Fishery Management Report No. 13-23

2011 Kuskokwim Area Management Report

by

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and

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

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

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ABSTRACT

The 2011 Kuskokwim Area Management Report is an annual volume reporting on management activities of the Alaska Department of Fish and Game, Division of Commercial Fisheries staff in the Kuskokwim River and Bay. The report emphasizes a descriptive account of the information, decisions, and rationale used to manage the Kuskokwim River and Bay commercial salmon (Chinook *Oncorhynchus tshawytscha*, chum *O. keta*, sockeye *O. nerka*, coho *O. kisutch*), subsistence, and Pacific herring *Clupea pallasii* fisheries, and outlines basic management objectives and procedures. We have included all information deemed necessary to fully explain the rationale behind management decisions in 2011. All narrative and data tabulations in this volume are combined in 4 sections, salmon, subsistence, herring, and miscellaneous fisheries, to aid in the use of the document as a reference source. The extensive set of tables has been updated to record previously unlisted data for easy reference. Fisheries data in this report supersedes information in previous reports. Corrections or comments should be directed to the Anchorage office. Attention Editor, Charles Brazil, Kuskokwim Area Management Biologist, 333 Raspberry Road, Anchorage, Alaska, 99518.

Keywords: Kuskokwim River, Kuskokwim Bay, subsistence fisheries, commercial fisheries, Pacific salmon, *Oncorhynchus* spp., Chinook salmon, *Oncorhynchus tshawytscha*, chum salmon, *Oncorhynchus keta*, sockeye salmon, *Oncorhynchus nerka*, coho salmon, *Oncorhynchus kisutch*, Pacific herring, *Clupea pallasii*, subsistence, Annual Management Report (AMR)

INTRODUCTION

MANAGEMENT AREA DESCRIPTION

The Kuskokwim Management Area 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 4,500 households within the Kuskokwim Area. Of those households, approximately 75% are situated within the drainage of the Kuskokwim River (Fall et al. 2003). Bethel is the largest community in the region, containing approximately 1,500 households. Much of the salmon fishing effort occurs within the mainstem of the Kuskokwim River; however, 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 drain into Kuskokwim Bay. Residents of Toksook Bay, Nightmute, Tununak, Newtok, Chefornak, and Mekoryuk, situated near the Bering Sea Coast, harvest salmon from coastal waters as well as local tributaries. There are over 40 fish species present in the Kuskokwim Management Area (Appendix A1).

There are 4 commercial salmon fishing Districts in Kuskokwim Area: 1, 2, 4, and 5 (5 AAC 07.200 Fishing districts, subdistricts, and sections). District 1, the Lower Kuskokwim River, consists of the Kuskokwim River from a line between Apokak Slough and the southernmost tip of Eek Island and Popokamiut upstream to a line between the Alaska Department of Fish and Game (ADF&G) regulatory markers located at Bogus Creek, about 9 miles above the Tuluksak River (Figure 2). The downstream boundary has been in effect since 1986, and the upstream boundary was established in 1994 (Appendix A2). District 1 was divided into 2 subdistricts in 2000. Subdistrict 1-A consists of that portion of District 1 upstream from a line between regulatory markers located at the downstream end of Steamboat Slough and includes Statistical Areas 335-13 and 335-14. Subdistrict 1-B consists of that portion of District 1 downstream from the Steamboat

Slough regulatory markers and includes Statistical Areas 335-11 and 335-12. Subdistrict registration requirements are in effect in District 1 (5 AAC 07.370 *Registration and reregistration requirements for District 1 of the Kuskokwim Area*).

District 2, Middle Kuskokwim River, consists of Kuskokwim River from ADF&G regulatory markers located at the upstream entrance to the second slough on the west bank downstream from Kalskag to the regulatory markers at Chuathbaluk (Figure 3). The downstream boundary of District 2 was used for the first time in 1990 (Appendix A2).

The District 4 commercial salmon fishery was established in 1960 (Appendix A2). The district's boundaries extend from the northernmost edge of the mouth of Weelung Creek to the southernmost tip of the south mouth of Arolik River and expand 3 miles from the coast into Kuskokwim Bay (Figure 4). During 2001 to 2004, the northern boundary of District 4 was the northernmost edge of Oyak Creek. The Kanektok and Arolik rivers are the main spawning streams in the district. The village of Quinhagak is located at the mouth of the Kanektok River.

The District 5 commercial salmon fishery was established in 1968 (Figure 5; Appendix A2). The current boundaries were established in 2004 and extend east of a line from ADF&G regulatory markers located approximately 2 miles south and 2 miles north on the seaward side of the entrance of Goodnews Bay, expanding east to a line between mouth of Ukfigag Creek to the mouth of the Tunulik River. The Goodnews River drainage is the main spawning drainage in the district. The Goodnews and Middle Fork Goodnews rivers are the primary spawning rivers within the drainage.

COMMERCIAL SALMON FISHERY

RUN STRENGTH INDICATORS

Salmon managers require timely inseason assessment of salmon run abundance. In the Kuskokwim River, escapement projects provide limited usefulness in this regard because of the great distances between the areas of harvest and the project locations. Consequently, managers rely on test fisheries, commercial catch statistics, and informal reports from subsistence and sport fishermen to augment escapement data.

In the Kuskokwim Bay escapement monitoring projects are much closer to the commercial fishing districts, so escapement data can be effectively used for inseason management. Kuskokwim Bay managers also make use of commercial catch statistics and information from subsistence and sport fishermen. Catch statistics are especially important in District 4 where reliable escapement monitoring has been historically lacking.

Bethel Test Fishery

Daily inseason assessment of Kuskokwim River relative salmon run strength and timing is available from a drift gillnet test fishery operated near Bethel. The Bethel test fishery is located at river mile 80 of the Kuskokwim River, which is about the midpoint of District 1 (Figure 2). The project began in 1984 and the methodology has remained largely unchanged, and methods used for the project can be found in Bue (2005). From early June through late August the test fish crew conducts 3 or 4 systematic gillnet drifts beginning one hour after high tide. The drifts are done at 3 stations distributed 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 8.0 inch mesh. The 2 gillnets are rotated between the 3 stations following a systematic

schedule. Both mesh sizes are operated from early June through about July 10 when Chinook, sockeye, and chum salmon all occur in relatively good abundance. The 8.0 inch mesh is discontinued after about July 10 when Chinook salmon abundance diminishes. Test fishing with the 5.375 inch mesh continues until late August.

The test fish catch from each tide is tallied by species and distributed to charities or sold to a local fish buyer. Catch statistics for Chinook, sockeye, chum and coho salmon are presented as daily catch per unit effort (CPUE) data. Comparisons are made with test fish 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.

Historically, other test fisheries have been attempted in the Kuskokwim River: Kwegooyuk test fishery, 1966–1983 (Baxter 1970; Huttunen 1984); Eek test fishery, 1988–1994; Kuskokwim River subsistence test fishery, 1988–1990 (Kuskokwim Fishermen's Cooperative 1991); Aniak test fishery, 1992–1995; Chuathbaluk test fishery, 1992–1993; and the Lower Kuskokwim River test fishery, 1995. Most of these projects were initiated at the prompting of groups other than ADF&G. They were all eventually discontinued for a variety of reasons including lack of funding, consistency problems, difficulties with catch disposition, and ambiguous results.

Inseason Subsistence Catch Monitoring

Inseason interviews of subsistence fishermen have been conducted in the Bethel area by Orutsararmiut Native Council (ONC) technicians, in cooperation with ADF&G since 2001. The Fisheries Information Services (FIS) Division of the U.S. Fish and Wildlife Service (USFWS) Office of Subsistence Management (OSM) provides funding for this cooperative program under the *Kuskokwim River Salmon Inseason Subsistence Catch Monitoring* project (FIS 10-354). Information from the interviews, in combination with other fisheries information, is used to assess salmon run timing and relative abundance. Together, this information assists fishery managers in making decisions to meet salmon escapement goals, to provide fishermen subsistence fishing opportunity, and to provide opportunity for commercial and sport fisheries if enough salmon are available. Additionally, this program provides timely insight into the progress of the subsistence fishery; a relative index of catches based on those interviewed; and allows an avenue for local user input into the management process. Comparisons of inseason interview responses can be made among weeks, within a year, and between years to help identify differences in salmon run timing, abundance, and gain insight into the fishery (gear usage or inseason harvest indices). Summaries of interview responses are presented to the *Kuskokwim River Salmon Management Working Group* (Working Group), throughout the subsistence fishing season (Holly Carroll, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication). Fishery managers and the Working Group use these summaries in the decision-making process for the Kuskokwim River subsistence salmon fishery.

Commercial Catch Statistics

Comparison of commercial catch statistics with historical information is another common method for assessing run strength. However, the usefulness of this approach can be confounded by inconsistencies in the number of participating fishermen, the duration of commercial fishing periods, water levels, and other variables that might influence catch or the effort applied by fishermen.

MANAGEMENT

Background

The overall goal of Kuskokwim Area research and management programs is to manage salmon runs for sustained yield by policies set forth by the Alaska Board of Fisheries (BOF) including: the *Policy for the Management of Sustainable Salmon Fisheries* (Sustainable Salmon Policy: 5 AAC 39.222); and *Policy for Statewide Salmon Escapement Goal*s (Escapement Goal Policy: 5 AAC 39.223). For all statewide fisheries, the Alaska State Legislature has designated subsistence fishing as the highest priority among beneficial users of the resource (A.S. 16.05.258 *Subsistence use and allocation of fish and game*).

Kuskokwim River and Kuskokwim Bay salmon fisheries compose the Kuskokwim Area salmon fisheries. The immense size of the Kuskokwim drainage and the distances between the commercial and subsistence fisheries, and the escapement monitoring projects throughout the drainage (Appendix A3) adds complexity to the management of Kuskokwim River salmon fisheries. Chinook salmon begin entry into the Kuskokwim River in late May, while sockeye and chum salmon begin their entry in mid-June. Chinook and sockeye salmon runs decline rapidly in early July. Chum salmon run entry begins to decline in late July when coho salmon run entry begins. Coho salmon entry to the river declines 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 fishery has been initiated. Kuskokwim Bay salmon have similar run timing into the Kanektok, Goodnews, and Arolik rivers. These are small drainages in comparison to Kuskokwim River. Although evaluation of run size and timing in Kuskokwim Bay Rivers is not immediate, it is much timelier than for Kuskokwim River and there are fewer stocks to evaluate. Therefore, many of the factors that make Kuskokwim River fisheries management difficult are not present in Kuskokwim Bay fisheries.

Kuskokwim River Chinook salmon are harvested primarily for subsistence use. Directed Chinook salmon commercial fishing in the Kuskokwim River was discontinued in 1987 by regulation (Francisco et al. 1988). Commercial salmon fishing is restricted to 6.0 inch mesh; however, in District 1, ADF&G may have fishing periods during which gillnet mesh size may not exceed 8.0 inches. To date, no fishing periods have been establishing allowing use of 8.0 inch or smaller mesh size. Chinook salmon continue to be harvested in salmon directed commercial fisheries during late June and July under a guideline harvest range of 0–50,000 fish. Directed Chinook salmon fisheries do occur in Districts 4 (targeting Chinook salmon bound for the Kanektok and Arolik rivers) and 5 (targeting fish bound for the Goodnews River drainage). Although Chinook salmon are targeted because of timing of the fishery, only 6 inch or smaller mesh size gillnets are allowed in Districts 4 and 5. The harvest of sockeye salmon was considered incidental to chum salmon harvest in Kuskokwim River from 1987 to 2003. However, beginning in 2004, a guideline harvest level of 0–50,000 sockeye salmon was established. Kuskokwim Districts 4 and 5 commercial fisheries target sockeye and chum salmon. Coho salmon are targeted in all 3 area commercial fishing districts, with directed fisheries being prosecuted in late July, throughout August and in early September.

The Kuskokwim Area commercial fishery was generally stable from 1980 to 1996 (Appendices A4–A15) with the harvests ranging from 800,000 fish to 2.3 million fish (Appendix A5). Effort ranged from 714 to 1,066 permits fished, and the exvessel value of the fishery ranged

from $2.9 million to $12.7 million (Appendices A4 and A5). Beginning in 1997, the value of salmon, particularly for chum salmon began to decline, which led to a decreasing trend in fishing effort (Appendix A4), number of fish harvested (Appendix A5), and the exvessel value of the fishery (Appendix A4). From 1997 through 2002, commercial salmon harvests in the area ranged from 185,000 fish in 2002 to 758,000 fish in 1998 (Appendix A5). Effort ranged from 407 permits in 2002 to 707 permits in 1998, and the exvessel value of the fishery ranged from $324,000 in 2002 to $1.6 million in 1998 (Appendix A4). Furthermore, poor Chinook and chum salmon returns during 1999 through 2001 resulted in the Kuskokwim River having limited commercial salmon fishing opportunity in June and July (Appendices A6–A9).

As Kuskokwim River Chinook and chum salmon abundances rebounded in the mid-2000s, poor market conditions for chum salmon, in concert with limited processing capacity, continued to limit commercial salmon fishing opportunity in District 1 during June and July (Appendices A6–A9). Likewise, the same factors limited commercial fishing opportunity during July in both Districts 4 (Appendices C1–C5) and 5 (Appendices D1–D5), and led to registered buyers imposing harvest limits on fishermen during early July (Appendix A2). Since 2003, commercial salmon harvests in the area have ranged from 442,000 fish to 707,800 fish (Appendix A5). Effort ranged from 434 permit holders to 530 permit holders, and the exvessel value of salmon in the Kuskokwim Area has rebound from the early 2000s with the exvessel value ranging from $893,000 to $2.8 million (Appendix A4). A new fish processing plant located in Platinum began operation in 2009 and has improved processing capacity in the area. Also, there are indications of an improving chum salmon market. Both factors in part led to increased fishing opportunity since 2009.

Kuskokwim River Chinook salmon are harvested primarily for subsistence use, with well below historic average commercial harvests since 1996 (Appendix A9). Since 2005, Chinook salmon harvests have contributed nearly 6% of the exvessel value of the total District 1 commercial salmon fishery (Appendix A7). Preliminary run reconstruction information indicates an exploitation rate of Chinook salmon of approximately 40% since 2000, with the majority of the harvest 96% attributed to the subsistence fishery (Kevin Schaberg, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

Historically, Kuskokwim River chum salmon, though an important subsistence species, have been primarily targeted for commercial use (Appendix A10). However, since the late 1990s, that fishery has been constrained by low market interest in chum salmon and limited processing capacity (Appendix A10). Since 2005, commercial chum salmon harvests have contributed about 16% to the total exvessel value of the District 1 commercial salmon fishery (Appendix A7). Chum salmon exploitation rates are unavailable as total run estimates are unknown.

Kuskokwim River sockeye salmon are also harvested in District 1 commercial fisheries (Appendix A11). Kuskokwim River commercial sockeye salmon harvests make up about 15% of the district's total exvessel value (Appendix A7). Sockeye salmon exploitation and total run estimates are unknown.

Kuskokwim River coho salmon are harvested primarily in the commercial fishery (Appendix A12). Kuskokwim River coho salmon commercial fishing in recent years has accounted for the largest number of salmon harvested of greatest value, accounting for over half of the District 1 exvessel value (Appendix A7). Based on preliminary run reconstruction information the exploitation rate of coho salmon is approximately 20% since 2000 (Kevin Schaberg, Commercial Fisheries Biologist, ADF&G, Anchorage, personal communication).

Historically, in Kuskokwim Bay commercial fisheries, the greatest harvest in terms of number has been sockeye salmon followed by coho, chum, and Chinook salmon (Appendices C5–C8 and Appendices D5–D8). Sockeye salmon have had the greatest exvessel value (Appendices C4 and D4). Although many more coho salmon are harvested than Chinook salmon, total harvest value for each species has been similar. Chum salmon harvest has been the lowest value of targeted salmon species in the area. Pink salmon are the least valuable species in Kuskokwim Area commercial fisheries and have not been purchased by Area fish buyers in recent years. In 2011, the processor paid the same price for Chinook, sockeye, chum, and coho salmon. This resulted in chum salmon having the highest exvessel value followed by sockeye, coho, and Chinook salmon.

The average weights and price paid per pound for each salmon species in the Kuskokwim Area since 1967 can be found in Appendix A13, and the average income per permit holder from commercial salmon fishing can be found in Appendix A14.

Local Kuskokwim Area residents owned the majority (890) of the 939 commercial permits renewed in 2011, while nonarea residents held 40, and non-Alaskan residents owned 9 permits (Appendix A15).

Salmon Stock Status

Salmon returns to the majority of Western Alaska rivers (including Kuskokwim River) were generally below average from 1997 to 2001. However, these declines were not as evident in Kuskokwim Bay rivers. Kuskokwim Management Area was declared an economic disaster area by the State of Alaska in 1997, 1998, 2000, and 2001 because of the extremely low chum and Chinook salmon commercial harvest levels and exvessel prices (Appendix A2). In 2000, both Chinook and chum salmon were designated stocks of yield concern by the BOF.

The precise causes for the 1997 to 2001 production failures are not known, but it is hypothesized that poor marine conditions had a large effect on ocean survival of these stocks. Likely factors that have received the most attention to date include the effects of El Niño, ocean and climate regime shifts, and competition relative to ocean carrying capacity (JTC 2005).

In 2002, Chinook and chum salmon returns to the Kuskokwim River began to rebound and reached near record abundances from 2004 through 2007 (Estensen et al. 2009). This led to the BOF discontinuing stock of concern status for both species in winter 2007. Since 2007, Chinook salmon abundance has decreased with two of the lowest total runs occurring in 2010 and 2011, chum salmon have returned to near average to above average levels, while sockeye salmon abundance has varied from below average to above average. Coho salmon abundance has been average to above average.

Alaska Board of Fisheries

Kuskokwim Area fisheries are governed by regulations of Title 5 of the Alaska Administrative Code (AAC). Subsistence fishing regulations fall within Chapter 01, commercial fishing regulations in Chapter 07, commercial herring fishing regulations in Chapter 27, and sport fishing regulations are in Chapter 70. Other regulations pertaining to Kuskokwim Area fisheries include Chapter 39 (General Provisions and Policies) and Chapter 75 (Sport Fishing General Provisions). Commercial resident species fishery requirements are outlined in 5 AAC 39.734 and 5 AAC 39.780.

The process of developing fishing regulations for Kuskokwim Area fisheries occurs within the established BOF process. Public input concerning regulation changes and allocation issues is provided for in this process through various means including submission of proposals, direct testimony to the board, and through public participation by local Fish and Game Advisory Committees and the Working Group. Within the Kuskokwim Area there are 4 Fish and Game Advisory Committees; Central Bering Sea, Lower Kuskokwim, and Central Kuskokwim and McGrath. Under the current operating schedule, the BOF meets on a 3 year cycle. Proposals regarding the Kuskokwim Area were most recently discussed during January 2010. There was one regulatory proposal to repeal the commercial fishing regulation that could allow use of up to 8 inch mesh size by emergency order (Estensen et al. 2009). This proposal failed. The next regularly scheduled BOF meeting to address Kuskokwim Area finfish issues is scheduled for January 2013.

Management Plan

The Kuskokwim River salmon fisheries are managed according to the *Kuskokwim River Salmon Management Rebuilding Plan* (5 AAC 07.365) adopted by the BOF in January 2001 (Appendix A2; Burkey et al. 2000) and amended in January 2004 (Bergstrom and Whitmore 2004) and again in 2007 (Linderman and Bergstrom 2006). The purpose of this plan is to provide guidelines for rebuilding and management of the Kuskokwim River fishery that will result in the sustained yield of salmon stocks large enough to meet escapement goals, provide amounts reasonably necessary for subsistence, and provide for fisheries other than subsistence. Additionally, subsistence fishing closures are scheduled by emergency order prior to, during, and after commercial fishing periods to assure salmon harvested during open subsistence fishing periods do not reach the commercial market.

The Quinhagak (District 4) fishery targets fish bound primarily for the Kanektok and Arolik rivers and is managed according to the *District 4 Management Plan* (5 AAC 07.367). The objective of this plan is to maintain a level of sustained yield that will provide for subsistence needs, long-term economic health of commercial and sport fishing industries, and recreational opportunities of all freshwater systems flowing into the district. Regulations do provide for subsistence fishing closures prior to, during and after commercial fishing periods. There is no specific management plan for the Goodnews River fishery (District 5); however, the fishery is managed similar to District 4 except that commercial fishing is delayed until late June to increase Chinook salmon escapements into the Goodnews River drainage.

Subsistence

Alaska Statute Title 16.05.258., *Subsistence Use and Allocation of Fish and Game,* establishes the subsistence use priority for reasonable harvest opportunity consistent with sustained yield, when resources are not large enough to provide for all consumptive uses. In 1993, the BOF made a positive finding for customary and traditional use for all salmon in the entire Kuskokwim Area (Appendices A2 and A16–A19). In 2001, ADF&G recommended that the BOF amend 5 AAC 01.286 to include a revised finding of the amount necessary for subsistence (ANS) for the Kuskokwim Area using subsistence harvest data through 1999. After a thorough review of various options, the BOF made a finding of the ANS for the Kuskokwim River by species and for the remainder of the Kuskokwim Area by all species combined (Bergstrom and Whitmore 2004). The ANS ranges for Kuskokwim River drainage by species are as follows: 64,500 to 83,000 Chinook salmon, 39,500 to 75,500 chum salmon, 27,500 to 39,500 sockeye salmon, and

24,500 to 35,000 coho salmon. The ANS range for the remainder of the Kuskokwim Area is from 7,500 to 13,500 salmon. In establishing the ANS range, the BOF used harvest information that represents the pattern of use in the subsistence fishery.

Cooperative Management Process

The Working Group was formed in 1988 by the Alaska Board of Fisheries in response to requests from stakeholders in the Kuskokwim Area that sought a more active role in the management of salmon fishery resources (Francisco et al. 1989). The Working Group has become the forum through which inseason management decisions are made regarding Kuskokwim River subsistence, commercial and sport salmon fisheries. Pre- and postseason Working Group activity provides the opportunity to participate in the regulatory processes that establish fishery management policies and regulations. In 2001, the Working Group modified their bylaws in order to more effectively address federal subsistence management views by including seats for member representatives from the Kuskokwim River Coordinating Fisheries Committee of the Yukon–Kuskokwim Delta and Western Interior Federal Subsistence Regional Advisory Councils (RAC). The Working Group further modified their bylaws in 2005 to include representation from communities at the headwaters of the drainage, which had not previously had a voice on the Working Group.

Participation in the Working Group process requires a great deal of time from its members and agency staff. The Working Group typically meets first in the spring each calendar year, conducts intensive and frequent meetings during the summer, and holds a wrap-up session in the fall or early winter. Funding provided by Federal Office of Subsistence Management (OSM) is an essential part of enhancing the Working Group process. This funding allows ADF&G staff to more effectively prepare for meetings through better and more frequent distribution of updated fishery status information in a standardized format. The funding also provided travel for Working Group members to participate in meetings relevant to issues concerning Kuskokwim River fisheries, such as the postseason meeting in Anchorage and Kuskokwim Area interagency meetings. State general funds provide additional salary for ADF&G staff that coordinates the Working Group. The combined Federal and State funds have further strengthened the Working Group process.

Working Group representative participation in meetings in Bethel and outside the Kuskokwim River drainage allows for an exchange of information between members and fishery assessment project leaders and research planners. Representatives were also able to testify at regulatory meetings in support of Working Group positions. The relationship among Working Group members, project leaders, research planners, and policy makers continues to be fostered, and these interactions are critical to the Working Group process. This relationship ensures that stakeholders remain up to date on new information and maintain their direct involvement in the management of the fishery.

From July 2002 through October 2004, funding was available for support of the Working Group process through the U.S. Fish and Wildlife Service (USFWS) OSM project FIS 01-116. OSM funding was discontinued in 2005 and reestablished in 2006 under project FIS 06-307. The current OSM project provides funding through 2012 for Working Group member travel to meetings and conferences; meeting supplies and arrangements; and ADF&G staff time to coordinate the Working Group process and to summarize and distribute information for Working Group members.

The Working Group met 9 times in 2011. During these meetings, fishery management information was presented by Working Group members, State and Federal staff, Tribal organizations, fishery partners, and the public. The Working Group discussed subsistence and commercial fishing reports from members and the public, the lower Kuskokwim River inseason subsistence harvest report, test fish project summaries, and reports from weir, tagging, sonar, and aerial survey programs.

HARVEST AND EXVESSEL VALUE SUMMARY

Emergency orders are used to prosecute the commercial salmon fisheries in the Kuskokwim Area. A complete listing of the emergencies orders issued for commercial salmon fishing in 2011 can be found in Table 1.

Kuskokwim River

A total of 19 commercial fishing periods occurred in District 1 between July 5 and August 22 (Table 1). There were 2 registered buyers that purchased fish and 2 catcher/sellers in the Kuskokwim Area in 2011. Processing capacity limited commercial fishing to alternating subdistrict openings. Processing capacity coupled with alternating subdistrict openings did allow four 2-hour extensions of fishing time in the Lower Section of Subdistrict 1-B. On average 117 permit holders participated in each commercial fishing opening. Chinook salmon catch rates through July were below average. Sockeye and chum salmon catch rates were average to above average. Coho salmon catch rates from late July through August 12 ranged from below to above average.

The District 1 commercial harvest was 49 Chinook; 13,482 sockeye; 74,108 coho; and 118,256 chum salmon (Table 2 and Table 3). An additional 699 Chinook salmon were harvested during the commercial fishery and reported on fish tickets as retained for personal use because the buyers agreed not to purchase Chinook salmon due to the poor run. These fish are included in subsistence harvest through the postseason subsistence harvest survey methodology. The Chinook and coho salmon harvests were below their respective most recent (2001–2010) 10-year average harvests while chum and coho salmon harvest were above the most recent (2001–2010) 10-year average harvest. The total exvessel value of the District 1 commercial salmon fishery was $764,357, above the recent 10-year average value of $504,155 (Table 2 and Appendix A7). A total of 413 individual permit holders recorded landings in District 1 during the 2011 season (Table 3), a number above the most recent 10-year (2001–2010) average of 377 permit holders (Appendix A4). District 2 has not had a commercial fishery since 2000 (Appendix A8).

Kuskokwim Bay

The District 4 commercial salmon fishing season opened 20 June. District 4 opened with management directed toward the harvest of Chinook salmon that allowed for 2 commercial fishing periods per week, provided abundance and processing capacity were adequate. Because of late Chinook salmon run timing and abundance concerns, the commercial fishing period was delayed in District 4 by 5 days and during the third week of the commercial fishing season opportunity was reduced to one period (Table 4). District 5 opened on 27 June (Table 5), which is about one week later than normal due to concerns for Chinook salmon abundance. Chinook salmon harvests and catch rates were below average to average throughout the season in both districts. By 30 June, sockeye salmon harvest in both districts had exceeded Chinook salmon harvest and by regulation management was directed toward sockeye salmon. Under sockeye

salmon management, 3 commercial fishing periods per week are allowed, provided abundance and processing capacity are adequate. Because of anticipated high sockeye salmon abundance additional fishing time was provided in both districts between 7 and 9 July. However, the sockeye salmon run did not materialize in District 5 as expected and commercial fishing was curtailed from 14 to 28 July due to concerns for Goodnews River escapement. In Districts 4 and 5 sockeye salmon harvests were below average. Chum salmon harvest in District 4 was well above average and average in District 5. The coho salmon harvest exceeded the sockeye salmon harvest in District 4 on 22 July and 8 August in District 5. On those dates, by regulation, both districts shifted to coho salmon management which also allows 3 commercial periods a week provided abundance is adequate. During the first week of August opportunity was reduced in both districts to 2 periods and again during the second week in District 4. District 5 had 3 periods per week starting 8 August and District 4 had 3 periods per week starting 15 August. The last commercial fishing period in both districts was on 26 August. Coho salmon harvests and catch rates were below average to average throughout the season in both districts.

In 2011, 219 individual permit holders recorded landings during 26 commercial periods in District 4 (Table 4). The total commercial harvest of 189,346 fish was comprised of 15,387 Chinook, 38,543 sockeye, 104,959 chum, and 30,457 coho salmon. The exvessel value of the District 4 commercial fishery was estimated to be $1,176,436 (Table 2). Fishing effort was the near the historical average (Appendix C1). Total commercial salmon harvest was near average with the second highest exvessel value since 1990 (Appendices C2 and C8).

A total of 48 individual permit holders recorded landings in District 5 during 21 commercial periods (Table 5 and Appendix D1). The District 5 total commercial harvest of 55,214 fish was comprised of 2,092 Chinook, 24,573 sockeye, 13,191 chum, and 15,358 coho salmon (Appendices D2 and D8). The exvessel value of the District 5 commercial fishery was estimated to be $346,022 (Table 5). Fishing effort was near the historical average (Appendix D1) and the exvessel value was the fourth highest since 1990 (Appendix D4).

SUBSISTENCE SALMON FISHERY

The subsistence salmon fishery in the Kuskokwim region 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 1,700 households in the Kuskokwim area annually harvest salmon for subsistence use (Tables 6 and 7; Appendices A9–A12 and A16–A19). 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). Studies conducted by ADF&G Division of Subsistence indicate that fish contribute as much as 85% of the total pounds of fish and wildlife harvested in a community annually, and salmon as much as 53% of the total annual harvest (Coffing 1991). Harvest of salmon for subsistence use is as much as 650 pounds per capita in some Kuskokwim River communities (Coffing et al. 2001).

REGULATIONS

Subsistence salmon fishing season is open unless a subsistence fishing schedule closure is imposed (*Kuskokwim River Salmon Rebuilding Management Plan* (5 AAC 07.365)), or if closures to the fishery are implemented by emergency order prior to, during and after commercial fishing periods (5 AAC 01.260). Salmon may be taken for subsistence purposes by gillnet, beach seine, hook and line attached to a rod or pole, hand line or fish wheels subject to restrictions (5 AAC 01.270). Additionally, salmon may be taken by spear in the Holitna, Kanektok, Arolik, and Goodnews Bay drainages. Subsistence salmon fishing gillnets may be up to 50 fathoms in length. The aggregate length of set or drift gillnets in use by any individual for the taking of salmon for subsistence purposes may not exceed 50 fathoms. The maximum depth of gillnets with 6.0 inch or smaller mesh size may be 45 meshes in depth while gillnets with greater than 6.0 inch mesh size may not be more than 35 meshes in depth.

The 2011 preseason outlook for Chinook salmon was similar to 2010 when the Kuskokwim River Drainage experienced the lowest estimated total run and spawning escapement on record and not achieving escapement goals for several years in Kuskokwim River tributaries was cause for conservation concern.

The following preseason management actions were taken effective from June 1 until July 25, 2011 in an effort to achieve escapement goals.

Subsistence Chinook salmon fishing with hook and line gear was closed and subsistence fishing was restricted to the use of gillnets with 4 inch or less mesh not to exceed 60 feet in the following waters of the Kuskokwim River drainage:

- Kuskokuak Slough between ADF&G regulatory markers located at the upstream and downstream mouth of the slough, including all waters of the Old Kuskokuak Slough, the Kisaralik, Kasigluk, and the Kwethluk river drainages to their confluence with Kuskokuak Slough;

- The Tuluksak River drainage including its confluence with the Kuskokwim River and the Kuskokwim River mainstem downstream to the upstream side of Mishevik Slough.

Subsistence fishing was closed in District 1 from June 16 to 19 as Bethel test fish abundance indices of Chinook salmon continued to indicate low abundance of Chinook salmon and escapement goals were unlikely to be met. This action was supported by the Kuskokwim River Salmon Management Working Group.

Subsistence fishing was closed in District 1 from June 23 to 28 as Bethel test fish continued to indicate lower than adequate abundance of Chinook salmon and that escapement goals were unlikely to be met. This action was supported by the Kuskokwim River Salmon Management Working Group.

On June 29 through July 7, 2011, ADF&G restricted subsistence salmon fishing to 6.0 inch or smaller mesh gillnets in District 1 of the Kuskokwim River drainage. This action was taken for conservation of Chinook salmon while still providing opportunity to harvest more abundant sockeye and chum salmon. This conservation measure was unanimously supported by the Working Group.

FEDERAL SUBSISTENCE PROGRAM

The Alaska National Interest Lands Conservation Act (ANILCA) of 1980 provides a priority for rural Alaska residents for taking fish and wildlife on Federal public lands and called for creation of RACs to provide rural resident's input into the Federal Subsistence Program (16 U.S.C.A 3114). On October 1, 1999, the Secretaries of Interior and Agriculture published regulations to expand Federal involvement in subsistence fisheries to waters in which the Federal government claims a federal reserved water right (applicable waters). The Secretary of Interior and the Secretary of Agriculture delegated their authority in Alaska to the Federal Subsistence Board (FSB) to ensure rural residents receive a priority for subsistence taking on Federal public lands and applicable waters. Federal subsistence fishing regulations are adopted by the FSB. Regional Advisory Councils provide recommendations and information to the FSB, review policies and management plans, provide a public forum and deal with other matters relating to subsistence uses. The FSB may close fishing for other uses on Federal public lands and applicable waters if necessary to ensure a priority for federally qualified rural subsistence users.

Federal subsistence fishing schedules, openings, closings, and fishing methods are established in regulation (Department of Interior 2009–2011 summary of 36 CFR Part 242 and 50 CFR Part 100). In general, these regulations are the same as those issued for the subsistence taking of fish under Alaska Administrative Code. However, differences in regulations do exist in some cases. For example, subsistence fishing is closed for a set amount of time before, during, and after commercial fishing periods under federal regulations, but it is handled by emergency order under state regulations.

From June 30 until July 2, 2011 federal management special actions contained in 3-KS-01-11 and 3-KS-02-11 preempted state management emergency order 3-S-WR-04-11 for conservation of king salmon:

- That area of the Kuskokwim River within the Federal Conservation Unit were closed to subsistence fishing using gillnets with mesh greater than 4 inches, exceeding 45 meshes in depth and longer than 60 feet from 12:01 a.m., Thursday, June 30, until 11:59 p.m., Saturday, July 2, 2011. The area closed extended from the mouth of the Kuskokwim River upstream to the confluence of the Aniak and Kuskokwim rivers, including all tributary rivers within this portion of the drainage.

SUBSISTENCE SURVEY

ADF&G conducts annual household surveys to collect information about the harvest and use of salmon in the Kuskokwim Area (Tables 6 and 7; Appendices A5, A9–A12, C5–C8, and D5–D8). Prior to statehood, subsistence salmon harvest information was collected periodically by various federal departments and bureaus. Beginning in 1960, Division of Commercial Fisheries collected subsistence salmon harvest information along the Kuskokwim River drainage by surveying fishermen at their fish camps during late July. Over the years, data collection methods changed several times. Harvest surveys were initiated in Quinhagak in 1967 and in Goodnews Bay and Platinum starting in 1979. In 1988, the Division of Subsistence took over the annual subsistence salmon harvest survey project from Division of Commercial Fisheries, and collected and analyzed harvest data through 2007. Division of Subsistence made several changes to the methodology, including starting the data collection in October, well after the summer and fall salmon harvest was completed. This was done primarily to improve estimates of the subsistence

coho salmon harvest (for detailed Division of Subsistence harvest monitoring methods, see Walker and Coffing 1993). In 2008, Division of Commercial Fisheries resumed responsibility for the annual postseason harvest survey project in the Kuskokwim Area, and dedicated a full-time Fishery Biologist II, based in Anchorage, as the project leader, and a seasonal Fishery Technician III as the crew leader, based in Bethel. The project methodology remains similar to that used by Division of Subsistence since 1989 except that instead of attempting a 100% survey of each community, a stratified random sampling method is used in order to sample communities most effectively within budget constraints on a yearly basis (Toshihide Hamazaki, Commercial Fisheries Biometrician, ADF&G, Anchorage; personal communication). Analysis of the stratified sampling compared with the 100% attempted sampling, as well as adjusted historical salmon harvest estimates from 1989 to 2007 are reported in Hamazaki (2011). Current methods used to estimate subsistence salmon harvest in 2010 and 2011 are reported in the *Reconstruction of subsistence salmon harvest in the Kuskokwim area, 1990–2009* (Hamazaki 2011).

ADF&G collaborates with local tribal organizations including the ONC in Bethel and KNA in Aniak to complete the annual postseason harvest surveys. The Fisheries Information Services (FIS) Division of the U.S. Fish and Wildlife Service (USFWS) Office of Subsistence Management (OSM) provides funding for this cooperative program under the *Kuskokwim Area postseason subsistence harvest surveys* project (FIS 08-352). Subsistence surveys have been aimed at primarily gathering data on the harvest and use of Chinook, chum, sockeye, and coho salmon. Pink salmon are harvested in the Kuskokwim Area; however, they are generally available only during even numbered years. Data for subsistence pink salmon harvests have not been consistently collected during the annual fall survey efforts, and though data have been collected on pink salmon beginning in 2008, those harvests are not reported here. Other Division of Subsistence community baseline studies conducted in the region also include pink salmon harvest data.

SUBSISTENCE HARVEST

Because of changes in the project methodology discussed above, all data reported here will be considered preliminary. The final report for the *Postseason Subsistence Harvest Survey Project* should be consulted for detailed methods and finalized data.

Subsistence harvests of salmon have remained relatively stable since 2000 with the exception of the 2011 Chinook salmon harvest, the result of a poor run (Appendices A5, A9–A12, C5–C8, and D5–D8).

The preliminary 2011 total subsistence salmon harvest estimates for the Kuskokwim Area were 61,687 Chinook; 50,702 chum; 42,146 sockeye; 30,682 coho; and 742 pink salmon (Tables 6 and 7 and Appendices A5, A9–A12, C5–C8, and D5–D8). Residents of communities in the lower Kuskokwim River (from Tuluksak downstream to Eek), took 82% of the subsistence Chinook salmon harvest with 38% of the harvest occurring in Bethel. The lower river communities are relatively densely populated, with approximately 65% of the total number of households in the Kuskokwim Area and overall accounted for 82% of the total Kuskokwim Area subsistence salmon harvest.

ESCAPEMENT

The vast size, remoteness, and geomorphic diversity of the Kuskokwim Area present challenges to monitoring salmon escapements and assessing salmon run abundance. For the past 2 decades,

efforts have been taken to expand coverage and apply new technologies toward the goal of improving estimation of salmon run timing and run strength monitoring by comparison of current year to historic information. Aerial spawning ground surveys have been the most cost-effective means of monitoring salmon escapements, but their usefulness and reliability are limited. The more thorough and rigorous ground based projects such as weirs, counting towers, and sonar have been operated in only a few locations because of costs and limited budgets. Since 2000 the number of escapement projects in the Kuskokwim Area has increased through cooperative partnerships with federal agencies and local organizations (Appendix B1). These cooperative efforts have added substantially to our ability to monitor salmon escapements and to evaluate the effectiveness of inseason management actions.

There are currently 25 established escapement goals; 14 Chinook, 4 chum, 3 coho, and 4 sockeye salmon stocks (Appendix B2). Comprehensive reviews of escapement data for most Kuskokwim Area stocks were conducted in 2004 (ADF&G 2004), in 2007 (Molyneaux and Brannian 2006), and again in 2009 (Volk et al. 2009). Two new goals were established in 2010: a coho salmon lower bound sustainable escapement goal (SEG) of >19,000 fish at the Kwethluk River weir, and a sockeye salmon SEG range of 4,400 to 17,000 fish at the Kogrukluk River weir. Kuskokwim Area escapement goals will be reviewed in 2012 for the 2013 Alaska Board of Fisheries cycle.

Throughout the Kuskokwim Management Area in 2011, chum and coho salmon abundance was very good while sockeye salmon abundance was average to below average and Chinook salmon abundance was poor. Sockeye, chum, and coho salmon escapements were achieved in all systems with established escapement goals. Chinook salmon escapements were achieved in only 2 of 5 systems with goals that are monitored by weir, the Kogrukluk and Middle Fork Goodnews River.

GROUND BASED

Numerous ground based escapement assessment projects exist throughout the Kuskokwim River drainage and Kuskokwim Bay drainages (Figure 6). Below is a summary of salmon escapement at each project for 2011. Please refer to each project's annual report for specifics such as methods, daily passage counts, climate and hydrological information, and escapement age, sex, and length (ASL) information. The *AYK Database Management System* contains historical as well as current ASL information from the various escapement monitoring projects (past and present), as well information from the area commercial and subsistence harvests (http://www.adfg.alaska.gov/CommFishR3/WebSite/AYKDBMSWebsite/Default.aspx).

Kuskokwim River

Kwethluk River Weir

In 2011 Kwethluk River salmon escapements included 4,079 Chinook; 2,031 sockeye; and 18,329 chum salmon during the June 19 through 10 September operational period, coho salmon counts were incomplete (Appendix B3; Miller and Harper 2012a). Chinook salmon escapement was below the SEG range (6,000 to 11,000 fish), the fourth time since 2007 when the goal was established. An escapement goal for coho salmon was established in 2010 and set as a lower bound SEG of >19,000 fish (Volk et al. 2009).

Tuluksak River Weir

In 2011, Tuluksak River salmon escapements included 288 Chinook; 131 sockeye; and 10,010 chum salmon during the June 19 through September 10 operational period, coho salmon counts were incomplete (Appendix B4; Miller and Harper 2012b). Chinook salmon escapements have not met the lower end of the SEG range (1,000 to 2,100 fish) since the goal was established in 2007.

Aniak River Sonar

In 2011, total estimated fish passage at the Aniak River sonar site was 345,974 chum salmon, during the 26 June through 31 July operational period (Appendix B5; Malcolm McEwen, Commercial Fisheries Biologist, ADF&G, Fairbanks; personal communication). In 2011 chum salmon escapement was near the midpoint of the SEG range of 220,000 to 480,000 fish. Chum salmon escapements have achieved or exceeded their SEG range every year except one since 2000.

George River Weir

In 2011, George River salmon escapements included 1,571 Chinook; 43 sockeye; and 44,640 chum; and 30,028 coho salmon during the 15 June through 20 September operational period (Appendix B6). The Chinook salmon escapement in 2011 did not met the lower end of the SEG range (3,100 to 7,900 fish) for the third time since the goal was established in 2007.

Kogrukluk River Weir

In 2011, Kogrukluk River salmon escapements included 6,891 Chinook; 8,132 sockeye; 76,384 chum; and 24,174 coho salmon during the 21 June through 25 September operational period (Appendix B7). In 2011, Chinook, chum, and coho salmon either met or exceeded their respective SEGs.

Tatlawiksuk River Weir

In 2011, Tatlawiksuk River weir salmon escapements included 1,012 Chinook; 23 sockeye; 84,202 chum; and 12,928 coho salmon during the 15 June to 20 September operational period (Appendix B8). The 2011 Chum and coho salmon escapements were some of the largest annual escapements on record while the Chinook salmon escapement was below average.

Takotna River Weir

In 2011, Takotna River salmon escapements included 136 Chinook; 8,414 chum; and 4,063 coho salmon during the 29 June through 20 September operational period (Appendix B9). The 2011 Chinook salmon escapement was lowest annual escapement. Chum and coho salmon escapements were above average.

Telaquana River Weir

Telaquana River salmon escapements included 39 Chinook; 35,105 sockeye; 56 chum; and 138 coho salmon during the 10 July through 26 August operational period (Appendix B10). This was the second year of operation for this project.

Kuskokwim Bay

Kanektok River Weir

Fish passage in 2011 through the Kanektok River weir during its operation from June 27 through August 15 was estimated to be 5,032 Chinook; 84,805 sockeye; 50,908 chum; 5,779 coho; and 491 pink salmon (Appendix C9). Escapement estimates for coho and pink salmon are incomplete because the project does not operate through the entire coho and pink salmon runs. No formal escapement goals for any species have been established at the weir.

Middle Fork Goodnews River Weir

Fish passage in 2011 through the Middle Fork Goodnews River during its operation from 24 June to 18 September was estimated to be 1,861 Chinook; 17,946 sockeye; 19,974 chum; 23,826 coho; and 1,394 pink salmon (Appendix D9). Chinook salmon escapement was within the BEG range while sockeye salmon escapement was slightly below the lower bound of the BEG. Chum and coho salmon exceeded the lower bound of their respective SEGs.

AERIAL SURVEYS

Aerial survey based escapement goals do not represent the entire spawning populations in the respective streams. The surveys are mostly conducted one time each season during a window of a few days when the maximum numbers of fish are expected to be on the spawning grounds. The escapement goals developed from these surveys are based on the raw, unexpanded counts; therefore, each count serves as an index of abundance rather than a complete census.

Aerial surveys are ordinarily restricted to clear water streams and lakes, the distribution of which is geographically skewed toward the lower Kuskokwim River basin and coastal streams. Tributaries in the middle and upper Kuskokwim River are often stained from organics or clouded by glacier runoff, both of which markedly reduce the visibility of fish. Escapement assessment through aerial surveys is also subject to a high degree of variability depending on viewing conditions and the experience of staff conducting the surveys.

Aerial surveys are best directed at indexing spawning populations of Chinook and sockeye salmon because these fish are typically more visible than chum and coho salmon. In addition, chum salmon have protracted run timing, and coho salmon are frequently difficult to survey because of weather conditions.

Kuskokwim River

Lower Kuskokwim River

Aerial surveys for Chinook salmon were conducted over lower river tributaries (Figure 7) in 2011. Weather and stream conditions throughout the survey season were generally good with useable survey index estimates on Eek and Kisarolik rivers. An escapement goal has been established for the Kisarolik River and the 2011 survey was within the SEG range (Appendix B11).

Middle Kuskokwim River

Aerial surveys for Chinook salmon were conducted over the Kipchuck, Salmon, Holokuk and Oskawalik rivers in 2011 (Figure 8; Appendix B11). Escapement goals have been established for Aniak, Salmon, and Holitna rivers. Survey conditions allowed staff to fly a majority of the

systems in this section of the drainage. Index estimates from the Middle Kuskokwim River tributaries were well below average and the established Salmon River aerial SEG was not met.

Upper Kuskokwim River

Aerial surveys were conducted over the Gagarayah, Cheeneetnuk, and Salmon (Pitka Fork) rivers in 2011 (Figures 8 and 9; Appendix B11). Aerial survey SEGs have been established for Gagarayah, Cheeneetnuk, and Salmon rivers. Both the Gagarayah and Cheeneetnuk rivers were well below their respective goals, while the Salmon River aerial survey SEG was met.

Kuskokwim Bay

Kuskokwim Bay

Kanektok River (Figure 10) Chinook, sockeye, and chum salmon have established aerial survey SEGs (Appendix C10). The North Fork Goodnews River (Figure 10) Chinook and sockeye salmon also have established SEGs (Appendix D10). No aerial surveys were flown over the Kanektok River in 2011 because of poor weather. An aerial survey rated as good for survey conditions was conducted on the North Fork Goodnews River on 3 August 2011 to estimate Chinook and sockeye salmon escapements. The estimates of Chinook and sockeye salmon were within the established SEGs (Appendix D10). Aerial surveys for chum salmon have not been flown since 2003 (Appendix D10).

2012 KUSKOKWIM AREA SALMON OUTLOOK

KUSKOKWIM RIVER SALMON OUTLOOK

The 2012 Chinook salmon forecast is for a return of 197,000 fish (range 158,000 to 236,000). Broad expectations are developed based on parent-year escapements and recent year trends for sockeye, chum, and coho salmon abundance which is expected to be similar to 2011. Anticipated available surpluses for commercial harvest will range from 0 to 3,000 Chinook; 10,000 to 30,000 sockeye; 100,000 to 200,000 chum; and 100,000 to 200,000 coho salmon. Markets and processing capacity are expected to be similar to last year.

2012 KUSKOKWIM MANAGEMENT STRATEGY

State and federal fishery management staff will continue to follow guidelines outlined in the *Kuskokwim River Salmon Management Rebuilding Plan* 5 ACC 07.365, to the extent possible, to meet escapement goals, provide for subsistence use, and allow commercial fishing on available harvestable surpluses. A subsistence fishing schedule will not be in effect at the start of the 2012 season.

Preseason management actions similar to those enacted in 2011 will be taken and jointly recommended by ADF&G and USFWS in an attempt to conserve and meet Chinook salmon escapement goals. After public input, a separate news release in May will describe the final 2012 Chinook salmon management strategy. Additional inseason management actions may be implemented in response to weaker than anticipated return to the Kuskokwim River drainage.

Subsistence Fishery

Subsistence fishing is anticipated to be open 7 days per week with the exception of closures 6 hours before, during, and 3 hours after each commercial fishing period, unless superseded by Emergency Order. In District 1, when one subdistrict is open to commercial fishing, subsistence

fishing will be allowed in the majority of the other subdistrict. During closed periods, subsistence fishing for species other than salmon will be allowed with gillnets not exceeding 60 feet in length and a mesh size of 4.0 inches or less.

Subsistence hook and line fishing for any species of salmon will be allowed 7 days per week, unless superseded by Emergency Order under 5 AAC 01.295, Aniak River bag and possession limits, from June 1 through August 31 when subsistence fishing with hook and line attached to a rod or pole, in that portion of the Aniak River drainage upstream of Doestock Creek: The bag and possession limit is as specified by species in 5 AAC 71.010 except the bag and possession limit for king salmon is two fish with no size or annual limit.

Commercial Fishery

District 1

As directed by the *Kuskokwim River Salmon Management Plan*, a commercial fishery may be prosecuted in June and July if salmon abundance is above the amounts necessary to meet escapement goals and subsistence use. Processing capacity will limit commercial openings in District 1 to alternating subdistrict openings. Commercial openings may be announced when no large scale buyers are available to provide opportunity for permit holders operating as catcher/sellers or catcher/processors. Contact the ADF&G office in Bethel for more information about the catcher/seller or catcher/processor programs.

All commercial fishing periods will be limited to gillnets with 6.0 inch or smaller mesh size. As in 2011, there is the potential for opening the Lower Section of Subdistrict 1B for 2 additional hours during commercial openings, dependent on salmon abundance and processor capacity.

Chinook salmon abundance, escapement and subsistence needs may limit commercial harvest of chum and sockeye salmon in late June early July. A commercial fishery directed at coho salmon is anticipated in late July and August.

Sport Fishery

Within the management plan, the sport fisheries for Chinook and chum salmon are to be managed based on abundance. It is anticipated that preseason management actions on sport fishing will be taken to conserve Chinook salmon.

Additional inseason restrictions may be implemented in response to weaker than anticipated salmon runs in other Kuskokwim River tributaries as necessary. In the Kuskokwim River drainage, the Chinook salmon sport fishing season will close by regulation on July 26.

Inseason Assessment and Research

Inseason indicators of salmon run strength include the Bethel test fishery, subsistence catch reports, commercial catch statistics, aerial surveys, sonar, weirs, and additional tributary escapement monitoring projects operated by an assortment of partnerships between State, Federal, and Tribal organizations. Staff from Orutsararmiut Native Council will survey Bethel Area subsistence fishermen to assess salmon run timing and abundance.

2012 KUSKOKWIM BAY OUTLOOK

The Kuskokwim Bay has no formal forecast for salmon returns. Broad expectations are developed based on parent-year escapements and recent year trends. It is expected that salmon

harvest in 2012 will be similar to 2011. Anticipated available surpluses for commercial harvest are expected to range from 10,000 to 17,000 Chinook; 40,000 to 80,000 sockeye; 75,000 to 150,000 chum; and 40,000 to 80,000 coho salmon. Harvest may be affected by salmon abundance, participation, market conditions, and processor capacity.

2012 KUSKOKWIM BAY MANAGEMENT STRATEGY

Subsistence Fishery

ADF&G staff will be in contact with Kuskokwim Bay subsistence fishermen to determine if subsistence needs will be met. Subsistence fishing will be allowed 7 days per week prior to the commercial salmon fishing season. Once the commercial fishing season begins, subsistence fishery closures will be reduced by emergency order from 16 hours before, during, and 6 hours after, to 8 hours before, during, and 4 hours after each commercial fishing period.

Commercial Fishery

District 4

ADF&G intends to meet with Quinhagak residents prior to the commercial fishing season. The District 4 commercial fishery will be managed in accordance with the *District 4 Salmon Management Plan* (5 ACC 07.367). By regulation, the commercial salmon fishery is to open prior to June 16. Commercial fishing periods are established by emergency order. The department shall allow for at least one 12-hour period per week unless a serious conservation problem develops. Additional commercial fishing periods may be announced if salmon abundance warrants. District 4 will open under Chinook salmon directed management. Once the sockeye salmon catch comprises more than 50% of the combined sockeye and Chinook salmon commercial catch, the district will be managed based on sockeye salmon abundance. A coho salmon management directed fishery is anticipated to occur late July through August given adequate run strength. Due to late Chinook salmon run timing and low abundance in recent years the first commercial period might be postponed.

District 5

ADF&G intends to meet with Goodnews Bay area residents prior to the commercial fishing season. It is anticipated the District 5 commercial fishery will open during the last week of June, given adequate Chinook salmon abundance. Commercial fishing periods are established by emergency order and it is anticipated the Department will allow for a minimum of one 12-hour period per week. Additional fishing periods may occur provided adequate abundance and processor capacity.

Sport Fishery

Within the *District 4 Salmon Management Plan*, sport fisheries are managed based on abundance and commercial fishery performance. If necessary, additional inseason restrictions will be implemented in accordance with *District 4 Salmon Management Plan*. Sport fishing daily bag and possession limits for Chinook salmon is 3 per day with only 2 over 28 inches. The Kuskokwim Bay Chinook salmon sport fishing season will close by regulation July 26.

Inseason Assessment and Research

Inseason indicators of salmon run strength include weir escapement projects, verbal subsistence catch reports, commercial catch statistics, and aerial escapement surveys. Weirs will be operated

on the Kanektok and the Middle Fork Goodnews rivers to monitor salmon escapements and collect biological data. Kanektok River weir will cease operations in mid-August to address operational concerns caused by high water events common in August and September.

KUSKOKWIM HERRING FISHERY

MANAGEMENT AREA

The Kuskokwim Management Area includes all waters of Alaska that flow into the Bering Sea between Cape Newenham and the Naskonat Peninsula (60° 58.17' N lat, 165° 11' W long) to 3 miles seaward as well as the waters surrounding Nunivak and St. Matthew Islands to 3 miles seaward (5 AAC 27.870) (Figure 11). This area supports 5 Pacific herring *Clupea pallasii* commercial gillnet sac roe districts and a significant subsistence herring fishery.

The Security Cove District includes all waters between the latitude of Cape Newenham and the latitude of the Salmon River (58° 51.83' N lat).

The Goodnews Bay District includes the waters of Goodnews Bay east of a line between the north spit (59° 03.58' N lat, 161° 49.17' W. long.) and south spit (59° 02.92' N lat, 161° 49.08' W long) at the mouth and west of a line between Ukfigag Creek (59° 04.17' N lat, 161° 36' W long) and Tunulik River (59° 00.08' N lat, 161° 00.37' W long).

The Cape Avinof District consists of all waters landward of Kikegtek, Pingurbek and Kwigluk Islands from the longitude of Ishkowik River (162° 44' W long) to the latitude of the Tern Mountain (60° 42' N lat).

The Nelson Island District consists of all waters north of Chinigyak Cape (60° 27' N lat) and east of Atrnak Point (165° 15' W long), and all waters north of Talurarevuk Point (60° 35' N lat) and south of the southernmost tip of Chinit Point (60° 36' N lat) and east of 165° 30' W long and all waters north of the northernmost tip of Chinit Point (60° 37' N lat) and south of Kigigak Island (60° 49' N lat) and east of 165° 30' W long.

The Nunivak Island District includes all waters extending 3 miles seaward of mean low water along the northern, eastern, and southern sides of Nunivak Island from Kikoojit Rocks (60° 20' N lat, 166° 40' W long) to Cape Mendenhall (59° 45.17' N lat, 166° 07' W long) (5 AAC 27.875).

FISHERY MANAGEMENT

The *Bering Sea Herring Fishery Management Plan* (5 AAC 27.060) requires minimum spawning biomass thresholds for each district before commercial fishing. The thresholds are: Security Cove, 1,200 tons; Goodnews Bay, 1,200 tons; Cape Avinof, 500 tons; Nelson Island, 3,000 tons; and Nunivak Island, 1,500 tons. This plan sets the maximum exploitation rate at 20% of the estimated spawning biomass for Security Cove, Goodnews Bay, Nunivak Island, and Nelson Island. Other regulations further reduce the maximum allowable exploitation rate in the Cape Avinof District to 15% of the estimated available biomass and directs management in the Nelson Island District to include 200 tons of the 20% exploitation rate for subsistence (5 AAC 27.895 Harvest strategy for Kuskokwim Area.).

All commercial herring fisheries are opened and closed by emergency order for an orderly fishery and to allow periodic assessment of herring biomass. ADF&G attempts to harvest stocks in good condition (large volume, increasing abundance, good recruitment) at the upper end of the

exploitation range (15–20%). Stocks in poor condition (small volume, decreasing abundance, poor recruitment) are exploited at lower than maximum rates (0–15%).

Commercial Fishery

The Kuskokwim Area commercial herring fishery was initiated in 1977 in Security Cove and Goodnews Bay districts with the first documented deliveries in 1978 in Security Cove District and 1979 in Goodnews Bay District. In 1978 purse seines were allowed in Security Cove District, however, since that time the fishery has been limited to gillnets. Spawn-on-kelp fisheries were prohibited in 1978 before fisheries were established. Initially these fisheries were managed through open seasons and guideline harvest levels. In 1981 emergency order authority was established to open and close fisheries to provide for an orderly fishery and periodic assessments of herring biomass. A minimum threshold herring abundance of 800 to 1,000 metric tons or spawning activity was established before implementation of the fishery and the guideline harvest levels were established not to exceed 20% of estimated herring biomass. The length of gillnet was established at 100 fathoms. In 1986 the northern boundary of Security Cove was moved from Carter Spit south to the latitude of Salmon River (58° 52’ N lat) to provide spatial separation between Security Cove and Goodnews Bay districts. By 1987 the minimum inseason biomass threshold was established at 1,200 tons and the Goodnews Bay District was designated a superexclusive use area by BOF limiting permit holder and vessel participation in the commercial fishery. In 1997 a moratorium on entry into the Goodnews Bay fishery was initiated limiting participation in the fishery to 182 permits. The Goodnews Bay superexclusive use area designation was later repealed by the BOF in 2004.

In 1985, commercial herring fishing was initiated in Nelson and Nunivak Island districts. Emergency order authority was established to open and close these fisheries to provide for an adequate subsistence harvest, and orderly commercial fishery, and to allow for periodic re-assessments of herring biomass. A minimum threshold herring abundance of 1,100 to 1,700 tons or spawning activity was established before implementation of the fishery with a guideline harvest level set at 10% of estimated returning biomass to provide protection for the subsistence fisheries. Gillnet length was limited to 100 fathoms. In 1986 the waters within Nelson Island District from Atranak Point and Talurarevuk Point, and the waters between the southern and northern edges of Chinit Point were closed by emergency order at the request of local governing groups to prevent interference with the subsistence fishery. By 1988 these waters were closed to commercial herring fishing by regulation. Beginning in 1987, mechanical shakers were eliminated in Nelson and Nunivak Island fisheries and vessel length was limited to 30 feet. Both districts were designated as combined superexclusive use areas. Implementation of the superexclusive use designation with vessel length restrictions and prohibition of mechanical shakers was in response to requests from fishermen living in communities adjacent to the fisheries. These fishermen believed it would be in the best interest of the fisheries to standardize equipment to help prevent over investment and to limit participation by allowing fishermen to only participate in one herring fishery (Whitmore et al. 2005). The combined superexclusive use designation allows for fishermen holding permits for both Nunivak and Nelson Island fisheries to participate in commercial herring fisheries in both districts during the same season. In 1987 the minimum inseason biomass threshold was increased to 2,500 tons, and the commercial guideline harvest level was increased from 10% to a maximum of 15% of estimated biomass in both districts. In December 1997, the BOF adopted a proposal that raised the Nelson Island District harvest level to 20% of the available biomass minus 200 tons allocated for subsistence use and

increased the commercial guideline harvest level to 20% of the estimated biomass for the Nunivak Island District. In 1987 the Commercial Fisheries Entry Commission initiated the first steps toward limited entry status in the Nelson Island and Nunivak Island districts and both districts were given limited entry status in 1990. In the winter of 2000, the BOF adopted regulations to allow for development of a cooperative herring purse seine fishery in Nunivak Island District and made the regulation permanent in 2001. In 2006 the Alaska Supreme Court determined that authorizing cooperative fisheries of any sort was beyond the BOF authority. Consequently, the management plan for gillnet and cooperative purse seine fishery in the Nunivak Island District was repealed by the BOF in 2006 (5 AAC 27.894).

In 1988, commercial herring fishing was initiated in the Cape Avinof District. A minimum threshold herring abundance of 500 tons or spawning activity was established before implementation of the fishery and a guideline harvest level was established not to exceed 15% of the estimated biomass. The commercial herring fishery established the use of gillnets up to 100 fathoms in length, mechanical shakers were prohibited, vessel length was limited to 30 feet, and a superexclusive use designation was established.

Kuskokwim Area herring fisheries developed rapidly in response to the relative strong market for herring sac roe. During 1981 to 1984, an average of 206 fishermen harvested 1,400 tons of herring with an average value of $477,000 in Security Cove and Goodnews Bay districts. Addition of Nelson and Nunivak Island fisheries in 1985 and the Cape Avinof fishery in 1988 resulted in an average of 442 fishermen harvesting an average of 2,200 tons of herring with an average value of $1.33 million during 1985 to 1989. During the 1990 and 1991 seasons, fishermen participation, harvest levels and values decreased in response to a decline in herring abundance caused by a lack of recruitment of younger age herring into the fishery. Additional year classes of herring began recruiting to the fishery in 1992. The fishery peaked in 1996 when 802 fishermen harvested over 5,000 tons of herring valued at $3.5 million. Although harvest levels remained high during 1997 to 1999 seasons, value declined. The trend in declining value was followed by an annual reduction in effort and harvest levels which continued through the 2006 season, during which 32 fishermen harvested 390 tons of herring valued at $70,000. The decline in markets for herring sac roe continued through 2011 with no commercial herring harvest occurring in the Kuskokwim Area since 2006 (Appendices E1 and E2).

Subsistence Fishery

Subsistence fishing for Pacific herring in the northeastern Bering Sea is very important in villages of the Yukon-Kuskokwim River delta. Primarily residents of the coastal villages of Kwigillingok, Kongiganak, Kipnuk, Chefornak, Toksook Bay, Nightmute, Tununak, and Newtok participate in the subsistence fishery. Herring stocks utilized by the subsistence fishery are the same stocks targeted by the commercial fishery.

Subsistence harvest surveys occurred sporadically in Kuskokwim delta villages during 1975 to 1996 with surveys conducted annually in Nelson Island villages from 1985 to 1996. Subsistence survey results reflect harvest trends and reported catches represent minimum figures because not all area villages were surveyed and not all fishermen were contacted in those communities. No subsistence herring surveys have been conducted in the Nelson Island District since 1996 or in the Nunivak Island District since 1993. Available data suggests that Nelson Island villages harvest approximately 110 tons of herring annually (Burkey et al. 1998).

STOCK ASSESSMENT

The remoteness of the Kuskokwim Area herring fishing districts present challenges in assessing abundance, implementing fisheries, and monitoring escapement toward sustained yield fishery management. Although the fisheries typically progress in a northward progression, herring fishery and spawn timing is quite similar.

Due to depressed herring markets and reallocation of funding, the number of surveys flown and the number of districts surveyed has declined in recent years. Survey aircraft are no longer contracted for a block of flight time, but rather chartered locally on an hourly basis and when available. Due to poor weather conditions in 2011 surveys were not flown in any of the herring districts, Security Cove, Goodnews Bay, Nelson Island, and Central Kuskokwim Bay.

Also, as a result of the declining interest in the commercial sac roe herring market, the ADF&G test fishing program has been reduced from as many as 6 field camp projects in the 1990s to only 2 test fishing projects in 2010. Due to the factors previously mentioned test fish projects did not operate in 2011. In future years, due the decline in the commercial sac roe herring market funding is no longer available for herring test fishing and associated sampling projects and aerial surveys.

If the herring market rebounds, aerial survey data collection methods will be similar to those used since 1978. Standard conversions of 1.52 tons/538 ft^2 (water depths less than 16 ft), 2.58 tons/538 ft^2 (water depths between 16 and 26 ft), and 2.83 tons/538 ft^2 (water depths greater than 26 ft) were used to convert estimated herring school surface areas to biomass.

Test fishing with variable mesh gillnets (VMG) is used to collect samples of herring to determine age, sex, size, and sexual maturity of the run, and to note occurrence of other schooling fishes. This sampling program was important for determining herring stock status and for making biomass projections. The last year of data collection from the Goodnews Bay and Nelson Island Districts occurred in 2010. The last year of data collection from Security Cove District was in 2003, from the Nelson Island District in 2007, from the Cape Avinof District in 2001, and from the Nunivak Island District in 1999. If the catch sampling program is reinstated in the future, in the absence of data from the Security Cove District, VMG data from Goodnews Bay is used to estimate the metrics for the Security Cove District. VMG data from Nelson Island has been used to estimate the metrics for the Nunivak Island and Cape Avinof districts.

2012 KUSKOKWIM AREA HERRING OUTLOOK

2012 FORECAST SUMMARY

Based on postseason escapement projections, the 2012 estimated spawning biomass for Kuskokwim Area herring stocks (Security Cove to Nunivak Island Districts) will be 60,711 tons. If the return is as anticipated the total allowable harvest could be 10,672 tons (Table 8).

The 2012 Kuskokwim Area biomass projection was based on biomass estimates from previous years for Security Cove, Goodnews Bay, Cape Avanof, Nunivak Island, and Nelson Island. Herring samples collected from the test fishery at Goodnews Bay and Nelson Island in Kuskokwim Bay in 2010 and commercial and test fishery samples collected in Norton Sound through 2011 suggest that the forecasted population will be comprised primarily of herring ages 7–9 (76.1%) and ages 10 and older (16.9%).

The actual biomass observed in 2012 may fall above or below the preseason projections based on variability in the quality of aerial biomass assessments, the lack of recent aerial surveys, and annual fluctuation of survival or recruitment rates. Recruitment events typically occur every 8 to 10 years, as suggested by the dominant age 7 year class and high biomass estimates in Security Cove, Goodnews Bay, and Jacksmith Bay during 2010.

If a commercial fishery develops, ADF&G will conduct aerial surveys as regularly as possible and monitor catch statistics inseason. Guideline harvest levels, therefore, may be adjusted according to inseason aerial assessments of herring biomass. If aerial surveys are not adequate because of poor weather and water clarity conditions, stock abundance will alternately be assessed using projected biomass, test catches, and spawn deposition observations. In accordance with the AYK Region harvest strategy, any operational commercial fishery will not target newly recruited age classes (age 2 through age 5 herring). The duration of fishing periods and harvests would vary in each district depending on inseason biomass estimates, roe quality, spawning activity, weather conditions, fishing effort, and processor input.

Security Cove District

The 2012 projected biomass for the Security Cove District is 12,193 tons and the minimum biomass threshold is 1,200 tons. A 20% exploitation rate would result in a harvest of 2,439 tons. The department will plan to verify herring biomass inseason to determine the biomass is large enough to support this level of harvest if fishing occurs. Herring ages 7–9 are expected to comprise 68% of the returning biomass (34%, 22%, and 12%, respectively). Age 10 and older herring are expected to comprise 21% of the biomass.

Goodnews Bay District

The 2012 projected biomass for the Goodnews Bay District is 33,008 tons and the minimum biomass threshold is 1,200 tons. A 20% exploitation rate would result in a harvest of 6,602 tons. ADF&G will plan to verify herring biomass inseason to determine the biomass is large enough to support this level of harvest if fishing occurs. Herring ages 7–8 (56%) and ages 9–10 (21%) are expected to dominate the fishery with age 11 and older (12%) and ages 5–6 (11%) expected to comprise the remaining biomass.

Cape Avinof District

The 2012 projected biomass for the Cape Avinof District is 2,095 tons and the minimum biomass threshold is 500 tons. The exploitation rate will be no greater than 15% because of the limited database for this area and to ensure the subsistence fishing priority. Based on this exploitation rate, potential harvest could be 314 tons. Herring ages 7–9 are expected to comprise 68% of the returning biomass. Age 10 and older herring are expected to comprise approximately 27% of the biomass.

Nelson Island District

The 2012 projected biomass for the Nelson Island District is 4,703 tons and the minimum biomass threshold is 3,000 tons. A 20% exploitation rate would result in a commercial harvest of 741 tons after accounting for 200 tons in subsistence harvest uses. Herring ages 7–9 are expected to make up 69% of the returning population, contributing 21%, 26%, and 22% respectively. Herring age 10 and older are expected to comprise 26% of the biomass.

Nunivak Island District

The 2012 projected biomass for the Nunivak Island District is 2,879 tons and a minimum biomass threshold of 1,500 tons. A 20% exploitation rate would result in a harvest of 576 tons. Ages 7–9 are expected to comprise 68% of the returning biomass, 20%, 26%, and 22% respectively. Herring age 10 and older are expected to comprise 27% of the biomass.

MISCELLANEOUS FISHERIES

Several species other than salmon, herring and halibut are used for commercial, subsistence, and recreation purposes in the Kuskokwim Management Area. They are inconnu or sheefish (*Stenodus leucichthys*), whitefish (*Coregonus* and *Prosopium*), char (*Salvelinus*), burbot (*Lota lota*), Arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), Arctic lamprey (*Lampetra japonica*), rainbow smelt (*Osmerus mordax*), blackfish (*Dallia pectoralis*), rainbow trout (*Oncorhynchus mykiss*), lake trout (*Salvelinus namaycush*), threespine stickleback (*Gasterosteus aculeatus*), ninespine stickleback (*Pungitius pungitius*), longnose sucker (*Catostomus catostomus*), and Saffron or "Tomcod" (*Eleginus gracilus*).

FRESHWATER COMMERCIAL

The commercial fishery has been sporadic, primarily harvesting whitefish and burbot for local markets. Some of the whitefish harvest occurs under the ice in the winter.

A permit from the Commercial Fisheries Entry Commission is required. A permit from ADF&G to conduct commercial fisheries on whitefish, pike, smelt, burbot, and lamprey is also required. Those species may also be taken incidentally to commercial salmon fishing. There were no freshwater permits issued by the Bethel CF office in 2011 for the Kuskokwim Area. The guidelines for permits are:

1. All waters of the area except the Johnson River drainage and Whitefish Lake are open to commercial harvest of freshwater finfish. The heavy subsistence utilization of freshwater species in these areas is the reason for the closure.
2. Only whitefish, cisco, smelt, pike, burbot, and lamprey may be taken. Sheefish, char, and trout may not be taken due to their smaller populations, lower reproductive rates, and their heavy utilization in the subsistence and sport fisheries.
3. All legal commercial gear types are allowed.
4. Gillnets may not be less than 2.5 or greater than 5.0 inches stretch mesh. Long lines and set lines must use hooks with a gap between point and shank larger than 0.75 inch.

Appendix A20 presents the freshwater finfish fishery catches and value since 1977. No commercial landings of whitefish were documented in 2011.

Stock Status

Limited ADF&G observations, advisory committee recommendations and fishermen interviews give no indication of declining populations in most drainages. However, residents of Kasigluk, Atmautluak, and Nunapitchuk have expressed concerns that subsistence fishermen are overexploiting the whitefish stocks in Nunavakpak Lake (near Kasigluk).

SALTWATER COMMERCIAL

A poorly documented commercial fishery on Saffron or "Tomcod" has occurred in the Kuskokwim Area for some time. These fish were surplus to subsistence needs and fishermen and local stores were, and often still are, unaware of the regulatory requirements. ADF&G has been trying to inform buyers and sellers of these requirements. Since 1988, the department has had information on the sale of fish exported from the coastal villages to Bethel. Sales within the villages remain undocumented. No commercial landings were documented in 2011.

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REFERENCES CITED

ADF&G (Alaska Department of Fish and Game). 2004. Escapement goal review of select AYK Region salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Informational Report 3A04-01, Anchorage.

Baxter, R. 1970. Kuskokwim test fishing studies, 1966–1970. AYK Region, Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim Salmon Test Fishing Report No. 1, Anchorage.

Bergstrom, D. J., and C. Whitmore. 2004. Kuskokwim River Chinook and chum salmon stock status and action plan. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A04-02, Anchorage.

Bue, D. G. 2005. Data summary for the Kuskokwim River salmon test fishery at Bethel, 1984–2003. Alaska Department of Fish and Game, Fishery Data Series No. 05-14, Anchorage.

Burkey, C., Jr., C. Anderson, T. Cappiello, M. Coffing, D. Huttunen, J. Menard, D. B. Molyneaux, C. Utermohle, and T. Vania. 1998. Annual management report for the subsistence and commercial fisheries of the Kuskokwim area. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A98-11, Anchorage.

Burkey, C., Jr., M. Coffing, D. B. Molyneaux, and P. Salomone. 2000. Kuskokwim River chum salmon stock status and development of management/action plan options. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report 3A00-41, Anchorage.

Carroll, H. C., and T. Hamazaki. 2012. Subsistence salmon harvests in the Kuskokwim area, 2008 and 2009. Alaska Department of Fish and Game, Fishery Data Series No. 12-35, Anchorage.

Coffing, M. W. 1991. Kwethluk subsistence: contemporary land use patterns, wild resource harvest and use, and the subsistence economy of a lower Kuskokwim River area community, Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 157, Juneau.

Coffing, M. W., L. Brown, G. Jennings, and C. J. Utermohle. 2001. The subsistence harvest and use of wild resources in Akiachak, Alaska, 1998. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 258, Juneau.

Estensen, J. L., D. B. Molyneaux, and D. J. Bergstrom. 2009. Kuskokwim River salmon stock status and Kuskokwim area fisheries, 2009: a Report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Special Publication No. 09-21, Anchorage.

Fall, J. A., C. L. Brown, D. Caylor, S. Georgette, T. Krauthoefer, and A. W. Paige. 2003. Alaska subsistence fisheries 2002 annual report. Alaska Department of Fish and Game, Division of Subsistence, Technical Data Report No. 315, Juneau.

Francisco, K. R., K. Schultz, D. J. Schneiderhan, D. Huttunen, and R. Cannon. 1988. Annual management report Kuskokwim Area, 1987. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3B88-35, Anchorage.

Francisco, K. R., K. Schultz, D. J. Schneiderhan, D. Huttunen, C. Burkey Jr., H. Hamner, R. Walker. 1989. Annual management report Kuskokwim Area, 1988. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3B89-08, 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.

Huttunen, D. C. 1984. 1982-1983 Kuskokwim River Test Fishing Projects. AYK Region, Alaska Department of Fish and Game, Division of Commercial Fisheries, Kuskokwim River Salmon Test Fishing Report No. 13, Juneau.

REFERENCES CITED (Continued)

JTC (Yukon River Joint Technical Committee). 2005. US/Canada Yukon River Joint Technical Committee 2004 season summary and 2005 season outlook. Joint Technical Committee Series JTC 05-01. Whitehorse, Yukon and Anchorage, Alaska.

Kuskokwim Fishermen's Cooperative. 1991. Kuskokwim River salmon management working group, subsistence survey final report, 1990. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3B91-01, Anchorage.

Linderman, J. C., Jr., and D. J. Bergstrom. 2006. Kuskokwim River Chinook and chum salmon stock status and Kuskokwim area fisheries; a report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Special Publication No. 06-35, Anchorage.

Miller, S. J., and K. C. Harper. 2012a. Abundance and run timing of adult Pacific salmon in the Kwethluk River, Yukon Delta National Wildlife Refuge, Alaska, 2011. U. S. Fish and Wildlife Service, Fish and Wildlife Field Office, Alaska Fisheries Data Series No. 2012-3, Soldotna.

Miller, S. J., and K. C. Harper. 2012b. Abundance and run timing of adult Pacific salmon in the Tuluksak River, Yukon Delta National Wildlife Refuge, Alaska, 2011. U. S. Fish and Wildlife Service, Fish and Wildlife Field Office, Alaska Fisheries Data Series No. 2012-2, Soldotna.

Molyneaux, D. B., and L. K. Brainnian. 2006. Review of escapement and abundance information for Kuskokwim area salmon stocks. Alaska Department of Fish and Game, Fisheries Manuscript No. 06-08, Anchorage.

Volk, E. C., M. J. Evenson, and R. H. Clark. 2009. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2010. Alaska Department of Fish and Game, Fisheries Manuscript No. 09-07, Anchorage.

Walker, R. J., and M. W. Coffing. 1993. Subsistence salmon harvests in the Kuskokwim Area during 1989. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 287, Juneau.

Whitmore, C., M. Martz, D. G. Bue, J. C. Linderman 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.

TABLES AND FIGURES

Table 1.–Commercial fishing emergency order summary, Kuskokwim Management Area, 2011.

Kuskokwim River Salmon			
EO	Description	Effective Date	Expiration Date
3-S-WR-01-11	Subsistence Fishing Closures and Restrictions	12:01 a.m. Wednesday, June 1, 2011	11:59 p.m. Monday July 25, 2011
3-S-WR-02-11	Closes Subsistence Salmon Fishing in District 1	12:01 a.m. Thursday, June 16, 2011	11:59 p.m. Sunday June 19, 2011
3-S-WR-03-11	Closes Subsistence Salmon Fishing in District 1	12:01 a.m. Thursday, June 23, 2011	11:59 p.m. Monday June 27, 2011
3-S-WR-04-11	Restricts Subsistence Salmon Fishing in District to 6" Mesh or Less	12:01 a.m. Wednesday, June 29, 2011	11:59 p.m. Wednesday July 6, 2011
3-S-WR-05-11	Opens Commercial Fishing Season in District 1	12:00 p.m. Tuesday, July 5, 2011	11:59 p.m. Thursday September 1, 2011
3-S-WR-06-11	Establishes Subsistence Closures around Commercial Fishing	12:00 p.m. Tuesday, July 5, 2011	11:59 p.m. Thursday September 1, 2011
3-S-WR-07-11	W1 B 4 hr fishing period	12:00 p.m. Tuesday, July 5, 2011	4:00 p.m. Tuesday, July 5, 2011
3-S-WR-08-11	W1 A 3 hr fishing period	12:00 p.m. Thursday, July 7, 2011	3:00 p.m. Thursday, July 7, 2011
3-S-WR-09-11	W1 A 3 hr fishing period	12:00 p.m. Saturday, July 9, 2011	3:00 p.m. Saturday, July 9, 2011
3-S-WR-10-11	W1 A 3 hr fishing period	12:00 p.m. Monday, July 11, 2011	3:00 p.m. Monday, July 11, 2011
3-S-WR-11-11	W1 B 4 hr fishing period	12:00 p.m. Wednesday, July 13, 2011	4:00 p.m. Wednesday, July 13, 2011
3-S-WR-12-11	W1 A 3 hr fishing period	12:00 p.m. Friday, July 15, 2011	3:00 p.m. Friday, July 15, 2011
3-S-WR-13-11	Opens Kuskokuak and Old Kuskokuak Slough to Subsistence Salmon Fishing	12:01 a.m. Monday, July 18, 2011	11:59 p.m. Saturday, December 31, 2011
3-S-WR-14-11	W1 B 4 hr fishing period	12:00 p.m. Monday, July 18, 2011	4:00 p.m. Monday, July 18, 2011
3-S-WR-15-11	W1 A 4 hr fishing period	12:00 p.m. Wednesday, July 20, 2011	4:00 p.m. Wednesday, July 20, 2011
3-S-WR-16-11	W1 B 4 hr fishing period with a 2 hr extension in the Lower Subdistrict	10:00 a.m. Friday, July 22, 2011	4:00 p.m. Friday, July 22, 2011

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Table 1.–Page 2 of 3.

Kuskokwim River Salmon			
EO	Description	Effective Date	Expiration Date
3-S-WR-17-11	W1 A 4 hr fishing period	12:00 p.m. Monday, July 25, 2011	4:00 p.m. Monday, July 25, 2011
3-S-WR-18-11	W1 B 4 hr fishing period with a 2 hr extension in the Lower Subdistrict	10:00 a.m. Wednesday, July 27, 2011	4:00 p.m. Wednesday, July 27, 2011
3-S-WR-19-11	W1 A 3 hr fishing period	12:00 p.m. Monday, August 1, 2011	3:00 p.m. Monday, August 1, 2011
3-S-WR-20-11	W1 B 4 hr fishing period with a 2 hr extension in the Lower Subdistrict	10:00 a.m. Wednesday, August 3, 2011	4:00 p.m. Wednesday, August 3, 2011
3-S-WR-21-11	W1 A 3 hr fishing period	12:00 p.m. Monday, August 8, 2011	3:00 p.m. Monday, August 8, 2011
3-S-WR-22-11	W1 B 4 hr fishing period with a 2 hr extension in the Lower Subdistrict	10:00 a.m. Wednesday, August 10, 2011	4:00 p.m. Wednesday, August 10, 2011
3-S-WR-23-11	W1 A 4 hr fishing period	12:00 p.m. Monday, August 15, 2011	4:00 p.m. Monday, August 15, 2011
3-S-WR-24-11	W1 B 4 hr fishing period with a 2 hr extension in the Lower Subdistrict	10:00 a.m. Wednesday, August 17, 2011	4:00 p.m. Wednesday, August 17, 2011
3-S-WR-25-11	W1 A 4 hr fishing period	12:00 p.m. Friday, August 19, 2011	4:00 p.m. Friday, August 19, 2011
3-S-WR-26-11	W1 A 4 hr fishing period	12:00 p.m. Monday, August 22, 2011	4:00 p.m. Monday, August 22, 2011
Kuskokwim Bay Salmon			
3-S-WB-01-11	Establishes Commercial Fishing season and Subsistence closures around commercial fishing	9:00 a.m. Monday, June 20, 2011	9:00 p.m. Thursday, September 8, 2011
3-S-WB-02-11	W4 12 hr fishing period	9:00 a.m. Monday, June 20, 2011	9:00 p.m. Monday, June 20, 2011
3-S-WB-03-11	W4 12 hr fishing period	9:00 a.m. Wednesday, June 22, 2011	9:00 p.m. Wednesday, June 22, 2011
3-S-WB-04-11	W5 12 hr fishing period	9:00 a.m. Monday, June 27, 2011	9:00 p.m. Monday, June 27, 2011
3-S-WB-05-11	W4 12 hr fishing period	9:00 a.m. Thursday, June 30, 2011	9:00 p.m. Thursday, June 30, 2011
3-S-WB-06-11	W5 12 hr fishing period	9:00 a.m. Thursday, June 30, 2011	9:00 p.m. Thursday, June 30, 2011
3-S-WB-07-11	W4 & W5 12 hr fishing period	9:00 a.m. Monday, July 4, 2011	9:00 p.m. Monday, July 4, 2011
3-S-WB-08-11	W4 & W5 12 hr fishing period	9:00 a.m. Wednesday, July 6, 2011	9:00 p.m. Wednesday, July 6, 2011
3-S-WB-09-11	W5 12 hr fishing period	9:00 a.m. Thursday, July 7, 2011	9:00 p.m. Thursday, July 7, 2011
3-S-WB-10-11	W4 & W5 12 hr fishing period	9:00 a.m. Saturday, July 9, 2011	9:00 p.m. Saturday, July 9, 2011
3-S-WB-11-11	W4 & W5 12 hr fishing period	9:00 a.m. Monday, July 11, 2011	9:00 p.m. Monday, July 11, 2011

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Table 1.–Page 3 of 3.

Kuskokwim Bay Salmon			
EO	Description	Effective Date	Expiration Date
3-S-WB-12-11	W4 & W5 12 hr fishing period W5 closed	9:00 p.m. Wednesday, July 13, 2011	9:00 p.m. Friday, July 15, 2011
3-S-WB-13-11		9:00 a.m. Friday, July 15, 2011	9:00 p.m. Friday, July 15, 2011
3-S-WB-14-11	W4 12 hr fishing period	9:00 a.m.Monday, July 18, 2011	9:00 p.m. Monday, July 18, 2011
3-S-WB-15-11	W4 12 hr fishing period	9:00 a.m. Wednesday, July 20, 2011	9:00 p.m. Friday, July 22, 2011
3-S-WB-16-11	W4 12 hr fishing period	9:00 a.m. Monday, July 25, 2011	9:00 a.m. Friday, July 29, 2011
3-S-WB-17-11	W5 12 hr fishing period	9:00 a.m. Friday, July 29, 2011	9:00 p.m. Friday, July 29, 2011
3-S-WB-18-11	W4 & W5 12 hr fishing period on Monday and Friday	9:00 a.m. Monday, August 1, 2011	9:00 p.m. Friday, August 5, 2011
3-S-WB-19-11	W4 & W5 12 hr fishing period	9:00 a.m. Monday, August 8, 2011	9:00 p.m. Monday, August 8, 2011
3-S-WB-20-11	W4 on 8/12 W5 on 8/10 and 8/12 12 hr fishing period	9:00 a.m. Wednesday, August 10, 2011	9:00 p.m. Friday, August 12, 2011
3-S-WB-21-11	W4 & W5 12 hr fishing period	9:00 a.m. Monday, August 15, 2011	9:00 p.m. Wednesday, August 17, 2011
3-S-WB-22-11	W4 & W5 12 hr fishing period	9:00 a.m. Friday, August 19, 2011	9:00 p.m. Monday, August 22, 2011
3-S-WB-23-11	W4 & W5 12 hr fishing period	9:00 a.m. Wednesday, August 24, 2011	9:00 p.m. Friday, August 26, 2011

Table 2.–Commercial salmon harvest and exvessel value by district, Kuskokwim management area, 2011.

District	Chinook	Sockeye	Coho	Pink	Chum	Total
Lower Kuskokwim River, District W-1						
Fish	49[a]	13,482	74,108	1	118,256	205,847
Pounds	484	89,093	496,922	4	712,880	1,299,383
Price	$0.85	$0.89	$0.67	$0.00	$0.49	
Value	$411	$79,370	$334,452	$0	$350,124	$764,357
Recent 10-yr Average 2001-2010						
Fish	2,863	11,365	177,034	4	35,051	226,316
Value	$24,382	$50,298	$398,756	$0	$30,100	$504,155
Quinhagak, District W-4						
Fish	15,387	38,543	30,457	0	104,959	189,346
Pounds	196,009	244,296	233,333	0	710,420	1,384,058
Price	$0.85	$0.85	$0.85	$0.00	$0.85	
Value	$166,606	$207,642	$198,333	$0	$603,855	$1,176,436
Recent 10-yr Average 2001-2010						
Fish	16,899	72,489	44,708	2	46,996	181,093
Value	$142,516	$296,381	$122,805	$0	$42,662	$604,365
Goodnews Bay, District W-5						
Fish	2,092	24,573	15,358	0	13,191	55,214
Pounds	22,617	166,290	125,260	0	92,918	407,085
Price	$0.85	$0.85	$0.85	$0.00	$0.85	
Value	$19,224	$141,347	$106,471	$0	$78,980	$346,022
Recent 10-yr Average 2001-2010						
Fish	1,907	28,032	12,278	1	9,507	51,724
Value	$16,154	$113,892	$36,031	$0	$9,488	$175,566
Kuskokwim Area Total						
Fish	17,479	76,598	119,923	1	236,406	450,407
Pounds	219,110	499,679	855,515	4	1,516,218	3,090,526
Price	$0.85	$0.86	$0.75	$0.00	$0.68	
Value	$186,241	$428,359	$639,256	$0	$1,032,959	$2,286,815
Recent 10-yr Average 2001-2010						
Fish	21,677	112,064	233,789	4	91,577	459,111
Value	$183,052	$460,571	$557,592	$1	$82,250	$1,284,085

[a] An additional 699 Chinook salmon were caught during commercial periods, but were retained for personal use. These fish are included in the subsistence harvest throughout the postseason subsistence harvest survey methodology.

Table 3.–Commercial salmon harvest, District W1, Kuskokwim River, 2011.

						Chinook			Sockeye			Coho			Chum		
Period	Date	Subdistrict	Permits	Hrs	Deliveries	Catch	Lbs	CPUE	Catch	Lbs	CPUE	Catch	Lbs	CPUE	Catch	Lbs	CPUE
1	7/5	1B	112	4	120	46	452	0.10	2,519	17,476	5.62	0	0	0.00	13,873	90,248	30.97
2	7/7	1A	62	3	64	2	19	0.01	2,348	15,742	12.62	0	0	0.00	8,130	52,620	43.71
3	7/9	1A	61	3	62	1	13	0.01	2,561	16,134	13.99	0	0	0.00	6,850	41,811	37.43
4	7/11	1A	75	3	76	0	0	0.00	2,157	14,394	9.59	0	0	0.00	11,406	69,240	50.69
5	7/13	1B	147	4	156	0	0	0.00	517	3,843	0.88	47	290	0.08	19,683	117,721	33.47
6	7/15	1A	86	3	87	0	0	0.00	1,999	12,511	7.75	58	359	0.22	12,432	72,185	48.19
7	7/18	1B	159	4	160	0	0	0.00	282	1,886	0.44	192	1,282	0.30	11,940	69,914	18.77
8	7/20	1A	83	4	83	0	0	0.00	647	4,077	1.95	273	1,751	0.82	9,465	55,527	28.51
9	7/22	1B	155	4[a]	157	0	0	0.00	209	1,438	0.34	1,525	9,968	2.46	8,501	50,412	13.71
10	7/25	1A	80	4	81	0	0	0.00	53	365	0.17	2,722	16,496	8.51	7,151	41,987	22.35
11	7/27	1B	182	4[a]	183	0	0	0.00	72	470	0.10	5,688	36,359	7.81	4,635	26,690	6.37
12	8/1	1A	79	3	80	0	0	0.00	15	106	0.06	7,353	47,736	31.03	1,631	9,197	6.88
13	8/3	1B	215	4[a]	216	0	0	0.00	42	260	0.05	12,563	83,865	14.61	1,628	9,668	1.89
14	8/8	1A	100	3	102	0	0	0.00	6	33	0.02	13,838	90,453	46.13	382	2,147	1.27
15	8/10	1B	213	4[a]	213	0	0	0.00	36	227	0.04	8,660	59,858	10.16	258	1,712	0.30
16	8/15	1A	106	4	106	0	0	0.00	3	25	0.01	5,316	36,007	12.54	135	815	0.32
17	8/17	1B	116	4[a]	116	0	0	0.00	11	66	0.02	4,557	31,526	9.82	42	273	0.09
18	8/19	1A	92	4	92	0	0	0.00	1	7	0.00	5,032	36,141	13.67	56	340	0.15
19	8/22	1A	100	4	100	0	0	0.00	4	33	0.01	6,284	44,831	15.71	58	373	0.15
Totals			413[b]	70	2,254	49[c]	484	0.00	13,482	89,093	0.47	74,108	496,922	2.56	118,256	712,880	4.09

[a] Does not include a 2-hour extension for the lower section of W1-B.

[b] Number of individual permit holders participating for the season.

[c] An additional 699 Chinook salmon were caught during commercial periods, but were retained for personal use. These fish are included in the subsistence harvest throughout the postseason subsistence harvest survey methodology.

Table 4.–Commercial salmon harvest, District W4, Quinhagak, 2011.

					Chinook			Sockeye			Chum			Coho		
Period	Date	Permits	Hours	Deliveries	Catch	Lbs	CPUE	Catch	Lbs	CPUE	Catch	Lbs	CPUE	Catch	Lbs	CPUE
1	6/20	115	12	181	5,585	60,694	4.0	1,758	12,597	1.3	2,767	20,088	2.0	0	0	0.0
2	6/22	126	12	153	2,797	34,903	1.8	2,291	15,501	1.5	3,066	22,516	2.0	0	0	0.0
3	6/30	149	12	274	3,287	45,843	1.8	7,550	52,530	4.2	7,728	54,613	4.3	0	0	0.0
4	7/4	137	12	216	1,160	16,188	0.7	6,310	39,957	3.8	9,572	70,773	5.8	0	0	0.0
5	7/6	71	12	90	262	3,454	0.3	1,897	11,860	2.2	3,465	23,792	4.1	0	0	0.0
6	7/8	109	12	161	590	8,877	0.5	3,665	22,681	2.8	10,679	72,645	8.2	0	0	0.0
7	7/9	127	12	162	445	6,865	0.3	3,367	20,408	2.2	11,765	67,777	7.7	0	0	0.0
8	7/11	85	12	122	255	3,706	0.3	1,853	11,631	1.8	6,379	42,484	6.3	3	21	0.0
9	7/13	109	12	177	337	4,749	0.3	3,695	21,329	2.8	9,907	67,192	7.6	3	15	0.0
10	7/15	113	12	165	179	3,151	0.1	2,571	14,418	1.9	9,827	70,520	7.2	29	174	0.0
11	7/18	77	12	126	119	1,898	0.1	1,254	7,647	1.4	7,218	48,721	7.8	22	124	0.0
12	7/20	83	12	108	119	1,938	0.1	599	3,477	0.6	6,269	40,150	6.3	41	257	0.0
13	7/22	66	12	100	61	893	0.1	422	2,352	0.5	5,840	40,883	7.4	109	752	0.1
14	7/25	72	12	85	57	921	0.1	411	2,341	0.5	3,605	25,706	4.2	436	2,505	0.5
15	7/27	49	12	58	21	338	0.0	288	1,781	0.5	2,046	12,702	3.5	425	2,805	0.7
16	7/29	51	12	69	35	634	0.1	196	1,256	0.3	1,954	12,538	3.2	1,280	8,822	2.1
17	8/1	57	12	70	22	341	0.0	138	873	0.2	1,452	8,971	2.1	1,349	9,537	2.0
18	8/5	52	12	54	14	179	0.0	82	458	0.1	661	3,847	1.1	1,373	9,543	2.2
19	8/8	50	12	53	10	135	0.0	34	194	0.1	351	1,986	0.6	2,468	17,362	4.1
20	8/12	62	12	99	13	107	0.0	55	331	0.1	177	1,064	0.2	6,311	48,217	8.5
21	8/15	85	12	103	4	39	0.0	30	184	0.0	123	756	0.1	3,915	29,936	3.8
22	8/17	62	12	78	4	23	0.0	27	178	0.0	37	239	0.0	2,924	23,188	3.9
23	8/19	68	12	77	3	37	0.0	11	65	0.0	33	197	0.0	2,892	23,289	3.5
24	8/22	51	12	56	6	69	0.0	23	138	0.0	17	107	0.0	2,179	17,951	3.6
25	8/24	41	12	48	1	7	0.0	10	57	0.0	17	124	0.0	2,047	17,471	4.2
26	8/26	50	12	64	1	20	0.0	6	52	0.0	4	29	0.0	2,651	21,364	4.4
Totals		219[a]	312	2,949	15,387	196,009	0.2	38,543	244,296	0.6	104,959	710,420	1.5	30,457	233,333	0.4

[a] Number of individual permit holders participating for the season.

Table 5.–Commercial salmon harvest, District 5, Goodnews Bay, 2011.

					Chinook			Sockeye			Chum			Coho		
Period	Date	Permits	Hours	Deliveries	Catch	Lbs	CPUE	Catch	Lbs	CPUE	Catch	Lbs	CPUE	Catch	Lbs	CPUE
1	6/27	28	12	45	1,166	11,044	3.5	2,041	14,595	6.1	1,491	11,341	4.4	0	0	0.0
2	6/30	32	12	44	268	2,889	0.7	3,468	23,886	9.0	2,048	15,369	5.3	0	0	0.0
3	7/4	34	12	45	176	2,177	0.4	2,852	19,595	7.0	1,868	13,532	4.6	130	835	0.3
4	7/6	24	12	27	57	762	0.2	1,198	8,102	4.2	939	6,547	3.3	0	0	0.0
5	7/7	30	12	36	126	1,504	0.4	2,083	14,105	5.8	1,650	11,579	4.6	0	0	0.0
6	7/8	11	12	12	20	297	0.2	413	2,799	3.1	363	2,581	2.8	0	0	0.0
7	7/9	23	12	28	87	1,050	0.3	1,429	9,489	5.2	1,375	9,174	5.0	0	0	0.0
8	7/11	24	12	27	86	1,397	0.3	1,257	8,454	4.4	1,491	9,972	5.2	0	0	0.0
9	7/13	21	12	31	67	882	0.3	2,034	13,552	8.1	1,516	9,934	6.0	0	0	0.0
10	7/29	14	12	21	11	205	0.1	1,804	12,154	10.7	204	1,330	1.2	202	1,395	1.2
11	8/1	16	12	20	1	12	0.0	1,488	10,027	7.8	139	880	0.7	406	2,991	2.1
12	8/5	14	12	15	7	115	0.0	954	6,350	5.7	44	283	0.3	389	2,904	2.3
13	8/8	14	12	15	2	22	0.0	529	3,474	3.1	24	148	0.1	713	5,244	4.2
14	8/10	20	12	22	6	77	0.0	854	5,604	3.6	21	140	0.1	1,666	12,618	6.9
15	8/12	17	12	25	4	41	0.0	722	4,754	3.5	10	61	0.0	2,070	16,074	10.1
16	8/15	16	12	21	4	58	0.0	510	3,353	2.7	5	30	0.0	1,977	16,239	10.3
17	8/17	17	12	21	0	0	0.0	423	2,750	2.1	0	0	0.0	1,733	14,254	8.5
18	8/19	15	12	20	2	55	0.0	166	1,045	0.9	1	7	0.0	1,278	10,759	7.1
19	8/22	14	12	18	1	10	0.0	123	748	0.7	1	5	0.0	1,687	14,599	10.0
20	8/24	10	12	13	0	0	0.0	115	760	1.0	0	0	0.0	1,224	10,734	10.2
21	8/26	16	12	19	1	20	0.0	110	694	0.6	1	5	0.0	1,883	16,614	9.8
Totals		48 [a]	252	525	2,092	22,617	0.2	24,573	166,290	2.0	13,191	92,918	1.1	15,358	125,260	1.3

[a] Number of individual permit holders participating for the season.

Table 6.–Subsistence salmon harvest estimates, 1990–2011.

	Households		Estimated Salmon Harvest [a]				
Year	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Total
1990	3,317	1,448	114,219	48,752	63,084	157,335	314,513
1991	3,340	2,033	79,445	50,383	44,222	89,008	298,561
1992	3,308	1,308	87,663	46,493	57,551	120,126	246,914
1993	3,269	1,786	91,973	53,631	31,971	64,551	240,103
1994	3,169	1,801	110,922	46,127	40,815	89,553	251,111
1995	3,638	1,907	105,787	31,736	39,582	71,789	236,885
1996	3,630	1,524	100,352	41,532	45,279	102,079	241,572
1997	3,501	1,919	83,022	39,827	31,324	38,073	198,466
1998	3,497	1,940	85,781	38,228	27,435	72,860	218,595
1999	4,165	2,512	79,752	50,988	30,184	51,200	202,413
2000	3,317	1,448	75,299	53,468	49,469	72,851	204,714
2001	4,469	2,215	82,106	55,290	33,474	57,060	212,338
2002	4,804	2,687	84,512	34,331	44,588	94,998	205,599
2003	4,513	2,292	70,579	33,821	36,953	46,666	194,474
2004	4,638	2,398	103,183	43,425	53,186	68,068	214,959
2005	4,603	1,593	89,538	44,637	35,793	59,220	186,762
2006	4,671	1,439	96,857	49,467	43,880	96,021	286,226
2007	4,620	1,279	101,554	50,092	37,481	76,187	265,315
2008	4,734	992	103,080	63,802	49,755	71,177	287,814
2009	4,810	1,699	81,853	37,779	31,613	45,101	196,345
2010	4,215	2,247	69,242	41,042	34,169	47,885	192,338
2011	4,232	2,149	61,687	42,146	30,682	50,702	185,217
10 year avg. 2001–2010	4,608	1,884	88,250	45,369	40,089	66,238	224,217

[a] Subsistence salmon harvest estimates from 1990 to 2009 are reconstructed.

Table 7.–Estimated subsistence salmon harvest by species and community for the Kuskokwim area, 2011.

	Households (HH)			Chinook			Chum			Sockeye			Coho			Pink		
Community	Total N	total n	% survey	avg harvest/ hh	Est. Total harvest	CI (95%)	avg harvest/ hh	Est. Total harvest	CI (95%)	avg harvest/ hh	Est. Total harvest	CI (95%)	avg harvst/ hh	Est. Total harvest	CI (95%)	avg harvst/ hh	Est. Total harvest	CI (95%)
Kongiganak	90	47	52	11.2	1,012	223	25.6	2,303	490	12.2	1,097	280	5.6	505	185	0.3	26	8
N. Kuskokwim Bay	90	47	52	11.2	1,012	223	25.6	2,303	490	12.2	1,097	280	5.6	505	185	0.3	26	8
Tuntutuliak	85	58	68	36.2	3,073	361	22.4	1,906	190	15.5	1,321	217	2.9	250	73	0.0	3	0
Eek	87	49	56	15.2	1,322	231	5.7	492	91	7.8	678	149	3.1	268	106	0.2	20	21
Kasigluk	108	67	62	21.7	2,346	280	17.8	1,923	388	9.3	1,000	113	2.9	316	57	0.0	3	0
Nunapitchuk	118	69	58	25.3	2,989	335	28.3	3,341	262	15.1	1,777	164	2.7	323	78	0.0	0	0
Atmautluak	60	35	58	20.3	1,220	194	30.8	1,847	410	13.7	821	192	4.3	259	78	0.0	2	2
Napakiak	93	51	55	20.2	1,879	401	16.7	1,552	222	14.4	1,337	270	10.0	932	223	0.5	43	38
Napaskiak	99	62	63	33.8	3,349	549	18.1	1,792	256	16.2	1,601	279	4.5	447	108	0.1	11	4
Oscarville	16	15	94	43.4	694	0	25.1	402	0	14.3	228	0	2.7	43	0	0.0	0	0
Bethel	2,087	807	39	11.2	23,459	2,015	6.1	12,791	2,503	7.3	15,151	1,418	7.7	16,092	1,744	0.1	220	69
Kwethluk	165	98	59	14.8	2,445	239	21.4	3,523	400	14.4	2,368	299	6.5	1,078	291	0.6	101	82
Akiachak	152	102	67	25.5	3,873	289	21.0	3,189	326	17.4	2,639	223	10.0	1,521	258	0.3	50	14
Akiak	80	36	45	30.8	2,465	543	30.5	2,439	806	32.4	2,595	645	6.4	508	209	1.7	136	92
Tuluksak	86	54	63	14.3	1,233	223	31.4	2,699	509	19.4	1,672	394	1.9	160	44	0.0	3	1
Lower Kuskokwim	3,236	1,503	46	15.6	50,346	2,317	11.7	37,895	2,813	10.3	33,188	1,726	6.9	22,196	1,822	0.2	592	147
Lower Kalskag	79	48	61	12.5	991	165	16.3	1,284	228	8.0	633	137	6.7	530	163	0.0	0	0
Upper Kalskag	67	41	61	20.9	1,401	199	19.5	1,309	111	11.1	746	123	12.1	813	291	0.4	27	2
Aniak	182	168	92	12.2	2,214	162	13.1	2,391	349	6.4	1,168	89	12.2	2,215	360	0.2	28	6
Chuathbaluk	31	29	94	13.2	409	51	22.1	686	83	9.7	300	28	3.5	109	20	0.2	5	3
Middle Kuskokwim	359	286	80	14.0	5,015	305	15.8	5,669	436	7.9	2,846	203	10.2	3,668	486	0.2	60	7
Crooked Creek	38	23	61	10.6	402	103	22.7	862	252	6.4	243	69	7.8	297	106	0.1	3	2
Red Devil	13	13	100	14.3	186	0	33.4	434	0	38.6	502	0	10.0	130	0	0.4	5	0
Sleetmute	37	29	78	6.5	242	25	18.6	689	104	18.7	693	102	11.5	426	37	0.4	15	9
Stony River	16	15	94	8.4	134	0	32.3	516	0	18.9	303	0	20.8	333	0	0.6	9	0

-continued-

Table 7.–Page 2 of 2.

	Households (HH)			Chinook			Chum			Sockeye			Coho			Pink		
Community	Total N	total n	% survey	avg harvest/ hh	Est. Total harvest	CI (95%)	avg harvest/ hh	Est. Total harvest	CI (95%)	avg harvest/ hh	Est. Total harvest	CI (95%)	avg harvst/ hh	Est. Total harvest	CI (95%)	avg harvst/ hh	Est. Total harvest	CI (95%)
Lime Village [a]	15	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
McGrath	136	47	35	6.0	820	373	3.5	472	435	4.6	621	513	9.5	1,297	1,505	0.0	4	5
Takotna [b]	23	17	74	0.0	0	0	0.0	0	0	0.0	0	0	0.1	3	2	–	0	0
Nikolai	33	32	97	13.6	450	52	10.6	349	10	0.4	13	3	0.6	20	4	0.0	0	0
Telida	2	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim	313	176	56	7.1	2,233	385	10.6	3,322	504	7.6	2,376	520	8.0	2,506	1,488	0.1	35	10
Kuskokwim River Total	3,998	2,012	50	14.7	58,606	2,378	12.3	49,190	2,930	9.9	39,506	1,833	7.2	28,875	2,404	0.2	713	147
Quinhagak	155	98	63	14.0	2,177	307	6.8	1,051	156	8.6	1,328	222	8.8	1,361	218	0.1	16	8
Goodnews Bay	71	35	49	11.0	784	196	4.8	338	144	18.8	1,336	264	3.8	273	126	0.2	14	13
Platinum	17	16	94	3.6	62	15	4.1	70	15	7.9	135	32	8.4	143	31	0.0	0	0
S. Kuskokwim Bay	243	149	61	12.4	3,023	361	6.0	1,459	211	11.5	2,798	342	7.3	1,776	252	0.1	29	15
Total	4,241	2,161	51	14.5	61,629	2,405	11.9	50,649	2,937	10.0	42,304	1,864	7.2	30,652	2,417	0.2	742	148

Note: "N" is the total number of households, "n" is the number of households surveyed; "Kuskokwim River Total" includes Lower, Middle and Upper Kuskokwim areas and North Kuskokwim Bay. Preliminary estimated subsistence harvest and the data is subject to change. Dashes indicate data is unavailable. Bayesian estimation method is not possible for these communities, nor pink salmon because there is little or no historical data.

[a] These villages were not surveyed , therefore the total harvest is estimated using historical average household harvest expanded by the number of households.

[b] Takotna is not surveyed, but harvest is estimated to be zero based on harvest practices.

Table 8.–Projections of Pacific herring spawning biomass and harvest levels for 2012 season, Kuskokwim Bay, 2011.

District	2011 Observed Biomass (st) [a]	2012 Projected Biomass (st)	2012 Guideline Harvest (st)	Exploitation Rate (%)	Threshold [b]
Security Cove	13,119	12,193	2,439	20	1,200
Goodnews Bay	36,810	33,008	6,602	20	1,200
Cape Avinof	2,393	2,095	314	15	500
Nelson Island [c]	5,252	4,703	741	16[c]	3,000
Nunivak Island	3,206	2,879	576	20	1,500
Kuskokwim Bay Totals	60,780	54,878	10,672		

[a] 2010 projected biomass was used because recent biomass estimate was unavailable.

[b] Threshold biomass needed to allow commercial fishery (5 AAC 27.060)

[c] Nelson Island exploitation rate is 20% of projected biomass minus 200 st for subsistence harvest.

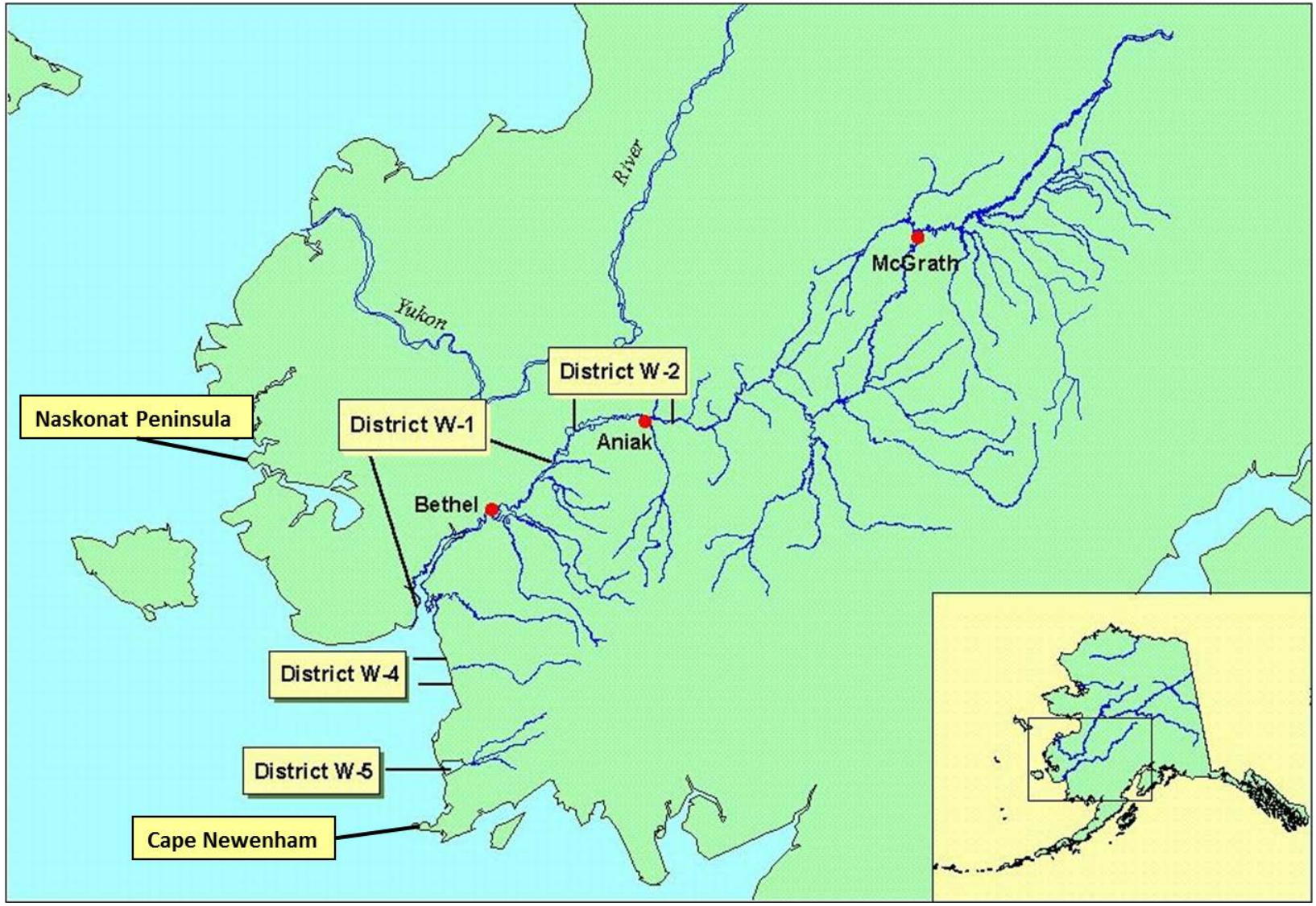

Figure 1.–Salmon fishing districts in the Kuskokwim Management Area.

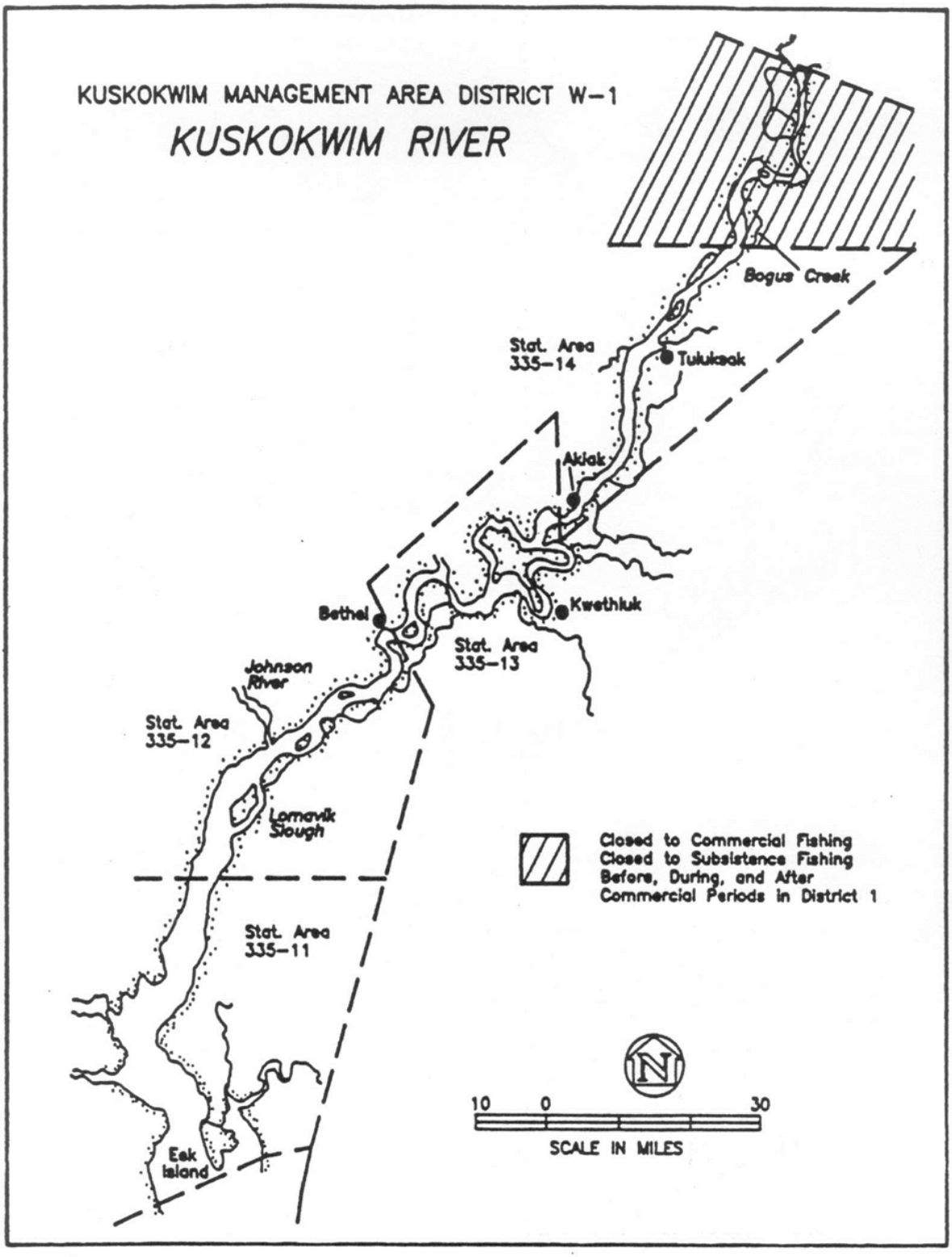

Figure 2.–Commercial fishing District W-1, Kuskokwim River.

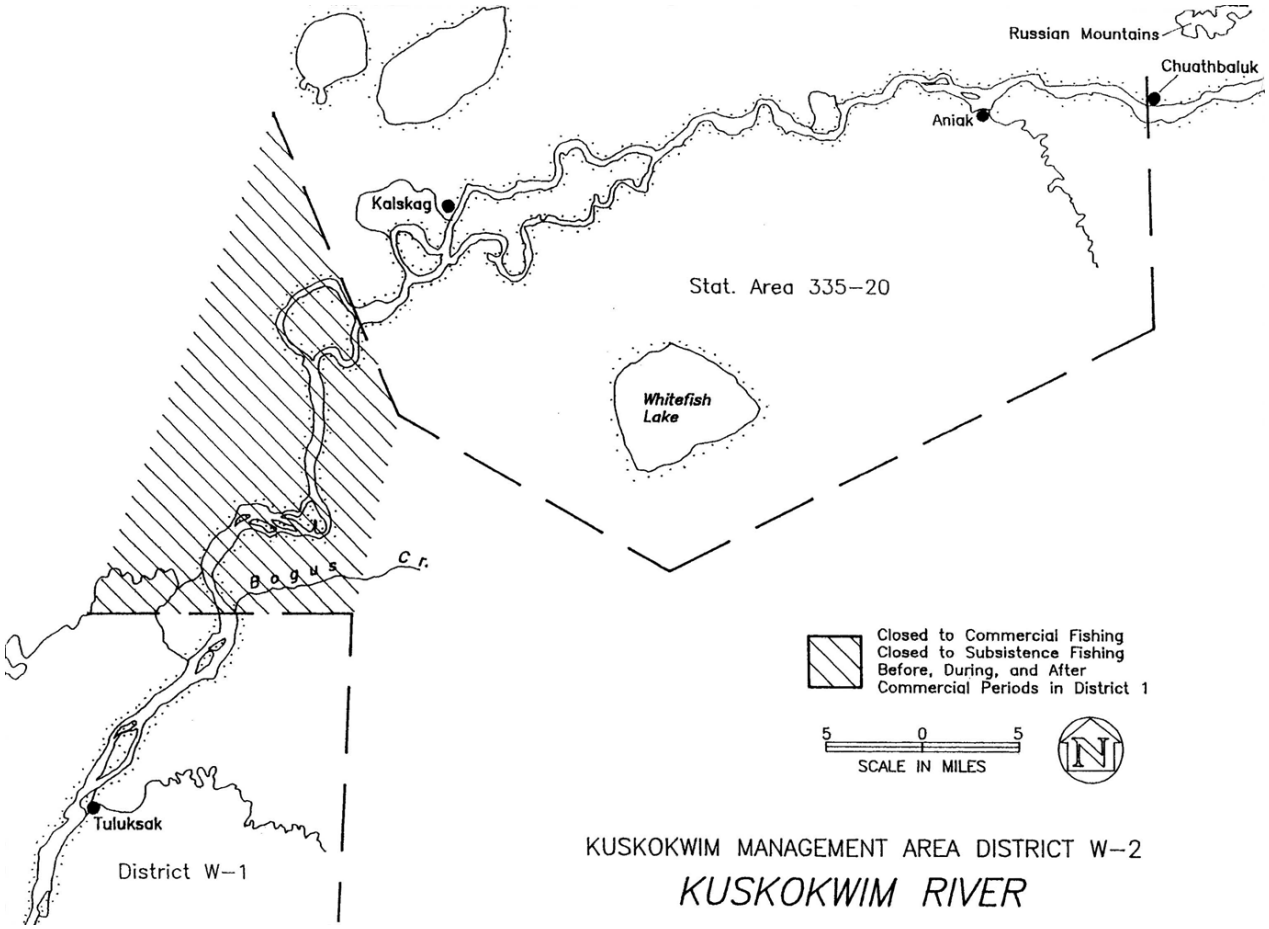

Figure 3.–Commercial fishing District W-2, Kuskokwim River.

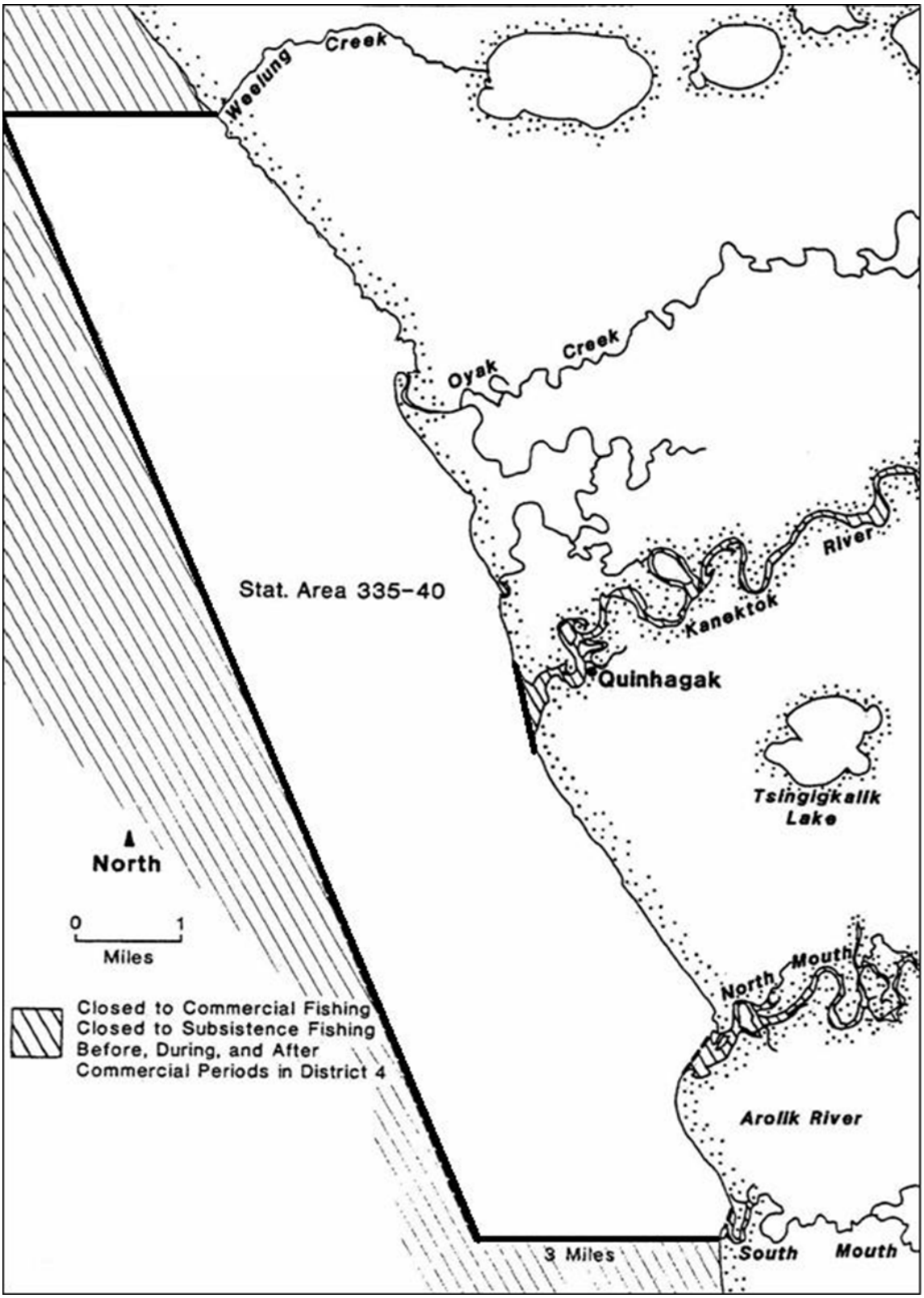

Figure 4.–Commercial salmon fishing District W-4, Quinhagak.

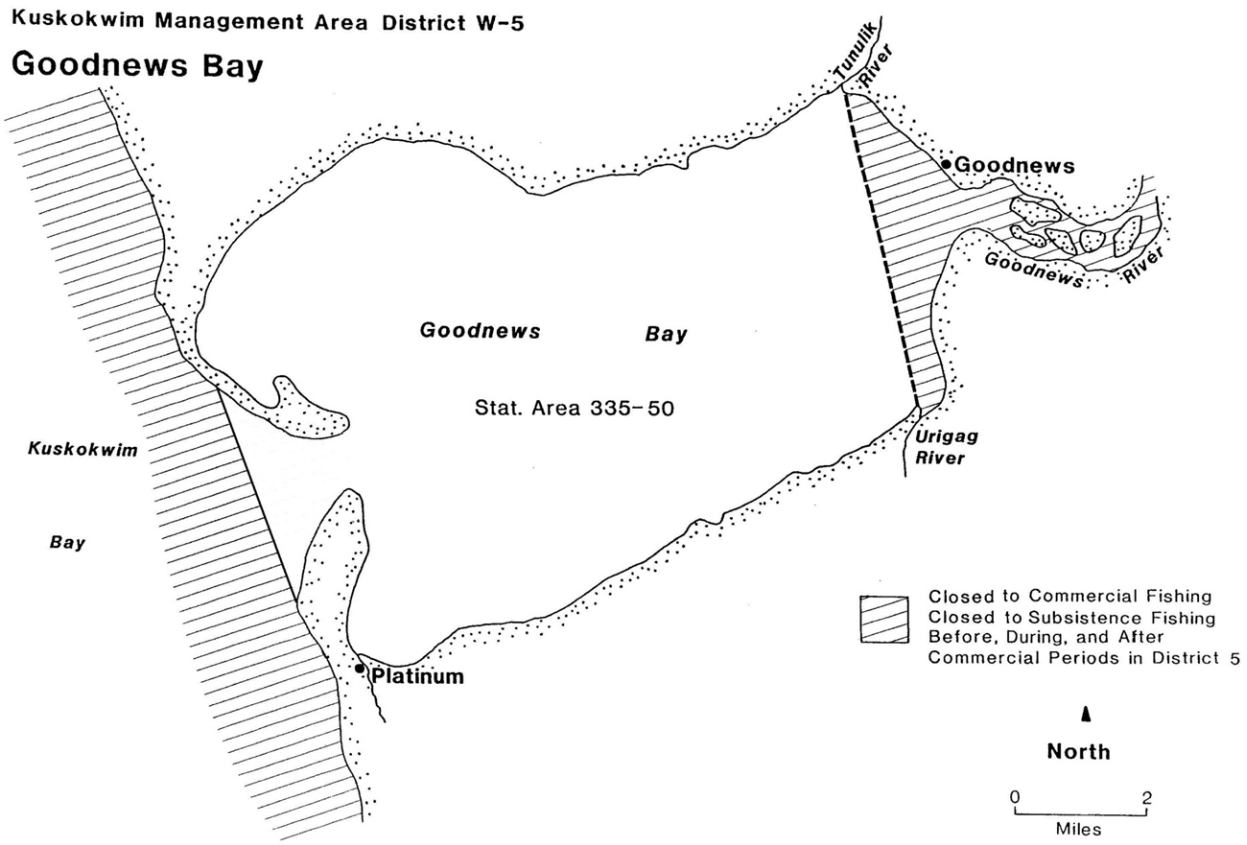

Figure 5.–Commercial salmon fishing District W-5, Goodnews Bay.

Figure 6.–Ground based escapement projects in the Kuskokwim Management area.

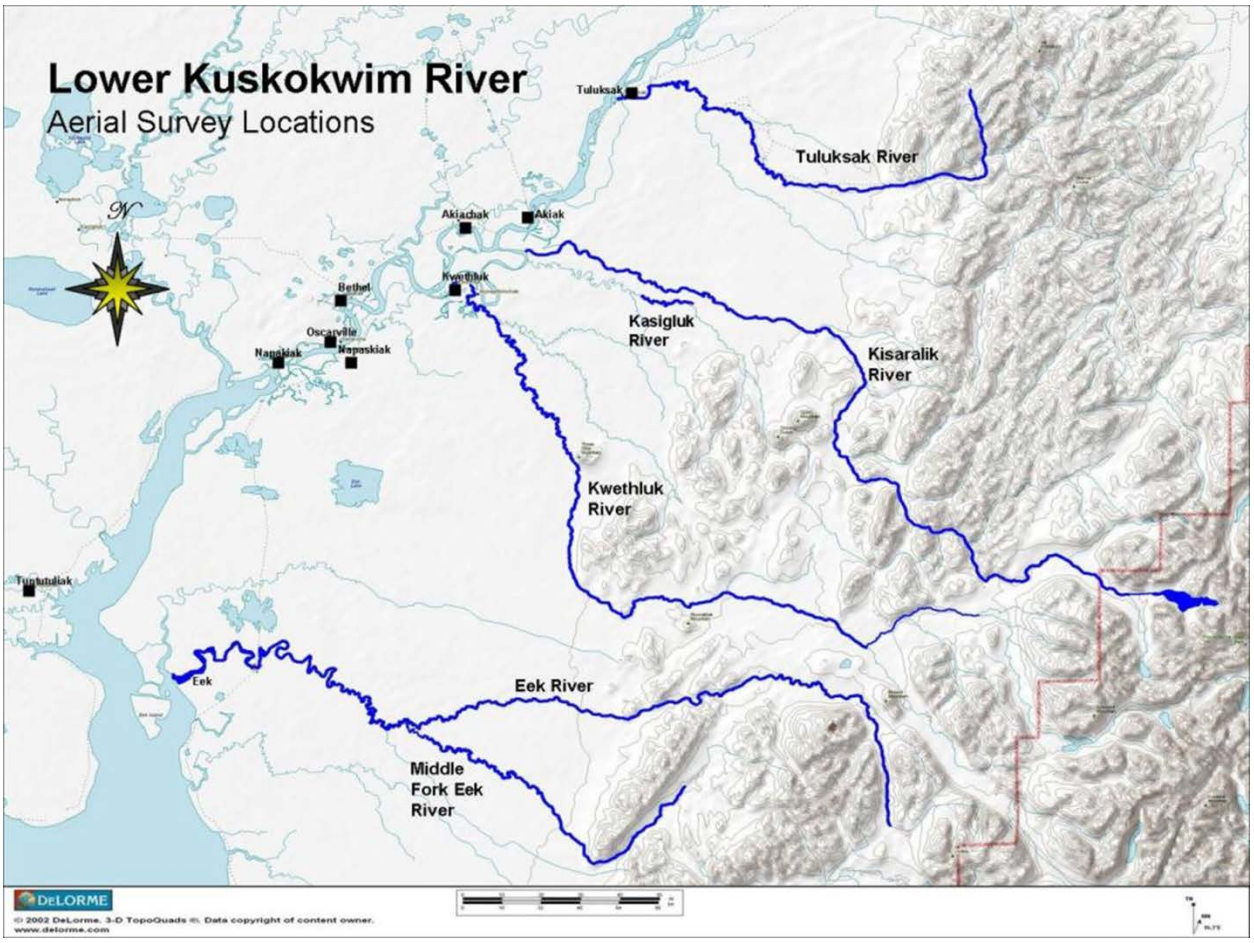

Figure 7.–Aerial survey streams, Lower Kuskokwim River.

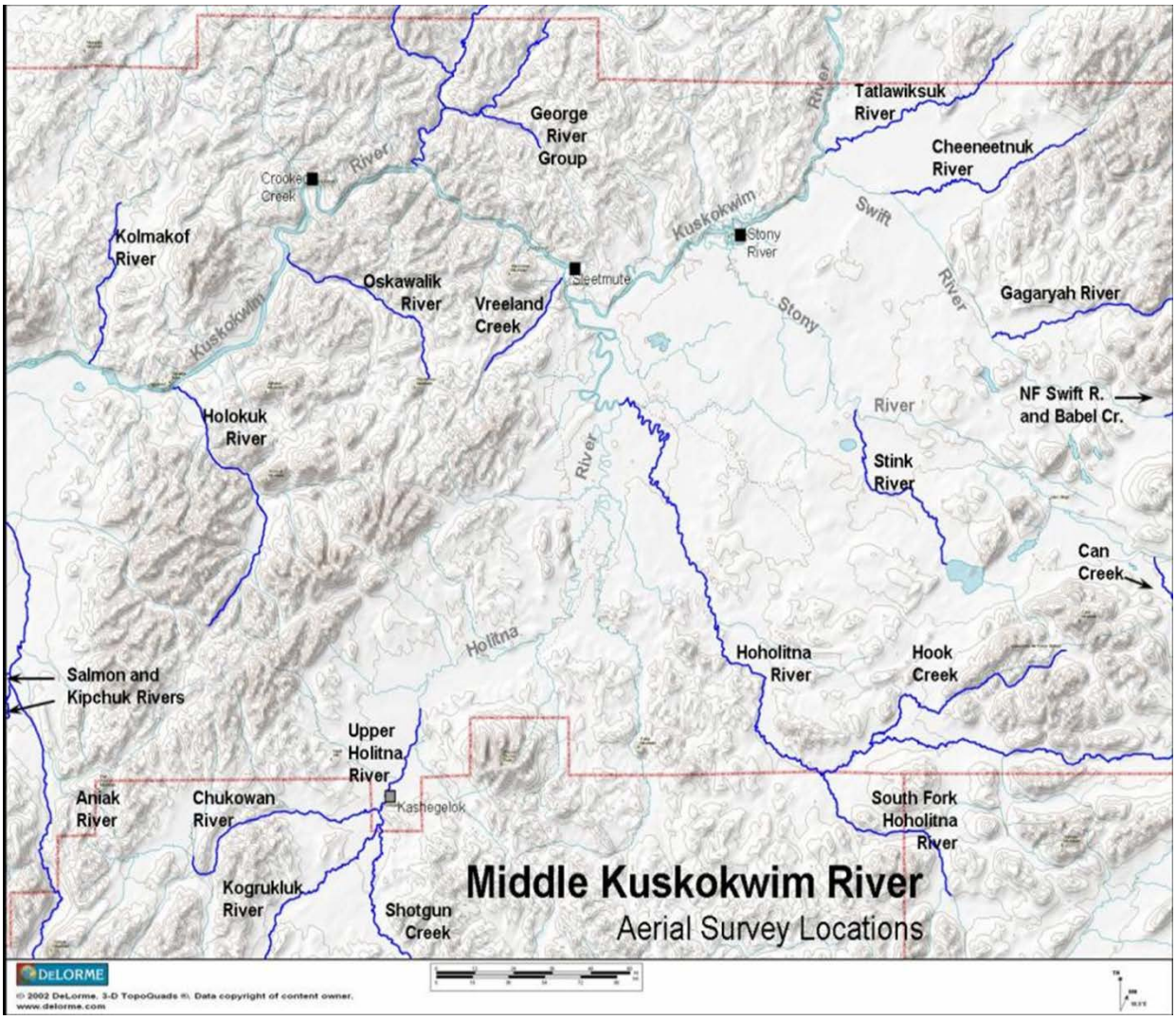

Figure 8.–Aerial survey streams, Middle Kuskokwim River.

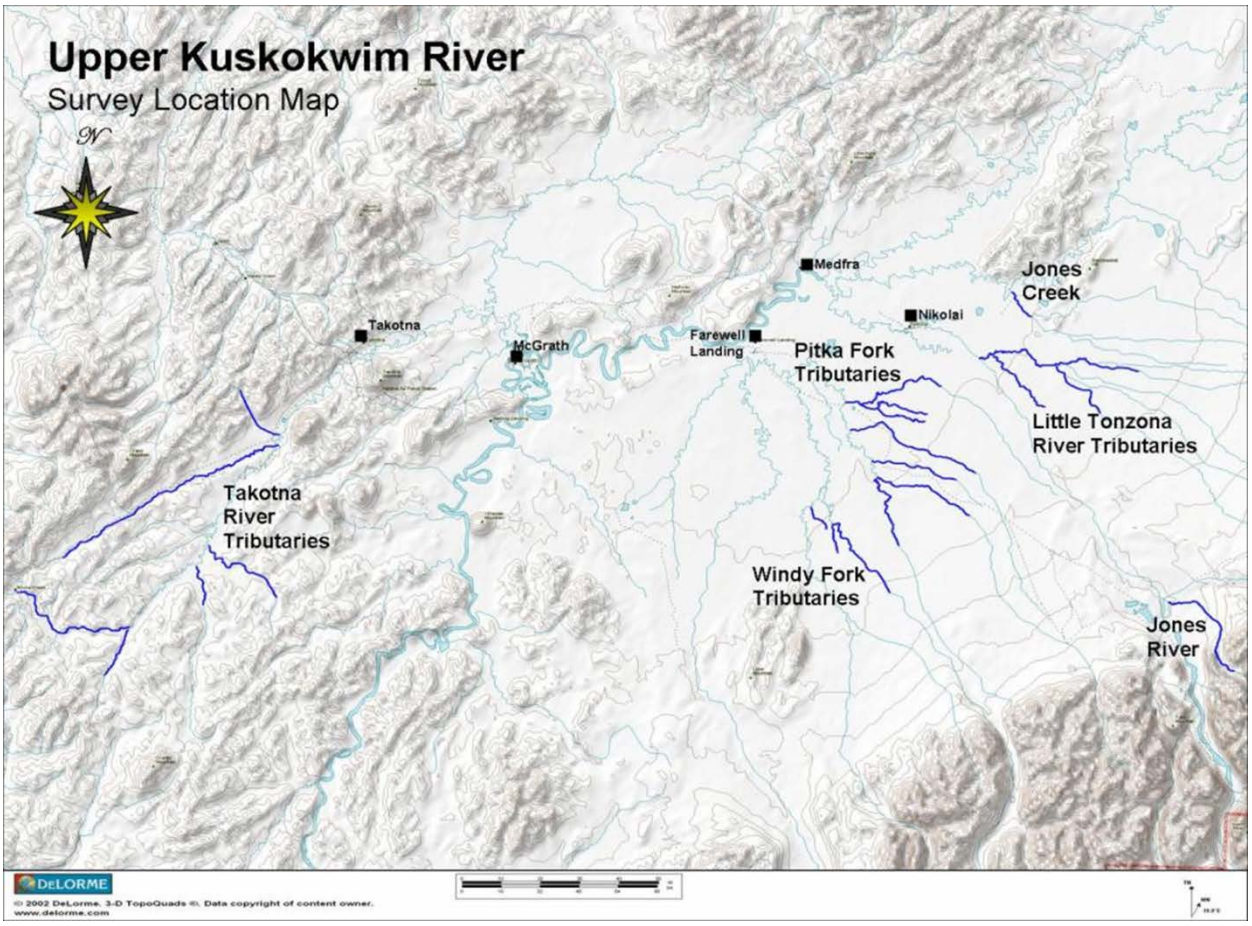

Figure 9.–Aerial survey streams, Upper Kuskokwim River.

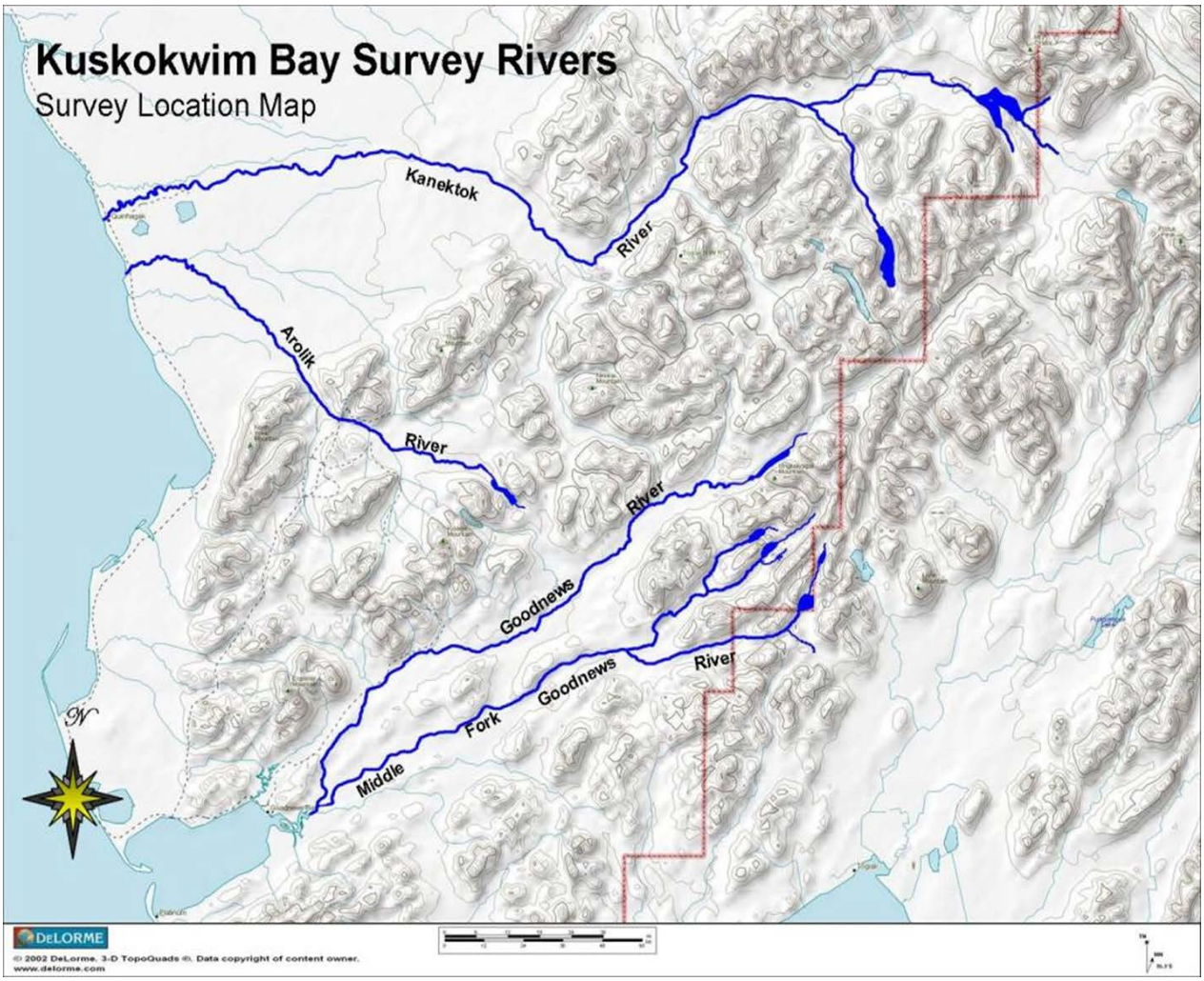

Figure 10.–Aerial survey streams, Kuskokwim Bay.

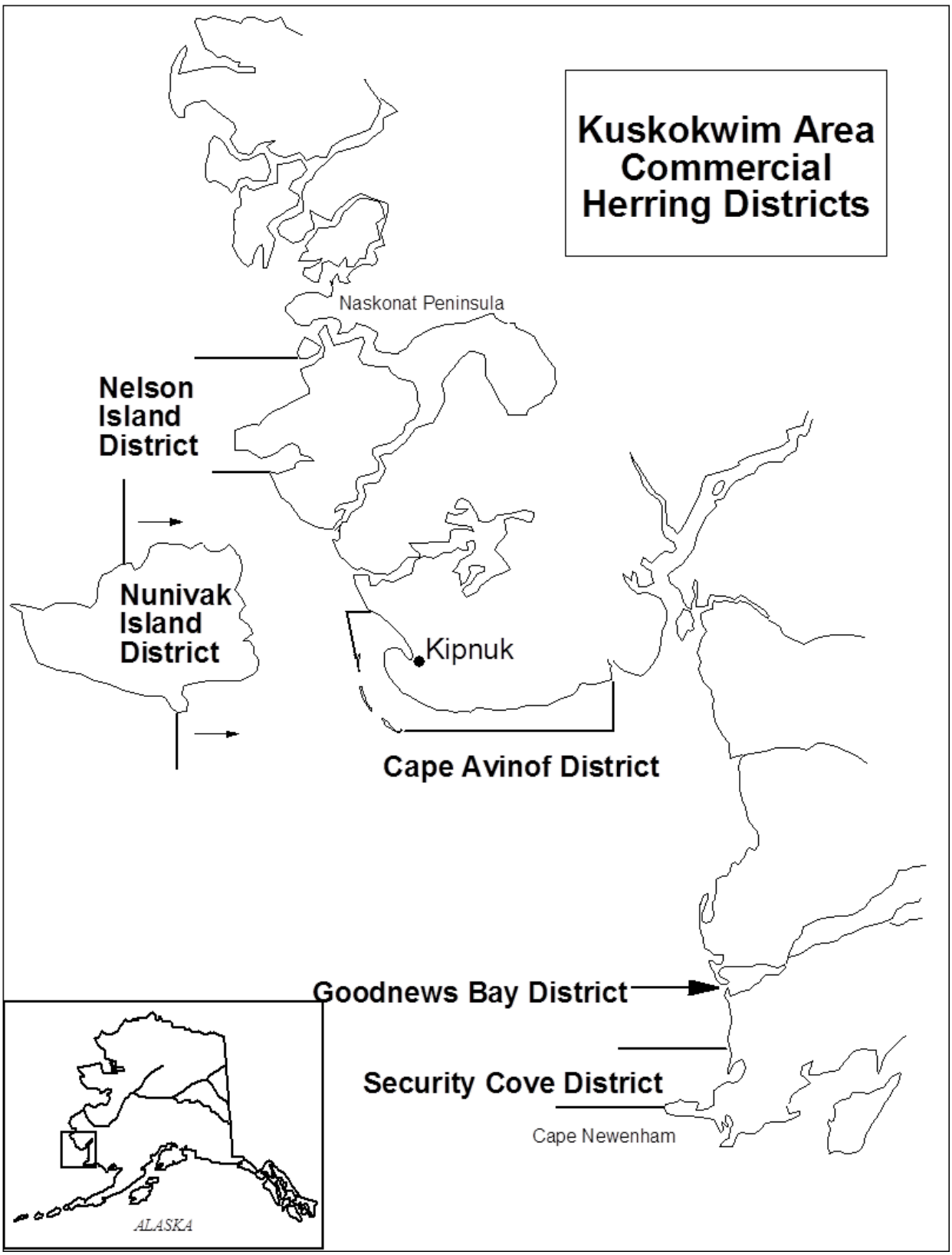

Figure 11.–Commercial herring districts, Kuskokwim Management area.

APPENDIX A

Appendix A1.–Fish species commonly found in Kuskokwim Management area.

Species Code	Genus and Species	Common Name
110	*Gadus macrocephalus*	Pacific Cod
113	*Eleginus gracilis*	Saffron Cod
129	*Platichthys stellatus*	Starry Flounder
122	*Pleuronectes glacialis*	Arctic Flounder
127	*Pleuronectes aspera*	Yellowfin Sole
128	*Pleuronectes vetulus*	English Sole
162	*Cottus cognatus*	Slimy Sculpin
166	*Oligocottus maculosus*	Tidepool Sculpin
192	*Hexagrammos stelleri*	Whitespotted Greenling
200	*Hippoglossus stenolepis*	Pacific Halibut
230	*Clupea pallasi*	Pacific Herring
410	*Oncorhynchus tshawytscha*	Chinook Salmon
420	*Oncorhynchus nerka*	Sockeye Salmon
430	*Oncorhynchus kisutch*	Coho Salmon
440	*Oncorhynchus gorbuscha*	Pink Salmon
450	*Oncorhynchus keta*	Chum Salmon
500	*Esox lucius*	Northern Pike
513	*Osmerus mordax*	Rainbow Smelt
514	*Hypomesus olidus*	Pond Smelt
516	*Mallotus villosus*	Capelin
520	*Salvelinus alpinus*	Arctic Char
532	*Salvelinus malma*	Dolly Varden
541	*Oncorhynchus mykiss*	Rainbow Trout
550	*Salvelinus namaycush*	Lake Trout
570	*Stenodus leucichthys*	Inconnu
588	*Coregonus nasus*	Broad Whitefish
589	*Coregonus pidschian*	Humpback Whitefish
583	*Coregonus sardinella*	Least Cisco
584	*Coregonus autumnalis*	Arctic Cisco
586	*Prosopium cylindraceum*	Round Whitefish
590	*Lota lota*	Burbot
600	*Lampetra tridentata*	Pacific Lamprey
601	*Lampetra japonica*	Arctic Lamprey
610	*Thymallus arcticus*	Arctic Grayling
630	*Dallia pectoralis*	Alaska Blackfish
640	*Catostomus catostomus*	Longnose Sucker
660	*Gasterosteus aculeatus*	Threespine Stickleback
661	*Pungitius pungitius*	Ninespine Stickleback
670	*Percopsis omiscomaycus*	Trout Perch
NA	*Megalocottus platycephalus*	Belligerent Sculpin
NA	*Myoxocephalus quadricornis*	Fourhorn Sculpin

Source: Based on American Fisheries Society Special Publication No. 20, Common and Scientific Names of Fishes from the United States and Canada (Fifth Edition). Committee and Names of Fishes, Bethesda, Maryland, 1991.

Appendix A2.–Historical events. Kuskokwim management area, 1913–2010.

Year	Event
1913	Commercial sale of salmon export first documented in the Kuskokwim Area.
1954	Commercial Chinook salmon quota established.
1959	First Chinook landing since quota established.
1960	Kanektok Counting Tower (1960–1962)
	Quinhagak District (W-4) commercial salmon fishery established.
	Kuskokwim Area divided into 4 subdistricts; Lower Kuskokwim River (Subdistrict 1), Middle Kuskokwim River (Subdistrict 2), Upper Kuskokwim River (Subdistrict 3), Quinhagak (Subdistrict 4). District boundaries are not well recorded; in the Aniak area some commonly used drift sites overlap between District 2 and 3 which confused catch reporting.
	Kuskokwim River Drainage Surveys, 1960.
1961	ADF&G Kuskokwim River tagging study.
1962	ADF&G Kuskokwim River tagging study.
	Boundary between Subdistricts 2 and 3 changed; the new location was not recorded but the most likely location was Kolmakof River. The reason for the change was to move the boundary to a point which was between commonly used gillnet locations and thereby avoid confusion in catch reporting. As a result, there were no landings in Subdistrict 3.
1963	ADF&G Kuskokwim River tagging study.
	Boundaries of subdistrict documented; Subdistrict 1 extended from Kuskokuak to Mishevik Slough, Subdistrict 2 was from Mishevik Slough to Kolmakof River, Subdistrict 3 was upstream of Kolmakof River.
1965	Kwegooyuk test fishery (1965–1984; no records available for 1965).
1966	ADF&G Kuskokwim River tagging study.
	Subdistrict 3 was deleted from the regulations due to a lack of landings.
1968	Goodnews Bay District (W-5) commercial salmon fishery established.
1969	District 4 tagging study (1969–1970) on Chinook and chum salmon.
	Kogrukluk River (a.k.a., Holitna River, Ignatti) tower/weir (1969–present).
1970	Effect of explosive detonation in ice on northern pike.
1971	Commercial fishing time in the Kuskokwim River reduced from two 24-hour periods per week to two 12-hour periods per week.
	Chum fishery begins in the Kuskokwim River; season was from 25 June to 31 July, location limited to waters downstream of Napakiak, mesh size restricted to 6 in. or smaller.
	Fishing periods established by Emergency Order in August.
	Gillnet mesh size in Districts 4 and 5 restricted to 6 inch or smaller.
1974	Commercial sale of salmon roe from subsistence caught fish (1974–1977).

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Year	Event
1976	Commercial fishing time in the Kuskokwim River was reduced from two 12-hour periods per week to two 6-hour periods per week.
	Eek River reconnaissance survey.
	Study on genetic variants in chum and Chinook salmon.
1977	Fishing periods to be established by Emergency Order before 26 June and after 31 July.
	Limited entry permits issued.
	Subsistence fishing closed 24 hours before, during, and 6 hours after each commercial fishing period.
	Hoholitna River reconnaissance survey.
1978	Kasigluk River reconnaissance survey.
	Kwethluk River sonar project.
1979	The portion of District 1 used during the chum salmon season was extended from Napakiak upstream to Bethel.
	Kasigluk River sonar project.
	High seas salmon fleet moved from west of 160° W. longitude to west of 180° W. longitude.
1980	Subsistence fishing closed 24 hours before, during, and 6 hours after each commercial fishing period.
	Aniak River sonar project.
1981	Pilot test fish and FanScan projects at Bethel.
	Inventory of Kisaralik River and Lake.
	Goodnews River counting tower (1981–1990).
	Salmon River (Pitka Fork drainage) weir project (1981–1984).
	Species identification program results in better differentiation of sockeye and chum salmon.
1982	Kanektok River sonar project (1982–1986).
1983	Pilot test fish project at Bethel using drift gillnets.
	Provisional escapement goals established for many of the major spawning tributaries in the area.
	Management strategy shifts from guideline harvest based to obtaining escapement objective.
1984	Kwegooyuk test fishery replaced by the Bethel drift test fishery.
1985	Commercial fishing restricted to mesh sizes less than or equal to 6 inches.
	Chum season utilizes entire length of District 1.
1986	Migratory timing of coho salmon in the Kuskokwim Area, 1979–1984.
	Kuskokwim River salmon abundance estimate based on calibrated test fish CPUE.
	Downstream boundary of District 1 extended to a line from Apokak Slough to Popokamiut.
1987	Discontinued the directed commercial Chinook salmon fishery in the Kuskokwim River.
	Sale of Chinook salmon limited to 14,000 in the Kuskokwim River June commercial fishery.

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Year	Event
1987 (cont.)	First fishing period restricted to that portion of District 1, which is downstream of Bethel, due to Chinook conservation concerns.
	Subsistence fishing in all of District 2 and its tributary streams is closed before, during, and after commercial periods.
	South peninsula sockeye and chum salmon tagging study.
1988	Review of the estimation of Kuskokwim River annual salmon passage through expansion of the Bethel test fish CPUE.
	Kuskokwim River sonar project (1988–1995).
	Kuskokwim River subsistence test fisheries (1988–1990).
	District 1 upstream boundary extended to Bogus Creek.
	District 2 reduced in size; downstream boundary moved upstream to High Bluffs, the upstream boundary moved downstream to Chuathbaluk.
	Portion of Kuskokwim River between Districts 1 and 2 closed to subsistence fishing when District 1 subsistence fishing is closed.
	Reorganization of District 1 Statistical Areas.
	District 4 Salmon Management Plan adopted.
	Establishment of the Kuskokwim River Salmon Management Working Group (1988–present).
	Eek Test Fishery (1988–1990, 1992–1995).
1989	USFWS conducted genetic sampling throughout the Kuskokwim Area.
	USFWS conducted Chinook tagging study in the lower Kuskokwim River.
	Record low temperatures recorded in interior Alaska coupled with shallow snow pack threaten survival of salmon eggs/fry from 1988 spawning.
1990	ADF&G genetic sampling (1990–1996).
	Reorganization of District 1 statistical areas.
	Upstream boundary of District 1 moved downstream from Bogus Creek to Big (Nelson) Island.
	Downstream boundary of District 2 moved upstream to second slough below Kalskag.
	District 4 northern boundary is extended north to Weelung Creek.
1991	USFWS operates Tuluksak River weir (1991–1994).
	Weir replaces counting tower on Goodnews River (1991–present).
1992	Aniak and Chuathbaluk test fisheries (1992–1995).
	Eek test fishery is re-established for the coho season.
	USFWS operates Kwethluk River weir (1992).
	Ban on high-seas drift gillnet fishing imposed.
	Unusual proportion of returning 5-year old chum salmon had reduced growth between the second third annuli.

-continued-

Year	Event
1992 (cont.)	Failure of age 4 chum salmon in the Kuskokwim River; Aniak drainage especially hard hit; attributed to cold winter of 1988–1989.
1993	Failure of age 4 and 5 chum salmon in the Kuskokwim River, Yukon River, and the Norton Sound/Kotzebue Area; cause unknown; especially hard hit were the Aniak drainage and the Yukon fall chum; commercial fishing severely restricted, chum sport fishery was closed, and the subsistence salmon fishery was restricted and closed for a period of time (first time ever).
1994	Working Group commissioned and Dr. Mundy started "Recommendations for Strengthening the Cooperative Management Process of the Kuskokwim River Salmon Management Working Group".
	Upstream boundary of District 1 moved upstream to Bogus Creek.
1995	BSFA operates a chum salmon radiotelemetry project on the Kuskokwim River.
	Takotna Community School and ADF&G operate a salmon counting tower on the Takotna River (1995–1998).
	AVCP and BSFA operate the Lower Kuskokwim test fishery in cooperation with ADF&G; the project is a modification of the Eek test fishery.
1996	ADF&G genetic sampling for late spawning chum salmon and one mixed stock sample from District 1.
	Near record low water levels during June and early August coupled with record high water temperatures.
	Irregular fishing schedule in District 1 during June and July due to limited market interest for chum salmon.
	Record early coho run coupled with record high harvest and escapement at Kogrukluk River.
	AVCP and ADF&G operate a salmon counting tower on the Kwethluk River (1996–1999).
	KNA and ADF&G operate a salmon weir on the George River (1996–present).
	Aniak River sonar is relocated to allow for full channel ensonification and configurable sonar technology is employed (1996–present).
	Native Village of Kwinhagak (NVK) begins development of a salmon counting tower on the Kanektok River.
	Kuskokwim River declared an economic disaster area due to very low chum and coho salmon returns, harvests and exvessel prices. Northern boundary of District 4 moved 3 miles south from July 14 to July 28. Record low chum salmon escapement at Kogrukluk River weir.
	Second summer of record low water levels in the Kuskokwim River basin during the summer and fall coupled with record high water temperatures.
	Anomalous Bering Sea conditions: warm water, odd plankton blooms, sea bird die offs, etc.
	Aniak chum salmon return vastly exceeded expectations based on 1992-1993 spawning abundance estimates.
	Due to an extremely low return of chum salmon, ADF&G, AVCP, KNA, KRSMWG, ONC, TCC and McGrath Native Village Council issue a joint appeal for subsistence users to conserve chum salmon. Record low subsistence harvest of chum salmon in the Kuskokwim Area.
	Aniak processor does not operate due to depressed salmon market (1997–present).

-continued-

Year	Event
1996 (cont.)	Sale of salmon roe is prohibited in Districts 1 and 2 (effective beginning December 1997).
	Middle Fork Goodnews River weir converted from fixed-panel to a resistance board "floating weir" and operated through majority of coho run for first time (1997-present).
	NVK and ADF&G operate a salmon counting tower on the Kanektok River (1997–1998).
1998	Kuskokwim River declared an economic disaster area for second straight year due to low chum and coho salmon returns, harvests and exvessel prices.
	KNA and ADF&G operate a salmon weir on the Tatlawiksuk River (1998–present).
	Second year of anomalous Bering Sea conditions: warm water, odd plankton blooms, sea bird die offs, etc.
	High water levels severely restrict operational period of many Kuskokwim Area escapement projects.
	Record low average water temperature measured at the Bethel test fish site.
1999	Kuskokwim River experiences extremely low Chinook, chum and coho salmon returns, harvests and exvessel prices for third consecutive year. All species have very late run timing. Kuskokwim Bay coho returns and harvests extremely low.
	Federal government assumes control of subsistence fishery management in federal waters on October 1.
	KNA-operated salmon weirs on the Tatlawiksuk and George rivers converted to resistance board (floating) weirs and operations extended through coho run.
	Kuskokwim River sonar project begins redevelopment using split-beam sonar and is relocated to a new site one mile above upstream end of Church Slough.
2000	Kuskokwim River declared an economic disaster area due to extremely low chum salmon return, harvest and exvessel price. Chinook salmon returns are very low for second consecutive year. Many subsistence fishermen report that they were unable to meet their Chinook and chum salmon harvest goals.
	Due to an extremely low return of Chinook salmon, ADF&G, AVCP, KNA, KRSMWG, Kwethluk IRA, TCC, McGrath Native Village Council and USFWS issue a joint appeal for subsistence users to conserve Chinook salmon.
	ADF&G and Federal Office of Subsistence Management (FOSM) restrict subsistence Chinook salmon fishery.
	Takotna Community Schools and ADF&G operate a resistance board weir on the Takotna River (2000-present).
	Kwethluk IRA and USFWS operate a resistance board weir on the Kwethluk River (2000-present).
	District W-1 divided into Subdistricts W-1A (above Bethel) and W-1B (below Bethel) and fishermen are required to register to fish in only one subdistrict. Due to limited processing capacity, only one subdistrict is opened at a time to reduce harvest.
	Commercial fishermen required to identify vessels with either ADF&G or Commercial Fisheries Entry Commission permit number.

-continued-

Year	Event
2000 (cont.)	ADF&G Division of Sport Fish creates Lower Yukon-Kuskokwim Management Area and stations Area Management Biologist in Bethel.
	Line attached to a pole (rod and reel) added to legal gear for subsistence fishing in AVCP area (prior to 2000 fishing season).
	Use of rod and reel for subsistence extended throughout the Kuskokwim Area (2000–2001 BOF meeting).
2001	Alaska Board of Fisheries designates Kuskokwim River Chinook and chum salmon to be stocks of yield concern based on the Sustainable Fisheries Policy because of poor runs since 1997.
	Subsistence fishing schedule implemented in the Kuskokwim River during June and July to conserve Chinook and chum salmon and provide for adequate fishing opportunity throughout the drainage.
	Kuskokwim River declared an economic disaster area due to low chum salmon return, harvest and exvessel price. No commercial fishing periods in Kuskokwim River in June and July. Chinook salmon returns are below average in size.
	Due to an extremely low return of Chinook salmon, ADF&G, AVCP, KNA, KRSMWG, Kwethluk IRA, McGrath Native Village Council, ONC, and USFWS issue a joint appeal for subsistence users to conserve Chinook and chum salmon.
	Native Community of Tuluksak and USFWS operate a resistance board weir on the Tuluksak River.
	NVK and ADF&G operate a salmon counting weir on the Kanektok River.
	ADF&G/CF and KNA operate fish wheels at Kalskag and Birch Tree Crossing to tag salmon and then make salmon population estimates.
2002	The State of Alaska declared the Kuskokwim region a disaster area for the fifth year in six because of low salmon prices in the bay and river and a complete lack of buyers during the chum season on the river.
	ADF&G did not join USFWS and Native groups in issuing a preseason appeal for subsistence users to conserve Chinook and chum salmon because such a request is allocative in nature and only the BOF makes allocation decisions.
	In June the Federal Subsistence Board adopted a special regulatory action that tied the time allowed for sport fishing to the time allowed for subsistence net and fish wheel fishing in federal waters in the Kuskokwim River drainage. Upon a request for reconsideration by ADF&G, the Federal Subsistence Board rescinded its decision. The reason for the rescission was that under ANILCA, sport fishing on federal waters is managed by ADF&G unless there are overriding conservation or subsistence concerns. In this instance there were no overriding conservation or subsistence concerns.
	A subsistence fishing schedule was implemented in the Kuskokwim River during June to conserve Chinook and chum salmon and to provide adequate subsistence fishing opportunity throughout the drainage. However, because an average Chinook run and an above average chum run developed, the subsistence schedule was lifted on June 28.
	The Kuskokwim River Fisheries Co-op dissolved. ACR #28 was accepted by BOF so that the formation of a Chignik-style salmon fishing cooperative on the Kuskokwim River could be considered.

-continued-

Year	Event
2002 (cont.)	ADF&G/SF and KNA operated salmon radiotelemetry projects on the Kuskokwim mainstem and on the Holitna River to estimate salmon abundance.
	Second consecutive season of no chum salmon (June or July) directed commercial fishery.
2003	A subsistence fishing schedule was implemented in the Kuskokwim River during June to conserve Chinook and chum salmon and to provide adequate subsistence fishing opportunity throughout the drainage. However, because an average Chinook and chum salmon run developed, the subsistence schedule was lifted on July 3.
	Third consecutive season of no chum salmon (June or July) directed commercial fishery.
	ADF&G/SF and KNA operated salmon radiotelemetry projects on the Kuskokwim mainstem and on the Holitna River to estimate salmon abundance.
	Record high coho salmon escapements throughout the Kuskokwim Area.
2004	The Alaska Board of Fisheries continued the stock of yield concern designation for Kuskokwim River Chinook and chum salmon based on the Sustainable Fisheries Policy. Chinook and chum salmon returns have been improving since 2000; however, a majority of annual returns in the previous five years did not have adequate harvestable surpluses beyond escapement and subsistence needs.
	The Alaska Board of Fisheries provided a commercial guideline harvest level of 0–50,000 sockeye salmon for the Kuskokwim River.
	The Alaska Board of Fisheries readopted regulations: 1) to increase subsistence fishing opportunity prior to and after commercial salmon fishing periods, 2) to provide opportunity for subsistence salmon fishing to occur in a portion of the District 1 subdistrict not open to commercial fishing, and 3) modified Kuskokwok Slough subsistence fishing regulations to be consistent with District 1 waters.
	The northern boundary of District W-4 (Quinhagak) was relocated approximately one mile north from Oyak Creek to the northernmost edge of the mouth of Weelung Creek.
	The western boundary of District W-5 (Goodnews Bay) was relocated seaward from a line between the northern and southern most points of the North and South spits at the entrance to Goodnews Bay to a line extending from approximately two miles South on the seaward entrance of Goodnews Bay to approximately two miles North on the seaward entrance to Goodnews Bay.
	Regulations for Districts 4 and 5 were amended to provide emergency order authority to increase gillnet length to 100 fathoms provided run strength was adequate
	The Goodnews Bay District herring superexclusive use regulations were repealed.
	Evaluation of AYK Region escapement goals and methodology resulted in revisions of the majority of existing Kuskokwim Area escapement goals to Sustainable Escapement Goal ranges using the Bue-Hasbrouck method (ADF&G 2004; Bue and Hasbrouck 2001).
	A subsistence fishing schedule was implemented in the Kuskokwim River during June to conserve Chinook and chum salmon and to provide adequate subsistence fishing opportunity throughout the drainage. However, because an above average Chinook salmon run and an average to above average chum salmon run developed, the subsistence schedule was lifted on June 18.
	A limited chum and sockeye directed commercial fishery was prosecuted in late June and early July for the first time since 2000. Participation and processor capacity was limited compared to previous years.

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Year	Event
2004 (cont.)	Water levels in rivers throughout the Kuskokwim Area were well below average from mid-July through September. Kuskokwim River water level attained a 50-year low during August as measured at the USGS gauging station at Crooked Creek.
2005	Chum escapements were at record highs at nearly all monitoring projects with the exception of George River where escapement was near average.
	Chinook escapements ranged from above average to record highs at nearly all monitored locations with the exception of George River where the escapement was near average.
	Commercial salmon fishing opportunity in District 1 reduced in July because of poor chum salmon market conditions.
	Commercial salmon fishing opportunity in the Kuskokwim Bay districts was reduced during July because of limited processing capacity, and in August because of below average coho salmon abundance.
2006	Commercial salmon fishing opportunity in District 1 reduced in July because of poor chum salmon market conditions.
	Chum salmon escapements were at record highs at the Kwethluk, George, and Takotna river monitoring projects.
	During four commercial periods in early July limits were imposed on the number of fish that could be delivered by District 4 and 5 fishermen because of limited capacity to process an above average catch.
2007	The Alaska Board of Fisheries (BOF) discontinued the stock of concern designation for Kuskokwim River Chinook and chum salmon based on at or above the historical average runs each year since 2002.
	The BOF passed a proposal giving ADF&G authority to allow up to 8-inch mesh gillnets in District 1 by emergency order; otherwise, all commercial openings will continue to be limited to gillnet mesh sizes of 6 inches or less. The BOF's intent in allowing for up to 8-inch mesh gear was not to establish a large mesh gear Chinook salmon commercial fishery, but to provide a management tool that may or may not be used. Additionally, the commercial Chinook salmon fishery closure was discontinued, and the commercial salmon fishery is to be managed based on run strength and harvestable surpluses of Chinook, sockeye, and chum salmon.
	The BOF passed a proposal giving ADF&G authority to allow the lower portion of Subdistrict 1-B to open to commercial fishing up to two (2) hours earlier than the remainder of Subdistrict 1-B.
	A lack of processing capacity, commercial interest, and continued poor chum salmon market conditions resulted in no commercial openings in June and July.
	From late June through mid-July, limits on the number of fish that could be delivered by District 4 and 5 fishermen were imposed because of limited processing capacity.
2008	Commercial salmon fishing opportunity in District 1 reduced in July because of poor chum salmon market conditions.
	From late June through mid-July, limits on the number of fish that could be delivered by District 4 and 5 fishermen were imposed because of limited processing capacity.

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Year	Event
2010	Kuskokwim River Chinook salmon spawning escapements were among the lowest on record and only the Kogrukluk achieved the lower end of the escapement goal.
	Kuskokwim River Tributaries, Kwethluk and Tuluksak were closed to subsistence and sport harvest of Chinook salmon for most of the season by the USFWS.
	Kuskokwim River chum salmon catch was the largest since 1998.
	Kuskokwim River sockeye salmon run timing was the latest on record for the Bethel Test Fishery with two distinct pulses and an average commercial harvest.
	Telaquana Lake weir passed over 70,000 sockeye salmon.
	High water levels were sustained through most of August on the Kuskokwim River.
	Coho salmon fishery closed on August 12th due to low abundance and the commercial catch was the lowest since 1999.
	District W-4 highest exvessel value since 1988, primarily attributed to record sockeye salmon harvest.
	District W-5 had its highest exvessel value since 1994.
2011	Kuskokwim River Chinook salmon spawning escapements continued to below average and only Kogrukluk met the escapement goal.
	Preseason management actions were taken in an effort to achieve escapement goals.
	Subsistence Chinook salmon fishing with hook and line gear was closed and subsistence fishing was restricted to the use of gillnets with 4-inch or less mesh not to exceed 60-feet in the Tuluksak, Kisaralik, Kasigluk and Kwethluk Rivers including Kuksokuak Slough.
	Subsistence fishing was closed in District 1 from June 16 to 19, June 23 to 8.
	Subsistence fishing was restricted to 6 inch or smaller mesh from June 29 through July 7.
	Federal Special Actions in 3-KS-01-11 and 3-KS-02-11 preempted state management emergency orders from June 30 until July 2, 2011
	Kuskokwim River chum salmon catch was the largest since 1998.
	District W4 had the second highest chum salmon harvest, while Chinook, sockeye, and coho were below average.
	District W5 exvessel value was the fourth highest since 1990

Appendix A3.–Distance to selected locations from the mouth of the Kuskokwim River.

Location [b]	Distance from River Mouth [a]		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Popokamiut (Downstream boundary District 1)	(3)	(2)	(109)	(68)
Kuskokwim River Mouth [b]	0	0	(106)	(66)
Apokak Slough (Downstream boundary District 1)	5	0	(106)	(66)
Eek River	13	8	(93)	(58)
Eek (community)	46	29	(60)	(37)
Kwegooyuk	22	13	(85)	(53)
Kinak River	32	20	(74)	(46)
Tuntutuliak (community)	45	28	(61)	(38)
Kialik River	50	31	(56)	(35)
Fowler Island	68	42	(39)	(24)
Johnson River	77	48	(29)	(18)
Napakiak (community)	87	54	(19)	(12)
Napaskiak (community)	97	60	(10)	(6)
Oscarville (community)	97	60	(10)	(6)
Bethel (community)	106	66	0	0
Gweek River	135	84	29	18
Kwethluk River	131	82	25	16
Kwethluk (community)	132	82	26	16
Kwethluk River Weir	216	134	109	68
Akiachak (community)	143	89	37	23
Kasigluk River	150	93	43	27
Kisaralik River	151	94	45	28
Akiak (community)	161	100	55	34
Mishevik Slough,	183	114	77	48
Tuluksak River	192	119	85	53
Tuluksak (community)	192	120	86	54
Tuluksak River Weir	248	154	142	88
Nelson Island	190	118	84	52
Bogus Creek (Upstream Boundary District 1)	203	126	97	60
High Bluffs	233	145	127	79
Downstream Boundary District 2	262	163	156	97
Mud Creek Slough	267	166	161	100
Lower Kalskag	259	161	153	95
Kalskag (community)	263	163	157	97
Lower Kalskag Fishwheel (2004)	249	155	143	89
Kalskag Fishwheel (2002, 2003, and 2005)	270	168	163	102
Birchtree Fishwheel (2001 to 2004)	294	183	187	117
Aniak River	307	191	201	125
Aniak (community)	307	191	201	125
Aniak Sonar Site	323	201	217	135
Chuathbaluk (community)	323	201	217	135
Upstream Boundary District 2	322	200	216	134
Kolmakof River	344	214	238	148
Napaimiut (community)	359	223	253	157

-continued-

Location [b]	Distance from River Mouth [a]		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Holokuk River	362	225	256	159
Sue Creek	381	237	275	171
Oskawalik River	398	247	291	181
Crooked Creek (community)	417	259	311	193
Georgetown (community)	446	277	340	211
George River	446	277	340	211
George River Weir	453	281	347	215
Red Devil (community)	472	293	365	227
Sleetmute (community)	488	303	381	237
Holitna River	491	305	385	239
Hoholitna River	538	334	432	268
Chukowan River	709	441	603	375
Kogrukluk River	709	441	603	375
Kogrukluk River Weir	710	441	604	375
Stony River (community)	534	332	428	266
Stony River	536	333	430	267
Lime Village (community)	644	400	538	334
Telaquana River	727	452	621	386
Telaquana Lake (outlet)	756	470	650	404
Swift River	560	348	454	282
Tatlawiksuk River	563	350	457	284
Tatlawiksuk River Weir	568	353	462	287
Devil's Elbow	599	372	492	306
Vinasale (abandoned community)	665	413	558	347
Takotna River	752	467	645	401
Takotna (community)	832	517	726	451
Takotna River Weir	835	519	729	453
McGrath (community)	753	468	647	402
Middle Fork	806	501	700	435
Big River	827	514	721	448
Pitka Fork	845	525	739	459
Medfra (community)	863	536	756	470
South Fork	869	540	763	474
East Fork	882	548	776	482
North Fork	884	549	777	483
Nikolai (community)	941	585	835	519
Swift Fork	1,078	670	972	604
Telida (community)	1,128	701	1,022	635
Highpower Creek	1,151	715	1,044	649
Fish Creek	1,234	767	1,128	701
Headwaters South Fork	1,292	803	1,186	737
Headwaters North Fork	1,548	962	1,442	896

Note: Distances are determined using a computer version (Garmin Topo Map Source) of U.S. Geological Survey 1:100,000 scale maps. Routing is as if traveling by boat. Parentheticals around numbers indicate downstream distances from Bethel.

[a] The "mouth" of the Kuskokwim River is defined as the southernmost tip of Eek Island (latitude N 60° 05.569, longitude W 162° 19.054), and is 1 of 3 points that define the downstream boundary of District 1.

[b] Locations not on the mainstem of the Kuskokwim River are listed as subordinate to the point of departure from the mainstem.

Appendix A4.–Estimated exvessel value of the commercial salmon harvest, Kuskokwim Management Area, 1980–2011.

	District 1		District 2		District 4		District 5			
Year	Value of Catch	Permits Fished [a]	Value of Catch	Permits Fished [a]	Value of Catch	Permits Fished [a]	Value of Catch	Permits Fished [a]	Total Value	Total Permits
1980	–	663	–	43	–	169	–	48	–	923
1981	–	679	–	153	–	186	–	48	–	1066
1982	–	686	–	60	–	177	–	48	–	971
1983	–	679	–	43	–	226	–	79	–	1027
1984	–	654	–	58	–	263	–	77	–	774
1985	–	654	–	23	–	300	–	69	–	781
1986	–	688	–	43	–	324	$268,250	86	$268,250	790
1987	$4,893,016	705	$139,049	29	$858,818	310	$572,293	116	$6,463,176	800
1988	$10,060,427	745	$246,069	29	$1,381,661	289	$1,038,041	125	$12,726,198	813
1989	$3,883,321	743	$131,168	30	$746,071	227	$378,962	88	$5,139,522	824
1990	$3,385,636	742	$121,329	22	$1,013,472	390	$361,203	82	$4,881,640	823
1991	$2,971,767	749	$111,651	23	$592,436	346	$273,795	72	$3,949,649	819
1992	$3,764,804	741	$147,992	22	$993,664	349	$439,331	111	$5,345,791	814
1993	$2,533,895	737	$90,906	20	$898,255	408	$440,955	114	$3,964,011	804
1994	$3,559,114	706	$129,555	17	$837,157	307	$591,903	116	$5,117,729	793
1995	$2,776,677	712	$107,913	21	$1,047,188	382	$287,599	87	$4,219,377	798
1996	$2,108,418	620	$11,015	8	$534,726	218	$222,388	54	$2,876,547	714
1997	$430,614	604	$2,944	4	$497,071	289	$121,973	53	$1,052,602	702
1998	$982,791	615	$617	3	$467,843	203	$184,060	50	$1,635,311	707
1999	$170,278	509	$0	0	$279,092	218	$102,803	73	$552,173	604
2000	$509,594	532	$3,039	4	$466,560	230	$212,336	46	$1,191,529	623
2001	$429,534	412	$0	0	$228,615	159	$98,458	32	$756,607	514
2002	$127,208	318	$0	0	$167,748	114	$28,703	30	$323,659	407
2003	$453,187	359	$0	0	$304,553	114	$135,287	34	$893,027	438
2004	$943,767	390	$0	0	$405,344	116	$135,246	29	$1,484,357	467
2005	$448,853	403	$0	0	$571,965	145	$134,295	29	$1,155,113	484
2006	$451,390	373	$0	0	$551,182	132	$141,235	24	$1,143,807	453
2007	$380,842	366	$0	0	$660,865	125	$223,329	28	$1,265,036	456
2008	$538,310	374	$0	0	$750,731	146	$198,070	25	$1,487,111	462
2009	$502,848	342	$0	0	$747,325	179	$192,031	39	$1,442,204	434
2010	$765,606	433	$0	0	$1,655,321	241	$473,661	48	$2,894,749	530
2011	$764,358	413	$0	0	$1,176,435	219	$346,022	48	$2,287,202	510
10 Yr Avg	$504,155	377	$0	0	$604,365	147	$176,032	32	$1,284,567	465

Note: Dashes indicate information is unavailable.

[a] Number of permits that made at least one delivery.

Appendix A5.–Commercial and subsistence harvest, Kuskokwim Management Area, 1913–2011.

	Commercial Harvest						Subsistence Harvest							Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Sockeye	Chum	Other[a]	Pink	Coho[b]	Subtotal	Harvest
1913	7,800	–	–	–	–	7,800	–	–	–	–	–	–	–	7,800
1914	–	2,667	–	–	–	2,667	–	–	–	–	–	–	–	2,667
1915	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1916	949	–	–	–	–	949	–	–	–	–	–	–	–	949
1917	7,878	–	–	–	–	7,878	–	–	–	–	–	–	–	7,878
1918	3,055	–	–	–	–	3,055	–	–	–	–	–	–	–	3,055
1919	4,836	–	–	–	–	4,836	–	–	–	–	–	–	–	4,836
1920	34,853	–	–	–	–	34,853	–	–	–	–	–	–	–	34,853
1921	9,854	–	–	–	–	9,854	–	–	–	–	–	–	–	9,854
1922	8,944	6,120	–	–	–	15,064	–	–	–	–	–	–	180,000	195,064
1923	7,254	–	–	–	–	7,254	–	–	–	–	–	–		7,254
1924	19,253	900	–	7,167	7,167	34,487	17,700	–	–	203,148	–	–	220,848	255,335
1925	1,644	5,800	–	–	–	7,444	10,800	–	–	230,850	–	–	241,650	249,094
1926	–	–	–	–	–	–		–	–	–	–	–	738,576	738,576
1927	–	–	–	–	–	–		–	–	–	–	–	286,254	286,254
1928	–	–	–	–	–	–		–	–	–	–	–	481,090	481,090
1929	–	–	–	–	–	–		–	–	–	–	–	560,196	560,196
1930	7,626	2,448	–	–	–	10,074		–	–	–	–	–	538,650	548,724
1931	8,541	–	–	–	–	8,541		–	–	–	–	–	389,367	397,908
1932	9,339	–	–	–	–	9,339		–	–	–	–	–	746,415	755,754
1933	–	–	–	–	–	–	6,290	–	–	443,998	–	–	450,288	450,288
1934	–	–	–	–	–	–	20,800	–	–	597,132	–	–	617,932	617,932
1935	6,448	–	–	–	8,296	14,744	22,930	–	–	554,040	–	–	576,970	591,714
1936	624	–	–	–	–	624	33,500	–	–	549,423	–	–	582,923	583,547
1937	480	–	–	–	–	480		–	–	537,111	–	–	537,111	537,591
1938	624	–	–	–	828	1,452	10,153	–	–	400,242	–	–	410,395	411,847
1939	134	–	–	–	–	134	14,000	–	–	125,425	–	–	139,425	139,559
1940	247	–	–	–	500	747	8,000	–	–	415,523	–	–	423,523	424,270
1941	187	–	–	–	674	861	8,000	–	–	415,523	–	–	423,523	424,384
1942	–	–	–	–	–	–	6,400	–	–	325,339	–	–	331,739	331,739
1943	–	–	–	–	–	–	6,400	–	–	325,339	–	–	331,739	331,739
1944	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1945	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1946	2,288	–	–	–	674	2,962	–	–	–	–	–	–	–	2,962
1947	5,356	–	–	–	–	5,356	–	–	–	–	–	–	–	5,356

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	Commercial Harvest						Subsistence Harvest							Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Sockeye	Chum	Other[a]	Pink	Coho[b]	Subtotal	Harvest
1948	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1949	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1950	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1951	4,210	–	–	–	–	4,210	–	–	–	–	–	–	–	4,210
1952	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1953	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1954	57	–	–	–	–	57	–	–	–	–	–	–	–	57
1955	–	–	–	–	–	–	–	–	–	–	–	–		–
1956	–	–	–	–	–	–	–	–	–	–	–	–		–
1957	–	–	–	–	–	–	–	–	–	–	–	–		–
1958	–	–	–	–	–	–	–	–	–	–	–	–		–
1959	3,760	–	–	–	–	3,760	–	–	–	–	–	–		3,760
1960	5,969	5,649	0	0	5,498	17,116	18,887	–	–	301,753	–	–	320,640	337,756
1961	23,246	2,308	18,864	90	5,090	49,598	28,934	–	–	179,529	–	–	208,463	258,061
1962	20,867	10,313	45,707	4,340	12,432	93,659	13,582	–	–	175,304	–	161,849	350,735	444,394
1963	18,571	0	0	0	15,660	34,231	34,482	–	–	170,829	–	137,649	342,960	377,191
1964	21,230	13,422	707	939	28,992	65,290	29,017	–	–	219,208	–	190,191	438,416	503,706
1965	24,965	1,886	4,242	0	12,191	43,284	24,697	–	–	250,878	–	–	275,575	318,859
1966	25,823	1,030	2,610	268	22,985	52,716	49,325	–	–	175,735	–	–	225,060	277,776
1967	29,986	652	8,235	0	58,239	97,112	61,262	–	–	214,468	–	–	275,730	372,842
1968	43,157	5,884	19,684	75,818	154,275	298,818	35,698	–	–	278,008	–	–	313,706	612,524
1969	64,777	10,362	50,377	1,251	110,473	237,240	40,617	–	–	204,105	–	–	244,722	481,962
1970	64,722	12,654	60,566	27,422	62,245	227,609	69,612	–	–	246,810	–	11,868	328,290	555,899
1971	44,936	6,054	99,423	13	10,006	160,432	43,013	–	–	116,391	–	6,899	166,303	326,735
1972	55,598	4,312	97,197	1,952	23,880	182,939	38,176	–	–	120,316	–	1,325	159,817	342,756
1973	51,374	5,224	184,207	634	152,408	393,847	38,451	–	–	179,259	–	23,746	241,456	635,303
1974	30,670	29,003	196,127	60,099	179,579	495,478	26,665	–	–	277,170	–	32,780	336,615	832,093
1975	28,219	17,686	225,308	910	112,751	384,874	47,569	–	–	176,389	–	–	223,958	608,832
1976	49,262	14,636	231,877	39,998	112,130	447,903	58,055	–	–	223,792	–	4,312	286,159	734,062
1977	58,256	18,621	298,959	434	263,727	639,997	58,158	–	–	203,397	–	12,193	273,748	913,745
1978	63,194	13,734	282,044	61,968	247,271	668,211	38,145	–	–	125,052	–	12,437	175,634	843,845
1979	53,314	39,463	297,167	574	308,683	699,201	57,053	–	–	163,451	–		220,504	919,705
1980	48,599	42,213	561,483	30,306	327,908	1,010,509	62,047	–	–	168,987	–	47,335	278,369	1,288,878
1981	79,377	105,940	485,653	463	278,541	949,974	64,274	–	–	163,554	–	28,301	256,129	1,206,103
1982	79,816	97,716	326,481	18,259	567,452	1,089,724	61,141	–	–	195,691	–	45,181	302,013	1,391,737

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	Commercial Harvest						Subsistence Harvest							Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Sockeye	Chum	Other[a]	Pink	Coho[b]	Subtotal	Harvest
1983	93,676	90,834	306,554	379	248,389	739,832	51,020	–	–	149,172	–	2,834	203,026	942,858
1984	74,016	81,304	488,480	23,902	826,774	1,494,476	60,668	–	–	144,651	–	15,016	220,335	1,714,811
1985	74,083	121,221	224,680	111	382,096	802,191	45,720	33,632	95,999	–	1,062	24,524	200,937	1,003,128
1986[c]	44,972	142,029	349,268	16,569	736,910	1,289,748	54,256	20,239	142,930[c]	–	–	29,742	247,167	1,536,915
1987[c]	65,558	170,849	603,274	163	478,594	1,318,438	71,804	25,180	70,709	–	291	18,085	186,069	1,504,507
1988[cd]	74,563	149,949	1,443,953	37,592	623,733	2,329,790	75,107	33,102	153,980	–	–	43,866	306,055	2,635,845
1989[cd]	66,914	82,365	801,355	819	554,411	1,505,864	85,322	37,088	145,091	–	–	57,846	325,347	1,831,211
1990[c]	84,451	203,919	521,023	16,050	443,783	1,269,226	114,219	39,659	131,470	–	–	50,708	336,056	1,605,282
1991[c]	48,170	202,441	502,187	522	556,818	1,310,138	79,445	56,401	96,314	–	–	55,620	287,780	1,597,918
1992[c]	67,597	192,341	436,506	85,978	772,449	1,554,871	87,663	34,158	99,576	–	–	44,494	265,891	1,820,762
1993[c]	26,636	167,235	94,937	71	686,570	975,449	91,973	51,362	61,724	–	–	35,295	240,354	1,215,803
1994[c]	27,345	191,169	360,893	84,870	856,100	1,520,377	110,922	39,280	76,949	–	–	36,504	263,655	1,784,032
1995[c]	72,352	198,045	707,212	318	555,539	1,533,466	105,787	28,622	68,941	–	–	39,165	242,515	1,775,981
1996[c]	22,959	122,260	301,975	1,663	1,099,865	1,548,722	100,352	35,037	90,239	–	–	34,699	260,327	1,809,049
1997[c]	47,990	123,002	67,200	7	166,648	404,847	83,022	41,251	40,993	–	–	30,717	195,983	600,830
1998[c]	44,402	130,074	268,199	2,720	312,517	757,912	85,781	37,579	67,664	–	–	27,240	218,264	976,176
1999[c]	25,019	81,201	72,659	2	32,251	211,132	79,752	49,388	47,612	–	–	27,753	204,505	415,637
2000[c]	26,115	109,939	49,574	17	307,439	493,084	75,299	41,783	51,696	–	–	33,786	202,564	695,648
2001[c]	14,384	59,545	21,893	0	220,804	316,626	82,106	50,065	49,874	–	–	29,504	211,549	528,175
2002[c]	12,531	24,190	34,951	0	113,199	184,871	84,512	25,499	69,019	–	–	32,780	211,810	396,681
2003[c]	16,014	63,646	36,225	0	346,555	462,440	70,579	34,452	43,320	–	–	35,240	183,591	646,031
2004[c]	30,235	63,492	51,965	0	542,206	687,898	103,183	32,433	52,374	–	–	35,735	223,725	911,623
2005[c]	31,014	120,379	85,236	19	205,762	442,410	89,538	34,129	46,777	–	1,343	27,613	199,400	641,810
2006[c]	24,853	148,783	94,789	1	224,865	493,291	96,857	30,226	64,206	–	2,710	30,706	224,705	717,996
2007[c]	22,864	153,762	79,510	0	189,448	445,584	101,554	33,233	51,308	–	–	25,107	211,202	656,786
2008[c]	23,958	112,580	97,889	15	259,666	494,108	103,080	58,182	69,039	–	–	48,841	279,142	773,250
2009[c]	22,093	170,370	184,933	2	161,067	538,465	81,853	35,160	43,734	–	–	30,358	191,105	729,570
2010	22,417	201,864	226,672	6	256,871	707,830	69,242	41,042	47,885	–	758	34,169	193,096	900,926
2011[c]	17,865	76,978	238,695	7	121,130	454,675	61,687	42,146	50,702	–	–	30,682	185,217	639,892
10 –Yr. Avg.[e]	22,036	111,861	91,406	4[f]	252,044	477,352	88,856	37,516	54,135	–	–	32,967	213,879	669,757

Note: Subsistence salmon harvest estimates from 1990 to 2009 are reconstructed.

[a] Includes sockeye, pink and chum salmon.

[b] Reported subsistence coho salmon harvest only. Coho salmon subsistence harvest is poorly documented with no Kuskokwim River estimates attempted prior to 1988.

[c] Reported commercial harvests includes personal use catch and Bethel test fishery sales and donations.

[d] Estimates were based on a new formula in 1988 and 1989 and are not comparable with previous years.

[e] 10-year average from 2001 to 2010.

[f] Even years only.

Appendix A6.–Commercial salmon harvest by period, District W-1, Kuskokwim River, Kuskokwim Management Area, 1995–2011.

		Permits	Hours	Permit	Chinook		Sockeye		Chum		Coho	
Year	Date	Fished	Fished	Hours	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
1995	6/22	569	4	2,276	6,895	3.03	4,420	1.94	49,157	21.60	0	0.00
	6/26	568	4	2,272	9,452	4.16	19,449	8.56	93,152	41.00	0	0.00
	6/29	565	4	2,260	4,972	2.20	18,188	8.05	83,580	36.98	0	0.00
	7/3	475	4	1,900	2,847	1.50	17,078	8.99	89,427	47.07	0	0.00
	7/6	481	4	1,924	1,521	0.79	14,765	7.67	81,246	42.23	0	0.00
	7/10	494	4	1,976	906	0.46	7,100	3.59	86,368	43.71	21	0.01
	7/14	435	4	1,740	546	0.31	4,219	2.42	43,137	24.79	221	0.13
	7/18	336	6	2,016	366	0.18	2,482	1.23	37,294	18.50	671	0.33
	7/21	368	4	1,472	202	0.14	940	0.64	21,039	14.29	1,272	0.86
	8/4	234	6	1,404	64	0.05	123	0.09	1,072	0.76	48,665	34.66
	8/8	611	6	3,666	95	0.03	363	0.10	1,229	0.34	98,548	26.88
	8/12	617	6	3,702	50	0.01	359	0.10	899	0.24	102,421	27.67
	8/16	593	6	3,558	52	0.01	147	0.04	208	0.06	65,713	18.47
	8/19	555	6	3,330	28	0.01	87	0.03	133	0.04	41,057	12.33
	8/22	497	6	2,982	16	0.01	113	0.04	157	0.05	43,978	14.75
	8/26	477	6	2,862	25	0.01	117	0.04	101	0.04	29,129	10.18
	8/29	355	6	2,130	15	0.01	45	0.02	39	0.02	17,790	8.35
	9/1	219	6	1,314	2	0.00	31	0.02	12	0.01	5,783	4.40
Total		712	92	42,784	28,054		90,026		588,250		455,269	
1996	6/17	245	2	490	2,045	4.17	1,850	3.78	11,560	23.59	0	0.00
	6/20	283	2	566	2,046	3.61	6,423	11.35	27,442	48.48	0	0.00
	6/24	240	2	360	666	1.85	4,420	12.28	19,438	53.99	0	0.00
	7/2	224	2	448	545	1.22	3,962	8.84	20,915	46.69	0	0.00
	7/5	194	2	388	316	0.81	3,481	8.97	17,651	45.49	2	1.00
	7/8	211	2	422	178	0.42	6,795	16.10	18,801	44.55	24	0.06
	7/12	237	2	474	230	0.49	3,781	7.98	26,468	55.84	1,608	3.39
	7/16	197	2	394	87	0.22	602	1.53	15,192	38.56	4,675	11.87
	7/19	267	3	801	164	0.20	298	0.37	13,390	16.72	14,746	18.41
	7/22	417	6	2,502	183	0.07	639	0.26	14,504	5.80	50,443	20.16
	7/25	487	8	3,896	124	0.03	256	0.07	9,024	2.32	113,637	29.17
	7/29	526	6	3,156	97	0.03	186	0.06	3,828	1.21	144,773	45.87
	7/31	464	6	2,784	52	0.02	92	0.03	1,541	0.55	122,946	44.16
	8/3	541	6	3,246	59	0.02	129	0.04	1,097	0.34	132,540	40.83
	8/7	514	6	3,084	43	0.01	73	0.02	581	0.19	94,332	30.59
	8/10	502	6	3,012	45	0.01	60	0.02	797	0.26	83,653	27.77
	8/13	471	6	2,826	25	0.01	82	0.03	296	0.10	70,053	24.79
	8/16	459	6	2,754	28	0.01	147	0.05	215	0.08	49,012	17.80
	8/20	400	6	2,400	19	0.01	83	0.03	51	0.02	25,870	10.78
	8/23	293	6	1,758	9	0.01	22	0.01	23	0.01	13,133	7.47
	8/26	209	6	1,254	11	0.01	23	0.02	13	0.01	8,684	6.93
Total		620	93	37,015	6,972		33,404		202,827		930,131	
1997	6/23	353	6	2,118	10,023	4.73	21,218	10.02	13,090	6.18	0	0.00
	7/31	429	6	2,574	141	0.05	352	0.14	2,060	0.80	14,963	5.81
	8/6	513	6	3,078	145	0.05	229	0.07	1,387	0.45	37,216	12.09
	8/12	507	6	3,042	61	0.02	122	0.04	408	0.13	56,149	18.46
	8/18	475	6	2,850	66	0.02	67	0.02	58	0.02	21,273	7.46
Total		604	30	13,662	10,436		21,988		17,003		129,601	

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Appendix A6.–Page 2 of 6.

Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1998	6/24	338	6	2,028	6,413	3.16	9,043	4.46	32,467	16.01	0	0.00
	6/29	426	6	2,556	6,358	2.49	22,506	8.81	66,789	26.13	0	0.00
	7/3	445	4	1,780	2,277	1.28	15,985	8.98	51,471	28.92	1	0.00
	7/11	417	4	1,668	1,127	0.68	10,172	6.10	29,407	17.63	23	0.01
	7/22	346	6	2,076	460	0.22	1,538	0.74	15,663	7.54	3,633	1.75
	7/27	370	6	2,220	356	0.16	932	0.42	7,500	3.38	18,497	8.33
	8/1	425	6	2,550	156	0.06	235	0.09	2,787	1.09	26,791	10.51
	8/6	496	6	2,976	88	0.03	295	0.10	1,020	0.34	45,128	15.16
	8/11	464	6	2,784	67	0.02	95	0.03	388	0.14	58,426	20.99
	8/17	439	6	2,634	34	0.01	45	0.02	122	0.05	34,640	13.15
	8/22	382	6	2,292	19	0.01	53	0.02	67	0.03	18,936	8.26
	8/29	154	6	924	1	0.00	7	0.01	17	0.02	4,093	4.43
Total		615	68	26,488	17,356		60,906		207,698		210,168	
1999	6/30	409	6	2,454	4,668	1.90	16,772	6.83	22,700	9.25	0	0.00
	8/7	389	6	2,334	37	0.02	204	0.09	306	0.13	23,593	10.11
Total		509	12	4,788	4,705		16,976		23,006		23,593	
2000	7/5 [a]	224	4	896	357	0.40	3,658	4.08	11,026	12.31	0	0.00
	8/1 [a]	248	6	1,488	12	0.01	94	0.06	156	0.10	25,642	17.23
	8/4 [b]	123	6	738	7	0.01	7	0.01	53	0.07	50,260	68.10
	8/5 [a]	270	6	1,620	8	0.00	73	0.05	43	0.03	32,056	19.79
	8/8 [b]	186	6	1,116	9	0.01	26	0.02	55	0.05	26,771	23.99
	8/9 [a]	217	6	1,302	13	0.01	57	0.04	128	0.10	20,905	16.06
	8/12 [b]	189	6	1,134	12	0.01	17	0.01	23	0.02	37,451	33.03
	8/14 [a]	224	6	1,344	6	0.00	75	0.06	33	0.02	16,766	12.47
	8/17 [b]	193	6	1,158	5	0.00	23	0.02	15	0.01	17,916	15.47
	8/18 [a]	199	6	1,194	6	0.01	58	0.05	16	0.01	14,697	12.31
	8/21 [b]	158	6	948	4	0.00	3	0.00	10	0.01	8,577	9.05
	8/22 [a]	143	6	858	1	0.00	32	0.04	4	0.00	4,489	5.23
	8/25 [ab]	106	6	636	4	0.01	7	0.01	8	0.01	4,191	6.59
Total		532	76	14,432	444		4,130		11,570		259,721	
2001	8/3 [a]	144	4	576	9	0.02	22	0.04	347	0.60	17,174	29.82
	8/6 [b]	108	4	432	8	0.02	5	0.01	101	0.23	20,089	46.50
	8/8 [ab]	262	6	1,572	23	0.01	11	0.01	356	0.23	46,369	29.50
	8/11 [b]	175	6	1,050	20	0.02	10	0.01	218	0.21	41,643	39.66
	8/13 [a]	143	4	572	5	0.01	4	0.01	37	0.06	9,647	16.87
	8/15 [ab]	296	6	1,776	5	0.00	15	0.01	122	0.07	28,893	16.27
	8/17 [ab]	259	6	1,554	12	0.01	9	0.01	65	0.04	11,064	7.12
	8/20 [ab]	149	6	894	6	0.01	5	0.01	17	0.02	5,440	6.09
	8/22 [ab]	149	6	894	0	0.00	3	0.00	4	0.00	8,149	9.12
	8/25 [ab]	118	6	708	2	0.00	0	0.00	5	0.01	4,530	6.40
Total		412	54	10,028	90		84		1,272		192,998	
2002	8/2 [a]	40	2	80	7	0.09	3	0.04	134	1.68	2,492	31.15
	8/5 [ab]	175	4	700	18	0.03	41	0.06	573	0.82	11,164	15.95
	8/8 [b]	119	6	714	22	0.03	20	0.03	541	0.76	22,890	32.06
	8/9 [a]	132	6	792	8	0.01	9	0.01	254	0.32	13,749	17.36
	8/12 [b]	136	6	816	9	0.01	8	0.01	292	0.36	22,962	28.14
	8/13 [a]	109	6	654	8	0.01	3	0.00	106	0.16	10,206	15.61
Total		318	30	3,756	72		84		1,900		83,463	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2003	7/31 [b]	57	2	114	11	0.10	13	0.11	405	3.55	7,717	67.69
	8/1 [a]	95	4	380	30	0.08	69	0.18	545	1.43	9,707	25.54
	8/4 [b]	91	4	364	7	0.02	10	0.03	310	0.85	14,308	39.31
	8/5 [a]	119	4	476	13	0.03	69	0.14	214	0.45	12,233	25.70
	8/7 [b]	123	6	738	16	0.02	3	0.00	374	0.51	30,162	40.87
	8/8 [a]	118	4	472	12	0.03	41	0.09	200	0.42	15,800	33.47
	8/11 [b]	130	4	520	9	0.02	9	0.02	208	0.40	31,371	60.33
	8/12 [a]	107	4	428	12	0.03	10	0.02	116	0.27	18,703	43.70
	8/14 [b]	141	4	564	12	0.02	2	0.00	78	0.14	36,537	64.78
	8/15 [a]	116	4	464	15	0.03	12	0.03	67	0.14	16,027	34.54
	8/18 [b]	105	3	315	3	0.01	3	0.01	40	0.13	14,219	45.14
	8/19 [a]	95	4	380	6	0.02	15	0.04	25	0.07	8,720	22.95
	8/21 [b]	111	6	666	2	0.00	3	0.00	27	0.04	18,804	28.23
	8/22 [a]	49	6	294	0	0.00	1	0.00	14	0.05	2,914	9.91
	8/25 [b]	109	6	654	1	0.00	5	0.01	32	0.05	12,789	19.56
	8/26 [a]	112	6	672	4	0.01	2	0.00	15	0.02	11,434	17.01
	8/28 [b]	100	6	600	3	0.01	7	0.01	40	0.07	8,228	13.71
	8/29 [b]	60	6	360	0	0.00	4	0.01	29	0.08	4,524	12.57
	9/1 [b]	44	8	352	1	0.00	1	0.00	12	0.03	3,504	9.95
	9/2 [b]	37	8	296	0	0.00	0	0.00	7	0.02	3,011	10.17
	9/3 [b]	30	8	240	1	0.00	2	0.01	6	0.03	3,121	13.00
Total		359	107	9,349	158		281		2,764		283,833	
2004	6/30 [a]	52	2	104	522	5.02	1,781	17.13	2,798	26.90	0	0.00
	7/2 [b]	44	3	132	488	3.70	1,900	14.39	2,426	18.38	0	0.00
	7/6 [b]	38	3	114	238	2.09	1,853	16.25	1,946	17.07	3	0.03
	7/7 [a]	50	4	200	384	1.92	1,780	8.90	5,086	25.43	16	0.08
	7/28 [b]	90	4	360	127	0.35	70	0.19	2,343	6.51	6,004	16.68
	7/30 [a]	99	4	396	61	0.15	273	0.69	587	1.48	9,462	23.89
	8/2 [b]	105	6	630	75	0.12	70	0.11	849	1.35	16,267	25.82
	8/3 [a]	115	6	690	68	0.10	192	0.28	646	0.94	23,957	34.72
	8/5 [b]	120	6	720	39	0.05	41	0.06	586	0.81	19,235	26.72
	8/6 [a]	144	6	864	59	0.07	110	0.13	624	0.72	28,638	33.15
	8/9 [b]	139	6	834	54	0.06	168	0.20	504	0.60	47,151	56.54
	8/10 [a]	151	6	906	18	0.02	57	0.06	207	0.23	20,022	22.10
	8/12 [b]	152	6	912	29	0.03	50	0.05	371	0.41	28,751	31.53
	8/13 [a]	91	6	546	16	0.03	8	0.01	95	0.17	20,353	37.28
	8/16 [b]	144	6	864	22	0.03	14	0.02	140	0.16	29,965	34.68
	8/17 [a]	114	6	684	8	0.01	33	0.05	44	0.06	8,491	12.41
	8/19 [b]	118	6	708	5	0.01	9	0.01	110	0.16	6,834	9.65
	8/20 [a]	82	6	492	11	0.02	30	0.06	103	0.21	9,287	18.88
	8/23 [ab]	206	8	1,648	26	0.02	23	0.01	223	0.14	32,563	19.76
	8/24 [ab]	211	8	1,688	24	0.01	28	0.02	178	0.11	32,156	19.05
	8/27 [ab]	224	8	1,792	9	0.01	22	0.01	124	0.07	31,623	17.65
	8/30 [ab]	186	8	1,488	9	0.01	13	0.01	85	0.06	23,649	15.89
	9/2 [ab]	163	6	978	2	0.00	5	0.01	32	0.03	14,563	14.89
	9/4 [ab]	122	6	732	6	0.01	0	0.00	13	0.02	11,986	16.37
	9/6 [ab]	115	6	690	2	0.00	2	0.00	15	0.02	8,406	12.18
	9/8 [ab]	80	6	480	3	0.01	0	0.00	15	0.03	6,025	12.55
Total		390	148	19,652	2,305		8,532		20,150		435,407	
2005	6/24 [a]	188	4	752	2,276	3.03	7,938	10.56	13,553	18.02	0	0.00
	6/28 [b]	51	3	153	405	2.65	2,879	18.82	3,178	20.77	0	0.00
	6/30 [b]	71	4	284	850	2.99	6,290	22.15	7,317	25.76	0	0.00

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2005	7/1 [a]	151	4	604	874	1.45	6,962	11.53	27,901	46.19	0	0.00
	8/2 [a]	125	6	750	94	0.13	1,155	1.54	3,297	4.40	8,666	11.55
	8/4 [b]	75	6	450	47	0.10	303	0.67	4,156	9.24	8,814	19.59
	8/5 [a]	171	6	1,026	88	0.09	790	0.77	3,159	3.08	21,463	20.92
	8/8 [b]	129	6	774	59	0.08	305	0.39	2,971	3.84	25,165	32.51
	8/9 [a]	174	6	1,044	25	0.02	404	0.39	1,389	1.33	20,026	19.18
	8/11 [b]	139	6	834	30	0.04	205	0.25	1,282	1.54	19,686	23.60
	8/15 [a]	127	6	762	16	0.02	179	0.23	274	0.36	7,768	10.19
	8/22 [b]	128	6	768	6	0.01	45	0.06	372	0.48	12,049	15.69
	8/25 [a]	106	6	636	3	0.00	109	0.17	88	0.14	6,549	10.30
	8/29 [b]	103	6	618	5	0.01	22	0.04	121	0.20	7,159	11.58
	9/1 [ab]	128	6	768	6	0.01	59	0.08	81	0.11	4,974	6.48
Total		404	81		4,784		27,645		69,139		142,319	
2006	6/26 [b]	74	6	444	1,647	3.71	5,218	11.75	19,694	44.36	0	0.00
	6/28 [a]	99	6	594	846	1.42	6,456	10.87	16,312	27.46	0	0.00
	8/1 [a]	135	6	810	56	0.07	287	0.35	1,098	1.36	10,309	12.73
	8/3 [b]	80	6	480	28	0.06	63	0.13	1,032	2.15	8,872	18.48
	8/4 [a]	128	6	768	24	0.03	49	0.06	1,462	1.90	10,650	13.87
	8/7 [b]	103	6	618	30	0.05	76	0.12	1,361	2.20	12,163	19.68
	8/8 [a]	151	6	906	23	0.03	99	0.11	667	0.74	14,162	15.63
	8/10 [b]	118	6	708	26	0.04	50	0.07	969	1.37	17,139	24.21
	8/11 [a]	157	6	942	20	0.02	96	0.10	400	0.42	23,209	24.64
	8/14 [b]	133	6	798	21	0.03	47	0.06	336	0.42	15,668	19.63
	8/15 [a]	155	6	930	11	0.01	36	0.04	120	0.13	18,253	19.63
	8/17 [b]	130	6	780	11	0.01	32	0.04	240	0.31	18,455	23.66
	8/18 [a]	128	6	768	7	0.01	20	0.03	108	0.14	7,833	10.20
	8/21 [b]	106	6	636	5	0.01	11	0.02	60	0.09	5,678	8.93
	8/22 [a]	113	6	678	5	0.01	23	0.03	52	0.08	6,004	8.86
	8/24 [b]	68	6	408	3	0.01	3	0.01	45	0.11	3,318	8.13
	8/25 [a]	95	6	570	6	0.01	27	0.05	32	0.06	5,427	9.52
	8/28 [ab]	110	6	660	7	0.01	18	0.03	36	0.05	5,120	7.76
	8/30 [ab]	84	6	504	1	0.00	7	0.01	46	0.09	3,338	6.62
Total		373	114		2,777		12,618		44,070		185,598	
2007	8/1 [a]	138	6	828	32	0.04	131	0.16	3,500	4.23	19,133	23.11
	8/3 [b]	107	6	642	41	0.06	62	0.10	2,510	3.91	19,728	30.73
	8/6 [a]	172	6	1,032	28	0.03	153	0.15	1,082	1.05	15,926	15.43
	8/8 [b]	124	6	744	9	0.01	55	0.07	1,208	1.62	14,402	19.36
	8/10 [a]	187	6	1,122	29	0.03	128	0.11	724	0.65	13,059	11.64
	8/13 [b]	125	6	750	10	0.01	13	0.02	463	0.62	12,491	16.65
	8/14 [a]	176	6	1,056	11	0.01	44	0.04	436	0.41	15,411	14.59
	8/16 [b]	121	6	726	3	0.00	17	0.02	316	0.44	7,696	10.60
	8/17 [a]	135	6	810	4	0.00	31	0.04	112	0.14	6,231	7.69
	8/20 [b]	80	6	480	3	0.01	4	0.01	110	0.23	3,266	6.80
	8/22 [ab]	141	6	846	8	0.01	24	0.03	154	0.18	7,447	8.80
	8/24 [ab]	129	6	774	1	0.00	41	0.05	148	0.19	6,259	8.09
Total		366	72		179		703		10,763		141,049	
2008	6/20 [a]	171	6	1,026	6,415	6.25	8,653	8.43	12,903	12.58	0	0.00
	6/24 [a]	126	3	378	1,372	3.63	2,906	7.69	6,560	17.35	0	0.00
	6/27 [a]	135	3	405	990	2.44	3,842	9.49	7,804	19.27	0	0.00
	7/2 [ab]	1	4	4	19	4.75	75	18.75	0	0.00	0	0.00
	7/12 [ab]	1	6	6	1	0.17	2	0.33	160	26.67	0	0.00

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2008	7/19 [ab]	1	6	6	0	0.00	2	0.33	98	16.33	14	2.33
	7/22 [ab]	1	6	6	0	0.00	3	0.50	120	20.00	94	15.67
	7/25 [ab]	1	6	6	0	0.00	0	0.00	0	0.00	80	13.33
	7/30 [ab]	1	6	6	0	0.00	2	0.33	113	18.83	117	19.50
	8/2 [ab]	1	6	6	0	0.00	0	0.00	0	0.00	150	25.00
	8/4 [b]	66	3	198	9	0.05	13	0.07	487	2.46	6,149	31.06
	8/6 [a]	118	4	472	15	0.03	29	0.06	482	1.02	12,013	25.45
	8/8 [ab]	224	6	1,344	18	0.01	23	0.02	940	0.70	28,877	21.49
	8/11 [b]	108	4	432	5	0.01	9	0.02	369	0.85	14,991	34.70
	8/13 [a]	167	4	668	6	0.01	17	0.03	143	0.21	19,667	29.44
	8/15 [a]	169	4	676	4	0.01	9	0.01	111	0.16	20,137	29.79
	8/18 [b]	112	4	448	4	0.01	0	0.00	47	0.10	11,513	25.70
	8/20 [a]	137	4	548	4	0.01	7	0.01	35	0.06	7,017	12.80
	8/22 [ab]	192	6	1,152	1	0.00	8	0.01	84	0.07	11,237	9.75
	8/25 [ab]	164	6	984	2	0.00	1	0.00	60	0.06	10,806	10.98
Total		374	97	8,771	8,865		15,601		30,516		142,862	
2009	6/23	167	4	668	3,003	4.50	8,112	12.14	9,149	13.70	0	0.00
	6/26	58	4	232	2,552	11.00	6,870	29.61	14,466	62.35	0	0.00
	7/1	48	3	144	762	5.29	7,798	54.15	18,703	129.88	0	0.00
	7/11	70	4	280	87	0.31	1,069	3.82	7,500	26.79	0	0.00
	7/14	39	4	156	26	0.17	810	5.19	4,530	29.04	23	0.15
	7/18	44	6	264	83	0.31	677	2.56	12,870	48.75	1,340	5.08
	7/28 [c]	56	4	224	58	0.26	78	0.35	4,982	22.24	14,516	64.80
	8/1 [c]	73	4	292	24	0.08	80	0.27	1,599	5.48	16,846	57.69
	8/4 [c]	62	4	248	27	0.11	70	0.28	1,731	6.98	19,334	77.96
	8/6	2	12	24	0	0.00	0	0.00	31	1.29	377	0.00
	8/8 [c]	70	4	280	12	0.04	27	0.10	633	2.26	16,224	57.94
	8/11 [c]	59	6	354	17	0.05	35	0.10	436	1.23	15,569	43.98
	8/13	49	6	294	3	0.01	18	0.06	58	0.20	3,709	12.62
	8/16		6				Commercial Opening, no deliveries					
	8/18 [c]	47	6	282	6	0.02	15	0.05	81	0.29	10,189	36.13
	8/22 [c]	33	6	198	4	0.02	14	0.07	21	0.11	6,419	32.42
Total		342	83	3,940	6,664		25,673		76,790		104,546	
2010	6/25	114	4	456	542	1.19	729	1.60	9,703	21.28	0	0.00
	6/28	216	4	864	1,181	1.37	3,536	4.09	21,918	25.37	0	0.00
	7/6	87	6	522	290	0.56	3,554	6.81	17,467	33.46	0	0.00
	7/9	146	4	584	176	0.30	7,303	12.51	15,437	26.43	0	0.00
	7/14	51	2	102	95	0.93	2,068	20.27	2,830	27.75	0	0.00
	7/16	49	2	98	32	0.33	747	7.62	2,332	23.80	5	0.05
	7/19	54	4	216	68	0.31	2,474	11.45	3,918	18.14	109	0.50
	7/21 [c]	161	4	644	86	0.13	894	1.39	7,283	11.31	1,321	2.05
	7/23	66	4	264	59	0.22	245	0.93	3,402	12.89	1,040	3.94
	7/26	160	6	960	81	0.08	439	0.46	4,042	4.21	3,603	3.75
	7/28	68	6	408	36	0.09	71	0.17	2,310	5.66	2,800	6.86
	7/30 [c]	149	4	596	24	0.04	160	0.27	892	1.50	6,049	10.15
	8/4	90	4	360	11	0.03	26	0.07	477	1.33	4,654	12.93
	8/6 [c]	207	4	828	25	0.03	91	0.11	609	0.74	17,246	20.83
	8/10	130	4	520	11	0.02	32	0.06	278	0.53	13,930	26.79
	8/12 [c]	226	4	904	14	0.02	59	0.07	250	0.28	7,274	8.05
Total		433[d]	66	8,326	2,731		22,428		93,148		58,031	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2011	7/5 [a]	112	4	448	46	0.10	2,519	5.62	13,873	30.97	0	0.00
	7/7 [b]	62	3	186	2	0.01	2,348	12.62	8,130	43.71	0	0.00
	7/9 [b]	61	3	183	1	0.01	2,561	13.99	6,850	37.43	0	0.00
	7/11 [b]	75	3	225	0	0.00	2,157	9.59	11,406	50.69	0	0.00
	7/13 [a]	147	4	588	0	0.00	517	0.88	19,683	33.47	47	0.08
	7/15 [b]	86	3	258	0	0.00	1,999	7.75	12,432	48.19	58	0.22
	7/18 [a]	159	4	636	0	0.00	282	0.44	11,940	18.77	192	0.30
	7/20 [b]	83	4	332	0	0.00	647	1.95	9,465	28.51	273	0.82
	7/22 [ac]	155	4	620	0	0.00	209	0.34	8,501	13.71	1,525	2.46
	7/25 [b]	80	4	320	0	0.00	53	0.17	7,151	22.35	2,722	8.51
	7/27 [ac]	182	4	728	0	0.00	72	0.10	4,635	6.37	5,688	7.81
	8/1 [b]	79	3	237	0	0.00	15	0.06	1,631	6.88	7,353	31.03
	8/3 [ac]	215	4	860	0	0.00	42	0.05	1,628	1.89	12,563	14.61
	8/8 [b]	100	3	300	0	0.00	6	0.02	382	1.27	13,838	46.13
	8/10 [ac]	213	4	852	0	0.00	36	0.04	258	0.30	8,660	10.16
	8/15 [b]	106	4	424	0	0.00	3	0.01	135	0.32	5,316	12.54
	8/17 [ac]	116	4	464	0	0.00	11	0.02	42	0.09	4,557	9.82
	8/19 [b]	92	4	368	0	0.00	1	0.00	56	0.15	5,032	13.67
	8/22 [b]	100	4	400	0	0.00	4	0.01	58	0.15	6,284	15.71
Total		413	70	8,429	49		13,482		118,256		74,108	

[a] Subdistrict W-1B (below Bethel) opening.

[b] Subdistrict W-1A (above Bethel) opening.

[c] Two hours of additional fishing time was allowed in Lower Section of W1-B.

[d] Number of individual permit holders participating for the season.

Appendix A7.–Commercial salmon harvest and exvessel value, District W-1, Kuskokwim River, Kuskokwim Management Area, 1993–2011.

	Chinook		Sockeye		Pink		Chum		Coho		Total	
Year	Number	Value	Number	Value	Number	Value	Number	Value	Number	Value	Number	Value
1993	8,714	$ 72,659	27,003	$ 140,000	64	$ 59	42,718	$ 112,756	586,330	$ 2,535,321	664,829	$ 2,860,795
1994	16,201	$ 126,892	49,362	$ 188,691	30,930	$ 8,967	269,426	$ 381,639	690,369	$ 2,875,803	1,056,288	$ 3,581,992
1995	28,054	$ 280,287	90,026	$ 448,530	335	$ 50	588,250	$ 724,273	455,269	$ 1,313,742	1,161,934	$ 2,766,882
1996	6,972	$ 23,665	33,404	$ 97,176	1,621	$ 744	202,827	$ 170,977	930,131	$ 1,824,683	1,174,955	$ 2,117,245
1997	10,436	$ 36,843	21,988	$ 64,922	2	$ 1	17,003	$ 19,509	129,601	$ 2,167,491	179,030	$ 2,288,766
1998	17,356	$ 74,387	60,906	$ 209,860	92	$ 55	207,698	$ 183,307	210,168	$ 516,024	496,220	$ 983,633
1999	4,705	$ 22,266	16,976	$ 86,442	2	$ –	23,006	$ 16,428	23,593	$ 44,633	68,282	$ 169,769
2000	444	$ 3,044	4,130	$ 14,272	7	$ 3	11,570	$ 7,967	259,721	$ 489,644	275,872	$ 514,930
2001	90	$ 534	84	$ 265	–	$ –	1,272	$ 827	192,998	$ 422,573	194,444	$ 424,199
2002	72	$ 212	84	$ 196	–	$ –	1,900	$ 1,190	83,463	$ 124,763	85,519	$ 126,361
2003	158	$ 846	282	$ 803	–	$ –	2,764	$ 1,087	284,064	$ 450,451	287,268	$ 453,187
2004	2,305	$ 9,815	8,532	$ 19,549	–	$ –	20,150	$ 6,611	435,407	$ 907,791	466,394	$ 943,766
2005	4,784	$ 29,040	27,645	$ 109,063	–	$ –	69,139	$ 23,115	142,319	$ 287,635	243,887	$ 448,853
2006	2,777	$ 16,192	12,618	$ 41,891	1	$ 1	44,070	$ 14,988	185598	$ 378,318	245,064	$ 451,390
2007	179	$ 1,607	703	$ 2,411	–	$ –	10,763	$ 3,033	141,049	$ 373,789	152,694	$ 380,840
2008	8,865	$ 70,988	15,601	$ 59,777	15	$ 4	30,516	$ 11,212	142,862	$ 396,329	197,859	$ 538,310
2009	6,664	$ 61,452	25,673	$ 101,445	2	$ –	76,790	$ 76,494	104,546	$ 263,457	213,675	$ 502,848
2010	2,731	$ 53,134	22,428	$ 167,575	–	$ –	93,148	$ 162,445	58,031	$ 382,452	176,338	$ 765,606
2011	49	$ 411	13,482	$ 79,370	1	$ –	118,256	$ 350,124	74,108	$ 334,452	205,896	$ 764,358
10 Yr Avg	2,863	24,382	11,365	50,298	2	0	35,051	30,100	177,034	398,756	226,314	503,536

Appendix A8.–Commercial salmon harvest by period, District W-2, Kuskokwim River, Kuskokwim Management Area, 1994–2011.

Year	Date		Permits Fished	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1994	Aug	04	14	6	0.07		0	0.00	808	9.62	4,040	48.10
	Aug	09	17	6	0.03		0	0.00	350	3.43	5,790	56.76
	Aug	12	17	8	0.00		0	0.00	226	1.66	10,539	77.49
	Aug	15	16	8	0.00		1	0.01	151	1.18	7,190	56.17
	Aug	18	15	8	0.01		0	0.00	106	0.88	2,710	22.58
	Aug	22	12	8	0.00		1	0.01	34	0.35	1,855	19.32
	Aug	25	7	8	0.00		0	0.00	12	0.21	1,492	26.64
	Aug	27	6	6	0.00		1	0.03	2	0.06	677	18.81
Total			20	58			3		1,689		34,293	
1995	Jun	26	16	4	25.88		535	8.36	3,628	56.69	0	0.00
	Jun	29	13	4	13.60		620	11.92	3,577	68.79	0	0.00
	Jul	03	9	4	7.89		456	12.67	2,200	61.11	0	0.00
	Jul	06	8	4	2.31		331	10.34	2,372	74.13	0	0.00
	Jul	10	6	4	1.33		293	12.21	1,874	78.08	0	0.00
	Jul	14	2	4	0.88		51	6.38	480	60.00	0	0.00
	Jul	18	6	6	0.25		44	1.22	1,638	45.50	6	0.17
	Jul	21	5	4	0.20		132	6.60	899	44.95	13	0.65
	Aug	04	6	6	0.28		4	0.11	484	13.44	1,321	36.69
	Aug	08	9	6	0.04		6	0.11	379	7.02	2,816	52.15
	Aug	12	8	6	0.10		1	0.02	79	1.65	2,643	55.06
	Aug	16	12	6	0.01		0	0.00	41	0.57	4,398	61.08
	Aug	19	5	6	0.03		0	0.00	4	0.13	1,679	55.97
	Aug	22	8	6	0.00		1	0.02	9	0.19	1,750	36.46
	Aug	26	3	6	0.00		0	0.00	0	0.00	712	39.56
	Aug	29	3	6	0.00		0	0.00	4	0.22	660	36.67
	Sept	01	1	6	0.00		0	0.00	0	0.00	194	32.33
Total			21	88			2,474		17,668		16,192	
1996	Jun	24	6	2	12.08		69	5.75	613	51.08	0	0.00
	Jul	02	4	2	21.88		109	13.63	376	47.00	0	0.00
										101.0		
	Jul	05	3	2	1.33		38	6.33	606	0	0	0.00
	Jul	08	4	4	2.63		92	5.75	877	54.81	0	0.00
	Jul	12	4	4	3.75		56	3.50	758	47.38	0	0.00
	Jul	16	1	4	1.25		33	8.25	336	84.00	3	0.75
	Jul	19	3	4	0.75		9	0.75	444	37.00	51	4.25
	Jul	22	2	6	0.00		6	0.50	414	34.50	234	19.50
	Jul	25	3	8	0.08		5	0.21	367	15.29	700	29.17
	Jul	29	2	6	0.08		2	0.17	98	8.17	668	55.67
	Jul	31	1	6	0.00		2	0.33	148	24.67	162	27.00
	Aug	10	2	6	0.00		0	0.00	0	0.00	787	65.58
	Aug	13	5	6	0.00		1	0.03	5	0.17	1,761	58.70
	Aug	16	2	6	0.00		0	0.00	8	0.67	590	49.17
	Aug	20	3	6	0.00		52	2.89	0	0.00	1,063	59.06
	Aug	23	2	6	0.00		0	0.00	0	0.00	620	51.67
	Aug	26	5	6	0.00		0	0.00	0	0.00	541	18.03
Total			8	84			474		5,050		7,180	
1997	Aug	12	2	6	0.08		0	0.00	23	1.92	494	41.17
	Aug	18	3	6	0.22		1	0.06	0	0.00	708	39.33
Total			4	12			1		23		1,202	

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Appendix A8.–Page 2 of 2.

Year	Date		Permits Fished	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1998	Aug	06	3	6	3	0.17	0	0	111	6.17	313	17.39
	Aug	11	No harvest/ No deliveries									
Total			3	6	3		0		111		313	
1999	No commercial fishery in W-2											
2000	Aug	12	4	6							1237	51.54
	Aug	21	2	6							439	36.58
Total			12	12							1,676	
2001	No commercial fishery in W-2											
2002	No commercial fishery in W-2											
2003	No commercial fishery in W-2											
2004	No commercial fishery in W-2											
2005	No commercial fishery in W-2											
2006	No commercial fishery in W-2											
2007	No commercial fishery in W-2											
2008	No commercial fishery in W-2											
2009	No commercial fishery in W-2											
2010	No commercial fishery in W-2											
2011	No commercial fishery in W-2											

Appendix A9.–Chinook salmon utilization, Kuskokwim River, Kuskokwim Management Area, 1960–2011.

	Commercial Harvest[a]		Subsistence Harvest[b]		Test Fish	Sport Fish	Total	10–yr Avg
Year	Annual	10–yr Avg[c]	Annual	10–yr Avg[c]	Harvest	Harvest	Utilization	Utilization[c]
1960	5,969	–	18,887	–	–	–	24,856	–
1961	18,918	–	28,934	–	–	–	47,852	–
1962	15,341	–	13,582	–	–	–	28,923	–
1963	12,016	–	34,482	–	–	–	46,498	–
1964	17,149	–	29,017	–	–	–	46,166	–
1965	21,989	–	24,697	–	–	–	46,686	–
1966	25,545	–	49,325	–	285	–	75,155	–
1967	29,986	–	59,913	–	766	–	90,665	–
1968	34,278	–	32,942	–	608	–	67,828	–
1969	43,997	–	40,617	–	833	–	85,447	–
1970	39,290	22,519	69,612	33,240	857	–	109,759	56,008
1971	40,274	25,851	43,242	38,312	756	–	84,272	64,498
1972	39,454	27,987	40,396	39,743	756	–	80,606	68,140
1973	32,838	30,398	39,093	42,424	577	–	72,508	73,308
1974	18,664	32,480	27,139	42,885	1,236	–	47,039	75,909
1975	22,135	32,632	48,448	42,698	704	–	71,287	75,997
1976	30,735	32,646	58,606	45,073	1,206	–	90,547	78,457
1977	35,830	33,165	56,580	46,001	1,264	33	93,707	79,996
1978	45,641	33,750	36,270	45,668	1,445	116	83,472	80,300
1979	38,966	34,886	56,283	46,000	979	74	96,302	81,864
1980	35,881	34,383	59,892	47,567	1,033	162	96,968	82,950
1981	47,663	34,042	61,329	46,595	1,218	189	110,399	81,671
1982	48,234	34,781	58,018	48,404	542	207	107,001	84,284
1983	33,174	35,659	47,412	50,166	1,139	420	82,145	86,923
1984	31,742	35,692	56,930	50,998	231	273	89,176	87,887
1985	37,889	37,000	43,874	53,977	79	85	81,927	92,100
1986	19,414	38,576	51,019	53,519	130	49	70,612	93,164
1987	36,179	37,443	67,325	52,761	384	355	104,243	91,171
1988	55,716	37,478	70,943[d]	53,835	576	528	127,763	92,225
1989	43,217	38,486	81,175[d]	57,303	543	1,218	126,153	96,654
1990	53,504	38,911	109,778	59,792	512	394	164,188	99,639
1991	37,778	40,673	74,820	64,780	117	401	113,116	106,361
1992	46,872	39,685	82,654	66,129	1,380	367	131,273	106,632
1993	8,735	39,549	87,674	68,593	2,483	587	99,479	109,060
1994	16,211	37,105	103,343	72,619	1,937	1,139	122,630	110,793
1995	30,846	35,552	102,110	77,261	1,421	541	134,918	114,138
1996	7,419	34,847	96,413	83,084	247	1,432	105,511	119,438
1997	10,441	33,648	79,381	87,623	332	1,227	91,381	122,927
1998	17,359	31,074	81,213	88,829	210	1,434	100,216	121,641
1999	4,705	27,238	72,775	89,856	98	252	77,830	118,887

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Year	Commercial Harvest[a] Annual	Commercial Harvest[a] 10–yr Avg[c]	Subsistence Harvest[b] Annual	Subsistence Harvest[b] 10–yr Avg[c]	Test Fish Harvest	Sport Fish Harvest	Total Utilization	10–yr Avg Utilization[c]
2000	444	23,387	70,825	89,016	64	105	71,438	114,054
2001	90	18,081	78,009	85,121	86	290	78,475	104,779
2002	72	14,312	80,982	85,440	288	319	81,661	101,315
2003	158	9,632	67,134	85,272	409	401	68,102	96,354
2004	2,305	8,775	97,110	83,219	691	857	100,963	93,216
2005	4,784	7,384	85,090	82,595	557	572	91,003	91,049
2006	2,777	4,778	90,085	80,893	352	444	93,658	86,658
2007	179	4,314	96,155	80,260	305	1,478	98,117	85,473
2008	8,865	3,287	98,103	81,938	420	708	108,096	86,146
2009	6,664	2,438	78,231	83,627	470	917	86,282	86,934
2010	2,731	2,634	66,056	84,172	292	[e]	[e]	87,780
2011	49[f]	2,863	58,662[g]	83,696	337	[e]	[e]	89,595
10 Yr Avg	2,863	7,563	83,696	83,254	387	665	89,595	91,970

Note: Dashes indicate no data available.

[a] Districts 1 and 2; also includes harvests in District 3 from 1960 to 1965. Does not include personal use.

[b] Estimated subsistence harvest expanded from villages surveyed and estimates are reconstructed from 1990 to 2009 (Hamazaki 2011).

[c] Running 10-year average. Does not include most recent year.

[d] Estimates were based on a new formula in 1988 and 1989 and are not comparable with previous years.

[e] Data unavailable at time of publication.

[f] An additional 699 Chinook salmon were caught during commercial periods, but were retained for personal use. These fish are included in the subsistence harvest throughout the postseason subsistence harvest survey methodology.

[g] Data preliminary.

Appendix A10.–Chum salmon utilization, Kuskokwim River, Kuskokwim Management Area, 1960–2011.

	Commercial Harvest[a]		Subsistence Harvest[b]		Test Fish	Sport Fish	Total	10–Year
Year	Annual	10–yr Avg[c]	Annual	10–yr Avg[c]	Harvest	Harvest	Utilization	Average[c]
1960	0	–	301,753[d]	–	–	–	301,753	–
1961	0	–	179,529[d]	–	–	–	179,529	–
1962	0	–	161,849[d]	–	–	–	161,849	–
1963	0	–	137,649[d]	–	–	–	137,649	–
1964	0	–	190,191[d]	–	–	–	190,191	–
1965	0	–	250,878[d]	–	–	–	250,878	–
1966	0	–	175,735[d]	–	502[e]	–	176,237	–
1967	148	–	208,445[d]	–	338	–	208,931	–
1968	187	–	275,008[d]	–	562	–	275,757	–
1969	7,165	–	204,105[d]	–	384	–	211,654	–
1970	1,664	750	246,810[d]	208,514	1,139[e]	–	458,877	209,443
1971	68,914	916	116,391[d]	203,020	254	–	389,495	225,155
1972	78,619	7,808	120,316[d]	196,706	486	–	403,935	246,152
1973	148,746	15,670	179,259[d]	192,553	675	–	536,903	270,360
1974	171,887	30,544	277,170[d]	196,714	2,021	–	678,336	310,286
1975	184,171	47,733	176,389[d]	205,412	1,062	–	614,767	359,100
1976	177,864	66,150	223,792[d]	197,963	2,101	–	667,870	395,489
1977	248,721	83,937	198,355[d]	202,769	576	129	447,781	444,652
1978	248,656	108,794	118,809[d]	201,760	2,153	555	370,173	468,537
1979	261,874	133,641	161,239[d]	186,140	412	259	423,784	477,979
1980	483,751	159,112	165,172[d]	181,853	2,058	324	651,305	499,192
1981	418,677	207,320	157,306[d]	173,689	1,793	598	578,374	518,435
1982	278,306	242,297	190,011[d]	177,781	504	1,125	469,946	537,323
1983	276,698	262,265	146,876[d]	184,750	1,069	922	425,565	543,924
1984	423,718	275,061	142,542[d]	181,512	1,186	520	567,966	532,790
1985	199,478	300,244	94,750	168,049	616	150	294,994	521,753
1986	309,213	301,774	141,931[d]	159,885	1,693	245	453,082	489,776
1987	574,336	314,909	70,709	151,699	2,302	566	647,913	468,297
1988	1,381,674	347,471	151,967[f]	138,935	4,379	764	1,538,784	488,310
1989	749,182	460,773	139,672[f]	142,250	2,082	2,023	892,959	605,171
1990	461,624	509,503	153,825	140,094	2,107	533	618,089	652,089
1991	431,802	507,291	87,237	138,959	931	378	520,348	648,767
1992	344,603	508,603	116,391	131,952	15,330	608	476,932	642,965
1993	43,337	515,233	59,797	124,590	8,451	359	111,944	643,663
1994	271,115	491,897	76,937	115,882	11,998	1,280	361,330	612,301
1995	605,918	476,636	70,977	109,322	17,473	226	694,594	591,638
1996	207,877	517,280	100,913	106,944	2,864	280	311,934	631,597
1997	17,026	507,147	37,366	102,843	790	86	55,268	617,483
1998	207,809	451,416	61,732	99,508	1,140	291	270,972	558,218
1999	23,006	334,029	44,242	90,485	562	180	67,990	431,437

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Year	Commercial Harvest[a] Annual	Commercial Harvest[a] 10-yr Avg[c]	Subsistence Harvest[b] Annual	Subsistence Harvest[b] 10-yr Avg[c]	Test Fish Harvest	Sport Fish Harvest	Total Utilization	10-yr Avg Utilization[c]
2000	11,570	261,412	59,387	80,942	1,038	26	72,021	348,940
2001	1,272	216,406	56,005	71,498	1,743	112	59,132	294,333
2002	1,900	173,353	86,381	68,375	2,666	53	91,000	248,212
2003	2,764	139,083	41,167	65,374	1,713	53	45,697	209,619
2004	20,150	135,026	64,899	63,511	1,810	84	86,943	202,994
2005	69,139	109,929	58,013	62,307	4,459	500	132,111	175,555
2006[e]	44,070	56,251	89,620	61,011	3,547	13	137,250	119,307
2007	10,763	39,871	73,603	59,881	3,237	391	87,994	101,839
2008	30,516	39,871	68,633	63,505	2,472	121	101,742	105,111
2009	76,790	21,515	43,635	64,195	2,741	285	123,451	88,188
2010	93,148	26,893	46,148	64,134	2,872	[g]	[g]	93,734
2011	118,256	35,051	49,242	62,499	2,289	[g]	[g]	96,147
10 Yr Avg	35,051	95,820	62,810	64,379	2,726	179	96,147	163,889

Note: Dashes indicate no data available.

[a] Districts 1 and 2 only; no chum salmon harvests were reported in District 3. Does not include personal use.

[b] Estimated subsistence harvest expanded from villages surveyed and estimates are reconstructed from 1990 to 2009 (Hamazaki 2011).

[c] Running 10-year average. Does not include most recent year.

[d] Includes small numbers of small Chinook, sockeye and coho salmon.

[e] Includes small numbers of sockeye salmon.

[f] Estimates were based on a new formula in 1988 and 1989 and are not comparable with previous years.

[g] Data unavailable at time of publication.

Appendix A11.–Sockeye salmon utilization, Kuskokwim River, Kuskokwim Management Area, 1969–2011.

Year	Commercial Harvest[a] Annual	Commercial Harvest[a] 10-yr Avg[c]	Subsistence Harvest[b] Annual	Subsistence Harvest[b] 10-yr Avg[c]	Test Fish Harvest	Sport Fish Harvest	Total Utilization	10-yr Avg Utilization[c]
1969	322	–	–	–	–	–	322	–
1970	117	–	–	–	–	–	117	–
1971	2,606	–	–	–	–	–	2,606	–
1972	102	–	–	–	–	–	102	–
1973	369	–	–	–	–	–	369	–
1974	136	–	–	–	–	–	136	–
1975	23	–	–	–	–	–	23	–
1976	2,971	–	–	–	–	–	2,971	–
1977	9,379	–	–	–	–	–	9,379	–
1978	733	–	–	–	–	–	733	–
1979	1,054	1,676	–	–	–	–	2,730	1,676
1980	360	1,749	–	–	–	–	2,109	1,917
1981	48,375	1,773	–	–	–	–	50,148	2,116
1982	33,154	6,350	–	–	–	–	39,504	6,870
1983	68,855	9,655	–	–	–	41	78,551	10,810
1984	48,575	16,504	–	–	–	–	65,079	18,628
1985	106,647	21,348	–	–	–	72	128,067	25,123
1986	95,433	32,010	–	–	–	196	127,639	37,927
1987	136,602	41,257	–	–	–	217	178,076	50,394
1988	92,025	53,979	–	–	–	291	146,295	67,264
1989	42,747	63,108	35,224	–	–	33	98,365	81,820
1990	84,870	67,277	45,897	–	–	61	113,235	91,383
1991	108,946	75,728	47,370	–	–	38	123,136	102,496
1992	92,218	81,785	43,514	–	–	131	125,430	109,795
1993	27,008	87,692	51,616	–	–	348	139,656	118,387
1994	49,365	83,507	42,362	–	–	359	126,228	124,498
1995	92,500	83,586	30,905	–	–	95	114,586	130,613
1996	33,878	82,171	40,591	–	–	315	123,077	129,265
1997	21,989	76,016	38,744	–	–	423	115,183	128,808
1998	60,906	64,555	36,103	–	–	178	100,836	122,519
1999	16,976	61,443	47,360	41,233	–	54	167,065	117,973
2000	4,130	58,866	48,730	42,446	–	46	154,218	124,843
2001	84	50,792	53,245	42,729	510	231	54,070	128,942
2002	84	39,905	32,296	43,317	228	42	32,650	122,035
2003	282	30,692	32,241	42,195	0	140	32,663	112,757
2004	8,532	28,019	40,405	40,258	742	400	50,079	102,058
2005	27,645	23,936	41,589	40,062	1,062	636	70,932	94,443
2006	12,618	17,451	43,315	41,130	519	231	56,683	90,077
2007	703	15,325	47,339	41,403	488	322	48,852	83,438
2008	15,601	13,196	58,729	42,262	584	273	75,187	76,805
2009	25,673	8,666	34,941	44,525	515	162	61,291	74,240
2010	22,428	9,535	38,103	43,283	495	[e]	[e]	63,663
2011	13,482	11,365	39,340	42,220	380	[e]	[e]	53,601
10 Yr Avg[d]	11,365	23,752	42,220	42,117	514	271	53,601	94,846

Note: Dashes indicate no data available.

[a] Districts 1 and 2 only. Does not include personal use.

[b] Estimated subsistence harvest expanded from villages surveyed and estimates are reconstructed from 1990 to 2009 (Hamazaki 2011).

[c] Running 10-year average. Does not include most recent year.

[d] Average for 2001–2010.

[e] Data unavailable at time of publication.

Appendix A12.–Coho salmon utilization, Kuskokwim River, Kuskokwim Management Area, 1960–2011.

	Commercial Harvest[a]		Subsistence Harvest[b]		Test Fish	Sport Fish	Total	10–yr Avg
Year	Annual	10–yr Avg[c]	Annual	10–yr Avg[c]	Harvest	Harvest	Utilization	Utilization[c]
1960	2,498	–	–	–	–	–	2,498	–
1961	5,044	–	–	–	–	–	5,044	–
1962	12,432	–	–	–	–	–	12,432	–
1963	15,660	–	–	–	–	–	15,660	–
1964	28,613	–	–	–	–	–	28,613	–
1965	12,191	–	–	–	–	–	12,191	–
1966	22,985	–	–	–	–	–	22,985	–
1967	56,313	–	–	–	–	–	56,313	–
1968	127,306	–	–	–	–	–	127,306	–
1969	83,765	–	–	–	–	–	83,765	–
1970	38,601	36,681	–	–	–	–	38,601	–
1971	5,253	40,291	–	–	–	–	5,253	–
1972	22,579	40,312	–	–	–	–	22,579	–
1973	130,876	41,327	–	–	–	–	130,876	–
1974	147,269	52,848	–	–	–	–	147,269	–
1975	81,945	64,714	–	–	–	–	81,945	–
1976	88,501	71,689	–	–	–	–	88,501	–
1977	241,364	78,241	–	–	–	–	241,364	–
1978	213,393	96,746	–	–	–	–	213,393	–
1979	219,060	105,355	–	–	–	–	219,060	–
1980	222,012	118,884	–	–	–	–	222,012	–
1981	211,251	137,225	–	–	–	–	211,251	–
1982	447,117	157,825	–	–	–	–	447,117	–
1983	196,287	200,279	–	–	–	1,375	197,662	–
1984	623,447	206,820	–	–	–	1,442	624,889	–
1985	335,606	254,438	–	–	–	136	335,742	–
1986	659,988	279,804	–	–	–	1,222	661,210	–
1987	399,467	336,953	–	–	–	1,767	401,234	–
1988	524,296	352,763	–	–	–	927	525,223	–
1989	479,856	383,853	52,917	–	–	2,459	482,315	–
1990	410,332	409,933	57,560	–	–	581	410,913	–
1991	500,935	428,765	39,252	–	–	1,003	501,938	–
1992	666,170	457,733	52,299	–	–	1,692	667,862	–
1993	610,739	479,638	28,485	–	–	980	611,719	480,899
1994	724,689	521,084	36,609	–	–	1,925	726,614	522,305
1995	471,461	531,208	36,823	–	–	1,497	472,958	532,477
1996	937,299	544,793	43,173	–	–	3,423	940,722	546,199
1997	130,803	572,524	29,816	–	36,452	2,408	199,479	574,150
1998	210,481	545,658	24,667	–	–	2,419	237,567	553,974
1999	23,593	514,277	27,409	40,160	213	1,998	53,213	525,209
2000	261,379	468,650	45,983	37,609	2,828	1,689	311,879	482,299
2001	192,998	453,755	31,089	36,452	1,723	1,204	227,014	472,395
2002	83,463	422,961	42,602	35,635	2,484	2,030	130,579	444,903
2003	284,064	364,691	33,259	34,666	570	3,244	321,137	391,174
2004	435,407	332,023	48,898	35,143	2,259	4,996	491,560	362,116

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Appendix A12.–Page 2 of 2.

Year	Commercial Harvest[a] Annual	Commercial Harvest[a] 10-yr Avg[c]	Subsistence Harvest[b] Annual	Subsistence Harvest[b] 10-yr Avg[c]	Test Fish Harvest	Sport Fish Harvest	Total Utilization	10-yr Avg Utilization[c]
2005	142,319	303,095	33,378	36,372	1,499	3,539	180,735	338,611
2006	185,598	270,181	41,408	36,027	1,186	1,474	229,666	309,388
2007	141,049	195,011	35,332	35,851	1,557	2,355	180,293	238,283
2008	142,862	196,035	46,463	36,403	2,984	3,755	196,064	238,283
2009	104,546	189,273	29,561	38,582	2,394	3,257	139,758	236,364
2010	58,031	197,369	32,106	38,797	1,020	[d]	[d]	232,214
2011	74,108	177,034	28,896[e]	37,410	1,207	[d]	[d]	240,868
10 Yr Avg	177,034	292,439	37,410	36,393	1,768	2,873	232,978	326,373

Note: Dashes indicate no data available.

[a] Districts 1 and 2 only. Does not include personal use.

[b] Estimated subsistence harvest expanded from villages surveyed and estimates are reconstructed from 1990 to 2009 (Hamazaki 2011).

[c] Running 10-year average. Does not include most recent year.

[d] Data unavailable at time of publication.

Appendix A13.–Commercial salmon average mean weights and prices paid, Kuskokwim Area, Kuskokwim Management Area, 1967–2011.

	Average Weight (lb)					Average Price ($)				
Year	Chinook	Sockeye	Chum	Pink	Coho	Chinook	Sockeye	Chum	Pink	Coho
1967	27.8	7.4	7.0	[a]	5.9	0.13	0.05	0.04	[a]	0.09
1968	23.8	6.2	7.9	4.0	7.2	0.16	0.10	0.04	0.05	0.09
1969	19.6	6.2	5.8	3.6	7.3	0.19	0.15	0.07	0.06	0.10
1970	18.9	5.4	6.1	3.3	7.3	0.20	0.21	0.08	0.08	0.14
1971[b]	26.2	6.9	6.4	[a]	6.1	0.17	0.10	0.08	[a]	0.13
1972	24.7	[a]	6.5	[a]	6.4	0.20	[a]	0.08	[a]	0.16
1973	26.7	[a]	6.8	[a]	5.8	0.25	[a]	0.19	[a]	0.26
1974	17.1	6.3	6.8	4.1	7.5	0.46	0.34	0.25	0.23	0.27
1975	14.9	[a]	6.4	[a]	8.2	0.54	[a]	0.26	[a]	0.31
1976[c]	17.0	6.7	7.0	3.5	7.8	0.64	0.43	0.27	0.25	0.40
1977	22.7	8.3	7.3	3.9	7.8	1.15	0.45	0.45	0.25	0.65
1978	24.2	6.5	8.9	3.9	7.1	0.50	0.49	0.32	0.12	0.40
1979	16.6	6.9	7.0	3.9	7.9	0.66	0.53	0.37	0.11	0.75
1980	14.1	6.7	6.4	3.6	6.9	0.47	0.31	0.24	0.12	0.64
1981	17.8	7.2	7.5	3.5	6.4	0.84	0.61	0.23	0.11	0.63
1982	19.3	7.2	7.3	3.6	7.3	0.82	0.41	0.22	0.05	0.53
1983	18.8	6.8	7.4	3.5	6.8	0.54	0.51	0.33	0.05	0.39
1984	16.4	6.6	6.7	3.2	7.7	0.89	0.52	0.28	0.07	0.55
1985	17.0	7.0	7.1	3.6	7.5	0.71	0.59	0.25	0.05	0.51
1986	17.0	7.2	6.8	3.4	6.4	0.80	0.70	0.25	0.05	0.60
1987	15.2	7.5	6.8	3.7	7.2	1.10	1.30	0.27	0.10	0.73
1988	14.1	7.3	6.9	3.4	7.2	1.30	1.42	0.40	0.15	1.25
1989	16.6	7.2	6.8	3.4	7.3	0.75	1.20	0.26	0.05	0.55
1990	15.1	6.7	6.9	3.2	6.5	0.56	1.05	0.26	0.12	0.62
1991	15.3	6.9	6.3	3.4	6.5	0.56	0.67	0.31	0.12	0.45
1992	13.4	7.0	6.8	3.9	7.3	0.66	0.90	0.32	0.06	0.45
1993	14.3	7.1	6.5	3.4	6.6	0.62	0.70	0.40	0.25	0.58
1994	15.6	6.9	6.6	3.6	7.6	0.51	0.53	0.21	0.08	0.57
1995	17.3	6.9	6.9	3.7	7.2	0.60	0.71	0.18	0.12	0.41
1996	15.7	7.2	7.2	3.8	8.0	0.26	0.40	0.11	0.12	0.25
1997	16.2	7.1	7.3	2.7	7.5	0.28	0.42	0.12	0.10	0.33
1998	14.2	6.8	6.9	3.8	7.8	0.27	0.53	0.13	0.10	0.32
1999	15.5	6.5	7.3	3.0	6.6	0.32	0.58	0.10	0.05	0.32
2000	15.6	6.8	7.6	3.2	6.9	0.39	0.55	0.10	0.10	0.28
2001	20.0	7.6	7.5	[a]	7.7	0.36	0.35	0.10	[a]	0.28
2002	13.9	6.7	7.9	[a]	7.9	0.35	0.35	0.10	[a]	0.20
2003	13.6	7.3	8.0	[a]	6.9	0.35	0.44	0.21	[a]	0.10
2004	12.1	6.6	6.9	[a]	6.9	0.35	0.35	0.08	[a]	0.32
2005	14.5	6.7	6.7	3.7	7.4	0.59	0.55	0.05	0.05	0.27
2006	13.9	6.4	6.9	4.0	6.3	0.54	0.48	0.05	0.25	0.33
2007	14.1	6.6	6.8	[a]	7.2	0.59	0.53	0.05	[a]	0.38
2008	12.9	6.7	7.1	4.2	7.1	0.73	0.58	0.05	0.06	0.43
2009	13.1	6.5	6.9	3.5	7.6	0.71	0.56	0.15	0.00	0.35
2010	13.1	6.8	6.9	2.8	7.1	1.60	1.13	0.26	0.00	1.01
2011	12.5	6.5	6.4	4.0	7.1	0.85	0.86	0.68	0.00	0.75
10 Yr Avg	14.1	6.8	7.2	3.6	7.2	0.6	0.5	0.1	0.1	0.4

[a] Information unavailable.

[b] Information on price per pound was not available for District 5.

[c] Information was not available for District 4.

Appendix A14.–Commercial salmon exvessel value, permits fished and average income, Kuskokwim Management Area, 1964–2011.

Year	Gross Value to Fishermen	Permits Fished[a]	Average Income
1964	83,030	–	–
1965	90,950	–	–
1966	87,466	–	–
1967	138,647	–	–
1968	290,370	–	–
1969	297,233	–	–
1970	362,470	–	–
1971	371,220	–	–
1972	360,727	–	–
1973	$827,735	–	–
1974	$1,056,042	–	–
1975	$899,178	–	–
1976	$1,380,229	–	–
1977	$3,891,950	–	–
1978	$2,337,470	–	–
1979	$3,678,000	–	–
1980	$2,725,134	923	$2,952
1981	$3,766,525	1066	$3,533
1982	$4,213,954	971	$4,340
1983	$2,670,400	1027	$2,600
1984	$5,809,000	774	$7,505
1985	$3,248,089	781	$4,159
1986	$4,746,089	790	$6,008
1987	$6,463,176	800	$8,079
1988	$12,726,198	813	$15,653
1989	$5,139,522	824	$6,237
1990	$4,881,640	823	$5,932
1991	$3,949,649	819	$4,823
1992	$5,345,791	814	$6,567
1993	$3,964,011	804	$4,930
1994	$5,117,729	793	$6,454
1995	$4,219,377	798	$5,287
1996	$2,876,547	714	$4,029
1997	$1,052,602	702	$1,499
1998	$1,635,311	707	$2,313
1999	$522,173	604	$865
2000	$1,191,529	623	$1,913
2001	$756,607	514	$1,472
2002	$323,659	407	$795
2003	$893,027	438	$2,039
2004	$1,484,357	467	$3,178
2005	$1,155,113	484	$2,387
2006	$1,143,807	453	$2,525
2007	$1,265,036	456	$2,774
2008	$1,487,111	462	$3,219
2009	$1,442,204	434	$3,323
2010	$2,128,982	530	$4,017
2011	$2,287,202	510	$4,485
10 Yr Avg	$1,207,990	465	$2,573

Note: Dashes indicate no information available.

[a] Number of permits that made at least one delivery.

Appendix A15.–Commercial salmon fishery entry permits by location, Kuskokwim Management Area, 1994–2011.

Village	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Akiachak	64	64	64	66	67	67	67	67	68	67	68	70	70	69	71	72	72	89
Akiak	24	24	23	23	24	23	23	23	24	24	22	22	20	20	21	18	18	24
Aniak	10	11	10	11	11	11	11	11	11	10	10	10	9	9	9	8	5	10
Atmautluak	27	28	28	28	27	26	27	27	26	26	24	23	22	21	19	17	16	27
Bethel	163	164	157	162	168	167	161	165	173	171	168	169	168	161	155	152	135	196
Chefornak	6	5	2	2	3	2	2	2	2	2	2	2	2	3	3	2	2	3
Chuathbaluk	2	2	2	2	2	2	1	2	2	2	0	1	0	0	0	0	0	1
Eek	39	39	40	37	37	36	39	38	39	36	37	37	38	37	37	38	37	43
Goodnews Bay	28	29	27	26	28	28	26	26	25	24	22	22	22	22	22	22	26	29
Hooper Bay	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0
Kalskags	8	5	8	7	7	7	7	4	3	3	3	3	4	2	2	2	1	7
Kasigluk	41	45	44	44	43	44	44	45	42	42	41	41	39	39	38	36	35	37
Kipnuk	17	18	17	16	15	15	15	14	14	13	13	11	11	11	9	9	7	12
Kongiganak	20	21	21	21	19	20	18	16	15	14	12	12	13	13	13	12	14	24
Kwethluk	62	57	58	57	55	56	57	55	49	49	49	49	52	49	47	48	44	56
Kwigillingok	20	20	18	19	18	19	19	17	17	15	15	15	13	12	11	11	10	32
Mekoryuk	1	2	2	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Napakiak	41	37	39	39	39	39	38	38	35	33	32	34	33	33	32	36	32	37
Napaskiak	34	33	35	36	36	34	33	33	34	32	30	28	28	29	28	27	24	32
Newtok	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Nunapitchuk	47	46	48	48	46	46	46	46	46	44	44	42	43	42	41	41	35	47
Oscarville	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
Platinum	5	5	4	4	4	4	5	4	4	3	3	4	4	4	3	4	6	8
Quinhagak	76	79	83	82	83	82	84	82	83	82	83	80	77	78	81	82	77	95
Sleetmute	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Toksook Bay	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
Tuluksak	27	27	27	27	27	27	27	27	28	26	26	23	23	24	23	22	19	29
Tuntutuliak	43	43	44	45	43	42	42	43	43	41	41	39	39	41	40	41	44	49
Tununak	0	1	1	0	1	1	0	0	0	0	0		0	0	0	1	1	2
Kuskokwim Area Subtotal	809	809	806	806	807	800	794	788	787	763	749	740	733	722	709	703	662	890

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Village	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Anchorage	10	8	12	11	11	13	16	16	16	17	18	16	18	20	21	18	11	25
Anchor Point	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
Atqasuk	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
Big Lake	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dillingham	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1
Fairbanks	2	3	2	2	1	1	1	1	1	1	1	1	2	2	2	2	1	1
Juneau	0	0	0	0	0	0	0	0	2	1	2	1	2	3	3	3	0	0
Kenai	0	0	0	0	0	1	1	2	2	2	1	1	0	0	0	0	0	0
Manokotak	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1
Noorvik	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0
Palmer	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	1	1
Saint Mary's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Sitka	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	2
Stebbins	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Togiak	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1
Twin Hills	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2
Unalaska	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
Wasilla	0	0	0	0	1	1	1	1	1	0	1	1	1	1	2	2	1	2
Non-Local AK Resident Subtotal	16	15	18	16	15	20	23	25	26	25	24	23	29	33	35	32	17	40
California		2	1	1	1	2	1	1	1	1	1	1	1	0	0	0	0	0
Oregon		1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Washington		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Residents of other States		3	3	3	3	3	3	2	2	2	2	4	4	5	5	4	2	8
Non-Resident Subtotal	0	7	6	6	6	7	6	5	5	5	5	7	6	6	6	5	3	9
Total Number of Permits	825	831	830	828	828	827	823	818	818	793	778	770	768	761	750	740	682	939

Appendix A16.–Subsistence Chinook salmon harvest estimates by community, Kuskokwim Management Area, 1990–2011.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kipnuk	–	–	–	–	–	–	–	–	–	–	3,205	–	–	–	322	–	–	–	–	–	–	–
Kwigillingok	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kongiganak	1,559	729	929	680	1,281	1,095	1,108	1,376	1,128	1,153	1,285	1,612	1,349	2,003	2,663	1,536	1,729	1,984	2,086	1,148	1,470	1012
N. Kuskokwim Bay	1,559	729	929	680	1,281	1,095	1,108	1,376	1,128	1,153	4,490	1,612	1,349	2,003	2,985	1,536	1,729	1,984	2,086	1,148	1,470	1,012
																					0	0
Tuntutuliak	4,174	4,156	3,750	3,905	5,019	3,928	4,256	3,159	3,797	3,412	2,826	2,958	3,907	2,657	3,912	4,545	4,469	4,614	4,341	3,067	3,205	3073
Eek	4,923	2,617	2,057	2,496	2,976	3,679	2,786	2,009	2,215	1,730	2,140	2,035	2,514	2,075	2,954	3,133	2,700	2,635	2,877	1,812	1,761	1322
Kasigluk	3,300	2,875	3,324	3,453	3,877	3,398	3,249	3,630	2,857	4,710	3,857	4,889	4,470	4,212	7,859	4,488	4,304	5,350	2,928	2,341	3,020	2370
Nunapitchuk	4,192	4,004	4,123	3,852	4,580	4,543	3,479	3,605	4,502	4,215	3,425	3,328	4,503	3,179	4,921	4,103	4,121	4,661	4,296	3,320	2,548	2989
Atmautluak	2,895	1,661	1,239	1,715	1,856	2,016	1,752	1,648	1,397	1,372	1,191	754	1,479	547	2,153	1,927	1,422	1,890	1,737	1,581	1,091	1236
Napakiak	4,427	2,573	4,147	3,822	3,355	3,515	3,842	2,908	3,436	2,265	2,073	2,408	2,702	2,438	2,839	3,060	5,125	3,245	2,165	2,335	1,640	1861
Napaskiak	6,586	4,008	5,299	5,566	6,521	4,862	5,261	4,756	4,901	3,633	4,175	4,596	3,922	3,390	4,058	4,485	5,877	6,392	4,425	5,170	4,313	3349
Oscarville	1,263	1,476	1,480	1,496	1,390	1,046	995	953	754	1,543	1,264	1,779	1,115	1,153	1,325	1,069	1,052	1,360	1,351	754	618	694
Bethel	34,925	18,041	22,220	19,800	31,251	32,463	32,116	20,100	24,877	22,751	20,629	24,684	22,892	24,584	29,443	28,293	27,805	30,422	35,205	26,302	24,973	23414
Kwethluk	10,657	7,298	6,949	9,280	9,546	9,907	9,786	6,319	7,502	6,366	5,174	6,460	6,880	4,206	7,157	6,089	7,258	6,466	8,209	6,409	4,445	2445
Akiachak	8,395	5,607	8,130	7,678	7,622	6,410	5,689	6,699	6,026	5,210	6,311	6,978	6,946	2,493	7,131	5,411	5,561	7,621	9,509	7,078	4,470	3924
Akiak	5,966	3,168	3,452	4,478	4,653	4,401	4,851	3,196	2,943	2,377	2,335	3,528	3,390	3,905	3,775	3,860	4,423	4,297	3,784	3,247	3,625	2465
Tuluksak	2,022	3,114	2,330	3,662	4,414	4,175	3,309	5,456	3,554	2,239	2,464	2,520	2,860	3,286	3,766	2,655	2,372	3,886	3,374	3,212	2,110	1229
Lower Kuskokwim River	93,725	60,598	68,499	71,203	87,060	84,343	81,371	64,438	68,761	61,823	57,864	66,917	67,580	58,125	81,293	73,118	76,488	82,839	84,201	66,628	57,819	50,371
																					0	0
Lower Kalskag	2,946	4,022	2,338	3,603	4,087	4,541	3,513	3,103	1,954	1,726	1,691	2,432	1,535	1,556	1,991	1,417	3,494	1,937	2,442	2,525	1,030	991
Upper Kalskag	1,618	1,031	1,321	1,682	1,297	1,447	1,304	941	1,394	1,670	1,234	1,149	1,545	1,328	2,498	2,533	1,569	1,383	2,368	1,696	1,500	1401
Aniak	3,589	3,562	3,976	4,651	3,714	3,506	3,343	3,640	3,466	2,603	3,100	2,684	4,576	1,837	3,022	1,977	2,412	3,417	3,252	2,062	2,212	2205
Chuathbaluk	1,718	998	986	1,443	1,013	2,461	914	1,204	730	1,035	281	700	505	405	1,460	913	887	1,007	772	877	551	409
Middle Kuskokwim River	9,871	9,613	8,621	11,379	10,111	11,955	9,074	8,888	7,544	7,034	6,306	6,965	8,161	5,126	8,971	6,840	8,362	7,744	8,834	7,160	5,293	5,006
																					0	0
Crooked Creek	971	916	583	707	1,126	874	890	963	768	702	592	689	859	582	946	948	736	734	573	608	240	441
Red Devil	297	154	400	449	409	412	359	404	243	141	95	174	293	31	156	181	232	301	177	258	33	186
Sleetmute	777	887	782	1,795	1,295	964	1,265	1,171	978	414	412	505	604	600	906	522	750	861	668	723	272	242
Stony River	574	614	247	445	391	534	596	874	296	46	197	167	415	118	688	325	278	561	699	704	189	134
Lime Village	399	70	181	40	195	180	123	57	241	145	69	251	206	34	69	176	125	120	57	100	81	–
McGrath	896	902	1,586	550	1,026	804	1,223	995	872	1,033	656	444	970	395	587	882	689	495	619	593	257	820
Takotna	74	0	7	0	0	11	6	3	2	0	0	5	10	0	16	9	0	12	4	11	0	0
Nikolai	635	337	818	426	449	938	398	212	380	284	144	280	535	120	493	553	696	504	184	298	402	450
Telida	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	4,623	3,880	4,605	4,412	4,891	4,717	4,860	4,679	3,780	2,765	2,165	2,515	3,892	1,880	3,861	3,596	3,506	3,588	2,982	3,295	1,474	2,273
Kuskokwim River Total	109,778	74,820	82,654	87,674	103,343	102,110	96,413	79,381	81,213	72,775	70,825	78,009	80,982	67,134	97,110	85,090	90,085	96,155	98,103	78,231	66,056	58,662

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Appendix A16.–Page 2 of 2.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Quinhagak	3,881	3,753	4,394	3,634	3,977	2,864	3,506	3,186	3,774	2,815	3,053	3,177	2,649	2,563	4,563	3,505	5,163	4,686	3,923	2,976	2,692	2,177
Goodnews Bay	358	852	548	590	672	789	392	441	735	759	564	863	723	807	863	869	713	647	1,012	585	480	784
Platinum	202	20	67	75	74	24	41	14	57	69	99	57	154	45	122	74	45	66	42	61	14	64
South Kuskokwim Bay	4,441	4,625	5,009	4,299	4,723	3,677	3,939	3,641	4,566	3,643	3,716	4,097	3,526	3,415	5,548	4,448	5,921	5,399	4,977	3,622	3,186	3,025
Mekoryuk	–	–	–	0	14	–	–	–	2	35	13	–	4	30	–	–	–	–	–	–	–	–
Newtok	–	–	–	–	–	–	–	–	–	–	136	–	–	–	–	–	–	–	–	–	–	–
Nightmute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toksook Bay	–	–	–	–	2,842	–	–	–	–	3,299	609	–	–	–	525	–	851	–	–	–	–	–
Tununak	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chefornak	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	0	0
Beringn Sea Coast	0	0	0	0	2,856	0	0	0	2	3,334	758	0	4	30	525	0	851	0	0	0	0	0
Total Estimate	114,219	79,445	87,663	91,973	110,922	105,787	100,352	83,022	85,781	79,752	75,299	82,106	84,512	70,579	103,183	89,538	96,857	101,554	103,080	81,853	69,242	61,687

Source: Hamazaki 2011; Carroll and Hamazaki 2012.

Note: Dashes indicate harvest was not estimated.

Appendix A17.–Subsistence chum salmon harvest estimates by community, Kuskokwim Management Area, 1990–2011.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kipnuk	–	–	–	–	–	–	–	–	–	–	2,888	–	–	–	759	–	–	–	–	–	–	–
Kwigillingok	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kongiganak	1,009	978	1,584	708	1,414	1,269	1,763	753	1,579	1,049	1,839	2,399	3,247	897	2,958	1,960	2,420	2,158	1,592	1,307	2,513	2,303
N. Kuskokwim Bay	1,009	978	1,584	708	1,414	1,269	1,763	753	1,579	1,049	4,727	2,399	3,247	897	3,717	1,960	2,420	2,158	1,592	1,307	2,513	2,303
																					0	0
Tuntutuliak	6,592	4,697	6,245	3,325	5,346	3,509	6,119	2,435	3,640	1,709	2,622	2,585	4,150	1,288	2,546	3,568	4,024	3,350	4,416	3,330	2,439	1,906
Eek	3,014	790	1,324	250	591	899	999	556	795	484	636	402	1,228	578	688	877	1,256	803	761	696	721	492
Kasigluk	3,877	3,013	4,759	2,269	3,012	2,605	4,143	1,460	2,102	3,768	4,689	4,972	5,783	2,733	5,064	3,413	4,958	4,292	1,677	1,648	2,403	1,949
Nunapitchuk	6,448	5,840	9,195	4,895	4,560	4,264	6,255	2,465	4,885	4,428	4,865	4,724	8,002	2,865	5,053	4,167	5,150	6,619	4,726	3,468	3,223	3,341
Atmautluak	4,676	2,241	2,614	1,300	1,420	3,768	2,660	1,395	1,875	1,552	1,848	1,397	2,514	849	2,271	1,940	2,664	2,193	2,207	1,673	1,406	1,840
Napakiak	9,714	2,351	5,474	2,269	3,819	2,820	4,352	1,430	3,605	1,495	2,859	1,793	3,421	1,560	2,328	3,238	8,143	3,628	1,811	1,679	1,766	1,493
Napaskiak	11,334	6,703	7,817	3,653	5,797	4,137	6,200	2,318	3,771	2,529	2,757	2,364	4,010	2,061	2,705	2,205	4,323	3,032	2,638	1,410	3,110	1,792
Oscarville	1,400	1,147	1,515	561	676	740	1,548	434	378	1,530	1,260	1,831	1,319	804	828	686	1,151	932	836	534	352	402
Bethel	34,257	16,781	17,231	8,608	15,722	17,416	21,706	8,078	12,522	9,918	10,149	10,757	17,731	11,452	13,448	14,273	20,953	16,540	18,660	10,480	10,986	12,764
Kwethluk	11,451	5,714	8,001	3,499	6,340	6,114	12,043	3,266	4,508	3,582	5,232	4,601	8,019	2,294	4,288	4,328	6,328	6,291	5,935	3,331	3,082	3,523
Akiachak	10,565	5,921	9,532	3,308	5,998	3,992	5,019	1,615	2,218	2,696	4,719	3,170	5,173	2,650	3,880	2,428	4,333	4,782	4,043	2,844	2,856	3,146
Akiak	9,226	6,575	6,679	7,577	4,483	2,007	4,967	1,639	1,894	1,210	2,617	2,240	2,571	2,928	3,499	3,528	3,095	4,141	3,184	1,350	1,163	2,439
Tuluksak	5,863	5,454	4,632	3,774	2,395	2,698	3,208	2,790	3,044	1,480	2,492	2,068	3,719	894	2,433	2,183	3,094	3,204	4,005	1,570	3,249	2,668
Lower Kuskokwim River	118,417	67,227	85,018	45,288	60,159	54,969	79,219	29,882	45,237	36,381	46,745	42,904	67,640	32,956	49,031	46,834	69,472	59,807	54,899	34,013	36,756	37,755
																					0	0
Lower Kalskag	4,980	2,958	2,807	2,938	2,856	1,438	4,070	1,298	968	733	1,534	1,498	1,445	1,087	1,316	997	4,703	1,997	2,030	930	691	1,284
Upper Kalskag	1,406	3,139	3,040	591	836	1,326	1,565	349	464	649	1,550	1,502	2,460	516	1,656	1,201	2,469	294	1,829	329	393	1,309
Aniak	10,160	3,511	7,687	2,926	2,538	3,454	8,569	1,678	4,964	1,753	1,933	1,934	4,367	820	2,535	2,952	3,722	4,108	2,839	2,626	2,538	2,409
Chuathbaluk	4,408	2,138	2,644	2,879	1,495	1,701	2,175	1,135	925	698	654	2,711	1,458	2,502	2,352	530	1,451	1,741	593	937	535	686
Middle Kuskokwim River	20,954	11,746	16,178	9,334	7,725	7,919	16,379	4,460	7,321	3,833	5,671	7,645	9,730	4,925	7,859	5,680	12,345	8,140	7,291	4,822	4,157	5,688
																						0
Crooked Creek	2,977	1,326	1,242	664	757	332	355	313	2,527	830	809	1,211	1,417	750	1,583	1,064	1,513	853	930	519	539	1,036
Red Devil	1,613	1,133	1,500	927	1,318	882	727	499	462	169	54	334	384	63	135	214	41	186	188	244	122	434
Sleetmute	2,006	1,880	2,961	692	1,520	1,683	1,250	417	870	340	371	379	1,293	468	1,054	422	1,475	818	358	388	524	689
Stony River	1,234	638	1,165	775	881	1,311	443	600	728	296	315	172	696	361	754	523	727	535	1,470	771	338	516
Lime Village	2,350	830	1,343	497	1,600	789	338	244	964	1,015	451	651	817	110	199	609	320	437	495	430	277	–
McGrath	2,326	1,083	4,472	578	1,264	1,525	211	138	1,510	242	188	247	969	513	290	525	999	464	1,352	841	482	472
Takotna	64	0	14	0	6	1	0	0	15	0	0	10	1	0	0	5	0	1	4	0	0	0
Nikolai	875	396	914	334	293	297	229	60	519	87	56	53	187	124	277	178	308	204	54	300	440	349
Telida	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	13,445	7,286	13,611	4,467	7,639	6,820	3,553	2,271	7,595	2,979	2,244	3,057	5,764	2,389	4,292	3,540	5,384	3,498	4,851	3,493	2,722	3,496
Kuskokwim River Total	153,825	87,237	116,391	59,797	76,937	70,977	100,913	37,366	61,732	44,242	59,387	56,005	86,381	41,167	64,899	58,013	89,620	73,603	68,633	43,635	46,148	49,242

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Appendix A17.–Page 2 of 2.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2009	2009
Quinhagak	3,161	1,631	2,287	1,053	1,401	669	943	572	1,375	1,587	895	808	2,011	559	1,383	994	2,754	2,249	1,795	1,297	1,376	1,051
Goodnews Bay	200	136	1,311	177	406	140	221	135	295	232	251	187	349	200	240	192	555	*307*	643	141	324	338
Platinum	149	4	137	0	51	3	*2*	0	*11*	33	82	60	95	19	42	21	108	*28*	106	28	37	71
South Kuskokwim Bay	*3,510*	*1,771*	*3,735*	*1,230*	*1,858*	*812*	*1,166*	*707*	*1,681*	*1,852*	*1,228*	*1,055*	*2,455*	*778*	*1,665*	*1,207*	*3,417*	*2,584*	*2,544*	*1,466*	*1,737*	*1,460*
																					0	0
Mekoryuk	–	–	–	3,524	5,258	–	–	–	9,447	4,328	11,114	–	6,162	4,721	–	–	–	–	–	–	–	–
Newtok	–	–	–	–	–	–	–	–	–	–	115	–	–	–	–	–	–	–	–	–	–	–
Nightmute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toksook Bay	–	–	–	–	5,500	–	–	–	–	778	1,007	–	–	–	1,504	–	2,984	–	–	–	–	–
Tununak	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chefornak	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beringg Sea Coast	*0*	*0*	*0*	*3,524*	*10,758*	*0*	*0*	*0*	*9,447*	*5,106*	*12,236*	*0*	*6,162*	*4,721*	*1,504*	*0*	*2,984*	*0*	*0*	*0*	*0*	*0*
Total Estimate	157,335	89,008	120,126	64,551	89,553	71,789	102,079	38,073	72,860	51,200	72,851	57,060	94,998	46,666	68,068	59,220	96,021	76,187	71,177	45,101	47,885	50,702

Source: Hamazaki 2011; Carroll and Hamazaki 2012.

Note: Dashes indicate harvest was not estimated.

Appendix A18.–Subsistence sockeye salmon harvest estimates by community, Kuskokwim Management Area, 1990–2011.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kipnuk	–	–	–	–	–	–	–	–	–	–	2,788	–	–	–	1,278	–	–	–	–	–	–	–
Kwigillingok	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kongiganak	552	498	923	583	743	658	951	976	878	908	1,770	1,546	1,347	929	1,809	1,103	1,464	1,083	1,347	830	1,842	1,097
N. Kuskokwim Bay	552	498	923	583	743	658	951	976	878	908	4,558	1,546	1,347	929	3,087	1,103	1,464	1,083	1,347	830	1,842	1,097
Tuntutuliak	2,132	1,768	1,846	1,063	3,289	1,082	1,561	1,724	1,227	2,070	1,180	1,702	1,045	1,148	1,620	2,145	1,834	1,763	2,418	932	2,068	1,321
Eek	1,293	479	669	363	452	308	526	503	375	595	883	1,085	759	586	567	1,033	673	663	739	1,019	1,241	678
Kasigluk	843	1,376	1,951	1,769	956	794	1,075	1,320	834	3,229	3,805	3,733	1,537	1,683	1,668	1,273	1,926	1,635	1,230	945	1,448	996
Nunapitchuk	1,520	2,193	2,329	2,743	1,633	870	1,877	2,082	2,029	3,258	2,194	2,529	1,500	1,714	1,659	1,821	1,871	2,147	2,331	1,484	1,902	1,777
Atmautluak	1,696	830	1,193	1,313	837	1,173	1,408	681	982	1,743	1,540	988	1,150	679	1,103	1,444	1,011	1,041	1,381	628	735	766
Napakiak	1,548	1,187	1,663	1,217	1,533	887	1,106	1,526	1,487	2,018	1,916	1,917	1,688	1,453	1,351	2,122	1,845	1,962	1,625	917	1,187	1,319
Napaskiak	1,660	2,850	3,116	3,508	1,933	1,573	3,180	2,209	1,457	1,929	2,525	3,377	1,296	1,643	1,148	1,344	1,784	1,738	2,505	1,523	1,979	1,601
Oscarville	287	726	1,169	957	398	301	208	492	249	1,724	1,331	1,451	400	806	436	278	778	712	677	334	250	228
Bethel	11,787	11,428	9,225	9,501	11,370	8,802	10,556	10,233	8,464	12,094	11,613	14,264	8,850	12,198	11,679	14,297	12,816	13,902	18,016	11,329	10,662	15,105
Kwethluk	4,271	3,746	1,958	3,802	3,864	2,536	3,963	3,288	3,785	3,485	3,859	4,191	2,100	1,903	3,302	2,457	2,770	3,536	5,097	2,183	2,571	2,368
Akiachak	3,461	4,029	3,970	4,990	3,241	1,942	2,767	2,737	2,395	3,066	3,687	4,680	2,507	1,607	3,109	2,372	2,661	3,269	4,731	2,408	2,433	2,613
Akiak	1,873	1,696	1,769	3,537	1,740	809	1,544	1,327	1,640	1,151	1,036	2,005	1,214	995	1,258	1,920	2,000	3,695	2,644	1,290	1,161	2,595
Tuluksak	1,225	3,427	2,063	2,452	1,390	1,270	1,108	1,514	1,413	1,412	2,201	1,862	1,205	875	1,670	987	2,247	2,021	2,276	1,691	2,534	1,637
Lower Kuskokwim River	33,596	35,735	32,921	37,215	32,636	22,347	30,879	29,636	26,337	37,774	37,770	43,784	25,251	27,290	30,570	33,493	34,215	38,084	45,670	26,683	30,171	33,004
	0																					
Lower Kalskag	1,007	1,080	503	2,286	989	679	1,387	1,277	546	583	824	918	347	515	775	439	1,434	780	1,736	1,044	507	633
Upper Kalskag	284	314	354	346	288	82	284	216	238	586	588	319	508	431	686	945	563	417	996	369	465	746
Aniak	1,539	2,073	1,213	1,609	751	955	1,295	1,078	1,132	1,302	1,136	2,167	1,059	756	996	1,015	692	1,261	1,796	941	1,055	1,160
Chuathbaluk	1,157	1,471	497	822	924	465	687	796	223	441	476	614	313	274	526	369	508	523	363	564	403	300
Middle Kuskokwim River	3,987	4,938	2,567	5,063	2,952	2,181	3,653	3,367	2,139	2,912	3,024	4,018	2,227	1,976	2,983	2,768	3,197	2,981	4,891	2,918	2,430	2,839
	0																					
Crooked Creek	1,607	968	738	752	558	177	311	350	717	710	514	640	449	571	732	693	544	604	754	329	302	268
Red Devil	455	391	355	662	336	576	914	637	692	497	109	360	109	309	88	272	510	318	475	477	475	502
Sleetmute	1,153	1,347	794	1,643	1,120	1,109	1,341	1,458	1,282	879	725	1,008	706	504	980	673	1,181	1,303	1,111	707	1,024	693
Stony River	933	1,966	1,389	1,485	758	1,281	1,267	1,626	1,114	1,018	578	163	602	158	896	709	853	1,085	1,759	977	372	303
Lime Village	2,125	1,110	1,332	2,743	1,733	857	1,140	642	2,782	2,619	1,409	1,453	1,176	374	874	1,377	1,182	1,495	1,315	967	796	–
McGrath	1,489	416	2,494	1,465	1,501	1,652	111	52	146	0	43	273	407	112	194	481	149	375	1,392	984	622	621
Takotna	0	0	1	0	0	1	1	1	0	0	0	0	0	2	0	1	0	1	2	3	4	0
Nikolai	0	1	0	5	25	65	23	0	16	43	0	0	22	16	1	19	20	10	13	66	65	13
Telida	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	7,762	6,199	7,103	8,755	6,031	5,718	5,108	4,766	6,749	5,766	3,378	3,897	3,471	2,046	3,765	4,225	4,439	5,192	6,821	4,510	3,660	2,400
Kuskokwim River Total	45,897	47,370	43,514	51,616	42,362	30,905	40,591	38,744	36,103	47,360	48,730	53,245	32,296	32,241	40,405	41,589	43,315	47,339	58,729	34,941	38,103	39,340

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Appendix A18.–Page 2 of 2.

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Quinhagak	1,710	1,818	1,448	1,228	962	597	499	460	1,368	1,433	1,368	1,054	909	805	1,375	1,745	3,128	1,755	2,692	1,744	1,671	1,328
Goodnews Bay	982	1,061	1,293	733	646	202	387	480	499	715	951	908	855	705	873	1,213	995	880	2,225	908	1,093	1,336
Platinum	163	134	238	48	90	32	56	143	79	106	188	83	257	64	183	90	63	118	156	186	175	142
South Kuskokwim Bay	2,855	3,013	2,979	2,009	1,698	831	942	1,083	1,946	2,254	2,507	2,045	2,021	1,574	2,431	3,048	4,186	2,753	5,073	2,838	2,939	2,806
Mekoryuk	–	–	–	6	167	–	–	–	179	5	40	–	14	6	–	–	–	–	–	–	–	–
Newtok	–	–	–	–	–	–	–	–	–	–	891	–	–	–	–	–	–	–	–	–	–	–
Nightmute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toksook Bay	–	–	–	–	1,900	–	–	–	–	1,369	1,300	–	–	–	589	–	1,966	–	–	–	–	–
Tununak	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chefornak	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beringn Sea Coast	0	0	0	6	2,067	0	0	0	179	1,374	2,231	0	14	6	589	0	1,966	0	0	0	0	0
Total Estimate	48,752	50,383	46,493	53,631	46,127	31,736	41,532	39,827	38,228	50,988	53,468	55,290	34,331	33,821	43,425	44,637	49,467	50,092	63,802	37,779	41,042	42,146

Source: Hamazaki 2011; Carroll and Hamazaki 2012.

Note: Dashes indicate harvest was not estimated.

Appendix A19.–Subsistence coho salmon harvest estimates by community, Kuskokwim Management Area, 1990–2011

Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Kipnuk	–	–	–	–	–	–	–	–	–	–	3,642	–	–	–	3,448	–	–	–	–	–	–	–
Kwigillingok	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kongiganak	474	490	605	448	569	662	579	514	204	203	339	919	1,138	236	937	740	657	883	551	588	390	505
N. Kuskokwim Bay	474	490	605	448	569	662	579	514	204	203	3,981	919	1,138	236	4,385	740	657	883	551	588	390	505
Tuntutuliak	1,287	733	693	820	364	339	1,335	558	858	277	3,264	335	1,239	2,092	1,189	1,074	948	703	1,495	359	698	250
Eek	1,800	387	502	160	399	387	437	63	314	242	493	241	821	747	1,018	378	652	389	815	176	315	268
Kasigluk	922	1,723	1,811	399	676	269	815	337	299	4,213	9,726	1,682	3,494	1,505	5,034	1,906	3,008	2,826	917	628	1,078	317
Nunapitchuk	746	1,131	2,242	318	749	629	1,444	732	345	368	355	425	821	627	555	807	692	1,752	483	286	195	323
Atmautluak	398	237	333	380	402	634	534	485	283	190	227	375	612	283	744	530	500	424	280	68	36	270
Napakiak	1,470	599	1,570	586	871	344	602	161	739	459	453	667	793	992	1,648	742	2,363	1,244	1,375	428	884	921
Napaskiak	1,139	798	1,108	780	2,016	584	506	592	488	316	836	455	717	983	655	602	1,640	639	816	755	1,015	447
Oscarville	57	147	160	0	48	0	15	0	0	779	388	90	161	19	304	60	175	180	62	67	12	43
Bethel	32,988	17,677	24,908	12,310	17,082	22,007	21,982	17,077	12,058	11,565	13,478	14,108	15,489	15,062	17,040	12,994	18,810	12,972	16,998	13,037	19,000	16,087
Kwethluk	3,928	2,311	2,419	1,809	1,880	1,690	2,995	1,104	1,583	2,883	3,435	1,773	2,706	1,787	3,430	3,048	1,245	1,624	6,867	4,044	1,527	1,078
Akiachak	1,910	2,337	3,058	1,102	1,281	628	903	383	409	662	2,555	1,912	1,690	1,627	2,397	1,817	1,714	2,355	4,132	1,593	1,181	1,543
Akiak	1,789	2,193	1,072	1,373	1,099	481	920	798	521	259	479	594	1,136	1,094	1,342	1,847	379	1,325	1,260	661	475	508
Tuluksak	978	1,854	1,629	408	223	522	1,175	418	812	298	520	1,136	1,349	921	1,007	484	498	1,401	777	857	337	161
Lower Kuskokwim River	49,412	32,127	41,505	20,445	27,090	28,514	33,663	22,708	18,709	22,511	36,209	23,793	31,028	27,739	36,363	26,289	32,624	27,835	36,277	22,959	26,753	22,216
Lower Kalskag	445	500	526	823	881	715	1,246	572	345	285	403	597	281	314	368	319	1,415	515	95	318	96	530
Upper Kalskag	346	527	972	353	178	257	348	661	834	155	286	536	1,069	462	1,500	594	1,799	381	2,063	181	93	813
Aniak	1,669	1,171	1,933	1,104	1,768	1,244	2,723	1,428	1,284	1,419	1,911	2,006	3,737	1,164	2,355	2,032	1,018	3,003	3,013	2,264	2,472	2,225
Chuathbaluk	826	87	368	366	741	79	409	196	50	138	462	733	610	259	284	346	727	498	525	96	76	109
Middle Kuskokwim River	3,286	2,285	3,799	2,646	3,568	2,295	4,726	2,857	2,513	1,997	3,062	3,872	5,697	2,199	4,507	3,291	4,959	4,397	5,696	2,859	2,737	3,677
Crooked Creek	922	279	712	396	646	358	175	261	394	529	137	97	440	375	713	312	401	392	1,788	283	87	289
Red Devil	914	1,038	1,284	1,673	1,074	1,539	1,135	1,455	504	424	161	426	499	351	65	331	171	193	452	126	88	130
Sleetmute	1,036	1,588	937	912	626	1,104	870	419	267	210	525	428	806	731	505	581	671	360	218	397	458	426
Stony River	474	513	727	511	477	1,023	529	455	466	423	420	397	662	214	679	534	456	434	546	634	201	333
Lime Village	486	390	376	606	1,467	223	629	270	776	701	556	559	706	46	231	383	169	450	792	237	171	–
McGrath	466	477	2,146	563	998	604	824	745	734	338	881	436	1,508	997	1,228	736	894	279	90	1,246	1,053	1,297
Takotna	0	0	4	0	0	1	8	2	3	0	20	31	25	10	51	10	0	9	0	29	33	3
Nikolai	90	65	204	285	94	499	36	130	97	73	30	131	93	361	171	171	407	102	53	203	135	20
Telida	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim River	4,388	4,350	6,390	4,946	5,382	5,351	4,205	3,737	3,241	2,698	2,730	2,505	4,739	3,085	3,643	3,058	3,169	2,217	3,939	3,155	2,226	2,498
Kuskokwim River Total	57,560	39,252	52,299	28,485	36,609	36,823	43,173	29,816	24,667	27,409	45,983	31,089	42,602	33,259	48,898	33,378	41,408	35,332	46,463	29,561	32,106	28,896

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Community	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2010
Quinhagak	3,799	3,230	3,291	2,029	2,544	2,480	1,734	1,105	1,537	1,781	1,042	1,719	1,133	1,868	1,435	1,558	1,315	1,550	2,217	1,703	1,547	1,361
Goodnews Bay	1,630	1,704	1,671	1,118	428	268	330	348	323	421	380	548	198	1,228	1,542	634	605	497	961	268	319	273
Platinum	95	36	290	27	87	11	41	55	67	147	100	118	96	144	266	223	116	102	114	81	197	152
South Kuskokwim Bay	5,524	4,970	5,252	3,174	3,059	2,759	2,105	1,508	1,927	2,349	1,522	2,385	1,427	3,240	3,243	2,415	2,036	2,149	3,292	2,052	2,063	1,786
Mekoryuk	–	–	–	312	180	–	–	–	841	167	473	–	559	454	–	–	–	–	–	–	–	–
Newtok	–	–	–	–	–	–	–	–	–	–	460	–	–	–	–	–	–	–	–	–	–	–
Nightmute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toksook Bay	–	–	–	–	967	–	–	–	–	259	1,031	–	–	–	1,045	–	436	–	–	–	–	–
Tununak	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chefornak	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Beringn Sea Coast	0	0	0	312	1,147	0	0	0	841	426	1,964	0	559	454	1,045	0	436	0	0	0	0	0
Total Estimate	63,084	44,222	57,551	31,971	40,815	39,582	45,279	31,324	27,435	30,184	49,469	33,474	44,588	36,953	53,186	35,793	43,880	37,481	49,755	31,613	34,169	30,682

Source: Hamazaki 2011; Carroll and Hamazaki 2012.

Note: Dashes indicate harvest was not estimated.

Appendix A20.–Commercial freshwater finfish harvest, Kuskokwim Management Area, 1977–2011.

	Number of	Number Caught[a]		Total Weight (lbs)		Total Value ($)		
Year	Fishermen[b]	Whitefish[c]	Burbot	Whitefish	Burbot	Whitefish	Burbot	Total
1977	3	718	0	[d]	0	952	0	952
1978	[b]	1,735	0	6,017	0	[d]	0	[d]
1979	[b]	3,219	0	11,211	0	[d]	0	[d]
1980	4	603	0	2,173	0	830	0	830
1981	4	1,197	0	4,620	0	2,310	0	2,310
1982	5	1,512	0	6,219	0	2,856	0	2,856
1983	0	0	0	0	0	0	0	0
1984	2	0	651	0	[d]	0	[d]	[d]
1985	5	555	1,829	2,275	2,016	1,137	455	1,592
1986	3	0	0	0	3,428	0	857	857
1987	4	417	0	1,260	0	1,008	0	1,008
1988	3	[d]	[d]	2,588	7	1,991	3	1,994
1989	7	178	282	583	270	501	597	1,098
1990	11	1,664	[d]	5,502	10	5,166	5	5,171
1991	5	1,413	41	2,442	256	2,412	197	2,609
1992	6	2,124	18	6,309	86	6,285	43	6,328
1993	5	2,509	0	5,208	0	4,898	0	4,898
1994	3	2,393	0	4,905	0	4,345	0	4,345
1995	1	[d]	0	2,363	0	2,507	0	2,507
1996	2	3,139	0	4,915	0	4,776	0	4,776
1997	14	4,447	0	5,770	0	4,832	0	4,832
1998	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0
2002	1	193	0	339	0	339	0	339
2003	1	646	0	1,163	0	1,192	0	1,192
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0
2010	1	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0

[a] Does not include catches incidental to the commercial salmon fishery.

[b] Does not include fishermen who delivered catches incidental to the commercial salmon fishery.

[c] Includes cisco, pike, and blackfish.

[d] Data not available.

APPENDIX B

Appendix B1.–Salmon assessment programs, Kuskokwim Management Area, 2011.

Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
Salmon Management	Kuskokwim Area	- develop a comprehensive plan for managing salmon stocks of the Kuskokwim Area. - define goals and objectives. - identify potential opportunities and concerns. - recommend appropriate procedures. - evaluate priorities. - provide sustained yield fishery Management	All Year	ADFG/CF ADFG/SF OSM KRSMWG	all aspects all aspects monitor regulations and inseason actions make recommendations
Postseason Subsistence Catch and Effort Assessment	Kuskokwim Area	- document and estimate the catch and associated effort of the subsistence salmon fisheries via interviews catch calendars, mail-out questionnaires and telephone interviews. - Household surveys in Bethel - Household surveys in Aniak.	Post season	ADFG/S ONC KNA OSM	all aspects survey crew survey crew funding - Bethel & Aniak
Age-Sex-Length (ASL) Processing and Reporting	Kuskokwim Area	- scale aging, sample processing and reporting salmon age, sex and length information about Chinook, sockeye, chum and coho salmon from escapement, and commercial and subsistence fisheries.	All Year	ADFG/CF OSM	all aspects funding
Subsistence (ASL) Sampling	Lower Kuskokwim Area	- sample collection for age, sex and length information about of Chinook, and coho salmon from tributary spawning populations monitored with weir or sonar.	June – July Sept	ADFG/CF OSM OSM	all aspects funding
Aerial Surveys	Kuskokwim Area	- index relative abundance of Chinook salmon spawning escapement in selected streams throughout the Kuskokwim Area. - index relative abundance of sockeye salmon spawning escapement in the Kanektok and Goodnews Rivers. - September reconnaissance flights in the upper Kuskokwim river for fall chum salmon	July - Aug	ADFG/CF NMFS	all aspects Funding - Upper Kusko
Sport Catch, Harvest and Effort Assessment	Kuskokwim Area	- statewide mail-out survey to estimate sport catch, harvest and effort	post season	ADFG/SF	all aspects
Salmon Baseline Genetics sampling.	Kuskokwim Area	-Opportunistic collection of Baseline Genetics samples from all species at locations throughout the drainage. -2010 emphasis on Goodnews and Kanektok River Sockeye Salmon	August	ADFG	All Aspects
Commercial Catch and Effort Assessment	Districts 1, 2, 4 and 5	- document and estimate the catch and associated effort of the commercial salmon fishery via receipts (fish tickets) of commercial sales and dock side sampling.	June - Sept	ADFG/CF	all aspects

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Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
Commercial Catch ASL Sampling	Districts 1, 4 and 5	- determine age, sex, and length of salmon harvested in the commercial fisheries.	June - Aug	ADFG/CF	all aspects
Kuskokwim River In-Season Subsistence Harvest Monitoring	Lower Kuskokwim River	- weekly interviews with subsistence fishers in lower Kuskokwim River to assess adequacy and quality of harvest - collect age-sex-length samples from subsistence caught Chinook salmon in the lower Kuskokwim River to determine composition of Kuskokwim River subsistence harvest.	June-August	ADFG/S ADFG/CF ONC OSM -	all aspects Chinook ASL collection all aspects - Bethel funding -
Kuskokwim River Fall Chum Salmon Investigation	Kuskokwim River	- describe the distribution, morphology, and biology of adult fall chum salmon in comparison to summer chum salmon; assess the run timing and relative abundance of adult fall chum salmon in the lower Kuskokwim River.	June - Sept	ADFG/CF AYK SSI	all aspects funding
Kuskokwim River Mark-Recapture	RM. 179	- Spaghetti tags were deployed on sockeye, chum, and coho salmon caught near Kalka in the mainstem Kuskokwim River and recovered upstream in the mainstem and at several tributaries to determine stock-specific run timing, stock-specific travel speed, and to estimate total coho salmon run abundance using a two-sample mark–recapture design.	June 7-Sept 10.	ADFG/CF ADFG/SF KNA USFWS OSM	all aspects crew support crew support, tag recovery crew support funding
Kuskokwim River Radiotelemetry	RM. 221	- estimate escapement and distribution of Chinook salmon passing upstream of Kalskag	June - Sept	ADFG/S KNA ADFG/CF OSM	all aspects crew support tag recovery funding
Bethel Bethel Test Fishery	Bethel Area RM. 80	- index relative run timing of Chinook, sockeye, chum, and coho salmon using drift gillnets - index relative run abundance of Chinook, sockeye, chum, and coho salmon using CPUE derived from drift gillnet catches.	June - Aug	ADFG/CF ONC OSM	all aspects crew support funding ONC crew
Kwethluk River Weir	mile 55 Kwethluk River RM. 99	- estimate daily escapement of Chinook, sockeye, chum, coho and pink salmon into the Kwethluk River. - estimate age, sex and length composition of Chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	USFWS ADFG/CF OVK ONC	all aspects inseason data mgt. crew support funding
Tuluksak River Weir	mile 47 Tuluksak River RM. 136	- estimate daily escapement of Chinook, sockeye, chum, coho, and pink salmon into the Tuluksak River. - estimate age, sex and length composition of Chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	USFWS ADFG/CF TUTC OSM	all aspects inseason data mgt. crew support funding
Aniak River Sonar	mile 12 Aniak River RM. 225	- estimate daily escapement of salmon into the Aniak River. - estimate age, sex and length composition of chum salmon escapement	June - July	ADFG/CF - -	all aspects - -

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Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
George River Weir	mile 4 George River RM. 309	- estimate daily escapement of Chinook, sockeye, chum, pink, and coho salmon into the George River. - estimate age, sex and length composition of Chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	KNA ADFG/CF OSM OSM CVRF	all aspects all aspects funding
Kogrukluk River Weir	mile 136 Holitna River Drainage RM. 335	- estimate daily escapement of Chinook, sockeye, chum, and coho salmon into the Kogrukluk River. - estimate age, sex and length composition of Chinook, chum, and coho salmon escapement	June - Sept	ADFG/CF KNA SOA OSM	all aspects crew support funding
Tatlawiksuk River Weir	mile 2.5 Tatlawiksuk River RM. 383	- estimate daily escapement of Chinook, sockeye, chum, pink, and coho salmon into the Tatlawiksuk River. - estimate age, sex and length composition of Chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	KNA ADFG/CF OSM CVRF OSM	all aspects all aspects funding
Takotna River Weir	mile 52 Takotna River RM. 507	- estimate daily escapement of Chinook, chum, and coho salmon into the Takotna River. - estimate age, sex and length composition of Chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	TTC ADFG/CF CVRF OSM	all aspects planning & supplies funding
Telaquana River Weir	Outlet of Lake Stony River RM 756	-estimate daily escapement of sockeye salmon into the Telaquana River. - estimate age, sex and length composition sockeye salmon escapement. - Drainage wide genetic and tagging mark and recapture estimates. - collect environmental / habitat information	July - Aug	NPS ADFG/CF	Co-managed Co-managed
Kanektok River Weir	~ mile 13 Kanektok River Kuskokwim Bay	- estimate daily escapement of Chinook, sockeye, chum, pink, and coho salmon into the Kanektok River. - estimate age, sex and length composition of Chinook and chum salmon escapement.	June - Sept	NVK ADFG/CF OSM BSFA	all aspects planning & supplies funding funding
Middle Fork Goodnews River Weir	~ mile 5 Middle Fork Goodnews River Kuskokwim Bay	- estimate daily escapement of Chinook, sockeye, chum, pink, and coho salmon into the Middle Fork Goodnews River. - estimate age, sex and length composition of Chinook, sockeye, chum, and coho salmon escapement	June - Sept	ADFG/CF OSM	all aspects funding for coho extension

Note:
ADFG/CF = Division of Commercial Fisheries, Alaska Department of Fish and Game
ADFG/S = Division of Subsistence, Alaska Department of Fish and Game
ADFG/SF = Division of Sport Fish, Alaska Department of Fish and Game
AVCP = Association of Village Council Presidents
BIA = Bureau of Indian Affairs
BSFA = Bering Sea Fishermen's Association
DEC = Department of Environmental Conservation
KNA = Kuskokwim River Native Association
NPS = National Park Service
NVK = Native Village of Kwinhagak
ONC = Orutsararmuit Native council
OSM = Federal Office of Subsistence Management
OVK = Organized Village of Kwethluk
TATC = Takotna Tribal Council
TUTC = Tuluksak Traditional Council
USFWS = U.S. Fish and Wildlife Service

Appendix B2.–Salmon spawning objectives, Kuskokwim Management Area, 2011.

Area	Chinook Goal	Chinook Enumeration Method	Sockeye Goal	Sockeye Enumeration Method	Coho Goal	Coho Enumeration Method	Chum Goal	Chum Enumeration Method
Kuskokwim River								
Kwethluk River	6,000–11,000	Weir	–	–	>19,000[a]	Weir	–	–
Kisaralik River	400–1,200	Aerial Survey	–	–	–	–	–	–
Salmon River (Aniak)	330–1,200	Aerial Survey	–	–	–	–	–	–
Aniak River	1,200–2,300	Aerial Survey	–	–	–	–	210,000–480,000	Sonar
George River	3,100–7,900	Weir	–	–	–	–	–	–
Holitna River	970–2,100	Aerial Survey	–	–	–	–	–	–
Kogrukluk Weir	5,300–14,000	Weir	4,400–17,000	Weir	13,000–28,000	Aerial Survey	15,000–49,000	Weir
Cheneetnuk River	340–1,300	Aerial Survey	–	–	–	–	–	–
Tuluksak River	1,000–2,100	Weir	–	–	–	–	–	–
Gagaraya River	300–830	Aerial Survey	–	–	–	–	–	–
Pitka Fork (Salmon River)	470–1,600	Aerial Survey	–	–	–	–	–	–
Kuskokwim Bay								
Kanektok River to Kagati Lake	3,500–8,000	Aerial Survey	14,000–34,000	Aerial Survey	–	–	>5,200	Aerial Survey
Goodnews River (mainstem)	640–3,300	Aerial Survey	5,500–19,500	Aerial Survey	–	–	–	–
Middle Fork Goodnews River	1,500–2,900	Weir	18,000–40,000	Weir	>12,000	Weir	>12,000	Weir

Source: Volk et al. 2009.

Note: Dashes indicate goal not established.

[a] All goals are SEGs except for BEGs established for Chinook and sockeye salmon at Middle Fork Goodnews River.

Appendix B3.–Salmon spawning escapement estimates, Kwethluk River, Kuskokwim River drainage, 1992–2011.

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink[b]	Coho
Weir						
1992	06/20 to 09/12	9,675	1,316	30,595	45,952	45,605
Counting Tower						
1996	06/21 to 07/27	7,415	[c]	[c]	[c]	[c]
1997	06/20 to 08/12	10,395	1,374	10,659	[c]	[c]
1998	07/24 to 08/18	[c]	[c]	[c]	[c]	[c]
1999	07/15 to 08/18	[c]	[c]	[c]	[c]	[c]
Weir						
2000	06/22 to 09/15	3,547	358	11,691	1,407	25,610
2001	08/12 to 09/15	[c]	[c]	[c]	[c]	21,596
2002	06/22 to 09/19	8,502	272	35,854	1,415	23,298
2003	06/20 to 09/14	14,474	2,928	41,812	1,885	107,789
2004	06/25 to 09/10	28,605	3,490	38,646	3,054	64,216
2005			Weir did not operate			
2006	06/20 to 09/19	17,619	6,732[d]	47,490	1,685	25,664[d]
2007	06/20 to 09/10	13,267	5,262	57,230	628	19,473
2008	06/15 to 09/11	5,312	2,451	20,048	335	49,973
2009	06/29 to 09/9	5,710	4,385	32,028	1,118	21,911
2010	06/25 to 09/1	1,693	4,242	19,242	608	[c]
2011	06/19 to 09/10	4,079	2,031	18,329	242	[c]
SEG		6,000-11,000				>19,000[e]

[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 are not estimated or underestimated, weirs pickets are not tight enough to keep them from going through.

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

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

[e] Goal went into effect during the 2010 season.

Appendix B4.–Salmon spawning escapement estimates, Tuluksak River, Kuskokwim River drainage, 1991–2011.

		Tuluksak River Weir				
Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink[b]	Coho
1991	06/12 to 09/18	697	34	7,675	392	4,651
1992	06/24 to 09/10	1,083	129	11,183	2,470	7,501
1993	06/17 to 09/10	2,218	88	13,804	210	8,328
1994	06/29 to 09/11	2,917	82	15,724	3,487	7,952[c]
2001	06/29 to 09/10	997[c]	137	19,321	48	23,768[c]
2002	06/10 to 09/10	1,346	82	9,958	27	11,487
2003	06/16 to 09/14	1,064	288	11,724	662	41,071
2004	06/20 to 09/10	1,475	136	11,796	496	20,336
2005	06/24 to 09/09	2,653	642	35,696	2475	11,324
2006	06/24 to 09/10	1,044	985	25,648	2445	5,438[c]
2007	06/20 to 09/10	374	352	17,286	64	2,807
2008	06/20 to 09/13	665	185	12,518	111	7,457
2009	06/26 to 09/09	404	708	13,658	49	8,137
2010	06/26 to 09/2	201	437	13,042	95	1,478[c]
2011	06/19 to 09/10	288	131	10,010	85	[d]
SEG		1,000-2,100				

[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 are not estimated or underestimated, weirs pickets are not tight enough to keep them from going through.

[c] Field operations were incomplete; more than 20 percent of the total annual escapement is based on daily passage estimates.

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

Appendix B5.–Salmon spawning escapement estimates, Aniak River, Kuskokwim River drainage, 1980–2011.

Year	Operating Period [a]	Chinook	Chum	Coho
Aniak River Sonar [b]				
Escapement Goal:			250,000	
Non user–configurable, one–bank expanded estimates				
1980	06/22 to 07/31	56,469	1,600,032	–
	08/16 to 09/12			81,556
1981	06/15 to 08/05	42,060	649,849	–
1982	06/21 to 08/01	33,864	529,758	–
1983	06/19 to 07/31	4,911	166,452	–
1984	06/19 to 07/31	–	317,688	–
1985	06/22 to 07/31	–	273,306	–
1986	06/25 to 07/31	–	219,770	–
1987	06/21 to 07/31	–	204,834	–
1988	06/23 to 07/31	–	485,077	–
1989	06/23 to 07/31	–	295,993	–
1990	06/23 to 08/04	–	246,813	–
1991	06/22 to 08/05	–	366,687	–
1992	06/15 to 08/06	–	87,467	–
1993	06/15 to 08/06	–	15,278	–
1994	06/26 to 08/06	–	474,356	–
1995	06/23 to 07/23	–	– [c]	–
User–configurable biosonics, two–bank estimates				
1996	06/21 to 07/31	–	402,195	–
1997	06/16 to 08/03	–	289,654	–
1998	06/24 to 07/31	–	351,792	–
1999	06/26 to 08/03	–	214,429	–
2000	06/26 to 07/31	–	177,384	–
2001	06/26 to 07/31	–	408,830	–
2002	06/26 to 07/31	–	472,346	–
2003	06/26 to 07/31	–	477,544	–
2004	06/25 to 07/31	–	672,931	–
2005	06/22 to 07/31	–	1,151,505	–
2006	06/26 to 07/31	–	1,108,626	–
2007	06/24 to 07/31	–	696,801	–
2008	06/26 to 07/31	–	427,911	–
2009	06/26 to 07/31	–	479,531	–
2010	06/26 to 07/31	–	429,643	–
2011	06/26 to 07/32	–	345,974	–
SEG			220,000–480,000	

[a] The operational period is inclusive of days when passage was estimated; unless noted otherwise, less than 10% of the total annual escapement is estimated.

[b] Sonar counts for the Aniak River are generally not apportioned to species, but chum salmon dominate throughout most of the project operational period. The minimum target operational period is defined here as June 26 to July 28.

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

Appendix B6.–Salmon spawning escapement estimates, George River, Kuskokwim River drainage, 1996–2011.

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink[b]	Coho
George River Weir						
1996	06/15 to 09/20	7,716	98[c]	19,393	644	[d]
1997	06/09 to 09/20	7,823	445	5,907	17	9,210
1998	06/15 to 09/20	[d]	[d]	[d]	4	[d]
1999	06/15 to 09/25	3,548[c]	39	11,552[c]	97	8,914
2000	06/15 to 09/20	2,960	22	3,492	61	11,262
2001	06/15 to 09/22	3,309	24	11,601	83	14,398[c]
2002	06/15 to 09/20	2,444	17	6,543	630	6,759
2003	06/15 to 09/20	4,693[c]	16	33,666[c]	158	33,280
2004	06/15 to 09/24	5,207	177	14,409	36	12,499
2005	06/15 to 09/20	3,845	276	14,828	79	8,200
2006	06/15 to 09/20	4,357	164	41,467	1,232	11,296
2007	06/14 to 09/20	4,883	74	55,842[c]	325	29,317
2008	06/15 to 09/22	2,698	94	29,978	2,444	21,931
2009	06/17 to 09/20	3,663	54	7,941	318	12,573
2010	06/15 to 09/20	1,500	115	26,154	869	12,961
2011	06/15 to 09/20	1,571	43	44,640	783	30,028
SEG		3,100-7,900				

[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 are not estimated or underestimated, weirs pickets are not tight enough to keep them from going through.

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

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

Appendix B7.–Salmon spawning escapement estimates, Kogrukluk River, Kuskokwim River drainage, 1969–2011.

Year	Operating Period [a]	Chinook	Sockeye	Chum	Pink [b]	Coho
Kogrukluk River Tower[c]						
1969	07/01 to 07/31	2,980	269	6,824	9	0
1970	07/01 to 07/31	3,868	1,695	7,726	7	0
1971	07/01 to 07/31	[d]	[d]	[d]	[d]	[d]
1972	07/01 to 07/31	1,934	714	8,981	4	0
1973	07/01 to 07/31	1,725	205	5,318	0	0
1974	07/01 to 07/31	3,724	290	4,881	5	0
1975	07/01 to 07/31	1,970	2,305	8,290	3	0
1976	07/01 to 07/31	3,261	4,433	9,170	4	0
1977	07/01 to 07/31	1,988	2,140	5,047	10	0
1978	07/01 to 07/31	6,712	746	16,514	9	0
Kogrukluk River Weir						
1976	06/29 to 07/31	5,600	2,326	8,117	0	
1977	07/14 to 07/27	[d]	[d]	[d]	2	
1978	06/28 to 07/31	13,667	1,670	48,125	2	
1979	07/01 to 07/24	11,338	2,628	18,599[e]	1	
1980	07/01 to 07/11	6,572[e]	3,200[e]	41,777[e]	0	
1981	06/27 to 10/05	16,809	18,077	57,374	5	11,455[g]
1982	07/09 to 09/14	10,993[e]	17,297[e]	64,077[e]	17	37,796
1983	06/23 to 09/27	3,025[e]	1,176[e]	9,416[e]	0	8,538
1984	06/19 to 09/15	4,928	4,133	41,484	17	27,595
1985	07/06 to 09/24	4,625	4,359	15,005	7	16,441
1986	06/29 to 09/07	5,038[e]	4,247[e]	14,693	10	22,506[e]
1987	07/15 to 09/24	4,063[e]	973[e]	17,422[e]	1	22,821
1988	07/05 to 09/17	8,520	4,402	39,543[e]	23	13,512
1989	07/07 to 08/24	11,940[e]	5,810[e]	39,547[e]	2	1,272
1990	06/28 to 09/07	10,214	8,407	26,765	1	6,132[e]
1991	07/04 to 09/15	7,850[e]	16,455	24,188	2	9,964[e]
1992	07/01 to 08/21	6,755	7,539	34,104	10	26,057[e]
1993	07/02 to 09/06	12,333	29,366	31,901	1	20,517[e]
1994	07/02 to 09/14	15,227[e]	14,192[e]	46,635[e]	2	34,695[e]
1995	07/02 to 09/06	20,651	10,996	31,265	9	27,862[e]
1996	06/29 to 09/15	14,199	15,386	48,494	1	50,555

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Year	Operating Period[a]	Chinook	Sockeye	Chum	Pink[b]	Coho
1997	06/28 to 09/21	13,285	13,078	7,958	0	12,238
1998	07/18 to 09/19	12,107[e]	16,773[e]	36,441[e]	0	24,348
1999	07/06 to 09/18	5,570	5,864	13,820	0	12,609
2000	07/02 to 09/20	3,310	2,865	11,491	0	33,135
2001	06/21 to 09/25	9,298[e]	8,776[e]	30,570[e]	9	19,387
2002	06/26 to 09/24	10,104	4,050	51,570	0	14,516
2003	06/15 to 09/20	11,771	9,164	23,413	3	74,604
2004	06/21 to 09/18	19,651	6,775	24,201	16	27,041
2005	06/22 to 09/22	22,000	37,939	197,723	114	24,116
2006	06/28 to 09/14	19,414	60,807	180,594	1,676[e]	17,01[e]
2007	06/26 to 09/23	13,029[e]	16,525[e]	49,505[e]	48[e]	27,033
2008	07/03 to 09/30	9,730	19,675	44,978	1,081	29,661
2009	06/25 to 09/27	9,702	23,785	84,940	60	22,981
2010	06/27 to 09/22	5,690	13,995	63,583	148	13,971
2011	06/21 to 09/25	6,891	8,132	76,384	96	24,174
SEG		5,300–14,000		15,000–49,000		13,000–28,000

[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 are not estimated or underestimated, weirs pickets are not tight enough to keep them from going through.

[c] The Kogrukluk River tower was located approximately 6 miles upstream of the current Kogrukluk River weir, and upstream of Shotgun Creek.

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

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

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

[g] First year operations extended to include the coho salmon run.

Appendix B8.–Salmon spawning escapement estimates, Tatlawiksuk River, Kuskokwim River drainage, 1998–2011.

Year	Operating Period[a]	Chinook	Sockeye	Chum	Pink[b]	Coho
Tatlawiksuk River Weir						
1998	06/15 to 09/20	[c]	[c]	[c]	[c]	[c]
1999	06/15 to 09/20	1,490	6	9,599	1	3,455
2000	06/15 to 09/20	810	0	6,965	[c]	[c]
2001	06/15 to 09/20	2,010	3	23,718	3[d]	10,539[d]
2002	06/15 to 09/22	2,237	1	24,542	1	11,345
2003	06/15 to 09/20	1,683[d]	[c]	[c]	[c]	[c]
2004	06/15 to 09/20	2,833	10	21,245	0	16,410
2005	06/12 to 09/22	2,918	77	55,720	1	7,495
2006	06/15 to 09/20	1,700	41	32,301	20	9,453[d]
2007	06/14 to 09/20	2,061	27	83,246	7	8,685
2008	06/15 to 09/20	1,071	39	30,896	19	11,065
2009	06/15 to 09/20	1,071	39	19,975	3	10,148
2010	06/15 to 09/20	567	33	36,701	22	3,520[d]
2011	06/15 to 09/21	1,012	23	84,202	106	12,928

[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 are not estimated or underestimated, weirs pickets are not small enough to keep them from going through.

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

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

Appendix B9.–Salmon spawning escapement estimates, Takotna River, Kuskokwim River drainage, 1995–2011.

Year	Operating Period[a]	Chinook	Sockeye	Chum	Coho
Takotna River Tower					
1995	06/24 to 09/20	156[b]	–	1,685[b]	
1996	06/15 to 09/20	422	–	2,872	
1997	06/17 to 09/20	1,197	–	1,839	
1998	06/24 to 09/20	[c]	–	[c]	
Takotna River Weir					
2000	06/24 to 09/20	345	3	1,254	3,957
2001	06/23 to 09/20	721	1	5,414	2,606
2002	06/23 to 09/22	316	1	4,377	3,984
2003	06/24 to 09/20	378	3	3,393	7,171
2004	06/23 to 09/20	461	17	1,630	3,207
2005	06/10 to 09/20	499	34	6,467	2,216
2006	06/16 to 09/22	539	59	12,598	5,548
2007	06/20 to 09/20	418	13	8,900	2,853
2008	06/20 to 09/23	413	12	5,691	2,817
2009	06/24 to 09/25	311	3	2,487	2,708
2010	06/24 to 09/20	178	8	4,057	3,217
2011	06/29 to 09/20	136	1	8,414	4,063

Note: Dashes indicate no information available.

[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] Field operations were incomplete and numbers here do not account for missed passage.

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

Appendix B10.–Salmon spawning escapement estimates, Telaquana River, Kuskokwim River drainage, 2010–2011.

Year	Operating Period	Chinook	Sockeye	Chum	Pink	Coho
2010	6/28–9/7	88	72,021	99	1	5[a]
2011	7/10–8/26	39	35,105	56	1	138[a]

[a] Field operations did not cover full season passage for this species.

Appendix B11.–Chinook salmon spawning aerial survey index estimates, Kuskokwim River drainage, Kuskokwim Management Area, 1975–2011.

	Lower Kuskokwim River [a]				Middle Kuskokwim River [a]						Upper Kuskokwim River [a]		
Year	Eek	Kwethluk Canyon C.	Kisaralik	Tuluksak	Aniak	Kipchuk	Salmon	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Salmon (Pitka)
1975					202	94							
1976		997								2,571	663		
1977		1,116		439				60			897	1,407	1,940
1978		1,722	2,417	403			322			2,766	504		1,100
1979								45					682
1980	2,378			1,035			1,186						1,450
1981		2,034	672		9,074								1,439
1982		471	81					42		521			413
1983	188			202	1,909		231	33		1,069			572
1984												1,177	545
1985	1,118	51	63	142				135				1,002	620
1986					424		336	100		650		317	
1987	1,739					193	516	210	193		205		
1988	2,255		869	188	954		244		80				473
1989	1,042	610	152		2,109	994	631						452
1990			631	200	1,255	537	596	157	113				
1991	1,312		217	358	1,564	885	583						
1992					2,284	670	335	64	91	2,022	328	1,050	2,536
1993					2,687	1,248	1,082	114	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	181	326	1,887	1,193	1,565	1,911
1996							985	85					
1997					2,187	855	980	165	1,470	2,093		345	
1998	522	126	457		1,930	443	557						
1999								18	98				

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	Lower Kuskokwim River [a]				Middle Kuskokwim River [a]						Upper Kuskokwim River [a]		
Year	Eek	Kwethluk Canyon C.	Kisaralik	Tuluksak	Aniak	Kipchuk	Salmon	Holokuk	Oskawalik	Holitna	Gagarayah	Cheeneetnuk	Salmon (Pitka)
2000					714	182	238	42		301			362
2001							598		186	1,130	143		1,033
2002		1,795	1,727			1,615	1,236	186	295	1,578	452		1,255
2003	1,236	2,628	654	94	3,514	1,493	1,242	528	844		1,095	810	1,241
2004	4,653	6,801	6,913	1,196	5,569	1,868	2,177	539	293	4,842	670	918	1,138
2005		5,059	4,112	672		1,944	4,097	510	582	2,795	788	1,155	1,809
2006			4,734		5,639	1,618		705	386	3,924	531	1,015	928
2007			1,373	173	3,984	2,147	1,458	146			1,035		1,014
2008		487	1,493		3,222	1,061	589	418	213	832	177	290	1,305
2009								565	378		303	323	632
2010			235					229		587	62		150
2011	249		534			116	79	20	26		96	249	767
Escapement Goal:			400-1,200		1,200-2,300		330-1,200			970-2,100	300-830	340-1,300	470-1,600
10 year average	2,945	3,354		534		1,491		404	397				

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

APPENDIX C

Appendix C1.–Commercial salmon fishing periods, hours, and permits fished, District 4 Quinhagak, Kuskokwim Bay, 1970–2011.

Year	Number of Periods	Fishing Hours	Permits Fished[a]
1970	14	1,494	88
1971	6	630	61
1972	16	192	107
1973	28	504	109
1974	30	360	196
1975	24	288	127
1976	27	324	181
1977	27	324	258
1978	37	444	200
1979	36	432	206
1980	36	432	169
1981	33	396	186
1982	34	408	177
1983	28	318	226
1984	33	396	263
1985	23	276	300
1986	29	348	324
1987	19	216	310
1988	32	384	288
1989	29	348	227
1990	30	444	390
1991	31	372	346
1992	34	420	349
1993	32	384	409
1994	32	384	308
1995	35	414	382
1996	27	298	218
1997	31	372	289
1998	34	408	203
1999	19	228	218
2000	27	324	230
2001	20	231	159
2002	24	294	114
2003	24	288	114
2004	24	288	116
2005	23	276	145
2006	29	348	132
2007	33	396	125
2008	31	372	146
2009	29	342	179
2010	24	312	241
2011	26	312	219
10 Yr Avg (01-10)	26	315	147
Hist Avg (70-10)	28	383	215

[a] Permits that made at least one delivery during the year.

Appendix C2.–Commercial salmon harvest by period, District 4 Quinhagak, Kuskokwim Bay, 1994–2011.

		Permits	Hours	Permit	Chinook		Sockeye		Chum		Coho	
Year	Date	Fished	Fished	Hours	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
1994	Jun 15	111	12	1,332	1,165	0.87	62	0.05	253	0.19	0	0.00
	Jun 20	95	12	1,140	746	0.65	187	0.16	286	0.25	0	0.00
	Jul 1	118	12	1,416	2,534	1.79	6,512	4.60	13,544	9.56	0	0.00
	Jul 4	171	12	2,052	836	0.41	5,555	2.71	3,120	1.52	0	0.00
	Jul 6	127	12	1,524	692	0.45	6,749	4.43	4,094	2.69	0	0.00
	Jul 8	131	12	1,572	756	0.48	9,304	5.92	8,296	5.28	0	0.00
	Jul 11	140	12	1,680	393	0.23	5,800	3.45	2,313	1.38	3	0.00
	Jul 13	111	12	1,332	362	0.27	13,450	10.10	9,794	7.35	17	0.01
	Jul 15	80	12	960	279	0.29	6,687	6.97	5,791	6.03	24	0.03
	Jul 18	93	12	1,116	187	0.17	5,842	5.23	3,023	2.71	19	0.02
	Jul 20	63	12	756	159	0.21	4,611	6.10	4,684	6.20	75	0.10
	Jul 22	83	12	996	131	0.13	3,537	3.55	2,696	2.71	250	0.25
	Jul 25	52	12	624	103	0.17	1,545	2.48	1,103	1.77	538	0.86
	Jul 27	43	12	516	40	0.08	963	1.87	834	1.62	557	1.08
	Jul 29	25	12	300	36	0.12	447	1.49	190	0.63	712	2.37
	Aug 1	49	12	588	51	0.09	368	0.63	334	0.57	2,577	4.38
	Aug 3	51	12	612	23	0.04	288	0.47	268	0.44	1,294	2.11
	Aug 5	48	12	576	25	0.04	183	0.32	277	0.48	3,103	5.39
	Aug 8	72	12	864	15	0.02	93	0.11	234	0.27	12,298	14.23
	Aug 10	19	12	228	0	0.00	10	0.04	9	0.04	1,237	5.43
	Aug 12	49	12	588	12	0.02	46	0.08	51	0.09	2,710	4.61
	Aug 15	59	12	708	2	0.00	20	0.03	43	0.06	10,609	14.98
	Aug 17	42	12	504	1	0.00	4	0.01	0	0.00	9,897	19.64
	Aug 19	74	12	888	9	0.01	16	0.02	37	0.04	3,624	4.08
	Aug 22	63	12	756	3	0.00	17	0.02	18	0.02	8,437	11.16
	Aug 24	40	12	480	1	0.00	1	0.00	1	0.00	6,399	13.33
	Aug 26	29	12	348	1	0.00	3	0.01	4	0.01	5,732	16.47
	Aug 29	54	12	648	1	0.00	6	0.01	0	0.00	2,162	3.34
	Aug 31	50	12	600	0	0.00	4	0.01	3	0.01	7,145	11.91
	Sept 2	33	12	396	0	0.00	4	0.01	1	0.00	933	2.36
	Sept 5	27	12	324	1	0.00	0	0.00	0	0.00	2,243	6.92
	Sept 7	13	12	156	0	0.00	0	0.00	0	0.00	1,317	8.44
Total			384	26,580	8,564		72,314		61,301		83,912	
1995	Jun 13	116	12	1,392	7,621	5.47	55	0.04	182	0.13	0	0.00
	Jun 17	239	12	2,868	8,190	2.86	356	0.12	1,916	0.67	0	0.00
	Jun 20	215	12	2,580	7,341	2.85	485	0.19	2,760	1.07	0	0.00
	Jun 24	173	12	2,076	6,073	2.93	3,266	1.57	5,990	2.89	0	0.00
	Jun 26	70	6	420	1,506	3.59	805	1.92	2,851	6.79	0	0.00
	Jun 29	70	12	840	2,048	2.44	4,765	5.67	8,231	9.80	0	0.00
	Jul 3	37	12	444	1,096	2.47	7,045	15.87	8,074	18.18	0	0.00
	Jul 5	107	12	1,284	1,073	0.84	4,366	3.40	7,481	5.83	0	0.00
	Jul 7	57	12	684	676	0.99	4,812	7.04	7,138	10.44	0	0.00
	Jul 10	85	12	1,020	804	0.79	9,894	9.70	5,667	5.56	0	0.00
	Jul 12	98	12	1,176	516	0.44	6,827	5.81	9,074	7.72	0	0.00
	Jul 14	112	12	1,344	438	0.33	5,738	4.27	5,381	4.00	0	0.00
	Jul 17	127	12	1,524	287	0.19	5,166	3.39	4,193	2.75	0	0.00
	Jul 19	79	12	948	140	0.15	3,532	3.73	3,184	3.36	2	0.00
	Jul 21	57	12	684	162	0.24	2,523	3.69	2,086	3.05	7	0.01
	Jul 24	52	12	624	156	0.25	2,610	4.18	2,713	4.35	93	0.15

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1995	Jul 26	52	12	624	71	0.11	1,404	2.25	1,279	2.05	116	0.19
(cont.)	Jul 28	43	12	516	63	0.12	879	1.70	975	1.89	390	0.76
	Jul 31	51	12	612	54	0.09	730	1.19	715	1.17	954	1.56
	Aug 2	59	12	708	30	0.04	583	0.82	459	0.65	3,706	5.23
	Aug 4	65	12	780	37	0.05	387	0.50	262	0.34	4,293	5.50
	Aug 7	100	12	1,200	49	0.04	481	0.40	260	0.22	4,614	3.85
	Aug 9	79	12	948	36	0.04	307	0.32	166	0.18	9,133	9.63
	Aug 11	90	12	1,080	31	0.03	192	0.18	110	0.10	5,471	5.07
	Aug 14	112	12	1,344	25	0.02	194	0.14	98	0.07	4,252	3.16
	Aug 16	48	12	576	10	0.02	133	0.23	47	0.08	2,515	4.37
	Aug 18	68	12	816	10	0.01	146	0.18	49	0.06	5,879	7.20
	Aug 21	82	12	984	11	0.01	139	0.14	26	0.03	4,816	4.89
	Aug 23	75	12	900	11	0.01	102	0.11	27	0.03	8,588	9.54
	Aug 25	77	12	924	3	0.00	114	0.12	25	0.03	2,440	2.64
	Aug 28	67	12	804	4	0.00	68	0.08	17	0.02	4,176	5.19
	Aug 30	67	12	804	9	0.01	58	0.07	18	0.02	2,193	2.73
	Sept 1	41	12	492	3	0.01	32	0.07	8	0.02	2,565	5.21
Total			390	34,020	38,584		68,194		81,462		66,203	
1996	Jun 22	69	12	828	4,752	5.74	1,146	1.38	6,984	8.43	0	0.00
	Jun 25	73	8	584	2,125	3.64	3,043	5.21	6,662	11.41	0	0.00
	Jun 29	120	12	1,440	2,378	1.65	6,304	4.38	8,441	5.86	0	0.00
	Jul 03	101	8	808	1,787	2.21	4,558	5.64	8,573	10.61	0	0.00
	Jul 06	76	4	304	618	2.03	6,045	19.88	5,073	16.69	0	0.00
	Jul 09	96	6	576	541	0.94	7,510	13.04	8,768	15.22	0	0.00
	Jul 11	73	12	876	453	0.52	6,525	7.45	7,947	9.07	3	0.00
	Jul 13	96	8	768	361	0.47	5,707	7.43	4,748	6.18	38	0.05
	Jul 15	94	12	1,128	332	0.29	5,283	4.68	6,567	5.82	19	0.02
	Jul 17	59	12	708	216	0.31	5,203	7.35	8,308	11.73	251	0.35
	Jul 20	70	12	840	150	0.18	2,849	3.39	3,355	3.99	398	0.47
	Jul 24	41	12	492	105	0.21	944	1.92	1,571	3.19	2,295	4.66
	Jul 27	60	12	720	88	0.12	698	0.97	1,885	2.62	4,483	6.23
	Jul 29	52	12	624	64	0.10	548	0.88	1,034	1.66	7,989	12.80
	Jul 31	53	12	636	29	0.05	225	0.35	607	0.95	5,597	8.80
	Aug 02	53	12	636	43	0.07	257	0.40	405	0.64	12,478	19.62
	Aug 05	70	12	840	32	0.04	156	0.19	114	0.14	19,091	22.73
	Aug 07	49	12	588	15	0.03	128	0.22	89	0.15	7,766	13.21
	Aug 09	59	12	708	13	0.02	82	0.12	102	0.14	11,553	16.32
	Aug 12	77	12	924	18	0.02	125	0.14	102	0.11	7,825	8.47
	Aug 14	33	12	396	8	0.02	26	0.07	25	0.06	5,938	14.99
	Aug 16	57	12	684	16	0.02	83	0.12	55	0.08	8,299	12.13
	Aug 19	71	12	852	10	0.01	48	0.06	35	0.04	12,931	15.18
	Aug 21	57	12	684	4	0.01	81	0.12	22	0.03	3,315	4.85
	Aug 23	52	12	624	2	0.00	58	0.09	18	0.03	5,091	8.16
	Aug 26	51	12	612	5	0.01	33	0.05	15	0.02	3,358	5.49
Total			286	18,880	14,165		57,665		81,505		118,718	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1997	Jun 13	115	12	1,380	6,669	4.83	216	0.16	72	0.05	0	0.00
	Jun 16	95	12	1,140	6,358	5.58	411	0.36	279	0.24	0	0.00
	Jun 19	123	12	1,476	6,405	4.34	1,678	1.14	788	0.53	0	0.00
	Jun 23	67	12	804	3,338	4.15	1,623	2.02	1,129	1.40	0	0.00
	Jun 26	132	12	1,584	3,578	2.26	2,777	1.75	1,199	0.76	0	0.00
	Jun 30	159	12	1,908	2,523	1.32	9,717	5.09	2,488	1.30	0	0.00
	Jul 2	178	12	2,136	1,955	0.92	10,007	4.68	2,935	1.37	0	0.00
	Jul 4	161	12	1,932	1,381	0.71	8,757	4.53	2,839	1.47	0	0.00
	Jul 7	124	12	1,488	1,042	0.70	6,771	4.55	3,552	2.39	0	0.00
	Jul 9	153	12	1,836	722	0.39	6,806	3.71	4,638	2.53	0	0.00
	Jul 11	102	12	1,224	331	0.27	6,236	5.09	3,997	3.27	0	0.00
	Jul 14	4	12	48	26	0.54	279	5.81	134	2.79	0	0.00
	Jul 16	75	12	900	196	0.22	3,315	3.68	2,546	2.83	0	0.00
	Jul 18	76	12	912	190	0.21	3,005	3.29	2,590	2.84	2	0.00
	Jul 21	65	12	780	197	0.25	2,452	3.14	2,503	3.21	7	0.01
	Jul 23	56	12	672	106	0.16	1,370	2.04	2,210	3.29	36	0.05
	Jul 25	53	12	636	78	0.12	974	1.53	1,281	2.01	62	0.10
	Jul 28	47	12	564	45	0.08	645	1.14	714	1.27	71	0.13
	Jul 30	46	12	552	78	0.14	483	0.88	718	1.30	335	0.61
	Aug 1	14	12	168	28	0.17	331	1.97	359	2.14	389	2.32
	Aug 4	58	12	696	59	0.08	442	0.64	652	0.94	1,946	2.80
	Aug 6	54	12	648	58	0.09	321	0.50	381	0.59	1,589	2.45
	Aug 8	53	12	636	23	0.04	176	0.28	134	0.21	1,602	2.52
	Aug 13	62	12	744	31	0.04	205	0.28	100	0.13	4,382	5.89
	Aug 15	70	12	840	27	0.03	166	0.20	106	0.13	5,095	6.07
	Aug 18	56	12	672	13	0.02	66	0.10	28	0.04	6,931	10.31
	Aug 20	61	12	732	10	0.01	97	0.13	26	0.04	5,551	7.58
	Aug 22	62	12	744	11	0.01	75	0.10	12	0.02	2,493	3.35
	Aug 25	47	12	564	9	0.02	50	0.09	13	0.02	1,036	1.84
	Aug 28	35	12	420	5	0.01	57	0.14	12	0.03	1,335	3.18
Total			360	28,836	35,492		69,508		38,435		32,862	
1998	Jun 15	64	12	768	2,314	3.01	99	0.13	189	0.25	0	0.00
	Jun 18	56	12	672	2,913	4.33	117	0.17	290	0.43	0	0.00
	Jun 22	69	12	828	3,642	4.40	762	0.92	1,531	1.85	0	0.00
	Jun 25	68	12	816	3,122	3.83	1,682	2.06	2,230	2.73	0	0.00
	Jun 29	57	12	684	1,919	2.81	2,681	3.92	5,269	7.70	0	0.00
	Jul 2	75	12	900	1,745	1.94	2,374	2.64	3,209	3.57	0	0.00
	Jul 6	79	12	948	1,699	1.79	3,445	3.63	5,211	5.50	10	0.01
	Jul 8	116	12	1,392	1,740	1.25	6,008	4.32	5,272	3.79	0	0.00
	Jul 10	112	12	1,344	956	0.71	4,622	3.44	5,555	4.13	0	0.00
	Jul 13	112	12	1,344	740	0.55	3,738	2.78	3,182	2.37	5	0.00
	Jul 15	75	12	900	482	0.54	4,214	4.68	3,811	4.23	0	0.00
	Jul 17	98	12	1,176	443	0.38	3,609	3.07	3,260	2.77	10	0.01
	Jul 20	83	12	996	370	0.37	2,517	2.53	1,590	1.60	20	0.02
	Jul 22	51	12	612	223	0.36	1,661	2.71	1,128	1.84	42	0.07
	Jul 24	54	12	648	252	0.39	1,266	1.95	1,123	1.73	93	0.14
	Jul 27	43	12	516	165	0.32	884	1.71	742	1.44	505	0.98
	Jul 29	52	12	624	98	0.16	777	1.25	538	0.86	763	1.22
	Jul 31	40	12	480	63	0.13	282	0.59	259	0.54	602	1.25

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1998	Aug 3	40	12	480	68	0.14	167	0.35	341	0.71	2,657	5.54
(cont.)	Aug 5	46	12	552	75	0.14	159	0.29	174	0.32	4,011	7.27
	Aug 7	47	12	564	26	0.05	92	0.16	43	0.08	3,847	6.82
	Aug 10	75	12	900	47	0.05	112	0.12	63	0.07	6,111	6.79
	Aug 12	56	12	672	14	0.02	25	0.04	29	0.04	7,968	11.86
	Aug 14	59	12	708	17	0.02	28	0.04	13	0.02	10,424	14.72
	Aug 17	42	12	504	6	0.01	16	0.03	15	0.03	5,954	11.81
	Aug 21	57	12	684	5	0.01	22	0.03	20	0.03	9,161	13.39
	Aug 24	44	12	528	3	0.01	2	0.00	0	0.00	6,074	11.50
	Aug 26	51	12	612	4	0.01	5	0.01	5	0.01	2,534	4.14
	Aug 28	36	12	432	2	0.00	4	0.01	2	0.00	1,917	4.44
	Aug 31	29	12	348	0	0.00	1	0.00	1	0.00	3,929	11.29
	Sept 2	34	12	408	1	0.00	6	0.01	0	0.00	5,148	12.62
	Sept 4	31	12	372	4	0.01	5	0.01	0	0.00	4,442	11.94
	Sept 7	25	12	300	0	0.00	0	0.00	0	0.00	3,956	13.19
Total			396	23,712	23,158		41,382		45,095		80,183	
1999	Jun 21	93	12	1,116	4,075	3.65	396	0.35	766	0.69	0	0.00
	Jun 24	106	12	1,272	3,476	2.73	688	0.54	1,500	1.18	0	0.00
	Jun 28	125	12	1,500	5,468	3.65	2,497	1.66	4,559	3.04	0	0.00
	Jul 1	79	12	948	1,916	2.02	2,803	2.96	4,191	4.42	0	0.00
	Jul 5	116	12	1,392	1,246	0.90	4,367	3.14	5,038	3.62	0	0.00
	Jul 9	107	12	1,284	677	0.53	4,515	3.52	2,239	1.74	0	0.00
	Jul 14	107	12	1,284	548	0.43	5,787	4.51	6,668	5.19	0	0.00
	Jul 16	70	12	840	220	0.26	6,311	7.51	4,359	5.19	1	0.00
	Jul 19	86	12	1,032	168	0.16	2,684	2.60	1,764	1.71	12	0.01
	Jul 21	85	12	1,020	182	0.18	3,360	3.29	1,479	1.45	0	0.00
	Jul 23	63	12	756	152	0.20	3,567	4.72	2,060	2.72	4	0.01
	Jul 26	58	12	696	93	0.13	1,580	2.27	1,460	2.10	25	0.04
	Jul 28	41	12	492	62	0.13	959	1.95	889	1.81	29	0.06
	Jul 30	36	12	432	47	0.11	815	1.89	550	1.27	103	0.24
	Aug 2	28	12	336	35	0.10	441	1.31	337	1.00	200	0.60
	Aug 4	23	12	276	17	0.06	144	0.52	83	0.30	168	0.61
	Aug 11	44	12	528	23	0.04	250	0.47	109	0.21	2,458	4.66
	Aug 16	59	12	708	15	0.02	78	0.11	28	0.04	1,790	2.53
	Aug 18	48	12	576	6	0.01	73	0.13	12	0.02	1,394	2.42
Total			228	16,488	18,426		41,315		38,091		6,184	
2000	Jun 15	55	12	660	3,015	4.57	104	0.16	385	0.58	0	0.00
	Jun 19	86	12	1,032	4,700	4.55	893	0.87	1,397	1.35	0	0.00
	Jun 22	101	12	1,212	4,893	4.04	1,466	1.21	1,457	1.20	0	0.00
	Jun 26	115	12	1,380	3,147	2.28	1,863	1.35	2,360	1.71	0	0.00
	Jun 29	87	12	1,044	1,410	1.35	8,067	7.73	4,194	4.02	0	0.00
	Jul 03	128	12	1,536	1,398	0.91	4,699	3.06	3,239	2.11	0	0.00
	Jul 06	84	12	1,008	576	0.57	12,133	12.04	4,321	4.29	0	0.00
	Jul 08	116	12	1,392	578	0.42	7,165	5.15	2,845	2.04	0	0.00
	Jul 11	102	12	1,224	351	0.29	8,320	6.80	1,914	1.56	0	0.00
	Jul 13	117	12	1,404	361	0.26	6,556	4.67	2,844	2.03	4	0.00
	Jul 15	46	12	552	143	0.26	2,927	5.30	1,048	1.90	2	0.00
	Jul 17	70	12	840	191	0.23	4,570	5.44	1,024	1.22	19	0.02

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Jul 19	64	12	768	103	0.13	2,288	2.98	778	1.01	51	0.07
	Jul 21	70	12	840	131	0.16	2,626	3.13	1,172	1.40	182	0.22
	Jul 24	48	12	576	75	0.13	1,004	1.74	417	0.72	285	0.49
	Jul 26	36	12	432	36	0.08	898	2.08	328	0.76	704	1.63
	Jul 28	51	12	612	23	0.04	837	1.37	259	0.42	1,257	2.05
	Jul 31	46	12	552	30	0.05	548	0.99	222	0.40	2,533	4.59
	Aug 02	37	12	444	12	0.03	240	0.54	63	0.14	2,544	5.73
	Aug 05	43	12	516	16	0.03	256	0.50	59	0.11	1,899	3.68
	Aug 07	54	12	648	10	0.02	299	0.46	104	0.16	3,761	5.80
	Aug 10	50	12	600	2	0.00	238	0.40	34	0.06	5,146	8.58
	Aug 12	63	12	756	12	0.02	200	0.26	33	0.04	4,683	6.19
	Aug 14	51	12	612	9	0.01	113	0.18	25	0.04	3,427	5.60
	Aug 16	43	12	516	4	0.01	161	0.31	20	0.04	2,434	4.72
	Aug 21	34	12	408	1	0.00	34	0.08	5	0.01	833	2.04
	Aug 24	24	12	288	2	0.01	52	0.18	6	0.02	765	2.66
Total			324	21,852	21,229		68,557		30,553		30,529	
2001	Jun 21	52	12	624	4,024	6.45	1,225	1.96	154	0.25	0	0.00
	Jun 25	108	12	1,296	3,137	2.42	3,382	2.61	1,463	1.13	0	0.00
	Jun 28	106	12	1,272	2,490	1.96	5,222	4.11	2,486	1.95	0	0.00
	Jul 2	86	12	1,032	934	0.91	6,656	6.45	2,292	2.22	0	0.00
	Jul 5	80	12	960	828	0.86	7,638	7.96	2,275	2.37	0	0.00
	Jul 9	86	6	516	432	0.84	3,317	6.43	1,794	3.48	0	0.00
	Jul 12	61	9	549	318	0.58	2,831	5.16	2,060	3.75	0	0.00
	Jul 16	48	12	576	267	0.46	1,678	2.91	1,767	3.07	0	0.00
	Jul 18	42	12	504	138	0.27	977	1.94	1,316	2.61	0	0.00
	Jul 23	25	12	300	89	0.30	380	1.27	938	3.13	41	0.14
	Aug 01	28	12	336	34	0.10	180	0.54	278	0.83	1,005	2.99
	Aug 03	23	12	276	20	0.07	57	0.21	94	0.34	913	3.31
	Aug 06	31	12	372	23	0.06	62	0.17	141	0.38	1,828	4.91
	Aug 10	28	12	336	11	0.03	58	0.17	46	0.14	2,570	7.65
	Aug 13	31	12	372	9	0.02	37	0.10	24	0.06	3,130	8.41
	Aug 15	31	12	372	6	0.02	28	0.08	28	0.08	3,612	9.71
	Aug 18	37	12	444	5	0.01	34	0.08	26	0.06	3,844	8.66
	Aug 20	7	12	84	0	0.00	2	0.02	1	0.01	201	2.39
	Aug 22	24	12	288	4	0.01	28	0.10	21	0.07	955	3.32
	Aug 24	15	12	180	6	0.03	15	0.08	5	0.03	432	2.40
Total			231	10,689	12,775		33,807		17,209		18,531	
2002	Jun 14	51	12	612	1,727	2.82	160	0.26	1,000	1.63	0	0.00
	Jun 17	46	12	552	2,070	3.75	288	0.52	1,047	1.90	0	0.00
	Jun 20	53	12	636	1,352	2.13	477	0.75	1,653	2.60	0	0.00
	Jun 26	61	12	732	1,782	2.43	972	1.33	2,287	3.12	0	0.00
	Jul 1	62	12	744	959	1.29	2,187	2.94	3,824	5.14	0	0.00
	Jul 3	51	12	612	759	1.24	2,177	3.56	4,257	6.96	0	0.00
	Jul 5	56	12	672	602	0.90	2,806	4.18	3,183	4.74	0	0.00
	Jul 8	59	12	708	601	0.85	2,530	3.57	3,754	5.30	0	0.00
	Jul 10	52	12	624	569	0.91	2,081	3.33	1,883	3.02	0	0.00
	Jul 12	52	12	624	429	0.69	1,373	2.20	2,168	3.47	0	0.00
	Jul 15	39	12	468	243	0.52	753	1.61	1,615	3.45	0	0.00

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2002	Jul 17	32	12	384	168	0.44	888	2.31	1,036	2.70	0	0.00
(cont.)	Jul 19	19	12	228	71	0.31	701	3.07	832	3.65	0	0.00
	Aug 1	24	12	288	32	0.11	114	0.40	162	0.56	360	1.25
	Aug 5	25	12	300	20	0.07	85	0.28	164	0.55	1,610	5.37
	Aug 7	32	12	384	32	0.08	59	0.15	130	0.34	2,719	7.08
	Aug 9	32	12	384	15	0.04	53	0.14	110	0.29	2,317	6.03
	Aug 12	37	12	444	15	0.03	35	0.08	58	0.13	3,260	7.34
	Aug 14	38	12	456	10	0.02	27	0.06	51	0.11	2,649	5.81
	Aug 16	49	12	588	13	0.02	26	0.04	40	0.07	4,516	7.68
	Aug 19	30	12	360	3	0.01	8	0.02	25	0.07	3,156	8.77
	Aug 21	34	12	408	7	0.02	7	0.02	13	0.03	2,490	6.10
	Aug 23	29	12	348	6	0.02	10	0.03	18	0.05	2,495	7.17
	Aug 26	28	12	336	1	0.00	3	0.01	9	0.03	1,123	3.34
Total			288	11,892	11,486		17,820		29,319		26,695	
2003	Jun 14	54	12	648	2,657	4.10	186	0.29	81	0.13	0	0.00
	Jun 17	53	12	636	2,797	4.40	735	1.16	232	0.36	0	0.00
	Jun 19	60	12	720	1,732	2.41	760	1.06	209	0.29	0	0.00
	Jun 24	62	12	744	2,209	2.97	690	0.93	252	0.34	0	0.00
	Jul 1	35	12	420	571	1.36	2,890	6.88	1,626	3.87	0	0.00
	Jul 4	56	12	672	1,010	1.50	8,246	12.27	3,780	5.63	0	0.00
	Jul 7	70	12	840	771	0.92	4,974	5.92	1,442	1.72	1	0.00
	Jul 9	62	12	744	800	1.08	4,311	5.79	3,065	4.1196	3	0.00
	Jul 11	60	12	720	647	0.90	4,350	6.04	3,335	4.63	1	0.00
	Jul 14	48	12	576	434	0.75	2,607	4.53	4,501	7.81	16	0.03
	Jul 16	45	12	540	384	0.71	2,156	3.99	3,474	6.43	66	0.12
	Jul 18	43	12	516	164	0.32	1,100	2.13	3,082	5.97	136	0.26
	Aug 1	39	12	468	72	0.15	254	0.54	1,233	2.63	3,090	6.60
	Aug 4	42	12	504	27	0.05	162	0.32	550	1.09	2,189	4.34
	Aug 6	43	12	516	36	0.07	142	0.28	379	0.73	5,594	10.84
	Aug 8	47	12	564	34	0.06	141	0.25	270	0.48	3,894	6.90
	Aug 11	55	12	660	31	0.05	79	0.12	163	0.25	9,882	14.97
	Aug 13	51	12	612	24	0.04	25	0.04	54	0.09	4,931	8.06
	Aug 15	43	12	516	12	0.02	23	0.04	16	0.03	4,846	9.39
	Aug 18	46	12	552	9	0.02	39	0.07	57	0.10	4,514	8.18
	Aug 20	34	12	408	10	0.02	20	0.05	27	0.07	3,924	9.62
	Aug 22	33	12	396	6	0.02	25	0.06	22	0.06	3,174	8.02
	Aug 25	20	12	240	3	0.01	3	0.01	5	0.02	1,518	6.33
	Aug 27	24	12	288	4	0.01	23	0.08	13	0.05	2,054	7.13
Total			288	13,500	14,444		33,941		27,868		49,833	
2004	Jun 15	40	12	480	3,788	7.89	124	0.26	203	0.42	0	0.00
	Jun 17	44	12	528	3,079	5.83	258	0.49	619	1.17	0	0.00
	Jun 22	50	12	600	2,625	4.38	1,508	2.51	1,404	2.34	0	0.00
	Jun 24	72	12	864	3,429	3.97	2,565	2.97	3,104	3.59	0	0.00
	Jun 29	59	12	708	3,424	4.84	2,897	4.09	1,678	2.37	0	0.00
	Jul 1	45	12	540	1,959	3.63	3,156	5.84	1,908	3.53	0	0.00
	Jul 5	63	12	756	2,269	3.00	6,099	8.07	2,876	3.80	0	0.00
	Jul 7	54	12	648	1,562	2.41	4,742	7.32	1,909	2.95	0	0.00
	Jul 9	56	12	672	811	1.21	4,806	7.15	2,549	3.79	0	0.00
	Jul 12	53	12	636	699	1.10	3,045	4.79	3,367	5.29	0	0.00

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Jul 14	41	12	492	881	1.79	2,533	5.15	3,243	6.59	0	0.00
2004	Jul 16	31	12	372	412	1.11	1,454	3.91	1,562	4.20	0	0.00
(cont.)	Aug 2	35	12	420	89	0.21	375	0.89	447	1.06	4,131	9.84
	Aug 4	36	12	432	83	0.19	223	0.52	318	0.74	4,756	11.01
	Aug 6	36	12	432	38	0.09	177	0.41	202	0.47	2,654	6.14
	Aug 9	44	12	528	50	0.09	133	0.25	118	0.22	8,977	17.00
	Aug 11	41	12	492	44	0.09	103	0.21	96	0.20	10,267	20.87
	Aug 13	30	12	360	31	0.09	56	0.16	26	0.07	5,618	15.61
	Aug 16	53	12	636	28	0.04	49	0.08	48	0.08	9,861	15.50
	Aug 18	53	12	636	21	0.03	63	0.10	63	0.10	9,123	14.34
	Aug 20	46	12	552	14	0.03	36	0.07	51	0.09	6,792	12.30
	Aug 23	37	12	444	9	0.02	17	0.04	19	0.04	7,281	16.40
	Aug 25	44	12	528	9	0.02	12	0.02	28	0.05	6,113	11.58
	Aug 27	39	12	468	11	0.02	6	0.01	12	0.03	7,137	15.25
Total			288	13,224	25,365		34,437		25,850		82,710	
2005	Jun 14	67	12	804	3,366	4.19	496	0.62	47	0.06	0	0.00
	Jun 16	85	12	1,020	2,554	2.50	564	0.55	51	0.05	0	0.00
	Jun 21	90	12	1,080	5,850	5.42	3,537	3.28	512	0.47	0	0.00
	Jun 23	100	12	1,200	3,826	3.19	2,907	2.42	564	0.47	0	0.00
	Jun 28	82	12	984	2,700	2.74	9,920	10.08	3,239	3.29	0	0.00
	Jun 30	79	12	948	1,681	1.77	7,350	7.75	289	0.30	0	0.00
	Jul 5	77	12	924	1,480	1.60	10,587	11.46	480	0.52	0	0.00
	Jul 7	70	12	840	743	0.88	8,661	10.31	1,328	1.58	0	0.00
	Jul 12	63	12	756	705	0.93	8,760	11.59	1,672	2.21	0	0.00
	Jul 14	58	12	696	416	0.60	6,209	8.92	1,354	1.95	0	0.00
	Jul 19	44	12	528	317	0.60	4,199	7.95	1,187	2.25	0	0.00
	Aug 1	53	12	636	114	0.18	1,488	2.34	688	1.08	957	1.50
	Aug 3	46	12	552	115	0.21	1,059	1.92	567	1.03	1,888	3.42
	Aug 5	46	12	552	64	0.12	650	1.18	382	0.69	2,625	4.76
	Aug 8	55	12	660	69	0.10	716	1.08	444	0.67	5,505	8.34
	Aug 10	54	12	648	48	0.07	383	0.59	145	0.22	4,361	6.73
	Aug 12	65	12	780	44	0.06	415	0.53	209	0.27	5,721	7.33
	Aug 15	46	12	552	25	0.05	240	0.43	127	0.23	5,307	9.61
	Aug 17	60	12	720	31	0.04	202	0.28	85	0.12	7,786	10.81
	Aug 19	65	12	780	20	0.03	240	0.31	76	0.10	7,642	9.80
	Aug 22	56	12	672	10	0.01	94	0.14	46	0.07	5,035	7.49
	Aug 26	42	12	504	13	0.03	81	0.16	31	0.06	3,332	6.61
	Aug 30	29	12	348	4	0.01	43	0.12	6	0.02	1,549	4.45
Total			276	17,184	24,195		68,801		13,529		51,708	
2006	Jun 15	69	12	828	2,940	3.55	188	0.23	2,192	2.65	0	0.00
	Jun 20	87	12	1,044	4,246	4.07	993	0.95	5,091	4.88	0	0.00
	Jun 22	87	12	1,044	3,947	3.78	2,038	1.95	4,261	4.08	0	0.00
	Jun 27	59	12	708	1,381	1.95	4,838	6.83	3,039	4.29	0	0.00
	Jun 30	80	12	960	1,796	1.87	17,074	17.79	4,507	4.69	0	0.00
	Jul 3	77	12	924	1,162	1.26	10,445	11.30	2,063	2.23	0	0.00
	Jul 5	80	12	960	791	0.82	10,202	10.63	1,681	1.75	0	0.00
	Jul 7	90	12	1,080	855	0.79	14,061	13.02	1,514	1.40	23	0.02
	Jul 10	99	12	1,188	722	0.61	12,537	10.55	2,348	1.98	26	0.02
	Jul 17	73	12	876	286	0.33	8,012	9.15	1,983	2.26	48	0.05

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2006	Jul 19	80	12	960	327	0.34	8,043	8.38	2,089	2.18	29	0.03
	Jul 21	67	12	804	236	0.29	7,508	9.34	2,041	2.54	47	0.06
	Jul 24	63	12	756	175	0.23	3,886	5.14	2,438	3.22	146	0.19
	Jul 26	37	12	444	82	0.18	1,979	4.46	1,243	2.80	323	0.73
	Jul 31	36	12	432	59	0.14	1,189	2.75	940	2.18	965	2.23
	Aug 2	30	12	360	29	0.08	737	2.05	435	1.21	452	1.26
	Aug 4	27	12	324	21	0.06	684	2.11	296	0.91	522	1.61
	Aug 7	34	12	408	19	0.05	447	1.10	283	0.69	1,631	4.00
	Aug 9	30	12	360	23	0.06	168	0.47	114	0.32	1,968	5.47
	Aug 11	43	12	516	25	0.05	334	0.65	206	0.40	4,208	8.16
	Aug 14	57	12	684	20	0.03	207	0.30	102	0.15	3,323	4.86
	Aug 16	36	12	432	7	0.02	188	0.44	48	0.11	1,628	3.77
	Aug 18	32	12	384	8	0.02	136	0.35	60	0.16	2,881	7.50
	Aug 21	36	12	432	9	0.02	98	0.23	64	0.15	1,804	4.18
	Aug 23	34	12	408	7	0.02	75	0.18	36	0.09	1,646	4.03
	Aug 25	30	12	360	2	0.01	96	0.27	32	0.09	2,027	5.63
	Aug 28	30	12	360	3	0.01	55	0.15	25	0.07	1,342	3.73
	Aug 30	19	12	228	1	0.00	38	0.17	11	0.05	823	3.61
	Sep 1	16	12	192	5	0.03	52	0.27	9	0.05	969	5.05
Total			348	18,456	19,184		106,308		39,151		26,831	
2007	Jun 14	88	12	1,056	1,308	1.24	66	0.06	250	0.24	0	0.00
	Jun 19	82	12	984	2,267	2.30	349	0.35	1,275	1.30	0	0.00
	Jun 21	80	12	960	3,356	3.50	1,533	1.60	2,530	2.64	0	0.00
	Jun 26	97	12	1,164	3,749	3.22	1,940	1.67	4,260	3.66	0	0.00
	Jun 28	87	12	1,044	2,375	2.27	5,150	4.93	1,186	1.14	0	0.00
	Jul 2	94	12	1,128	1,781	1.58	7,633	6.77	3,582	3.18	0	0.00
	Jul 4	85	12	1,020	971	0.95	8,970	8.79	2,723	2.67	0	0.00
	Jul 6	93	12	1,116	896	0.80	8,228	7.37	2,885	2.59	0	0.00
	Jul 8	49	12	588	382	0.65	7,494	12.74	1,109	1.89	0	0.00
	Jul 10	89	12	1,068	722	0.68	10,548	9.88	2,539	2.38	0	0.00
	Jul 12	89	12	1,068	489	0.46	13,170	12.33	2,292	2.15	0	0.00
	Jul 14	87	12	1,044	370	0.35	13,589	13.02	1,624	1.56	8	0.01
	Jul 16	82	12	984	250	0.25	9,483	9.64	1,584	1.61	40	0.04
	Jul 18	72	12	864	145	0.17	5,545	6.42	2,310	2.67	91	0.11
	Jul 20	69	12	828	183	0.22	5,077	6.13	6,109	7.38	117	0.14
	Jul 22	0	12	0	Commercial Opening, Processor not able to buy							
	Jul 24	54	12	648	96	0.15	3,608	5.57	6,333	9.77	477	0.74
	Jul 26	49	12	588	64	0.11	2,579	4.39	6,903	11.74	792	1.35
	Jul 31	48	12	576	31	0.05	821	1.43	3,462	6.01	2,207	3.83
	Aug 2	51	12	612	40	0.07	788	1.29	3,597	5.88	2,142	3.50
	Aug 4	53	12	636	22	0.03	354	0.56	1,628	2.56	1,714	2.69
	Aug 6	50	12	600	16	0.03	608	1.01	1,370	2.28	2,443	4.07
	Aug 8	50	12	600	14	0.02	301	0.50	766	1.28	2,849	4.75
	Aug 10	47	12	564	13	0.02	326	0.58	502	0.89	3,275	5.81
	Aug 13	46	12	552	9	0.02	225	0.41	433	0.78	3,298	5.97
	Aug 15	52	12	624	5	0.01	234	0.38	313	0.50	2,839	4.55
	Aug 17	40	12	480	7	0.01	187	0.39	194	0.40	2,394	4.99
	Aug 20	43	12	516	4	0.01	144	0.28	142	0.28	2,544	4.93
	Aug 22	45	12	540	1	0.00	151	0.28	73	0.14	2,353	4.36
	Aug 24	38	12	456	6	0.01	167	0.37	108	0.24	2,267	4.97

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2007	Aug 27	37	12	444	2	0.00	105	0.24	51	0.11	1,103	2.48
(cont.)	Aug 29	30	12	360	1	0.00	79	0.22	55	0.15	1,065	2.96
	Aug 31	22	12	264	0	0.00	65	0.25	44	0.17	692	2.62
Total			396	23,976	19,575		109,517		62,232		34,710	
2008	Jun 14	102	12	1,224	1,322	1.08	91	0.07	345	0.28	0	0.00
	Jun 17	99	12	1,188	1,293	1.09	354	0.30	640	0.54	0	0.00
	Jun 24	91	12	1,092	2,891	2.65	1,946	1.78	3,941	3.61	0	0.00
	Jun 26	101	12	1,212	3,359	2.77	2,150	1.77	4,430	3.66	0	0.00
	July 1	105	12	1,260	1,544	1.23	6,782	5.38	6,285	4.99	0	0.00
	July 5	99	12	1,188	1,015	0.85	6,484	5.46	3,018	2.54	0	0.00
	July 8	81	12	972	391	0.40	5,494	5.65	3,242	3.34	0	0.00
	July 10	86	12	1,032	340	0.33	7,361	7.13	2,901	2.81	1	0.00
	July 12	83	12	996	340	0.34	8,322	8.36	3,452	3.47	7	0.01
	July 14	89	12	1,068	368	0.34	10,141	9.50	6,246	5.85	61	0.06
	July 16	78	12	936	236	0.25	5,557	5.94	3,325	3.55	110	0.12
	July 18	88	12	1,056	225	0.21	5,368	5.08	4,032	3.82	122	0.12
	July 21	76	12	912	158	0.17	3,041	3.33	4,917	5.39	746	0.82
	July 23	61	12	732	94	0.13	2,029	2.77	3,434	4.69	764	1.04
	July 25	54	12	648	58	0.09	1,140	1.76	2,216	3.42	1,453	2.24
	July 28	46	12	552	32	0.06	793	1.44	1,073	1.94	1,827	3.31
	July 30	56	12	672	38	0.06	800	1.19	1,291	1.92	4,332	6.45
	Aug 1	53	12	636	21	0.03	484	0.76	707	1.11	4,095	6.44
	Aug 4	55	12	660	20	0.03	287	0.43	436	0.66	4,805	7.28
	Aug 6	53	12	636	12	0.02	222	0.35	312	0.49	4,762	7.49
	Aug 8	50	12	600	12	0.02	174	0.29	186	0.31	3,549	5.92
	Aug 10	30	12	360	5	0.01	139	0.39	130	0.36	3,645	10.13
	Aug 12	66	12	792	10	0.01	127	0.16	134	0.17	8,209	10.36
	Aug 14	65	12	780	4	0.01	101	0.13	62	0.08	13,540	17.36
	Aug 16	77	12	924	8	0.01	121	0.13	80	0.09	10,175	11.01
	Aug 18	66	12	792	7	0.01	82	0.10	56	0.07	9,377	11.84
	Aug 20	65	12	780	2	0.00	65	0.08	43	0.06	9,568	12.27
	Aug 22	56	12	672	2	0.00	28	0.04	34	0.05	3,242	4.82
	Aug 25	38	12	456	2	0.00	42	0.09	27	0.06	3,204	7.03
	Aug 27	39	12	468	1	0.00	11	0.02	19	0.04	2,553	5.46
	Aug 29	40	12	480	2	0.00	7	0.01	19	0.04	4,110	8.56
Total			372	25,776	13,812		69,743		57,033		94,257	
2009	Jun 15	79	12	948	1,608	2.1	142	3.1	231	2.7	0	0.0
	Jun 17	73	12	876	1,878	1.5	245	9.3	183	5.7	0	0.0
	Jun 22	110	12	1,320	3,482	0.8	1,892	12.1	2,005	7.6	0	0.0
	Jun 25	120	12	1,440	2,849	0.4	4,753	11.5	3,931	7.9	0	0.0
	Jun 30	122	12	1,464	1,302	0.2	10,329	12.3	7,391	5.8	0	0.0
	Jul 6	120	12	1,440	723	0.2	14,406	8.1	6,171	4.0	0	0.0
	Jul 8	131	12	1,572	798	0.1	12,919	6.0	10,633	5.1	0	0.0
	Jul 10	122	12	1,464	382	0.1	14,274	8.0	11,026	6.0	2	0.0
	Jul 13	95	12	1,140	133	0.1	7,810	8.0	7,256	5.9	0	0.0
	Jul 15	111	12	1,332	137	0.1	8,623	5.4	6,323	5.0	3	0.0
	Jul 16	77	6	462	72	0.1	6,946	4.2	4,579	3.2	4	0.0
	Jul 17	80	12	960	135	0.1	6,561	8.8	6,732	2.8	3	0.1

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2009	Jul 20	70	12	840	92	0.0	6,877	6.7	4,557	1.8	110	0.1
	Jul 22	73	12	876	81	0.1	6,898	6.5	4,710	1.8	211	0.1
	Jul 24	79	12	948	74	0.0	4,048	4.0	4,268	0.9	548	0.2
	Jul 25	61	12	732	42	0.0	1,960	1.1	3,794	0.3	610	0.2
	Jul 27	41	12	492	27	0.0	837	3.8	1,868	1.0	618	1.3
	Jul 29	19	12	228	3	0.0	134	3.6	284	0.7	209	1.1
	Jul 31	38	12	456	17	0.0	847	3.4	2,240	0.5	2,289	2.1
	Aug 3	53	12	636	22	0.0	470	3.3	866	0.3	3,733	1.6
	Aug 5	56	12	672	8	0.0	245	3.9	639	0.2	4,254	2.4
	Aug 7	69	12	828	11	0.0	239	2.8	562	0.1	4,952	4.1
	Aug 10	70	12	840	8	0.0	235	3.3	374	0.1	4,572	5.4
	Aug 12	58	12	696	4	0.0	92	2.2	169	0.1	4,076	9.8
	Aug 14	64	12	768	8	0.0	131	1.3	146	0.0	5,973	7.7
	Aug 17	66	12	792	9	0.0	96	0.6	99	0.0	5,507	4.7
	Aug 19	66	12	792	4	0.0	77	0.6	66	0.0	5,181	4.7
	Aug 21	56	12	672	5	0.0	51	0.6	31	0.0	3,930	4.7
	Aug 24	45	12	540	6	0.0	16	0.6	24	0.0	1,330	4.7
Total			342	26,226	13,920		112,153		91,158		48,115	
2010	Jun 15	33	12	396	325	0.8	28	0.1	80	0.2	0	0.0
	Jun 21	122	12	1464	2,620	1.8	1,280	0.9	5,157	3.5	0	0.0
	Jun 25	125	12	1500	3,404	2.3	2,566	1.7	7,051	4.7	0	0.0
	Jun 29	137	12	1644	1,983	1.2	5,638	3.4	10,472	6.4	0	0.0
	Jul 2	128	12	1536	1,318	0.9	11,308	7.4	12,131	7.9	0	0.0
	Jul 5	141	12	1692	1,128	0.7	17,975	10.6	8,661	5.1	0	0.0
	Jul 7-8	168	24	4032	1,085	0.3	16,367	4.1	14,734	3.7	0	0.0
	Jul 9	118	12	1416	443	0.3	15,640	11.0	9,043	6.4	0	0.0
	Jul 12	156	12	1872	433	0.2	13,387	7.2	5,531	3.0	0	0.0
	Jul 14-15	172	24	4128	658	0.2	21,410	5.2	11,929	2.9	3	0.0
	Jul 16	152	12	1824	206	0.1	10,038	5.5	6,146	3.4	0	0.0
	Jul 17	103	12	1236	198	0.2	6,932	5.6	4,070	3.3	3	0.0
	Jul 19	63	12	756	86	0.1	4,644	6.1	2,248	3.0	16	0.0
	Jul 21	70	12	840	119	0.1	4,658	5.5	3,337	4.0	102	0.1
	Jul 23	68	12	816	55	0.1	3,731	4.6	2,446	3.0	105	0.1
	Jul 26	53	12	636	54	0.1	1,114	1.8	1,408	2.2	157	0.2
	Jul 28	25	12	300	17	0.1	333	1.1	677	2.3	115	0.4
	Jul 30	30	12	360	30	0.1	351	1.0	533	1.5	198	0.6
	Aug 2	34	12	408	27	0.1	316	0.8	318	0.8	994	2.4
	Aug 6	43	12	516	23	0.0	251	0.5	380	0.7	2,056	4.0
	Aug 9	27	12	324	5	0.0	68	0.2	43	0.1	770	2.4
	Aug 13	83	12	996	8	0.0	130	0.1	99	0.1	2,733	2.7
	Aug 16	66	12	792	5	0.0	108	0.1	67	0.1	3,800	4.8
	Aug 18	82	12	984	0	0.0	89	0.1	49	0.0	2,638	2.7
Total			312	30,468	14,230		138,362		106,610		13,690	
2011	Jun 20	115	12	1,380	5,585	4.0	1,758	1.3	2,767	2.0	0	0
	Jun 22	126	12	1,512	2,797	1.8	2,291	1.5	3,066	2.0	0	0.0
	Jun 30	149	12	1,788	3,287	1.8	7,550	4.2	7,728	4.3	0	0.0
	Jul 4	137	12	1,644	1,160	0.7	6,310	3.8	9,572	5.8	0	0.0
	Jul 6	71	12	852	262	0.3	1,897	2.2	3,465	4.1	0	0.0
	Jul 8	109	12	1,308	590	0.5	3,665	2.8	10,679	8.2	0	0.0
	Jul 9	127	12	1,524	445	0.3	3,367	2.2	11,765	7.7	0	0.0

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Jul 11	85	12	1,020	255	0.3	1,853	1.8	6,379	6.3	3	0.0
	Jul 13	109	12	1,308	337	0.3	3,695	2.8	9,907	7.6	3	0.0
	Jul 15	113	12	1,356	179	0.1	2,571	1.9	9,827	7.2	29	0.0
	Jul 18	77	12	924	119	0.1	1,254	1.4	7,218	7.8	22	0.0
	Jul 20	83	12	996	119	0.1	599	0.6	6,269	6.3	41	0.0
	Jul 22	66	12	792	61	0.1	422	0.5	5,840	7.4	109	0.1
	Jul 25	72	12	864	57	0.1	411	0.5	3,605	4.2	436	0.5
	Jul 27	49	12	588	21	0.0	288	0.5	2,046	3.5	425	0.7
	Jul 29	51	12	612	35	0.1	196	0.3	1,954	3.2	1,280	2.1
	Aug 1	57	12	684	22	0.0	138	0.2	1,452	2.1	1,349	2.0
	Aug 5	52	12	624	14	0.0	82	0.1	661	1.1	1,373	2.2
	Aug 8	50	12	600	10	0.0	34	0.1	351	0.6	2,468	4.1
	Aug 12	62	12	744	13	0.0	55	0.1	177	0.2	6,311	8.5
	Aug 15	85	12	1,020	4	0.0	30	0.0	123	0.1	3,915	3.8
	Aug 17	62	12	744	4	0.0	27	0.0	37	0.0	2,924	3.9
	Aug 19	68	12	816	3	0.0	11	0.0	33	0.0	2,892	3.5
	Aug 22	51	12	612	6	0.0	23	0.0	17	0.0	2,179	3.6
	Aug 24	41	12	492	1	0.0	10	0.0	17	0.0	2,047	4.2
	Aug 26	50	12	600	1	0.0	6	0.0	4	0.0	2,651	4.4
Total			312	25,404	15,387		38,543		104,959		30,457	
10 Yr Avg												
(01-10)			314	19,139	16,899		72,489		46,996		44,708	

Appendix C3.–Commercial salmon harvest District 4, Quinhagak, Kuskokwim Bay, 1960–2011.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652		0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,269	5,393	16,850	15,195	46,556	102,263
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
1980	10,387	13,221	62,610	21,671	65,984	173,873
1981	24,524	17,292	47,551	160	53,334	142,861
1982	22,106	25,685	73,652	11,838	34,346	167,627
1983	46,385	10,263	32,442	168	23,090	112,348
1984	33,663	17,255	132,151	16,249	50,422	249,740
1985	30,401	7,876	29,992	28	20,418	88,715
1986	22,835	21,484	57,544	8,700	29,700	140,263
1987	26,022	6,489	50,070	66	8,557	91,204
1988	13,883	21,556	68,605	21,311	29,220	154,575
1989	20,820	20,582	44,607	273	39,395	125,677
1990	27,644	83,681	26,926	12,056	47,717	198,024
1991	9,480	53,657	42,571	115	54,493	160,316
1992	17,197	60,929	86,404	64,217	73,383	302,130
1993	15,784	80,934	55,817	7	40,943	193,485
1994	8,564	72,314	83,912	35,904	61,301	261,995
1995	38,584	68,194	66,203	186	81,462	254,629
1996	14,165	57,665	118,718	20	83,005[a]	273,573
1997	35,510	69,562	32,862	5	38,445	176,384
1998	23,158	41,382	80,183	2,217	45,095	192,035
1999	18,426	41,315	6,184	0	38,091	104,016
2000	21,229	68,557	30,529	3	30,553	150,871
2001	12,775	33,807	18,531	0	17,209	82,322
2002	11,480	17,802	26,695	0	29,252	85,229
2003	14,444	33,941	49,833	0	27,868	126,086
2004	25,462	34,627	82,398	0	25,820	168,307
2005	24,195	68,801	51,780	19	13,529	158,324
2006	19,184	106,308	26,831	0	39,151	191,474
2007	19,573	109,343	34,710	0	61,228	224,854
2008	13,812	69,743	94,257	0	57,033	234,845
2009	13,920	112,153	48,115	0	91,158	265,346
2010	14,230	138,362	13,690	0	106,610	272,892
2011	15,387	38,543	30,457	0	104,959	189,346
10 Yr Avg (01-10)	16,908	72,489	44,684	2	46,886	180,968
Hist Avg (60-10)	16,116	33,537	36,612		36,434	130,896

[a] Estimate of chum salmon roe included.

Appendix C4.–Commercial salmon fishing exvessel value, District 4, Quinhagak, Kuskokwim Bay, 1990–2011.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1990	$ 253,562	$ 542,485	$ 123,936	$ 4,146	$ 89,343	$ 1,013,472
1991	$ 94,950	$ 246,734	$ 144,379	$ 52	$ 106,321	$ 592,436
1992	$ 166,471	$ 368,310	$ 303,740	$ 15,875	$ 139,268	$ 993,664
1993	$ 143,506	$ 402,763	$ 246,746	$ 4	$ 105,236	$ 898,255
1994	$ 67,584	$ 253,922	$ 420,802	$ 10,454	$ 84,395	$ 837,157
1995	$ 418,067	$ 323,104	$ 201,413	$ 81	$ 104,523	$ 1,047,188
1996	$ 61,004	$ 165,100	$ 246,930	$ 6	$ 61,686	$ 534,726
1997	$ 171,688	$ 204,190	$ 91,584	$ –	$ 29,609	$ 497,071
1998	$ 82,168	$ 150,631	$ 197,676	$ 871	$ 36,497	$ 467,843
1999	$ 94,880	$ 140,846	$ 14,997	$ –	$ 28,368	$ 279,091
2000	$ 131,351	$ 249,382	$ 31,898	$ 1	$ 23,929	$ 436,561
2001	$ 93,697	$ 89,334	$ 32,577	$ –	$ 13,007	$ 228,615
2002	$ 56,356	$ 40,368	$ 47,651	$ –	$ 23,374	$ 167,749
2003	$ 69,201	$ 107,287	$ 108,804	$ –	$ 19,261	$ 304,553
2004	$ 107,700	$ 77,394	$ 201,879	$ –	$ 18,372	$ 405,345
2005	$ 221,854	$ 241,478	$ 101,776	$ 4	$ 6,853	$ 571,965
2006	$ 147,802	$ 327,917	$ 61,433	$ –	$ 14,030	$ 551,182
2007	$ 163,248	$ 374,004	$ 102,569	$ –	$ 21,044	$ 660,865
2008	$ 140,580	$ 272,427	$ 317,143	$ –	$ 20,581	$ 750,731
2009	$ 130,561	$ 384,209	$ 136,562	$ –	$ 95,993	$ 747,325
2010	$ 294,163	$1,049,395	$ 117,658	$ –	$ 194,105	$ 1,655,321
2011	$ 166,606	$ 207,642	$ 198,333	$ –	$ 603,855	$ 1,176,436
10 Yr Avg (01-10)	$ 142,516	$ 296,381	$ 122,805	$ 0	$ 42,662	$ 604,365
Hist Avg (90-10)	$ 148,114	$ 286,251	$ 154,864	$ 1,500	$ 58,847	$ 649,577

Appendix C5.–Chinook salmon total utilization, District 4 Quinhagak, Kuskokwim Bay, 1960–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1960	0						0	
1961	4,328						4,328	
1962	5,526						5,526	
1963	6,555						6,555	
1964	4,081						4,081	
1965	2,976						2,976	
1966	278						278	
1967	0		1,349				1,349	
1968	8,879		2,756				11,635	
1969	16,802						16,802	
1970	18,269	4,943					18,269	
1971	4,185	6,769					4,185	7,180
1972	15,880	6,755					15,880	7,166
1973	14,993	7,791					14,993	8,201
1974	8,704	8,634					8,704	9,045
1975	3,928	9,097					3,928	9,507
1976	14,110	9,192					14,110	9,602
1977	19,090	10,575	2,012				21,102	10,986
1978	12,335	12,484	2,328				14,663	12,961
1979	11,144	12,830	1,420				12,564	13,264
1980	10,387	12,264	1,940				12,327	12,840
1981	24,524	11,476	2,562				27,086	12,246
1982	22,106	13,510	2,402				24,508	14,536
1983	46,385	14,132	2,542		1,511		50,438	15,399
1984	33,663	17,271	3,109		922		37,694	18,943
1985	30,401	19,767	2,341		672		33,414	21,842
1986	22,835	22,415	2,682		938		26,455	24,791
1987	26,022	23,287	3,663	2,334	508		30,193	26,025
1988	13,883	23,980	3,690[c]	2,499	1,910		19,483	26,934
1989	20,820	24,135	3,542	2,635	884		25,246	27,416
1990	27,644	25,103	3,881	2,847	503		32,028	28,684
1991	9,480	26,828	3,753	3,041	316		13,549	30,655
1992	17,197	25,324	4,394	3,161	656		22,247	29,301
1993	15,784	24,833	3,634	3,360	1,006	882	20,424	29,075
1994	8,564	21,773	3,977	3,469	751	832	13,292	26,073
1995	38,584	19,263	2,864	3,556	739	814	42,187	23,633
1996	14,165	20,081	3,506	3,608	689	821	18,360	24,510
1997	35,510	19,214	3,186	3,690	1,632	796	40,328	23,701
1998	23,158	20,163	3,774	3,643	1,475	909	28,407	24,714

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Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1999	18,426	21,091	2,815	3,651	854	865	22,095	25,607
2000	21,229	20,851	3,053	3,578	833	862	25,115	25,292
2001	12,775	20,210	3,177	3,496	947	895	16,899	24,600
2002	11,480	20,539	2,649	3,438	779	958	14,908	24,935
2003	14,444	19,968	2,563	3,264	323	971	17,330	24,202
2004	25,465	19,834	4,563	3,156	228	902	30,256	23,892
2005	24,195	21,524	3,505	3,215	520	850	28,220	25,589
2006	19,184	20,085	5,163	3,279	754	828	25,101	24,192
2007	19,573	20,587	4,686	3,445	633	835	24,892	24,866
2008	13,812	18,993	3,923	3,595	220	735	17,955	23,322
2009	13,920	18,058	2,976	3,610	400	609	17,296	22,277
2010	14,230	17,608	2,692	3,626	552	564	17,474	21,797
2011	15,387	16,908	2,177[d]	3,590				
10-yr Avg	16,908[e]		3,590[e]		564[f]		21,797[f]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 4 commercial harvest.

[b] Subsistence harvest by the community of Quinhagak.

[c] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[d] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[e] 10 year average (2001–2010).

[f] 10 year average (2000–2009).

Appendix C6.–Sockeye salmon total utilization, District 4 Quinhagak, Kuskokwim Bay, 1960–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1960	5,649						5,649	
1961	2,308						2,308	
1962	10,313						10,313	
1963	0						0	
1964	13,422						13,422	
1965	1,886						1,886	
1966	1,030						1,030	
1967	652						652	
1968	5,884						5,884	
1969	3,784						3,784	
1970	5,393	4,493					5,393	4,493
1971	3,118	4,467					3,118	4,467
1972	3,286	4,548					3,286	4,548
1973	2,783	3,846					2,783	3,846
1974	19,510	4,124					19,510	4,124
1975	8,584	4,733					8,584	4,733
1976	6,090	5,402					6,090	5,402
1977	5,519	5,908					5,519	5,908
1978	7,589	6,395					7,589	6,395
1979	18,828	6,566					18,828	6,566
1980	13,221	8,070					13,221	8,070
1981	17,292	8,853					17,292	8,853
1982	25,685	10,270					25,685	10,270
1983	10,263	12,510					10,263	12,510
1984	17,255	13,258			143		17,398	13,258
1985	7,876	13,033	106		12		7,994	13,047
1986	21,484	12,962	423		200		22,107	12,988
1987	6,489	14,501	1,067		153		7,709	14,590
1988	21,556	14,598	1,261[c]		109		22,926	14,809
1989	20,582	15,995	633		101		21,316	16,342
1990	83,681	16,170	1,710		462		85,853	16,591
1991	53,657	23,216	1,818		88		55,563	23,854
1992	60,929	26,853	1,448		66		62,443	27,681
1993	80,934	30,377	1,228		331		82,493	31,357
1994	72,314	37,444	962		313	167	73,589	38,580
1995	68,194	42,950	597	1,066	148	184	68,939	44,199
1996	57,665[d]	48,982	499	1,115	335	197	58,499	50,294
1997	69,562	52,600	460	1,122	607	211	70,629	53,933
1998	41,382	58,907	1,368	1,062	942	256	43,692	60,225

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Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1999	41,315	60,890	1,433	1,072	496	339	43,244	62,302
2000	68,557	62,963	1,368	1,152	694	379	70,619	64,494
2001	33,807	61,451	1,054	1,118	83	402	34,944	62,971
2002	17,802	59,466	909	1,042	73	402	18,784	60,909
2003	33,941	55,153	805	988	107	402	34,853	56,543
2004	34,627	50,454	1,375	946	112	380	36,114	51,779
2005	68,801	46,685	1,745	987	156	360	70,702	48,032
2006	106,308	46,746	3,128	1,102	523	361	109,959	48,208
2007	109,343	51,610	1,755	1,365	385	379	111,483	53,354
2008	69,743	55,588	2,692	1,494	654	357	73,089	57,439
2009	112,153	58,424	1,744	1,626	75	328	113,972	60,379
2010	138,362	65,508	1,671	1,658	404	286	140,437	67,452
2011	38,543	72,489	1,328[d]	1,688	[e]			
10 Yr Avg	72,489[e]		1,688[e]		286[f]		67,452[f]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 4 commercial harvest.

[b] Subsistence harvest by the community of Quinhagak.

[c] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[d] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[e] 10 year average (2001–2010).

[f] 10 year average (2000–2009).

Appendix C7.–Chum salmon total utilization, District 4 Quinhagak, Kuskokwim Bay, 1960–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1960	0						0	
1961	18,864						18,864	
1962	45,707						45,707	
1963	0						0	
1964	707						707	
1965	4,242						4,242	
1966	2,610						2,610	
1967	8,087						8,087	
1968	19,497						19,497	
1969	38,206						38,206	
1970	46,556						46,556	
1971	30,208	18,448					30,208	18,448
1972	17,247	19,582					17,247	19,582
1973	19,680	16,736					19,680	16,736
1974	15,298	18,704					15,298	18,704
1975	35,233	20,163					35,233	20,163
1976	43,659	23,262					43,659	23,262
1977	43,707	27,367					43,707	27,367
1978	24,798	30,929					24,798	30,929
1979	25,995	31,459					25,995	31,459
1980	65,984	30,238					65,984	30,238
1981	53,334	32,181					53,334	32,181
1982	34,346	34,494					34,346	34,494
1983	23,090	36,203			315		23,405	36,203
1984	50,422	36,544			376		50,798	36,576
1985	20,418	40,057	901		149		21,468	40,126
1986	29,700	38,575	808		777		31,285	38,749
1987	8,557	37,179	1,084		111		9,752	37,512
1988	29,220	33,664	1,065[c]		618		30,903	34,117
1989	39,395	34,107	1,568		537		41,500	34,727
1990	47,717	35,447	3,161		202		51,080	36,278
1991	54,493	33,620	1,631		80		56,204	34,787
1992	73,383	33,736	2,287		251		75,921	35,074
1993	40,943	37,640	1,053		183	342	42,179	39,232
1994	61,301	39,425	1,401		156	328	62,858	41,109
1995	81,462	40,513	669	1,496	213	306	82,344	42,315
1996	83,005	46,617	943	1,473	200	313	84,148	48,403
1997	38,445	51,948	572	1,486	212	255	39,229	53,689
1998	45,095	54,936	1,375	1,435	213	265	46,683	56,637
1999	38,091	56,524	1,587	1,466	293	225	39,971	58,215

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Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
2000	30,553	56,394	895	1,468	231	200	31,679	58,062
2001	17,209	54,677	808	1,241	43	203	18,060	56,122
2002	29,252	50,949	2,011	1,159	446	200	31,709	52,307
2003	27,868	46,536	559	1,131	14	219	28,441	47,886
2004	25,820	45,228	1,383	1,082	33	202	27,236	46,512
2005	13,529	41,680	994	1,080	108	190	14,631	42,950
2006	39,151	34,887	2,754	1,113	145	179	42,050	36,179
2007	61,228	30,501	2,249	1,294	15	174	63,492	31,969
2008	57,033	32,780	1,795	1,462	48	154	58,876	34,395
2009	91,158	33,973	1,297	1,504	44	138	92,499	35,615
2010	106,610	39,280	1,376	1,475	44	113	108,030	40,867
2011	104,959	46,886	1,051[d]	1,523				
10-yr Avg	46,886[e]		1,523[e]		113[f]		40,867[f]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 4 commercial harvest.

[b] Subsistence harvest by the community of Quinhagak.

[c] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[d] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[e] 10 year average (2001–2010).

[f] 10 year average (2000–2009).

Appendix C8.–Coho salmon total utilization, District 4 Quinhagak, Kuskokwim Bay, 1960–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1960	3,000						3,000	
1961	46						46	
1962	0						0	
1963	0						0	
1964	379						379	
1965	0						0	
1966	0						0	
1967	1,926						1,926	
1968	21,511						21,511	
1969	15,077						15,077	
1970	16,850	4,194					16,850	4,194
1971	2,982	5,579					2,982	5,579
1972	376	5,873					376	5,873
1973	16,515	5,910					16,515	5,910
1974	10,979	7,562					10,979	7,562
1975	10,742	8,622					10,742	8,622
1976	13,777	9,696					13,777	9,696
1977	9,028	11,074					9,028	11,074
1978	20,114	11,784					20,114	11,784
1979	47,525	11,644					47,525	11,644
1980	62,610	14,889					62,610	14,889
1981	47,551	19,465					47,551	19,465
1982	73,652	23,922					73,652	23,922
1983	32,442	31,249			367		32,809	31,249
1984	132,151	32,842			1,895		134,046	32,879
1985	29,992	44,959	67		622		30,681	45,185
1986	57,544	46,884	41		2,010		59,595	47,179
1987	50,070	51,261	125		2,300		52,495	51,761
1988	68,605	55,365	4,317[c]		1,837		74,759	56,108
1989	44,607	60,214	3,787		1,096		49,490	61,572
1990	26,926	59,922	3,799		644		31,369	61,769
1991	42,571	56,354	3,230		358		46,159	58,645
1992	86,404	55,856	3,291		275		89,970	58,506
1993	55,817	57,131	2,029		734	1,140	58,580	60,137
1994	83,912	59,469	2,544		675	1,177	87,131	62,714
1995	66,203	54,645	2,480	2,323	970	1,055	69,653	58,023
1996	118,718[d]	58,266	1,734	2,564	875	1,090	121,327	61,920
1997	32,862	64,383	1,105	2,734	1,220	976	35,187	68,093
1998	80,183	62,663	1,537	2,832	751	868	82,471	66,363
1999	6,184	63,820	1,781	2,554	1,091	760	9,056	67,134

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Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
2000	30,529	63,650	1,042	2,353	799	759	32,370	63,090
2001	18,531	60,338	1,719	2,077	2,448	775	22,698	63,190
2002	26,695	57,934	1,133	1,926	1,784	984	29,612	60,844
2003	49,833	51,963	1,868	1,710	1,076	1,135	52,777	54,809
2004	82,398	51,365	1,435	1,694	1,362	1,169	85,195	54,228
2005	51,780	51,214	1,558	1,583	1,006	1,238	54,344	54,035
2006	26,831	49,771	1,315	1,491	1,742	1,241	29,888	52,504
2007	34,710	40,583	1,550	1,449	1,087	1,328	37,347	43,360
2008	94,257	40,767	2,217	1,494	1,541	1,315	98,015	43,576
2009	48,115	42,175	1,703	1,562	876	1,394	50,694	45,130
2010	13,690	46,368	1,547	1,554	1,280	1,372	16,517	49,294
2011	30,457	44,684	1,361[d]	1,605	[e]			
10-yr Avg	44,684[e]		1,605[e]		1,372[f]		49,294[f]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 4 commercial harvest.

[b] Subsistence harvest by the community of Quinhagak.

[c] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[d] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[e] 10 year average (2001–2010).

[f] 10 year average (2000–2009).

Appendix C9.–Salmon spawning escapement, Kanektok River, Kuskokwim Bay, 1996–2011.

Year	Operating Period[a]	Chinook	Sockeye	Chum	Pink[b]	Coho
Kanektok River						
Counting Tower						
1996	7/2-7/13; 7/20-7/25	[c]	[c]	[c]		
1997	06/11 to 08/21	16,731	96,348	51,180	7,872	[c]
1998	07/23 to 08/17	[c]	[c]	[c]	[c]	[c]
1999			Not Operational			
2000			Not Operational			
Weir						
2001	08/10 to 10/03	132[c]	739[c]	1,056[c]	19	35,650
2002	07/01 to 09/20	5,343[d]	58,326[d]	42,009[d]	87,031	24,840
2003	06/24 to 09/18	8,231	127,471	40,066	2,443	72,448
2004	06/29 to 09/20	19,528	102,867	46,444	98,060	87,828
2005	06/25 to 09/18	14,331	242,208	53,580	3,530	26,343[e]
2006			Not Operational			
2007	06/19 to 09/18	14,120	307,750	133,215	3,075	30,471
2008	07/17 to 08/21	6,578[d]	141,388[e]	54,024[d]	142,430	24,490[d]
2009	07/05 to 08/11	6,841	272,483[d]	51,652[d]	1,246	2,336[c]
2010	06/28 to 08/05	5,800	202,643	62,567	114,074	344[c]
2011	06/27 to 08/15	5,032	84,805	50,908	491	5,779[c]

[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 for 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.

Appendix C10.–Salmon spawning aerial survey index estimates, Kanektok River, Kuskokwim Bay drainage, 1962–2011.

Year	Chinook	Sockeye	Coho	Chum
1962	935	43,108	[a]	[a]
1963	[a]	[a]	[a]	[a]
1964	[a]	[a]	[a]	[a]
1965	[a]	[a]	[a]	[a]
1966	3,718 [a]	[a]	28,800	[a]
1967	[a]	[a]	[a]	[a]
1968	4,170	8,000	14,000	[a]
1969	[a]	[a]	[a]	[a]
1970	3,112[a]	11,375	[a]	[a]
1971	[a]	[a]	[a]	[a]
1972	[a]	[a]	[a]	[a]
1973	814	[a]	[a]	[a]
1974	[a]	[a]	[a]	[a]
1975	[a]	6,018	[a]	[a]
1976	[a]	22,936	8,697	[a]
1977	5,787	7,244	32,157	[a]
1978	19,180	44,215	229,290[b]	[a]
1979	[a]	[a]	[a]	[a]
1980		[a]	[a]	[a]
1981	6,172	113931	25,950	69,325
1982	15,900	49,175	71,840	[a]
1983	8,142	55,940	[a]	[a]
1984	8,890	2,340	9,360	[a]
1985	12,182	30,840	53,060	46,830
1986	13,465	16,270	14,385	[a]
1987	3,643	14,940	16,790	[a]
1988	4,223	51,753	9,420	20,056
1989	11,180	30,440	20,583	[a]
1990	7,914	14,735	6,270	[a]
1991	2,563	32,082	2,475	[a]
1992	2,100	44,436	[a]	4,330
1993	3,856	14,955	25,675	[a]
1994	4,670	23,128	1,285	[a]
1995	7,386	30,090	10,000	[a]
1996	6107	22,020	[a]	23,656 [a]
1997	[a]	[a]	[a]	[a]
1998	[a]	[a]	[a]	[a]
1999	[a]	[a]	[a]	[a]
2000	[a]	[a]	[a]	[a]
2001	6,483	38,610	11,440	[a]
2002	[a]	[a]	[a]	[a]
2003	6,206	21,335	[a]	[a]
2004	28,375	78,380	[a]	[a]
2005	14,202	110,730	[a]	[a]
2006	8,433	382,800	[a]	[a]
2007	[a]	[a]	[a]	[a]
2008	3,659	38,900	[a]	[a]
2009	[a]	[a]	[a]	[a]
2010	1,228	16,950	[a]	[a]
2011	[a]	[a]	[a]	[a]
SEG	3,500-8,000	14,000-34,000		>5,200

Note: Aerial surveys are those rated as fair to good, obtained between 20 July and 5 August for Chinook and sockeye salmon, 20–31 July for chum salmon, and 20 August and 5 September for coho salmon.

[a] Survey either not flown or did not meet acceptable survey criteria.

[b] Chum salmon count excluded from escapement objective calculation due to exceptional magnitude.

APPENDIX D

Appendix D1.–Commercial salmon fishing periods, hours, and permits fished, District W-5 Goodnews Bay, Kuskokwim Bay, 1970–2011.

Year	Number of Periods	Fishing Hours	Permits Fished[a]
1970	28	624	35
1971	3	156	16
1972	8	186	14
1973	24	288	21
1974	30	360	49
1975	24	288	50
1976	32	384	40
1977	24	288	34
1978	36	432	35
1979	36	432	30
1980	38	456	48
1981	34	492	48
1982	34	540	48
1983	28	336	79
1984	31	372	77
1985	22	264	69
1986	30	360	86
1987	21	252	69
1988	30	360	125
1989	28	336	88
1990	28	396	82
1991	27	432	72
1992	26	396	111
1993	28	336	114
1994	32	432	116
1995	25	396	118
1996	21	247	53
1997	23	276	54
1998	29	348	50
1999	20	240	73
2000	25	300	46
2001	16	183	32
2002	12	144	30
2003	23	216	34
2004	21	252	29
2005	21	252	29
2006	27	324	24
2007	33	396	28
2008	30	360	25
2009	26	306	39
2010	22	260	48
2011	21	252	48
10 yr avg 01-10	23	269	32
Hist Avg 70-10	26	334	55

[a] Permits that made at least one delivery during the year.

Appendix D2.–Commercial salmon harvest by period, District W-5 Goodnews Bay, Kuskokwim Bay, 1994–2011.

		Permits	Hours	Permit	Chinook		Sockeye		Chum		Coho	
Year	Date	Fished	Fished	Hours	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE
1994	Jun 27	41	12	492	388	0.79	2,795	5.68	2,364	4.80	0	0.00
	Jun 30	53	12	636	349	0.55	4,651	7.31	2,907	4.57	0	0.00
	Jul 4	40	12	480	637	1.33	7,674	15.99	4,075	8.49	0	0.00
	Jul 6	43	12	516	243	0.47	7,886	15.28	4,076	7.90	0	0.00
	Jul 8	52	12	624	139	0.22	6,261	10.03	2,669	4.28	0	0.00
	Jul 12	88	36	3,168	313	0.10	16,753	5.29	5,498	1.74	1	0.00
	Jul 15	78	36	2,808	138	0.05	8,860	3.16	3,296	1.17	2	0.00
	Jul 19	42	12	504	71	0.14	2,693	5.34	1,470	2.92	11	0.02
	Jul 21	29	12	348	53	0.15	2,385	6.85	563	1.62	9	0.03
	Jul 23	27	12	324	26	0.08	1,273	3.93	446	1.38	19	0.06
	Jul 25	25	12	300	16	0.05	1,206	4.02	281	0.94	188	0.63
	Jul 27	18	12	216	19	0.09	1,057	4.89	138	0.64	96	0.44
	Jul 29	24	12	288	26	0.09	810	2.81	166	0.58	343	1.19
	Aug 2	31	12	372	13	0.03	969	2.60	153	0.41	1,491	4.01
	Aug 3	25	12	300	18	0.06	761	2.54	100	0.33	1,136	3.79
	Aug 5	28	12	336	19	0.06	849	2.53	77	0.23	1,146	3.41
	Aug 8	35	12	420	13	0.03	749	1.78	60	0.14	3,090	7.36
	Aug 10	31	12	372	14	0.04	391	1.05	44	0.12	1,854	4.98
	Aug 12	24	12	288	26	0.09	288	1.00	31	0.11	2,699	9.37
	Aug 15	31	12	372	14	0.04	422	1.13	23	0.06	3,724	10.01
	Aug 17	29	12	348	7	0.02	151	0.43	11	0.03	4,248	12.21
	Aug 19	29	12	348	8	0.02	195	0.56	11	0.03	4,522	12.99
	Aug 22	33	12	396	6	0.02	131	0.33	2	0.01	6,126	15.47
	Aug 24	32	12	384	2	0.01	41	0.11	0	0.00	5,520	14.38
	Aug 26	2	12	24	0	0.00	1	0.04	0	0.00	147	6.13
	Aug 29	30	12	360	9	0.03	90	0.25	5	0.01	2,557	7.10
	Aug 31	24	12	288	0	0.00	50	0.17	4	0.01	3,097	10.75
	Sept 2	29	12	348	0	0.00	44	0.13	2	0.01	2,149	6.18
	Sept 5	21	12	252	2	0.01	37	0.15	4	0.02	1,014	4.02
	Sept 7	23	12	276	1	0.00	17	0.06	1	0.00	2,310	8.37
Total			408	16,188	2,570		69,490		28,477		47,499	
1995	Jun 29	30	12	360	914	2.54	1,412	3.92	1,242	3.45	0	0.00
	Jul 3	32	12	384	264	0.69	1,427	3.72	2,540	6.61	0	0.00
	Jul 5	33	12	396	229	0.58	2,380	6.01	1,324	3.34	0	0.00
	Jul 7	38	12	456	274	0.60	2,476	5.43	2,207	4.84	0	0.00
	Jul 8	43	12	516	202	0.39	4,362	8.45	2,090	4.05	0	0.00
	Jul 10	59	36	2,124	326	0.15	8,140	3.83	4,835	2.28	0	0.00
	Jul 13	67	36	2,412	182	0.08	4,291	1.78	1,361	0.56	0	0.00
	Jul 17	57	36	2,052	156	0.08	3,642	1.77	2,115	1.03	0	0.00
	Jul 20	36	36	1,296	109	0.08	2,601	2.01	1,187	0.92	1	0.00
	Jul 24	26	12	312	54	0.17	829	2.66	355	1.14	4	0.01
	Jul 26	30	12	360	41	0.11	852	2.37	226	0.63	6	0.02
	Jul 28	16	12	192	22	0.11	578	3.01	81	0.42	3	0.02
	Jul 31	23	12	276	17	0.06	667	2.42	77	0.28	30	0.11
	Aug 2	23	12	276	20	0.07	634	2.30	66	0.24	109	0.39
	Aug 7	23	12	276	17	0.06	692	2.51	62	0.22	520	1.88
	Aug 11	21	12	252	20	0.08	146	0.58	11	0.04	1,289	5.12
	Aug 14	26	12	312	13	0.04	353	1.13	15	0.05	2,455	7.87
	Aug 16	29	12	348	17	0.05	310	0.89	14	0.04	1,290	3.71
Total			384	14,808	2,922		37,351		19,832		17,875	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Aug 18	30	12	360	10	0.03	318	0.88	9	0.03	2,378	6.61
	Aug 21	34	12	408	11	0.03	373	0.91	5	0.01	2,147	5.26
	Aug 25	35	12	420	11	0.03	353	0.84	8	0.02	2,039	4.85
	Aug 28	29	12	348	11	0.03	186	0.53	1	0.00	2,322	6.67
	Aug 30	31	12	372	1	0.00	171	0.46	0	0.00	2,173	5.84
	Sept 1	25	12	300	1	0.00	158	0.53	1	0.00	1,109	3.70
1996	Jun 28	26	7	182	307	1.69	2,008	11.03	1,605	8.82	0	0.00
	Jul 02	31	12	372	223	0.60	4,777	12.84	2,208	5.94	0	0.00
	Jul 05	26	12	312	154	0.49	4,900	15.71	1,717	5.50	0	0.00
	Jul 08	40	12	480	125	0.26	4,366	9.10	1,809	3.77	0	0.00
	Jul 11	32	12	384	187	0.49	3,651	9.51	1,009	2.63	0	0.00
	Jul 15	35	12	420	65	0.15	3,080	7.33	1,279	3.05	13	0.03
	Jul 18	34	12	408	78	0.19	1,962	4.81	709	1.74	18	0.04
	Jul 20	0	12	0	Commercial Opening, processor not able to buy							
	Jul 25	28	12	336	53	0.16	1,678	4.99	262	0.78	632	1.88
	Jul 27	25	12	300	74	0.25	1,271	4.24	173	0.58	715	2.38
	Jul 30	19	12	228	19	0.08	790	3.46	116	0.51	1,461	6.41
	Aug 05	25	12	300	17	0.06	301	1.00	54	0.18	2,069	6.90
	Aug 08	23	12	276	13	0.05	307	1.11	44	0.16	1,978	7.17
	Aug 10	26	12	312	14	0.04	218	0.70	16	0.05	3,169	10.16
	Aug 12	29	12	348	10	0.03	458	1.32	50	0.14	6,488	18.64
	Aug 14	28	12	336	7	0.02	234	0.70	17	0.05	4,644	13.82
	Aug 16	30	12	360	7	0.02	223	0.62	10	0.03	7,321	20.34
	Aug 19	28	12	336	3	0.01	173	0.51	4	0.01	5,628	16.75
	Aug 21	29	12	348	9	0.03	119	0.34	3	0.01	4,967	14.27
	Aug 23	27	12	324	5	0.02	135	0.42	8	0.02	2,824	8.72
	Aug 26	13	12	156	5	0.03	66	0.42	0	0.00	1,909	12.24
Total			247	6,518	1,375		30,717		11,093		43,836	
1997	Jun 27	25	12	300	359	1.20	1,664	5.55	540	1.80	0	0.00
	Jun 30	22	12	264	299	1.13	4,290	16.25	997	3.78	0	0.00
	Jul 2	26	12	312	292	0.94	4,325	13.86	1,284	4.12	0	0.00
	Jul 4	22	12	264	177	0.67	2,154	8.16	798	3.02	0	0.00
	Jul 7	29	12	348	145	0.42	2,868	8.24	1,389	3.99	0	0.00
	Jul 9	36	12	432	128	0.30	2,994	6.93	1,180	2.73	0	0.00
	Jul 11	38	12	456	162	0.36	3,285	7.20	1,036	2.27	0	0.00
	Jul 14	42	12	504	125	0.25	2,812	5.58	1,180	2.34	0	0.00
	Jul 16	22	12	264	74	0.28	1,262	4.78	582	2.20	0	0.00
	Jul 18	32	12	384	74	0.19	1,673	4.36	824	2.15	0	0.00
	Jul 21	30	12	360	68	0.19	1,300	3.61	820	2.28	1	0.00
	Jul 23	23	12	276	34	0.12	767	2.78	591	2.14	3	0.01
	Jul 25	17	12	204	23	0.11	411	2.01	206	1.01	0	0.00
	Jul 28	9	12	108	9	0.08	254	2.35	94	0.87	5	0.05
	Aug 1	12	12	144	12	0.08	245	1.70	108	0.75	19	0.13
	Aug 4	7	12	84	8	0.10	142	1.69	41	0.49	35	0.42
	Aug 8	11	12	132	16	0.12	174	1.32	17	0.13	97	0.73
	Aug 11	10	12	120	7	0.06	100	0.83	14	0.12	163	1.36
	Aug 15	17	12	204	7	0.03	210	1.03	13	0.06	735	3.60
	Aug 18	0	12	0	Commercial Opening, processor not able to buy							
	Aug 20	21	12	252	11	0.04	214	0.85	4	0.02	828	3.29
	Aug 22	18	12	216	6	0.03	155	0.72	4	0.02	629	2.91
	Aug 25	17	12	204	3	0.01	152	0.75	7	0.03	468	2.29
Total			276	5,832	2,039		31,451		11,729		2,983	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1998	Jun 30	27	12	324	924	2.85	2,156	6.65	1,641	5.06	0	0.00
	Jul 3	26	12	312	1,065	3.41	2,541	8.14	2,485	7.96	0	0.00
	Jul 6	26	12	312	496	1.59	2,952	9.46	1,500	4.81	0	0.00
	Jul 8	27	12	324	302	0.93	2,652	8.19	1,894	5.85	0	0.00
	Jul 10	33	12	396	233	0.59	3,119	7.88	2,063	5.21	0	0.00
	Jul 13	37	12	444	126	0.28	2,785	6.27	1,423	3.20	0	0.00
	Jul 15	34	12	408	90	0.22	2,801	6.87	1,088	2.67	1	0.00
	Jul 17	34	12	408	76	0.19	1,598	3.92	680	1.67	0	0.00
	Jul 20	32	12	384	81	0.21	1,451	3.78	507	1.32	2	0.01
	Jul 22	27	12	324	52	0.16	1,604	4.95	308	0.95	4	0.01
	Jul 24	26	12	312	44	0.14	1,106	3.54	164	0.53	19	0.06
	Jul 27	21	12	252	28	0.11	534	2.12	132	0.52	56	0.22
	Jul 29	15	12	180	20	0.11	342	1.90	54	0.30	58	0.32
	Jul 31	19	12	228	20	0.09	364	1.60	54	0.24	162	0.71
	Aug 3	18	12	216	39	0.18	271	1.25	61	0.28	421	1.95
	Aug 5	17	12	204	17	0.08	162	0.79	36	0.18	954	4.68
	Aug 7	16	12	192	8	0.04	138	0.72	16	0.08	755	3.93
	Aug 10	20	12	240	20	0.08	197	0.82	12	0.05	1,095	4.56
	Aug 12	21	12	252	9	0.04	85	0.34	14	0.06	1,573	6.24
	Aug 14	23	12	276	7	0.03	72	0.26	9	0.03	1,819	6.59
	Aug 18	26	12	312	9	0.03	72	0.23	6	0.02	2,038	6.53
	Aug 21	20	12	240	0	0.00	27	0.11	0	0.00	1,862	7.76
	Aug 24	15	12	180	0	0.00	18	0.10	0	0.00	2,290	12.72
	Aug 26	23	12	276	3	0.01	23	0.08	0	0.00	1,629	5.90
	Aug 28	16	12	192	0	0.00	17	0.09	1	0.01	1,260	6.56
	Aug 31	15	12	180	1	0.01	13	0.07	4	0.02	1,727	9.59
	Sept 2	17	12	204	1	0.00	18	0.09	1	0.00	1,616	7.92
	Sept 4	14	12	168	4	0.02	19	0.11	2	0.01	1,044	6.21
	Sept 7	13	12	156	0	0.00	24	0.15	0	0.00	861	5.52
Total			348	7,896	3,675		27,161		14,155		21,246	
1999	Jul 2	28	12	336	672	2.00	2,026	6.03	2,324	6.92	0	0.00
	Jul 7	47	12	564	352	0.62	4,588	8.13	1,917	3.40	0	0.00
	Jul 9	42	12	504	248	0.49	3,566	7.08	1,620	3.21	0	0.00
	Jul 12	58	12	696	107	0.15	2,762	3.97	1,801	2.59	0	0.00
	Jul 14	48	12	576	178	0.31	2,969	5.15	1,127	1.96	0	0.00
	Jul 16	35	12	420	93	0.22	1,809	4.31	1,102	2.62	0	0.00
	Jul 19	14	12	168	33	0.20	888	5.29	270	1.61	0	0.00
	Jul 21	25	12	300	48	0.16	974	3.25	377	1.26	0	0.00
	Jul 23	26	12	312	52	0.17	1,314	4.21	517	1.66	1	0.00
	Jul 26	19	12	228	26	0.11	533	2.34	184	0.81	0	0.00
	Jul 28	6	12	72	7	0.10	338	4.69	81	1.13	3	0.04
	Jul 30	11	12	132	17	0.13	272	2.06	61	0.46	1	0.01
	Aug 2	10	12	120	15	0.13	222	1.85	45	0.38	13	0.11
	Aug 4	2	12	24	3	0.13	59	2.46	10	0.42	2	0.08
	Aug 6	9	12	108	4	0.04	148	1.37	47	0.44	23	0.21
	Aug 9	12	12	144	9	0.06	110	0.76	39	0.27	108	0.75
	Aug 11	8	12	96	6	0.06	62	0.65	14	0.15	127	1.32
	Aug 16	13	12	156	6	0.04	80	0.51	11	0.07	336	2.15
	Aug 18	15	12	180	6	0.03	101	0.56	11	0.06	455	2.53
	Aug 25	24	12	288	6	0.02	89	0.31	4	0.01	1,405	4.88
Total			240	5,424	1,888		22,910		11,562		2,474	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2000	Jun 26	16	12	192	1,247	6.49	1,984	10.33	1,174	6.11	0	0.00
	Jun 29	21	12	252	1,857	7.37	3,552	14.10	1,362	5.40	0	0.00
	Jul 03	28	12	336	475	1.41	4,712	14.02	1,222	3.64	0	0.00
	Jul 06	25	12	300	120	0.40	3,430	11.43	634	2.11	0	0.00
	Jul 08	26	12	312	393	1.26	4,655	14.92	1,330	4.26	0	0.00
	Jul 11	27	12	324	90	0.28	3,247	10.02	444	1.37	0	0.00
	Jul 13	28	12	336	65	0.19	1,954	5.82	483	1.44	0	0.00
	Jul 15	2	12	24	2	0.08	39	1.63	0	0.00	0	0.00
	Jul 17	19	12	228	41	0.18	1,777	7.79	201	0.88	0	0.00
	Jul 19	0	12	0	Commercial Opening, processor not able to buy							
	Jul 21	19	12	228	24	0.11	1,936	8.49	225	0.99	6	0.03
	Jul 24	19	12	228	36	0.16	2,138	9.38	133	0.58	17	0.07
	Jul 26	20	12	240	15	0.06	1,550	6.46	66	0.28	65	0.27
	Jul 28	20	12	240	14	0.06	1,743	7.26	41	0.17	142	0.59
	Jul 31	20	12	240	19	0.08	1,180	4.92	50	0.21	335	1.40
	Aug 02	0	12	0	Commercial Opening, processor not able to buy							
	Aug 05	18	12	216	4	0.02	479	2.22	29	0.13	593	2.75
	Aug 07	12	12	144	9	0.06	382	2.65	13	0.09	881	6.12
	Aug 10	22	12	264	9	0.03	529	2.00	12	0.05	2,138	8.10
	Aug 12	22	12	264	4	0.02	427	1.62	13	0.05	2,349	8.90
	Aug 14	29	12	348	2	0.01	409	1.18	7	0.02	3,205	9.21
	Aug 16	23	12	276	5	0.02	395	1.43	4	0.01	1,539	5.58
	Aug 18	19	12	228	3	0.01	229	1.00	3	0.01	1,309	5.74
	Aug 21	27	12	324	6	0.02	207	0.64	2	0.01	1,361	4.20
	Aug 24	22	12	264	2	0.01	298	1.13	2	0.01	1,591	6.03
Total			300	5,808	4,442		37,252		7,450		15,531	
2001	Jun 29	17	12	204	1,022	5.01	4,286	21.01	680	3.33	0	0.00
	Jul 3	0	12	0	Commercial Opening, processor not able to buy							
	Jul 6	26	12	312	147	0.47	6,790	21.76	925	2.96	0	0.00
	Jul 10	25	6	150	132	0.88	4,039	26.93	300	2.00	0	0.00
	Jul 13	26	9	234	60	0.26	5,014	21.43	702	3.00	0	0.00
	Jul 20	15	12	180	59	0.33	1,236	6.87	337	1.87	0	0.00
	Jul 23	18	12	216	36	0.17	1,635	7.57	341	1.58	4	0.02
	Aug 1	12	12	144	23	0.16	859	5.97	72	0.50	326	2.26
	Aug 6	14	12	168	10	0.06	518	3.08	18	0.11	497	2.96
	Aug 08	9	12	108	6	0.06	407	3.77	8	0.07	596	5.52
	Aug 10	14	12	168	7	0.04	377	2.24	8	0.05	671	3.99
	Aug 15	22	12	264	4	0.02	225	0.85	14	0.05	2,468	9.35
	Aug 18	18	12	216	3	0.01	144	0.67	3	0.01	2,637	12.21
	Aug 20	0	12	0	Commercial Opening, poor weather prevented fishing							
	Aug 22	15	12	180	7	0.04	68	0.38	1	0.01	1,085	6.03
	Aug 24	13	12	156	3	0.02	56	0.36	3	0.02	991	6.35
Total			183	2,700	1,519		25,654		3,412		9,275	
2002	Jun 27	19	12	228	584	2.56	836	3.67	853	3.74	0	0.00
	Jul 1	18	12	216	148	0.69	958	4.44	816	3.78	0	0.00
	Jul 5	15	12	180	103	0.57	1,373	7.63	978	5.43	0	0.00
	Jul 10	19	12	228	71	0.31	1,435	6.29	821	3.60	0	0.00
	Jul 12	19	12	228	57	0.25	891	3.91	289	1.27	0	0.00
	Aug 1	7	12	84	8	0.10	357	4.25	17	0.20	41	0.49
	Aug 7	7	12	84	3	0.04	135	1.61	13	0.15	451	5.37

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Aug 10	6	12	72	1	0.01	103	1.43	0	0.00	253	3.51
	Aug 15	5	12	60	1	0.02	75	1.25	5	0.08	578	9.63
	Aug 17	8	12	96	1	0.01	44	0.46	2	0.02	404	4.21
	Aug 20	6	12	72	2	0.03	49	0.68	4	0.06	518	7.19
	Aug 24	7	12	84	0	0.00	48	0.57	1	0.01	796	9.48
Total			144	1,632	979		6,304		3,799		3,041	
2003	Jun 24	0	12	0	Commercial Opening, processor not able to buy							
	Jun 26	13	12	156	389	2.49	2,726	17.47	342	2.19	0	0.00
	Jun 30	19	12	228	186	0.82	4,718	20.69	468	2.05	0	0.00
	Jul 2	10	12	120	64	0.53	2,002	16.68	344	2.87	0	0.00
	Jul 4	23	12	276	114	0.41	3,727	13.50	617	2.24	0	0.00
	Jul 7	27	12	324	123	0.38	4,082	12.60	432	1.33	0	0.00
	Jul 9	26	12	312	118	0.38	3,230	10.35	759	2.43	0	0.00
	Jul 11	28	12	336	176	0.52	2,652	7.89	1,209	3.60	2	0.01
	Jul 14	25	12	300	84	0.28	2,048	6.83	826	2.75	5	0.02
	Jul 16	15	12	180	47	0.26	1,127	6.26	391	2.17	3	0.02
	Jul 18	3	12	36	5	0.14	144	4.00	44	1.22	0	0.00
	Aug 1	15	12	180	41	0.23	898	4.99	73	0.41	546	3.03
	Aug 4	13	12	156	18	0.12	904	5.79	26	0.17	548	3.51
	Aug 6	12	12	144	8	0.06	321	2.23	19	0.13	490	3.40
	Aug 8	13	12	156	20	0.13	394	2.53	31	0.20	1,213	7.78
	Aug 11	0	12	0	Commercial Opening, processor not able to buy							
	Aug 13	16	12	192	8	0.04	176	0.92	4	0.02	2,182	11.36
	Aug 15	16	12	192	1	0.01	35	0.18	0	0.00	1,739	9.06
	Aug 18	0	12	0	Commercial Opening, processor not able to buy							
	Aug 20	16	12	192	9	0.05	149	0.78	5	0.03	3,534	18.41
	Aug 22	0	12	0	Commercial Opening, processor not able to buy							
	Aug 25	14	12	168	1	0.01	90	0.54	3	0.02	2,396	14.26
	Aug 28	0	12	0	Commercial Opening, processor not able to buy							
Total			252	3,648	1,412		29,423		5,593		12,658	
2004	Jun 24	19	12	228	791	3.47	1,873	8.21	788	3.46	0	0.00
	Jun 29	21	12	252	373	1.48	2,938	11.66	668	2.65	0	0.00
	Jul 1	19	12	228	310	1.36	3,512	15.40	1,060	4.65	0	0.00
	Jul 5	21	12	252	265	1.05	3,098	12.29	710	2.82	0	0.00
	Jul 7	21	12	252	206	0.82	2,133	8.46	522	2.07	0	0.00
	Jul 9	20	12	240	159	0.66	2,021	8.42	455	1.90	0	0.00
	Jul 12	20	12	240	112	0.47	1,395	5.81	1,016	4.23	0	0.00
	Jul 14	14	12	168	104	0.62	1,063	6.33	414	2.46	0	0.00
	Jul 16	10	12	120	78	0.65	347	2.89	161	1.34	0	0.00
	Aug 2	10	12	120	35	0.29	400	3.33	51	0.43	194	1.62
	Aug 4	12	12	144	39	0.27	305	2.12	48	0.33	311	2.16
	Aug 6	13	12	156	24	0.15	295	1.89	9	0.06	428	2.74
	Aug 9	14	12	168	12	0.07	167	0.99	14	0.08	804	4.79
	Aug 11	14	12	168	22	0.13	193	1.15	21	0.13	1,429	8.51
	Aug 13	0	12	0	Commercial Opening, processor not able to buy							
	Aug 16	19	12	228	8	0.04	255	1.12	10	0.04	2,752	12.07
	Aug 18	18	12	216	7	0.03	160	0.74	4	0.02	2,918	13.51
	Aug 20	18	12	216	8	0.04	162	0.75	11	0.05	3,240	15.00
	Aug 23	17	12	204	2	0.01	56	0.27	0	0.00	2,860	14.02
	Aug 25	18	12	216	7	0.03	81	0.38	3	0.01	4,623	21.40
	Aug 27	19	12	228	3	0.01	69	0.30	0	0.00	4,530	19.87
Total			252	4,044	2,565		20,523		5,965		24,089	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2005	Jun 21	16	12	192	584	3.04	1,196	6.23	237	1.23	0	0.00
	Jun 23	16	12	192	481	2.51	2,229	11.61	395	2.06	0	0.00
	Jun 28	21	12	252	332	1.32	3,756	14.90	790	3.13	0	0.00
	Jun 30	0	12	0	Commercial Opening, processor not able to buy							
	Jul 5	19	12	228	122	0.54	3,080	13.51	96	0.42	0	0.00
	Jul 7	19	12	228	76	0.33	2,805	12.30	61	0.27	0	0.00
	Jul 12	18	12	216	71	0.33	2,991	13.85	239	1.11	0	0.00
	Jul 14	19	12	228	82	0.36	3,059	13.42	232	1.02	0	0.00
	Jul 19	20	12	240	60	0.25	1,456	6.07	215	0.90	1	0.00
	Aug 1	16	12	192	34	0.18	580	3.02	84	0.44	54	0.28
	Aug 3	16	12	192	44	0.23	495	2.58	84	0.44	191	0.99
	Aug 5	14	12	168	27	0.16	462	2.75	28	0.17	248	1.48
	Aug 8	16	12	192	21	0.11	341	1.78	17	0.09	503	2.62
	Aug 10	13	12	156	16	0.10	188	1.21	15	0.10	712	4.56
	Aug 12	16	12	192	24	0.13	285	1.48	24	0.13	994	5.18
	Aug 15	17	12	204	12	0.06	225	1.10	5	0.02	791	3.88
	Aug 17	16	12	192	11	0.06	253	1.32	8	0.04	1,469	7.65
	Aug 19	18	12	216	11	0.05	231	1.07	22	0.10	2,461	11.39
	Aug 22	15	12	180	10	0.06	104	0.58	5	0.03	1,852	10.29
	Aug 26	16	12	192	14	0.07	143	0.74	9	0.05	2,015	10.49
	Aug 30	11	12	132	3	0.02	54	0.41	2	0.02	444	3.36
Total			252	3,984	2,035		23,933		2,568		11,735	
2006	Jun 22	14	12	168	767	4.57	959	5.71	2,169	12.91	0	0.00
	Jun 27	16	12	192	477	2.48	2,509	13.07	2,282	11.89	0	0.00
	Jun 30	16	12	192	734	3.82	3,477	18.11	2,401	12.51	0	0.00
	Jul 3	17	12	204	154	0.75	2,864	14.04	244	1.20	0	0.00
	Jul 5	17	12	204	105	0.51	2,611	12.80	389	1.91	0	0.00
	Jul 7	16	12	192	124	0.65	2,773	14.44	487	2.54	0	0.00
	Jul 10	17	12	204	125	0.61	2,915	14.29	403	1.98	0	0.00
	Jul 17	12	12	144	34	0.24	1,596	11.08	266	1.85	3	0.02
	Jul 19	17	12	204	99	0.49	2,750	13.48	828	4.06	5	0.02
	Jul 21	18	12	216	86	0.40	2,494	11.55	894	4.14	7	0.03
	Jul 24	14	12	168	49	0.29	1,402	8.35	457	2.72	21	0.13
	Jul 26	10	12	120	24	0.20	605	5.04	253	2.11	13	0.11
	Jul 31	8	12	96	17	0.18	263	2.74	81	0.84	119	1.24
	Aug 2	6	12	72	13	0.18	182	2.53	53	0.74	131	1.82
	Aug 4	8	12	96	10	0.10	373	3.89	95	0.99	197	2.05
	Aug 7	11	12	132	10	0.08	289	2.19	60	0.45	480	3.64
	Aug 9	11	12	132	5	0.04	193	1.46	51	0.39	582	4.41
	Aug 11	10	12	120	8	0.07	225	1.88	40	0.33	1,321	11.01
	Aug 14	14	12	168	6	0.04	124	0.74	28	0.17	1,508	8.98
	Aug 16	14	12	168	8	0.05	171	1.02	28	0.17	1,280	7.62
	Aug 18	10	12	120	3	0.03	93	0.78	13	0.11	858	7.15
	Aug 21	16	12	192	6	0.03	145	0.76	5	0.03	817	4.26
	Aug 23	15	12	180	11	0.06	217	1.21	10	0.06	1,526	8.48
	Aug 25	15	12	180	4	0.02	197	1.09	6	0.03	985	5.47
	Aug 28	15	12	180	7	0.04	202	1.12	11	0.06	1,001	5.56
	Aug 30	12	12	144	3	0.02	136	0.94	7	0.05	917	6.37
	Sep 1	11	12	132	3	0.02	92	0.70	7	0.05	665	5.04
	Total		324	4,320	2,892		29,857		11,568		12,436	

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2007	Jun 19	13	12	156	324	2.08	426	2.73	322	2.06	0	0.00
	Jun 21	16	12	192	362	1.89	936	4.88	480	2.50	0	0.00
	Jun 25	21	12	252	647	2.57	2,818	11.18	674	2.67	0	0.00
	Jun 27	20	12	240	506	2.11	2,888	12.03	944	3.93	0	0.00
	Jun 29	20	12	240	312	1.30	2,224	9.27	201	0.84	0	0.00
	Jul 2	18	12	216	149	0.69	2,530	11.71	116	0.54	1	0.00
	Jul 4	16	12	192	63	0.33	1,940	10.10	355	1.85	0	0.00
	Jul 6	19	12	228	112	0.49	2,341	10.27	384	1.68	0	0.00
	Jul 8	20	12	240	95	0.40	3,012	12.55	387	1.61	0	0.00
	Jul 10	18	12	216	108	0.50	2,895	13.40	385	1.78	1	0.00
	Jul 12	19	12	228	59	0.26	2,911	12.77	327	1.43	2	0.01
	Jul 14	18	12	216	102	0.47	3,039	14.07	262	1.21	5	0.02
	Jul 16	18	12	216	62	0.29	2,359	10.92	470	2.18	7	0.03
	Jul 18	18	12	216	33	0.15	2,070	9.58	381	1.76	10	0.05
	Jul 20	16	12	192	46	0.24	1,685	8.78	599	3.12	25	0.13
	Jul 22	0	12	0	Commercial Opening, Processor not able to buy							
	Jul 24	16	12	192	44	0.23	1,704	8.88	443	2.31	133	0.69
	Jul 26	18	12	216	22	0.10	1,874	8.68	448	2.07	217	1.00
	Jul 31	16	12	192	19	0.10	806	4.20	222	1.16	419	2.18
	Aug 2	13	12	156	8	0.05	340	2.18	98	0.63	296	1.90
	Aug 4	0	12	0	Commercial Opening, Processor not able to buy							
	Aug 6	12	12	144	9	0.06	371	2.58	95	0.66	852	5.92
	Aug 8	15	12	180	21	0.12	586	3.26	78	0.43	1,129	6.27
	Aug 10	16	12	192	6	0.03	686	3.57	40	0.21	1,686	8.78
	Aug 13	15	12	180	3	0.02	401	2.23	24	0.13	1,161	6.45
	Aug 15	0	12	0	Commercial Opening, Processor not able to buy							
	Aug 17	15	12	180	2	0.01	334	1.86	21	0.12	1,269	7.05
	Aug 20	14	12	168	4	0.02	506	3.01	16	0.10	1,246	7.42
	Aug 22	15	12	180	3	0.02	438	2.43	14	0.08	1,221	6.78
	Aug 24	14	12	168	1	0.01	509	3.03	9	0.05	1,643	9.78
	Aug 27	15	12	180	3	0.02	523	2.91	21	0.12	1,102	6.12
	Aug 29	12	12	144	1	0.01	354	2.46	23	0.16	797	5.53
	Aug 31	12	12	144	0	0.00	260	1.81	14	0.10	475	3.30
Total			396	5,856	3,126		43,766		7,853		13,697	
2008	Jun 19	18	12	216	170	0.79	873	4.04	399	1.85	0	0.00
	Jun 24	18	12	216	310	1.44	1,368	6.33	1,337	6.19	0	0.00
	Jun 26	19	12	228	290	1.27	2,533	11.11	1,762	7.73	0	0.00
	Jul 1	20	12	240	115	0.48	2,490	10.38	1,716	7.15	0	0.00
	Jul 5	20	12	240	52	0.22	2,314	9.64	101	0.42	0	0.00
	Jul 8	19	12	228	67	0.29	2,363	10.36	278	1.22	0	0.00
	Jul 10	16	12	192	39	0.20	1,809	9.42	301	1.57	0	0.00
	Jul 12	0	12	0	Commercial Opening, Processor not able to buy							
	Jul 14	21	12	252	60	0.24	3,070	12.18	1,277	5.07	0	0.00
	Jul 16	16	12	192	39	0.20	1,609	8.38	374	1.95	0	0.00
	Jul 18	0	12	0	Commercial Opening, Processor not able to buy							
	Jul 21	19	12	228	30	0.13	1,971	8.64	785	3.44	27	0.12
	Jul 23	18	12	216	22	0.10	1,610	7.45	625	2.89	57	0.26
	Jul 25	15	12	180	10	0.06	870	4.83	431	2.39	69	0.38
	Jul 28	16	12	192	15	0.08	872	4.54	352	1.83	235	1.22
	Jul 30	12	12	144	8	0.06	724	5.03	247	1.72	281	1.95
	Aug 1	14	12	168	12	0.07	570	3.39	150	0.89	386	2.30

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Aug 4	16	12	192	6	0.03	513	2.67	68	0.35	392	2.04
	Aug 6	13	12	156	5	0.03	242	1.55	36	0.23	452	2.90
	Aug 8	12	12	144	3	0.02	311	2.16	27	0.19	426	2.96
	Aug 10	13	12	156	7	0.04	307	1.97	21	0.13	1,050	6.73
	Aug 12	14	12	168	3	0.02	159	0.95	29	0.17	1,582	9.42
	Aug 14	16	12	192	7	0.04	144	0.75	14	0.07	2,009	10.46
	Aug 16	15	12	180	6	0.03	108	0.60	12	0.07	3,203	17.79
	Aug 18	17	12	204	1	0.00	134	0.66	27	0.13	3,102	15.21
	Aug 20	16	12	192	0	0.00	68	0.35	6	0.03	2,271	11.83
	Aug 22	15	12	180	3	0.02	66	0.37	6	0.03	2,027	11.26
	Aug 25	13	12	156	0	0.00	55	0.35	13	0.08	1,161	7.44
	Aug 27	12	12	144	0	0.00	27	0.19	7	0.05	2,648	18.39
	Aug 29	14	12	168	1	0.01	57	0.34	7	0.04	1,169	6.96
Total			360	5364	1,281		27,237		10,408		22,547	
2009	Jun 22	20	12	240	511	2.13	736	3.07	658	2.74	0	0.00
	Jun 25	20	12	240	361	1.50	2,243	9.35	1,374	5.73	0	0.00
	Jun 30	22	12	264	221	0.84	3,207	12.15	1,996	7.56	0	0.00
	Jul 6	26	12	312	110	0.35	3,578	11.47	2,466	7.90	0	0.00
	Jul 8	24	12	288	53	0.18	3,545	12.31	1,680	5.83	0	0.00
	Jul 10	31	12	372	63	0.17	3,001	8.07	1,506	4.05	0	0.00
	Jul 13	24	12	288	21	0.07	1,719	5.97	1,477	5.13	1	0.00
	Jul 15	23	12	276	30	0.11	2195	7.95	1654	5.99	0	0.00
	Jul 16	17	6	102	10	0.10	814	7.98	600	5.88	0	0.00
	Jul 17	22	12	264	31	0.12	1,413	5.35	1,313	4.97	0	0.00
	Jul 20	16	12	192	20	0.10	815	4.24	606	3.16	9	0.05
	Jul 22	13	12	156	17	0.11	1,368	8.77	432	2.77	15	0.10
	Jul 24	14	12	168	6	0.04	1,120	6.67	309	1.84	13	0.08
	Jul 25	14	12	168	10	0.06	1,095	6.52	304	1.81	25	0.15
	Jul 27	12	12	144	7	0.05	583	4.05	125	0.87	28	0.19
	Jul 29	6	12	72	1	0.01	79	1.10	24	0.33	15	0.21
	Jul 31	10	12	120	4	0.03	456	3.80	119	0.99	153	1.28
	Aug 3	11	12	132	4	0.03	481	3.64	86	0.65	151	1.14
	Aug 5	15	12	180	5	0.03	614	3.41	83	0.46	376	2.09
	Aug 7	16	12	192	9	0.05	624	3.25	61	0.32	314	1.64
	Aug 10	15	12	180	0	0.00	693	3.85	43	0.24	427	2.37
	Aug 12	16	12	192	5	0.03	536	2.79	22	0.11	796	4.15
	Aug 14	19	12	228	1	0.00	746	3.27	25	0.11	1,229	5.39
	Aug 19	17	12	204	5	0.02	440	2.16	12	0.06	1,991	9.76
	Aug 21	20	12	240	2	0.01	303	1.26	3	0.01	1,840	7.67
	Aug 24	18	12	216	2	0.01	140	0.65	7	0.03	1,023	4.74
Total			306	5430	1,509		32,544		16,985		8,406	
2010	Jun 28	24	12	288	279	0.97	2,615	9.08	2,054	7.13	0	0.00
	Jul 1	30	12	360	506	1.41	5,060	14.06	3,516	9.77	0	0.00
	Jul 5	37	12	444	269	0.61	4,771	10.75	2,143	4.83	0	0.00
	Jul 7	33	12	396	183	0.46	5,913	14.93	3,452	8.72	0	0.00
	Jul 9	30	12	360	100	0.28	3,616	10.04	4,807	13.35	0	0.00
	Jul 12	26	12	312	103	0.33	4,387	14.06	2,945	9.44	0	0.00
	Jul 13	23	8	184	38	0.21	2,228	12.11	1,141	6.20	0	0.00
	Jul 14	26	12	312	68	0.22	2532	8.12	1867	5.98	0	0.00
	Jul 16	27	12	324	37	0.11	2,138	6.60	1,387	4.28	0	0.00

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Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
	Jul 17	14	12	168	13	0.08	1,052	6.26	700	4.17	0	0.00
	Jul 19	19	12	228	59	0.26	1264	5.54	909	3.99	0	0.00
	Jul 21	18	12	216	24	0.11	873	4.04	763	3.53	16	0.07
	Jul 23	8	12	96	16	0.17	343	3.57	350	3.65	10	0.10
	Jul 26	14	12	168	6	0.04	850	5.06	365	2.17	83	0.49
	Jul 28	13	12	156	12	0.08	642	4.12	167	1.07	51	0.33
	Jul 30	15	12	180	15	0.08	719	3.99	114	0.63	108	0.60
	Aug 2	10	12	120	4	0.03	546	4.55	107	0.89	284	2.37
	Aug 6	10	12	120	4	0.03	403	3.36	43	0.36	497	4.14
	Aug 9	10	12	120	4	0.03	296	2.47	25	0.21	460	3.83
	Aug 13	19	12	228	8	0.04	496	2.18	36	0.16	1,290	5.66
	Aug 16	12	12	144	2	0.01	111	0.77	9	0.06	723	5.02
	Aug 18	14	12	168	2	0.01	219	1.30	14	0.08	1,378	8.20
Total			260	5,092	1,752		41,074		26,914		4,900	

Year	Date	Permits Fished	Hours Fished	Permit Hours	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
2011	Jun 27	28	12	336	1,166	3.47	2,041	6.07	1,491	4.44	0	0.00
	Jun 30	32	12	384	268	0.70	3,468	9.03	2,048	5.33	0	0.00
	Jul 4	34	12	408	176	0.43	2,852	6.99	1,868	4.58	130	0.32
	Jul 6	24	12	288	57	0.20	1,198	4.16	939	3.26	0	0.00
	Jul 7	30	12	360	126	0.35	2,083	5.79	1,650	4.58	0	0.00
	Jul 8	11	12	132	20	0.15	413	3.13	363	2.75	0	0.00
	Jul 9	23	12	276	87	0.32	1,429	5.18	1,375	4.98	0	0.00
	Jul 11	24	12	288	86	0.30	1,257	4.36	1,491	5.18	0	0.00
	Jul 13	21	12	252	67	0.27	2,034	8.07	1,516	6.02	0	0.00
	Jul 29	14	12	168	11	0.07	1,804	10.74	204	1.21	202	1.20
	Aug 1	16	12	192	1	0.01	1,488	7.75	139	0.72	406	2.11
	Aug 5	14	12	168	7	0.04	954	5.68	44	0.26	389	2.32
	Aug 8	14	12	168	2	0.01	529	3.15	24	0.14	713	4.24
	Aug 10	20	12	240	6	0.03	854	3.56	21	0.09	1,666	6.94
	Aug 12	17	12	204	4	0.02	722	3.54	10	0.05	2,070	10.15
	Aug 15	16	12	192	4	0.02	510	2.66	5	0.03	1,977	10.30
	Aug 17	17	12	204	0	0.00	423	2.07	0	0.00	1,733	8.50
	Aug 19	15	12	180	2	0.01	166	0.92	1	0.01	1,278	7.10
	Aug 22	14	12	168	1	0.01	123	0.73	1	0.01	1,687	10.04
	Aug 24	10	12	120	0	0.00	115	0.96	0	0.00	1,224	10.20
	Aug 26	16	12	192	1	0.01	110	0.57	1	0.01	1,883	9.81
Total			252	4,920	2,092		24,573		13,191		15,358	
10 Yr Avg (01-10)			273	4,207	1,907		28,032		9,507		12,278	

Appendix D3.–Commercial salmon harvests, District W-5 Goodnews Bay, Kuskokwim Bay, 1968–2011.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1968	[a]	[a]	5,458	[a]	[a]	5,458
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,794	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,340	16,373	8,942	59,314
1975	2,156	9,098	17,889	419	5,904	35,466
1976	4,417	5,575	9,852	8,453	10,354	38,651
1977	3,336	3,723	13,335	29	6,531	26,954
1978	5,218	5,412	13,764	9,103	8,590	42,087
1979	3,204	19,581	42,098	201	9,298	74,382
1980	2,331	28,632	43,256	7,832	11,748	93,799
1981	7,190	40,273	19,749	11	13,642	80,865
1982	9,476	38,877	46,683	4,673	13,829	113,538
1983	14,117	11,716	19,660	0	6,766	52,259
1984	8,612	15,474	71,176	4,711	14,340	114,313
1985	5,793	6,698	16,498	8	4,784	33,781
1986	2,723	25,112	19,378	4,439	10,356	62,008
1987	3,357	27,758	29,057	54	20,381	80,607
1988	4,964	36,368	30,832	5,509	33,059	110,732
1989	2,966	19,299	31,849	82	13,622	67,818
1990	3,303	35,823	7,804	629	13,194	60,753
1991	912	39,838	13,312	29	15,892	69,983
1992	3,528	39,194	19,875	14,310	18,520	95,427
1993	2,117	59,293	20,014	0	10,657	92,081
1994	2,570	69,490	47,499	18,017	28,477	166,053
1995	2,922	37,351	17,875	39	19,832	78,019
1996	1,375	30,717	43,836	22	11,093	87,043
1997	2,039	31,451	2,983	0	11,729	48,202
1998	3,675	27,161	21,246	411	14,155	66,648
1999	1,888	22,910	2,474	0	11,562	38,834
2000	4,442	37,252	15,531	7	7,450	64,682
2001	1,519	25,654	9,275	0	3,412	39,860
2002	979	6,304	3,041	0	3,799	14,123
2003	1,412	29,423	12,658	0	5,593	49,086
2004	2,565	20,523	24,089	0	5,965	53,142
2005	2,035	23,933	11,735	0	2,568	40,271
2006	2,892	29,857	12,436	0	11,568	56,753
2007	3,126	43,766	13,697	6	7,853	68,448
2008	1,281	27,237	22,547	0	10,408	61,473
2009	1,509	32,544	8,406	0	16,985	59,444
2010	1,752	41,074	4,900	0	26,914	74,640
2011	2,092	24,573	15,358	0	13,191	55,214
10 Yr Avg	1,907	28,032	12,278	1	9,507	51,724
Hist Avg	3,486	24,535	18,913	2,577	11,537	60,068

[a] No harvest information available.

Appendix D4.–Commercial salmon fishing exvessel value, District W-5 Goodnews Bay, Kuskokwim Bay, 1990–2011.

Year	Chinook	Sockeye	Coho	Pink[a]	Chum	Total
1990	$32,135	$263,598	$38,910	$254	$25,767	$360,664
1991	$8,370	$187,622	$47,519	$14	$31,394	$274,919
1992	$30,688	$257,457	$75,278	$2,913	$39,111	$405,447
1993	$21,351	$296,437	$95,043	$0	$28,304	$441,135
1994	$21,732	$309,577	$271,687	$5,442	$41,309	$649,747
1995	$31,339	$175,552	$58,061	$19	$21,427	$286,398
1996	$5,952	$87,427	$120,191	$4	$9,015	$222,589
1997	$10,867	$93,146	$9,497	$0	$9,358	$122,868
1998	$13,685	$100,171	$59,102	$174	$11,133	$184,265
1999	$9,020	$78,800	$7,515	$0	$8,327	$103,662
2000	$25,614	$146,708	$34,689	$2	$6,001	$213,014
2001	$10,496	$68,678	$17,089	$0	$2,586	$98,849
2002	$343	$15,846	$5,634	$0	$2,979	$24,802
2003	$6,461	$95,818	$28,945	$0	$3,883	$135,107
2004	$10,857	$49,741	$70,404	$0	$4,244	$135,246
2005	$16,696	$91,135	$25,010	$0	$1,454	$134,295
2006	$21,314	$87,996	$27,587	$0	$4,368	$141,265
2007	$23,951	$156,802	$38,796	$0	$2,781	$222,330
2008	$13,181	$104,296	$76,683	$0	$3,910	$198,070
2009	$13,333	$134,244	$25,456	$0	$18,998	$192,031
2010	$44,910	$334,366	$44,706	$0	$46,679	$470,661
2011	$19,224	$141,347	$106,471	$0	$78,980	$346,022
10 Yr Avg (01-10)	$16,154	$113,892	$36,031	$0	$9,188	$175,266
Hist Avg (90-10)	$17,728	$149,306	$56,086	$420	$15,382	$238,922

Appendix D5.–Chinook salmon total utilization, District W-5 Goodnews Bay, Kuskokwim Bay, 1969–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1969	3,978						3,978	
1970	7,163						7,163	
1971	477						477	
1972	264						264	
1973	3,543						3,543	
1974	3,302						3,302	
1975	2,156						2,156	
1976	4,417						4,417	
1977	3,336		574[c]				3,910	
1978	5,218						5,218	
1979	3,204	3,385	338				3,542	3,443
1980	2,331	3,308	690				3,021	3,399
1981	7,190	2,825	1,409				8,599	2,985
1982	9,476	3,496	1,236				10,712	3,797
1983	14,117	4,417	1,066		31		15,214	4,842
1984	8,612	5,475	629				9,241	6,009
1985	5,793	6,006	426		323		6,542	6,603
1986	2,723	6,369	555				3,278	7,042
1987	3,357	6,200	816	769			4,173	6,928
1988	4,964	6,202	310[d]	796			5,274	6,954
1989	2,966	6,177	468	748	68		3,502	6,960
1990	3,303	6,153	560	761			3,863	6,956
1991	912	6,250	872	748	26		1,810	7,040
1992	3,528	5,622	615	694	23		4,166	6,361
1993	2,117	5,028	665	632	81	94	2,863	5,706
1994	2,570	3,828	746	592	163	104	3,479	4,471
1995	2,922	3,223	813	603	41	114	3,776	3,895
1996	1,375	2,936	433	642	157	67	1,965	3,618
1997	2,039	2,801	455	630	86	80	2,580	3,487
1998	3,675	2,670	792	594	431	81	4,898	3,328
1999	1,888	2,541	828	642	223	120	2,939	3,290
2000	4,442	2,433	663	678	243	137	5,348	3,234
2001	1,519	2,547	920	688	147	147	2,586	3,382
2002	979	2,608	877	693	224	160	2,080	3,460
2003	1,412	2,353	852	719	10	180	2,274	3,251
2004	2,565	2,282	985	738	100	173	3,650	3,193
2005	2,035	2,282	943	762	0	166	2,978	3,210
2006	2,892	2,193	758	775	79	162	3,729	3,130
2007	3,126	2,345	713[c]	807	177	154	4,016	3,306
2008	1,281	2,453	1,054	833	78	163	2,413	3,450
2009	1,509	2,214	646	859	31	128	2,186	3,201
2010	1,752	2,176	494	841	0	109	2,246	3,126
2011	2,092	1,907	848[e]	824	[f]			
10-yr Avg	1,907	[f]	824[f]		109[g]		3,126[g]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 5 commercial harvest.

[b] Subsistence harvest by the community of Goodnews and Platinum.

[c] Subsistence harvest in Goodnews Bay only.

[d] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[e] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[f] 10 year average (2001–2010).

[g] 10 year average (2000–2009).

Appendix D6.–Sockeye salmon total utilization, District W-5 Goodnews Bay, Kuskokwim Bay, 1969–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1969	6,256						6,256	
1970	7,144						7,144	
1971	330						330	
1972	924						924	
1973	2,072						2,072	
1974	9,357						9,357	
1975	9,098						9,098	
1976	5,575						5,575	
1977	3,723						3,723	
1978	5,412						5,412	
1979	19,581	4,989					19,581	4,989
1980	28,632	6,322					28,632	6,322
1981	40,273	8,470					40,273	8,470
1982	38,877	12,465					38,877	12,465
1983	11,716	16,260			14		11,730	16,260
1984	15,474	17,224					15,474	17,226
1985	6,698	17,836	704		75		7,477	17,838
1986	25,112	17,596	943		122		26,177	17,675
1987	27,758	19,550	955		266		28,979	19,736
1988	36,368	21,953	1,065[d]				37,433	22,261
1989	19,299	25,049	861		146		20,306	25,463
1990	35,823	25,021	1,145				36,968	25,536
1991	39,838	25,740	1,195		63		41,096	26,369
1992	39,194	25,696	1,531		8		40,733	26,452
1993	59,293	25,728	781		53	99	60,127	26,637
1994	69,490	30,486	736		70	105	70,296	31,477
1995	37,351	35,887	234	992	34	100	37,619	36,959
1996	30,717	38,953	443	945	87	95	31,247	39,973
1997	31,451	39,513	623	895	61	91	32,135	40,480
1998	27,161	39,882	578	861	502	65	28,241	40,796
1999	22,910	38,962	821	813	561	114	24,292	39,877
2000	37,252	39,323	1,139	809	82	160	38,473	40,275
2001	25,654	39,466	991	808	108	152	26,753	40,426
2002	6,304	38,047	1,112	788	149	157	7,565	38,992
2003	29,423	34,758	769	746	42	171	30,234	35,675
2004	20,523	31,771	1,056	745	0	170	21,579	32,685
2005	23,933	26,875	1,303	777	0	163	25,236	27,814
2006	29,857	25,533	1,058	883	98	159	31,013	26,575
2007	43,766	25,447	998[c]	945	84	160	44,848	26,552
2008	27,236	26,678	2,381	982	104	163	29,721	27,823
2009	32,544	26,686	1,094	1,163	111	123	33,749	27,971
2010	41,074	27,649	1,268	1,190	15	78	42,357	28,917
2011	24,573	28,031	1,478[e]	1,203		[f]		
10 Yr Avg	28,031	[g]	1,203[g]		78	[h]	28,917[h]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 5 commercial harvest.

[b] Subsistence harvest by the community of Goodnews and Platinum.

[c] Subsistence harvest in Goodnews Bay only.

[d] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[e] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[f] 10 year average (2001–2010).

[g] 10 year average (2000–2009).

Appendix D7.–Chum salmon total utilization, District W-5 Goodnews Bay, Kuskokwim Bay, 1969-2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1969	5,006						5,006	
1970	12,346						12,346	
1971	301						301	
1972	1,331						1,331	
1973	15,781						15,781	
1974	8,942						8,942	
1975	5,904						5,904	
1976	10,354						10,354	
1977	6,531						6,531	
1978	8,590						8,590	
1979	9,298	7,509					9,298	7,509
1980	11,748	7,938					11,748	7,938
1981	13,642	7,878					13,642	7,878
1982	13,829	9,212					13,829	9,212
1983	6,766	10,462			10		6,776	10,462
1984	14,340	9,560					14,340	9,561
1985	4,784	10,100	348		124		5,256	10,101
1986	10,356	9,988	191				10,547	10,036
1987	20,381	9,988	578				20,959	10,056
1988	33,059	11,373	448[d]				33,507	11,499
1989	13,622	13,820	784		0		14,406	13,990
1990	13,194	14,253	349				13,543	14,501
1991	15,892	14,397	140		189		16,221	14,681
1992	18,520	14,622	1,448		0		19,968	14,938
1993	10,657	15,091	177		156	65	10,990	15,552
1994	28,477	15,481	457		15	94	28,949	15,974
1995	19,832	16,894	143	492	0	81	19,975	17,435
1996	11,093	18,399	223	472	0	60	11,316	18,907
1997	11,729	18,473	135	475	24	51	11,888	18,983
1998	14,155	17,608	306	430	50	48	14,511	18,076
1999	11,562	15,717	265	416	47	48	11,874	16,177
2000	7,450	15,511	333	364	12	53	7,795	15,923
2001	3,412	14,937	247	363	21	49	3,680	15,349
2002	3,799	13,689	444	373	99	33	4,342	14,095
2003	5,593	12,217	219	273	14	42	5,826	12,532
2004	5,965	11,710	282	277	0	28	6,247	12,016
2005	2,568	9,459	213	260	0	27	2,781	9,745
2006	11,568	7,733	663	267	0	27	12,231	8,026
2007	7,853	7,780	335[c]	311	0	27	8,188	8,117
2008	10,408	7,393	749	331	26	24	11,183	7,748
2009	16,985	7,018	169	375	22	22	17,176	7,415
2010	26,914	7,560	361	365	0	19	27,275	7,945
2011	13,191	9,507	409[e]		[f]			
10-yr Avg	9,507[g]		368[g]		19[h]		8,117[h]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 5 commercial harvest.

[b] Subsistence harvest by the community of Goodnews and Platinum.

[c] Subsistence harvest in Goodnews Bay only.

[d] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[e] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[f] 10 year average (2001–2010).

[g] 10 year average (2000–2009).

Appendix D8.–Coho salmon total utilization, District W-5 Goodnews Bay, Kuskokwim Bay, 1968–2011.

Year	Commercial Harvest[a]		Subsistence Harvest[b]		Sport Fish		Total	10-Year
	Annual	10-yr Avg	Annual	10-yr Avg	Annual	10-yr Avg	Utilization	Average
1968	5,458						5,458	
1969	11,631						11,631	
1970	6,794						6,794	
1971	1,771						1,771	
1972	925						925	
1973	5,017						5,017	
1974	21,340						21,340	
1975	17,889						17,889	
1976	9,852						9,852	
1977	13,335						13,335	
1978	13,764	9,401					13,764	9,401
1979	42,098	10,232					42,098	10,232
1980	43,256	13,279					43,256	13,279
1981	19,749	16,925					19,749	16,925
1982	46,683	18,723					46,683	18,723
1983	19,660	23,298			168		19,828	23,298
1984	71,176	24,763					71,176	24,779
1985	16,498	29,746	221		386		17,105	29,763
1986	19,378	29,607	8[c]				19,386	29,685
1987	29,057	30,560	43[c]				29,100	30,638
1988	30,832	32,132	1,162[e]				31,994	32,215
1989	31,849	33,839	907		224		32,980	34,038
1990	7,804	32,814	1,725				9,529	33,126
1991	13,312	29,269	1,740		297		15,349	29,753
1992	19,875	28,625	1,961		138		21,974	29,313
1993	20,014	25,944	1,145		189	243	21,348	26,842
1994	47,499	25,980	515		170	247	48,184	26,994
1995	17,875	23,612	279	943	114	234	18,268	24,695
1996	43,836	23,750	371	949	466	189	44,673	24,811
1997	2,983	26,195	403	985	855	228	4,241	27,340
1998	21,246	23,588	390	1,021	574	307	22,210	24,854
1999	2,474	22,629	568	944	789	336	3,831	23,876
2000	15,531	19,692	480	910	795	399	16,806	20,961
2001	9,275	20,465	666	785	822	439	10,763	21,688
2002	3,041	20,061	294	678	429	491	3,764	21,230
2003	12,658	18,377	1,372	511	42	520	14,072	19,409
2004	24,089	17,642	1,808	534	622	506	26,519	18,681
2005	11,735	15,301	857	663	1,046	551	13,638	16,515
2006	12,436	14,687	721	721	553	644	13,710	16,052
2007	13,697	11,547	599[d]	756	211	653	14,507	12,955
2008	22,547	12,618	1,075	775	220	588	23,842	13,982
2009	8,406	12,748	349	844	284	553	9,039	14,145
2010	4,900	13,342	516	822	597	502	6,013	14,666
2011	15,358	12,278	425[f]			[g]		
10-yr	12,278[h]		826[h]		502[i]		14,666[i]	

Note: In 2012, ADF&G Division of Commercial Fisheries reconstructed the subsistence harvest from 1990 to 2009 using the current methodology (Hamazaki 2011).

[a] District 5 commercial harvest.

[b] Subsistence harvest by the community of Goodnews and Platinum.

[c] Subsistence harvest in Goodnews Bay only.

[d] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[e] Numbers reported here are preliminary subsistence harvest estimates generated by the Division of Commercial Fisheries.

[f] 10 year average (2001–2010).

[g] 10 year average (2000–2009).

Appendix D9.–Salmon spawning escapement, Middle Fork Goodnews River, Kuskokwim Bay drainage, 1981–2011.

Year	Operating Period[a]	Chinook	Sockeye	Chum	Pink[b]	Coho
Middle Fork Goodnews River						
BEG:		1,500-2,900	18,000-40,000			
SEG:				>12,000		>12,000
Counting Tower						
1981	06/13 to 08/15	3,688	49,108	21,827	1,327	[c]
1982	06/23 to 08/03	1,395	56,255	6,767	13,855	[c]
1983	06/11 to 07/28	6,027	25,816	15,548	102	[c]
1984	06/15 to 07/31	3,260	32,053	19,003	13,744	[c]
1985	06/27 to 07/31	2,831	24,131	10,367	144	[c]
1986	06/16 to 07/24	2,080	51,069	14,764	8,134	[c]
1987	06/22 to 07/30	2,272	28,871	17,517	71	[c]
1988	06/23 to 07/30	2,712	15,799	20,799	6,781	[c]
1989	06/29 to 07/31	1,915	21,186	10,380	246	[c]
1990	06/19 to 07/24	3,636	31,679	6,410	3,378	[c]
Weir						
1991	06/29 to 08/24	1,952	47,397[d]	31,644	1,694	[c]
1992	06/29 to 08/25	1,905[d]	27,268	22,023	22,155	[c]
1993	06/22 to 08/18	2,349	26,452[e]	14,952	318	[c]
1994	06/23 to 08/08	3,856	50,801	34,849[d]	38,710	[c]
1995	06/19 to 08/28	4,836	39,009	33,699	322	[c]
1996	06/19 to 08/23	2,931[d]	58,290	40,450[d]	20,105	[c]
1997	06/11 to 09/17	2,937	35,530	17,369	970	13,413
1998	07/04 to 09/13	4,584	49,513[d]	28,832	10,376	36,596
1999	06/26 to 09/26	3,221	48,205	19,513	914	11,545
2000	07/02 to 09/22	3,295[e]	32,341[e]	13,791[e]	2,529	13,907[e]
2001	06/26 to 09/30	5,391[e]	21,024[e]	26,829[e]	1,328	19,626[e]
2002	06/22 to 09/18	3,085	22,101	30,300	3,034	27,364
2003	06/18 to 09/18	2,389	44,387	21,637	1,881	52,810
2004	06/21 to 09/20	4,388	55,926	31,616	21,633	47,916
2005	06/26 to 09/20	4,633	113,809	26,690	5,926	15,683
2006	06/26 to 09/18	4,559	126,772	54,699	18,432	15,969
2007	06/25 to 09/19	3,852	72,282	48,285	4,919	20,975[d]
2008	07/02 to 09/16	2,158	51,763[d]	44,310[d]	9,807	36,663
2009	06/28 to 09/22	1,630	25,465	19,715	767	19,992
2010	06/25 to 09/18	2,244	35,762	26,687	3,444	23,898[d]
2011	06/24 to 09/18	1,861	17,946	19,974	1,394	23,826

[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 passage is not estimated because they are small enough to pass between weir pickets.

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

[d] Field operations were incomplete; more than 20 percent of the total annual escapement is based on daily passage estimates.

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

Appendix D10.–Salmon spawning aerial survey index estimates, Goodnews rivers and lakes, Kuskokwim Bay drainage, 1980–2011.

				Middle Fork Goodnews River and Lakes		
Year	Chinook	Sockeye	Chum	Chinook	Sockeye	Chum
1980	1,228	75,639	1,975	1,164	18,926	3,782
1981	[a]	[a]	[a]	[a]	[a]	[a]
1982	1,990	19,160	9,700	1,546	2,327	6,300
1983	2,600	9,650	[a]	2,500	5,900	[a]
1984	3,235	9,240	17,250	2,020	12,897	9,172
1985	3,535	2,843	4,415	2,050	5,470	3,593
1986	1,068	8,960	11,850	1,249	16,990	7,645
1987	2,244	19,786	12,148	2,222	24,505	9,789
1988	[a]	[a]	[a]	[a]	[a]	[a]
1989	[a]	[a]	[a]	[a]	[a]	[a]
1990	658	27,689	[a]	[a]	[a]	[a]
1991	[a]	[a]	[a]	[a]	[a]	[a]
1992	875	10,397	1,950	1,012	7,200	3,270
1993	[a]	[a]	[a]	[a]	[a]	[a]
1994	[a]	[a]	[a]	[a]	[a]	[a]
1995	3,314	[a]	[a]	[a]	[a]	[a]
1996	[a]	[a]	[a]	[a]	[a]	[a]
1997	3,611	12,610	[a]	1,447	19,843	[a]
1998	578	3,497	2,743	731	11,632	3,619
1999	[a]	[a]	[a]	[a]	[a]	[a]
2000	[a]	[a]	[a]	[a]	[a]	[a]
2001	3,561	29,340	7,330	2,799	12,383	6,945
2002	1,470	3,475	3,075	1,195	2,626	1,208
2003	3,935	50,140	[a]	2,131	29,150	[a]
2004	7,462	31,695	[a]	2,617	33,670	[a]
2005	[a]	[a]	[a]	[a]	[a]	[a]
2006	4,159	78,100	[a]	[a]	[a]	[a]
2007	[a]	[a]	[a]	[a]	[a]	[a]
2008	2,155	32,500	[a]	2,190	13,935	[a]
2009	[a]	[a]	[a]	[a]	[a]	[a]
2010	[a]	[a]	[a]	[a]	[a]	[a]
2011	853	14,140	[a]	[a]	[a]	[a]
SEG	640 - 3,300	5,500 - 19,500	[b]	[b]	[b]	[b]

[a] Survey was either not flown or not rated as acceptable.

[b] Aerial survey escapement goal was discontinued in 2004.

APPENDIX E

Appendix E1.–Commercial harvest, effort and value of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981–2011.

Year	District	Harvest (st)	Number of permits	Hours fished	Estimated Value [a]	Average Income Per Permit
2011	Security Cove	0	0	0	$0	$0
	Goodnews Bay	0	0	0	$0	$0
	Cape Avinof	0	0	0	$0	$0
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	0	0	0	$0	$0
2010	Security Cove	0	0	0	$0	$0
	Goodnews Bay	0	0	0	$0	$0
	Cape Avinof	0	0	0	$0	$0
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	0	0	0	$0	$0
2009	Security Cove	0	0	0	$0	$0
	Goodnews Bay	0	0	0	$0	$0
	Cape Avinof	0	0	0	$0	$0
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	0	0	0	$0	$0
2008	Security Cove	0	0	0	$0	$0
	Goodnews Bay	0	0	0	$0	$0
	Cape Avinof	0	0	0	$0	$0
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	0	0	0	$0	$0
2007	Security Cove	0	0	0	$0	$0
	Goodnews Bay	0	0	0	$0	$0
	Cape Avinof	0	0	0	$0	$0
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	0	0	0	$0	$0
2006	Security Cove	64	2	156	$7,878	$3,939
	Goodnews Bay	64	5	96	$8,935	$1,787
	Cape Avinof	0	0	0	$0	$0
	Nelson Is.	262	25	169	$53,225	$2,129
	Nunivak Is.	0	0	0	$0	$0
2005	Security Cove	2,031	30	198	$317,153	$10,572
	Goodnews Bay	49	6	123	$4,321	$720
	Cape Avinof	149	14	160	$37,631	$2,688
	Nelson Is.	665	27	277	$119,193	$4,415
	Nunivak Is.	0	0	0.0	$0	$0
2004	Security Cove	0	0	0	$0	$0
	Goodnews Bay	34	10	96.0	$3,600	$360
	Cape Avinof	63	23	288.5	$10,900	$474
	Nelson Is.	825	39	194.5	$165,300	$4,238
	Nunivak Is.	0	0	816.0	$0	$0
2003	Security Cove	0	0	0	$0	$0
	Goodnews Bay	36	12	50.5	$4,600	$383
	Cape Avinof	176	22	74.5	$36,100	$1,641
	Nelson Is.	816	44	78.0	$187,500	$4,261
	Nunivak Is.	229	19	204.0	$7,200	$379

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Year	District	Harvest (st)	Number of permits	Hours fished	Estimated Value [a]	Average Income Per Permit
2002	Security Cove	109	25	17.0	$10,000	$400
	Goodnews Bay	13	5	28.5	$1,000	$200
	Cape Avinof	79	37	97.0	$8,000	$216
	Nelson Is.	950	54	80.5	$101,000	$1,870
	Nunivak Is.	175	29	243.0	$19,000	$655
2001	Security Cove	1,024	56	17.5	$110,000	$1,964
	Goodnews Bay	45	23	16.0	$6,000	$261
	Cape Avinof	231	45	63.0	$23,000	$511
	Nelson Is.	678	49	25.5	$66,000	$1,347
	Nunivak Is.	0	0	0	$0	$0
2000	Security Cove	284	79	16.0	$54,386	$688
	Goodnews Bay	20	57	27.0	$3,318	$58
	Cape Avinof	366	86	59.0	$68,532	$797
	Nelson Is.	813	86	20.0	$154,280	$1,794
	Nunivak Is.	40	34	93.0	$11,880	$349
1999	Security Cove	1,072	97	9.0	$338,000	$3,485
	Goodnews Bay	1,366	94	49.0	$301,000	$3,202
	Cape Avinof	533	117	51.0	$185,000	$1,581
	Nelson Is.	1,366	94	22.0	$430,000	$4,574
	Nunivak Is.	0	0	0	$0	$0
1998	Security Cove	1,012	78	28.5	$202,340	$2,594
	Goodnews Bay	831	84	79.0	$166,220	$1,979
	Cape Avinof	656	109	44.0	$131,120	$1,203
	Nelson Is.	1,250	86	76.0	$235,900	$2,743
	Nunivak Is.	202	7	6.0	$440	$63
1997	Security Cove	892	222	10.5	$221,000	$995
	Goodnews Bay	805	139	65.0	$228,000	$1,640
	Cape Avinof	687	145	26.0	$157,000	$1,083
	Nelson Is.	778	105	10.0	$198,000	$1,886
	Nunivak Is.	0	12	70.0	$0	$0
1996	Security Cove	1,859	326	5.5	$1,252,270	$3,841
	Goodnews Bay	1,204	182	45.0	$893,900	$4,912
	Cape Avinof	820	161	57.0	$659,280	$4,095
	Nelson Is.	1,031	109	25.0	$676,624	$6,208
	Nunivak Is.	101	24	256.0	$38,234	$1,593
1995	Security Cove	1,292	106	12.0	$956,000	$9,019
	Goodnews Bay	1,054	127	56.0	$848,000	$6,677
	Cape Avinof	485	93	48.0	$363,000	$3,903
	Nelson Is.	1,113	100	28.0	$710,000	$7,100
	Nunivak Is.	41	13	387.0	$22,000	$1,692
1994	Security Cove	0	0	0	$0	$0
	Goodnews Bay	1,062	103	38.0	$391,000	$3,796
	Cape Avinof	427	85	62.0	$156,000	$1,835
	Nelson Is.	717	104	26.0	$235,000	$2,260
	Nunivak Is.	14	12	6.0	$4,000	$333
1993	Security Cove	5	9	24.5	$2,000	$222
	Goodnews Bay	954	63	123.0	$293,000	$4,651
	Cape Avinof	215	97	106.0	$75,000	$773
	Nelson Is.	739	73	63.5	$198,000	$2,712
	Nunivak Is.	0	0	0	$0	$0

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Year	District	Harvest (st)	Number of permits	Hours fished	Estimated Value[a]	Average Income Per Permit
1992	Security Cove	834	58	34.0	$285,000	$4,914
	Goodnews Bay	740	78	29.0	$286,000	$3,667
	Cape Avinof	452	121	12.0	$178,000	$1,471
	Nelson Is.	246	85	10.0	$78,000	$918
	Nunivak Is.	27	14	6.0	$4,000	$286
1991	Security Cove	570	52	12.0	$208,000	$4,000
	Goodnews Bay	263	103	4.0	$93,000	$903
	Cape Avinof	267	137	28.0	$94,000	$686
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	59	17	12.0	$9,000	$529
1990	Security Cove	234	52	7.0	$94,000	$1,808
	Goodnews Bay	455	126	32.0	$314,000	$2,492
	Cape Avinof	50	101	3.0	$35,000	$347
	Nelson Is.	0	0	0	$0	$0
	Nunivak Is.	0	0	0	$0	$0
1989	Security Cove	554	104	4.0	$256,000	$2,462
	Goodnews Bay	616	138	50.0	$335,000	$2,428
	Cape Avinof	129	147	194.0	$54,000	$367
	Nelson Is.	233	162	15.0	$57,000	$352
	Nunivak Is.	116	45	186.0	$42,000	$933
1988	Security Cove	324	31	23.5	$362,000	$11,677
	Goodnews Bay	483	60	40.0	$463,000	$7,717
	Cape Avinof	348	98	88.5	$264,000	$2,694
	Nelson Is.	775	174	7.5	$713,000	$4,098
	Nunivak Is.	0	0	0	$0	$0
1987	Security Cove	313	65	13.0	$242,000	$3,723
	Goodnews Bay	321	117	11.0	$133,000	$1,137
	Nelson Is.	923	235	6.0	$661,000	$2,813
	Nunivak Is.	414	61	39.0	$231,000	$3,787
1986	Security Cove	751	88	73.0	$535,000	$6,080
	Goodnews Bay	557	104	53.0	$325,000	$3,125
	Nelson Is.	886	163	40.0	$428,000	$2,626
	Nunivak Is.	511	36	156.0	$213,000	$5,917
1985	Security Cove	733	107	125.0	$335,000	$3,131
	Goodnews Bay	724	83	130.0	$309,000	$3,723
	Nelson Is.	977	143	44.0	$527,000	$3,685
	Nunivak Is.	358	37	228.0	$146,000	$3,946
1984	Security Cove	335	38	345.0	$110,000	$2,895
	Goodnews Bay	717	130	139.0	$168,000	$1,292
1983	Security Cove	1,073	94	87.0	$443,000	$4,713
	Goodnews Bay	435	84	278.0	$185,000	$2,202
1982	Security Cove	813	107	302.0	$271,000	$2,533
	Goodnews Bay	486	84	314.0	$188,000	$2,238
1981	Security Cove	1,173	113	90.0	$347,000	$3,071

[a] Purse seine harvest is not a reflection of permit holder effort.

Appendix E2.–Herring aerial survey estimated biomass and commercial harvest, Kuskokwim Area, 1981–2011.

District	Estimated Biomass (st)	Harvest				Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total			
2011								
Security Cove	13,119[a]	0	0	0	0	0.0	0	0.0
Goodnews Bay	36,810[a]	0	0	0	0	0.0	0	0.0
Cape Avinof	2,324[a]	0	0	0	0	0.0	0	0.0
2010								
Security Cove	13,440	0	0	0	0	0.0	0	0.0
Goodnews Bay	33,490[b]	0	0	0	0	0.0	0	0.0
Cape Avinof	2,393[a]	0	0	0	0	0.0	0	0.0
Nelson Is.	5,449[a]	0	0	0	0	0.0	0	0.0
Nunivak Is.	3,322[a]	0	0	0	0	0.0	0	0.0
Total	58,094	0	0	0	0	0.0	0	0.0
2009								
Security Cove	5,686[a]	0	0	0	0	0.0	0	0.0
Goodnews Bay	6,143	0	0	0	0	0.0	0	0.0
Cape Avinof	2,251[a]	0	0	0	0	0.0	0	0.0
Nelson Is.	5,152[a]	0	0	0	0	0.0	0	0.0
Nunivak Is.	3,141[a]	0	0	0	0	0.0	0	0.0
Total	22,373	0	0	0	0	0.0	0	0.0
2008								
Security Cove	6,442	0	0	0	0	0.0	0	0.0
Goodnews Bay	3,259	0	0	0	0	0.0	0	0.0
Cape Avinof	806	0	0	0	0	0.0	0	0.0
Nelson Is.	3,424	0	0	0	0	0.0	0	0.0
Nunivak Is.	3,688	0	0	0	0	0.0	0	0.0
Total	17,619	0	0	0	0	0.0	0	0.0
2007								
Security Cove	7,081	0	0	0	0	0.0	0	0.0
Goodnews Bay	3,683	0	0	0	0	0.0	0	0.0
Cape Avinof	878	0	0	0	0	0.0	0	0.0
Nelson Is.	3,614	0	0	0	0	0.0	0	0.0
Nunivak Is.	4,054	0	0	0	0	0.0	0	0.0
Total	19,310	0	0	0	0	0.0	0	0.0
2006								
Security Cove	7,477	59	5	0	64	10.8	9	0.9
Goodnews Bay	4,111	64	0	0	64	9.8	9	1.6
Cape Avinof	702	0	0	0	0	0.0	0	0.0
Nelson Is.	3,809	262	0	0	262	11.1	53	6.9
Nunivak Is.	4,260	0	0	0	0	0.0	0	0.0
Total	20,359	385	5	0	390	10.8	71	1.9

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District	Estimated Biomass (st)	Harvest					Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total	Roe%		
2005								
Security Cove	18,192	2,031	0	0	2,031	10.9	317	11.2
Goodnews Bay	13,410	49	0	0	49	8.8	4	0.4
Cape Avinof	3,377	149	0	0	149	11.5	38	4.4
Nelson Is.	4,440	665	0	0	665	10.5	119	15.0
Nunivak Is.	4,782	0	0	0	0	0.0	0	0.0
Total	44,201	2,894	0	0	2,894	10.8	478	6.5
2004								
Security Cove	9,698	0	0	0	0	0.0	0	0.0
Goodnews Bay	7,744	34	0	0	34	8.9	4	0.4
Cape Avinof	3,369	63	0	0	63	15.5	11	1.9
Nelson Is.	5,085	825	0	0	825	10.9	165	16.2
Nunivak Is.	4,739	0	0	0	0	0.0	0	0.0
Total	30,635	922	0	0	922	11.1	180	3.0
2003								
Security Cove	10,600	0	0	0	0	0.0	0	0.0
Goodnews Bay	8,300	36	0	0	36	9.0	5	4.0
Cape Avinof	3,812	176	0	0	176	10.5	36	4.6
Nelson Is.	6,130	816	0	0	816	10.8	187	13.3
Nunivak Is.	5,182	229	0	0	229	8.4	7	4.4
Total	34,024	1,257	0	0	1,257	10.3	235	26.3
2002								
Security Cove	4,748	106	3	0	109	10.1	10	2.3
Goodnews Bay	5,529	13	0	0	13	9.7	1	0.2
Cape Avinof	3,491	79	0	0	79	9.6	8	2.3
Nelson Is.	6,130	950	0	0	950	10.4	101	15.5
Nunivak Is.	5,422	176	0	0	175	7.5	19	3.2
Total	25,320	1,324	3	0	1,326	9.9	139	5.2
2001								
Security Cove	5,206	1,024	0	0	1,024	10.7	110	19.7
Goodnews Bay	5,755	45	0	0	45	11.3	6	0.8
Cape Avinof	3,486	231	0	0	231	9.8	23	6.6
Nelson Is.	6,057	678	0	0	678	10.4	71	11.2
Nunivak Is.	5,657	0	0	0	0	0.0	0	0.0
Total	26,161	1,978	0	0	1,978	10.5	209	7.6
2000								
Security Cove	5,237	284	15	0	299	10.7	62	5.7
Goodnews Bay	6,348	19	1	1	20	9.2	3	0.3
Cape Avinof	3,210	370	7	0	377	9.6	71	11.8
Nelson Is.	4,672	754	52	1	807	9.8	150	17.3
Nunivak Is.	3,487	41	0	0	41	9.9	12	1.2
Total	22,954	1,468	75	2	1,544	9.9	299	6.7
1999								
Security Cove	5,261	1,016	56	1	1,072	11.0	338	20.4
Goodnews Bay	6,896	1,332	33	0	1,366	11.3	301	19.8
Cape Avinof	3,555	516	18	0	533	11.0	185	15.0
Nelson Is.	6,655	1,267	97	2	1,366	11.2	430	20.5
Nunivak Is.	3,319	0	0	0	0	0.0	0	0.0
Total	25,686	4,131	204	3	4,337	11.1	1,254	16.9

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District	Estimated Biomass (st)	Harvest				Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total			
1998								
Security Cove	4,017	1,012	0	0	1,012	11.5	232	25.2
Goodnews Bay	4,064	831	0	0	831	11.3	188	20.5
Cape Avinof	4,287	656	0	0	656	11.6	152	15.3
Nelson Is.	7,136	1,250	0	0	1,250	11.8	296	17.5
Nunivak Is.	3,778	2	0	0	2	9.8	0	0.1
Total	23,282	3,751	0	0	3,751	11.6	868	16.1
1997								
Security Cove	4,640	884	3	5	892	12.5	221	19.2
Goodnews Bay	4,752	805	0	0	805	14.2	228	16.9
Cape Avinof	4,616	687	0	0	687	11.5	157	14.9
Nelson Is.	7,909	778	0	0	778	12.7	198	9.8
Nunivak Is.	3,801	0	0	0	0	0.0	0	0.0
Total	25,718	3,154	3	5	3,163	12.7	804	12.3
1996								
Security Cove	6,867	1,795	59	5	1,859	11.6	1,251	27.1
Goodnews Bay	6,315	1,191	13	0	1,204	12.5	895	19.1
Cape Avinof	4,500	820	0	0	820	13.4	659	18.2
Nelson Is.	6,638	986	44	0	1,030	11.4	679	15.5
Nunivak Is.	4,197	61	40	0	101	9.9	39	2.4
Total	28,517	4,854	156	5	5,014	12.0	3,523	17.6
1995								
Security Cove	6,702	1,292	0	0	1,292	12.3	956	19.3
Goodnews Bay	4,224	1,051	0	3	1,054	13.5	848	25.0
Cape Avinof	3,627	485	0	0	485	12.5	363	13.4
Nelson Is.	7,754	1,113	0	0	1,113	10.6	711	14.4
Nunivak Is.	4,579	33	7	0	41	11.0	22	0.9
Total	26,886	3,975	7	3	3,985	12.2	2,900	14.8
1994								
Security Cove	7,638	0	0	0	0	0.0	0	0.0
Goodnews Bay	5,679	1,061	0	1	1,062	12.3	391	18.7
Cape Avinof	2,827	427	0	0	427	12.2	156	15.1
Nelson Is.	5,564	713	4	0	717	11.0	235	12.9
Nunivak Is.	4,921	14	0	0	14	8.6	4	0.3
Total	26,629	2,215	4	1	2,220	11.8	786	8.3
1993								
Security Cove	6,995	5	0	0	5	12.8	2	0.1
Goodnews Bay	6,211	945	9	0	954	10.3	293	15.4
Cape Avinof	2,837	206	9	0	215	12.0	75	7.6
Nelson Is.	4,944	613	52	74	739	10.6	198	14.9
Nunivak Is.	5,176	0	0	0	0	0.0	0	0.0
Total	26,163	1,769	70	74	1,913	10.6	568	7.3

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District	Estimated Biomass (st)	Harvest				Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total			
1992								
Security Cove	7,773	697	127	10	834	9.2	285	10.7
Goodnews Bay	5,572	711	29	0	740	9.5	286	13.3
Cape Avinof	3,446	443	9	0	452	9.9	178	13.1
Nelson Is.	5,275	188	52	6	246	8.3	78	4.7
Nunivak Is.	5,703	7	20	0	27	8.5	4	0.5
Total	27,769	2,046	237	16	2,299	9.4	830	8.3
1991								
Security Cove	4,434	561	9	0	570	9.3	208	12.9
Goodnews Bay	4,387	259	4	0	263	8.9	93	6.0
Cape Avinof	2,083	240	27	0	267	9.5	94	12.8
Nelson Is.	2,385	0	0	0	0	0.0	0	0.0
Nunivak Is.	3,903	17	42	0	59	7.5	9	0.0
Total	17,192	1,077	82	0	1,159	9.2	404	6.7
1990								
Security Cove	2,650	174	60	0	234	8.7	94	8.8
Goodnews Bay	2,577	427	28	0	455	12.2	314	17.7
Cape Avinof	2,020	49	1	0	50	12.0	35	2.5
Nelson Is.	2,705	0	0	0	0	0.0	0	0.0
Nunivak Is.	422	0	0	0	0	0.0	0	0.0
Total	10,374	650	89	0	739	11.2	443	7.1
1989								
Security Cove	2,830	544	10	0	554	9.4	256	19.6
Goodnews Bay	4,044	453	162	0	616	8.4	335	15.2
Cape Avinof	2,777	90	39	0	129	8.0	54	4.6
Nelson Is.	3,316	122	100	11	233	8.5	57	7.0
Nunivak Is.	617	79	37	0	116	9.4	42	18.8
Total	13,584	1,289	347	11	1,647	8.9	744	12.1
1988								
Security Cove	4,906	324	0	0	324	9.3	362	6.6
Goodnews Bay	4,479	473	10	0	483	8.0	463	10.8
Cape Avinof	4,108	348	0	0	348	8.6	264	8.5
Nelson Is.	7,152	760	15	0	775	9.2	713	10.8
Nunivak Is.	2,800	0	0	0	0	0.0	0	0.0
Total	23,445	1,905	25	0	1,930	8.8	1,802	8.2
1987								
Security Cove	2,300	312	1	0	313	9.7	242	13.6
Goodnews Bay	2,000	179	142	0	321	7.3	133	16.1
Nelson Is.	8,100	915	8	0	923	9.2	661	11.4
Nunivak Is.	4,400	254	160	0	414	7.8	231	9.4
Total	16,800	1,660	311	0	1,971	8.9	1,267	11.7

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District	Estimated Biomass (st)	Harvest				Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total			
1986								
Security Cove	3,700	747	4	0	751	11.2	535	20.3
Goodnews Bay	3,000	554	3	0	557	10.4	325	18.6
Nelson Is.	7,300	852	34	0	886	10.3	428	12.1
Nunivak Is.	6,000	469	42	0	511	10.1	213	8.5
Total	20,000	2,622	83	0	2,705	10.5	1,501	13.5
1985								
Security Cove	4,900	703	0	30	733	10.1	355	15.0
Goodnews Bay	4,300	711	0	13	724	8.7	309	16.8
Nelson Is.	9,500	967	10	0	977	10.6	527	10.3
Nunivak Is.	5,700	349	9	0	358	8.9	146	6.3
Total	24,400	2,730	19	43	2,792	9.8	1,337	11.4
1984								
Security Cove	5,100	325	0	10	335	11.8	110	6.6
Goodnews Bay	4,100	667	0	50	717	10.1	168	17.5
Total	9,200	992	0	60	1,052	10.7	278	11.4
1983								
Security Cove	6,400	966	107	0	1,073	9.4	443	16.8
Goodnews Bay	3,200	426	9	0	435	9.4	185	13.6
Total	9,600	1,392	116	0	1,508	9.4	628	15.7
1982								
Security Cove	5,100	707	106	0	813	9.3	271	15.9
Goodnews Bay	2,600	437	49	0	486	9.5	188	18.7
Total	7,700	1,144	155	0	1,299	9.4	459	16.9
1981								
Security Cove	8,300	1,150	23	0	1,173	8.1	347	14.1
Goodnews Bay	4,300	558	99	0	657	7.7	196	15.3
Total	12,600	1,708	122	0	1,830	8.0	543	14.5

[a] Estimated biomass is the projection. Aerial surveys were inadequate or not flown.

[b] Biomass estimate from Goodnews Bay include Jacksmith Bay aerial survey estimates conducted on the same day.

Appendix E3.–Age class composition of biomass from samples collected by ADF&G variable mesh gillnet test fisheries, Goodnews Bay and Nelson Island Districts, Kuskokwim Bay, 2010.

	Goodnews Bay			Nelson Island		
Age	No. in sample	% by weight	tons	No. in sample	% by weight	tons
3	7	–	269	7	0.6	32
4	79	9.1	3,041	51	4.2	231
5	303	34.8	11,664	244	20.3	1,107
6	173	19.9	6,660	301	25.1	1,366
7	97	11.1	3,734	256	21.3	1,161
8	75	8.6	2,887	198	16.5	898
9	45	5.2	1,732	64	5.3	290
10	35	4.0	1,347	40	3.3	181
11	15	1.7	577	17	1.4	77
12	25	2.9	962	15	1.2	68
13+	16	1.8	616	8	0.7	36
Total	870		33,489[a]	1,201		5,447[a]

[a] Differences in total tons and estimated biomass is attributed to rounding error.

Appendix E4.–The age composition of Pacific herring sampled from the ADF&G variable mesh gillnet (VMG) test fisheries, Goodnews Bay and Nelson Island Districts, Kuskokwim Bay, 2010.

			Aged	Age Composition					
		Samples	Sample	< 6		6-8		> 8	
District	Fishery	Collected	Size	No. of Fish	%	No. of Fish	%	No. of Fish	%
Goodnews Bay	test fishery (VMG)	913	870	389	44.7	345	39.7	136	15.6
Nelson Island	test fishery (VMG)	1,311	1,201	302	25.1	754	62.8	144	12.0

Appendix E5.–Length and weight composition by age of Pacific herring caught by ADF&G variable mesh gillnet (VMG) test fisheries, Goodnews Bay and Nelson Island Districts, Kuskokwim Bay, 2010.

		Age Class								
		< 6			6 - 8			> 8		
		Length (millimeters)								
District	Fishery	min	avg	max	min	avg	max	min	avg	max
Goodnews Bay	test fishery (VMG)	134	235	294	223	270	346	208	304	340
Nelson Island	test fishery (VMG)	160	231	292	209	269	333	242	294	321

		Age Class								
		< 6			6 - 8			> 8		
		Weight (grams)								
District	Fishery	min	avg	max	min	avg	max	min	avg	max
Goodnews Bay	test fishery (VMG)	84	176	366	145	276	446	206	408	605
Nelson Island	test fishery (VMG)	68	167	341	121	284	482	208	374	561