Middle Kuskokwim River [a]						Upper Kuskokwim River [a]	
Year	Kwethluk Canyon C.	Kisaralik	Aniak	Kipchuk	Salmon (Aniak)	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Bear (Pitka)	Salmon (Pitka)
2003	2,661	654	3,514	1,493	1,242	1,096	844		1,093	810	176	
2004	6,801	5,157	5,362	1,868	2,177	539	293	4,051	670	918	206	1,138
2005	5,059	2,206		1,679	4,097	510	582	1,760			367	1,801
2006		4,734	5,639	1,618		705	386	1,866	531	1,015	347	862
2007		692	3,984	2,147	1,458				1,035		165	943
2008	487	1,074	3,222	1,061	589	418	213		177	290	245	1,033
2009						565	379		303	323	209	632
2010		235				229			62		75	135
2011				116	79	61	26		96	249	145	767
2012		588		193	49	36	51		178	229		670
2013	1,165	599	754	261	154		38	532	74	138	64	469
2014		622	3,201	1,220	497	80	200		359	340		1,865
2015		709		917	810	77		662	19		1,381	2,016
SEG		400–1,200	1,200–2,300		330–1,200			970–2,100	300–830	340–1,300		470–1,600
10-yr Avg.	2,237	1,344	3,360	1,037	989	326	234	1,386	313	369	202	918

Note: Blank cells represent no data. No data exist because the survey was either not flown or did not meet acceptable criteria.

[a] Estimates are from aerial surveys conducted during peak spawning periods under 'good' or 'fair' survey conditions.

Table 3.–Kuskokwim River king salmon weir-based escapement estimates, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	Kogrukluk River	Tatlawiksuk River	Salmon River (Aniak)
1990				10,093		
1991		697		6,835		
1992	9,675	1,083		6,563		
1993		2,218		12,377		
1994		2,918				
1995				20,662		
1996			7,770	13,771		
1997			7,810	13,190		
1998			[a]		[a]	
1999			[a]	5,543	1,484	
2000	3,547		2,959	3,242	807	
2001	[a]	997	3,277	7,475	1,978	
2002	8,502	1,346	2,443	10,025	2,237	
2003	14,474	1,064	[a]	12,008	[a]	
2004	28,605	1,475	5,488	19,819	2,833	
2005		2,653	3,845	21,819	2,864	
2006	17,619	1,043	4,355	20,205	1,700	7,075
2007	12,927	374	4,011		2,032	6,255
2008	5,276	701	2,563	9,750	1,075	2,376
2009	5,744	362	3,663	9,528	1,071	1,656
2010	1,667	201	1,498	5,812	546 [a]	
2011	4,079	284	1,547	6,731	992 [a]	
2012	[a]	555	2,201	[a]	1,116 [a]	
2013	845	193	1,292	1,819	495	625
2014	3,187	320	2,993	3,732	1,904	1,757
2015 [b]	8,162	709	2,282	8,081	2,104	2,404
SEG:	4,100–7,500		1,800–3,300	4,400–17,000		

Note: Blank cells represent no data.

[a] Field operations were incomplete; greater than 40% of the run was missed based on historical run timing. Estimates were not made.

[b] Preliminary and subject to change.

Table 4.–Estimated subsistence king salmon harvest in the Kuskokwim Area, 1990–2014.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Kongiganak	1,559	729	929	680	1,281	1,095	1,108	1,376	1,128	1,153
N. Kuskokwim Bay	1,559	729	929	680	1,281	1,095	1,108	1,376	1,128	1,153
Tuntutuliak	4,174	4,156	3,750	3,905	5,019	3,928	4,256	3,159	3,797	3,412
Eek	4,923	2,617	2,057	2,496	2,976	3,679	2,786	2,009	2,215	1,730
Kasigluk	3,300	2,875	*3,150*	*3,609*	*3,351*	*3,208*	*3,294*	*3,480*	*2,617*	*5,473*
Nunapitchuk	4,192	4,004	4,123	3,852	4,580	4,543	3,479	3,605	4,502	4,215
Atmautluak	2,895	1,661	1,239	1,715	1,856	2,016	1,752	1,648	1,397	1,372
Napakiak	4,427	2,573	4,147	3,822	3,355	3,515	3,842	2,908	3,436	2,265
Napaskiak	6,586	4,008	5,299	5,566	6,521	4,862	5,261	4,756	4,901	3,633
Oscarville	1,263	1,476	*1,501*	1,496	1,390	1,046	995	*1,056*	754	1,543
Bethel	34,925	18,041	22,220	19,800	31,251	32,463	32,116	20,100	24,877	22,751
Kwethluk	10,657	7,298	6,949	9,280	9,546	9,907	9,786	6,319	7,502	6,366
Akiachak	8,395	5,607	8,130	7,678	7,622	6,410	5,689	6,699	6,026	5,210
Akiak	5,966	3,168	3,452	4,478	4,653	4,401	4,851	3,196	2,943	2,377
Tuluksak	2,022	3,114	2,330	3,662	4,414	4,175	3,309	5,456	3,554	2,239
Lower Kuskokwim River	93,725	60,598	68,347	71,359	86,534	84,153	81,416	64,391	68,521	62,586
Lower Kalskag	2,946	4,022	2,338	3,603	4,087	4,541	3,513	3,103	1,954	1,726
Upper Kalskag	1,618	1,031	1,321	1,682	1,297	1,447	1,304	941	1,394	1,670
Aniak	3,589	3,562	3,976	4,651	3,714	3,506	3,343	3,640	3,466	2,603
Chuathbaluk	1,718	998	986	1,443	1,013	2,461	914	1,204	730	1,035
Middle Kuskokwim River	9,871	9,613	8,621	11,379	10,111	11,955	9,074	8,888	7,544	7,034
Crooked Creek	971	916	583	707	1,126	874	890	963	768	702
Red Devil	297	154	400	449	409	412	359	404	243	141
Sleetmute	777	887	782	1,795	1,295	964	1,265	1,171	978	414
Stony River	574	614	247	445	391	534	596	874	*293*	46
Lime Village	399	70	*162*	40	195	180	*141*	57	241	145
McGrath	896	902	1,586	550	1,026	804	1,223	995	872	1,033
Takotna	74	0	*6*	0	0	*11*	*7*	*3*	2	0
Nikolai	635	337	818	426	449	938	398	212	380	284
Telida	-	-	-	-	-	-	-	-	-	-
Upper Kuskokwim River	4,623	3,880	4,584	4,412	4,891	4,717	4,879	4,679	3,777	2,765
Kuskokwim River Total	109,778	74,820	82,481	87,830	102,817	101,921	96,477	79,334	80,969	73,538
Quinhagak	3,881	3,753	4,394	3,634	3,977	2,864	3,506	3,186	3,774	2,815
Goodnews Bay	358	852	548	590	672	789	392	441	735	759
Platinum	202	20	67	75	74	24	*41*	14	*57*	69
South Kuskokwim Bay	4,441	4,625	5,009	4,299	4,723	3,677	3,939	3,641	4,566	3,643
Total Estimate	114,219	79,445	87,490	92,129	107,540	105,598	100,417	82,975	85,535	77,181

-continued-

Table 4.–Page 2 of 3.

Community	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kongiganak	1,285	1,612	1,349	2,003	2,663	1,536	1,729	*1,865*	2,233	1,243
N. Kuskokwim Bay	1,285	1,612	1,349	2,003	2,663	1,536	1,729	1,865	2,233	1,243
Tuntutuliak	2,826	2,958	3,907	2,657	3,912	4,545	4,469	4,614	*4,266*	3,067
Eek	2,140	2,035	2,514	2,075	2,954	3,133	*2,501*	*2,512*	*2,966*	1,982
Kasigluk	3,857	*5,054*	*4,685*	*4,711*	7,859	*5,242*	*4,905*	*5,167*	2,471	2,464
Nunapitchuk	3,425	3,328	4,503	3,179	4,921	4,103	4,121	4,661	*4,234*	3,468
Atmautluak	1,191	754	1,479	547	2,153	1,927	*1,758*	1,890	*1,298*	1,567
Napakiak	2,073	2,408	2,702	2,438	2,839	3,060	*5,125*	3,245	1,903	2,387
Napaskiak	4,175	4,596	3,922	3,390	4,058	4,485	5,877	6,392	4,555	5,372
Oscarville	*1,259*	1,779	1,115	1,153	1,325	1,069	1,052	1,360	1,351	754
Bethel	20,629	24,684	22,892	24,584	29,443	28,293	27,805	30,422	27,800	26,170
Kwethluk	5,174	6,460	6,880	4,206	7,157	6,089	7,258	6,466	8,451	7,130
Akiachak	6,311	6,978	6,946	2,493	7,131	5,411	5,561	7,621	9,719	7,361
Akiak	2,335	3,528	3,390	3,905	3,775	3,860	4,423	4,297	4,090	3,247
Tuluksak	2,464	2,520	2,860	3,286	3,766	2,655	2,372	*3,266*	2,937	3,212
Lower Kuskokwim River	57,859	67,082	67,795	58,624	81,293	73,872	77,228	81,914	76,040	68,181
Lower Kalskag	1,691	2,432	1,535	1,556	1,991	1,417	3,494	1,937	1,748	2,525
Upper Kalskag	1,234	1,149	1,545	1,328	2,498	2,533	1,569	1,383	2,435	1,696
Aniak	3,100	2,684	4,576	1,837	3,022	1,977	2,412	3,417	3,100	2,130
Chuathbaluk	281	700	505	405	1,460	913	887	*973*	772	877
Middle Kuskokwim River	6,306	6,965	8,161	5,126	8,971	6,840	8,362	7,710	8,055	7,228
Crooked Creek	592	689	859	582	946	948	736	*647*	488	608
Red Devil	95	174	293	31	156	181	232	301	148	258
Sleetmute	412	505	604	600	906	522	750	861	933	693
Stony River	*178*	167	415	118	688	*311*	*288*	*530*	514	704
Lime Village	69	251	*178*	34	69	*171*	*103*	*95*	*29*	*75*
McGrath	656	444	970	395	587	*910*	689	495	288	600
Takotna	0	5	10	*0*	16	*8*	0	*10*	*0*	*8*
Nikolai	144	280	535	*224*	493	*564*	696	*471*	184	298
Telida	-	-	-	-	-	-	-	-	-	-
Upper Kuskokwim River	2,146	2,515	3,864	1,984	3,861	3,615	3,494	3,409	2,584	3,244
Kuskokwim River Total	67,596	78,174	81,169	67,737	96,788	85,863	90,812	94,898	88,912	79,896
Quinhagak	3,053	3,177	2,649	2,563	4,563	3,505	5,163	4,686	3,125	3,312
Goodnews Bay	564	863	723	807	863	869	713	*647*	898	569
Platinum	99	57	154	45	122	74	45	*66*	42	61
South Kuskokwim Bay	3,716	4,097	3,526	3,415	5,548	4,448	5,921	5,399	4,065	3,942
Total Estimate	71,312	82,271	84,695	71,152	102,336	90,311	96,733	100,297	92,977	83,838

-continued-

Table 4.–Page 3 of 3.

Community	2010	2011	2012	2013	2014
Kongiganak	1,456	1,208	*287*	*641*	*964*
N. Kuskokwim Bay	1,456	1,208	287	641	964
Tuntutuliak	3,261	3,032	1,123	2,448	*574*
Eek	1,761	1,378	1,004	1,188	665
Kasigluk	3,014	2,823	552	2,919	205
Nunapitchuk	2,548	3,559	845	2,563	287
Atmautluak	1,088	1,236	234	1,592	108
Napakiak	1,674	1,963	457	1,588	311
Napaskiak	4,333	3,360	1,108	2,939	422
Oscarville	618	694	51	585	68
Bethel	26,157	25,093	7,321	17,246	3,089
Kwethluk	4,440	2,467	1,709	3,192	959
Akiachak	4,470	3,852	2,862	3,585	1,033
Akiak	3,625	2,455	*1,218*	1,449	530
Tuluksak	2,057	1,230	651	732	404
Lower Kuskokwim River	59,046	53,142	19,135	42,026	8,655
Lower Kalskag	1,030	1260	459	744	283
Upper Kalskag	1,496	1772	562	1,317	258
Aniak	2,262	2214	993	1,440	344
Chuathbaluk	551	409	103	155	90
Middle Kuskokwim River	5,339	5,655	2,117	3,656	975
Crooked Creek	240	402	124	*145*	35
Red Devil	33	186	225	*77*	83
Sleetmute	272	242	132	96	58
Stony River	189	134	*151*	51	24
Lime Village	*47*	*118*	29	*43*	*32*
McGrath	262	829	68	95	173
Takotna	*0*	0	*0*	*0*	*0*
Nikolai	402	450	276	283	235
Telida	-	-	-	-	-
Upper Kuskokwim River	1,445	2,361	1,005	790	609
Kuskokwim River Total	67,286	62,366	22,544	47,113	11,203
Quinhagak	2,793	2,588	2,396	3,143	3,723
Goodnews Bay	480	834	389	413	431
Platinum	17	62	24	39	46
South Kuskokwim Bay	3,290	3,484	2,809	3,595	4,200
Total Estimate	70,576	65,850	25,353	50,708	15,403

Note: Dashes indicate that harvest was not estimated, and numbers in italic are Bayesian inputted estimates. Italic numbers represent Bayesian inputted estimates. 2013 and 2014 data are preliminary.

Table 5.–Commercial salmon harvest and exvessel value, District W-1, Kuskokwim River, Kuskokwim Management Area, 1993–2015.

	King		Sockeye		Coho		Pink		Chum		Total	
Year	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)
1993	8,735	72,659	27,008	140,000	610,739	2,535,321	64	59	43,337	112,756	689,883	2,860,795
1994	16,211	126,892	49,365	188,691	724,689	2,875,803	30,930	8,967	271,115	381,639	1,092,310	3,581,992
1995	30,846	280,287	92,500	448,530	471,461	1,313,742	335	50	605,918	724,273	1,201,060	2,766,882
1996	7,419	23,665	33,878	97,176	937,299	1,824,683	1,621	744	207,877	170,977	1,188,094	2,117,245
1997	10,441	36,843	21,989	64,922	130,803	2,167,491	2	1	17,026	19,509	180,261	2,288,766
1998	17,359	74,387	60,906	209,860	210,481	516,024	92	55	207,809	183,307	496,647	983,633
1999	4,705	22,266	16,976	86,442	23,593	44,633	2	-	23,006	16,428	68,282	169,769
2000	444	3,044	4,130	14,272	261,379	489,644	7	3	11,570	7,967	277,530	514,930
2001	90	534	84	265	192,998	422,573	-	-	1,272	827	194,444	424,199
2002	72	212	84	196	83,463	124,763	-	-	1,900	1,190	85,519	126,361
2003	158	846	282	803	284,064	450,451	-	-	2,764	1,087	287,268	453,187
2004	2,305	9,815	8,532	19,549	435,407	907,791	-	-	20,150	6,611	466,394	943,766
2005	4,784	29,040	27,645	109,063	142,319	287,635	-	-	69,139	23,115	243,887	448,853
2006	2,777	16,192	12,618	41,891	185,598	378,318	1	1	44,070	14,988	245,064	451,390
2007	179	1,607	703	2,411	141,049	373,789	-	-	10,763	3,033	152,694	380,840
2008	8,865	70,988	15,601	59,777	142,862	396,329	15	4	30,516	11,212	197,859	538,310
2009	6,664	61,452	25,673	101,445	104,546	263,457	2	-	76,790	76,494	213,675	502,848
2010	2,731	53,134	22,428	167,575	58,031	382,452	-	-	93,148	162,445	176,338	765,606
2011	49	411	13,482	79,370	74,108	334,452	1	-	118,256	350,124	205,896	764,357
2012	14	225	2,857	16,154	86,389	323,687	-	0	65,171	257,932	154,431	597,998
2013	1	6	768	5,226	114,069	833,327	-	-	52,236	346,288	167,074	1,184,847
2014	-	-	2,720	19,943	117,588	751,850	3	-	19,080	71,563	139,391	843,356
2015	2	9	130	395	65,034	244,045	-	-	507	1,567	65,673	246,016
Average 2005–2014	2,606	23,306	12,450	60,286	116,656	432,530	2	0	57,917	131,719	189,631	647,840

Note: Does not include fish retained for personal use.

Table 6.–Kuskokwim River chum salmon weir-based escapement estimates, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	Kogrukluk River	Tatlawiksuk River	Salmon River (Aniak)
1990				26,556		
1991		7,675		23,093		
1992	30,595	11,183		42,569		
1993		13,804		30,163		
1994		15,723		[a]		
1995				32,967		
1996			24,214	48,238		
1997			5,906	7,975		
1998			[a]	[a]	[a]	
1999			8,684	14,134	9,739	
2000	11,691		3,507	11,416	7,076	
2001	[a]	19,310	11,287	31,587	23,863	
2002	35,854	9,958	6,534	52,973	24,539	
2003	41,812	11,725	33,648	23,779	[a]	
2004	38,646	11,796	15,012	24,405	21,245	
2005	[a]	35,696	14,834	194,887	55,599	
2006	47,491	25,652	42,318	188,003	32,776	42,825
2007	54,913	17,286	61,531	52,961	83,484	25,340
2008	20,030	12,550	29,396	44,744	30,129	9,459
2009	32,191	13,671	7,944	82,483	19,975	9,392
2010	19,222	13,042	26,275	69,258	37,737	
2011	18,329	10,011	46,650	76,823	88,202	
2012	[a]	16,981	33,310	[a]	44,569	
2013	22,381	12,911	37,879	65,664	32,249	7,723
2014	17,941	8,726	17,148	30,763	12,455	2,890
2015 [b]	23,039	6,337	17,551	33,201	10,379	5,657
Escapement Goal:				15,000–49,000		

Note: Blank cells represent no data.

[a] Field operations were incomplete and total annual escapement was not estimated.

[b] Preliminary and subject to change.

Table 7.–Estimated subsistence chum salmon harvest in the Kuskokwim Area, 1990–2014.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Kongiganak	1,009	978	1,584	708	1,414	1,269	1,763	753	1,579	1,049
N. Kuskokwim Bay	1,009	978	1,584	708	1,414	1,269	1,763	753	1,579	1,049
Tuntutuliak	6,592	4,697	6,245	3,325	5,346	3,509	6,119	2,435	3,640	1,709
Eek	3,014	790	1,324	250	591	899	999	556	795	484
Kasigluk	3,877	3,013	*4,076*	*2,522*	*2,663*	*2,774*	*4,047*	*1,951*	*2,543*	*4,777*
Nunapitchuk	6,448	5,840	9,195	4,895	4,560	4,264	6,255	2,465	4,885	4,428
Atmautluak	4,676	2,241	2,614	1,300	1,420	3,768	2,660	1,395	1,875	1,552
Napakiak	9,714	2,351	5,474	2,269	3,819	2,820	4,352	1,430	3,605	1,495
Napaskiak	11,334	6,703	7,817	3,653	5,797	4,137	6,200	2,318	3,771	2,529
Oscarville	1,400	1,147	*1,598*	561	676	740	1,548	*348*	378	1,530
Bethel	34,257	16,781	17,231	8,608	15,722	17,416	21,706	8,078	12,522	9,918
Kwethluk	11,451	5,714	8,001	3,499	6,340	6,114	12,043	3,266	4,508	3,582
Akiachak	10,565	5,921	9,532	3,308	5,998	3,992	5,019	1,615	2,218	2,696
Akiak	9,226	6,575	6,679	7,577	4,483	2,007	4,967	1,639	1,894	1,210
Tuluksak	5,863	5,454	4,632	3,774	2,395	2,698	3,208	2,790	3,044	1,480
Lower Kuskokwim River	118,417	67,227	84,418	45,541	59,810	55,138	79,123	30,286	45,678	37,390
Lower Kalskag	4,980	2,958	2,807	2,938	2,856	1,438	4,070	1,298	968	733
Upper Kalskag	1,406	3,139	3,040	591	836	1,326	1,565	349	464	649
Aniak	10,160	3,511	7,687	2,926	2,538	3,454	8,569	1,678	4,964	1,753
Chuathbaluk	4,408	2,138	2,644	2,879	1,495	1,701	2,175	1,135	925	698
Middle Kuskokwim River	20,954	11,746	16,178	9,334	7,725	7,919	16,379	4,460	7,321	3,833
Crooked Creek	2,977	1,326	1,242	664	757	332	355	313	2,527	830
Red Devil	1,613	1,133	1,500	927	1,318	882	727	499	462	169
Sleetmute	2,006	1,880	2,961	692	1,520	1,683	1,250	417	870	340
Stony River	1,234	638	1,165	775	881	1,311	443	600	*395*	296
Lime Village	2,350	830	*1,299*	497	1,600	789	*306*	244	964	1,015
McGrath	2,326	1,083	4,472	578	1,264	1,525	211	138	1,510	242
Takotna	64	0	*15*	0	6	*1*	*0*	*0*	15	0
Nikolai	875	396	914	334	293	297	229	60	519	87
Telida	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	13,445	7,286	13,568	4,467	7,639	6,820	3,521	2,271	7,262	2,979
Kuskokwim River Total	153,825	87,237	115,748	60,050	76,588	71,146	100,786	37,770	61,840	45,251
Quinhagak	3,161	1,631	2,287	1,053	1,401	669	943	572	1,375	1,587
Goodnews Bay	200	136	1,311	177	406	140	221	135	295	232
Platinum	149	4	137	0	51	3	*26*	0	*51*	33
South Kuskokwim Bay	3,510	1,771	3,735	1,230	1,858	812	1,190	707	1,721	1,852
Total Estimate	157,335	89,008	119,483	61,280	78,446	71,958	101,975	38,477	63,561	47,103

-continued-

Table 7.–Page 2 of 3.

Community	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kongiganak	1,839	2,399	3,247	897	2,958	1,960	2,420	*2,353*	1,755	1,420
N. Kuskokwim Bay	1,839	2,399	3,247	897	2,958	1,960	2,420	2,353	1,755	1,420
Tuntutuliak	2,622	2,585	4,150	1,288	2,546	3,568	4,024	3,350	*3,375*	3,330
Eek	636	402	1,228	578	688	877	*1,075*	*783*	*788*	782
Kasigluk	4,689	*5,158*	*5,513*	*3,581*	5,064	*4,194*	*5,461*	*4,309*	1,502	1,857
Nunapitchuk	4,865	4,724	8,002	2,865	5,053	4,167	5,150	6,619	*4,705*	3,468
Atmautluak	1,848	1,397	2,514	849	2,271	1,940	*2,337*	2,193	*2,177*	1,665
Napakiak	2,859	1,793	3,421	1,560	2,328	3,238	8,143	3,628	1,313	1,638
Napaskiak	2,757	2,364	4,010	2,061	2,705	2,205	4,323	3,032	2,400	1,451
Oscarville	*1,237*	1,831	1,319	804	828	686	1,151	932	847	534
Bethel	10,149	10,757	17,731	11,452	13,448	14,273	20,953	16,540	15,853	10,055
Kwethluk	5,232	4,601	8,019	2,294	4,288	4,328	6,328	6,291	5,729	4,111
Akiachak	4,719	3,170	5,173	2,650	3,880	2,428	4,333	4,782	6,856	2,872
Akiak	2,617	2,240	2,571	2,928	3,499	3,528	3,095	4,141	3,522	1,350
Tuluksak	2,492	2,068	3,719	894	2,433	2,183	3,094	*3,202*	2,920	1,570
Lower Kuskokwim River	46,722	43,090	67,370	33,804	49,031	47,615	69,466	59,803	51,988	34,683
Lower Kalskag	1,534	1,498	1,445	1,087	1,316	997	4,703	1,997	1,004	930
Upper Kalskag	1,550	1,502	2,460	516	1,656	1,201	2,469	294	2,432	329
Aniak	1,933	1,934	4,367	820	2,535	2,952	3,722	4,108	2,830	2,602
Chuathbaluk	654	2,711	1,458	2,502	2,352	530	1,451	*1,541*	593	937
Middle Kuskokwim River	5,671	7,645	9,730	4,925	7,859	5,680	12,345	7,940	6,859	4,798
Crooked Creek	809	1,211	1,417	750	1,583	1,064	1,513	*813*	352	519
Red Devil	54	334	384	63	135	214	41	186	188	244
Sleetmute	371	379	1,293	468	1,054	422	1,475	818	373	367
Stony River	*320*	172	696	361	754	*324*	*790*	*540*	1,247	771
Lime Village	451	651	*869*	110	199	*573*	*316*	*419*	*297*	*405*
McGrath	188	247	969	513	290	*470*	999	464	676	825
Takotna	0	10	1	*0*	0	*4*	0	*0*	*0*	*0*
Nikolai	56	53	187	*191*	277	*230*	308	*223*	54	292
Telida	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	2,249	3,057	5,816	2,456	4,292	3,301	5,442	3,464	3,187	3,423
Kuskokwim River Total	56,480	56,191	86,163	42,082	64,140	58,555	89,674	73,560	63,789	44,324
Quinhagak	895	808	2,011	559	1,383	994	2,754	2,249	1,794	1,557
Goodnews Bay	251	187	349	200	240	192	555	*395*	586	138
Platinum	82	60	95	19	42	21	108	*77*	106	28
South Kuskokwim Bay	1,228	1,055	2,455	778	1,665	1,207	3,417	2,720	2,486	1,723
Total Estimate	57,708	57,246	88,618	42,860	65,805	59,762	93,091	76,281	66,275	46,047

-continued-

Table 7.–Page 3 of 3.

Community	2010	2011	2012	2013	2014
Kongiganak	2,522	2,809	*1,638*	*1,397*	*1,915*
N. Kuskokwim Bay	2,522	2,809	1,638	1,397	1,915
Tuntutuliak	2,439	1,865	2,614	2,180	*2,967*
Eek	721	486	1,552	1,232	1,182
Kasigluk	2,338	2,029	3,261	2,197	3,612
Nunapitchuk	3,223	4,257	5,312	2,977	5,213
Atmautluak	1,386	1,864	2,701	2,409	3,327
Napakiak	1,759	1,546	1,711	1,185	2,392
Napaskiak	3,110	1,783	3,216	2,589	3,171
Oscarville	352	402	599	490	599
Bethel	9,575	15,324	26,872	12,506	18,017
Kwethluk	3,112	3,484	3,849	3,825	4,318
Akiachak	2,856	3,205	4,150	3,417	4,744
Akiak	1,163	2,421	*2,925*	2,212	2,982
Tuluksak	3,180	2,697	2,585	3,062	2,274
Lower Kuskokwim River	35,214	41,363	61,347	40,281	54,798
Lower Kalskag	691	1,643	3,284	1,214	1,458
Upper Kalskag	391	1,599	1,930	1,534	1,038
Aniak	2,515	2,391	5,667	2,880	4,695
Chuathbaluk	535	686	796	935	805
Middle Kuskokwim River	4,132	6,319	11,677	6,563	7,996
Crooked Creek	539	862	610	*1,803*	391
Red Devil	122	434	516	981	284
Sleetmute	524	689	1,004	542	633
Stony River	338	516	*491*	27	89
Lime Village	*314*	*499*	419	*909*	*295*
McGrath	944	476	885	598	642
Takotna	*0*	0	*0*	*12*	*0*
Nikolai	440	349	1,044	513	1,356
Telida	–	–	–	–	–
Upper Kuskokwim River	3,221	3,825	4,970	5,386	3,690
Kuskokwim River Total	45,089	54,316	79,631	53,627	68,398
Quinhagak	1,347	1,255	2,001	1,958	1,959
Goodnews Bay	324	349	322	153	268
Platinum	37	70	76	90	62
South Kuskokwim Bay	1,708	1,674	2,399	2,201	2,289
Total Estimate	46,797	55,990	82,030	55,828	70,687

Note: dashes indicate that harvest was not estimated and numbers in italic are Bayesian inputted estimates. En dash (–) indicates harvest was not estimated. 2013 and 2014 data are preliminary.

Table 8.–Kuskokwim River sockeye salmon weir-based escapement estimates, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	Kogrukluk River	Telaquana River	Salmon River (Aniak)
1990				8,383		
1991		34		15,542		
1992	1,316	129		7,833		
1993		88		27,973		
1994		82		[a]		
1995				11,145		
1996			86	15,176		
1997			445	13,144		
1998			[a]	6,036		
1999			39	5,893		
2000	1,049		22	2,895		
2001	[a]	137	24	7,177		
2002	272	82	17	4,084		
2003	2,928	288	14	9,302		
2004	3,490	136	177	6,895		
2005	[a]	642	272	37,787		
2006	6,733	985	146	61,382		7,086
2007	5,148	352	65	17,211		2,189
2008	2,451	188	92	19,675		1,181
2009	4,230	686	54	22,826		1,366
2010	4,188	437	113	17,139	71,932	[a]
2011	2,031	130	43	7,974	35,102	[a]
2012	[a]	189	79	[a]	23,005	924
2013	746	394	150	7,808	28,050	966
2014	3,778	514	156	6,413	24,293	894
2015 [b]	8,975	824	159	6,411	95,516	1,669
Escapement Goal:				4,400–17,000		

Note: Blank cells represent no data.

[a] Field operations were incomplete and no total annual escapement was estimated.

[b] Preliminary and subject to change.

Table 9.–Estimated subsistence sockeye salmon harvest in the Kuskokwim Area, 1990–2014.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Kongiganak	552	498	923	583	743	658	951	976	878	908
N. Kuskokwim Bay	552	498	923	583	743	658	951	976	878	908
Tuntutuliak	2,132	1,768	1,846	1,063	3,289	1,082	1,561	1,724	1,227	2,070
Eek	1,293	479	669	363	452	308	526	503	375	595
Kasigluk	843	1,376	*1,690*	*1,608*	*976*	*1,179*	*1,127*	*1,315*	*1,012*	*3,287*
Nunapitchuk	1,520	2,193	2,329	2,743	1,633	870	1,877	2,082	2,029	3,258
Atmautluak	1,696	830	1,193	1,313	837	1,173	1,408	681	982	1,743
Napakiak	1,548	1,187	1,663	1,217	1,533	887	1,106	1,526	1,487	2,018
Napaskiak	1,660	2,850	3,116	3,508	1,933	1,573	3,180	2,209	1,457	1,929
Oscarville	287	726	*938*	957	398	301	208	*442*	249	1,724
Bethel	11,787	11,428	9,225	9,501	11,370	8,802	10,556	10,233	8,464	12,094
Kwethluk	4,271	3,746	1,958	3,802	3,864	2,536	3,963	3,288	3,785	3,485
Akiachak	3,461	4,029	3,970	4,990	3,241	1,942	2,767	2,737	2,395	3,066
Akiak	1,873	1,696	1,769	3,537	1,740	809	1,544	1,327	1,640	1,151
Tuluksak	1,225	3,427	2,063	2,452	1,390	1,270	1,108	1,514	1,413	1,412
Lower Kuskokwim River	33,596	35,735	32,428	37,054	32,656	22,732	30,931	29,581	26,515	37,832
Lower Kalskag	1,007	1,080	503	2,286	989	679	1,387	1,277	546	583
Upper Kalskag	284	314	354	346	288	82	284	216	238	586
Aniak	1,539	2,073	1,213	1,609	751	955	1,295	1,078	1,132	1,302
Chuathbaluk	1,157	1,471	497	822	924	465	687	796	223	441
Middle Kuskokwim River	3,987	4,938	2,567	5,063	2,952	2,181	3,653	3,367	2,139	2,912
Crooked Creek	1,607	968	738	752	558	177	311	350	717	710
Red Devil	455	391	355	662	336	576	914	637	692	497
Sleetmute	1,153	1,347	794	1,643	1,120	1,109	1,341	1,458	1,282	879
Stony River	933	1,966	1,389	1,485	758	1,281	1,267	1,626	*1,023*	1,018
Lime Village	2,125	1,110	*1,304*	2,743	1,733	857	*1,225*	642	2,782	2,619
McGrath	1,489	416	2,494	1,465	1,501	1,652	111	52	146	0
Takotna	0	0	*1*	0	0	*2*	*1*	*1*	0	0
Nikolai	0	1	0	5	25	65	23	0	16	43
Telida	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	7,762	6,199	7,075	8,755	6,031	5,719	5,193	4,766	6,658	5,766
Kuskokwim River Total	45,897	47,370	42,993	51,455	42,382	31,290	40,728	38,690	36,190	47,418
Quinhagak	1,710	1,818	1,448	1,228	962	597	499	460	1,368	1,433
Goodnews Bay	982	1,061	1,293	733	646	202	387	480	499	715
Platinum	163	134	238	48	90	32	*56*	143	*80*	106
South Kuskokwim Bay	2,855	3,013	2,979	2,009	1,698	831	942	1,083	1,947	2,254
Total Estimate	48,752	50,383	45,972	53,464	44,080	32,121	41,669	39,773	38,137	49,672

-continued-

Table 9.–Page 2 of 3.

Community	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kongiganak	1,770	1,546	1,347	929	1,809	1,103	1,464	*960*	1,502	1,018
N. Kuskokwim Bay	1,770	1,546	1,347	929	1,809	1,103	1,464	960	1,502	1,018
Tuntutuliak	1,180	1,702	1,045	1,148	1,620	2,145	1,834	1,763	*2,120*	932
Eek	883	1,085	759	586	567	1,033	*684*	*558*	*834*	1,019
Kasigluk	3,805	*3,213*	*2,111*	*2,429*	1,668	*1,634*	*2,248*	*1,786*	1,041	1,215
Nunapitchuk	2,194	2,529	1,500	1,714	1,659	1,821	1,871	2,147	*2,549*	1,538
Atmautluak	1,540	988	1,150	679	1,103	1,444	*1,012*	1,041	*1,250*	624
Napakiak	1,916	1,917	1,688	1,453	1,351	2,122	1,845	1,962	1,244	917
Napaskiak	2,525	3,377	1,296	1,643	1,148	1,344	1,784	1,738	2,620	1,579
Oscarville	*1,115*	1,451	400	806	436	278	778	712	677	332
Bethel	11,613	14,264	8,850	12,198	11,679	14,297	12,816	13,902	15,247	11,272
Kwethluk	3,859	4,191	2,100	1,903	3,302	2,457	2,770	3,536	4,920	2,432
Akiachak	3,687	4,680	2,507	1,607	3,109	2,372	2,661	3,269	4,354	2,407
Akiak	1,036	2,005	1,214	995	1,258	1,920	2,000	3,695	2,881	1,290
Tuluksak	2,201	1,862	1,205	875	1,670	987	2,247	*1,845*	2,133	1,691
Lower Kuskokwim River	37,554	43,264	25,825	28,036	30,570	33,854	34,550	37,955	41,869	27,248
Lower Kalskag	824	918	347	515	775	439	1,434	780	1,583	1,044
Upper Kalskag	588	319	508	431	686	945	563	417	1,000	369
Aniak	1,136	2,167	1,059	756	996	1,015	692	1,261	1,585	923
Chuathbaluk	476	614	313	274	526	369	508	*484*	363	564
Middle Kuskokwim River	3,024	4,018	2,227	1,976	2,983	2,768	3,197	2,942	4,531	2,900
Crooked Creek	514	640	449	571	732	693	544	*523*	220	329
Red Devil	109	360	109	309	88	272	510	318	359	477
Sleetmute	725	1,008	706	504	980	673	1,181	1,303	1,164	684
Stony River	*654*	163	602	158	896	*688*	*746*	*1,019*	1,476	977
Lime Village	1,409	1,453	*1,186*	374	874	*1,368*	*1,216*	*1,406*	*659*	*1,080*
McGrath	43	273	407	112	194	*454*	149	375	417	965
Takotna	0	0	0	*1*	0	*1*	0	*1*	*3*	*3*
Nikolai	0	0	22	*2*	1	*10*	20	*14*	13	66
Telida	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	3,454	3,897	3,481	2,031	3,765	4,160	4,365	4,960	4,310	4,581
Kuskokwim River Total	45,802	52,725	32,880	32,973	39,127	41,885	43,577	46,817	52,213	35,747
Quinhagak	1,368	1,054	909	805	1,375	1,745	3,128	1,755	2,097	1,960
Goodnews Bay	951	908	855	705	873	1,213	995	*920*	1,739	902
Platinum	188	83	257	64	183	90	63	*121*	156	186
South Kuskokwim Bay	2,507	2,045	2,021	1,574	2,431	3,048	4,186	2,796	3,992	3,048
Total Estimate	48,309	54,770	34,901	34,547	41,558	44,933	47,763	49,613	56,205	38,795

-continued-

Table 9.–Page 3 of 3.

Community	2010	2011	2012	2013	2014
Kongiganak	1,869	1,266	*1,307*	*1,031*	*1,230*
N. Kuskokwim Bay	1,869	1,266	1,307	1,031	1,230
Tuntutuliak	2,068	1,274	1,516	1,183	*1,774*
Eek	1,241	664	1,490	1,319	1,450
Kasigluk	1,441	1,269	1,451	1,470	1,990
Nunapitchuk	1,902	2,223	2,396	1,806	2,059
Atmautluak	731	827	1,623	1,316	1,531
Napakiak	1,183	1,351	1,141	1,105	1,573
Napaskiak	1,979	1,587	2,065	2,069	2,514
Oscarville	250	228	323	347	679
Bethel	11,103	16,946	18,282	12,616	14,828
Kwethluk	2,534	2,357	2,884	2,705	5,921
Akiachak	2,433	2,647	3,443	2,594	3,047
Akiak	1,161	2,576	*1,818*	1,731	2,418
Tuluksak	2,483	1,699	1,380	1,541	622
Lower Kuskokwim River	30,509	35,648	39,812	31,802	40,406
Lower Kalskag	507	802	891	977	1,040
Upper Kalskag	460	938	770	662	839
Aniak	1,165	1,168	1,375	1,466	1,578
Chuathbaluk	403	300	297	480	481
Middle Kuskokwim River	2,535	3,208	3,333	3,585	3,938
Crooked Creek	302	243	234	*514*	391
Red Devil	475	502	511	270	151
Sleetmute	1,024	693	715	362	541
Stony River	372	303	*469*	447	137
Lime Village	*932*	*739*	780	*831*	*888*
McGrath	650	630	233	538	451
Takotna	*2*	0	2	2	3
Nikolai	65	13	0	0	236
Telida	–	–	–	–	–
Upper Kuskokwim River	3,822	3,123	2,945	2,964	2,798
Kuskokwim River Total	38,735	43,245	47,396	39,382	48,372
Quinhagak	1,719	1,582	2,015	2,158	2,939
Goodnews Bay	1,093	1,328	1,197	1,113	1,370
Platinum	175	135	173	181	349
South Kuskokwim Bay	2,987	3,045	3,385	3,452	4,658
Total Estimate	41,722	46,290	50,781	42,834	53,030

Note: En dashes (–) indicate that harvest was not estimated and italic numbers indicate Bayesian inputted estimates. 2013 and 2014 data are preliminary.

Table 10.–Kuskokwim River coho salmon weir-based escapement estimates, 1990–2015.

Year	Kwethluk River	Tuluksak River	George River	Kogrukluk River	Tatlawiksuk River	Salmon River (Aniak)
1990				3,446		
1991		4,651		7,206		
1992	45,605	7,501		[a]		
1993		8,328		[a]		
1994		7,952		28,110		
1995				[a]		
1996			[a]	50,003		
1997			9,392	11,883		
1998			[a]	22,987	[a]	
1999			8,914	10,908	3,621	
2000	25,610	[a]	11,269	33,063	[a]	
2001	20,725	23,768	16,724	19,983	[a]	
2002	23,298	11,487	6,759	14,515	11,156	
2003	107,789	41,071	32,873	74,915	[a]	
2004	64,216	20,336	12,499	26,078	16,446	
2005	[a]	11,324	8,294	25,407	7,076	
2006	25,667	6,111	12,705	16,268	[a]	[a]
2007	19,473	2,807	28,398	26,423	8,500	[a]
2008	48,049	7,457	21,931	29,237	11,022	10,974
2009	21,911	8,137	12,490	22,289	10,148	6,351
2010	[a]	1,525	12,639	14,689	3,773	[a]
2011	[a]	[a]	29,120	21,800	14,184	[a]
2012	20,895	4,407	14,478	13,421	8,015	[a]
2013		6,490	15,308	21,207	12,764	2,797
2014	43,945	13,797	35,771	52,975	19,814	8,254
2015 [b]	22,443	6,611	35,812	32,457	17,701	[a]
Escapement Goal:	>19,000			13,000–28,000		

Note: Blank cells represent no data.

[a] Field operations were incomplete and no total annual escapement was estimated.

[b] Preliminary and subject to change.

Table 11.–Estimated subsistence coho salmon harvest in the Kuskokwim Area, 1990–2014.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Kongiganak	474	490	605	448	569	662	579	514	204	203
N. Kuskokwim Bay	474	490	605	448	569	662	579	514	204	203
Tuntutuliak	1,287	733	693	820	364	339	1,335	558	858	277
Eek	1,800	387	502	160	399	387	437	63	314	242
Kasigluk	922	1,723	*1,388*	*372*	*532*	*90*	*519*	*170*	*330*	*3,906*
Nunapitchuk	746	1,131	2,242	318	749	629	1,444	732	345	368
Atmautluak	398	237	333	380	402	634	534	485	283	190
Napakiak	1,470	599	1,570	586	871	344	602	161	739	459
Napaskiak	1,139	798	1,108	780	2,016	584	506	592	488	316
Oscarville	57	147	*151*	0	48	0	15	*0*	0	779
Bethel	32,988	17,677	24,908	12,310	17,082	22,007	21,982	17,077	12,058	11,565
Kwethluk	3,928	2,311	2,419	1,809	1,880	1,690	2,995	1,104	1,583	2,883
Akiachak	1,910	2,337	3,058	1,102	1,281	628	903	383	409	662
Akiak	1,789	2,193	1,072	1,373	1,099	481	920	798	521	259
Tuluksak	978	1,854	1,629	408	223	522	1,175	418	812	298
Lower Kuskokwim River	49,412	32,127	41,074	20,418	26,946	28,335	33,367	22,541	18,740	22,204
Lower Kalskag	445	500	526	823	881	715	1,246	572	345	285
Upper Kalskag	346	527	972	353	178	257	348	661	834	155
Aniak	1,669	1,171	1,933	1,104	1,768	1,244	2,723	1,428	1,284	1,419
Chuathbaluk	826	87	368	366	741	79	409	196	50	138
Middle Kuskokwim River	3,286	2,285	3,799	2,646	3,568	2,295	4,726	2,857	2,513	1,997
Crooked Creek	922	279	712	396	646	358	175	261	394	529
Red Devil	914	1,038	1,284	1,673	1,074	1,539	1,135	1,455	504	424
Sleetmute	1,036	1,588	937	912	626	1,104	870	419	267	210
Stony River	474	513	727	511	477	1,023	529	455	*378*	423
Lime Village	486	390	*345*	606	1,467	223	*607*	270	776	701
McGrath	466	477	2,146	563	998	604	824	745	734	338
Takotna	0	0	*4*	0	0	*6*	*6*	*2*	3	0
Nikolai	90	65	204	285	94	499	36	130	97	73
Telida	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	4,388	4,350	6,358	4,946	5,382	5,356	4,182	3,737	3,153	2,698
Kuskokwim River Total	57,560	39,252	51,836	28,458	36,465	36,648	42,854	29,649	24,611	27,102
Quinhagak	3,799	3,230	3,291	2,029	2,544	2,480	1,734	1,105	1,537	1,781
Goodnews Bay	1,630	1,704	1,671	1,118	428	268	330	348	323	421
Platinum	95	36	290	27	87	11	*46*	55	*75*	147
South Kuskokwim Bay	5,524	4,970	5,252	3,174	3,059	2,759	2,110	1,508	1,935	2,349
Total Estimate	63,084	44,222	57,088	31,632	39,524	39,407	44,964	31,157	26,546	29,451

-continued-

Table 11.–Page 2 of 3.

Community	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kongiganak	339	919	1,138	236	937	740	657	*883*	557	561
N. Kuskokwim Bay	339	919	1,138	236	937	740	657	883	557	561
Tuntutuliak	3,264	335	1,239	2,092	1,189	1,074	948	703	*1,620*	359
Eek	493	241	821	747	1,018	378	*773*	*459*	*661*	176
Kasigluk	9,726	*1,058*	*2,195*	*1,762*	5,034	*1,304*	*3,070*	*1,753*	867	629
Nunapitchuk	355	425	821	627	555	807	692	1,752	*508*	286
Atmautluak	227	375	612	283	744	530	*254*	424	*262*	67
Napakiak	453	667	793	992	1,648	742	2,363	1,244	1,006	420
Napaskiak	836	455	717	983	655	602	1,640	639	903	786
Oscarville	*216*	90	161	19	304	60	175	180	62	67
Bethel	13,478	14,108	15,489	15,062	17,040	12,994	18,810	12,972	15,839	12,895
Kwethluk	3,435	1,773	2,706	1,787	3,430	3,048	1,245	1,624	7,262	4,333
Akiachak	2,555	1,912	1,690	1,627	2,397	1,817	1,714	2,355	4,311	1,790
Akiak	479	594	1,136	1,094	1,342	1,847	379	1,325	1,358	661
Tuluksak	520	1,136	1,349	921	1,007	484	498	*1,131*	635	857
Lower Kuskokwim River	36,037	23,169	29,729	27,996	36,363	25,687	32,561	26,561	35,293	23,326
Lower Kalskag	403	597	281	314	368	319	1,415	515	76	318
Upper Kalskag	286	536	1,069	462	1,500	594	1,799	381	2,350	181
Aniak	1,911	2,006	3,737	1,164	2,355	2,032	1,018	3,003	2,883	2,223
Chuathbaluk	462	733	610	259	284	346	727	*419*	525	96
Middle Kuskokwim River	3,062	3,872	5,697	2,199	4,507	3,291	4,959	4,318	5,834	2,818
Crooked Creek	137	97	440	375	713	312	401	*289*	952	283
Red Devil	161	426	499	351	65	331	171	193	307	126
Sleetmute	525	428	806	731	505	581	671	360	228	403
Stony River	*348*	397	662	214	679	*468*	*322*	*336*	552	634
Lime Village	556	559	*680*	46	231	*372*	*132*	*443*	*695*	*210*
McGrath	881	436	1,508	997	1,228	*799*	894	279	247	1,175
Takotna	20	31	25	*6*	51	*8*	0	*8*	*6*	*28*
Nikolai	30	131	93	*379*	171	*166*	407	*95*	53	203
Telida	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	2,658	2,505	4,713	3,099	3,643	3,037	2,998	2,005	3,040	3,062
Kuskokwim River Total	42,096	30,465	41,277	33,531	45,450	32,755	41,175	33,766	44,724	29,767
Quinhagak	1,042	1,719	1,133	1,868	1,435	1,558	1,315	1,550	1,869	1,824
Goodnews Bay	380	548	198	1,228	1,542	634	605	*468*	769	261
Platinum	100	118	96	144	266	223	116	*106*	114	81
South Kuskokwim Bay	1,522	2,385	1,427	3,240	3,243	2,415	2,036	2,124	2,752	2,166
Total Estimate	43,618	32,850	42,704	36,771	48,693	35,170	43,211	35,890	47,476	31,933

-continued-

Table 11.–Page 3 of 3.

Community	2010	2011	2012	2013	2014
Kongiganak	483	613	*356*	*412*	*561*
N. Kuskokwim Bay	483	613	356	412	561
Tuntutuliak	698	250	565	450	*794*
Eek	315	280	612	483	555
Kasigluk	1,043	430	303	418	851
Nunapitchuk	195	407	319	226	1,305
Atmautluak	36	263	383	203	176
Napakiak	877	927	402	634	740
Napaskiak	1,029	471	269	772	1,153
Oscarville	12	43	38	37	128
Bethel	20,426	18,141	13,280	12,662	19,364
Kwethluk	1,495	1,097	1,013	1,555	4,422
Akiachak	1,181	1,440	714	1,106	1,845
Akiak	475	505	*455*	454	1,501
Tuluksak	330	163	341	473	808
Lower Kuskokwim River	28,112	24,417	18,694	19,473	33,642
Lower Kalskag	96	684	1,107	529	907
Upper Kalskag	92	998	360	636	938
Aniak	2,533	2,215	3,365	3,102	9,566
Chuathbaluk	76	109	179	319	291
Middle Kuskokwim River	2,797	4,006	5,011	4,586	11,702
Crooked Creek	87	297	149	*255*	198
Red Devil	88	130	238	318	792
Sleetmute	458	426	784	219	993
Stony River	201	333	*358*	120	177
Lime Village	*146*	*596*	117	*384*	*226*
McGrath	1,053	1,331	2,257	523	1,189
Takotna	*20*	3	22	0	0
Nikolai	135	20	214	119	256
Telida	–	–	–	–	–
Upper Kuskokwim River	2,188	3,136	4,139	1,938	3,831
Kuskokwim River Total	33,580	32,172	28,200	26,409	49,736
Quinhagak	1,599	1,369	1,380	1,087	2,240
Goodnews Bay	319	259	382	295	371
Platinum	197	143	124	50	240
South Kuskokwim Bay	2,115	1,771	1,886	1,432	2,851
Total Estimate	35,695	33,943	30,086	27,841	52,587

Note: En dashes (–) indicate that harvest was not estimated and italic numbers indicate Bayesian inputted estimates. 2013 and 2014 data are preliminary.

Table 12.–Weir-based salmon spawning escapement, Kanektok River, Kuskokwim Bay, 2001–2015.

Year	King	Sockeye	Chum	Pink [a]	Coho
2001	[b]	[b]	[b]	14	32,720 [c]
2002	5,304	60,228	41,912	85,057	24,840 [c]
2003	8,211	128,030	40,086	2,301	72,448 [c]
2004	19,569	105,135	46,008	89,138	87,827 [c]
2005	14,177	268,537	55,340	3,511	13,700 [c]
2006					
2007	13,965	304,086	131,000	3,032	26,452 [c]
2008	[b]	[b]	[b]	140,468	24,490 [d]
2009	7,065	305,756	55,846	1,246	2,336 [e]
2010	6,537	204,954	68,186	114,074	330 [e]
2011	5,170	88,177	53,050	530	5,779 [e]
2012	1,561	115,021	28,726	62,141	4,248 [e]
2013	3,569	128,761	43,040	532	3,116 [e]
2014	3,594	259,406	18,602	25,141	4,786 [e]
2015 [f]	10,416	106,751	15,048	1,058	2,493 [e]

Note: Blank cells represent no data.

[a] The operational period is inclusive of days when passage was estimated; unless noted otherwise, less than 20% of the total annual escapement is estimated.

[b] Pink salmon numbers represent actual counts. No estimates of missed escapement due to picket spacing allowing unmonitored passage of small pink salmon.

[c] Field operations were incomplete and total annual escapement was not estimated.

[d] Field operations were incomplete; sum of daily counts is an underestimate of total escapement but considered reasonable. Additional estimates were not made.

[e] Field operations were incomplete; more than 20% of the total estimate is based on daily passage estimates.

[f] Preliminary and subject to change.

Table 13.–Salmon spawning aerial survey index estimates, Kanektok River, Kuskokwim Bay, 1977–2015.

Year	King	Sockeye
1977	5,787	6,404
1978	19,180	42,890
1979		
1980	6,172	112,501
1981		
1982		
1983	8,890	
1984	12,182	30,840
1985	13,465	15,570
1986	3,643	12,090
1987	4,213	51,753
1988	11,180	30,440
1989	7,914	14,735
1990		
1991		
1992		
1993		
1994	7,386	
1995		
1996		
1997		
1998		
1999		
2000		
2001		
2002		
2003	6,206	21,335
2004	28,375	77,780
2005	12,780	95,900
2006		
2007		
2008		
2009		
2010	1,208	16,180
2011		
2012		
2013	2,277	51,517
2014	1,840	136,400
2015	4,919	39,970
Escapement Goal:	3,500–8,000	14,000–34,000

Note: Estimates are from aerial surveys conducted during peak spawning periods under “good” or “fair” survey conditions. Blank cells represent no data. No data exist because the survey was either not flown or did not meet acceptable criteria.

Table 14.–Commercial salmon fishing exvessel value, District 4, Quinhagak, Kuskokwim Bay, 1990–2015.

	King		Sockeye		Coho		Pink		Chum		Total	
Year	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)
1990	27,644	253,562	83,681	542,485	26,926	123,936	12,056	4,146	47,717	89,343	198,024	1,013,472
1991	9,480	94,950	53,657	246,734	42,571	144,379	115	52	54,493	106,321	160,316	592,436
1992	17,197	166,471	60,929	368,310	86,404	303,740	64,217	15,875	73,383	139,268	302,130	993,664
1993	15,784	143,506	80,934	402,763	55,817	246,746	7	4	40,943	105,236	193,485	898,255
1994	8,564	67,584	72,314	253,922	83,912	420,802	35,904	10,454	61,301	84,395	261,995	837,157
1995	38,584	418,067	68,194	323,104	66,203	201,413	186	81	81,462	104,523	254,629	1,047,188
1996	14,165	61,004	57,665	165,100	118,718	246,930	20	6	83,005	61,686	273,573	534,726
1997	35,510	171,688	69,562	204,190	32,862	91,584	5	0	38,445	29,609	176,384	497,071
1998	23,158	82,168	41,382	150,631	80,183	197,676	2,217	871	45,095	36,497	192,035	467,843
1999	18,426	94,880	41,315	140,846	6,184	14,997	0	0	38,091	28,368	104,016	279,091
2000	21,229	131,351	68,557	249,382	30,529	31,898	3	1	30,553	23,929	150,871	436,561
2001	12,775	93,697	33,807	89,334	18,531	32,577	0	0	17,209	13,007	82,322	228,615
2002	11,480	56,356	17,802	40,368	26,695	47,651	0	0	29,252	23,374	85,229	167,749
2003	14,444	69,201	33,941	107,287	49,833	108,804	0	0	27,868	19,261	126,086	304,553
2004	25,465	107,700	34,627	77,394	82,398	201,879	0	0	25,820	18,372	168,310	405,345
2005	24,195	221,854	68,801	241,478	51,780	101,776	19	4	13,529	6,853	158,324	571,965
2006	19,184	147,802	106,308	327,917	26,831	61,433	0	0	39,151	14,030	191,474	551,182
2007	19,573	163,248	109,343	374,004	34,710	102,569	0	0	61,228	21,044	224,854	660,865
2008	13,812	140,580	69,743	272,427	94,257	317,143	0	0	57,033	20,581	234,845	750,731
2009	13,920	130,561	112,153	384,209	48,115	136,562	0	0	91,158	95,993	265,346	747,325
2010	14,230	294,163	138,362	1,049,395	13,690	117,658	0	0	106,610	194,105	272,892	1,655,321
2011	15,387	166,606	38,543	207,642	30,457	198,333	0	0	104,959	603,855	189,346	1,176,436
2012	6,675	85,934	37,688	208,023	31,214	167,638	0	0	61,140	362,840	136,717	824,435
2013	2,054	35,126	26,393	154,135	21,126	172,739	0	0	58,079	399,537	107,652	761,537
2014	2,265	22,940	58,879	408,358	52,317	353,551	0	0	14,563	59,885	128,024	844,734
2015	7,547	37,659	30,269	90,164	76,285	312,926	0	0	16,051	50,732	130,152	491,481
10-Yr Avg.	13,130	140,881	76,621	362,759	40,450	172,940	2	0	60,745	177,872	190,947	854,453

Note: 2014 and 2015 data are preliminary.

Table 15.–Weir-based salmon spawning escapement, Middle Fork Goodnews River, Kuskokwim Bay, 1991–2015.

Year	King	Sockeye	Coho	Pink [a]	Chum
1991	2,080	41,656	[b]	1,428	27,632
1992	1,445	[b]	[b]	21,523	21,096
1993	2,132	24,957	[b]	318	14,581
1994	3,061	56,503	[b]	38,710	35,652
1995	4,678	37,776	[b]	312	33,559
1996	[b]	[b]	[b]	14,509	[b]
1997	2,897	34,322	13,404	940	17,151
1998	3,553	38,493	33,368	10,376	26,996
1999	3,703	49,321	11,320	907	21,818
2000	2,670	40,828	[b]	2,524	14,405
2001	5,351	21,194	18,300	1,323	26,820
2002	3,025	21,329	27,643	3,034	29,905
2003	2,248	37,933	52,504	1,864	21,778
2004	4,438	54,035	42,049	21,584	32,442
2005	4,781	118,969	20,168	5,926	26,501
2006	4,572	127,245	26,909	18,432	54,689
2007	3,914	73,768	19,442	4,919	50,232
2008	2,223	43,879	37,690	9,807	39,548
2009	1,669	27,494	19,123	714	19,236
2010	2,176	36,574	26,287	3,444	24,789
2011	2,045	19,643	24,668	1,394	19,974
2012	524	29,531	[b]	6,316	9,065
2013	1,187	23,545	[b]	530	27,682
2014	750	41,473	5,294 [c]	9,287	11,518
2015 [d]	1,494	57,809	15,084 [c]	1,159	11,517
Escapement Goal:	1,500–2,900	18,000–40,000	>12,000		>12,000

[a] Total pink salmon passage is not estimated because they are small enough to pass between weir pickets.

[b] Field operations were incomplete and total annual escapement was not estimated.

[c] Field operations were completed on August 30. Sum of daily counts is considered a minimum estimate of escapement.

[d] Preliminary and subject to change.

Table 16.–Salmon spawning aerial survey index estimates, Goodnews rivers and lakes, Kuskokwim Bay, 1980–2015.

	Goodnews River and Lakes	
Year	King	Sockeye
1980	1,228	75,639
1981		
1982		
1983	2,600	9,650
1984	2,062	12,807
1985	3,535	4,620
1986	1,068	8,960
1987	2,244	19,786
1988		
1989	651	
1990	658	27,689
1991		
1992	875	
1993		
1994		
1995	3,314	
1996		
1997		
1998	578	3,497
1999		
2000		
2001		
2002	1,470	
2003	3,935	50,140
2004	7,482	31,695
2005		
2006		
2007		
2008	2,155	32,500
2009		
2010		
2011	853	14,140
2012	378	16,710
2013		
2014	630	
2015	991	38,390
Escapement Goal:	640–3,300	5,500–19,500

Note: Estimates are from aerial surveys conducted during peak spawning periods under "good" or "fair" survey conditions. Blank cells represent no data. No data exist because the survey was either not flown or did not meet acceptable criteria.

Table 17.–Commercial salmon fishing exvessel value, District W-5 Goodnews Bay, Kuskokwim Bay, 1990–2015.

	King		Sockeye		Coho		Pink		Chum		Total	
Year	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)	Number	Value ($)
1990	3,303	32,135	35,823	263,598	7,804	38,910	629	254	13,194	25,767	60,753	360,664
1991	912	8,370	39,838	187,622	13,312	47,519	29	14	15,892	31,394	69,983	274,919
1992	3,528	30,688	39,194	257,457	19,875	75,278	14,310	2,913	18,520	39,111	95,427	405,447
1993	2,117	21,351	59,293	296,437	20,014	95,043	0	0	10,657	28,304	92,081	441,135
1994	2,570	21,732	69,490	309,577	47,499	271,687	18,017	5,442	28,477	41,309	166,053	649,747
1995	2,922	31,339	37,351	175,552	17,875	58,061	39	19	19,832	21,427	78,019	286,398
1996	1,375	5,952	30,717	87,427	43,836	120,191	22	4	11,093	9,015	87,043	222,589
1997	2,039	10,867	31,451	93,146	2,983	9,497	0	0	11,729	9,358	48,202	122,868
1998	3,675	13,685	27,161	100,171	21,246	59,102	411	174	14,155	11,133	66,648	184,265
1999	1,888	9,020	22,910	78,800	2,474	7,515	0	0	11,562	8,327	38,834	103,662
2000	4,442	25,614	37,252	146,708	15,531	34,689	7	2	7,450	6,001	64,682	213,014
2001	1,519	10,496	25,654	68,678	9,275	17,089	0	0	3,412	2,586	39,860	98,849
2002	979	343	6,304	15,846	3,041	5,634	0	0	3,799	2,979	14,123	24,802
2003	1,412	6,461	29,423	95,818	12,658	28,945	0	0	5,593	3,883	49,086	135,107
2004	2,565	10,857	20,523	49,741	24,089	70,404	0	0	5,965	4,244	53,142	135,246
2005	2,035	16,696	23,933	91,135	11,735	25,010	0	0	2,568	1,454	40,271	134,295
2006	2,892	21,314	29,857	87,996	12,436	27,587	0	0	11,568	4,368	56,753	141,265
2007	3,126	23,951	43,766	156,802	13,697	38,796	6	0	7,853	2,781	68,448	222,330
2008	1,281	13,181	27,236	104,296	22,547	76,683	0	0	10,408	3,910	61,472	198,070
2009	1,509	13,333	32,544	134,244	8,406	25,456	0	0	16,985	18,998	59,444	192,031
2010	1,752	44,910	41,074	334,366	4,900	44,706	0	0	26,914	46,679	74,640	470,661
2011	2,092	19,224	24,573	141,347	15,358	106,471	0	0	13,191	78,980	55,214	346,022
2012	1,531	20,509	50,635	299,187	25,515	150,668	0	0	24,487	147,401	102,168	617,765
2013	495	8,546	24,521	169,318	21,581	185,332	0	0	12,651	89,455	59,248	452,651
2014	205	3,065	20,515	152,446	52,158	406,843	0	0	3,403	14,134	76,281	576,488
2015	705	3,823	25,861	81,851	7,030	30,737	0	0	4,510	15,205	38,106	131,616
10-Yr Avg.	1,692	18,473	31,865	167,114	18,833	108,755	1	0	13,003	40,816	65,394	335,158

Note: 2014 and 2015 data are preliminary.

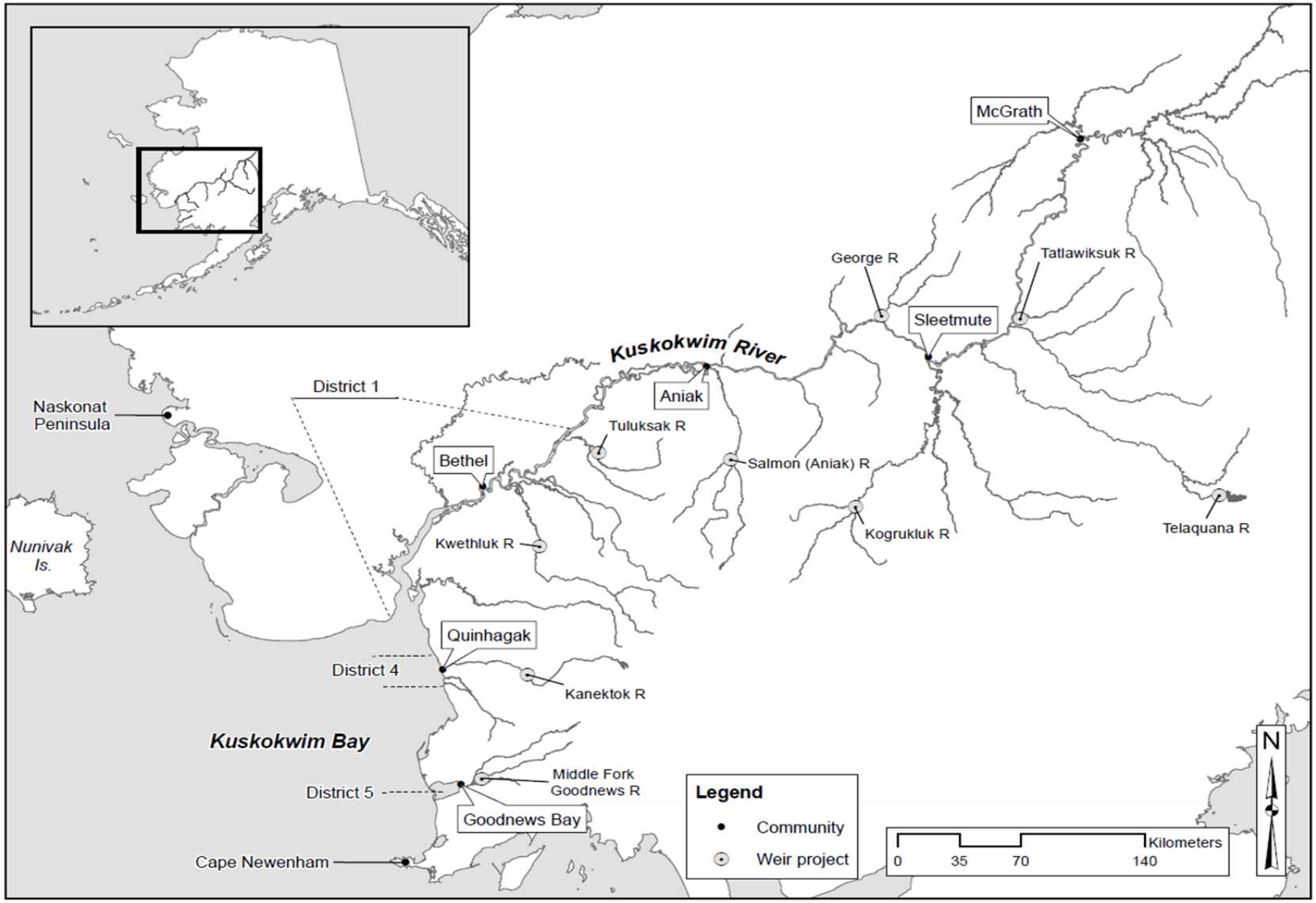

Figure 1.–Map of Kuskokwim Area commercial fishing districts and escapement assessment projects.

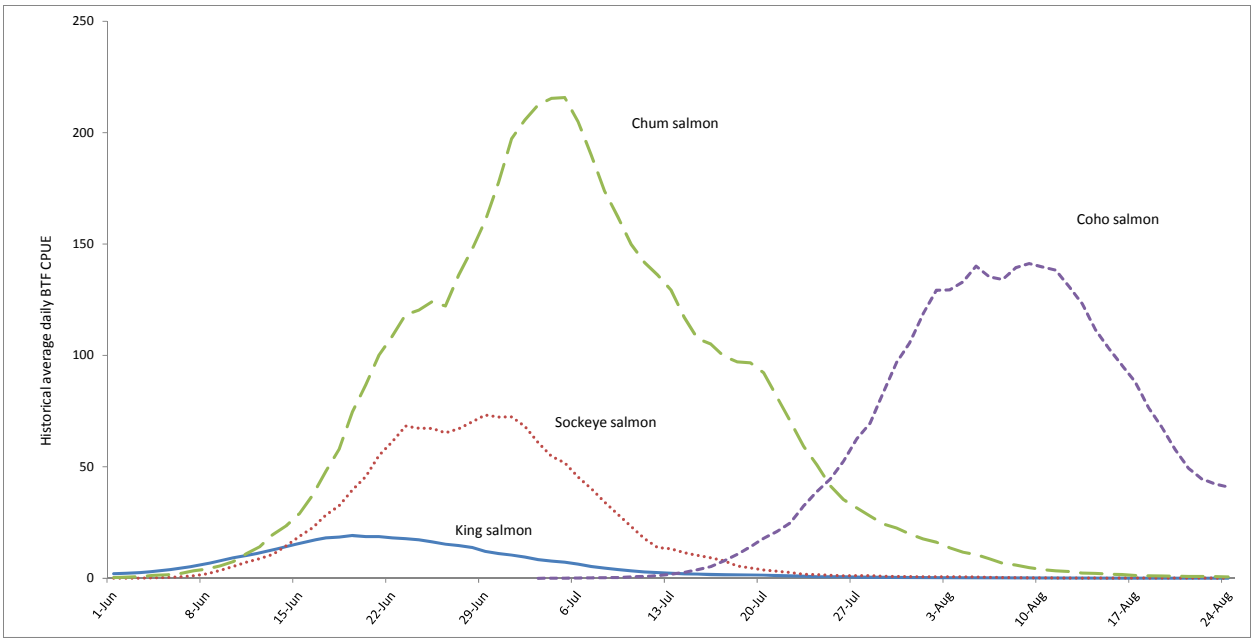

Figure 2.–Historical moving 5-day average daily Bethel test fishery CPUE indices as a graphical representation of Kuskokwim River salmon run timing past the Bethel test fishery site.