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Alaska Subsistence and Personal Use Salmon Fisheries 2013 Annual Report

by

James A. Fall

Caroline L. Brown

Sarah S. Evans

Rosalie A. Grant

Hiroko Ikuta

Lisa Hutchinson-Scarbrough

Bronwyn Jones

Meredith Ann Marchioni

Elizabeth Mikow

Joshua T. Ream

Lauren A. Sill

and

Terri Lemons

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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	two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

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

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations

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

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James A. Fall, Lisa Hutchinson-Scarbrough, Bronwyn Jones, Meredith Ann Marchioni,
Joshua T. Ream, and Terri Lemons
Alaska Department of Fish and Game, Division of Subsistence, Anchorage

Caroline L. Brown, Hiroko Ikuta, and Elizabeth Mikow
Alaska Department of Fish and Game, Division of Subsistence, Fairbanks

Sarah S. Evans
Alaska Department of Fish and Game, Division of Subsistence, Dillingham

and

Rosalie A. Grant and Lauren A. Sill
Alaska Department of Fish and Game, Division of Subsistence, Douglas

Alaska Department of Fish and Game
Division of Subsistence
333 Raspberry Road, Anchorage, AK 99518

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The Division of Subsistence Technical Paper series was established in 1979 and represents the most complete collection of information about customary and traditional uses of fish and wildlife resources in Alaska. The papers cover all regions of the state. Some papers were written in response to specific fish and game management issues. Others provide detailed, basic information on the subsistence uses of particular communities which pertain to a large number of scientific and policy questions.

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James A. Fall, Lisa Hutchinson-Scarbrough, Bronwyn Jones, Meredith Ann Marchioni,
Joshua T. Ream, and Terri Lemons
Alaska Department of Fish and Game, Division of Subsistence
333 Raspberry Road, Anchorage, AK 99518-1599

Caroline L. Brown, Hiroko Ikuta, and Elizabeth Mikow
Alaska Department of Fish and Game, Division of Subsistence
1300 College Road, Fairbanks, AK 99701-1551

Sarah S. Evans
Alaska Department of Fish and Game, Division of Subsistence
546 Kenny Wren Road, PO Box 230, Dillingham, AK 99576-0230

and
Rosalie A. Grant and Lauren A. Sill
Alaska Department of Fish and Game, Division of Subsistence
802 3rd Street, Douglas, AK 99824-5412

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ABSTRACT

Each year thousands of Alaskans participate in subsistence activities including the harvest of wild resources from Alaska's fisheries. Subsistence fishing is an important element of Alaska's social and cultural heritage, as well as a crucial component of the subsistence sector of the state's economy. In addition, personal use fisheries provide opportunities for Alaska residents to harvest salmon for home use using efficient methods in areas closed to subsistence fishing. This report summarizes Alaska's 2013 subsistence and personal use salmon fisheries based upon subsistence and personal use permit data and harvest assessment surveys from across the state. New information is compared to findings from previous years and the results are discussed. Where available, information about other subsistence finfish fisheries is included. Additional information from federal agencies regulating and administering certain subsistence fisheries, beginning in 1997, is included where available.

Key words: Pacific salmon, *Oncorhynchus* spp., sheefish, whitefish, rainbow/steelhead trout, Arctic char/Dolly Varden, northern pike, Chinook salmon, coho salmon, sockeye salmon, pink salmon, chum salmon, Norton Sound, Port Clarence, Kotzebue, Yukon, Kuskokwim, Bristol Bay, Chignik, Alaska Peninsula, Aleutian Islands, Kodiak, Cook Inlet, Prince William Sound, Southeast Alaska, Yakutat, subsistence salmon fisheries, personal use salmon fisheries

CHAPTER 1: INTRODUCTION

This is the fifteenth report in a series of annual reports on Alaska's subsistence and personal use fisheries. It was prepared by the Alaska Department of Fish and Game (ADF&G) Division of Subsistence.

Alaska state law defines subsistence fishing as the taking of fish, shellfish, or other fisheries resources by Alaska residents for subsistence uses (AS 16.05.940 (31)). Subsistence uses of wild resources are defined as "noncommercial, customary and traditional uses" for a variety of purposes. These include:

> … direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption, and for the customary trade, barter, or sharing for personal or family consumption … . (AS 16.05.940 (33))

Under Alaska's subsistence statute, the Alaska Board of Fisheries (BOF) must identify fish stocks that support subsistence fisheries. The BOF applies the Joint Board of Fisheries and Game Subsistence Procedures (5 AAC 99.010) to make these determinations, which are called "customary and traditional (C&T) findings." If there is a harvestable surplus of these stocks with C&T uses, the BOF must adopt regulations that provide reasonable opportunities for subsistence uses. When it is necessary to restrict harvests, the statute directs the BOF to assign a preference to subsistence uses (AS 16.05.258).

The Joint Board of Fisheries and Game (Joint Board) is required to identify "nonsubsistence areas," where "dependence upon subsistence is not a principal characteristic of the economy, culture, and way of life of the area or community" (AS 16.05.258 (c)). The Joint Board has identified 5 nonsubsistence areas: the Ketchikan Nonsubsistence Area, the Juneau Nonsubsistence Area, the Anchorage–Matsu–Kenai Nonsubsistence Area, the Fairbanks Nonsubsistence Area, and the Valdez Nonsubsistence Area (5 AAC 99.015). The BOF may not authorize subsistence fisheries in nonsubsistence areas.

Alaska state law recognizes 3 additional categories of fishing: commercial, sport, and personal use. Commercial fishing is the taking of fish "with the intent of disposing of them for profit, or by sale, barter, trade, or in commercial channels" (AS 16.05.940 (5)).

Sport fishing is defined as the taking "for personal use, and not for sale or barter, any fresh water, marine, or anadromous fish by hook and line held in the hand, or by hook and line with the line attached to a pole or rod which is held in the hand or closely attended, or by other means defined by the Board of Fisheries" (AS 16.05.940 (30)).

Personal use fishing is defined as the taking of fish "by Alaska residents for personal use and not for sale or barter, with gill or dip net, seine, fish wheel, long line, or other means defined by the Board of Fisheries" (AS 16.05.940 (25)). Personal use fisheries differ from subsistence fisheries in that they do not meet the criteria for customary and traditional fisheries as established by the Joint Board (5 AAC 99.010), or because they occur within nonsubsistence areas; in addition, a sport fishing license is required. This type of fishery provides Alaska residents with opportunities to harvest fish for noncommercial purposes, utilizing gear other than rod and reel, within nonsubsistence areas.

Every year, the ADF&G Division of Commercial Fisheries prepares Fishery Management Reports (FMRs, formerly "annual management reports," AMRs) for most fishery management areas in the state. Figure 1-1 shows the location of these management areas. Although the FMRs focus primarily on commercial fisheries, most also routinely summarize basic data for programs that collect harvest information for subsistence fisheries and for those personal use fisheries that the Division of Commercial Fisheries administers. Detailed annual reports about subsistence fisheries harvest assessment programs are prepared in the Northwest Alaska, Yukon River, and Kuskokwim River areas. Additionally, the Division of Sport Fish prepares summaries for the personal use salmon fisheries it administers in the Cook Inlet

and Prince William Sound (Upper Copper River) areas. However, until the Division of Subsistence annual subsistence fisheries report series began in 1999, there was no single source that compiled subsistence and personal use fisheries harvest data from all management areas. That is the purpose of this 2013 annual report.

The Federal Subsistence Board (FSB) adopts subsistence fishing regulations for federal waters in Alaska, in compliance with the Alaska National Interest Lands Conservation Act (ANILCA). Only eligible Alaska rural residents may participate in federal subsistence fisheries. For most subsistence fisheries, a single program administered by ADF&G provides harvest estimates for all participants regardless of the location of effort. However, for some fisheries (such as the Pacific salmon *Oncorhynchus* fisheries of the Upper Copper River District), FSB regulations require a federal subsistence fishing permit. The following chapters on each management area note where separate state and federal harvest monitoring programs operate. Subsistence harvest estimates in this report include data from both state and federal permit programs.

It is important to recognize the limitations associated with the effort to present a comprehensive annual report on Alaska's subsistence and personal use fisheries. These limitations include:

- Annual harvest assessment programs do not take place for all subsistence fisheries. Programs are in place for most salmon fisheries, but few other finfish fisheries or shellfish fisheries have annual harvest monitoring programs.
- Annual harvest data summarized in this report are limited to fisheries classified as subsistence or personal use by regulation, which, especially for salmon, generally means fish taken with gillnets, beach seines, dip nets, or fish wheels. In some parts of Alaska, substantial numbers of fish for home uses are taken with rod and reel (considered sport gear by most state area regulations) or are retained from commercial harvests. With noted exceptions, these harvests are not included in the analysis of subsistence harvest data in this report because they are not collected by annual subsistence fisheries harvest programs. Therefore, the harvest data in this report are a conservative estimate of the number of salmon being taken for subsistence uses in Alaska. Underestimations of subsistence salmon harvests are a particular issue in the Southeast region.
- Between management areas, and sometimes between districts within management areas, there is inconsistency in how subsistence and personal use harvest data are collected, analyzed, and reported.
- In some areas there are no routine mechanisms for evaluating the quality of subsistence harvest data. For example, in some areas it is not known if all subsistence fishers are obtaining permits and providing accurate harvest reports. This can result in a significant underestimation of harvests.
- There are also few programs for contextualizing annual subsistence harvest data so as to interpret changes in harvests. In some cases, however, FMRs do contain discussions of data limitations and harvest trends.

Despite these limitations, it is nonetheless possible to present an informative, conservative statewide overview of subsistence and personal use harvests of salmon. Information for all areas of the state where subsistence and personal use salmon fisheries occur is covered in this report. In past reports, we only included data for personal use salmon fisheries in the Yukon Management Area, the Prince William Sound Management Area (specifically, the Chitina Subdistrict of the Upper Copper River District), and the Southeast region because these fisheries were classified as subsistence fisheries in the past, and are administered in programs that collect subsistence harvest data. We did not include data from the Cook Inlet Management Area personal use salmon fisheries in past statewide overviews, primarily because most of these fisheries have relatively short histories. However, beginning in the report for 2010, we

added harvest data from the Cook Inlet personal use salmon fisheries so as to provide a complete statewide summary for all subsistence and personal use salmon harvests.

The quality and quantity of subsistence harvest data for finfish other than salmon and for shellfish are very uneven. For other finfish, if annual subsistence harvest information is collected, it is reflected in this report if the summary data were available to the Division of Subsistence. Otherwise, we have usually noted which species are primarily used for subsistence, relying in general on baseline studies conducted by the Division of Subsistence. In a small number of instances we have drawn from reports prepared for the BOF. This annual report does not attempt to provide a comprehensive overview of subsistence shellfish harvests.

In 1988, the Division of Subsistence prepared the first version of the Historical Subsistence Salmon Harvest Database (HSSHDB). As part of the cooperative agreement that supported the development of this annual report series, this database was updated, upgraded, and renamed the Alaska Subsistence Fisheries Database (ASFDB).[1] The database is written for Microsoft Access software.[2] It is organized by 21 subsistence fisheries and is generally reflective of unique harvest assessment programs and regulatory structures. It contains harvest data organized by species, year, community of residence of permit holder, and gear type. The number of permits issued and returned each year is included as well. The most complete data sets are sought; data sets which, in some cases, are more up-to-date than those reported in FMRs.

In 2008, the division received funding from the Alaska State Legislature to develop and annually update a web-based version of the ASFDB. This version of the database was developed using Microsoft SQL Server to store the data and Adobe ColdFusion 8 to create the user interface. The final product, projected to be available to the public in 2016, will contain all historical information from the HSSHDB along with contemporary data from the ASFDB stored in Microsoft Access, and will be updated periodically with new subsistence and personal salmon fisheries data.

The historical ASFDB is not currently available online. Upon request, the Division of Subsistence distributes the database on CD-ROM, along with the Community Subsistence Information System[3], formerly the Community Profile Database (Scott et al. 2001). The CSIS includes the results of Division of Subsistence systematic household harvest surveys and is the primary source for subsistence harvest data for shellfish and for finfishes other than salmon.

In most fisheries data analysis, the Division of Subsistence expands harvest estimates from reported harvests in order to account for unreturned permits. In a few cases, this results in a larger estimate than is found in those FMRs that routinely only summarize data from returned permits. Also, the ASFDB calculates harvest estimates first for all permit holders by community represented in the fishery, and then sums these community estimates for a fishery total. This method is in contrast to the expansion method used by other divisions to analyze data from certain fisheries, such as the subsistence fishery in the Glennallen Subdistrict of the Prince William Sound Area. The harvest data analysis for this fishery presented in the FMR only considers the total number of issued and returned permits in expansion, resulting in slightly different estimates of total harvests than those in this report.

It is important to note that the preparation of this annual report and the supporting database were 2 objectives of the Statewide Subsistence Fisheries Harvest Monitoring Strategy project funded by the U.S. Fish and Wildlife Service (USFWS) Office of Subsistence Management (OSM) and implemented jointly by the Division of Subsistence and the Alaska Inter-Tribal Council (AITC). A central goal of the project was to develop recommendations for a unified subsistence harvest assessment program for Alaska's subsistence fisheries. A working group composed of state, federal, and tribal members developed these

1. David A. Caylor and Louis A. Brown. 2006. ASFDB. Alaska Department of Fish and Game Division of Subsistence, Juneau.
2. Product names are given for scientific completeness; they do not constitute product endorsement.
3. ADF&G Division of Subsistence, Community Subsistence Information System (CSIS): http://www.subsistence.adfg.state.ak.us/CSIS/.

recommendations. The recommendations are available as a separate document (ADF&G and AITC 2000) a final report with an overview of all the project activities is also available (Fall and Shanks 2000). The final report also includes comments on existing subsistence harvest assessment programs, based on working group discussions as well as interviews of ADF&G staff conducted by the Division of Subsistence. We have drawn on these comments for most of the evaluations of harvest data in this annual report. As background for the efforts of the working group, Division of Subsistence staff prepared detailed overviews of current subsistence fisheries harvest assessment programs. These are the basis of the program descriptions that appear in this report, with updates as necessary.

A final note regarding data ranges and averages: except where otherwise noted, averages in this report do not include the current data year (2013). Both date and numeric ranges are inclusive. The following list illustrates named-ranges used in this report and their meanings.

- 5-year average: 2008–2012
- 10-year average: 2003–2012
- 15-year average: 1998–2012
- Historical average: yyyy–2012, beginning of range varies depending on available data

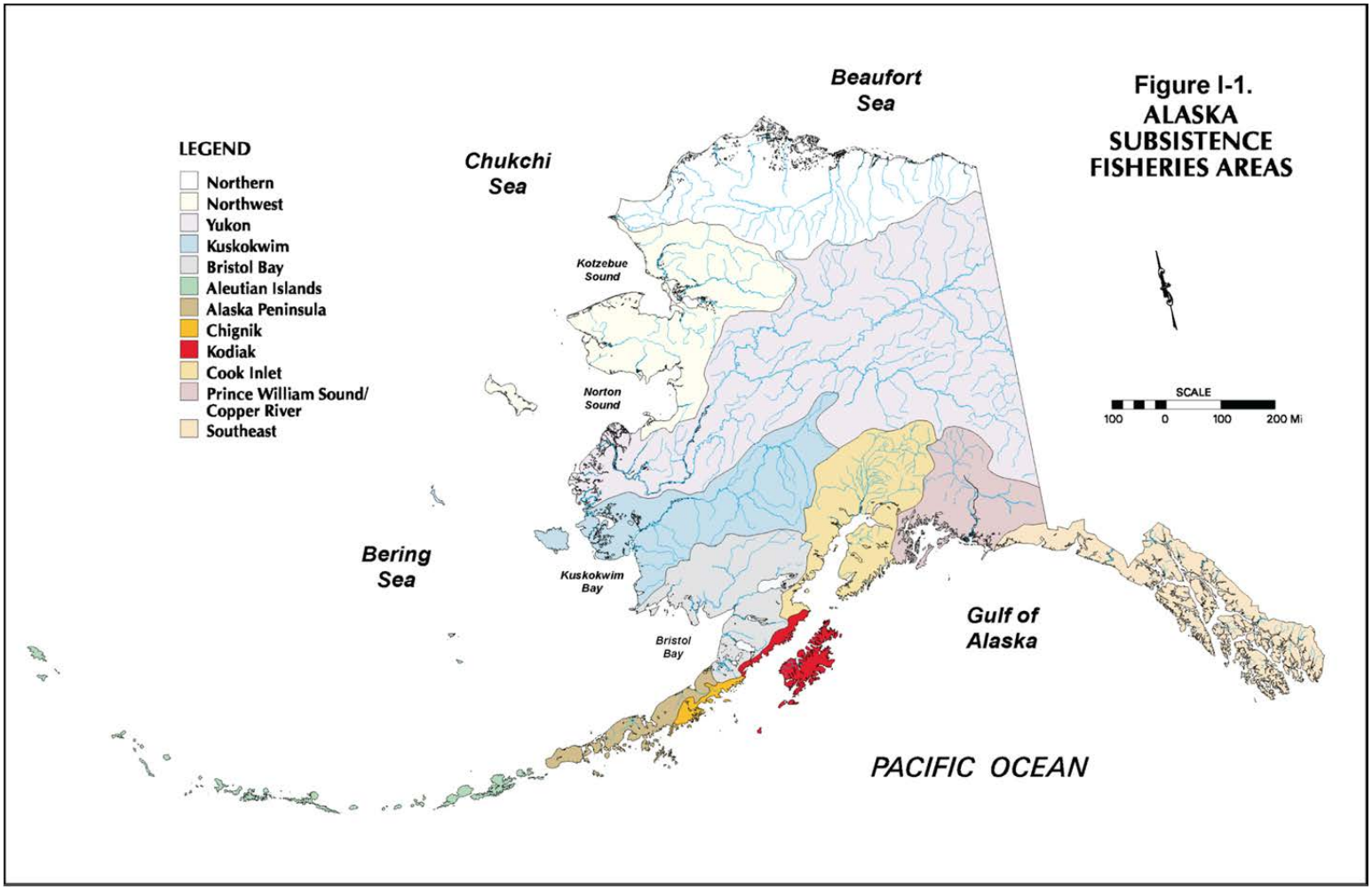

Figure 1-1.–Alaska subsistence fisheries areas.

CHAPTER 2: OVERVIEW OF SUBSISTENCE FISHERIES IN ALASKA

SUBSISTENCE HARVESTS IN RURAL ALASKA

Of the estimated 36.9 million pounds of wild foods annually harvested for subsistence purposes in rural Alaska communities, subsistence fisheries contribute about 32% from salmon, 21% from other finfish and 3% from shellfish (Fall 2014:2, 3) (Figure 2-1). On average, the subsistence fisheries harvest provides about 167 lb of food per person annually in rural Alaska (Fall 2014:2). Although they constitute a major portion of the food supply, subsistence harvests represent just a small part of the annual harvest of wild resources in Alaska: about 1.1% (fish, game, and other resources combined). Commercial fisheries take 98.2% of the wild resource harvest, personal use fishing and general hunting by Alaskans take 0.2%, and sport fisheries and hunts take about 0.6% of the fish and game harvest.

SUBSISTENCE SALMON HARVESTS IN 2013

The estimated total subsistence harvest of salmon in Alaska in 2013, based on annual harvest assessment programs, was 903,741 fish (Table 2-1).[1] The estimated statewide harvest by species was as follows: 347,834 sockeye salmon *O. nerka* (39%), 360,920 chum salmon *O. keta* (40%), 83,729 Chinook salmon *O. tshawytscha* (9%), 81,295 coho salmon *O. kisutch* (9%), and 29,963 pink salmon *O. gorbuscha* (3%) (Figure 2-2).

In 2013, fisheries in 8 management areas accounted for 94% of the total estimated statewide subsistence salmon harvest (Table 2-1; Figure 2-3). These were the Yukon Management Area (257,239 salmon; 28% of the statewide total); the Kuskokwim Management Area (177,643 salmon; 20%); the Bristol Bay Management Area (125,764 salmon; 14%); the Glennallen Subdistrict of the Prince William Sound Management Area (98,523 salmon; 11%); the Norton Sound-Port Clarence Area[2] (62,579 salmon; 7%); Southeast Region[3] (including the Stikine River federal fishery) (48,738 salmon; 5%); the Kotzebue District (50,754 salmon; 6%); and the Kodiak Management Area (31,405; 3%).

The largest estimated subsistence harvests of Chinook salmon in 2013 occurred in the Kuskokwim Management Area (51,211 salmon; 61%), followed by the Bristol Bay Management Area (12,858 salmon; 16%), Yukon Management Area (12,575 salmon; 15%), the Glennallen Subdistrict (2,658 salmon; 3%); the Copper River Flats (916 salmon; 1%); and the Norton Sound-Port Clarence Area (897 salmon; 1%) (Figure 2-4). For sockeye salmon, the largest estimated subsistence harvests in 2013 were in the Bristol Bay Management Area (98,765 salmon; 29%), followed by the Glennallen Subdistrict (95,711 salmon; 28%), the Kuskokwim Management Area (42,996 salmon; 12%), the Southeast Region (38,732 salmon; 12%), and the Kodiak Management Area (27,757 salmon; 8%) (Figure 2-5).

In 2013, as in past recent years, 4 areas dominated the subsistence chum salmon estimated harvest: the Yukon Management Area (229,019 salmon; 63% of the statewide harvest), Kuskokwim Management

1. Annual reports prior to 2010 included personal use salmon harvests from Southeast Alaska and the Chitina Subdistrict of the Upper Copper River in the discussion of subsistence harvests. Beginning with the 2010 report, personal use salmon fisheries are discussed separately. One exception is the small personal use harvest that occurs in those portions of the Yukon Management Area that are within the Fairbanks Nonsubsistence Area. Also, as noted in Chapter 1, Cook Inlet Area personal use salmon harvest data have been added to the annual report.
2. Subsistence harvest estimates for Northwest Alaska (Norton Sound-Port Clarence Area and the Arctic-Kotzebue Area for 2003, 2004, and 2012 do not include the regional center of Kotzebue, which was included in the harvest assessment program for 1994–2002. No subsistence fisheries harvest data were collected in the Kotzebue District for 2005 through 2011. Therefore, the estimated harvest totals for Northwest Alaska as reported for 2003–2011 are incomplete. See also Chapter 3.
3. As discussed further in Chapter 13, state subsistence regulations for the Southeast Region focus on sockeye salmon. Small harvests of Chinook and coho salmon are reported on permit returns as incidental to sockeye salmon harvests. The major portion of coho and Chinook salmon harvests for home uses in Southeast is taken with rod and reel (classified by regulation as sport gear). Thus the Southeast Region is particularly underrepresented in statewide overviews based on permit data.

Area (54,821 salmon; 15%), Kotzebue District (45,715 salmon; 13%), and the Norton Sound-Port Clarence Area (22,079 salmon; 6%) (the latter two areas were combined as "Northwest Alaska" in annual reports prior to 2012) (Figure 2-6). Of the statewide estimated subsistence harvest of coho salmon in 2013, the greatest share was taken in the Kuskokwim Management Area (27,874 salmon; 34%), followed by the Yukon Management Area (14,566 salmon; 18%), Norton Sound-Port Clarence Area (13,994 salmon; 17%), Bristol Bay Management Area (8,635 salmon; 11%), the Southeast Region (2,912 salmon; 4%), the Port Graham and Koyuktolik subdistricts (2,685 salmon; 3%), and the Kodiak Management Area (2,528 salmon; 3%) (Figure 2-7). Finally, the largest portion by far of the statewide estimated pink salmon subsistence harvest in 2013 occurred in the Norton Sound-Port Clarence Area (19,795 salmon; 66%), followed by the Southeast Region (3,029 salmon; 10%), and the Alaska Peninsula Area (1,133 salmon; 4%) (Figure 2-8).

Table 2-2 reports historical estimated subsistence salmon harvests for 1994 through 2013 based on annual harvest assessment programs. While earlier estimates for many of the fisheries are available, 1994 marks the first year that data from all of the included fisheries were available and collected with methods comparable to those currently in use.

The 20-year period reflected in Table 2-2 shows a general downward trend. Estimates from 2000 through 2008 suggested this trend might have been stabilizing. However, the 2013 estimate of 903,741 salmon was the ninth-lowest within the 20-year period, with the 775,642 salmon harvested in 2009 being the lowest estimate, and the 834,627 salmon harvested in 2010 the third-lowest, since 1994. The estimate for 2012 of 935,470 was the highest since 2008. The 2013 estimate of 903,741, although down from 2012, was higher than the recent 5-year average (858,876 salmon) and the recent 10-year average (886,516 salmon), but lower than the historical average since 1994 (942,375 salmon). The collection of harvest data in the Kotzebue District for the first time since 2003 may account for the slight rise in the statewide subsistence harvest estimates for 2012 and 2013 compared to recent years. It should also be noted that the estimate of 83,729 Chinook salmon harvested in subsistence fisheries in 2013 is the second-lowest on record (2012 was the lowest), and is just 55% of the annual average since 1994 and 35% below the next-lowest annual estimate (128,657 Chinook salmon in 2011).

PERSONAL USE SALMON HARVESTS IN 2013

In 2013, personal use fisheries produced an estimated harvest of 665,303 salmon (Table 2-1). The Kenai River dip net fishery accounted for 53% of the statewide personal use salmon harvest (354,728 fish), followed by the Chitina Subdistrict dip net fishery (28%; 187,614 salmon), the Kasilof River dip net fishery (13%; 88,234 salmon), the Kasilof River setnet fishery (2%; 14,622 salmon), the Southeast Region (Juneau and Ketchikan non-subsistence areas only) (2%; 10.605 salmon), and the Kachemak Bay setnet fishery (<1%; 2,001 salmon). Sockeye salmon composed 98% of the Alaska personal use salmon harvest in 2013 (Figure 2-9).

The personal use harvest of 665,303 salmon in 2013 was the fourth-largest total since comprehensive records became available in 1994, but down from the record harvests of 2011 and 2012 (Table 2-3). The average annual personal use harvest since 1994 of 435,199 salmon is 65% of the 2013 total. Increased harvests in the Upper Cook Inlet personal use dip net fisheries account for most of the growth of personal use harvests since 1994 (see Chapter 11).

STATEWIDE SUBSISTENCE AND PERSONAL USE SALMON HARVESTS, 1994–2013

Table 2-4 reports historical estimated subsistence and personal use salmon harvests for 1994 through 2013 based on annual harvest assessment programs. As noted above, 1994 marks the first year that comparable data from all of the included fisheries are available.

The 20-year period reflected in Table 2-4 shows generally stable statewide harvest totals: the recent (2008–2012) 5-year average harvest was 1,525,128 salmon compared to a 19-year annual average of

1,377,575 salmon. The total harvest estimate for 2013 of 1,569,044 salmon is the third-highest within the 20-year period. As noted above, however, harvests in subsistence fisheries have generally declined since 1994 while personal use harvests have increased. In 2013, sockeye salmon made up 64% of the combined subsistence and personal use salmon harvests, followed by chum (23%), coho (6%), Chinook (5%), and pink salmon (2%) (Figure 2-10).

Table 2-5 reports subsistence and personal use harvests in 2013 by species and participants' place of residence, with harvests from all subsistence and personal use fisheries combined.

Table 2-1.–Alaska subsistence and personal use salmon harvests, 2013.

	Households or permits		Estimated salmon harvest					
Fishery	Total[a]	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Subsistence								
Adak District	6	3	0	30	12	0	80	122
Alaska Peninsula Management Area	172	157	235	6,684	2,222	1,080	1,133	11,354
Arctic District[b]	214	122	62	151	147	337	238	935
Batzulnetas Fishery	3	3	5	862	0	0	0	867
Bristol Bay Management Area	1,162	986	12,858	98,765	8,635	5,173	333	125,764
Chignik Management Area	112	96	102	8,100	991	174	790	10,157
Chitina Subdistrict: Federal	99	85	20	2,399	8	0	0	2,427
Copper River Flats	531	497	916	6,073	1	2	18	7,010
Glennallen Subdistrict	1,613	1,397	2,658	95,711	154	0	0	98,523
Kenai and Kasilof Rivers: Federal	142	138	0	1,515	4	0	0	1,519
Kodiak Management Area[a]	1,688	1,688	119	27,757	2,528	175	826	31,405
Kotzebue District[b]	791	618	285	298	3,626	45,715	830	50,754
Kuskokwim Management Area	4,314	1,755	51,211	42,996	27,874	54,821	741	177,643
Norton Sound - Port Clarence Area[b]	1,131	1,079	897	5,814	13,994	22,079	19,795	62,579
Port Graham & Koyuktolik Subdistricts[a]	14	14	17	4,888	2,685	897	410	8,897
Prince William Sound (General)	8	8	0	12	0	24	0	36
PWS Eastern District (Tatitlek)	22	11	0	613	277	129	0	1,019
PWS Southwestern District (Chenega Bay)	13	4	0	19	0	63	0	82
Seldovia Fishery	12	8	3	147	2	15	68	234
Southeast Region	2,919	2,526	849	38,732	2,912	1,031	3,029	46,553
Stikine River Federal Fishery	124	124	101	1,655	186	87	156	2,185
Tyonek Fishery	82	48	813	172	181	0	19	1,185
Unalaska District	254	197	3	4,281	199	67	290	4,840
Upper Yentna Fishery	22	19	0	160	92	32	128	412
Yukon Management Area[c]	3,228	1,607	12,575	0	14,566	229,019	1,079	257,239
Subtotal, Subsistence	**18,676**	**13,190**	**83,729**	**347,834**	**81,295**	**360,920**	**29,963**	**903,741**

-continued-

Table 2-1.–Page 2 of 2.

Personal use								
Chitina Subdistrict: State[d]	10,424	8,482	762	185,970	882	0	0	187,614
Kachemak Bay setnet[e]	123	118	9	122	1,732	3	135	2,001
Kasilof River setnet[e]	NA	NA	46	14,439	129	5	3	14,622
Kasilof River dip net[e]	NA	NA	18	85,528	1,666	339	683	88,234
Kenai River dip net[e]	NA	NA	11	347,222	3,169	701	3,625	354,728
Fish Creek dip net[e]	NA	NA	--	--	--	--	--	--
Unknown Upper Cook Inlet[e]	NA	NA	9	7,126	155	8	113	7,411
Beluga River dip net	8	8	0	30	55	1	2	88
Southeast Region	521	520	33	9,160	701	299	412	10,605
Subtotal, Personal use[e]	**46,287**	**35,900**	**888**	**649,597**	**8,489**	**1,356**	**4,973**	**665,303**
Total	**64,963**	**49,090**	**84,617**	**997,431**	**89,784**	**362,276**	**34,936**	**1,569,044**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note Included in this table are all harvest estimates based upon annual harvest monitoring programs.

a. Because the numbers of permits issued for the Kodiak and Port Graham/Koyuktolik fisheries are unknown, the numbers of permits returned are used in place of these values.

b. Formerly included within Northwest Alaska. Partial coverage for Arctic and Kotzebue Districts; see Chapter 3 for details.

c. Includes a small personal use harvest that occurs within the Fairbanks Nonsubsistence Area.

d. Reclassified as a personal use fishery in 2003.

e. A single permit is issued for the Kasilof set net, Kasilof dip net, Kenai dip net, and Fish Creek dip net fisheries. In some cases, returned permits did not indicate the area fished. There were 35,211 permits issued and 26,772 permits returned for these fisheries.

NA = Data not available.

Table 2-2.–Historical Alaska subsistence salmon harvests, 1994–2013.

	Households or permits		Estimated salmon harvest					
Year	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	15,493	10,553	183,936	338,946	135,896	417,199	94,469	1,170,446
1995	15,596	10,328	180,805	291,539	120,048	499,992	54,908	1,147,292
1996	16,512	11,789	158,369	320,821	121,381	498,525	80,928	1,180,026
1997	17,668	12,863	176,703	376,397	98,883	347,808	41,543	1,041,335
1998	17,772	12,513	170,271	328,857	93,055	302,037	74,216	968,436
1999	17,290	12,763	155,088	358,866	89,627	338,351	32,402	974,334
2000	16,678	12,765	130,822	296,875	99,338	247,337	51,714	826,087
2001	18,693	13,061	161,632	340,411	98,517	240,581	42,435	883,576
2002	17,266	13,026	142,459	299,182	92,192	229,179	85,431	848,443
2003	18,131	13,211	164,555	324,539	106,488	238,582	66,794	900,958
2004	18,374	13,549	173,746	332,543	100,860	239,811	91,597	938,557
2005	16,256	11,013	153,431	323,218	97,993	257,200	76,071	907,912
2006	16,988	11,400	139,815	314,435	93,478	291,510	73,234	912,473
2007	17,068	10,374	154,974	319,885	78,704	273,802	33,513	860,877
2008	17,226	11,248	174,115	315,040	113,242	270,502	85,842	958,741
2009	16,989	11,607	141,302	296,104	86,363	213,835	38,038	775,642
2010	16,020	11,381	133,252	326,363	80,217	235,763	59,031	834,627
2011	17,181	12,155	128,657	341,388	77,180	257,032	35,646	839,903
2012	18,598	11,970	74,381	344,071	80,275	367,692	69,051	935,470
2013	18,676	13,190	83,729	347,834	81,295	360,920	29,963	903,741
5-year average (2008–2012)	17,203	11,672	130,341	324,593	87,455	268,965	57,522	868,876
10-year average (2003–2012)	17,283	11,791	143,823	323,759	91,480	264,573	62,882	886,516
Historical average (1994–2012)	17,147	11,977	152,543	325,762	98,092	303,513	62,466	942,375

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note Included in this table are all harvest estimates based upon annual harvest monitoring programs.

Table 2-3.–Historical Alaska personal use salmon harvests, 1994–2013.

	Households or permits		Estimated salmon harvest					
Year	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	7,346	6,223	5,524	142,944	15,810	1,619	2,831	168,729
1995	6,997	5,674	7,029	139,861	18,455	1,672	1,579	168,596
1996	22,071	20,707	4,360	241,293	11,562	374	3,995	261,585
1997	24,281	22,939	6,318	298,151	2,753	100	1,101	308,424
1998	25,764	23,155	7,430	314,131	6,302	225	2,100	330,187
1999	27,907	24,587	7,630	360,885	5,485	1,062	3,097	378,159
2000	25,007	22,006	4,653	274,422	9,576	1,555	3,782	293,988
2001	27,017	23,392	4,631	365,875	6,990	1,746	4,037	383,279
2002	24,921	20,560	3,449	358,608	6,965	1,512	10,044	380,578
2003	26,101	21,707	3,766	394,928	6,004	1,446	3,387	409,532
2004	30,673	25,205	3,775	470,804	8,220	1,729	3,571	488,100
2005	30,817	26,677	3,367	508,419	6,350	1,218	3,776	523,130
2006	27,545	23,772	4,263	354,130	7,600	1,212	13,741	380,946
2007	31,855	27,922	4,773	496,317	6,139	797	4,267	512,294
2008	32,582	27,935	3,646	410,298	7,991	927	13,051	435,913
2009	38,443	32,800	1,654	558,352	6,872	873	7,705	575,456
2010	41,505	33,580	1,826	660,892	11,475	1,212	7,393	682,797
2011	44,208	35,265	2,661	773,540	9,714	1,461	6,371	793,747
2012	44,759	35,535	830	776,604	8,972	832	6,107	793,345
2013	46,287	35,900	888	649,597	8,489	1,356	4,973	665,303
5-year average (2008–2012)	40,299	33,023	2,123	635,937	9,005	1,061	8,125	656,252
10-year average (2003–2012)	34,849	29,040	3,056	540,428	7,934	1,171	6,937	559,526
Historical average (1994–2012)	28,410	24,192	4,294	415,813	8,591	1,135	5,365	435,199

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note Included in this table are all harvest estimates based upon annual harvest monitoring programs.

Table 2-4.–Historical Alaska subsistence and personal use salmon harvests, 1994–2013.

	Households or permits		Estimated salmon harvest					
Year	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	22,839	16,776	189,460	481,890	151,707	418,818	97,300	1,339,175
1995	22,593	16,002	187,834	431,401	138,503	501,664	56,487	1,315,888
1996	38,583	32,496	162,730	562,114	132,944	498,900	84,923	1,441,611
1997	41,949	35,802	183,022	674,548	101,637	347,909	42,644	1,349,759
1998	43,536	35,668	177,701	642,987	99,357	302,262	76,316	1,298,623
1999	45,197	37,350	162,717	719,752	95,112	339,413	35,499	1,352,493
2000	41,685	34,771	135,476	571,297	108,914	248,892	55,496	1,120,074
2001	45,710	36,453	166,263	706,285	105,507	242,327	46,472	1,266,854
2002	42,187	33,586	145,908	657,790	99,157	230,691	95,475	1,229,021
2003	44,232	34,918	168,321	719,467	112,493	240,028	70,181	1,310,489
2004	49,047	38,754	177,521	803,348	109,080	241,540	95,168	1,426,657
2005	47,073	37,690	156,798	831,637	104,343	258,418	79,847	1,431,042
2006	44,533	35,172	144,078	668,565	101,078	292,722	86,975	1,293,419
2007	48,923	38,296	159,747	816,202	84,843	274,599	37,780	1,373,171
2008	49,808	39,183	177,761	725,338	121,233	271,429	98,893	1,394,654
2009	55,432	44,407	142,956	854,456	93,235	214,708	45,743	1,351,098
2010	57,525	44,961	135,078	987,255	91,692	236,975	66,424	1,517,424
2011	61,389	47,420	131,318	1,114,928	86,894	258,493	42,017	1,633,650
2012	63,357	47,505	75,211	1,120,675	89,247	368,524	75,158	1,728,815
2013	64,963	49,090	84,617	997,431	89,784	362,276	34,936	1,569,044
5–year average (2008–2012)	57,502	44,695	132,465	960,530	96,460	270,026	65,647	1,525,128
10–year average (2003–2012)	52,132	40,831	146,879	864,187	99,414	265,744	69,819	1,446,042
Historical average (1994–2012)	45,558	36,169	156,837	741,576	106,683	304,648	67,831	1,377,575

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note Included in this table are all harvest estimates based upon annual harvest monitoring programs.

Table 2-5.–Alaska subsistence salmon harvests by species and place of residence, 2013.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak	7	4	0	30	12	0	80	122
Akhiok	3	3	0	181	8	2	10	201
Akiachak	157	93	3,585	2,594	1,106	3,417	51	10,753
Akiak	83	46	1,449	1,731	454	2,212	110	5,956
Akutan	3	3	0	60	16	0	0	76
Alakanuk	151	61	275	0	167	7,848	92	8,382
Alatna	7	3	0	0	0	360	0	360
Aleknagik	24	17	432	1,618	230	88	0	2,368
Alexander Creek	2	2	0	35	0	0	0	35
Allakaket	61	26	6	45	236	2,803	0	3,090
Alpine	1	1	1	17	0	0	0	18
Ambler	72	53	9	34	187	4,320	260	4,811
Anaktuvuk Pass	3	1	0	30	0	0	0	30
Anchor Point	295	248	6	3,869	11	1	55	3,943
Anchorage	20,303	15,220	1,149	279,290	2,713	652	2,303	286,106
Anderson	12	11	10	214	0	4	1	229
Angoon	96	77	0	1,156	19	0	7	1,182
Aniak	193	170	1,440	1,486	3,102	2,880	22	8,931
Anvik	33	31	121	0	97	1,593	0	1,811
Arctic Village	4	2	0	45	0	0	0	45
Atmautluak	63	37	1,592	1,316	203	2,409	47	5,567
Atqasuk	3	2	0	22	0	0	0	22
Auke Bay	7	6	0	132	11	37	21	201
Barrow	70	37	20	1,349	4	14	3	1,389
Beaver	33	23	107	0	0	33	0	140
Beluga	1	0	0	0	0	0	0	0
Bethel	2,143	529	17,246	12,780	12,663	12,507	209	55,404
Bettles	28	15	0	0	0	0	0	0
Big Lake	253	192	23	4,519	69	2	31	4,646
Birch Creek	17	3	0	40	0	0	0	40
Bird Creek	1	1	0	30	0	0	0	30
Brevig Mission	45	45	20	1,185	486	2,346	1,138	5,175
Buckland	105	87	226	236	838	3,104	129	4,533
Cantwell	18	17	0	287	0	0	0	287
Central	8	8	22	52	0	0	0	74
Chalkyitsik	29	14	0	0	0	249	0	249
Chefornak	1	0	0	0	0	0	0	0
Chenega Bay	7	1	0	11	0	53	0	64
Chevak	4	4	0	33	2	0	3	38
Chickaloon	35	34	7	610	0	0	0	617
Chignik Bay	15	12	15	974	69	2	19	1,079
Chignik Lagoon	19	16	40	1,914	65	1	41	2,062
Chignik Lake	15	12	19	2,202	63	3	37	2,323
Chiniak	24	24	3	344	62	7	24	440
Chistochina	8	6	36	908	0	0	0	944
Chitina	38	30	29	2,127	0	0	0	2,155
Chuathbaluk	34	27	155	498	319	935	0	1,907

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Table 2-5.–Page 2 of 7.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Chugiak	912	764	58	14,090	77	10	84	14,320
Circle	15	12	157	10	150	1,463	0	1,780
Clam Gulch	46	40	0	762	12	0	3	777
Clarks Point	14	13	191	981	643	113	112	2,040
Clear	7	6	0	199	19	0	0	218
Coffman Cove	7	5	0	60	46	0	39	146
Cold Bay	29	27	0	538	18	12	1	569
Cooper Landing	104	96	2	1,305	5	0	0	1,312
Copper Center	151	124	163	11,110	1	0	1	11,275
Copperville	8	8	25	849	0	0	0	874
Cordova	394	369	728	4,279	1	1	18	5,028
Craig	130	110	0	874	123	1	59	1,057
Crooked Creek[b]	38	1	96	644	288	1,023	0	2,051
Deering	1	1	0	0	0	0	0	0
Delta Junction	519	461	125	11,729	144	0	57	12,055
Denali National Park	40	35	0	683	23	0	2	708
Dillingham	341	284	4,056	15,061	4,038	1,315	125	24,595
Dot Lake	2	1	0	40	0	0	0	40
Douglas	56	54	2	595	44	10	26	677
Dutch Harbor	119	91	0	1,895	69	17	52	2,034
Eagle	24	23	175	25	0	18,921	0	19,121
Eagle River	2,498	2,124	151	36,151	337	65	271	36,974
Eek	88	50	1,188	1,319	483	1,232	18	4,240
Egegik	11	7	0	442	124	3	0	569
Eielson AFB	100	77	9	2,073	0	0	2	2,085
Ekwok	25	23	1,007	618	477	346	0	2,448
Elfin Cove	1	0	0	0	0	0	0	0
Elim	57	57	39	15	1,403	1,123	951	3,531
Elmendorf AFB	16	12	0	388	0	0	0	388
Emmonak	196	105	553	40	517	10,374	0	11,484
Ester	79	66	33	1,908	12	0	0	1,954
Excursion Inlet	4	3	0	0	27	0	8	35
Fairbanks	4,166	3,440	1,234	79,016	3,101	8,774	179	92,305
False Pass	5	5	8	479	141	62	30	720
Fort Greely	26	20	2	573	0	0	0	576
Fort Richardson	23	16	0	391	0	0	0	391
Fort Wainwright	136	102	5	2,282	22	0	1	2,311
Fort Yukon	228	59	1,561	32	7	16,678	0	18,278
Fritz Creek	69	57	0	907	2	0	11	921
Gakona	27	24	23	1,975	0	0	0	1,998
Galena	166	65	275	108	170	785	1	1,339
Gambell	5	4	0	10	0	3	1	14
Girdwood	311	243	5	4,519	36	10	38	4,608
Glennallen	101	88	121	4,902	15	0	0	5,038
Golovin	34	34	43	13	185	1,743	1,678	3,662
Goodnews Bay	70	35	413	1,113	295	153	13	1,987
Grayling	53	42	226	35	34	1,089	0	1,384
Gulkana	3	3	27	591	0	0	0	618

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Table 2-5.–Page 3 of 7.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Gustavus	30	29	1	289	1	2	15	309
Haines	436	421	155	7,391	453	486	1,387	9,872
Healy	75	68	1	1,355	216	740	14	2,326
Hollis	32	27	0	325	27	0	31	383
Holy Cross	57	31	204	0	0	1,117	0	1,321
Homer	1,027	840	71	13,835	209	95	185	14,396
Hoonah	102	84	0	639	37	52	134	863
Hooper Bay	227	98	1,210	0	73	13,720	302	15,305
Hope	52	48	0	600	1	0	4	604
Houston	42	28	3	573	21	0	3	601
Hughes	34	26	6	0	18	1,364	0	1,388
Huslia	93	38	62	0	342	3,963	0	4,367
Hydaburg	70	44	0	1,356	138	0	36	1,531
Igiugig	8	7	0	355	0	0	0	355
Iliamna	17	14	0	3,535	0	0	0	3,535
Indian	5	5	1	84	0	0	0	85
Ivanof Bay	2	2	1	70	182	27	32	312
Joint Base Elmendorf Richardson	374	249	0	4,482	77	16	105	4,681
Juneau	798	710	54	10,627	307	133	347	11,468
Kake	162	138	25	1,869	50	22	38	2,004
Kaktovik	4	3	0	40	0	0	0	41
Kaltag	51	17	348	0	306	650	0	1,304
Karluk	2	2	0	35	5	0	0	40
Kasaan	12	10	0	182	35	0	8	226
Kasigluk	105	50	2,919	1,470	418	2,197	14	7,018
Kasilof	488	413	5	7,226	74	7	22	7,334
Kenai	1,676	1,330	81	21,253	203	36	140	21,714
Kennicott	3	2	0	112	0	0	0	112
Kenny Lake	52	44	44	2,728	0	0	0	2,772
Ketchikan	267	232	12	2,469	160	307	557	3,505
Kiana	94	69	5	44	161	2,969	212	3,391
King Cove	52	48	10	2,495	1,541	299	135	4,480
King Salmon	79	70	87	4,595	65	29	10	4,786
Klawock	106	79	0	1,234	439	12	145	1,830
Klukwan	9	9	0	424	13	39	54	530
Kobuk	33	25	3	11	0	2,076	9	2,099
Kodiak (city)	1,346	1,335	142	24,036	1,567	87	420	26,251
Kokhanok	31	19	0	13,881	7	196	8	14,092
Koliganek	32	30	1,569	3,420	935	1,566	0	7,490
Kongiganak[b]	90	0	1,203	1,222	487	1,505		4,417
Kotlik	117	57	794	0	457	11,223	23	12,497
Kotzebue	33	21	0	448	26	8	7	489
Koyuk	86	78	123	22	856	3,883	1,431	6,314
Koyukuk	49	12	898	0	3,267	9,767	0	13,932
Kwethluk	168	96	3,192	2,725	1,555	3,825	95	11,392
Kwigillingok	2	1	0	15	0	0	0	15
Lake Louise	1	1	0	3	0	0	0	3
Larsen Bay	14	14	7	687	30	0	0	724

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Table 2-5.–Page 4 of 7.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Levelock	5	4	15	1,034	0	0	0	1,049
Lime Village[b]	14	0	33	823	369	621		1,846
Lower Kalskag	76	48	744	977	529	1,214	9	3,473
Manley Hot Springs	15	14	165	11	447	1,584	0	2,207
Manokotak	18	16	90	1,397	12	23	2	1,525
Marshall	102	32	328	0	508	4,839	7	5,682
McCarthy	35	32	0	280	9	0	0	289
McGrath	137	69	95	756	523	598	7	1,979
Meadow Lakes	2	2	2	127	0	0	0	129
Mekoryuk	1	0	0	10	0	0	0	10
Mentasta Lake	5	5	5	1,151	0	0	0	1,156
Metlakatla	3	1	0	10	0	0	0	10
Minto	49	42	60	0	266	851	0	1,177
Moose Pass	31	27	1	345	3	0	4	353
Mountain Village	167	59	266	0	271	14,035	0	14,572
Nabesna	3	3	0	186	0	0	0	186
Naknek	97	86	119	8,893	176	88	25	9,300
Nanwalek	6	6	2	3,909	2,619	811	383	7,724
Napakiak	99	53	1,588	1,108	634	1,185	3	4,518
Napaskiak	103	57	2,939	2,069	772	2,589	0	8,369
Naukati Bay	4	3	0	0	0	0	0	0
Nelchina	5	5	13	384	0	0	0	397
Nelson Lagoon	7	5	0	62	56	7	4	129
Nenana	87	78	93	1,241	1,764	3,758	2	6,859
New Stuyahok	64	63	4,235	4,846	1,141	877	5	11,103
Newhalen	13	12	0	4,097	0	0	0	4,097
Nikiski	235	184	1	3,080	41	2	16	3,140
Nikolaevsk	18	15	0	283	1	0	0	283
Nikolai	35	32	283	0	119	513	0	915
Ninilchik	220	189	3	2,526	13	11	14	2,568
Noatak	126	94	5	10	1,233	5,655	32	6,935
Nome	483	480	49	3,447	2,182	4,637	1,429	11,745
Nondalton	29	16	0	10,565	0	0	0	10,565
Noorvik	134	99	37	35	1,207	19,972	173	21,425
North Pole	1,213	982	252	25,789	147	2	19	26,209
Northway	6	4	3	384	0	0	0	386
Nuiqsut	1	0	0	10	0	0	0	10
Nulato	90	33	602	46	130	3,396	0	4,174
Nunam Iqua (Sheldon Point)	38	21	12	0	83	2,744	0	2,839
Nunapitchuk	118	71	2,563	1,806	226	2,977	20	7,592
Old Harbor	19	19	2	854	252	58	92	1,258
Oscarville	15	13	585	347	37	490	0	1,459
Other communities[d]	73	66	131	0	6	292	0	429
Ouzinkie	30	30	1	858	330	15	145	1,349
Palmer	2,416	1,953	189	38,349	258	93	295	39,185
Pedro Bay	16	15	0	3,971	0	0	0	3,971
Pelican	2	2	0	10	0	0	0	10

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Table 2-5.–Page 5 of 7.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Perryville	26	24	22	1,323	545	101	630	2,621
Peters Creek	1	1	1	9	0	0	0	10
Petersburg	194	184	38	1,913	615	43	73	2,682
Pilot Point	3	2	9	189	48	6	0	252
Pilot Station	125	61	258	0	136	6,076	131	6,601
Pitka's Point	29	21	37	0	41	2,251	2	2,331
Platinum	20	17	39	181	50	90	5	365
Point Baker	1	1	0	0	0	0	0	0
Point Hope	2	2	0	30	0	0	0	30
Point Lay	65	43	0	40	3	157	84	284
Port Alexander	4	4	0	200	0	0	12	212
Port Alsworth	49	45	0	3,622	16	3	0	3,641
Port Graham	10	10	15	1,034	66	86	27	1,228
Port Heiden	5	4	9	663	0	29	0	702
Port Lions	32	31	12	912	213	7	92	1,236
Port Moller	1	1	0	80	0	0	0	80
Port Protection	1	1	0	0	0	0	0	0
Portage Creek	1	1	39	8	0	3	0	50
Prudhoe Bay	1	1	0	10	0	0	0	10
Quinhagak	166	87	3,143	2,159	1,087	1,958	73	8,420
Rampart	5	3	35	60	0	105	0	200
Red Devil	15	10	77	270	318	981	0	1,646
Ruby	71	22	357	0	345	3,186	0	3,888
Russian Mission	81	28	236	0	152	4,771	12	5,171
Saint Marys	146	62	215	10	124	10,176	0	10,525
Saint Paul Island	4	4	0	43	0	0	0	43
Salcha	87	70	7	1,717	12	0	0	1,737
Sand Point	51	46	164	2,286	479	609	903	4,441
Savoonga	2	2	0	12	0	0	0	12
Saxman	20	18	0	324	22	12	2	361
Scammon Bay	115	48	332	0	214	9,564	507	10,617
Selawik	172	145	1	10	0	362	15	388
Seldovia	29	23	3	295	9	15	94	415
Seward	284	234	8	3,126	12	2	24	3,173
Shageluk	28	19	4	0	219	568	0	791
Shaktoolik	68	63	136	108	2,146	983	3,346	6,719
Shishmaref	3	3	0	25	0	0	0	25
Shungnak	65	49	0	0	0	7,257	0	7,257
Sitka	694	618	7	12,072	246	112	250	12,686
Skagway	23	21	3	263	0	3	50	320
Skwentna	10	9	0	79	46	22	74	221
Slana	22	22	5	961	0	0	0	966
Sleetmute	39	32	96	362	219	542	1	1,220
Soldotna	2,075	1,695	34	25,704	124	35	128	26,027
South Naknek	19	15	25	1,164	76	6	5	1,277
Stebbins	1	0	0	0	0	0	0	0
Sterling	504	417	4	6,361	24	21	25	6,436
Stevens Village	23	17	239	15	0	890	0	1,144

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Table 2-5.–Page 6 of 7.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Stony River	15	11	51	447	120	27	33	678
Sutton	122	96	8	1,692	3	0	14	1,717
Takotna[b]	23	0	0	1	0	6		7
Talkeetna	104	85	28	1,824	81	19	10	1,961
Tanacross	2	2	0	97	0	0	0	97
Tanana	101	46	1,200	25	1,135	41,111	3	43,474
Tatitlek	12	11	4	648	190	129	0	971
Tazlina	33	28	127	2,638	0	0	0	2,765
Telida[c]	2							
Teller	50	50	18	902	130	2,820	482	4,352
Tenakee Springs	2	2	0	20	0	0	0	20
Thorne Bay	24	23	0	83	69	0	2	154
Togiak	63	46	663	3,679	208	363	33	4,946
Tok	87	79	73	4,654	0	0	0	4,727
Toksook Bay	3	2	0	10	0	0	0	10
Tolsona	11	11	0	280	0	0	0	280
Tonsina	13	12	7	424	0	0	0	431
Trapper Creek	26	21	0	487	1	0	3	490
Tuluksak	93	59	732	1,541	473	3,062	10	5,818
Tuntutuliak	91	58	2,448	1,183	450	2,180	3	6,264
Twin Hills	2	2	28	16	0	12	0	56
Two Rivers	26	23	3	549	25	0	0	577
Tyonek	59	34	636	74	118	0	14	842
Ugashik	9	8	10	320	108	2	0	440
Unalakleet	254	216	466	287	6,136	3,161	7,780	17,831
Unalaska	120	92	3	2,446	114	50	236	2,848
Upper Kalskag	59	30	1,317	662	636	1,534	0	4,149
Valdez	314	264	76	7,646	4	0	1	7,728
Venetie	80	24	311	0	6	5,340	0	5,657
Wainwright	152	82	62	124	144	180	154	664
Wasilla	4,984	3,873	519	84,105	1,194	221	496	86,534
White Mountain	42	42	4	83	432	1,289	1,535	3,343
Whittier	10	9	0	61	0	0	0	61
Willow	249	200	9	3,837	71	5	43	3,966
Wiseman	1	0	0	0	0	0	0	0
Wrangell	191	183	81	2,060	174	113	169	2,597
Yakutat	130	109	610	4,224	748	31	2	5,615
Other USA	19	16	0	206	1	0	0	206
Unknown community	894	451	16	8,571	1,979	17	255	10,837
Total	**64,963**	**49,090**	**84,617**	**997,431**	**89,784**	**362,276**	**34,936**	**1,569,044**

-continued-

Table 2-5.–Page 7 of 7.

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. "Included" is the sample size or the number of permits returned.

b. These communities were not contacted during the 2013 study period. Harvests were estimated using historical average household harvest expanded by the number of households.

c. These communities were not contacted during the 2013 study period. Not enough data was available to estimate harvest.

d. "Other communities" includes residents of the Upper Tanana River drainage communities of Delta Junction, Dot Lake, Northway, Tanacross, and Tok, and the community of Anderson who obtained a permit and fished in the Tanana River.

-- Data not available.

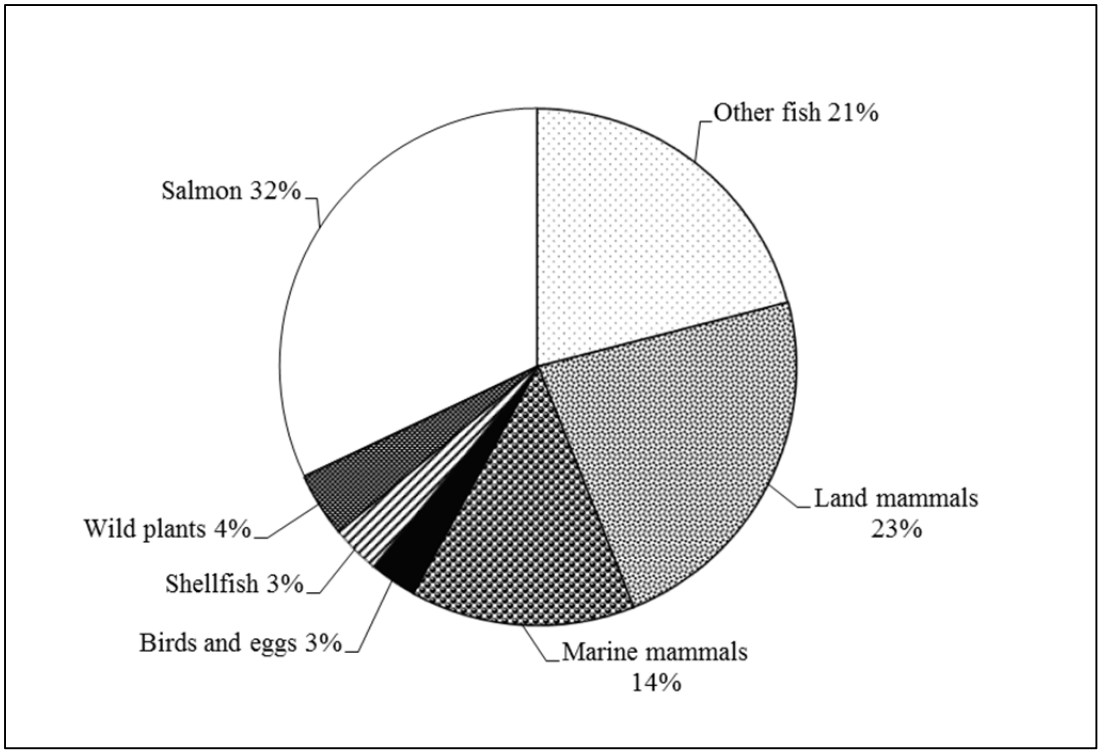

Figure 2-1.–Composition of subsistence harvest by rural Alaska residents, 2012.

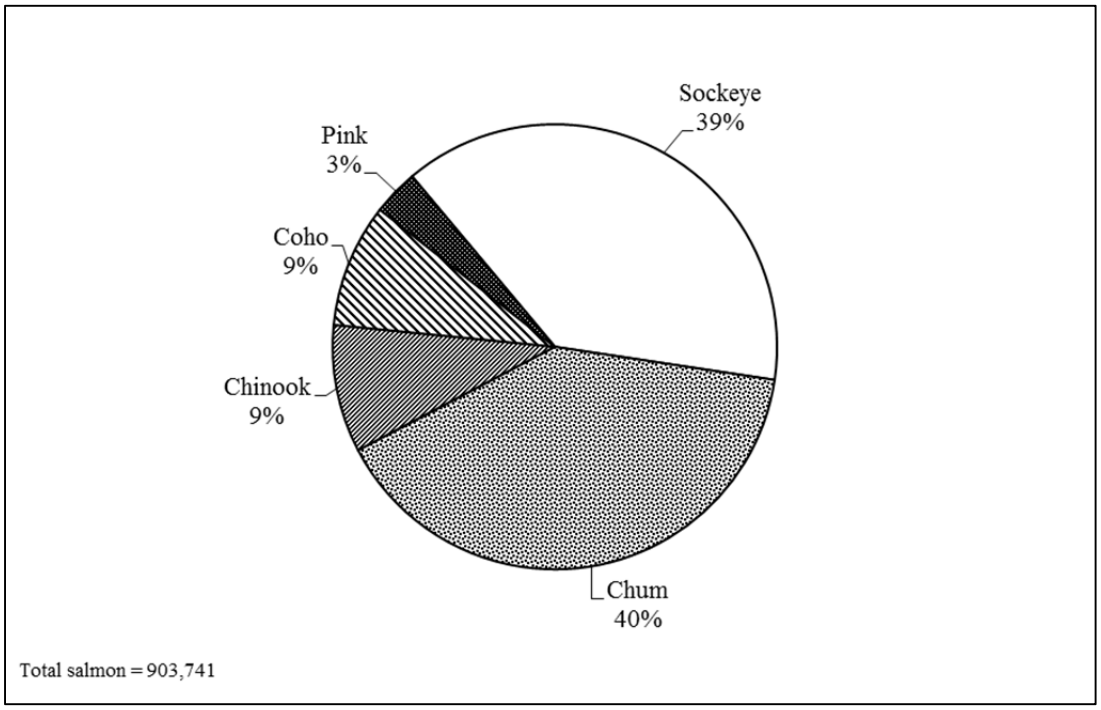

Figure 2-2.–Alaska subsistence salmon harvest by species, 2013.

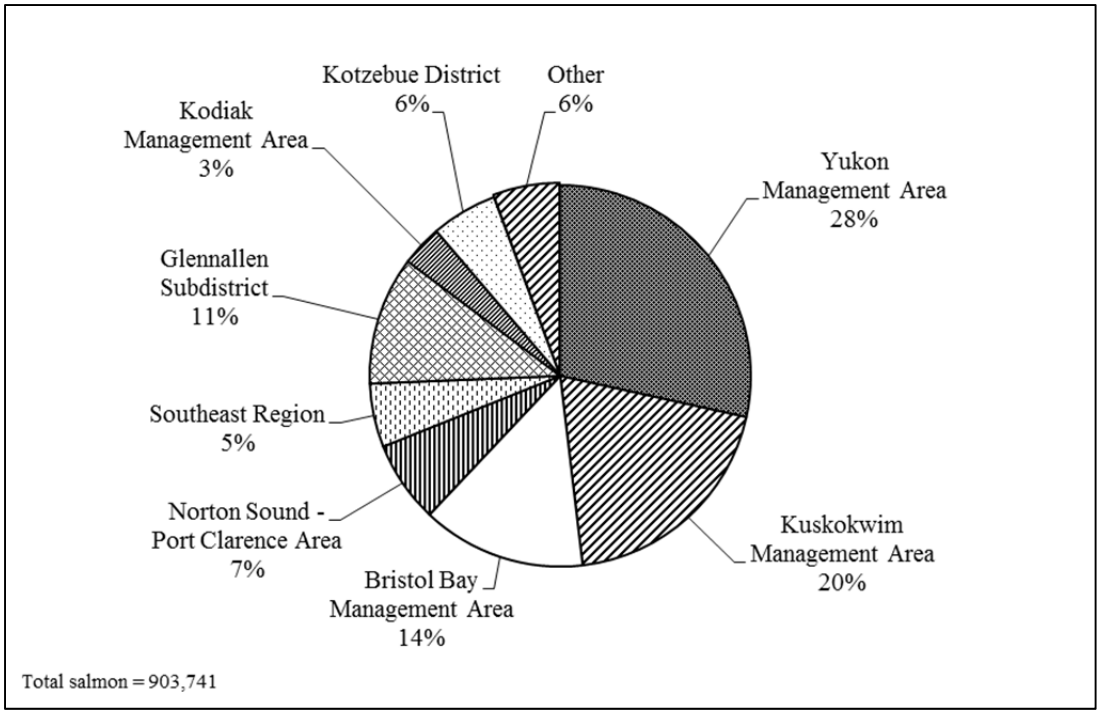

Figure 2-3.–Alaska subsistence salmon harvest by area, 2013.

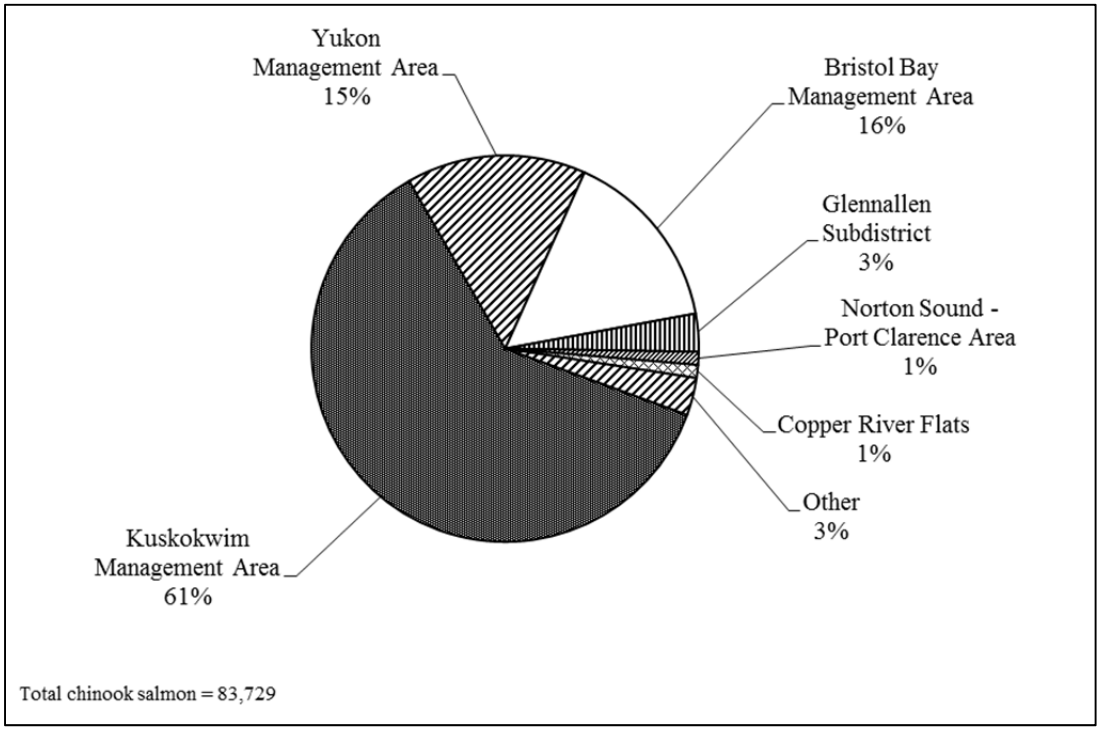

Figure 2-4.–Subsistence Chinook salmon harvest by area, 2013.

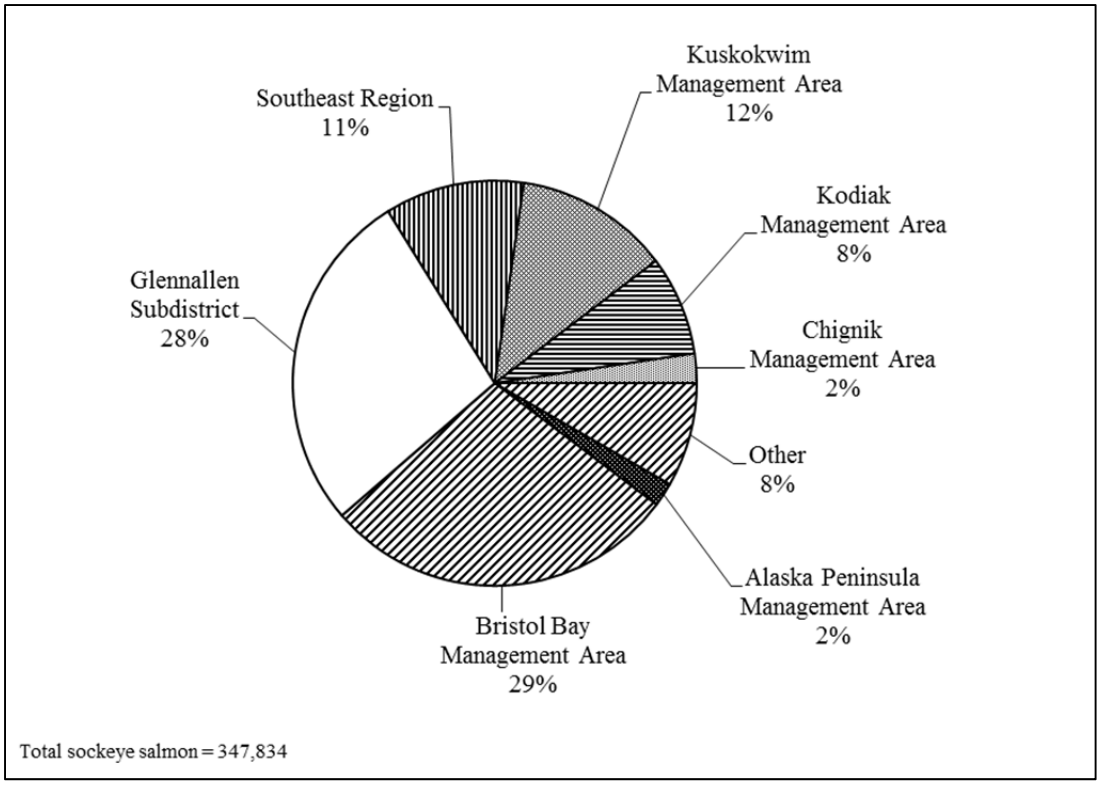

Figure 2-5.–Subsistence sockeye salmon harvest by area, 2013.

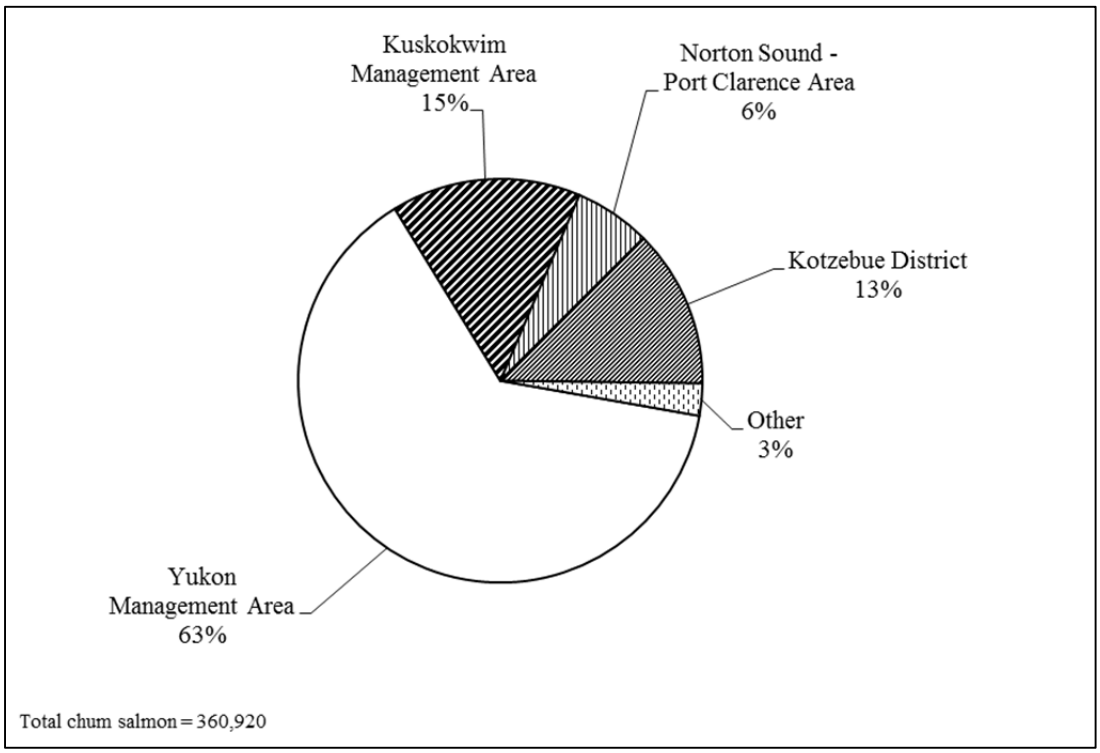

Figure 2-6.–Subsistence chum salmon harvest by area, 2013.

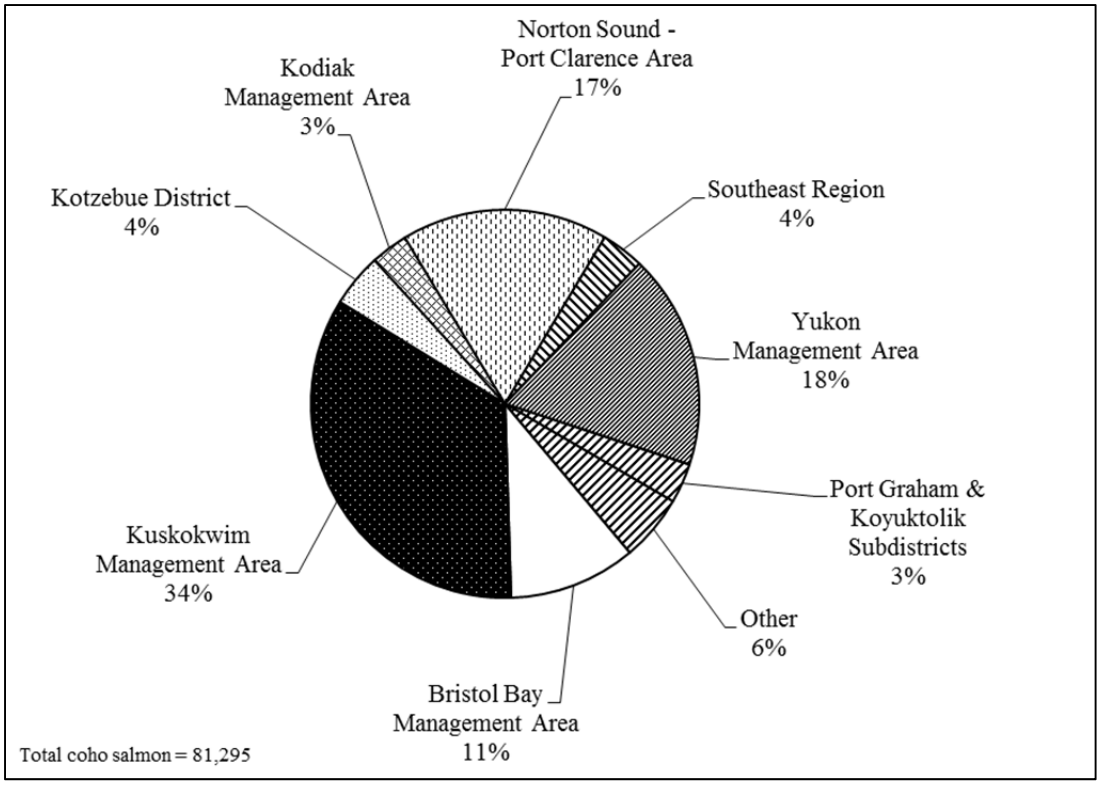

Figure 2-7.–Subsistence coho salmon harvest by area, 2013.

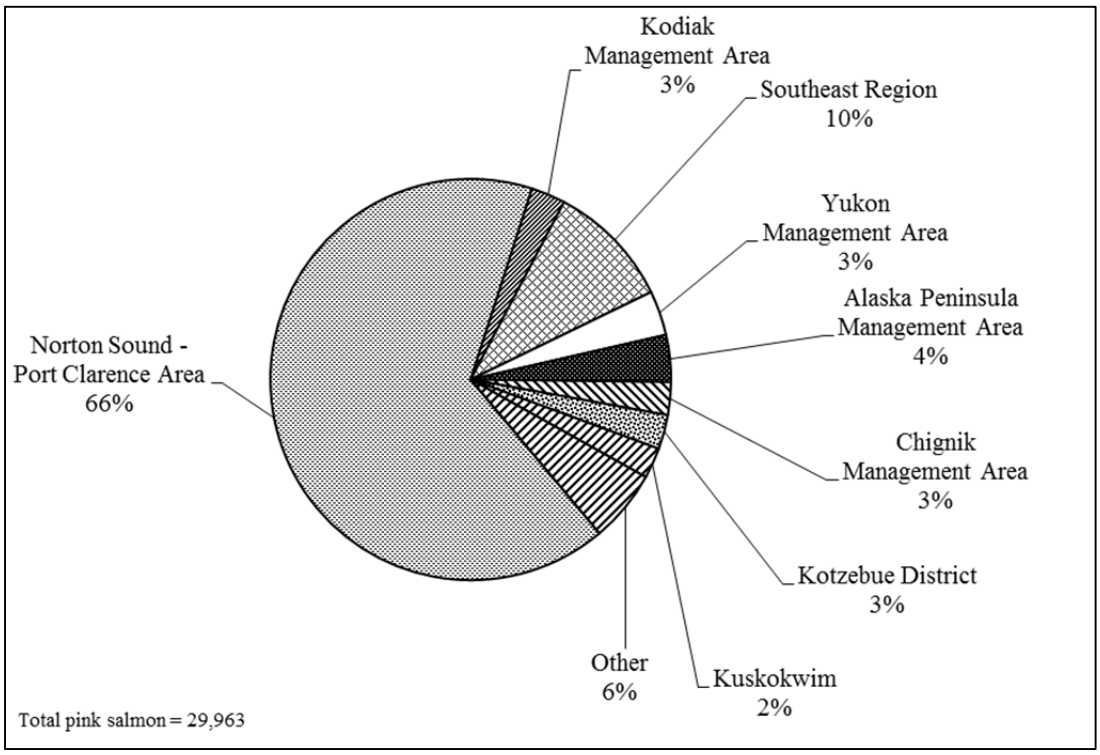

Figure 2-8.–Subsistence pink salmon harvest by area, 2013.

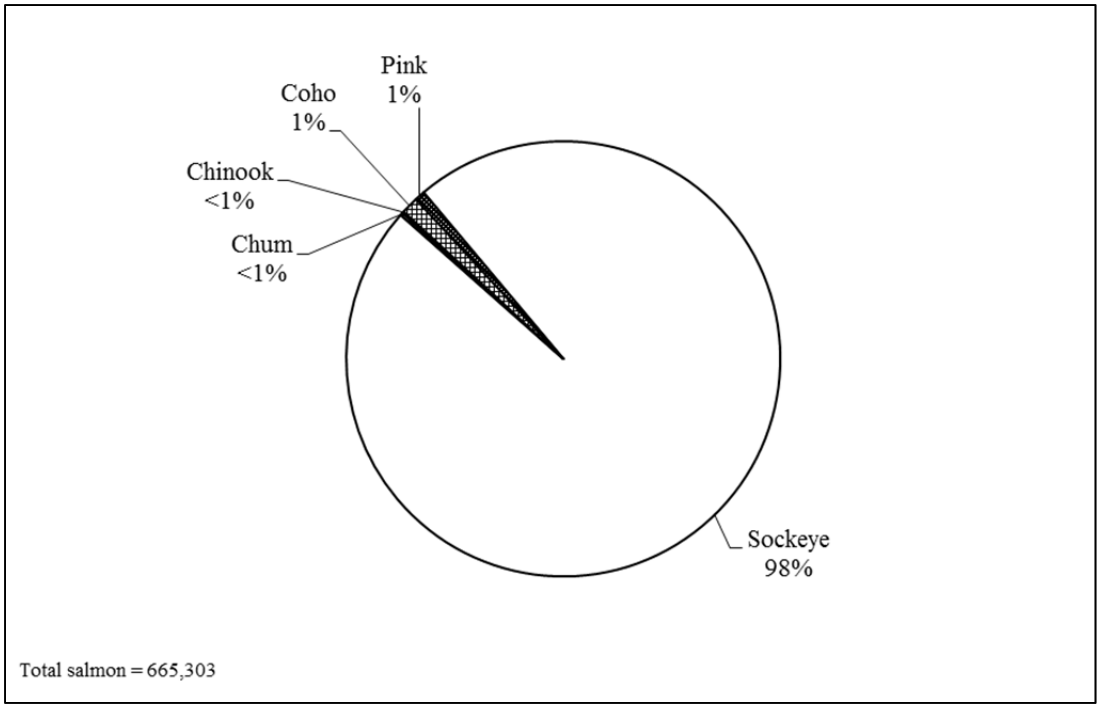

Figure 2-9.–Alaska personal use salmon harvest by species, 2013.

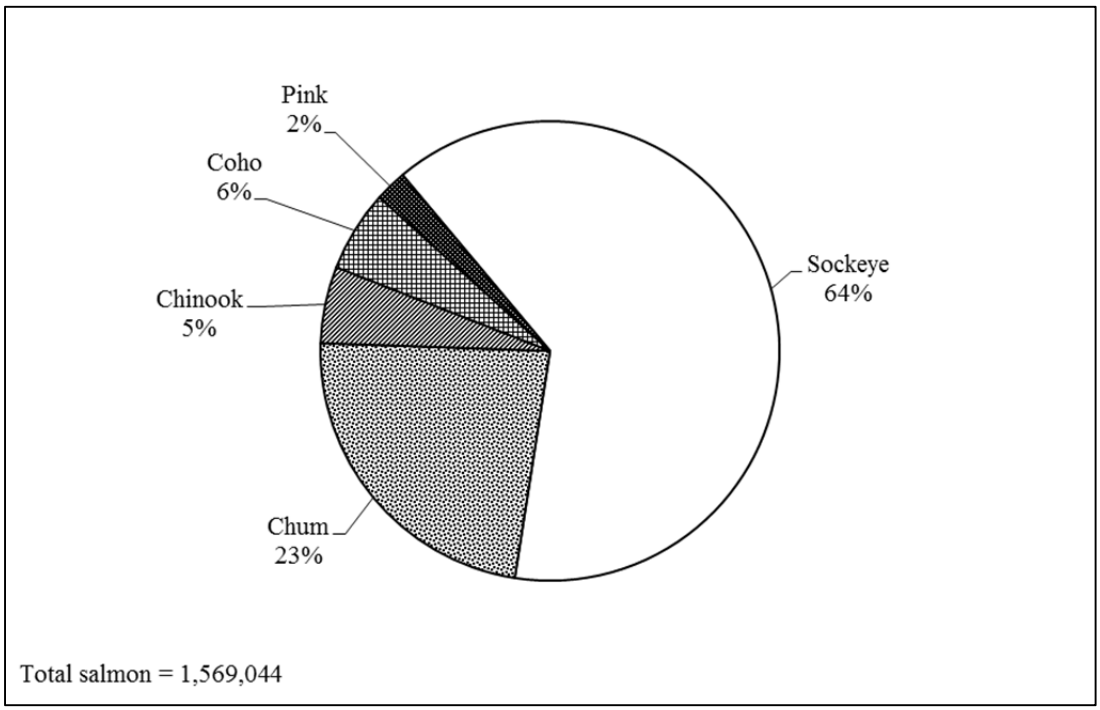

Figure 2-10.–Alaska subsistence and personal use salmon harvest by species, 2013.

CHAPTER 3: NORTON SOUND-PORT CLARENCE AREA AND ARCTIC-KOTZEBUE AREA

INTRODUCTION

In 2013, the fisheries management district for the North Slope, called the Northern Area, was renamed the Arctic Area. At the same time, management of this area was separated from the Yukon Area and combined with the Kotzebue area. The new fisheries management area is called the Arctic-Kotzebue Area. Previous statewide subsistence fisheries reports have not included information regarding subsistence fisheries on the North Slope, although ongoing division research is attempting to fill this information gap. This chapter has been reorganized and expanded to reflect these changes to the subsistence fisheries management area. It has been expanded to include the results of recent subsistence research conducted in the area, focusing on subsistence fisheries harvest information to supplement the existing annual harvest monitoring program.

NORTON SOUND–PORT CLARENCE AREA SALMON

Background

The archaeological record of the Norton Sound–Port Clarence region provides physical evidence of subsistence fishing dating back to the Arctic Small Tool/Norton Tradition, ca. 1500–1000 B.C.E. (Harritt 2010; Smith and Vreeman 1995). The area includes the regional center of Nome, with a 2013 population of 3,656, and 13 smaller communities ranging in size from 119 (Diomede) to 721 (Gambell).[1] Overall, 76% of the residents of the Nome Census Area are Alaska Native, with an additional 6% reporting 2 or more racial backgrounds. More than 90% of the region's population outside of Nome is Alaska Native, with Inupiaq, Yupik, and Siberian Yupik peoples present. Most residents of the region continue to participate in a mixed subsistence-cash economy and depend on wild foods for cultural and nutritional sustenance. While more opportunities for wage work exist in Nome itself, subsistence activities are still an important facet of life to many of its inhabitants.

In summer, subsistence fishers harvest salmon with gillnets or seines in the main Seward Peninsula rivers and coastal marine waters. Beach seines are used near the spawning grounds to harvest schooling or spawning salmon and other species of fish. A major portion of fish taken during the summer months is air dried or smoked for later consumption by residents. Chum and pink salmon are the most abundant salmon species districtwide; Chinook and coho salmon are present throughout the area but are more common in eastern and southern Norton Sound. Sockeye salmon are found in a few Seward Peninsula streams.

Regulations

The Port Clarence District includes all waters from Cape Douglas north to Cape Prince of Wales, including Salmon Lake and the Pilgrim River drainage. In most of the district, subsistence salmon fishing has few restrictions other than the general statewide provisions. Standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Salmon may be taken in most areas at any time, with no harvest limits. This area includes fishing areas used by residents of Teller, Brevig Mission, and Nome (the area is accessible via road from Nome) (Magdanz 1992:27). Since 2004, subsistence salmon permits have been required in all Port Clarence waters. In addition, in the Pilgrim River drainage, including Salmon Lake and the Kuzitrin drainage, harvests are limited, and specified areas are closed to subsistence salmon fishing. No fishing occurred in

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 2015. http://labor.alaska.gov/research/pop/popest.htm

Salmon Lake in 2009–2011 due to a crash of the sockeye population—managers had opened a portion of the lake to fishing for the previous 3 years. Prior to that, it had been closed since 1972.

The Norton Sound District encompasses all waters from Point Romanof north to Cape Douglas. It is divided into 6 subdistricts: 1) Nome, 2) Golovin, 3) Moses Point/Elim, 4) Norton Bay, 5) Shaktoolik, and 6) Unalakleet. In subdistricts 1 and 6, restrictions exist on gear, fishing periods, and areas open to fishing. In 2001, a regulatory change by the BOF made rod and reel a legal subsistence fishing gear type in the area from Cape Espenberg on northern Seward Peninsula to Bald Head, which is between Elim and Koyuk. This area includes subsistence fishing areas used by the residents of Nome, White Mountain, Golovin, Elim, Koyuk, Shaktoolik, and Unalakleet. Sport fishing bag and possession limits still apply, except when a subsistence salmon permit is required or fishing through the ice. In the former case, the harvest limits (if any exist) specified on the permit for each river apply. When fishers catch their limit in one drainage, they can fish in another. Subsistence fishing regulations are most restrictive in Subdistrict 1 (Nome) and Subdistrict 6 (Unalakleet), where the 2 largest communities in the area are located.

In Subdistrict 1 (Nome), subsistence harvests consist primarily of chum salmon and pink salmon. Chum salmon runs have been depressed since the mid-1980s, leading to increasing restrictions on all types of harvest. Upstream portions of most rivers are closed to protect spawning salmon, and harvests are limited in all subdistrict rivers. For 16 years, subsistence fishing was prosecuted primarily by emergency order, with openings much less frequent than in regulation. Fishing periods in marine waters were also limited.

From 1991–2005, the Nome Subdistrict was managed primarily by emergency order and was frequently closed to subsistence fishing for chum salmon each year on June 15 until ADF&G judged escapement goals were likely to be met. These closures, even when they were of short duration, impacted subsistence fishing because fishing often reopened during a wetter part of the summer, which made it difficult, if not impossible, to dry and process fish harvested for subsistence uses. From 1999 through 2005, chum salmon fishing in Subdistrict 1 was managed as Tier II, the only such fishery to exist in the state (5 AAC 01.182, 5 AAC 01.184).[2] In 1999, the chum salmon return was so poor that even Tier II fishing was closed; in 2000, only 10 permits were awarded (Soong et al. 2008:10). Chum salmon returns since then have gradually improved, allowing ADF&G to manage the fishery as Tier I between 2006 and 2013, and generally to observe the fishing schedule provided for by regulation.[3] In subdistricts 2 through 4, salmon may be taken at any time, with no harvest limits. However, restrictions exist on commercial fishers' participation in subsistence salmon fishing. Both the escapement and the commercial harvest of chum salmon experienced sharp declines starting in 1990 (Menard and Bergstrom 2006:2); however, the runs have been rebounding in recent years in the Norton Sound District (Menard et al. 2012). In Subdistrict 2 (communities of Golovin and White Mountain), both commercial and subsistence chum salmon harvests have dropped significantly since the 1990s; subsistence restrictions were in place in 2003. Chum salmon stocks in subdistricts 2 and 3 have been classified as stocks of "yield concern" since 2000, but chum salmon runs greatly improved in the late 2000s (Menard et al. 2012:8).

In subdistricts 5 and 6 (Shaktoolik and Unalakleet, respectively), continuing poor Chinook salmon runs have led to restrictions on commercial, sport, and subsistence fishing. The Shaktoolik and Unalakleet subdistricts are typically managed together because actions in one subdistrict are believed to affect the movement of fish in the other. Only 1 commercial Chinook salmon directed fishery has occurred since 2001. Restrictions were placed upon the subsistence and sport fisheries in 2003, 2004, and 2006–2013

2. A "Tier II" subsistence permit program is necessary when the number of participants in a subsistence fishery or hunt must be limited because the harvestable surplus of the fish stock or wildlife population is less than the lower bounds of the amount necessary to provide for subsistence uses. Individual Alaskans are distinguished from one another through the submission of Tier II applications, which are scored based on their history of uses of the particular resource and the ability to obtain alternative food; those with the highest scores receive Tier II permits, the others do not. Tier II provides a process that ensures that subsistence opportunities are provided to those most dependent upon the resource. Tier II implies that there is an insufficient harvestable surplus to provide for all subsistence uses (AS 16.05.258).

3. In a "Tier I" subsistence fishery, all interested Alaska residents may participate. Other fishers (commercial, sport, and personal use) are prohibited or restricted because the harvestable surplus is sufficient only to provide for customary and traditional subsistence uses (AS 16.05.258).

(Menard 2010; Menard et al. 2011, 2012, 2013, 2015). The Chinook salmon management plan adopted by the BOF in February 2007 (5 AAC 04.395) limits subsistence gillnet salmon fishing to two 48-hour fishing periods per week in marine waters from mid-June to mid-July. On the Unalakleet River, subsistence fishing is limited to two 36-hour fishing periods per week. Fishing time could be increased only if ADF&G were to project that the lower end of the sustainable escapement goal (SEG) range would be reached.

In 2007, the BOF changed the classification of Subdistrict 1 chum salmon from a "stock of management concern" to a "stock of yield concern." Subdistricts 2 and 3 chum salmon stocks, as well as subdistricts 5 and 6 Chinook salmon stocks, continued as "stocks of yield concern" (Soong et al. 2008:36).[4]

New state regulations governing customary trade of fish caught in the Norton Sound and Port Clarence areas became effective July 1, 2007. These regulations allowed cash sales, up to $200, of subsistence-caught finfish per household per year. Persons who wanted to participate had to obtain a customary trade record keeping form from Nome ADF&G. Sales could not be made to a fishery business nor the fish resold by the buyer. Sales could also occur only within the Norton Sound–Port Clarence Area (Soong et al. 2008:34). Effective April 13, 2013, the Alaska Board of Fisheries increased the annual limit for selling subsistence-taken finfish as customary trade from $200 per year to $500 total per household in a calendar year (5 AAC 01.188).

Subsistence Salmon Harvest Data Collection Methods

Two methods were used to assess subsistence salmon harvests in the Norton Sound and Port Clarence districts in 2013: (1) fishing permits in Subdistrict 1 (Nome), the Cape Woolley Area, Subdistrict 2 (Golovin), Subdistrict 3 (Moses Point/Elim), and the Port Clarence District (Brevig Mission and Teller); and (2) postseason household surveys conducted by the Division of Commercial Fisheries in 3 communities: Koyuk in the Norton Bay area (Subdistrict 4), Shaktoolik (Subdistrict 5) and Unalakleet (Subdistrict 6).

Norton Sound Subdistricts 1, 2, and 3: Fishing Permits

Permits have been required for subsistence salmon fishing in Norton Sound Subdistrict 1 (Nome) since 1974. Beginning in 1999, Tier II chum salmon fishing permits were also issued to a limited number of Nome households with the intent that these households would have first priority over other subsistence fishers if only a small number of chum salmon were available for harvest. This priority would allow these households to fish earlier in the season, when weather conditions were more suitable for drying salmon. Tier I fishing permits were available to all other households when run strength was determined to be adequate. In 2013, chum salmon run abundance was projected to achieve the biological escapement goal for the subdistrict and provide amounts reasonably necessary for subsistence. Because of this, a Tier II fishery was not implemented (Menard et al. 2015). The Nome ADF&G office issued 477 subsistence (Tier I) salmon permits, all of which were returned. This was slightly below the 483 permits issued in 2012, but lower than the record 494 permits issued during the 2010 fishing season (Menard et al. 2013) (Table 3-1). A total of 302 households fished their permits, with the largest number of permits fished on the Nome River (173) and Snake River (74) (harvests largely came from those rivers, the Eldorado River, and marine waters) (Menard et al. 2015).

4. The Poilicy for Management of Sustainable Salmon Fisheries (SSFP; 5 AAC 39.222) defines three levels of concern for salmon stocks based on status reports and recommendations from ADF&G. A stock of Yield Concern is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain specific yields, or harvestable surpluses, above a stock's escapement needs; a Yield Concern is less severe than a Management Concern" (5 AAC 39.222(f)(42)). A stock of Management Concern is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain escapements for a salmon stock within the bounds of the SEG, BEG, OEG, or other specified management objectives for the fishery; a Management Concern is not as severe as a Conservation Concern." (5 AAC 39.222(f)(21)). A stock of Conservation Concern is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain escapements for a stock above a sustained escapement threshold (SET); a Conservation Concern is more severe than a Management Concern." (5 AAC 39.222(f)(6)).

Since 1998, the Nome permit data have not been expanded to account for households whose permits were not returned. This contrasts with earlier years when permit data were expanded by drainage, with expansion factors based upon the fraction of unreturned permits for that drainage. ADF&G staff believed that expansion of the permit data led to an overestimation of the salmon harvest because the unreturned permits were most likely from households that did not fish.

Subsistence fishing permits were also issued for the Cape Woolley Area, a traditional camp and fishing area for King Island households, who, although they settled in Nome more than 40 years ago, maintain a distinct community identity. Located in the Norton Sound District west of Nome, this area lies outside Subdistrict 1 but within the boundaries of the area for which fishing permits are required (Rocky Point to Cape Douglas). In 2013, 19 permits were issued for the Cape Woolley Area; all were returned to ADF&G (Table 3-1). Only 3 households fished their permits (Menard et al. 2015).

Subsistence permits have been required for salmon fishing in Subdistrict 2 (Golovin) and Subdistrict 3 (Moses Point/Elim) since 2004. In 2013, 153 permits were issued for Subdistrict 2; more than the 151 permits issued in 2012 and the 145 permits issued in 2011, but fewer than in 2010 (159), 2005 (174) and 2004 (199) (Fall, Braem, et al. 2012a:23; Menard et al. 2013, 2015). All 153 permits were returned (Table 3-1); 97 households reported fishing (Menard et al. 2015). The number of Subdistrict 2 permits issued to Nome residents has dropped since 2004, and fishery managers have attributed the decline to the easing of fishing restrictions in the Nome Subdistrict and rising fuel costs. The number of permits issued to residents of White Mountain and Golovin has held steady. In 2013, ADF&G issued 64 permits for Subdistrict 3, slightly more than the 63 permits issued in 2012 and the 60 permits issued in 2011. All permits were returned; 45 households reported fishing (Menard et al. 2013, 2015) (Table 3-1).

Port Clarence District: Salmon Lake and Pilgrim River Fishing Permits

Permits have been required to fish the Pilgrim River since 1974 (Magdanz 1992:27). This requirement was expanded to all Port Clarence waters in 2004. In 2013, 431 Port Clarence and Pilgrim River permits were issued, compared to 335 in 2012, 271 in 2011, and 295 in 2010 (tables 3-2 and 3-3). Of the permits issued in 2013, a record 265 were to fish the Pilgrim River only; 4 permits were issued for Salmon Lake, marking the first time permits had been issued since 2008; and 162 were issued for other waters in the district (Menard et al. 2015). The number of permits for the Pilgrim River grew substantially between 2003 and 2008, likely in response to several consecutive years of record sockeye salmon runs. The decline in permits issued from 2009 to 2012 may, in turn, be a response to a poor run in 2008 followed by the crash in 2009, when only 953 salmon were counted passing through the weir. Poor runs continued in 2010, with a count of 1,654 salmon. There was improvement to the sockeye run in 2011 (8,449 sockeye salmon passed through the weir) and 2012 (7,085)(Menard et al. 2012, 2015). In 2013, the sockeye run improved dramatically; 12,428 salmon passed through the weir, a 75% improvement over 2012 escapment. All Pilgrim River permits were returned, as well as all the permits issued for other waters of the Port Clarence District.

In 2007, the BOF adopted regulations that closed the southwestern half of Salmon Lake and allowed for fishing on the northeastern half by emergency order. No salmon fishing has been allowed in recent years in Salmon Lake due to the crash of the sockeye salmon run in 2009 and poor runs in 2010–12 (Menard et al. 2013). In 2013, limited fishing in Salmon Lake occurred for the first time since 2008. Managers opened the eastern end of the lake by emergency order in September (Menard et al. 2015).

Household Surveys

In 2013, ADF&G Division of Commercial Fisheries conducted subsistence fisheries household surveys in Koyuk, Shaktoolik, and Unalakleet. Researchers attempted to contact all of the households in each of the surveyed communities. Actual sample rates varied: 212 of 250 Unalakleet households (85%) were contacted, as were 63 of 68 Shaktoolik households (93%), and 78 of 86 Koyuk households (90%). The

salmon survey data were expanded by community to account for the households not contacted (Table 3-2).

The goals of the postseason household survey were to:

- collect harvest data that would result in a total harvest estimate for subsistence salmon by species and by community;
- compile information on harvest by gear types, participation rates, household size, use of salmon for dog food, and participation in customary barter and trade; and
- assess the quality of chum salmon fishing and what affected it.

Subsistence Salmon Harvests in 2013

Norton Sound District Subsistence Salmon Harvest

The estimated 2013 subsistence harvest of salmon by communities in the Norton Sound District was 48,271 fish (tables 3-1, 3-3). This was the second lowest total harvest for the district for an odd numbered year on record since 1994, and 31% lower than the average odd year harvest from 1994–2013 (Table 3-3). Pink salmon abundance commonly follows an even–odd year cycle. Their abundance in Norton Sound is usually significantly higher in even-numbered years (2004, 2006, 2008, etc.) with districtwide harvests usually reflecting this difference. Between 1994 and 2013, odd-year harvests of all salmon have ranged from a low of 43,883 in 2011, to a high of 113,612 in 1995, with an average of 70,356 salmon. Even-year harvests have ranged from the low in 2010 of 67,149 to a high of 134,050 in 1996, with an average of 93,475 salmon. Chum salmon abundance in 2013 was expected to provide for both subsistence and commercial harvests, and for the first time in over 20 years, commercial fishing for chum salmon occurred in the Nome Subdistrict. The commerical chum salmon harvest in Norton Sound was the largest in over 25 years, although the run was weaker in Subdistricts 2 and 3. Chum escapement in Subdistrict 1 was the highest in over 20 years, while escapement at the Kwiniuk River tower (Subdistrict 3) was only slightly above the record low in 2012. Southern Norton Sound drainages had strong salmon escapement in 2013. Weak Chinook salmon runs occurred throughout Norton Sound, which required inseason restrictions and early closure to southern Norton Sound subsistence fisheries. A record low 15 Chinook salmon were counted at the Kwiniuk River tower (which has a SEG range of 300–550 fish), and final escapement at the Unalakleet River weir was 767 Chinook salmon (the lowest count in the 4-year project history). Unfortunately, preemptive additional restrictions to marine mesh size and early closures were not sufficient to achieve escapement goals for Chinook salmon in Subdistrict 6. As expected in an odd-numbered year, pink salmon runs were also weak and were only sufficient to provide for subsistence needs and limited commercial fishing openings. In 2013, commercial coho harvests were near record-breaking in Subdistricts 2 and 4, but the heavier harvesting Subdistricts of 5 and 6 were lower than 5 and 10-year averages. Weather during the month of August and high surf conditions may have impacted harvest. Sockeye salmon abundance was plentiful enough to avoid an early closure of the Pilgrim River fishery for the first time since 2008 (Menard et al. 2015).

Subdistrict 1 Harvest

Regulation changes were made at the 2013 Alaska Board of Fisheries meeting, which allowed for subsistence gillnet fishing 7 days a week in marine waters in the eastern half of Subdistrict 1, and beach seining was allowed in all subsistence areas during the chum salmon run when gillnet fishing was open. The Board also passed regulations allowing for a commercial chum salmon fishery in the Subdistrict based on conservative management guidelines. For the eighth year in a row, Subdistrict 1 opened on June 15 for subsistence salmon fishing as per regulation. The chum salmon fishing schedule in marine waters west of Cape Nome (72 hours in marine waters and two 48-hour fishing periods in fresh waters per week) was observed from mid-June to mid-July. By late June and early July, excellent marine subsistence catches of chum salmon were reported, and aerial surveys in mid-July of the eastern Nome Subdistrict

drainages of the Flambeau, Eldorado, and Bonzanza rivers and the western drainage of the Sinuk River observed several thousand chum salmon. The Eldorado River, Nome River, and Snake River weir counts exceeded the chum escapement goal ranges in 2013. Because of this, subsistence gillnet fishing continued on the standard freshwater schedule, and an additional 48 hours were added to the marine schedule for western Subdistrict 1. In addition, several beach seining opportunities were issued via emergency order to increase the efficiency of subsistence chum and pink salmon harvests during periods of good drying weather. Several commercial openings also occurred in mid to late July, permit holders were given 24 hour openings in marine waters from the Cape Nome Jetty eastward to Topkok Head. Overall, the chum salmon subsistence harvest was the fourth highest since 1990. This was somewhat less than expected, however, given chum salmon abundance. Increased fishing opportunity for sockeye salmon at Pilgrim River may have attracted fishers' effort from Subdistrict 1 to the Port Clarence District. While no coho salmon escapement goals have been established for Subdistrict 1, escapement in the Nome and Snake rivers was in the mid-range compared to 10 previous years of sufficient escapment estimates (Menard et al. 2015). The reported 2013 subsistence salmon harvest in the Nome Subdistrict was 3,605 chum salmon, 1,804 coho salmon, 845 pink salmon, 211 sockeye salmon, and 48 Chinook salmon (Table 3-1).

Subdistrict 2 and 3 Harvest

No subsistence catch limits are in place in subdistricts 2 and 3. Most salmon harvested there are caught by residents of the communities of White Mountain, Golovin, and Elim. Pink and chum salmon made up the majority of the salmon harvest, followed by coho, Chinook, and a few sockeye salmon. In 2013, a total of 7,937 salmon were harvested in Subdistrict 2 (Golovin) (Table 3-1), the fourth lowest number in the 2000s (Menard et al. 2015). Pink salmon composed 46% of the number of salmon harvested, with 41% chum, 12% coho, less than 1% Chinook, and less than 1% sockeye salmon making up the rest of the harvest. Early indicators of 2013 chum salmon abundance to the Golovin Subdistrict were limited to scant subsistence catch reports of fair harvests. The Niukluk River counting tower has been used to evaluate escapement in the Golovin Subdistrict from 1995–2012, but the project was eliminated in 2013; the Niukluk River is a tributary of the Fish River, a major salmon producing waterway in the area. Managers had concerns about the chum salmon run in 2013, because at the Kwiniuk River counting tower located in adjacent Subdistrict 3, was having near record low counts. In 16 of the past 18 years, the Niukluk and Kwiniuk counting towers have tracked together on escapement achievement. Aerial surveys did that the Fish River drainage did have greater numbers of chum salmon compared to the Kwiniuk River escapement counts. In mid-July, managers opened directed commercial fishing of pink salmon for one 48 hour period when it was determined that the bulk of the chum salmon run was in the river systems and the Kwiniuk River tower count of pink salmon led managers to believe that escapement goals would be met. On July 20, managers opened an additional 48 commerical fishing window directed at chum salmon. Aerial surveys of the Fish River and Niukluk River indicated that the chum salmon run was late and escapment numbers had greatly improved from the surveys done in beginning of July. An additional chum salmon commercial 24-hour commercial fishing window occurred on July 23, although commercial openings yielded mediocre catches. Commerical coho salmon fishing opened on August 1, and catches were above average during the 24 hour openings. There were 3 more 36-hour fishing periods during the first half of August, followed by three 48 hour openings during the last 2 weeks of the month. Aerial surveys of the Niukluk River and Ophir creek exceeded the survey goal of 950–1900 coho salmon, and harvests were the second highest on record. No restrictions were placed on subsistence fishing. Subdistrict 2 harvests, as noted earlier, largely reflect those of communities within the subdistrict (Menard et al. 2015).

Based upon subsistence fishing permits, residents of Golovin harvested an estimated 3,662 salmon in 2013, the majority of which were chum salmon (48%) and pink salmon (46%) (Table 3-2). Coho salmon harvests (185) contributed 5% to the total salmon harvest, Chinook salmon (43) contributed 1%, and sockeye salmon harvests (13) contributed less than 1% to the total Golovin salmon harvest. White Mountain residents harvested an estimated 3,292 salmon, 1,535 (47%) of which were pink salmon. The

remainder of the harvest was chum salmon (1,289) at 39%, coho salmon (432) at 13%, sockeye salmon (32) at 1%, and Chinook salmon (4) at less than 1%.

In Subdistrict 3 (Moses Point/Elim), early projections of the chum salmon escapement by the Kwiniuk River tower counts indicated a very weak run, and escapement goals were not expected to be met. There could have been commercial openings for pink salmon after July 6, but permit holders were uninterested because of the lower run size of an odd-numbered year. There were 2 commerical openings for chum salmon restricted to the area west of the Kwiniuk River mouth late in the season, but catches were limited. Good catches during the initial 24 hour commercial coho salmon opening and sufficient escapement at the Kwiniuk tower allowed for continued commercial openings of 36 and 48 hour windows for the rest of the season. The number of salmon harvested for subsistence (3,921) was the second lowest since 1994, and Chinook salmon harvest was a record low (Menard et al. 2015). Subsistence fishers harvested an estimated 3,921 salmon, 39% of which were coho salmon. The remainder were 31% chum salmon, 29% pink salmon, 1% Chinook salmon, and less than 1% of the subsistence salmon harvest was sockeye salmon.

Subdistrict 4 Harvest

In 2013, the sixth consecutive annual subsistence salmon survey was conducted in Koyuk by the Division of Commercial Fisheries. Fishers in the subdistrict caught an estimated 6,144 salmon, which ranked fourth heighest out of the last 6 years. Most of the harvest was made up of pink and chum salmon (22% and 63%, respectively). Of the remainder, 13% were coho salmon, and 2% were Chinook salmon. Two sockeye salmon were reported harvested in Subdistrict 4 (Table 3-1). By comparison, in 2012, fishers in the subdistrict harvested an estimated 5,757 salmon, 46% of which were pink salmon (2,623) and 47% chum (2,721). Coho salmon made up 5% of that year's subsistence salmon harvest, another 2% came from Chinook salmon, and there was no harvest of sockeye salmon (Fall et al. 2014).

Table 3-2 presents harvests at the community level. Because of additional harvests in other subdistricts, Koyuk households caught slightly more salmon than the total harvest for the Norton Bay subdistrict. Households harvested an estimated 6,314 salmon, the majority of which were chum salmon (61%) and pink salmon (23%). Households caught lesser amounts of coho (14%), chinook (2%), and sockeye (<1%) salmon.

Subdistrict 5 and 6 Harvests

Preseason forecasts by ADF&G called for another very poor Chinook salmon run to subdistricts 5 and 6. Restrictions were put in place on subsistence fishing per the management plan (5 AAC 04.395). Fishery managers limited fishing time with set gillnets to two 48-hour periods per week in marine waters and two 36-hour periods per week in the Unalakleet River drainage. Fishers were further strongly encouraged to redirect harvest away from Chinook salmon to more abundant chum salmon. Beach seining was permitted beginning on July 1 in order to target abundant chum and pink salmon, but retention of any incidentally caught Chinook salmon was prohibited. The Alaska Board of Fisheries had also passed new regulations in 2013, limiting the size of seining nets to 4.5″ or less and prohibiting the retention of any Chinook salmon with beach seine gear. In order to gauge the early run strength of the chum salmon run and to evaluate the level of incidental catches of Chinook salmon, both subdistricts were given one 12 hour commercial opening in early July, but restricted mesh size of gillnets to 6″ or less. Additional conservation measures were necessary in Subdistrict 6 on subsistence fishing due to the fact that the Unalakleet River drainage was unlikely to make Chinook salmon escapement goals. Marine fishing was restricted to net of 6″ mesh or smaller, and rescinded the fresh water fishing schedule on July 6. Due to evidence that the chum salmon run strength was building, managers opened commercial fishing for one 48 hour windows in Subdistrict 5 on July 8 and one 24 hour period on July 12, with mesh restricted to 6″ or less. Subdistrict 6 was opened for two 24 hour commercial fishing windows for chum salmon on July 8 and July 12. Other commercial openings for both pink and chum salmon occurred in both subdistricts throughout the month of July. On July 22, subsistence salmon fishing was opened 7 days a week with mesh restrictions in place,

and sport fishing for king salmon was closed. Overall, the chum runs in Subdistricts 5 and 6 were above average, and commercial harvests ranked 3rd highest in Subdistrict 5 and the highest on record for Subdistrict 6 in the last 20 years.The near average coho salmon run in both subdistricts allowed for limited commercial fishing and no subsistence restrictions. The decrease in commercial coho salmon harvests in Subdistrict 5 in 2013 can be partially attributed to poor August weather and severe local surf conditions (Menard et al. 2015).

Subsistence fishers in subdistrict 5 (Shaktoolik) caught an estimated 6,719 salmon in 2013, one half of which (3,346 or 50%) were pink salmon. Coho salmon (2,146) composed 32% of the total harvest. The rest of the harvest was composed of chum salmon (983) and Chinook salmon (136), each of which was 15% and 2% of the total, respectively. About 2% of the harvest consisted of sockeye salmon (Table 3-1).

In subdistrict 6 (Unalakleet), subsistence fishers caught an estimated 17,575 salmon, 44% (7,687) of which were pink salmon. Coho salmon (6,088) made up 35% of the annual harvest, followed by chum salmon (3,114 or 18%), and Chinook salmon (466 or 3%). One percent of the total harvest was sockeye salmon (Table 3-1)[5].

Table 3-2 presents harvests at the community level. Because a portion of the respective subdistrict harvests were taken by residents of communities outside of Shaktoolik and Unalakleet, the community harvests are usually slightly different than the total harvest for the individual subdistricts. Households in Shaktoolik harvested the same number of salmon (6,719) as is reported at the Subdistrict level in 2013. Unalakleet households harvested an estimated 17,763 salmon, the majority of which were pink salmon (7,780 or 44%) and coho salmon (6,136 or 35%).

Norton Sound Harvest Overall

Of the total 2013 subsistence salmon harvest in Norton Sound, 1% were sockeye salmon, 2% were Chinook salmon, 28% were coho salmon, 32% were chum salmon, and 37% were pink salmon (Figure 3-1). Total harvest estimates for the Norton Sound District for 1975–2013 are presented in Table 3-5. However, the methods used to determine harvests prior to 1994 are substantially different from those used since 1994. As a consequence, the data are not directly comparable. Methods changed again in 2004 when permits replaced surveys in Norton Sound Subdistrict 2 (Golovin and White Mountain) and Norton Sound Subdistrict 3 (Moses Point/Elim). Very little of the documented 2013 subsistence salmon harvest was taken by residents from outside the district. Twenty-nine subsistence permits were issued to residents of Anchorage, Fairbanks, Eagle River, Kenai, Soldotna, Sitka, Wasilla, Chevak, Barrow, and Palmer; their combined total salmon harvest was 275 salmon (Table 3-2).

Port Clarence District Subsistence Salmon Harvest

The estimated 2013 subsistence harvest of salmon in the Port Clarence District was 14,308 fish (tables 3-3 and 3-4). This harvest was the second highest since 2008 (15,957 fish) and slightly lower than the 10-year average (2003–2012) of 14,520 fish. Of the total salmon harvest, less than 1% was Chinook salmon, 5% were coho salmon, 12% were pink salmon, 37% were sockeye salmon, and 46% were chum salmon, (Figure 3-2).

ARCTIC-KOTZEBUE AREA SALMON

Introduction

In 2012, the fisheries management district for the North Slope, called the Northern Area, was renamed the Arctic Area. At the same time, management of this area was separated from the Yukon Area and combined with the Kotzebue Area. The new fisheries management area is called the Arctic-Kotzebue

5. Harvest numbers vary slightly in Subdistrict 6 between this report and Menard et al. (2015). In the manangement report, Subdistrict 6 subsistence harvest numbers are presented as 468 Chinook salmon, 221 sockeye salmon, 6,117 coho salmon, 7,724 pink salmon, and 3,129 chum salmon (total of 17,659 salmon). The difference between these harvest numbers could not be accounted for in analysis.

Area. Previous annual reports have not addressed subsistence fisheries information from the Northern Area, as there have been no annual harvest monitoring programs conducted by ADF&G. Ongoing Division of Subsistence research will serve to expand available information on subsistence fisheries by residents of North Slope communities. Some research results from the North Slope Borough Department of Wildlife Management are also summarized below to better document the extent of subsistence fisheries on the North Slope.

Background

Arctic Area residents of the North Slope have relied on fish for cultural and nutritional sustenance for generations. The only systematic subsistence fisheries harvest monitoring program has been conducted by the North Slope Borough's (NSB) Department of Wildlife Management (Bacon et al. rev2011). The most recent report by NSB described subsistence fish harvests in the region from 1994–2003; this includes harvest amounts, harvest timing, locations, gear and other qualitative information (Bacon et al. rev2011). Most residents in the region continue to participate in a mixed subsistence-cash economy, harvesting a wide variety of wild foods. The Arctic Area includes the subsistence fishing areas used by Anaktuvuk Pass, Atqasuk, Barrow, Kaktovik, Nuiqsut, Point Hope, Point Lay, and Wainwright. The role of salmon and nonsalmon in the wild food diet varies from community to community and is affected primarily by resource availability. Chum and pink salmon are present in the greatest abundance, although sockeye, coho, and Chinook salmon are occasionally caught. Residents often refer to ocean bright salmon as "silvers" leading to the misidentification of chum harvests as coho salmon in some cases. Nonsalmon species important to subsistence include Arctic grayling, Dolly Varden, lake trout, burbot, rainbow smelt, various whitefishes, Arctic cod, and saffron cod. ADF&G Division of Subsistence has an ongoing subsistence fisheries research project along the western coast of the North Slope [Office of Subsistence Management (OSM) Project No. 12-154, North Slope Emerging Salmon Fisheries], focusing on subsistence fishing harvest and use patterns by residents of Point Lay and Wainwright.

Kotzebue Sound residents have relied on fish for cultural and nutritional sustenance for thousands of years. Most residents in the region continue to participate in a mixed subsistence-cash economy, harvesting a wide variety of wild foods. The Kotzebue Area includes the subsistence fishing areas used by Point Hope, Kivalina, Noatak, Kotzebue, Kiana, Noorvik, Selawik, Ambler, Shungnak, Kobuk, Buckland, Deering, Shishmaref, and Wales. The role of salmon in the wild food diet varies from community to community, and is affected primarily by salmon abundance. Communities that harvest few salmon typically harvest large numbers of nonsalmon fish, such as sheefish *Stenodus leucichthys*, other whitefishes *Prosopium* and *Coregonus* spp., and Dolly Varden *Salvelinius malma.* Along the Noatak and Kobuk rivers, where runs of chum salmon are strong, many households' activities in mid- and late summer revolve around the harvesting, drying, and storing of salmon for use during the winter. Chum salmon predominate in the district, composing 90% of the subsistence salmon harvest. Small numbers of other salmon species are present in the district. ADF&G Division of Subsistence has one ongoing subsistence fisheries research project in the Kotzebue Sound region (OSM Project No. 12-153, Northwest Alaska Key Subsistence Fisheries Harvest Monitoring Program). This research resulted in subsistence fish harvest estimates for 2012, discussed below.

Regulations

In the Arctic-Kotzebue Area, subsistence salmon fishing has few restrictions, other than the general statewide provisions (e.g., 5 AAC 01.010) and specifications regarding lawful subsistence gear and gear specifications (5 AAC 01.120). Standard conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Salmon may be taken in the Arctic-Kotzebue Area at any time with no harvest limits and no required permits. Salmon may be taken only by gillnets, beach seines, or by hook and line attached to a rod or pole, but only in the state waters of, and all flowing waters that drain into the Chukchi Sea or Kotzebue Sound from Cape Espenberg to Cape Prince of Wales (5 AAC 01.120(f)).

Fish other than salmon may be taken by set gillnet, drift gillnet, beach seine, fish wheel, pot, longline, fyke net, dip net, jigging gear, spear, and lead, or, as specified in 5 AAC 01.120(f), by hook and line attached to a rod or pole. In the Kotzebue District, gillnets used to take sheefish may not be more than 50 fathoms in aggregate length nor 12 meshes in depth, nor have a mesh size larger than seven inches (5 AAC 01.120(e)).

Other regulatory restrictions associated with subsistence fishing in the Arctic-Kotzebue Area include the provision that a gillnet may not obstruct more than one-half the width of any fish stream and any channel or side channel of a fish stream. Furthermore, a stationary fishing device may not obstruct more than one-half the width of any salmon stream and any channel or side channel of a salmon stream (5 AAC 01.120(c)). Except when fishing through the ice or when a subsistence fishing permit is required, use of a hook and line attached to a rod or pole between Cape Espenberg and Cape Prince of Wales requires a subsistence fisherman to follow the methods and means specified in sport fishing regulations 5 AAC 70.011 and 5 AAC 70.030, and the bag and possession limits, by species, specified in 5 AAC 70.011.

Subsistence Salmon Harvest Data Collection Methods

From 1994 through 2004, with funding from the Division of Commercial Fisheries, the Division of Subsistence conducted household surveys in selected Kotzebue Sound communities to collect subsistence salmon harvest data (Fall et al. 2007:23–38). Since funding for that effort has not been available since 2004, no annual surveys have been conducted; therefore, no subsistence salmon harvest estimate is available for 2013, with the exceptions discussed below.[6] The average yearly subsistence harvest between 1994 and 2004 was 59,650 salmon, the majority of which were chum salmon (Table 3-3). This average may be low due to incomplete datasets resulting in low harvest totals for several years during that period. Harvest estimates for 1994, 2002, 2003, and 2004 do not include the regional center of Kotzebue. Because Kotzebue is the largest community in the region, it is believed by area biologists that residents typically harvest as much salmon as residents from all other communities in the region combined (Menard and Kent 2007:1). No harvest information is available for Ambler, a Kobuk River village, for 2001. Data for 2002 include only harvest information from Noatak and Noorvik.

While no Arctic-Kotzebue Area annual subsistence salmon or subsistence fisheries harvest monitoring program is conducted by the Division of Commercial Fisheries, Division of Subsistence collected subsistence fishery harvest information from a number of Arctic-Kotzebue Area communities in 2012 and 2013 as part of other subsistence research projects. These data are presented below.

ARCTIC-KOTZEBUE AREA SALMON, SHEEFISH, WHITEFISHES, AND ARCTIC CHAR/DOLLY VARDEN

In addition to salmon, major subsistence fisheries take place in the Arctic-Kotzebue Fisheries Management Area for sheefish, other whitefishes, and Dolly Varden (known locally as “trout”). Where salmon are not abundant, these nonsalmon fish often replace salmon in local diets.

Past household surveys to collect harvest information for subsistence salmon harvests in Kotzebue Sound communities also collected harvest data for sheefish, whitefishes, and Dolly Varden in some years (Magdanz et al. 2011:49–50) (tables 3-6 and 3-7).

In 2004, the last year the Kotzebue Area was surveyed, nonsalmon harvest information was collected in Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak. Those 6 communities harvested an estimated 10,835 sheefish, 50,501 whitefishes, and 11,697 Dolly Varden in that year (Fall et al. 2007:33). Kotzebue Area’s total harvest of those species is probably higher, but subsistence fish surveys are not usually conducted in other villages. Additional fish harvest information is available for 2008 in the communities of Noatak and Kivalina as a part of comprehensive harvest surveys associated with a supplemental

6. Although the subsistence salmon harvest surveys were eliminated in 2004, information on subsistence fish harvests has been collected occasionally since then during comprehensive subsistence harvest surveys and other projects in some Northwest Alaska communities.

environmental impact statement for the Red Dog Mine (Magdanz et al. 2010). Fish harvest data also exist for Selawik as a portion of a 2011 comprehensive survey effort (Braem et al. 2013).

Division of Subsistence collected fish harvest data for 2012 in the upper Kobuk River communities of Ambler, Shungnak, and Kobuk as a part of a comprehensive subsistence harvest survey associated with proposed development activities in the Ambler Mining District (Braem et al. 2015). In another project, Division staff also collected fish harvest data in Noorvik for 2012 as a part of a comprehensive survey effort (Braem et al. *in prep*) [7]. The Division of Subsistence's Office of Subsistence Management (OSM) project, entitled "Northwest Alaska Key Subsistence Fisheries" documented subsistence fishery harvests in Kiana, and Noatak for 2012 and 2013. This project is 3 years in scope, and also includes Ambler, Shungnak, Kobuk, Noorvik, Selawik, and Buckland in the 2013 study year (Braem and Kostick *In prep).*[8]

In 2012, Ambler households harvested an estimated 59,432 lb of fish, the majority of which (78%) came from various whitefish species. Broad whitefish made up the largest component of the fish harvest (9,150 fish, 36,601 edible pounds) representing 22% of the total estimated subsistence harvest, followed by chum salmon (1,621 fish, 9,214 edible pounds), which represented 6% of the total subsistence harvest. Ambler residents harvested 10,096 edible pounds of salmon in 2012, accounting for 17% of the total fish harvests. Chum salmon harvest were the greatest, accounting for 91% of the total salmon harvest, followed by 126 sockeye salmon, 12 coho salmon, 9 pink salmon, and 2 Chinook salmon. Forty-seven percent of Ambler households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 83% of the total Ambler fish harvest in 2012, and 30% of the estimated total subsistence harvest, with an estimated harvest of 49,336 edible pounds. The largest contributions to nonsalmon fish harvests were broad whitefish, followed by 1,156 sheefish, 1,544 humpback whitefish, 568 northern pike, 948 Arctic grayling, and 146 burbot (Braem et al. 2015).

In 2013, Ambler households harvested an estimated 75,436 lb of fish, of which 60% came from various whitefish species. Sheefish made up the largest component of the fish harvest (2,649 fish, 29,505 edible lb), and composed 39% of the total harvest. Chum salmon was the second largest component of the harvest (4,321 fish, 24,540 edible lb), and represented 32% of the total harvest. Other salmon harvests included 260 pink salmon, 187 coho salmon, 9 sockeye salmon, and 8 Chinook salmon. Salmon harvests in 2013 were 162% greater than 2012 harvests, likely due to the very poor weather conditions in northwest Alaska in 2012. Nonsalmon fishes accounted for 65% of the total Ambler fish harvest in 2013. The largest contributions to nonsalmon fish harvests were sheefish, followed by 3,496 broad whitefish, 2,301 humpback whitefish, 673 northern pike, 646 Arctic grayling, and 175 Dolly Varden.

Shungnak households harvested an estimated 15,417 edible pounds of salmon in 2012, accounting for 50% of the total fish harvests. Chum salmon harvests (2,595 fish) were the greatest, accounting for 96% of the total salmon harvest by weight, followed by 90 sockeye salmon, 15 coho salmon, and 9 pink salmon. Fifty-two percent of Shungnak households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 50% of the total fish harvest, and 17% of the estimated total subsistence harvest, with an estimated total nonsalmon harvest of 15,223 edible pounds. The largest contributions to nonsalmon fish harvests were 1,556 sheefish, 1,125 least cisco, 888 broad whitefish, 660 humpback whitefish, 399 Arctic grayling, 99 Dolly Varden, 75 Bering cisco, 50 burbot, and 38 northern pike (Braem et al. 2015).

In 2013, Shungnak household harvested a total of 101,203 edible lb of fish, of which 41% (7,257 fish, 41,222 edible lb) were chum salmon. Fishers did not report catching any other kinds of salmon. Salmon harvests were 167% greater in 2013 compared to the 2012 study year. Nonsalmon fishes accounted for 59% of the total harvest in 2013, a total of 59,980 edible lb. The largest contributions to the nonsalmon

7. Braem, N.M., A. Godduhn, A. Brenner, B. Retherford, and M. Kostick. *In Prep*. "Chukchi Sea and Norton Sound Observation Network: Golovin, Noorvik, and Point Lay, 2012". Fairbanks: Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 403. Hereinafter cited as (Braem et al. *In prep*).

8. Braem, N.M. and M. Kostick. *In Prep*. "Key Fisheries in Northwest Alaska." Fairbanks: Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. XXX. Herinafter referred to as (Braem and Kostick *In prep*).

fish harvest were 3,559 sheefish, 8,400 humpback whitefish, 578 broad whitefish, 127 northern pike, and 110 Arctic grayling.

Kobuk residents harvested 15,142 edible pounds of salmon in 2012, accounting for 65% of the total fish harvests. Chum salmon harvests (2,637 fish) were the greatest, accounting for 99% of the total salmon harvest, followed by 14 coho salmon, 4 pink salmon, and 4 Chinook salmon. Seventy percent of Kobuk households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 35% of the total fish harvest, and 19% of the estimated total subsistence harvest, with an estimated total harvest of 8,329 edible pounds. The largest contributions to nonsalmon fish harvests were 1,062 sheefish, 286 broad whitefish, 256 Arctic grayling, 157 humpback whitefish, 96 Northern pike, 40 Dolly Varden, and 23 burbot (Braem et al. 2015).

In 2013, Kobuk residents harvested 11,845 edible pounds of salmon, accounting for 21% of the total fish harvest. The vast majority the salmon harvest was chum salmon (2,076 fish, 11,790 edible pounds), and residents reported limited harvest of Chinook salmon (3 fish), pink salmon (9), and sockeye salmon (1). 2013 salmon harvests were 22% less than 2012 harvests. Nonsalmon fishes composed 79% of the total fish harvest. The largest contributions to the nonsalmon harvest were 13,729 unknown whitefish (respondents were unable to identify which species), 1,382 humpback whitefish, 1,337 broad whitefish, 865 sheefish, and 140 Arctic grayling (Braem and Kostick *In prep*).

In a separate study, the Division of Subsistence collected subsistence fishery harvest data from Noorvik for 2012 and 2013. Noorvik residents harvested 60,326 edible pounds of salmon in 2012, accounting for 31% of the total fish harvests. Chum salmon harvests (9,584 fish) were the greatest, accounting for 95% of the total salmon harvest by weight, followed by 338 coho salmon, 275 pink salmon, 81 sockeye salmon, and 7 Chinook salmon. Forty-seven percent of Noorvik households reported using less salmon than in previous years. Nonsalmon fishes accounted for 69% of the total fish harvest, and 38% of the estimated total subsistence harvest, with an estimated total harvest of 135,274 edible pounds. The largest contributions to nonsalmon fish harvests were 6,032 sheefish, representing 67,197 edible pounds and the second largest species contribution to the total subsistence harvest following caribou. Noorvik residents also harvested 10,087 broad whitefish, 5,134 northern pike, 6,406 humpback whitefish, 876 burbot, 1,445 least cisco, and 99 Dolly Varden. Information about other fish harvests will be summarized in the technical report (Braem et al. 2015).

In 2013, Noorvik households harvested 269,328 lb of fish, of which 45% were salmon species. Chum salmon was the largest contribution to the total fish harvest (19,972 fish, 113,441 edible lb), and residents reported lesser harvests of coho salmon (1,207 fish), pink salmon (173), Chinook salmon (37), and sockeye salmon (15). Salmon harvests were 99% greater in 2013 compared to the 2012 study year. Nonsalmon fishes composed 55% of the total fish harvest. The largest contributors to the nonsalmon harvest were 14,380 broad whitefish, 3,167 sheefish, 15,945 humpback whitefish, 7,932 northern pike, and 3,929 least cisco (Braem and Kostick *In prep*).

The Division of Subsistence's Office of Subsistence Management (OSM) project, entitled "Northwest Alaska Key Subsistence Fisheries" documented subsistence fishery harvests in Kiana and Noatak for 2012 and 2013. Data was collected for Selawik and Buckland in 2013. Kiana residents harvested 16,975 edible pounds of salmon in 2012, accounting for 30% of the total fish harvests. Chum salmon harvests (2,442 fish) were the greatest, accounting for 86% of the total salmon harvest by weight, followed by 320 pink salmon, 240 coho salmon, 63 sockeye salmon, 3 Chinook salmon, and 8 unknown salmon. Twenty percent of Kiana households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 70% of the total fish harvest, with an estimated total harvest of 39,955 edible pounds. The largest contributions to nonsalmon fish harvests included 1,787 sheefish, 3,596 broad whitefish, 2,307 humpback whitefish, 464 burbot, 278 northern pike, and 250 Dolly Varden.

In 2013, Kiana households harvested 18,554 lb of salmon, accounting for 33% of the total fish harvest. Chum salmon accounted for 91% of the salmon harvest (2,969 fish), followed by 212 pink salmon, 161

coho salmon, 37 sockeye salmon, and 5 Chinook salmon, and an additional 12 salmon of unknown species. Nonsalmon fishes accounted for 67% of the total fish harvest, with an estimated total harvest of 38,100 edible lb. The greatest contributors to the nonsalmon fish harvest included 1,787 sheefish, 2,832 broad whitefish, 3,251 humpback whitefish, 316 burbot, and 242 northern pike (Braem and Kostick *In prep*).

Noatak residents harvested 50,721 edible pounds of salmon in 2012, accounting for 62% of the total fish harvests. Chum salmon harvests (7,814 fish) were the greatest, accounting for 92% of the total salmon harvest by weight, followed by 612 coho salmon, 94 sockeye salmon, 80 pink salmon, and 2 Chinook salmon. Forty-seven percent of Noatak households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 38% of the total fish harvest, with an estimated total harvest of 30,849 edible pounds. The largest contributions to nonsalmon fish harvests included 6,437 Dolly Varden (called "trout" by Noatak residents), 1,826 broad whitefish, 1,205 humpback whitefish, 100 sheefish, 352 Arctic grayling, and 26 northern pike.

In 2013, Noatak residents harvested 38,236 edible lb of salmon, accounting for 55% of the total fish harvest. Chum salmon harvests (5,655 fish) were the greatest, accounting for 84% of the total salmon harvest by weight. Households reported lesser harvests of coho salmon (1,233 fish), pink salmon (32), and Chinook salmon (5). Nonsalmon fishes accounted for 45% of the total fish harvest (31,772 edible lb). The largest contributions to the nonsalmon fish harvest included 6,223 Dolly Varden, 2,219 broad whitefish, 247 sheefish, 358 humpback whitefish, and 93 least cisco.

Selawik residents harvested 234,995 edible lb of fish in 2013, of which only 2,109 edible pounds (1% of the total fish harvest) were salmon. Households reported harvesting 362 chum salmon, 15 pink salmon, and 1 Chinook salmon. Nonsalmon harvests were 99% of the total fish harvest, an estimated 232,886 edible lb. Sheefish contributed the most to the nonsalmon fish harvest, 98,353 edible lb (8,829 fish), followed by 23,159 broad whitefish, 10,593 northern pike, 7,648 humpback whitefish, 4,670 least cisco, and 795 burbot.

Buckland residents harvested an estimated 55,159 edible lb of fish in 2013, of which 46% were salmon. Chum salmon contributed 70% of the total salmon harvest (3,104 fish, 17,631edible lb), followed by 838 coho salmon, 236 sockeye salmon, 226 Chinook salmon, 129 pink salmon, and 1 unknown salmon. Nonsalmon fishes accounted for 54% of the total fish harvest. The largest contributor to the nonsalmon harvest was smelt (2,069 gallons, 12,414 edible lb), followed by 1,007 sheefish, 1,118 humpback whitefish, 333 broad whitefish, 312 Dolly Varden, and 246 northern pike (Braem and Kostick *In prep*).

Division of Subsistence conducted comprehensive subsistence research in Point Lay on the western North Slope of Alaska in 2012, and conducted fish harvest surveys in 2013 as a part of the OSM project, entitled "Emerging North Slope Salmon Fisheries". Point Lay residents harvested 8,479 edible pounds of salmon in 2012, accounting for 58% of the total fish harvests. Chum salmon harvests (659 fish) were the greatest, accounting for 47% of the total salmon harvest by weight, followed by 1,120 pink salmon, 372 coho salmon, 14 Chinook salmon, and 13 sockeye salmon. Twenty-six percent of Point Lay households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 42% of the total fish harvest, and 5% of the estimated total subsistence harvest, with an estimated total harvest of 6,076 edible pounds. The largest contributions to nonsalmon fish harvests included 1,945 Arctic grayling, 493 Dolly Varden, 279 Bering cisco, 99 gallons unknown smelt, 279 round whitefish, and 37 sheefish. Information about other fish harvests will be presented in the technical report (Braem et al. 2015).

In 2013, Point Lay households harvested less fish overall than in the 2012 study year. Residents harvested an estimated 5,106 edible lb of fish, of which 26% (1,346 edible lb) were salmon species. Chum salmon accounted for the largest portion of the salmon harvest (72%, 157 fish), followed by pink salmon (17%, 84 fish), 30 sockeye salmon, and 3 coho salmon. Nonsalmon species accounted for 73% of the total fish harvest, with Arctic grayling contributing 71% of the total nonsalmon fish harvest by weight (2,670 fish).

Point Lay nonsalmon fish harvests also included 131 gallons of smelt, 20 Dolly Varden/Arctic char, and 8 humpback whitefish.

The Division of Subsistence's OSM project, entitled "Emerging North Slope Salmon Fisheries" also documented subsistence fishery harvests in Wainwright for 2012 and 2013. Wainwright residents harvested 1,711 edible pounds of salmon in 2012, accounting for 5% of the total fish harvests. Coho salmon represented the greatest contribution to salmon harvest by weight, with 105 coho salmon harvested, followed by 66 sockeye salmon, 51 chum salmon, 136 pink salmon, and 20 Chinook salmon. Seventeen percent of Wainwright households reported using less salmon in 2012 than in previous years. Nonsalmon fishes accounted for 95% of the total fish harvest, with an estimated total of 31,801 edible pounds. The largest contributions to nonsalmon fish harvests included 3,489 gallons of smelt (20,935 edible pounds), 1,562 broad whitefish, 1,606 humpback whitefish, 648 Bering cisco, 7,513 Arctic grayling, 101 burbot, 624 least cisco, 20 lake trout, and 20 flounder.

In 2013, Wainwright residents harvested 3,357 edible pounds of salmon, accounting for 10% of the total fish harvest. Chum salmon contributed the most to the salmon harvest by weight (33% of the salmon harvest, 180 fish, followed by 144 coho salmon, 154 pink salmon, 121 sockeye salmon, and 62 Chinook salmon. Nonsalmon fishes accounted for 90% of the total fish harvests, totaling 29,374 edible pounds. Smelt contributed slightly over one half (51%) to the nonsalmon fish harvest; Wainwright residents reported harvesting 2,536 gallons of smelt in 2013. Other nonsalmon harvests included a total of 7,373 whitefishes (Bering cisco, least cisco, Arctic cisco, broad whitefish, humpack whitefish, and round whitefish), 3,056 Arctic grayling, 62 Dolly Varden/Arctic char, and 38 sheefish (Mikow et al. *In prep*)[9].

Arctic-Kotzebue Area Salmon Harvest Overall

Of the 2013 harvest of salmon in the Kotzebue Area for which we have data, the 8 communities harvested an estimated 50,754 salmon. The vast majority of the harvest was chum salmon (90%), followed by coho salmon (7%), pink salmon (2%), sockeye salmon (<1%), and Chinook salmon (<1%) (Table 3-8; Figure 3-3).

Of the 2013 harvest of salmon in the Arctic Area for which we have data, the 2 communities harvested an estimated 935 salmon. The majority of the harvest was chum salmon (36%), followed by pink salmon (25%), coho salmon (16%), sockeye salmon (16%), and Chinook salmon (7%) (Table 3-9; Figure 3-4).

9. Mikow, E.M., B. Retherford, and M. Kostick. In Prep. "Emerging North Slope Fisheries in Point Lay and Wainwright, Alaska." Fairbanks: Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. XXX.

Table 3-1.–Subsistence salmon harvests by Norton Sound subdistricts, Northwest Alaska, 2013.

Subdistrict	Households surveyed or permits returned	Estimated salmon harvest[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Cape Woolley	19	0	0	0	1	0	1
Elim	64	39	15	1,515	1,218	1,134	3,921
Golovin	153	47	15	964	3,256	3,655	7,937
Nome	477	48	211	1,804	3,065	845	5,973
Norton Bay	76	123	2	826	3,853	1,341	6,144
Shaktoolik	62	136	108	2,146	983	3,346	6,719
Unalakleet	211	466	219	6,088	3,114	7,687	17,575
Total	**1,062**	**859**	**571**	**13,343**	**15,491**	**18,007**	**48,271**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Includes subsistence harvests and commercial harvests retained for home use.

Table 3-2.–Subsistence salmon harvests by community, Norton Sound-Port Clarence Area, Alaska, 2013.

	Households or permits		Estimated salmon harvest[a]					
Community[b]	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	12	12	0	77	27	12	2	118
Barrow	2	2	0	0	0	0	0	0
Brevig Mission	45	45	20	1,185	486	2,346	1,138	5,175
Chevak	1	1	0	0	2	0	3	5
Eagle River	2	2	0	0	3	1	5	9
Elim	57	57	39	15	1,403	1,123	951	3,531
Fairbanks	2	2	0	0	0	0	0	0
Gambell	4	4	0	0	0	3	1	4
Golovin	34	34	43	13	185	1,743	1,678	3,662
Kenai	1	1	0	0	0	0	0	0
Koyuk	86	78	123	22	856	3,883	1,431	6,314
Nome	468	467	48	3,195	2,182	4,637	1,429	11,491
Palmer	4	4	0	44	1	69	14	128
Shaktoolik	68	63	136	108	2,146	983	3,346	6,719
Sitka	1	1	0	0	0	0	0	0
Soldotna	3	3	0	1	5	8	1	15
Teller	50	50	18	902	130	2,820	482	4,352
Unalakleet	250	212	466	219	6,136	3,161	7,780	17,763
Wasilla	1	1	0	0	0	0	0	0
White Mountain	40	40	4	32	432	1,289	1,535	3,292
Total	**1,131**	**1,079**	**897**	**5,814**	**13,994**	**22,079**	**19,795**	**62,579**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Includes subsistence harvests and commercial harvests retained for home use.

b. Harvest information from residents of non-local communities (e.g. Anchorage) is available only for Norton Sound and Port Clarence permit areas. Non-local residents might subsistence fish in other Northwest Alaska areas, but these harvests are not documented in the regional household surveys.

Table 3-3.–Historical subsistence salmon harvests by district, Northwest Alaska, 1994–2013.

	Norton Sound District						
Year	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	839	7,212	1,161	22,108	24,776	70,821	126,077
1995	851	7,766	1,222	23,015	43,014	38,594	113,612
1996	858	7,255	1,182	26,304	34,585	64,724	134,050
1997[a]	1,113	8,998	1,892	16,476	26,803	27,200	81,370
1998[a]	1,184	8,295	1,214	19,007	20,032	51,933	100,480
1999	898	6,144	1,177	14,342	19,398	20,017	61,078
2000	860	4,149	682	17,062	17,283	38,308	77,485
2001	878	5,576	767	14,550	20,213	30,261	71,367
2002	935	5,469	763	15,086	17,817	64,354	103,490
2003	940	5,290	801	14,105	13,913	49,674	83,782
2004	1,003	3,169	363	8,225	3,200	61,813	76,770
2005	1,061	4,087	774	13,896	12,008	53,236	84,000
2006	1,066	3,298	901	19,476	10,306	48,764	82,745
2007	1,041	3,744	923	13,564	18,170	21,714	58,116
2008	1,151	3,087	399	18,889	11,505	56,096	89,976
2009	1,200	5,131	388	15,852	10,599	26,110	58,080
2010	1,030	2,074	554	11,517	14,295	38,710	67,149
2011	925	1,645	562	10,155	12,946	18,576	43,883
2012	1,245	1,290	437	11,500	16,247	47,050	76,524
2013	1,062	859	571	13,343	15,491	18,007	48,271

	Port Clarence District						
Year	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	151	203	2,220	1,892	2,294	4,309	10,918
1995	151	76	4,481	1,739	6,011	3,293	15,600
1996	132	194	2,634	1,258	4,707	2,236	11,029
1997	163	158	3,177	829	2,099	755	7,019
1998	157	289	1,696	1,759	2,621	7,815	14,179
1999	177	89	2,392	1,030	1,936	786	6,233
2000	163	72	2,851	935	1,275	1,387	6,521
2001	160	84	3,692	1,299	1,910	1,183	8,167
2002	176	133	3,732	2,194	2,699	3,394	12,152
2003	242	176	4,436	1,434	2,425	4,108	12,578
2004	371	278	8,688	1,131	2,505	5,918	18,520
2005	329	152	8,532	726	2,478	6,593	18,481
2006	345	133	9,862	1,057	3,967	4,925	19,944
2007	362	85	9,484	705	4,454	1,468	16,196
2008	399	125	5,144	562	2,499	7,627	15,957
2009	328	40	1,643	799	3,060	1,887	7,429
2010	295	57	824	596	5,232	5,202	11,911
2011	271	56	1,611	393	4,338	2,610	9,008
2012	335	44	1,422	703	7,802	5,201	15,172
2013	431	38	5,243	651	6,588	1,788	14,308

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Table 3-3.–Page 2 of 2.

	Kotzebue District[b,i]						
Year	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
1994[c]	557	135	33	478	48,175	3,579	52,400
1995[d]	1,327	228	935	2,560	102,880	2,059	108,662
1996	1,187	550	471	317	99,740	951	102,029
1997	1,122	464	528	848	57,906	1,181	60,925
1998	1,279	383	392	461	48,979	2,116	52,330
1999	1,277	9	478	1,334	94,342	841	97,004
2000	1,227	211	75	2,557	65,975	75	68,893
2001[e]	1,149	11	14	768	49,014	36	49,844
2002[f]	216	3	9	56	16,880	8	16,955
2003[g]	488	40	53	1,042	19,201	583	20,918
2004[g]	440	54	18	1,502	23,348	1,259	26,181
2005[h]	ND	ND	ND	ND	ND	ND	ND
2006[hj]	ND	ND	ND	ND	ND	ND	ND
2007[hj]	ND	ND	ND	ND	ND	ND	ND
2008[h]	ND	ND	ND	ND	ND	ND	ND
2009[h]	ND	ND	ND	ND	ND	ND	ND
2010[h]	ND	ND	ND	ND	ND	ND	ND
2011[hj]	ND	ND	ND	ND	ND	ND	ND
2012[k]	360	16	455	1,230	26,694	697	29,092
2013[l]	618	285	298	3,626	45,715	830	50,754

	Arctic District[k]						
Year	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	120	34	79	477	710	1,256	2,556
2013	122	62	151	147	337	238	935

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Includes Gambell and Savoonga.

b. Normally includes Ambler, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, and Shungnak.

c. Includes Deering and Wales; does not include Kotzebue.

d. Includes Shishmaref.

e. Does not include Ambler.

f. Includes only Noatak and Noorvik.

g. Does not include Kotzebue.

h. Due to lack of funding, no collection of subsistence salmon harvest data took place in Kotzebue area communitiesfrom 2005–2011. The average yearly subsistence harvest of salmon in the Kotzebue area between 1994 and 2004 was 59,650 fish.

i. Formerly Kotzebue Area.

j. Limited data exist in 2006, 2007 and 2011 for Kiana (2006), Kivalina (2007), Noatak (2007), and Selawik (2011). These are available online through the Community Subsistence Information System (CSIS) at http://www.adfg.alaska.gov/sb/CSIS/

k. Includes Point Lay and Wainwright.

ND = no data.

Table 3-4.–Subsistence salmon harvests by district, Northwest Alaska, 2013.

District	Households surveyed or permits returned	Estimated salmon harvest[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Norton Sound District[b]	1,062	859	571	13,343	15,491	18,007	48,271
Port Clarence District[c]	431	38	5,243	651	6,588	1,788	14,308
Kotzebue District[d,f]	618	285	298	3,626	45,715	830	50,754
Arctic District	122	62	151	147	337	238	935
Total[e]	**1,819**	**1,244**	**6,263**	**17,767**	**68,131**	**20,863**	**114,268**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Harvests reported during household surveys are expanded into estimates to account for uncontacted households. Harvests reported on permits are not expanded.

b. Household surveys conducted in Unalakleet, Koyuk, and Shaktoolik. Permits issued for Cape Woolley, Nome Subdistrict (Tier I), Golovin Subdistrict, and Elim Subdistrict.

c. Permits issued for Port Clarence District, Pilgrim River, and Salmon Lake.

d. Due to lack of funding, no collection of subsistence salmon harvest data took place in Kotzebue Sound communities from 2005–2011. The average yearly subsistence harvest of salmon in the Kotzebue area between 1994 and 2004 was 59,650 fish.

e. Households surveyed or permits returned column does not add up to the total shown above due to individual households fishing in multiple districts.

f. Formerly Kotzebue Area.

ND = no data

Table 3-5.–Historical subsistence salmon harvests, Northwest Alaska, 1975–2013.

	Households or permits		Estimated salmon harvest[a]					
Year	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1975	117	79	3	225	102	3,698	7,298	11,326
1976	138	104	6	0	275	1,856	5,472	7,609
1977	195	181	35	64	623	12,222	2,839	15,783
1978	168	126	31	0	242	4,035	10,697	15,005
1979	138	119	519	0	1,007	3,419	5,842	10,787
1980	232	161	135	0	2,075	5,839	21,728	29,777
1981	236	169	47	88	1,844	9,251	6,100	17,330
1982	230	182	33	6	2,093	5,719	20,480	28,331
1983	243	189	74	40	1,950	7,013	8,499	17,576
1984	240	189	85	0	1,890	4,945	18,067	24,987
1985	215	198	56	114	1,054	5,717	2,117	9,058
1986	279	240	157	127	788	8,494	9,011	18,577
1987	235	173	97	102	812	7,265	705	8,981
1988	192	166	67	171	1,089	6,379	2,543	10,249
1989	173	130	24	131	549	3,456	924	5,084
1990	188	165	60	234	542	4,525	2,413	7,774
1991	155	128	83	166	1,279	3,715	194	5,437
1992	163	132	152	163	1,720	2,030	7,746	11,811
1993	142	104	51	74	1,780	1,578	758	4,241
1994	1,547	1,169	7,713	3,414	24,494	75,489	78,954	190,063
1995[b]	2,329	1,445	8,070	6,639	27,314	151,905	43,947	237,874
1996	2,177	1,454	7,999	4,287	27,879	139,032	67,911	247,108
1997[c]	2,398	1,645	9,620	5,597	18,153	86,808	29,135	149,314
1998[c]	2,620	1,730	8,967	3,301	21,226	71,632	61,863	166,989
1999	2,351	1,300	6,242	4,046	16,706	115,676	21,644	164,315
2000	2,247	1,336	4,399	3,612	20,654	84,196	40,499	153,360
2001[d]	2,192	1,259	5,671	4,473	16,617	71,138	31,480	129,378
2002[e]	1,327	1,204	5,624	4,504	17,838	37,396	67,756	133,119
2003[f]	1,670	1,488	5,505	5,289	16,580	35,540	54,365	117,279
2004[g]	1,915	1,814	3,534	9,159	11,585	31,386	70,841	126,506
2005[g,h]	1,129	1,104	4,239	9,306	14,622	14,486	59,829	102,481
2006[g,h]	1,125	1,099	3,431	10,763	20,533	14,273	53,689	102,689
2007[g,h]	1,122	1,073	3,829	10,407	14,269	22,624	23,182	74,312
2008[h]	1,247	1,172	3,212	5,543	19,451	14,004	63,723	105,933
2009[h]	1,274	1,206	5,171	2,031	16,651	13,659	27,997	65,509
2010[h]	1,106	1,032	2,131	1,378	12,113	19,527	43,912	79,060
2011[h]	1,044	932	1,701	2,173	10,548	17,284	21,186	52,891
2012[f,i]	2,034	1,714	1,384	2,393	13,910	51,453	54,204	123,344
2013[f,i]	2,136	1,819	1,244	6,263	17,767	68,131	20,863	114,268
5-year average (2007–2012)	1,341	1,211	2,720	2,704	14,535	23,185	42,204	85,347
10-year average (2002–2012)	1,367	1,263	3,414	5,844	15,026	23,423	47,293	95,000
Historical average (1975–2012)	961	740	2,636	2,632	9,549	30,754	27,620	73,191

-continued-

Table 3-5.–Page 2 of 2.

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note Since 1994 ADF&G has conducted an annual subsistence salmon harvest assessment effort in Northwest Alaska that provides more extensive and reliable estimates. Harvest estimates prior to 1994 cannot be directly compared.

a. Includes selected communities in the Norton Sound District, Port Clarence District, Arctic District, and Kotzebue District (formerly Kotzebue Area).

b. Includes Shishmaref.

c. Includes Gambell and Savoonga.

d. Does not include Ambler.

e. For the Kotzebue District, includes only Noatak and Noorvik.

f. Does not include Kotzebue.

g. Does not include Koyuk.

h. Does not include Kotzebue District.

i. For the Arctic District, includes only Point Lay and Wainwright.

Table 3-6.–Subsistence salmon harvests by Kotzebue District[a] communities.

		Households		Estimated salmon harvest					
Year	Community	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
2007	Kivalina	42	81	41	0	33	401	120	594
	Noatak	90	119	11	42	247	4,167	163	4,630
Total, 2007		**132**	**200**	**51**	**42**	**280**	**4,568**	**283**	**5,224**
2011	Selawik	169	61	0	167	7	879	0	1,053
2012	Ambler	76	53	1	126	11	1,621	9	1,769
	Kiana	103	65	3	63	240	2,442	320	3,068
	Kobuk	36	30	4	0	14	2,637	4	2,659
	Noatak	126	83	2	94	612	7,814	80	8,601
	Noorvik	135	83	7	81	338	9,584	275	10,285
	Shungnak	69	46	0	90	15	2,595	9	2,709
Total, 2012		**545**	**360**	**16**	**455**	**1,230**	**26,694**	**697**	**29,092**
2013	Ambler	69	52	8	9	187	4,320	260	4,784
	Buckland	105	87	226	236	838	3,104	129	4,533
	Kiana	93	68	5	37	161	2,969	212	3,384
	Kobuk	31	24	3	1	0	2,076	9	2,089
	Noatak	125	94	5	0	1,233	5,655	32	6,925
	Noorvik	132	99	37	15	1,207	19,972	173	21,404
	Selawik	171	145	1	0	0	362	15	378
	Shungnak	65	49	0	0	0	7,257	0	7,257
Total, 2013		**791**	**618**	**285**	**298**	**3,626**	**45,715**	**830**	**50,754**

Source ADF&G Division of Subsistence, household surveys, 2008, 2012, 2013, 2014.

a. Formerly Kotzebue Area.

Table 3-7.–Subsistence nonsalmon harvests by Kotzebue District[a] communities.

		Households		Estimated number of fish									
Year	Community	Total	Surveyed	Dolly Varden	Arctic grayling	Burbot	Broad whitefish	Humpback whitefish	Unknown whitefishes	Northern pike	Saffron cod	Sheefish	Total
2007	Kivalina[b]	42	81	20,527	786	15	ND	ND	0	0	25,824	0	47,152
	Noatak[b]	90	119	10,234	1,222	42	ND	ND	0	144	192	99	11,933
Total, 2007		**132**	**200**	**30,761**	**2,008**	**58**	**0**	**0**	**0**	**144**	**26,015**	**99**	**59,086**
2011	Selawik	169	61	19	815	1,081	47,394	12,647	0	15,956	0	6,190	84,102
2012	Ambler	76	53	85	948	146	9,150	1,544	0	568	0	1,156	13,597
	Kiana	103	65	249	ND	464	3,596	2,307	0	278	ND	1,787	8,682
	Kobuk	36	30	40	256	23	286	157	0	96	0	1,062	1,919
	Noatak	126	83	6,437	352	ND	1,826	1,205	0	26	ND	100	9,946
	Noorvik	135	83	99	28	876	10,087	6,406	0	5,134	0	6,032	28,662
	Shungnak	69	46	99	399	50	888	660	0	38	0	1,556	3,689
Total, 2012		**545**	**360**	**7,008**	**1,983**	**1,559**	**25,833**	**12,280**	**0**	**6,139**	**0**	**11,694**	**66,496**
2013	Ambler	69	52	175	646	40	3,496	2,301	0	673	11	2,649	9,991
	Buckland	105	87	312	10	119	333	1,118	0	246	771	1,007	3,916
	Kiana	93	68	54	ND	316	2,832	3,251	0	242	ND	1,787	8,482
	Kobuk[c]	31	24	22	140	0	1,337	1,382	13,729	61	ND	865	17,536
	Noatak	125	94	6,223	ND	78	2,219	358	0	63	0	247	9,188
	Noorvik	132	99	207	ND	815	14,380	15,945	0	7,932	27	3,167	42,473
	Selawik	171	145	0	33	795	23,159	7,648	0	10,593	0	8,829	51,057
	Shungnak	65	49	44	110	42	578	8,400	0	127	ND	3,559	12,860
Total, 2013		**791**	**618**	**7,037**	**939**	**2,205**	**48,334**	**40,403**	**13,729**	**19,937**	**809**	**22,110**	**155,503**

Source ADF&G Division of Subsistence, household surveys, 2008, 2012, 2013, 2014.

a. Formerly Kotzebue Area.

b. Harvest information is available for whitefishes as a species category only. Kivalina harvested 338 whitefishes and Noatak harvested 6,778 in 2007.

c. Harvest information is available for whitefishes as a species category only. Kobuk harvested 13,729 whitefishes in 2013.

ND = no data

Table 3-8.–Subsistence salmon harvests by Arctic District communities.

		Households		Estimated salmon harvest					
Year	Community	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	Point Lay	67	42	14	13	372	659	1,120	12,178
	Wainwright	152	78	20	66	105	51	136	378
Total, 2012		**219**	**120**	**34**	**79**	**477**	**710**	**1,256**	**12,556**
2013	Point Lay	64	42	0	30	3	157	84	274
	Wainwright	150	80	62	121	144	180	154	661
Total, 2013		**214**	**122**	**62**	**151**	**147**	**337**	**238**	**935**

Source ADF&G Division of Subsistence, household surveys, 2014.

Table 3-9.–Subsistence nonsalmon harvests by Arctic District communities.

		Households		Estimated number of fish										
Year	Community	Total	Surveyed	Arctic char / Dolly Varden	Arctic cisco	Arctic grayling	Bering cisco	Broad whitefish	Humpback whitefish	Least cisco	Round whitefish	Sheefish	Smelt[a]	Total
2012	Point Lay	67	42	493	279	1,945	479	0	5	0	479	37	99	3,814
	Wainwright	152	78	0	0	7,513	648	1,562	1,606	624	0	0	3,489	15,442
Total, 2012		**219**	**120**	**493**	**279**	**9,458**	**1,127**	**1,562**	**1,611**	**624**	**479**	**37**	**3,588**	**19,256**
2013	Point Lay	64	42	20	0	2,670	0	0	8	0	0	0	131	2,829
	Wainwright	150	80	62	934	3,056	4,104	508	253	1,554	19	38	2,536	13,064
Total, 2013		**214**	**122**	**82**	**934**	**5,726**	**4,104**	**508**	**261**	**1,554**	**19**	**38**	**2,667**	**15,893**

Source ADF&G Division of Subsistence, household surveys, 2014.
a. Smelt are counted in gallons.

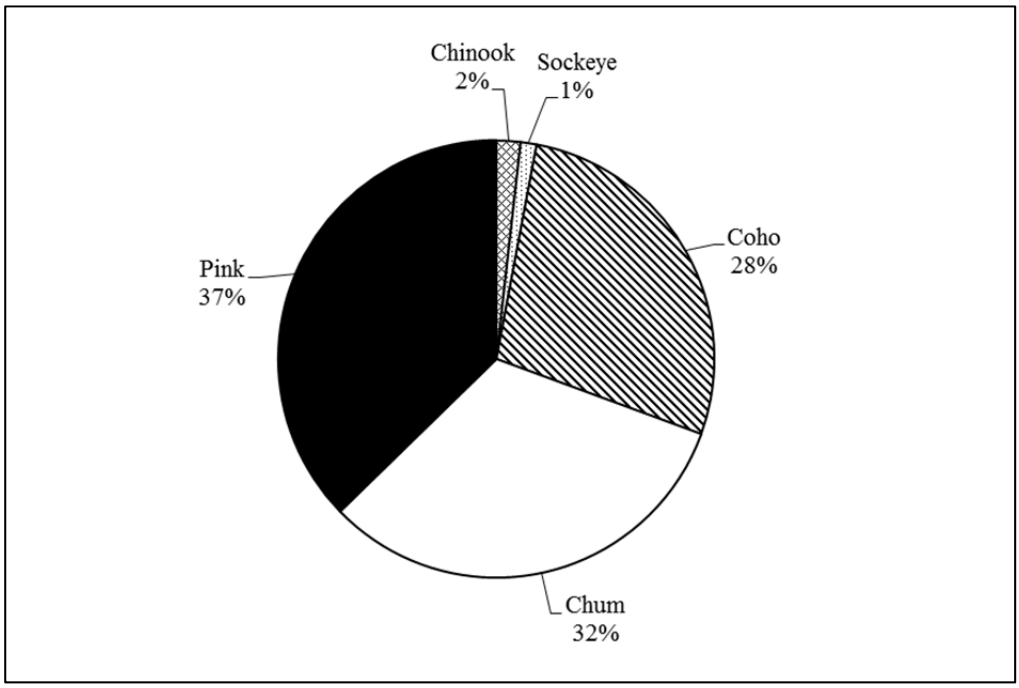

Figure 3-1.–Species composition of estimated subsistence salmon harvests, Norton Sound District, 2013.

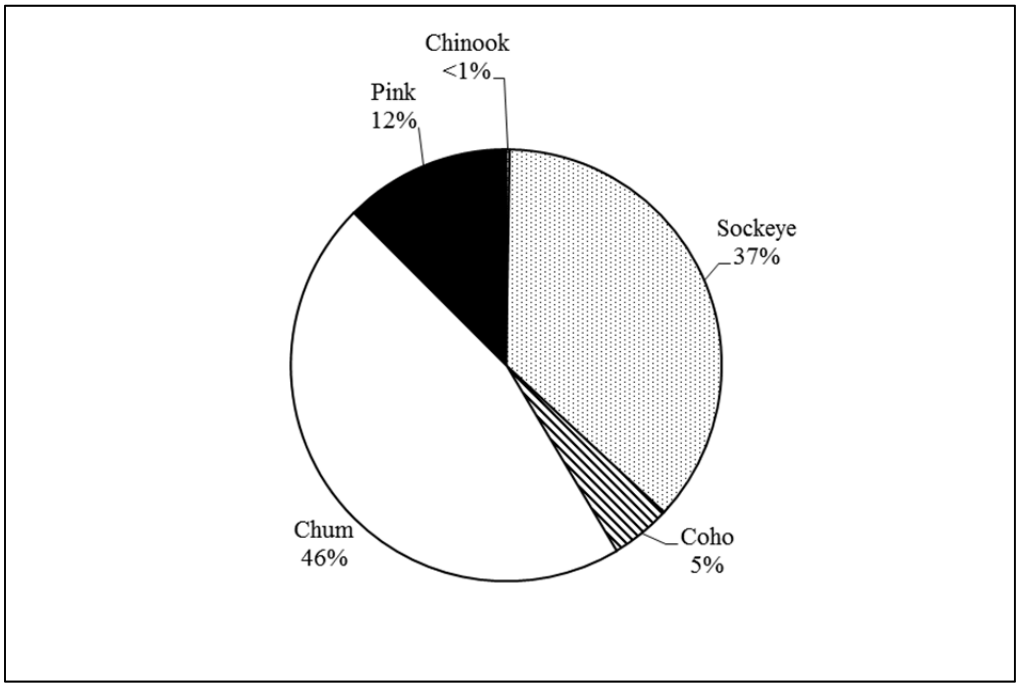

Figure 3-2.–Species composition of estimated subsistence salmon harvests, Port Clarence District, 2013.

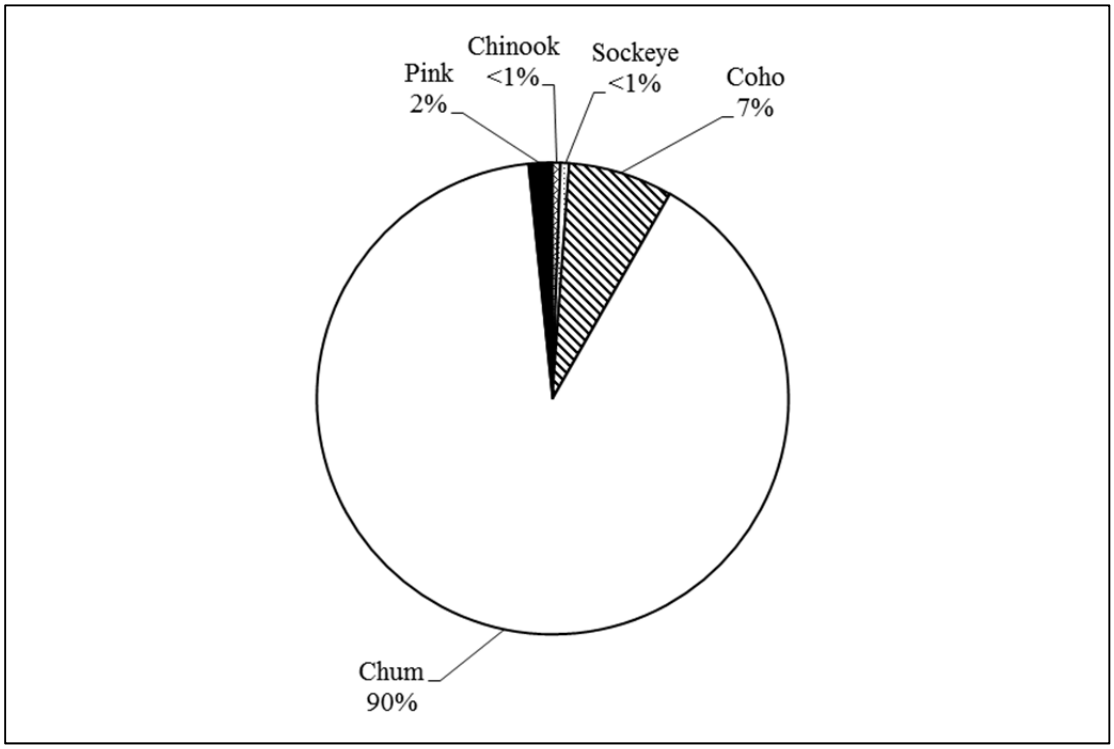

Figure 3-3.–Species composition of estimated subsistence salmon harvests, Kotzebue District, 2013.

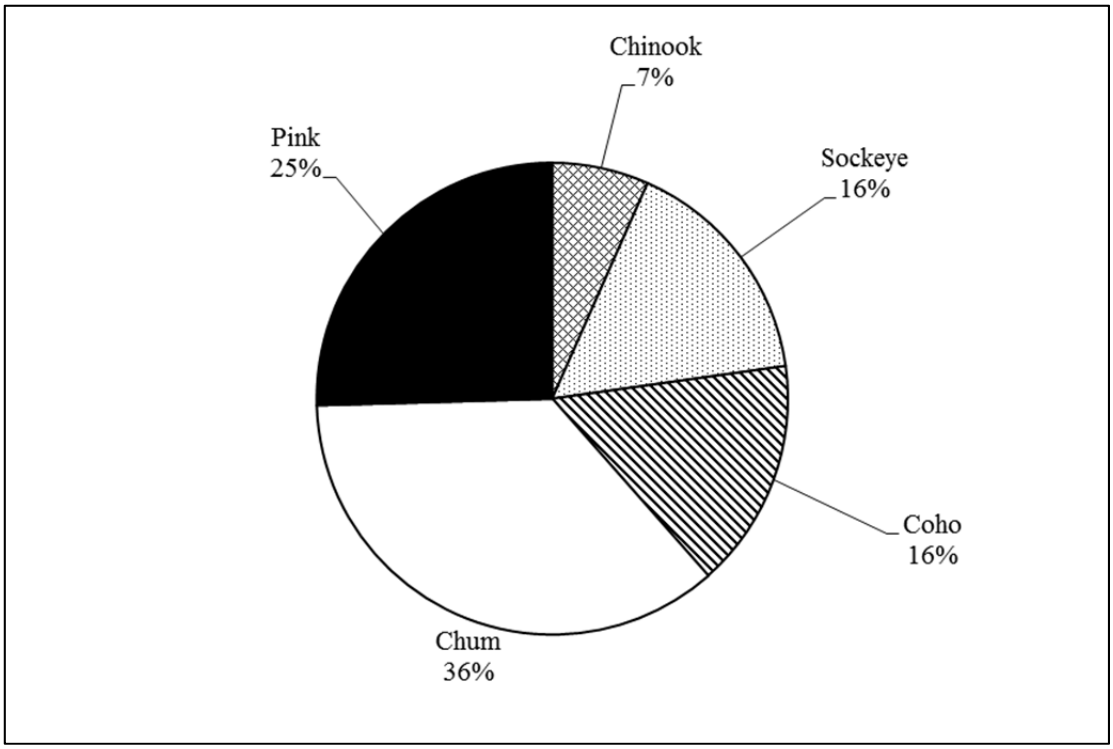

Figure 3-4.–Species composition of estimated subsistence salmon harvests, Arctic District, 2012.

CHAPTER 4: YUKON AREA

BACKGROUND

Residents of the Yukon River drainage have long relied on fish for human food and other subsistence uses. While nonsalmon fish species are an important component of the overall fish harvest (Andersen et al. 2004; Brown et al. 2005), large numbers of Chinook salmon, summer and fall chum salmon, and coho salmon compose the majority of all subsistence harvests of fish in the Yukon River drainage. Indeed, subsistence salmon harvests have occurred alongside robust commercial, sport, and personal use harvests across species.

Yukon Area fishers use drift gillnets, set gillnets, and fish wheels to harvest the majority of salmon. Set gillnets are used throughout the Yukon Area, often in the main rivers and coastal marine waters. Drift gillnets are used extensively in about half of the river. Under state regulations, drift gillnets are allowed from the mouth of the Yukon River to approximately 18 miles downriver of Galena, and under federal permit in subdistricts 4B and 4C. Fish wheels are a legal subsistence gear type throughout the Yukon drainage, although due to river conditions and the availability of wood for building materials, they are used almost exclusively on the middle and upper Yukon and Tanana rivers.

Depending on the area of the Yukon River drainage and each salmon species' run timing, subsistence fishing for salmon occurs from late May through mid October. Subsistence harvesters usually base their fishing activities either from fish camps or from their home communities. Extended family groups, typically representing several households, often participate in subsistence salmon fishing together. Households and related individuals typically cooperate to harvest, process, preserve, and store salmon for subsistence uses.[1]

The majority of the subsistence salmon harvest is preserved for later uses by freezing, drying, or smoking; the head, viscera, backbones, and other scraps are often fed to dogs. Chinook salmon are harvested and processed primarily for human consumption, although those fish deemed not suitable for human consumption due to the presence of the fungus *Ichthyophonus hoferi* or some other disease or abnormality are often fed to dogs. Small male Chinook salmon ("jacks") or spawned-out salmon may also be fed to dogs. In addition, while fishers harvest chum and coho salmon primarily for human consumption, dog mushers harvest and process relatively large numbers of these species as food for sled dogs. Fall chum salmon and coho salmon typically arrive in the upper portion of the drainage late in the season, coinciding with freezing weather, during which time some dog mushers "crib" salmon for use as dog food. This method involves storing whole salmon outdoors in large wooden boxes or log cribs in late fall, and allowing them to freeze (Andersen 1992). The practice of keeping sled dogs is much more common in communities along the upper Yukon River than in the lower river area.

REGULATIONS

Regulation and management of Yukon River drainage subsistence salmon fishing follows the Yukon River Drainage Subsistence Salmon Fishery Management Protocol, which provides a framework for coordinated subsistence fisheries management between ADF&G and the federal subsistence management programs in the Yukon River drainage. This protocol is applied through a Memorandum of Agreement between state and federal agencies which formalizes the working relationships between state and federal managers and fosters cooperation with federal regional advisory councils and fisheries interest groups. State managers are responsible for management of state subsistence, commercial, recreational, and personal use fisheries in all waters. Federal managers are responsible for management of subsistence fishing by qualified rural residents in applicable federal waters. The protocol also directs state and federal managers to solicit input from the Yukon River Drainage Fisheries Association (YRDFA), the Yukon

1. For more detail on subsistence uses of Yukon River salmon, see ADF&G 1987a–b, 1988.

River Coordinating Fisheries Committee (YRCFC), and other stakeholders during the decision-making process.

The majority of the United States' portion of the Yukon Area is open to subsistence fishing. However, the Joint Board has defined a portion of the Tanana River in the Yukon River drainage as lying within the Fairbanks Nonsubsistence Area (5 AAC 99.015). Subsistence fisheries may not be authorized within nonsubsistence areas; the harvest of fish for home uses in these nonsubsistence areas occurs under personal use and sport fishing regulations.

In 2011 area managers implemented a 2010 Board of Fisheries decision to reduce the maximum stretched mesh net size to 7.5″. Prior to this, Yukon Area fishers widely used 8″-8.5″ mesh nets to target Chinook salmon. This change was considered a conservation tool to allow more of the older and larger Chinook salmon, especially females, to escape to the spawning grounds. During the spring of 2011, in cooperation with the Pacific States Marine Fisheries Commission (PSMFC), the Tanana Chiefs Conference (TCC) administered a net exchange program to help fishermen comply with this new regulation. Eligible fishermen could send in their 8″ or larger mesh nets in exchange for new, 7.5″ mesh nets (Frothingham 2011). Kwik'pak Fisheries, LLC, a community-based economic development organization in the lower Yukon River, also facilitated a net exchange program in lower river communities. However, restrictions in the subsistence fisheries necessary for conservation in the following years (discussed below) have kept fishermen from actually using these new nets to date.

Over the last 2 decades, several other regulatory changes have affected the subsistence salmon fishery in the Yukon River drainage. In 1993, the BOF adopted regulations which separated subsistence and commercial salmon fishing times in districts 1, 2, and 3 and in the lower portion of District 4 (Subdistrict 4A) (figures 4-1 and 4-2). In these areas, subsistence salmon fishing is allowed 7 days per week but may not occur 24 hours prior to and immediately following the commercial salmon fishing season. By regulation, once the commercial season is open, subsistence salmon fishing may not occur 18 hours immediately before, during, and 12 hours after each district 1, 2, or 3 summer season commercial fishing period unless altered by emergency order. During the fall season in districts 1, 2, and 3, subsistence fishing may not occur 12 hours immediately before, during, and 12 hours after each commercial fishing period. In areas including and upriver from subdistrict 4B, subsistence salmon fishing periods coincide with commercial salmon fishing periods. Since 1988, subsistence fishing in the lower Tanana River drainage in subdistricts 6A and 6B has been allowed for two 42-hour periods per week unless altered by emergency order.[2] In the upper Tanana River drainage upstream of the Volkmar (north bank) and Johnson (south bank)[3] rivers, subsistence fishing is allowed 7 days per week.

In 2005, the Federal Subsistence Board (FSB) established a subsistence drift gillnet fishery in subdistricts 4B and 4C, which includes the mainstem Yukon River villages of Galena and Ruby. Participation in this fishery was open to qualified rural residents under a federal subsistence permit, and limited to gillnets that were no longer than 150 ft and no deeper than 35 meshes. The mesh size was unrestricted so as to target Chinook salmon. In previous years, the regulation allowed drift gillnet fishing in the last 18 hours of each subsistence salmon fishing opening in the federal public waters of subdistricts 4B and 4C. However, in 2008, the FSB liberalized the regulation to align it with the regulatory openings, usually two 42-hour periods per week.

2. In the lower Tanana River drainage, the fishery to harvest salmon for home uses in Subdistrict 6C is a personal use fishery. Its fishing schedule matches those of the 6A and 6B subsistence salmon fisheries; namely, that personal use fishing is allowed for two 42-hour periods per week unless altered by emergency order. In that portion of Subdistrict 6B from the downstream side of the upper Tolovana River to 3 miles upstream of Totchaket Slough (the Old Minto area), subsistence fishing is allowed 5 days per week.

3. Salmon fishing is closed in that portion of the Tanana River drainage upstream of Subdistrict 6C, from the Salcha River upstream to the Volkmar River (north bank) and to the Johnson River (south bank). The area is closed to salmon fishing other than sport fishing and is included in the Fairbanks Nonsubsistence Area. Whitefishes and longnose suckers may be harvested upstream of the Salcha River under a personal use permit.

Since 1996, Yukon River salmon stocks have fluctuated in terms of abundance. The distastrous runs of all species in 2000 resulted in subsistence restrictions late in the summer subsistence salmon season to protect Chinook salmon and summer chum salmon populations. Because of the inability to maintain expected yields and harvestable surpluses above escapement goals for several years, the BOF classified the Yukon River Chinook salmon stock as a stock of yield concern at its September 2000 work session (Lingnau and Salomone 2003). After a modest increase in Chinook salmon abundance from 2004 to 2007, more severe restrictions were imposed on the summer season to protect declining Chinook salmon runs beginning in 2008. Restrictions have been implemented through both period closures and limited gear use in all districts. During its January 2010 and 2013 meetings in Fairbanks, the BOF continued the stock of yield concern designation for Yukon River Chinook salmon.[4]

Fall chum salmon returns have also been variable over time. Restrictions on subsistence fall season salmon fishing occurred intermittently throughout the 1990s. There was a complete closure of the fall season in 2000 severely affecting the subsistence harvest of fall chum and coho salmon. In 2001 the BOF declared Yukon fall chum salmon a stock of concern. In 2007, after the returns of fall chum rebounded, the BOF lifted the stock of concern designation.

In 2001, as a result of the disastrous runs the year before, the BOF instituted a new subsistence schedule on the Yukon River based on historical subsistence fishing opportunities structured around commercial openings, commonly referred to as the "windows" schedule. The schedule was intended to fulfill several goals: 1) increase the quality of escapement, 2) distribute subsistence opportunity among users during years with no commercial fishing, and 3) reduce the impact of harvest on any one stock by spreading the harvest throughout the run, thereby providing windows of time that salmon may migrate upriver with reduced exploitation. The schedule, based on past fishing schedules, is initiated each year based on the historical average time of Chinook salmon entry into the Yukon River. Once initiated, the schedule is implemented chronologically upriver. The BOF determined that the schedule provides reasonable opportunity for subsistence users to achieve their harvest goals when salmon runs are below average. Subsistence fishing is allowed 7 days per week in all areas prior to the established schedule dates. In 2003, the BOF clarified the window schedule to allow ADF&G to relax the schedule if Chinook salmon run abundance allowed commercial fishing.

Preseason outlooks for 2013 projected a poor Chinook salmon run (98,000-144,000) (JTC 2014:4), especially for Canadian-origin fish. YRDFA facilitated a pre-season meeting for managers, fishers, and other stakeholders to discuss options and develop a preseason plan. The results of this meeting were summarized in an informational flyer that was distributed to approximately 2,900 Yukon River households (JTC 2014:5). The 2013 subsistence fishing schedule for the Lower Yukon Area is presented in Table 4-1. Table 4-2 displays the 2013 subsistence fishing schedule for the Upper Yukon Area, and Table 4-3 displays the schedule for the Old Minto Area, Tanana River, and Koyukuk River Historically, the windows schedule began around May 28 in District 1. In 2013, the regulatory subsistence fishing schedule began on May 30. The summer chum salmon run was expected to be similar to the run in 2012 of approximately 1.5 to 1.8 million fish and to provide for escapements, a normal subsistence harvest, and a surplus for commercial harvest. A projected run of 900,000–1,200,000 fall chum salmon was expected to provide for escapement, subsistence harvests, and a projected commercial harvest of 500,000–700,000 fish. Coho salmon runs were projected to be of below average to average strength, around 137,000 fish, based on escapements observed in 2009.[5]

Throughout the season, emergency orders were issued to modify the subsistence fishing schedule to protect Chinook salmon. Ice break up in the lower river occurred on June 3, which was considerably later than the average of May 23, and the first Chinook salmon was caught by ADF&G test nets on June 10

4. Alaska Department of Fish and Game Division of Commercial Fisheries. "Yukon Area regulatory changes," news release, January 25, 2013. Accessed August 2014. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/245219141.pdf

5. Alaska Department of Fish and Game Division of Commercial Fisheries. "2013 Yukon River Fall Season Summary," news release, November 27, 2013. Accessed June 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/376437276.pdf

(JTC 2014:6). Consistent with the new regulation requiring closure of the first pulse of Chinook salmon for conservation purposes, subsistence closures were initiated in District 1 and the northern portion of the Coastal District on June 20 and implemented chronologically upriver as the pulse migrated. As the Chinook salmon migration progressed upriver, managers were increasingly concerned that the run was very weak and insufficient to meet all escapement objectives. In order to try to meet escapement goals, managers protected each of the subsequent 3 pulses of Chinook salmon in Districts 1–5 and only offered very limited fishing opportunities between pulses to allow for the harvest of summer chum salmon and other nonsalmon speciesDuring these openings, gill nets were restricted to 6-inch mesh or smaller and in upper Yukon River districts, fishermen could use fishwheels with the stipulation that all Chinook salmon would be released back to the water unharmed. Low passage numbers at Eagle sonar necessitated further restrictions in Subdistrict 5-D; as a result, subsistence closures were most pronounced in Subdistrict 5-D (JTC 2014:8).

During the preseason, it was considered unlikely that there would be a directed commercial Chinook salmon fishery given previous years' failures to meet minimum treaty escapement goals for Canadian Chinook salmon and because of the likely restrictions on the subsistence fishery. Ultimately, given the need for subsistence restrictions indicated by the preseason outlook and early inseason indicators, ADF&G did not authorize any commercial fishing periods targeting Chinook salmon on the mainstem Yukon River.

Preseason projections expected the 2013 summer chum run to be average, to provide for escapement and subsistence uses, and to have a surplus for commercial harvest, noted above. A harvestable surplus of summer chum has been available for the last 10 years (2004–2013). Because of the concurrent run timing of Chinook and summer chum salmon, managers expected that the conservative management strategies, designed to protect a poor Chinook salmon run, would affect and reduce the commercial harvest of summer chum salmon. Ultimately, the sonar at Pilot Station estimated the passage of summer chum at approximately 2.7 million fish in 2013, well above the historical median of 1.9 million (JTC 2014:9). To reduce the incidental catch of Chinook salmon in the summer chum commercial fishery, commercial fishing was delayed until the estimated midpoint of Canadian-orgin Chinook salmon run had passed through the Lower Yukon Area. Additionally, managers implemented new regulations adopted by the BOF in 2013 that allowed the commercial harvest of summer chum salmon using dip nets and beach seines beginning on June 18 in District 1 and June 20 in District 2. Fishermen were required to immediately release incidentally caught Chinook salmon. Later in the season, 5½ -inch mesh gill nets were allowed on July 2 in the South Mouth part of District 1 where the majority of Chinook salmon had already migrated upriver; the rest of District 1 and District 2 did not transition to the use of gillnets until July 8 (JTC 2014:9). A new regulation adopted by the BOF in 2012 allowed ADF&G to open a commercial summer chum fishery in Subbdistrict 4-A using fish wheels that were attended at all times in order to immediately release Chinook salmon back to the water alive. In 2013, the BOF adopted regulations detailed construction specifications intended to reduce injuring Chinook salmon as they passed through the wheels (JTC 2014:10) A total of 928 Chinook salmon were reported caught in dip nets and beach seines in the lower river districts and released back to the water alive; a total of 100 Chinook salmon were reported caught and released back to the water alive in the fish wheel fishery in upper river districts. A total of 484 Chinook salmon were incidentally harvested and reported as caught but not sold during commercial chum salmon openings.[6]

The preseason outlook for fall chum salmon estimated a return of greater than 800,000 fish, enough to meet the escapement goal and provide for subsistence harvests, and support a commercial harvest.[7] In 2013, fall chum salmon returned to the river slowly through July, and daily sonar passages continued to

6. Alaska Department of Fish and Game Division of Commercial Fisheries. "2013 Preliminary Yukon River Summer Season Summary," news release, October 7, 2013. Accessed June 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/369991357.pdf
7. Alaska Department of Fish and Game Division of Commercial Fisheries. "2013 Preliminary Yukon River Summer Season Summary," news release, October 7, 2013. Accessed June 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/369991357.pdf

be below historical medians through mid-August. As a result, no commercial opentings were allowed to ensure the passage of fall chum into upper river districts for escapement and subsistence harvest. Beginning on August 14, a 2-day pulse delivered approximately 195,000 fish to the river followed by 2 more pulses for an estimated total sonar count of 717,000 fish by early September 2013. Commercial opportunities began in mid August and continued through September (JTC 2014:12). A directed commercial fall chum salmon fishery resulted in a harvest of 289,692 fall chum salmon, but coho salmon passage was below average for the entire season with an estimated sonar count of 85,000 fish. While coho salmon were harvested incidentally in directed fall chum commercial openings, no coho salmon directed commercial openings were prosecuted in 2013A total of 443 permit holders participated in the fall season salmon commercial fishery; 436 in districts 1 and 2 combined and 7 in districts 4, 5, and 6 combined. Participation in lower river districts during the 2013 fishing season was above historical averages while participation in the upper river districts was about the same.[8]

SUBSISTENCE HARVEST ASSESSMENT METHODS

For the majority of villages within the Yukon Area, there are no regulatory requirements to report subsistence salmon harvests. For these villages, ADF&G utilizes a voluntary survey program to estimate the total subsistence salmon harvest. Harvest information is collected using a combination of subsistence harvest calendars mailed prior to fishing activities and postseason surveys conducted in person or by phone or letter. In road-accessible portions of the Yukon Area—including the majority of the Tanana River drainage (subdistricts 6A and 6B and the Upper Tanana River drainage), the Yukon River drainage between Hess Creek and the Dall River (known as the Yukon River Bridge Area), the upper portion of Subdistrict 5D between the upstream mouth of Twenty-two Mile Slough and the U.S.–Canada border, and, as of 2004, the Rampart Area (western end of Garnet Island to the mouth of Hess Creek), and the Middle and South Fork Area of the Koyukuk River—subsistence fishers are required to obtain an annual household permit prior to fishing, document their subsistence salmon harvests on the household permit, and return it to ADF&G at the end of the season.

Prior to salmon fishing activities, subsistence harvest calendars are mailed to all identified fishing households within the survey communities. The Lower Yukon Area calendars contain the months of May through September and the Upper Yukon Area calendars contain the months of June through October. Additional calendars are mailed to those households for which fishing activities are unknown and are also made available to households upon request from ADF&G offices in Emmonak and Fairbanks. The calendars provide space for fishers to record their daily subsistence harvests of salmon by species. Calendars are return-postage-paid and are mailed to ADF&G or given to ADF&G research staff during postseason trips to the villages, especially during the postseason salmon survey. Posters sent to village post offices and announcements on area radio stations remind fishers to give their calendars to research staff. In 2013, Division of Commercial Fisheries staff distributed calendars to all households identified as participating in some level of fishing or with unknown fishing harvests; households identified as nonfishing households did not receive calendars. A total of 1,760 calendars were sent to Yukon River households. Approximately 19% of calendar recipients (330) returned harvest calendars either by mail or through research staff during their fall surveys. Calendars provide additional Yukon Area run and harvest timing information that is not obtained by other data collection methods (Jallen et al. *In prep*).

In addition to the harvest calendars, ADF&G Division of Commercial Fisheries staff conduct postseason in-person interviews with a stratified random sample of all households in surveyed communities within the Yukon River drainage. Survey questions focus on Chinook, summer chum, fall chum, and coho salmon, but households are also asked about other species as well, such as pink salmon (primarily taken by coastal communities), northern pike *Esox lucius*, whitefishes, and sheefish. Some households that are

8. Alaska Department of Fish and Game Division of Commercial Fisheries. "2013 Yukon River Fall Season Summary," news release, November 27, 2013. Accessed June 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/376437276.pdf

not contacted in person by the surveyors are contacted by telephone. Those households not contacted by telephone are mailed a survey questionnaire and a postage-paid return envelope.

A subsistence permit is required in the road-accessible portions of the Yukon River drainage. Subsistence fishers record their daily salmon harvests on a household permit and return the permit within 10 days of the expiration date on the permit. Subsistence permit applications are mailed to all who returned the prior year's permit, along with instructions on how to apply by mail. In addition, ADF&G staff travel to select villages so that applicants can be issued permits in person. Permits are also issued in several ADF&G offices or by mail throughout the season. Those who do not return permits are sent up to 2 reminder letters. Telephone contacts with households that do not respond to the reminder letters are attempted as a final measure.

Subsistence salmon permit holders in a portion of Subdistrict 6B (the Tanana River drainage above a point 3 miles upstream of Totchaket Slough to the boundary with Subdistrict 6C) and the personal use fishers in Subdistrict 6C are required to report their harvests weekly for inseason management purposes. To maximize the return of permits, ADF&G staff also sent reminder letters to these households. A total of 435 salmon fishing permits were issued to households in the Yukon Area in 2013, including 368 subsistence and 67 personal use permits (Table 4-4). Of these permits, 348 (95%) subsistence permits and 66 (99%) personal use permits were returned to ADF&G (Table 4-4) (Jallen et al. *In prep*). Unreturned permits were considered to be unfished, and subsistence fishing households are not eligible to receive a permit the following year until the previous year's permit is returned.

Department staff surveyed 1,193 households (out of a sample of 1,434 selected) in the Yukon Area concerning their subsistence salmon harvests (Table 4-5). Local surveyors also collected information from 41 households in Grayling as part of a pilot study to assess methods for local harvest documentation An additional 58 households mailed in their harvest numbers on a survey or a calendar (Jallen et al. *In prep*).

SUBSISTENCE SALMON HARVESTS IN 2013

In 2013, 1,125 surveyed households (43% of the total households in surveyed communities)and 414 permit holders that returned permits provided harvest data for the Yukon Area subsistence–personal use salmon fishery (Table 4-4; Table 4-6). The estimated subsistence–personal use salmon harvest for the entire Yukon Area included 12,575 Chinook salmon (5% of the estimated total salmon harvest), 115,252 summer chum salmon (45%), 113,767 fall chum salmon (44%), 14,566 coho salmon (6%), and 1,079 pink salmon (<1%), for a total of 257,239 salmon (Table 4-6; Figure 4-2). Note that this is an estimated total based on household surveys and returned permits and calendars, and it includes subsistence harvests, personal use harvests, commercial harvests retained for subsistence, and fish distributed from ADF&G test fisheries.

Since the disastrous harvest levels in 2000 (152,300 total salmon), subsistence salmon harvests have fluctuated by species. Chinook salmon harvest levels have remained relatively stable except in years when conservative management actions were taken. As shown in Table 4-7, the 2013 Chinook salmon harvest estimates were below the most recent Yukon Area 5-year averages (2008–2012), likely reflecting the restrictions put in place to protect them. The estimated subsistence and personal use harvest of 12,575 Chinook salmon in 2013 was 68% below the most recent 5-year average of 39,104 fish, and 73% below the most recent 10-year average of 46,746 fish. Other explanations for decreases in Chinook harvest include voluntary reduction of harvest by Yukon River communities and individual households. Regardless, subsistence Chinook salmon harvests have not fallen within the amounts necessary for subsistence (ANS) range for the last 5 years. Households could also replace some of their Chinook harvest with other, more abundant, salmon species. For example, summer chum harvests stayed high after 2012 harvests and fall chum salmon harvests increased again in 2013 from 2010 to 2012 levels, possibly demonstrating species replacement strategies. Although the harvests of both summer and fall chum

salmon in 2013 were higher than their respective 5-year and 10-year averages, the harvests of Chinook salmon and coho and pink salmon all fell below their respective 5-year and 10-year averages.

Until 1996, when the market for chum salmon roe declined, subsistence harvests of summer chum salmon were regularly estimated between 115,000 and 142,000 fish. Fishers harvested summer chum salmon for roe and kept most of the carcasses primarily for dog food; these fish were counted in the subsistence harvest. Since then, summer chum harvests have been relatively stable. The estimated 2013 subsistence harvest of 115,252 summer chum salmon was 20% above the 5-year average of 95,993 fish and 22% above the 10-year average of 94,502 fish. Summer chum salmon may continue to play a larger role in subsistence salmon harvests if Chinook salmon harvests continue to decline as subsistence users attempt to adapt to changes in Chinook salmon availability.

Fall chum salmon harvests steadily declined in the late 1980s through the 1990s. Since then, harvest has fluctuated. Unlike summer chum, flucuations in harvest are less connected to the commercial market (Figure 4-3). Fall chum salmon are used as both human food and dog food, depending on quality and timing of harvests within the run. 2013 marks the second time in 6 years that the harvest of fall chum salmon fell within the ANS range (Table 4-8); declines in the maintenance of dog teams along the river likely account for this change in harvest levels. Historically, due to run timing, the management of coho salmon has been tied to the management of fall chum salmon. As such, it is difficult to assess actual trends in the harvest of coho salmon and reasons for these trends.

Pink salmon are on the calendar and survey for the entire survey area, but harvest is typically only reported in lower river communities. Although pink salmon can be abundant in lower Yukon River and coastal Yukon River delta communities, fishers do not typically harvest large numbers of this species.

Figure 4-4 shows the number of dogs reported by surveyed households in each fishing district, as well as the percentage of total dogs in the Yukon Area reported in each district. Of the estimated 1,774 households in the Yukon Area that own dogs, about 14% (244 households) fed whole salmon to their dogs in 2013 (Jallen et al. *In prep*). Most households that own dogs feed fish scraps, but do not harvest salmon to feed to dogs. Of the 5,007 dogs owned by Yukon Area households in 2013, upper Yukon households in districts 4, 5, and 6 owned 3,258 dogs (65% of the total number of dogs owned in Yukon River districts) (Figure 4-4). In 2013, the Division of Commercial Fisheries collected information on the number of each of the 5 species of salmon that fishers retained for dog food from subsistence harvests in surveyed communities. In permit communities, only the total number of whole salmon, and not the numbers of each species, was documented. In the Coastal District and in districts 1 through 5, an estimated 18,890 summer chum salmon, 51,427 fall chum salmon, and 191 coho salmon were retained for dog food from subsistence salmon harvests. Additionally, permit holders fed 24,873 whole salmon to dogs, including in District 6, which includes Manley Hot Springs, Minto, Fairbanks, Healy and other Upper Tanana villages (Jallen et al. *In prep*).

Primary gear types used by Yukon Area fishing households in 2013 included set gillnet (45%), drift gillnet (47%), and fish wheel (8%) (Figure 4-5), largely the same as 2009, 2010, and 2011.

Since 1992, ADF&G has asked surveyed households whether they were able to meet their subsistence salmon needs for each survey year. The disastrous fishing year in 2000 resulted in restrictions and closures in subsistence salmon fishing schedules and made it extremely difficult for fishing families to meet their needs (64% of surveyed households reported not meeting their needs in 2000) (Borba and Hamner 2001:98). In 2003, ADF&G began asking households to describe whether they met their subsistence needs for each species of salmon, measuring responses by community and by species. Specifically, surveyed households were asked whether 100%, 75%, 50%, or less than 25% of their harvest needs were met for each species. Two checkboxes, “0%” and “no need,” were added to the 2005 survey in order to distinguish those who had a need but no success in harvesting a species from those who had no need and therefore did not harvest any fish. Not all surveyed households supplied information about whether or not they met their needs for each species. The number of surveyed households responding to

the needs met question was greatest for Chinook salmon, and lowest for coho salmon (Chinook salmon, 769 households; summer chum salmon, 510 households; fall chum salmon, 353 households; coho salmon, 136 households). According to the data, there was a marked change in responses to the needs met question from 2011 and previous years. Only 16% of all households reported meeting greater than 75% of their needs for Chinook salmon (Jallen et al. *In prep*). This represents a continued decrease since 2005 in the percentage of households reporting that they met the majority of their needs for Chinook salmon. Households that cited reasons for their decreased harvest most often reported the poor Chinook salmon run, regulatory closures, lack of gear, and voluntary harvest cut-backs to conserve Chinook salmon (Jallen et al. *In prep*). In 2013, more than half (56%) of surveyed households reported meeting greater than 75% of their needs for summer chum salmon; nearly half of households reported meeting greater than 75% of their needs for fall salmon species; 50% and 49% of surveyed households reported meeting greater than 75% of their needs for fall chum and coho salmon, respectively. Eighty percent of households reported meeting less than one-half (<50%) of their needs for Chinook salmon; 35%, 47%, and 49% of households reported meeting less than one-half their needs for summer chum salmon, fall chum salmon, and coho salmon, respectively.

In 1993, the BOF made a positive C&T use finding for all salmon in the Yukon–Northern Area. The ANS determination was established at 348,000–503,000 salmon for all species combined (5 AAC 01.236). Under these guidelines, 1992 marked the last year when total subsistence salmon harvests fell within the combined ANS range. Since 1990, the overall total subsistence salmon harvest in the Yukon Area has declined by approximately 32% (Table 4-7). In 2001, the BOF made species-specific ANS determinations for each of 4 species of salmon harvested in the Yukon Area, including separate ANS determinations for summer chum salmon and fall chum salmon. In 2013, the BOF added an ANS for pink salmon, 2,100–9,700. The ANS range provides one index of the extent to which reasonable opportunity is provided in each subsistence fishery. Harvests below the lower bound of the ANS range may indicate, with other evidence, that there was not a reasonable opportunity for subsistence harvests during the previous season. Harvests consistently below the lower bound of the ANS are an indication to the BOF to consider whether additional management actions are necessary to provide reasonable subsistence opportunities or if harvest and use patterns for a species have changed over time such that harvests fall outside of ANS ranges. With the exception of Chinook salmon, harvests of all salmon species in 2013 fell within their respective ANS ranges (Table 4-8). This was the sixth consecutive year that Chinook salmon harvests remained below the minimum bound of the ANS range; however, 2013 was only the second year since 2007 that both summer and fall chum salmon harvests fell within their respective ANS ranges (Table 4-8). See Table 4-8 for a comparison of ANS ranges and subsistence salmon harvests from 1998–2013.

NONSALMON FISH HARVESTS

Although salmon harvests dominate most of the regulatory actions in the Yukon Area, nonsalmon fish harvests remain significant components of the seasonal subsistence round for Yukon Area fishers. Salmon are only available seasonally, but most nonsalmon species are available year-round. Nonsalmon fishes not only provide an important source of nutrition for residents of the Yukon Area, they also represent a significant cultural resource for subsistence fishers in the region. In 1987, and again in 1993, the BOF made a positive C&T use determination for freshwater fish species in the Yukon Area, including sheefish, whitefish species, Arctic lamprey, burbot, longnose sucker, Arctic grayling, northern pike, and Arctic char (5 AAC 01.236). Subsistence fishing for nonsalmon species is generally open by regulation 7 days per week, 24 hours per day, year-round. These state regulations also apply to subsistence fisheries in waters adjacent to federal lands in the project study area (unless superseded on federal public lands by federal subsistence regulations, applicable only to federally qualified subsistence users). Under ANILCA, rural Alaskan residents of the Yukon–Northern Area (except those living in ADF&G Game Management Unit 26B) and residents of the Yukon River drainage have a C&T use determination for nonsalmon fishes, and are qualified to participate in subsistence activities on federal public lands, even if other uses

and/or users have been prohibited from subsistence fishing in federal waters due to conservation concerns or user conflicts.[9]

ADF&G Division of Commercial Fisheries collects nonsalmon harvest data on an annual basis as part of a postseason salmon survey; however, collection of nonsalmon harvest data is not the primary purpose of the postseason subsistence salmon harvest survey. Furthermore, the implementation of this survey immediately following the salmon fishing season may not be timed to produce the most accurate results for nonsalmon harvests, nor is the stratified sample of salmon fishing households necessarily the best design for collecting nonsalmon harvest information. However, while other single-year harvest data collection efforts suggest that the postseason survey may significantly underestimate harvests (Andersen et al. 2004; Brown et al. 2005), these data have value as the only annual estimate of nonsalmon fish harvests in the Yukon Area (Table 4-9).

Table 4-9 estimates harvests of whitefish, sheefish, and northern pike by community. In 2013 Yukon area fishers from districts 1–5 harvested a total of 91,583 of these nonsalmon fish. This represents an increase since 2010 and 2011 when the total harvest of these species was 76,967 and 74,571 fish, respectively but an approximately 14% decrease of 2012 harvests (106,030 fish) (Jallen et al. *In prep*, 2012:111). The "large whitefish" category includes broad and humpback whitefishes while the "small whitefish" category includes least and Bering cisco species and round whitefish. Fishers in District 1 harvested the most number of whitefishes (18,371), followed by District 5 (14,236). On a drainagewide level, large whitefish species were harvested in greater numbers than any other nonsalmon fish. Approximately 36,333 large whitefishes, or 40% of the total nonsalmon harvest, were harvested by Yukon River fishers from districts 1–5—a slight decrease from the harvest in 2012; fishers in District 2, 4, and 5, harvested the greatest numbers of large whitefishes—between 7,932 and 9,647 fish—while fishers in District 1 harvested the largest number of small whitefishes (13,363). It is important to note that these totals do not include large whitefish harvests from District 6 along the Tanana River; data there are not reported by large and small categories. Fishers from districts 1–5 reported harvesting 11,264 northern pike and 15,553 sheefish in 2012. Districts 1, 2, and 4 households all harvested approximately the same numbers of northern pike (~2,400). District 1 households harvested more sheefish than in any other district (7,098). Permit fishers, primarily along the Tanana River and a few other locations along the Yukon River reported an additional harvest of 2,766 whitefish, 403 northern pike, and 48 sheefish (Jallen et al. *In prep*).

The Division of Subsistence has conducted numerous subsistence surveys along the Yukon River over time. Since 2008 for example, comprehensive surveys that included questions on nonsalmon species have been administered in Emmonak (Fall, Brown, et al. 2012); Galena, Nulato, Ruby, Marshall, Mountain Village[10]; Anvik, Grayling, Russian Mission (Ikuta et al. 2014); Shageluk, Pilot Station[11], Minto and Manley Hot Springs (Brown et al. 2014); and Tanana, Stevens Village, and Rampart.[12] Additionally, studies on the traditional ecological knowledge of nonsalmon have been conducted in the middle Yukon River communities of Tanana, Ruby, Galena, Nulato and Kaltag, and the Yukon Flat communities of Beaver, Birch Creek Village, Central, Circle, and Fort Yukon (Brown et al. 2010; Koskey and Mull 2011). A 2005 study explored the contemporary use of nonsalmon in the lower middle Yukon River communities of Grayling, Anvik, Shageluk and Holy Cross (Brown et al. 2005). Information on historical and contemporary harvest and use of nonsalmon in communities along the Yukon River, where data are

9. USFWS. 2008. Subsistence management regulations for the harvest of fish and shellfish on federal public lands and waters in Alaska, effective April 1, 2008–March 31, 2009. U.S. Fish and Wildlife Service, Anchorage, Alaska.

10. Brown, Caroline L.et al. *In prep*. "Subsistence harvests in 5 Yukon River communities, 2010: an index approach." Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. NNN, Fairbanks.

11. Ikuta, Hiroko and Marylynne Kostick, editors. *In prep*. "Subsistence harvests in 6 communities in the Bering Sea, Kuskokwim River drainage, and Yukon River, 2013." Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. NNN, Fairbanks.

12. Brown, Caroline L., Hiroko Ikuta, Nicole M. Braem, David Runfola, and Marylynne L. Kostick. *In prep*. Alaska Liquid Natural Gas subsistence research program: comprehensive subsistence harvest and use documentation among communities along the proposed gas pipeline corridor from Prudhoe Bay to Cook Inlet. Alaska Department of Fish and Game Division of Subsistence Technical Paper No. XXX, Fairbanks

available, can be accessed through the Community Subsistence Information System (CSIS) on the ADF&G website.

THE ROLE OF SALMON WITHIN ANNUAL SUBSISTENCE HARVESTS

Considering salmon within the context of total subsistence harvests provides a true measure of the importance of the resource and the extent to which declines in Chinook salmon specifically affect rural communities. In addition to post-season salmon surveys conducted by ADF&G, Division of Commercial Fisheries staff, Division of Subsistence staff conducted comprehensive subsistence surveys in the community of Galena in District 4 of the Yukon River. In 2010, fish was among the most widely used category of wild foods used by Galena households: 79% of Galena households used 63,651 edible pounds of fish (Brown et al. in prep). Salmon accounted for 47% of Galena's total subsistence harvest by weight and 79% of the total fish harvest in 2010. Chinook salmon accounted for 25% of all fish resources harvested for subsistence and 15% of the total subsistence harvest in Galena. Chinook salmon were already in decline by 2010. In an earlier baseline comprehensive study, Galena residents harvested an estimated 3,057 Chinook salmon in 1985 (Marcotte 1990) compared to an estimated 1,689 Chinook salmon in 2010. The 1985 Chinook salmon estimate accounted for approximately 8% of the total harvest and 10% of the total fish harvest. These lower percentages are likely due to the extremely high numbers of summer chum harvested by Galena residents for the commercial roe fishery where carcasses were used primarily for dog food to support large dog teams and was counted in the subsistence fishery. For comparison, Galena residents harvested 15,322 lb of summer chum salmon in 2010 compared to 274,260 lb in 1985. After the disappearance of the roe fishery by 1990, summer chum harvests by Galena residents have remained stable around 2,000–3,000 fish. Aside from salmon species, the resource harvested in the next largest amounts was moose in 1985, which accounted for 17% of the total subsistence harvest; with fewer salmon being harvested in 2010, moose harvests accounted for 34% of the total harvest. A poor king salmon run and conservative management strategies in 2013 resulted in even lower harvests of king salmon throughout the drainage than in 2010, and according to ADF&G's post-season salmon survey, Galena housheolds harvested 275 king salmon (Jallen et al. *In prep*), a 91% decline from 1985 and a 84% decline from 2010.

Table 4-1.–Subsistence fishing schedule by district, Lower Yukon Area, 2013.

Day	Date	Coastal District[a] Southern[b]	Coastal District[a] Northern[c]	District 1	District 2	District 3
Monday	5/27	Open - no schedule		Open—no schedule	Open—no schedule	Open—no schedule
Tuesday	5/28	Open	Open	Open	Open	Open
Wednesday	5/29	Open	Open	Open	Open	Open
Thursday	5/30	Open 8pm 6"mesh		Open 8pm 6" mesh	Open	Open
Friday	5/31	6" mesh	6" mesh	Open 6" mesh	Open	Open
Saturday	6/1	6" mesh	6" mesh	Close 8am	Open	Open
Sunday	6/2	6" mesh	6" mesh	Closed	Open 8pm 6"mesh	Open
Monday	6/3	6" mesh	6" mesh	Open 8pm 6" mesh	Open 6" mesh	Open
Tuesday	6/4	6" mesh	6" mesh	Open	Close 8am	Open
Wednesday	6/5	6" mesh	6" mesh	Close 8am	Open 8pm 6"mesh	Open 8pm 6" mesh
Thursday	6/6	6" mesh	6" mesh	Open 8pm 6" mesh	Open 6" mesh	Open 6" mesh
Friday	6/7	6" mesh	6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh
Saturday	6/8	6" mesh	6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh
Sunday	6/9	6" mesh	6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh
Monday	6/10	6" mesh	6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh
Tuesday	6/11	6" mesh	6" mesh	Open 6" mesh	Close 8am	Close 8am
Wednesday	6/12	6" mesh	6" mesh	Close 8am	Open 8pm 6"mesh	Open 8pm 6"mesh
Thursday	6/13	6" mesh	6" mesh	Open 8pm 6" mesh	Open 6" mesh	Open 6" mesh
Friday	6/14	6" mesh	6" mesh	Open 6" mesh	Close 8am	Close 8am
Saturday	6/15	6" mesh	6" mesh	Close 8am	Closed	Closed
Sunday	6/16	6" mesh	6" mesh	Closed	Open 8pm 6"mesh	Open 8pm 6"mesh
Monday	6/17	6" mesh	6" mesh	Open 8pm 6" mesh	Open 6" mesh	Open 6" mesh
Tuesday	6/18	6" mesh	6" mesh	Open. **Open 12pm–12am**[d, e]	Close 8am	Close 8am
Wednesday	6/19	6" mesh	6" mesh	Close 8am, **Open 6pm**[e, f]	Open 8pm 6"mesh	Open 8pm 6"mesh
Thursday	6/20	6" mesh	Close 8pm	**Close 3am. Open 12pm–12 am**[e, f]	Open 6" mesh[d, e]	Open 6" mesh
Friday	6/21	6" mesh	Closed	Closed. **Open 12pm–12am**[e, f]	Close 8am	Close 8am

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Table 4-1.–Page 2 of 5.

Day	Date	Coastal District[a] Southern[b]	Coastal District[a] Northern[c]	District 1	District 2	District 3
Saturday	6/22	6" mesh	Closed	Closed. **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Closed
Sunday	6/23	6" mesh	Closed	Closed. **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Open 8pm 6"mesh
Monday	6/24	6" mesh	Closed	Closed. **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Open 6"mesh
Tuesday	6/25	6" mesh	Closed	Closed. **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Close 8am
Wednesday	6/26	6" mesh	Closed	Closed. **Open 12pm–12am[e, f]**	Open 6pm, 6"mesh [g] **Open 12pm–12am[e,f]**	Closed
Thursday	6/27	6" mesh	Open 8pm 6" mesh	Open 8pm 6" mesh. **Open 8am[e]**	Close 12pm. **Open 12pm–12am[e, f]**	Closed
Friday	6/28	6" mesh	Close 2pm	Close 2pm **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Closed
Saturday	6/29	6" mesh	Closed	Closed? **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Closed
Sunday	6/30	6" mesh	Closed	Closed. **Open 12pm–12am[e, f]**	Closed. **Open 12pm–12am[e, f]**	Open 12pm-12am 6" mesh
Monday	7/1	6" mesh	Open 8pm 6" mesh	Open 8pm. **Open 8am–8pm[h]**	Closed. **Open 12pm–12am[e, f]**	Closed
Tuesday	7/2	6" mesh	Close 8am	Close 8am. **Open 8am–4pm[h, i]**	Closed. **Open 12pm–12am[e, f, j]**	Closed
Wednesday	7/3	6" mesh	Closed	Closed. **Open 6pm–12am[i]**	Closed. **Open 12pm–12am[e, f]**	Closed
Thursday	7/4	6" mesh	Open 8pm 6" mesh	Open 8pm 6"mesh **Open 2pm–8pm[i]**	Open 8pm 6" mesh. **Open 8am–8pm [e, f]**	Closed
Friday	7/5	6" mesh	6" mesh	Close 8am **Open 6pm–12am[i]**	Close 8am **Open 12pm–12am[e, f]**	Closed
Saturday	7/6	6" mesh	6" mesh	Closed. **Open 6pm–12am[i]**	Closed. **Open 12pm–12am[e, f]**	Closed
Sunday	7/7	6" mesh	6" mesh	Closed. **Open 6pm–-12am[l]**	Open 8pm 6"mesh. **Open 8am–8pm[e]**	Closed
Monday	7/8	6" mesh	6" mesh	Open 8pm 6" mesh. **Open 8pm[l]**	Close 8am. **Open 8pm–12am[k]**	Open 2pm 6"mesh
Tuesday	7/9	6" mesh	6" mesh	Close 2pm. **Close 2am[l]. Open 6pm–12am[m]**	Closed	Close 8am

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Table 4-1.–Page 3 of 5.

Day	Date	Coastal District[a] Southern[b]	Coastal District[a] Northern[c]	District 1	District 2	District 3
Wednesday	7/10	6" mesh	6" mesh	Closed	Open 8pm 6" mesh **Open 4pm–8pm[k]**	Open 8pm 6"mesh
Thursday	7/11	6" mesh	6" mesh	Open 8pm 6" mesh. **Open 3pm–12am[m]**	Close 2pm. **Open 6pm-10pm[k]**	Close 2pm
Friday	7/12	12pm 7.5"mesh[n]	12pm 7.5"mesh[n]	Close 2pm	Closed	Closed
Saturday	7/13	7.5" mesh	7.5" mesh	Closed. **Open 3pm–12am[m]**	Open 12pm-12am 6" mesh	Closed
Sunday	7/14	Open	Open	Closed	Open 8pm 7.5" mesh **Open 11am–8pm[k]**	Open 8pm 7.5"mesh
Monday	7/15	Open	Open	Closed. **Open 3pm–12am[m]**	Open 7.5" mesh	Open 7.5" mesh
Tuesday	7/16	Open	Open	Open 12:01am. 7.5" mesh	Open 7.5" mesh	Open
Wednesday	7/17	Open	Open	Close 9pm	Close 3am **Open 3pm–12am[k]**	Open
Thursday	7/18	Open	Open	Closed. **Open 9am–9pm[o]**	Open 12pm 7.5" mesh	Open
Friday	7/19	Open	Open	Open 9am	Open	Open
Saturday	7/20	Open	Open	Open	Open	Open
Sunday	7/21	Open	Open	Open	Close 2am. **Open 2pm–6pm[k]**	Open
Monday	7/22	Open	Open	Close 3am. **Open 3pm–12am[o]**	Open 8am	Open
Tuesday	7/23	Open	Open	Open 12pm	Open	Open
Wednesday	7/24	Open	Open	Open	Close 2am. **Open 2pm–8pm[k]**	Open
Thursday	7/25	Open	Open	Close 3am. **Open 3pm–12am[o]**	Open 8am	Open
Friday	7/26	Open	Open	Open 12pm	Open	Open
Saturday	7/27	Open	Open	Open	Open	Open
Sunday	7/28	Open	Open	Close 3pm. **Open 6pm-12am[m]**	Close 2am. **Open 2pm-8pm[k]**	Open
Monday	7/29	Open	Open	Open 12pm	Open 8am	Open
Tuesday	7/30	Open	Open	Open	Open	Open
Wednesday	7/31	Open	Open	Open	Open	Open
Thursday	8/1	Open	Open	Close 6am. **Open 6pm[o]**	Open	Open
Friday	8/2	Open	Open	Open 3pm. (**Close 3am**)	Close 2am. **Open 2pm–8pm[k]**	Open
Saturday	8/3	Open	Open	Open	Open 8am	Open
Sunday	8/4	Open	Open	Open	Close 2am. **Open 2pm–8pm[k]**	Open
Monday	8/5	Open	Open	Close 3am. **Open 3pm–12am[o]**	Open 8am	Open

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Table 4-1.–Page 4 of 5.

Day	Date	Coastal District[a] Southern[b]	Northern[c]	District 1	District 2	District 3
Tuesday	8/6	Open	Open	Open 12pm	Open	Open
Wednesday	8/7	Open	Open	Open	Open	Open
Thursday	8/8	Open	Open	Open	Open	Open
Friday	8/9	Open	Open	Open	Open	Open
Saturday	8/10	Open	Open	Open	Open	Open
Sunday	8/11	Open	Open	Open	Open	Open
Monday	8/12	Open	Open	Open	Open	Open
Tuesday	8/13	Open	Open	Open	Open	Open
Wednesday	8/14	Open	Open	Open	Open	Open
Thursday	8/15	Open	Open	Open	Open	Open
Friday	8/16	Open	Open	Open	Open	Open
Saturday	8/17	Open	Open	Close 5am **Open 5pm–11pm**[m]	Close 2am. **Open 2pm–8pm**[k]	Open
Sunday	8/18	Open	Open	Open 11am. Close 9pm	Open 8am	Open
Monday	8/19	Open	Open	Closed **Open 9am–6pm**[o]	Open	Open
Tuesday	8/20	Open	Open	Open 6am	Close 2am. **Open 2pm–8pm**[k]	Open
Wednesday	8/21	Open	Open	Open	Open 8am	Open
Thursday	8/22	Open	Open	Close 12:01am. **Open 12pm–9pm**[o]	Open	Open
Friday	8/23	Open	Open	Open 8am	Open	Open
Saturday	8/24	Open	Open	Open	Close 12:01am. **Open 12pm–6pm**[k]	Open
Sunday	8/25	Open	Open	Open	**Open 4pm-8pm**[k]	Open
Monday	8/26	Open	Open	Close 1am. **Open 1pm–10pm**[o]	Open 11pm	Open
Tuesday	8/27	Open	Open	Open 10am	Open	Open
Wednesday	8/28	Open	Open	Open	Close 2am. **Open 2pm–7pm**[k]	Open
Thursday	8/29	Open	Open	Close 1am. **Open 1pm–11pm**[o]	Open 7am	Open
Friday	8/30	Open	Open	Open 11am	Open	Open
Saturday	8/31	Open	Open	Open	Close 2am. **Open 2pm–5pm**[k]	Open
Sunday	9/1	Open[p]	Open[p]	Open[p]	Open 7am[p]	Open[p]

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Note: Shaded areas indicate fishery closures; outlined shaded days were closed to protect the first and second pulses of Chinook salmon. **Bold font indicates openings for commerical fishing periods**. Dates with double lines above and below contain subsistence openings limited to beach seines and dip nets with no retention of Chinook salmon allowed. Dates with dark shading were closed for subsistence fishing for 12 hours before, during and 12 hours after commercial fishing periods. Unless noted, mesh size was restricted to 7.5-inch or less in all districts and subdistricts in 2013. The Innoko River remained open 24 hours a day 7 days a week, but was restricted to 6-inch or smaller mesh from 8pm June 5 to July 14. During subsistence salmon fishing closures, all gillnets with a mesh size greater than four inches and a length greater than 60 feet must be removed from the water.

a. The Coastal District was split for management purposes based on which mouths various salmon species were entering the delta.

b. The portion of the Coastal District from the Naskonat Peninsula north to 62 degrees North latitude and three miles offshore, including communities of Chevak, Hooper Bay, and Scammon Bay.

c. The portion of the Coastal District from 62 degrees North latitude to Point Romanof and 3 miles offshore.

d. Commercial period open during all or part of a subsistence fishing period.

e. Commercial salmon fishing with beach seine and dip net gear only. Beach seine mesh size is restricted to 4-inch or smaller mesh size. Dip net mesh size is restricted 4.5-inch or smaller mesh. Fishermen employing dip nets or beach seine gear were required to immediately release incidentally caught Chinook salmon back to the water alive. Chinook salmon killed by these gear types were required to be recorded on a fish ticket and forfeited to the state. Commercial permit holder may operate up to four dip nets, while subsitence fishermen may only operate one dip net per person.

f. Subsistence fishing opened concurrently with a commercial dip net/beach seine period during all or part of a subsistence closure and restricted to beach seine and dip net gear only. Fishermen were required to release Chinook salmon alive.

g. Subsistence fishing period restricted to 6 inch or smaller mesh with retention of Chinook salmon allowed occuring during all or part of a commercial and subsistence period restricted to beach seines and dip nets where all Chinook salmon must be immediately released alive.

h. Commercial fishing limited to beach seine and dip net. Subsistence fishing with these gear types not allowed during this opening.

i. Commercial salmon fishing in the South Mouth area of District 1 open for a 6-hour commercial fishing period with gillnets restricted to 5 ½-inch or smaller mesh size and not exceeding 30 meshes in depth to target summer chum salmon. The area open to commercial fishing extends from the lower point of Head of Passes to Chris Point and includes Black River, Kwiguk Pass, and coastal waters from the Black River to one mile north of Kwiguk Pass. Middle and North Mouth and passes such as Aproka and Bugomowik, north of the mainstem South Mouth are closed to commercial fishing.

j. Effective 12:00 noon commercial fishing not allowed on the south bank of the Yukon River from an ADF&G buoy upstream of the Pilot Station Sonar to an ADF&G marker 500 yards downstream of the sonar.

k. Commerical fishing open to 6" or smaller mesh. Chinook salmon may be retained for subsistence.

l. Commercial fishing open in the entire District 1 with gillnets restricted to 5.5" or smaller mesh and not exceeding 30 meshes in depth. Chinook salmon may be retained for subsistence purposes.

m. Commercial fishing open in the entire District 1 area for 6-inch or smaller mesh. Commercial gillnet fishemen may retain Chinook salmon for subsistence purposes.

n. Coastal District reopened to 7.5" or smaller mesh by Emergency Order. Not announced in News Releases until July 14th.

o. Commerical fishing open between these hours in either or both the Coastal Set Net only area of District 1 and the remainder of District 1. Typically the remaineder of District 1 was open 3 hours after the start of commercial fishing periods in the Coastal Set Net Only Area. Chinook salmon may be retained for subsistence purposes, but not sold. Gear restricted to gillnets of 6" or smaller mesh.

p. Remained open 24 hours a day seven days a week.

Table 4-2.–Subsistence fishing schedule by district, Upper Yukon Area, 2013.

		Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D[c]		
Day	Date	Lower	Upper	4-C[b]	5-C	Lower	Middle	Upper
Thursday	5/30	Open—no schedule		Open—no schedule		Open—no schedule		
Friday	5/31	Open	Open	Open	Open	Open	Open	Open
Saturday	6/1	Open	Open	Open	Open	Open	Open	Open
Sunday	6/2	Open	Open	Open	Open	Open	Open	Open
Monday	6/3	Open	Open	Open	Open	Open	Open	Open
Tuesday	6/4	Open	Open	Open	Open	Open	Open	Open
Wednesday	6/5	Open	Open	Open	Open	Open	Open	Open
Thursday	6/6	Open	Open	Open	Open	Open	Open	Open
Friday	6/7	Open	Open	Open	Open	Open	Open	Open
Saturday	6/8	Open	Open	Open	Open	Open	Open	Open
Sunday	6/9	Open	Open	Open	Open	Open	Open	Open
Monday	6/10	Open[d]	Open[d]	Open	Open	Open	Open	Open
Tuesday	6/11	Open	Open	Open	Open	Open	Open	Open
Wednesday	6/12	6pm 6" mesh	6pm 6" mesh	Open	Open	Open	Open	Open
Thursday	6/13	Open 6"mesh	Open 6"mesh	Open	Open	Open	Open	Open
Friday	6/14	Close 6pm	Close 6pm	Open	Open	Open	Open	Open
Saturday	6/15	Closed	Closed	Open	Open	Open	Open	Open
Sunday	6/16	Open 6pm 6" mesh	Open 6pm 6" mesh	Open	Open	Open	Open	Open
Monday	6/17	Open	Open	Open	Open	Open	Open	Open
Tuesday	6/18	Close 6pm	Close 6pm	Open	Open	Open	Open	Open
Wednesday	6/19	6pm 6" mesh	6pm 6" mesh	6pm 6"mesh	Open	Open	Open	Open
Thursday	6/20	Open 6"mesh	Open 6"mesh	Open 6"mesh	Open	Open	Open	Open
Friday	6/21	Close 6pm	Close 6pm	Close 6pm	Open	Open	Open	Open
Saturday	6/22	Closed	Closed	Closed	Open	Open	Open	Open
Sunday	6/23	Open 6pm 6" mesh	Open 6pm 6" mesh	Open 6pm 6"mesh	Open	Open	Open	Open
Monday	6/24	Open 6" mesh	Open 6"mesh	Open 6"mesh	Open	Open	Open	Open

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Table 4-2.–Page 2 of 6.

Day	Date	Subdistrict 4-A [a] Lower	Subdistrict 4-A [a] Upper	Sub 4-B / 4-C[b]	5-A/5-B / 5-C	Subdistrict 5-D[c] Day	Subdistrict 5-D[c] Date	Subdistrict 5-D[c] Lower
Tuesday	6/25	Close 6pm	Close 6pm	Close 6pm	6pm 6" mesh	Open	Open	Open
Wednesday	6/26	6pm 6" mesh	6pm 6" mesh	Open 6pm 6"mesh	Open 6" mesh	Open	Open	Open
Thursday	6/27	Open 6"mesh	Open 6"mesh	Open 6"mesh	Close 6pm	Open	Open	Open
Friday	6/28	Close 6pm	Close 6pm	Close 6pm	Open 6pm 6"	Open	Open	Open
Saturday	6/29	Closed	Closed	Closed	Open 6"mesh	Open	Open	Open
Sunday	6/30	Closed	Closed	Open 6pm 6"mesh	Close 6pm	Open	Open	Open
Monday	7/1	Closed. Commercial[e]	Closed. Commercial[e]	Open 6"mesh	Closed	8pm 6" mesh	8pm 6" mesh	8pm 6" mesh
Tuesday	7/2	Closed. Commercial[e]	Commercial[e]	Close 6pm	Open 6pm 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh
Wednesday	7/3	Open 6pm[f], Comm.[e]	Closed. Comm.[e]	Closed	Open 6"mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh
Thursday	7/4	Close 6pm. Comm.[e]	Open 6pm[f], Comm.[e]	Closed	Close 6pm	Open 6" mesh	Open 6" mesh	Open 6" mesh
Friday	7/5	Closed. Commercial[e]	Close 6pm. Comm.[e]	Closed	Closed	Open 6" mesh	Open 6" mesh	Open 6" mesh
Saturday	7/6	Closed. Commercial[e]	Closed. Commercial[e]	Closed	Closed	Open 6" mesh	Open 6" mesh	Open 6" mesh
Sunday	7/7	Closed. Commercial[e]	Closed. Commercial[e]	Open 6pm 6"mesh[f]	Closed	Open 6" mesh	Open 6" mesh	Open 6" mesh
Monday	7/8	Closed. Commercial[e]	Closed. Commercial[e]	Close 6pm	Closed	Open 6" mesh	Open 6" mesh	Open 6" mesh
Tuesday	7/9	Closed. Commercial[e]	Closed. Commercial[e]	Closed	Closed	Open 6" mesh	Open 6" mesh	Open 6" mesh
Wednesday	7/10	Open 6pm[h]. Commercial[e]	Open 6pm[f] Commercial[e]	Closed	Closed	Close 8pm	Open 6" mesh	Open 6" mesh
Thursday	7/11	Close 6pm. Commercial[e]	Close 6pm. Commercial[g]	Closed	Closed	Closed	Open 6" mesh	Open 6" mesh
Friday	7/12	Closed. Commercial[e]	Closed. Commercial[g]	Closed	Closed	Closed	Open 6" mesh	Open 6" mesh
Saturday	7/13	Closed. Commercial[e]	Closed. Commercial[g]	Closed	Open 6pm 6"[f]	Closed	Open 6" mesh	Open 6" mesh
Sunday	7/14	Open 6pm[d, f] Commercial[e]	Open 6pm[d, f] Commercial[e]	Open 6pm[f]	Close 6pm	Closed	Close 6pm	Open 6" mesh

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Table 4-2.–Page 3 of 6.

		Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D[c]		
Day	Date	Lower	Upper	4-C[b]	5-C	Day	Date	Lower
Monday	7/15	Close 6pm Commercial[e]	Close 6pm Commercial[e]	Close 6pm	Closed	Closed	Closed	Open 6" mesh
Tuesday	7/16	Closed. Commercial[e]	Commercial[e]	Closed	Open 6pm 6" [f]	Closed	Closed	Close 6pm
Wednesday	7/17	Open 6pm [g]. Commecial [e]	Open 6pm[g]. Commercial[e]	Open 6pm[f]	Close 6pm	Open 8pm[f]	Closed	Closed
Thursday	7/18	Open. Commercial[e]	Open. Commercial[e]	Close 6pm	Closed	Close 8pm	Closed	Closed
Friday	7/19	Close 6pm. Commercial[e]	Close 6pm. Commercial[e]	Closed	Closed	Closed	Closed	Closed
Saturday	7/20	Closed.Commercial [e]	Closed.Commercial[e]	Closed	Open 6pm 6"[f]	Closed	Closed	Closed
Sunday	7/21	Open 6pm. Commercial[e]	Open 6pm. Commercial[e]	Open 6pm 7.5"	Close 6pm	Closed	Open 8pm[f]	Closed
Monday	7/22	Open. Commecial[e]	Open. Commercial[e]	Open	Closed	Closed	Close 8pm	Closed
Tuesday	7/23	Close 6pm. Commercial[e]	Close 6pm. Commercial[e]	Close 6pm	Open 6pm	Open 8pm[f]	Closed	Open 8pm[f]
Wednesday	7/24	Open 6pm. Commercial[e]	Open 6pm. Commercial[e]	Open 6pm	Open	Close 8pm	Closed	Close 8pm
Thursday	7/25	Open. Commercial[e]	Open. Commercial[e]	Open	Close 6pm	Closed	Closed	Closed
Friday	7/26	Close 6pm. Commercial[e]	Close 6pm. Commercial[e]	Close 6pm	Open 6pm	Closed	Closed	Closed
Saturday	7/27	Closed. Commercial[e]	Closed. Commercial[e]	Closed	Open	Closed	Closed	Closed
Sunday	7/28	Open 6pm	Open 6pm	Open 6pm	Close 6pm	Closed	Closed	Closed
Monday	7/29	Open	Open	Open	Closed	Closed	Closed	Closed
Tuesday	7/30	Close 6pm	Close 6pm	Open	Open 6pm	Closed	Closed	Closed
Wednesday	7/31	Open 6pm	Open 6pm	Open	Open	Closed	Closed	Closed
Thursday	8/1	Open	Open	Open	Close 6pm	Closed	Closed	Closed
Friday	8/2	Open	Open	Close 6pm	Open 6pm	Closed	Closed	Closed
Saturday	8/3	Open	Open[h]	Closed	Open	Closed	Closed	Closed
Sunday	8/4	Close 6pm	Close 6pm	Open 6pm	Close 6pm	Closed	Closed	Closed

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Table 4-2.–Page 4 of 6.

		Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D[c]		
Day	Date	Lower	Upper	4-C[b]	5-C	Day	Date	Lower
Monday	8/5	Closed	Closed	Open	Closed	Closed	Closed	Closed
Tuesday	8/6	Open 6pm	Open 6pm[h]	Open	Open 6pm	Open 6pm	Closed	Closed
Wednesday	8/7	Open	Open[h]	Open	Open	Open	Closed	Closed
Thursday	8/8	Open	Open[h]	Open	Open	Open	Open 6pm	Closed
Friday	8/9	Open	Open[h]	Close 6pm	Open	Open	Open	Closed
Saturday	8/10	Open	Open[h]	Closed	Open	Open	Open	Closed
Sunday	8/11	Close 6pm	Close 6pm	Open 6pm	Close 6pm	Open	Open	Closed
Monday	8/12	Closed	Closed	Open	Closed	Open	Open	Closed
Tuesday	8/13	Open 6pm	Open 6pm[h]	Open	Open 6pm[i]	Open	Open	Closed
Wednesday	8/14	Open	Open[h]	Open	Open[i]	Open	Open	Open 12pm
Thursday	8/15	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	8/16	Open	Open[h]	Close 6pm	Open[i]	Open	Open	Open
Saturday	8/17	Open	Open[h]	Closed	Open[i]	Open	Open	Open
Sunday	8/18	Close 6pm	Close 6pm	Open 6pm	Close 6pm	Open	Open	Open
Monday	8/19	Closed	Closed	Open	Closed	Open	Open	Open
Tuesday	8/20	Open 6pm	Open 6pm[h]	Open	Open 6pm[i]	Open	Open	Open
Wednesday	8/21	Open	Open[h]	Open	Open[i]	Open	Open	Open
Thursday	8/22	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	8/23	Open	Open[h]	Close 6pm	Open[i]	Open	Open	Open
Saturday	8/24	Open	Open[h]	Closed	Open[i]	Open	Open	Open
Sunday	8/25	Close 6pm	Close 6pm	Open 6pm	Close 6pm	Open	Open	Open
Monday	8/26	Closed	Closed	Open	Closed	Open	Open	Open
Tuesday	8/27	Open 6pm	Open 6pm[h]	Open	Open 6pm[i]	Open	Open	Open
Wednesday	8/28	Open	Open[h]	Open	Open[i]	Open	Open	Open
Thursday	8/29	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	8/30	Open	Open[h]	Close 6pm	Open[i]	Open	Open	Open
Saturday	8/31	Open	Open[h]	Closed	Open[i]	Open	Open	Open

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Table 4-2.–Page 5 of 6.

		Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D[c]		
Day	Date	Lower	Upper	4-C[b]	5-C	Day	Date	Lower
Sunday	9/1	Close 6pm	Close 6pm	Open 6pm	Close 6pm	Open	Open	Open
Monday	9/2	Closed	Closed	Open	Closed	Open	Open	Open
Tuesday	9/3	Open 6pm	Open 6pm[h]	Open	Open 6pm[i]	Open	Open	Open
Wednesday	9/4	Open	Open[h]	Open	Open[i]	Open	Open	Open
Thursday	9/5	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	9/6	Open	Open[h]	Close 6pm	Open[i]	Open	Open	Open
Saturday	9/7	Open	Open[h]	Closed	Open[i]	Open	Open	Open
Sunday	9/8	Close 6pm	Close 6pm	Open 6pm	Close 6pm	Open	Open	Open
Monday	9/9	Closed	Closed	Open	Closed	Open	Open	Open
Tuesday	9/10	Open 6pm	Open 6pm[h]	Open	Open 6pm[i]	Open	Open	Open
Wednesday	9/11	Open	Open[h]	Open	Open[i]	Open	Open	Open
Thursday	9/12	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	9/13	Open	Open[h]	Close 6pm	Open[i]	Open	Open	Open
Saturday	9/14	Open	Open[h]	Closed	Open[i]	Open	Open	Open
Sunday	9/15	Open	Open[h]	Open 6pm	Close 6pm	Open	Open	Open
Monday	9/16	Open	Open[h]	Open	Closed	Open	Open	Open
Tuesday	9/17	Open	Open[h]	Open	Open 6pm[i]	Open	Open	Open
Wednesday	9/18	Open	Open[h]	Open	Open[i]	Open	Open	Open
Thursday	9/19	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	9/20	Open	Open[h]	Close 6pm	Open[i]	Open	Open	Open
Saturday	9/21	Open	Open[h]	Closed	Open[i]	Open	Open	Open
Sunday	9/22	Open	Open[h]	Open 6pm	Close 6pm	Open	Open	Open
Monday	9/23	Open	Open[h]	Open	Closed	Open	Open	Open
Tuesday	9/24	Open	Open[h]	Open	Open 6pm[i]	Open	Open	Open
Wednesday	9/25	Open	Open[h]	Open	Open[i]	Open	Open	Open
Thursday	9/26	Open	Open[h]	Open	Open[i]	Open	Open	Open
Friday	9/27	Open	Open[h]	Open	Open[i]	Open	Open	Open

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Table 4-2.–Page 6 of 6.

		Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D[c]		
Day	Date	Lower	Upper	4-C[b]	5-C	Day	Date	Lower
Saturday	9/28	Open	Open[h]	Open	Open[i]	Open	Open	Open
Sunday	9/29	Open	Open[h]	Open	Close 6pm	Open	Open	Open
Monday	9/30	Open	Open[h]	Open	Closed	Open	Open	Open
Tuesday	10/1	Open	Open	Open	Open 6pm[i]	Open	Open	Open

Note: Shaded areas indicate windowed fishery closures; outlined shaded days were closed to protect the first and second pulses of Chinook salmon. Unless noted, mesh size was restricted to 7.5 inch or less in all districts and subdistricts.

a. Subdistrict 4-A was divided into two separate areas above and below Stink Creek to protect the first pulse of Chinook salmon as it passed through this long section of river.

b. State regulations do not allow the use of drift gillnets in State waters of Subdistrict 4-B and 4-C. Federal regulations allow the use of drift gillnets in Federal waters of Subdistricts 4-B and 4-C.

c. Subdistrict 5-D was divided into three separate areas to protect the first pulse of Chinook salmon as it passed through this long section of river. Subdistrict 5-D Lower: from the ADF&G marker two miles downstream of Waldron Creek upstream to the Hadweenzic River, Subdistrict 5-D Middle: from the Hadweenzic River upstream to 22 Mile Slough, Subdistrict 5-D Upper: from 22 Mile Slough to the US/Canada border.

d. By regulation, fishermen in Subdistrict 4A may use drift gillnets during scheduled subsistence salmon fishing periods on the mainstem of the Yukon River from June 10 to July 14. This period was extended until 6pm Monday, July 15.

e. Commercial fishing period in Subdistrict 4A with fish wheels only. Fish wheels were required to be manned at all times, and any Chinook salmon caught were to be immediately released alive. From July 1 to July 20, commercial fishing was open for twenty 24-hour periods. As per construction specifications adopted by the Board of Fisheries, fish wheels must be constructed in a manner that reduces the potential for injury to Chinook salmon.

f. Subsistence fishing open for gillnets restricted to 6-inch or smaller mesh. Fish wheels must be equipped with a chute or live box, closely attended while in operation, and all Chinook salmon released back to the water alive.

g. Gear restrictions discontinued in this period and subsequent periods. Subsistence fishing allowed with gillnets 7.5 inches or less, and Chinook salmon may be kept when caught in fish wheels.

h. Beginning 12:01 a.m. Saturday, August 3, the use of subsistence drift gillnet gear was allowed during subsistence salmon fishing periods in the portion of Subdistrict 4-A upstream from the mouth of Stink Creek. Fishermen could use gillnets with a mesh size of 7.5 inches or less.

i. Commercial fishing open in Subdistricts 5-B and 5-C concurrent with subsistence fishing periods. Chinook salmon may not be sold but may be used for subsistence.

Table 4-3.–Subsistence and commercial salmon fishing schedule and gear restrictions, Old Minto Area, Tanana River, and Koyukuk River, 2013.

Day	Date	Koyukuk River	Tanana River [a]			Old Minto Area[a]
			6A	6B	6C	
Thursday	5/30	No schedule	Closed	Closed	Closed	Closed
Friday	5/31	Open	Open 6pm	Open 6pm	Open 6pm	Open 6pm
Saturday	6/1	Open	Open	Open	Open	Open
Sunday	6/2	Open	Close noon	Close noon	Close noon	Open
Monday	6/3	Open	Open 6pm	Open 6pm	Open 6pm	Open
Tuesday	6/4	Open	Open	Open	Open	Open
Wednesday	6/5	Open	Close noon	Close noon	Close noon	Close 6pm
Thursday	6/6	Open	Closed	Closed	Closed	Closed
Friday	6/7	Open	Open 6pm	Open 6pm	Open 6pm	Open 6pm
Saturday	6/8	Open	Open	Open	Open	Open
Sunday	6/9	Open	Close noon	Close noon	Close noon	Open
Monday	6/10	Open	Open 6pm	Open 6pm	Open 6pm	Open
Tuesday	6/11	Open	Open	Open	Open	Open
Wednesday	6/12	Open	Close noon	Close noon	Close noon	Close 6pm
Thursday	6/13	Open	Closed	Closed	Closed	Closed
Friday	6/14	Open	Open 6pm	Open 6pm	Open 6pm	Open 6pm
Saturday	6/15	Open	Open	Open	Open	Open
Sunday	6/16	Open	Close noon	Close noon	Close noon	Open
Monday	6/17	Open	Open 6pm	Open 6pm	Open 6pm	Open
Tuesday	6/18	Open	Open	Open	Open	Open
Wednesday	6/19	6pm: 6"mesh	Close noon	Close noon	Close noon	Close 6pm
Thursday	6/20	Open 6" mesh	Closed	Closed	Closed	Closed
Friday	6/21	Open 6" mesh	Open 6pm	Open 6pm	Open 6pm	Open 6pm
Saturday	6/22	Open 6" mesh	Open	Open	Open	Open
Sunday	6/23	Open 6" mesh	Close noon	Close noon	Close noon	Open
Monday	6/24	Open 6" mesh	Open 6pm	Open 6pm	Open 6pm	Open
Tuesday	6/25	Open 6" mesh	Open	Open	Open	Open
Wednesday	6/26	Open 6" mesh	Close noon	Close noon	Close noon	Close 6pm
Thursday	6/27	Open 6" mesh	Closed	Closed	Closed	Closed
Friday	6/28	Open 6" mesh	Open 6pm	Open 6pm	Open 6pm	Open 6pm
Saturday	6/29	Open 6" mesh	Open	Open	Open	Open
Sunday	6/30	Open 6" mesh	Close noon	Close noon	Close noon	Open
Monday	7/1	Open 6" mesh	Open 6pm	Open 6pm	Open 6pm	Open
Tuesday	7/2	Open 6" mesh	Open	Open	Open	Open
Wednesday	7/3	Open 6" mesh	Close noon	Close noon	Close noon	Close 6pm
Thursday	7/4	Open 6" mesh	Closed	Closed	Closed	Closed
Friday	7/5	Open 6" mesh	Open 6pm	Open 6pm	Open 6pm	Open 6pm

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Table 4-3.–Page 2 of 4.

Day	Date	Koyukuk River	Tanana River [a] 6A	6B	6C	Old Minto Area[a]
Saturday	7/6	Open 6" mesh	Open	Open	Open	Open
Sunday	7/7	Open 6" mesh	Close noon	Close noon	Close noon	Open
Monday	7/8	Open 6" mesh	Open 6pm	Open 6pm	Open 6pm	Open
Tuesday	7/9	Open 6" mesh	Open	Open	Open	Open
Wednesday	7/10	Open 6" mesh	Close noon	Close noon	Close noon	Close 6pm
Thursday	7/11	Open 6" mesh	Closed	Closed	Closed	Closed
Friday	7/12	Open 6" mesh	Closed	Closed	Closed	Closed
Saturday	7/13	Open 6" mesh	Closed	Closed	Closed	Closed
Sunday	7/14	Open 6" mesh	Closed	Closed	Closed	Closed
Monday	7/15	Open 6" mesh	Open 6pm	Open 6pm	Closed	Open 6pm
Tuesday	7/16	Open 6" mesh	Open	Open	Closed	Open
Wednesday	7/17	Open 6" mesh	Close 12pm	Close 12pm	Closed	Close 6pm
Thursday	7/18	Open 6" mesh	Closed	Closed	Closed	Closed
Friday	7/19	Open 6" mesh	Open 6pm[b]	Open 6pm[b]	Closed[c]	Open 6pm
Saturday	7/20	Open 6" mesh	Open[b]	Open [b]	Closed[c]	Open
Sunday	7/21	Open 6" mesh	Close 12pm	Close 12pm	Closed	Open
Monday	7/22	Open 6" mesh	Open 6pm[b]	Open 6pm[b]	Closed[c]	Open
Tuesday	7/23	Open 6" mesh	Open[b]	Open[b]	Closed[c]	Open
Wednesday	7/24	Open 6" mesh	Close 12pm	Close 12pm	Closed	Close 6pm
Thursday	7/25	Open 6" mesh	Closed	Closed	Closed	Closed
Friday	7/26	6pm: 7.5" mesh	Closed[c]	Closed[c]	Closed[c]	Closed
Saturday	7/27	Open	Closed[c]	Closed[c]	Closed[c]	Closed
Sunday	7/28	Open	Closed	Closed	Closed	Closed
Monday	7/29	Open	Open 6pm[b]	Open 6pm[b]	Closed[c]	Open 6pm
Tuesday	7/30	Open	Open[b]	Open[b]	Closed[c]	Open
Wednesday	7/31	Open	Close 12pm	Close 12pm	Closed	Close 6pm
Thursday	8/1	Open	Closed	Closed	Closed	Closed
Friday	8/2	Open	Open 6pm[d]	Open 6pm[d]	Closed[e]	Open 6pm
Saturday	8/3	Open	Open[d]	Open[d]	Closed[e]	Open
Sunday	8/4	Open	Close 12pm	Close 12pm	Closed	Open
Monday	8/5	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open
Tuesday	8/6	Open	Open[f]	Open[f]	Open[f]	Open
Wednesday	8/7	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	8/8	Open	Closed	Closed	Closed	Closed
Friday	8/9	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open 6pm
Saturday	8/10	Open	Open[f]	Open[f]	Open[f]	Open
Sunday	8/11	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	8/12	Open	Open 6pm	Open 6pm	Open 6pm	Open

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Table 4-3.–Page 3 of 4.

Day	Date	Koyukuk River	Tanana River [a] 6A	6B	6C	Old Minto Area[a]
Tuesday	8/13	Open	Open	Open	Open	Open
Wednesday	8/14	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	8/15	Open	Closed	Closed	Closed	Closed
Friday	8/16	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open 6pm
Saturday	8/17	Open	Open[f]	Open[f]	Open[f]	Open
Sunday	8/18	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	8/19	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open
Tuesday	8/20	Open	Open[f]	Open[f]	Open[f]	Open
Wednesday	8/21	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	8/22	Open	Closed	Closed	Closed	Closed
Friday	8/23	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm [f]	Open 6pm
Saturday	8/24	Open	Ope [f]	Open[f]	Open[f]	Open
Sunday	8/25	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	8/26	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open
Tuesday	8/27	Open	Open[f]	Open[f]	Open[f]	Open
Wednesday	8/28	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	8/29	Open	Closed	Closed	Closed	Closed
Friday	8/30	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open 6pm
Saturday	8/31	Open	Open[f]	Open[f]	Open[f]	Open
Sunday	9/1	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	9/2	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open
Tuesday	9/3	Open	Open[f]	Open[f]	Open[f]	Open
Wednesday	9/4	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	9/5	Open	Closed	Closed	Closed	Closed
Friday	9/6	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open 6pm
Saturday	9/7	Open	Open[f]	Open[f]	Open[f]	Open
Sunday	9/8	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	9/9	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open
Tuesday	9/10	Open	Open[f]	Open[f]	Open[f]	Open
Wednesday	9/11	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	9/12	Open	Closed	Closed	Closed	Closed
Friday	9/13	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open 6pm
Saturday	9/14	Open	Open[f]	Open[f]	Open[f]	Open
Sunday	9/15	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	9/16	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open
Tuesday	9/17	Open	Open[f]	Open[f]	Open[f]	Open
Wednesday	9/18	Open	Close 12pm	Close 12pm	Close 12pm	Close 6pm
Thursday	9/19	Open	Closed	Closed	Closed	Closed

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Table 4-3.–Page 4 of 4.

Day	Date	Koyukuk River	Tanana River [a]			Old Minto Area[a]
			6A	6B	6C	
Friday	9/20	Open	Open 6pm[f]	Open 6pm[f]	Open 6pm[f]	Open 6pm
Saturday	9/21	Open	Open[f]	Open[f]	Open[f]	Open
Sunday	9/22	Open	Close 12pm	Close 12pm	Close 12pm	Open
Monday	9/23	Open	Open 6pm[g]	Open 6pm[g]	Open 6pm[g]	Open
Tuesday	9/24	Open	Open[g]	Open[g]	Open[g]	Open
Wednesday	9/25	Open	Close 12pm [g]	Close 12pm [g]	Close 12pm[g]	Close 6pm
Thursday	9/26	Open	Closed[g]	Closed[g]	Closed[g]	Closed
Friday	9/27	Open	Open 6pm[e]	Open 6pm[e]	Open 6pm[e]	Open 6pm
Saturday	9/28	Open	Open[g]	Open[g]	Open[g]	Open
Sunday	9/29	Open	Close 12pm[g]	Close 12pm[g]	Close 12pm[g]	Open
Monday	9/30	Open	Open 6pm	Open 6pm	Open 6pm	Open

Note: Shaded areas indicate windowed fishery closures; outlined shaded days were closed to protect the first and second pulses of Chinook salmon. Unless noted, mesh size was restricted to 7.5 inch or less in all districts and subdistricts.

a. The regulatory schedule is always in place in the Tanana River District and does not have a start date.

b. Commercial fishing open concurrent with subsistence and restricted to fish wheels only. Fish wheels were required to be constructed in a manner that reduces the potential for injury to Chinook salmon, manned at all times, and any Chinook salmon caught were to be immediately released alive.

c. Commercial fishing open during subsistence or personal use fishery closure and restricted to fish wheels. Fish wheels were required to be constructed in a manner that reduces the potential for injury to Chinook salmon, manned at all times and any Chinook salmon caught were to be immediately released alive.

d. Commercial fishing open concurrent with subsistence fishing. Commercial fishermen restricted to fish wheels or 6-inch or smaller mesh

e. Commercial fishing open during a personal use fishery closure and restricted to fish wheels or set gillnets with 6-inch or smaller mesh.

f. Commercial fishing opening concurrent with subsistence and personal use fishery openings. No additional gear restrictions. Some commerical periods had no harvest or fishermen participating.

g. Commerical fishing open continuously for 76 hours and during a subsistence fishing closure.

Table 4-4.–Household subsistence and personal use permits, listed by fishery and community of residence, Yukon Area, 2013.

Community	Permits Issued	Permits Returned	Percent returned	Number of permits returned that fished
Subsistence permits				
Central	5	5	100%	2
Circle	14	12	86%	8
Eagle	23	22	96%	19
Rampart	3	2	67%	2
Fairbanks (FNSB)[a]	144	143	99%	87
Healy	3	3	100%	1
Manley	13	13	100%	9
Minto	48	42	88%	14
Nenana	44	42	95%	21
Stevens Village	3	3	100%	2
Upper Tanana Villages[b]	56	49	88%	16
Other Subsistence[c]	12	12	100%	5
Subsistence permit subtotal	**368**	**348**	**95%**	**186**
Personal use permits				
Fairbanks (FNSB)[a]	62	61	98%	32
Other personal use[d]	5	5	100%	4
Personal use permit subtotal	**67**	**66**	**99%**	**36**
Total	**435**	**414**	**95%**	**222**

Source Jallen et al. (2015)

a. Fairbanks North Star Borough (FNSB) residents from the communities of Ester, Fairbanks, North Pole, Salcha, and Two Rivers.

b. Upper Tanana River (UTV) residents from the communities of Delta Junction, Dot Lake, Northway, Tanacross, and Tok.

c. Includes residents from Anchorage, Anderson, Copper Center, Denali Park, Eagle River, Palmer, Tanana, Wasilla, and Wiseman who were issued a subsistence fishing permit for the Yukon, Tanana, Tolovana, Kantishna, and Upper Koyukuk Rivers.

d. Includes residents of Nenana and Delta Junction that applied for a personal use permit.

Table 4-5.–Estimated number of subsistence fishing households in surveyed communities, with community and district totals, Yukon Area, 2013.

Community	Households		Estimated number of fishing households
	Total	Surveyed	
Hooper Bay	227	108	135
Scammon Bay	114	53	74
Coastal District subtotal	**341**	**161**	**209**
Alakanuk	151	82	63
Emmonak	194	127	87
Kotlik	117	57	83
Nunam Iqua	38	26	18
District 1 subtotal	**500**	**292**	**251**
Marshall	102	35	52
Mountain Village	166	73	115
Pilot Station	125	69	47
Pitkas Point	29	26	17
Saint Marys	144	73	105
District 2 subtotal	**566**	**276**	**336**
Holy Cross	57	35	22
Russian Mission	81	32	69
Shageluk	28	24	9
District 3 subtotal	**166**	**91**	**100**
Alatna	7	6	5
Allakaket	58	28	16
Anvik	33	33	19
Bettles	26	20	0
Galena	160	64	27
Grayling	51	26	33
Hughes	34	31	7
Huslia	93	45	17
Kaltag	51	22	23
Koyukuk	49	23	33
Nulato	86	31	67
Ruby	71	31	21
District 4 subtotal	**719**	**360**	**268**
Beaver	32	27	7
Birch Creek	16	16	0
Chalkyitsik	29	24	7
Fort Yukon	225	86	50
Stevens Village	19	17	6
Tanana	100	54	49
Venetie	80	30	25
District 5 subtotal	**501**	**254**	**144**
Total	**2,793**	**1,434**	**1,308**

Source Jallen et al. (2015)

Table 4-6.–Estimated subsistence salmon harvests by community, Yukon Area, 2013.

Community	Households or permits		Estimated salmon harvest[a]					
	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	Total
Hooper Bay	227	108	1,210	73	13,629	91	302	15,305
Scammon Bay	114	53	332	214	9,506	58	507	10,617
Coastal District subtotal	**341**	**161**	**1,542**	**287**	**23,135**	**149**	**809**	**25,922**
Alakanuk	151	82	275	167	7,520	328	92	8,382
Emmonak	194	127	553	517	8,209	2,165	0	11,444
Kotlik	117	57	794	457	10,136	1,087	23	12,497
Nunam Iqua (Sheldon Point)	38	26	12	83	2,651	93	0	2,839
District 1 subtotal	**500**	**292**	**1,634**	**1,224**	**28,516**	**3,673**	**115**	**35,162**
Marshall	102	35	328	508	3,986	853	7	5,682
Mountain Village	166	73	266	271	11,861	2,174	0	14,572
Pilot Station	125	69	258	136	5,299	777	131	6,601
Pitkas Point	29	26	37	41	2,186	65	2	2,331
Saint Marys	144	73	215	124	9,167	1,009	0	10,515
District 2 subtotal	**566**	**276**	**1,104**	**1,080**	**32,499**	**4,878**	**140**	**39,701**
Holy Cross	57	35	204	0	262	855	0	1,321
Russian Mission	81	32	236	152	3,967	804	12	5,171
Shageluk	28	24	4	219	463	105	0	791
District 3 subtotal	**166**	**91**	**444**	**371**	**4,692**	**1,764**	**12**	**7,283**
Alatna	7	6	0	0	340	20	0	360
Allakaket	58	28	6	236	2,116	687	0	3,045
Anvik	33	33	121	97	830	763	0	1,811
Bettles	26	20	0	0	0	0	0	0
Galena	160	64	275	170	179	602	0	1,226
Grayling	51	26	226	34	618	471	0	1,349
Hughes	34	31	6	18	829	535	0	1,388
Huslia	93	45	62	342	3,241	722	0	4,367
Kaltag	51	22	348	306	67	583	0	1,304
Koyukuk	49	23	898	3,267	4,459	5,308	0	13,932
Nulato	86	31	602	125	401	2,995	0	4,123
Ruby	71	31	357	345	681	2,505	0	3,888
District 4 subtotal	**719**	**360**	**2,901**	**4,940**	**13,761**	**15,191**	**0**	**36,793**
Beaver	32	27	107	0	12	21	0	140
Birch Creek	16	16	0	0	0	0	0	0
Central	5	5	21	0	0	0	0	21
Chalkyitsik	29	24	0	0	0	249	0	249
Circle	14	12	157	150	66	1,397	0	1,770
Eagle	23	22	175	0	50	18,871	0	19,096

-continued-

Table 4-6.–Page 2 of 2.

Community	Households or permits		Estimated salmon harvest[a]					
	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	Total
Fairbanks	206	204	701	2,685	1,561	7,185	0	12,132
Fort Yukon	225	86	1,561	7	225	16,453	0	18,246
Rampart	3	2	35	0	5	100	0	140
Stevens Village	22	19	239	0	50	840	0	1,129
Tanana	100	54	1,200	1,135	9,565	31,546	3	43,449
Venetie	80	30	311	6	0	5,340	0	5,657
District 5 subtotal	**755**	**501**	**4,507**	**3,983**	**11,534**	**82,002**	**3**	**102,029**
Healy	3	3	0	200	0	740	0	940
Manley	13	13	165	447	45	1,539	0	2,196
Minto	48	42	60	266	258	593	0	1,177
Nenana	44	42	87	1,762	646	3,112	0	5,607
District 6 subtotal	**154**	**151**	**894**	**6,474**	**884**	**12,619**	**0**	**20,871**
Other communities	73	66	131	6	166	126	0	429
Total	**3,228**	**1,847**	**12,575**	**14,566**	**115,252**	**113,767**	**1,079**	**257,239**

Source Jallen et al. (2015)

a. Includes subsistence harvests, personal use harvests, commercial harvests retained for home use, and fish distributed from ADF&G test fisheries.

Table 4-7.–Historical subsistence salmon harvests, Yukon Area, 1976–2013.

	Households or permits[a]		Estimated salmon harvest[a]					
Year	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	Total
1976			17,530	12,737		1,375		31,642
1977			16,007	16,333		4,099		36,439
1978			30,785	7,965	213,953	95,532		348,235
1979			31,005	9,794	202,772	233,347		476,918
1980			42,724	20,158	274,883	172,657		510,422
1981			29,690	21,228	210,785	188,525		450,228
1982			28,158	35,894	260,969	132,897		457,918
1983			49,478	23,905	240,386	192,928		506,697
1984			42,428	49,020	230,747	174,823		497,018
1985			39,771	32,264	264,828	206,472		543,335
1986			45,238	34,468	290,825	164,043		534,574
1987			55,039	46,213	300,042	226,990		628,284
1988	2,700	1,865	45,495	69,679	229,838	157,075		502,087
1989	2,211	983	48,462	40,924	169,496	211,303		470,185
1990	2,666	1,121	48,587	43,460	115,609	167,900		375,556
1991	2,521	1,261	46,773	37,388	118,540	145,524		348,225
1992	2,751	1,281	47,077	51,980	142,192	107,808		349,057
1993	3,028	1,397	63,915	15,812	125,574	76,882		282,183
1994	2,922	1,386	53,902	41,775	124,807	123,565		344,049
1995	2,832	1,391	50,620	28,377	136,083	130,860		345,940
1996	2,869	1,293	45,671	30,404	124,738	129,258		330,071
1997	2,825	1,309	57,117	23,945	112,820	95,141		289,023
1998	2,986	1,337	54,124	18,121	87,366	62,901		222,512
1999	2,888	1,377	50,515	19,984	79,250	83,420		233,169
2000	3,209	1,341	36,844	16,650	77,813	19,402	1,591	152,300
2001	3,072	1,355	56,103	23,236	72,392	36,164	403	188,298
2002	2,775	1,254	44,384	16,551	87,599	20,140	8,425	177,100
2003	2,850	1,377	56,872	24,866	83,802	58,030	2,167	225,737
2004	2,721	1,228	57,549	25,286	79,411	64,562	9,697	236,506
2005	2,662	1,406	53,547	27,357	93,411	91,667	3,132	269,114
2006	2,833	1,473	48,682	19,985	115,355	84,320	4,854	273,196
2007	2,819	1,495	55,292	22,013	93,075	99,120	2,118	271,618
2008	3,030	1,664	45,312	16,905	86,652	89,538	9,529	247,936
2009	2,853	1,508	33,932	16,076	80,847	66,197	2,300	199,352
2010	3,066	1,659	44,721	14,107	88,692	71,854	4,199	223,573
2011	3,060	1,574	41,069	12,576	96,459	80,549	2,291	232,944
2012	3,133	1,575	30,486	21,633	127,313	99,719	5,150	284,301
2013	3,228	1,847	12,575	14,566	115,252	113,767	1,079	257,239

-continued-

Table 4-7.–Page 2 of 2.

Year	Households or permits[a]		Estimated salmon harvest[a]					
	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	Total
5-year average (2008–2012)	3,028	1,596	39,104	16,259	95,993	81,571	4,694	237,621
10-year average (2003–2012)	2,903	1,496	46,746	20,080	94,502	80,556	4,544	246,428
Historical average (1976–2012)	2,851	1,396	44,457	26,732	149,695	112,610	4,297	326,912

Source Jallen et al. (2015)

a. Estimates prior to 1988 are based on fish camp surveys, and sampling information is unavailable. Cells that do not contain data have no data available.

Table 4-8.–Comparison of amounts necessary for subsistence (ANS) and estimated subsistence salmon harvests, Yukon Area, 1998–2013.

ANS range	Chinook 45,500–66,704	Coho 20,500–51,980	Summer chum 83,500–142,192	Fall chum 89,500–167,900	Pink[b] 2,100–9,700
Year	Estimated number of subsistence salmon harvested[a]				
1998[c]	52,910	**16,606**	**81,858**	**59,603**	
1999[c]	50,711	**20,122**	**79,348**	**84,203**	
2000[c]	**33,896**	**11,853**	**72,807**	**15,152**	
2001	53,462	21,977	**68,544**	**32,135**	
2002	**42,117**	**15,619**	**79,066**	**17,908**	
2003	55,221	22,838	**78,664**	**53,829**	
2004	55,102	24,190	**74,532**	**61,895**	
2005	53,409	27,250	93,259	91,534	
2006	48,593	**19,706**	115,093	**83,987**	
2007	55,156	21,878	92,891	98,947	
2008	**45,186**	**16,855**	86,514	**89,357**	
2009	**33,805**	**16,006**	**80,539**	**66,119**	
2010	**44,559**	**13,045**	88,373	**68,645**	
2011	**40,980**	**12,344**	96,020	**80,202**	
2012	**30,415**	21,533	126,992	99,309	
2013	**12,533**	**14,457**	115,114	113,384	**12,533**

Source Jallen et al. (2015)

a. Estimates for 1998-2004 do not include personal use harvests, ADF&G test fishery distributions, or salmon removed from commercial harvests. Estimates for 2005–2013 include test fishery distributions because the amounts necessary for subsistence (ANS) are based on harvests from 1990–1999 and included test fishery distribution. **Bold underlined** cells indicate harvest amounts are below the minimum ANS.

b. ANS for pink salmon added by BOF in 2013.

c. Species-specific ANS ranges do not apply before 2001.

Table 4-9.–Estimated subsistence harvest of whitefish, northern pike, and sheefish by community, Yukon Area, 2013.

	Households		Estimated nonsalmon harvest				
Community	Total	Surveyed[a]	Large whitefish[b]	Small whitefish	Northern pike	Sheefish	Total
Hooper Bay	227	96	2,738	4,564	251	11	7,564
Scammon Bay	114	47	817	2,628	1,577	116	5,138
Coastal District subtotal	**341**	**143**	**3,555**	**7,192**	**1,828**	**127**	**12,702**
Nunam Iqua (Sheldon Point)	38	21	239	613	24	906	1,782
Alakanuk	151	61	1,556	5,719	754	1,471	9,500
Emmonak	194	103	2,370	3,888	1,074	2,764	10,096
Kotlik	117	54	843	3,143	568	1,957	6,511
District 1 subtotal	**500**	**239**	**5,008**	**13,363**	**2,420**	**7,098**	**27,889**
Mountain Village	166	58	2,194	312	870	850	4,226
Pitkas Point	29	21	412	13	74	83	582
Saint Marys	144	60	2,446	392	606	517	3,961
Pilot Station	125	61	1,926	59	332	443	2,760
Marshall	102	32	1,078	4	458	322	1,862
District 2 subtotal	**566**	**232**	**8,056**	**780**	**2,340**	**2,215**	**13,391**
Russian Mission	81	28	1,554	21	1,260	510	3,345
Holy Cross	57	28	206	0	23	3	232
Shageluk	28	19	375	0	80	97	552
District 3 subtotal	**166**	**75**	**2,135**	**21**	**1,363**	**610**	**4,129**
Anvik	33	31	330	17	100	56	503
Grayling	51	40	397	34	64	151	646
Kaltag	51	15	478	0	53	148	679
Nulato	86	29	636	0	46	288	970
Koyukuk	49	12	1,960	0	245	245	2,450
Galena	160	60	576	0	91	72	739
Ruby	71	22	942	617	58	78	1,695
Huslia	93	38	717	115	1,404	95	2,331
Hughes	34	26	1,531	1,450	151	163	3,295
Allakaket	58	24	345	255	213	329	1,142
Alatna	7	3	20	0	0	18	38
Bettles	26	14	0	0	0	0	0
District 4 subtotal	**719**	**314**	**7,932**	**2,488**	**2,425**	**1,643**	**14,488**
Tanana	100	43	8,906	4,090	496	3,254	16,746
Stevens Village	19	13	40	30	4	5	79
Birch Creek	16	2	0	0	0	0	0
Beaver	32	20	105	34	57	32	228
Fort Yukon	225	56	568	435	269	540	1,812

-continued-

Table 4-9.–Page 2 of 2.

	Households		Estimated nonsalmon harvest				
Community	Total	Surveyed[a]	Large whitefish[b]	Small whitefish	Northern pike	Sheefish	Total
Venetie	80	24	0	0	0	0	0
Chalkyitsik	29	14	28	0	62	29	119
District 5 subtotal	**501**	**172**	**9,647**	**4,589**	**888**	**3,860**	**18,984**
Total	**2,793**	**1,175**	**36,333**	**28,433**	**11,264**	**15,553**	**91,583**

Source Jallen et al. (2015)

a. The number of households contacted per species may vary. The number of households indicated is the greatest number of households contacted for a given species.

b. Whitefish that are greater than 4 lb in weight are considered large whitefish, and those that are less than 4 lb in weight are considered small whitefish.

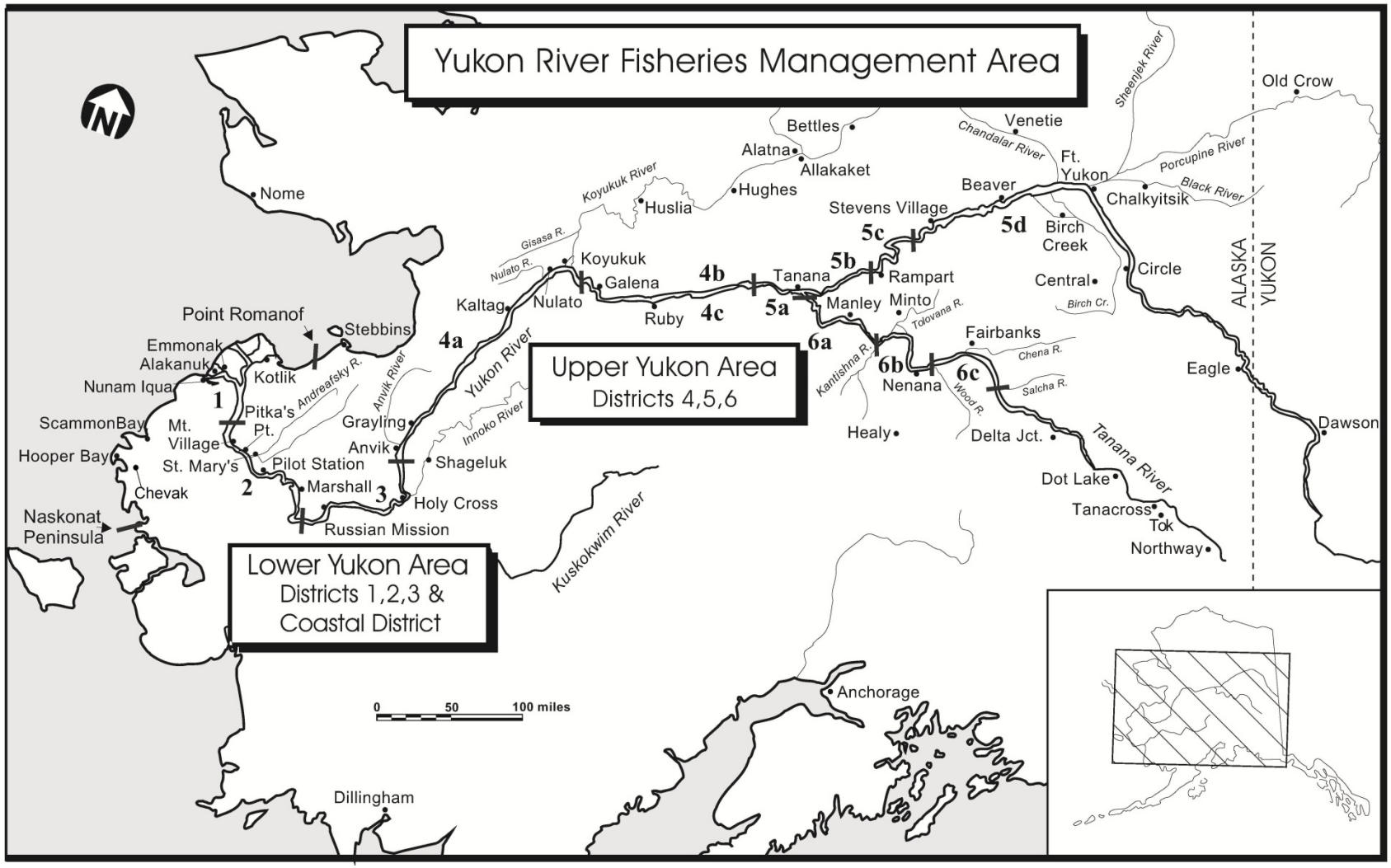

Figure 4-1.–Map of the Alaska portion of the Yukon River drainage, showing communities and districts.

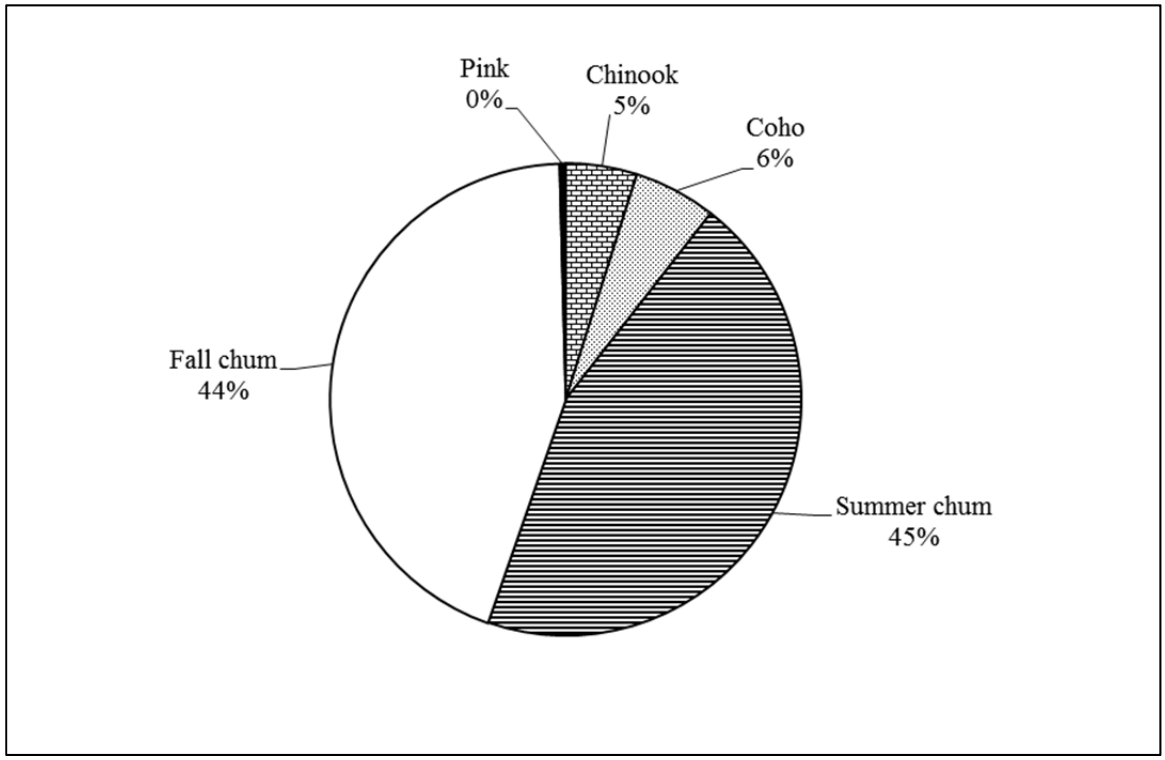

Figure 4-2.–Yukon Area estimated subsistence salmon harvests, 2013.

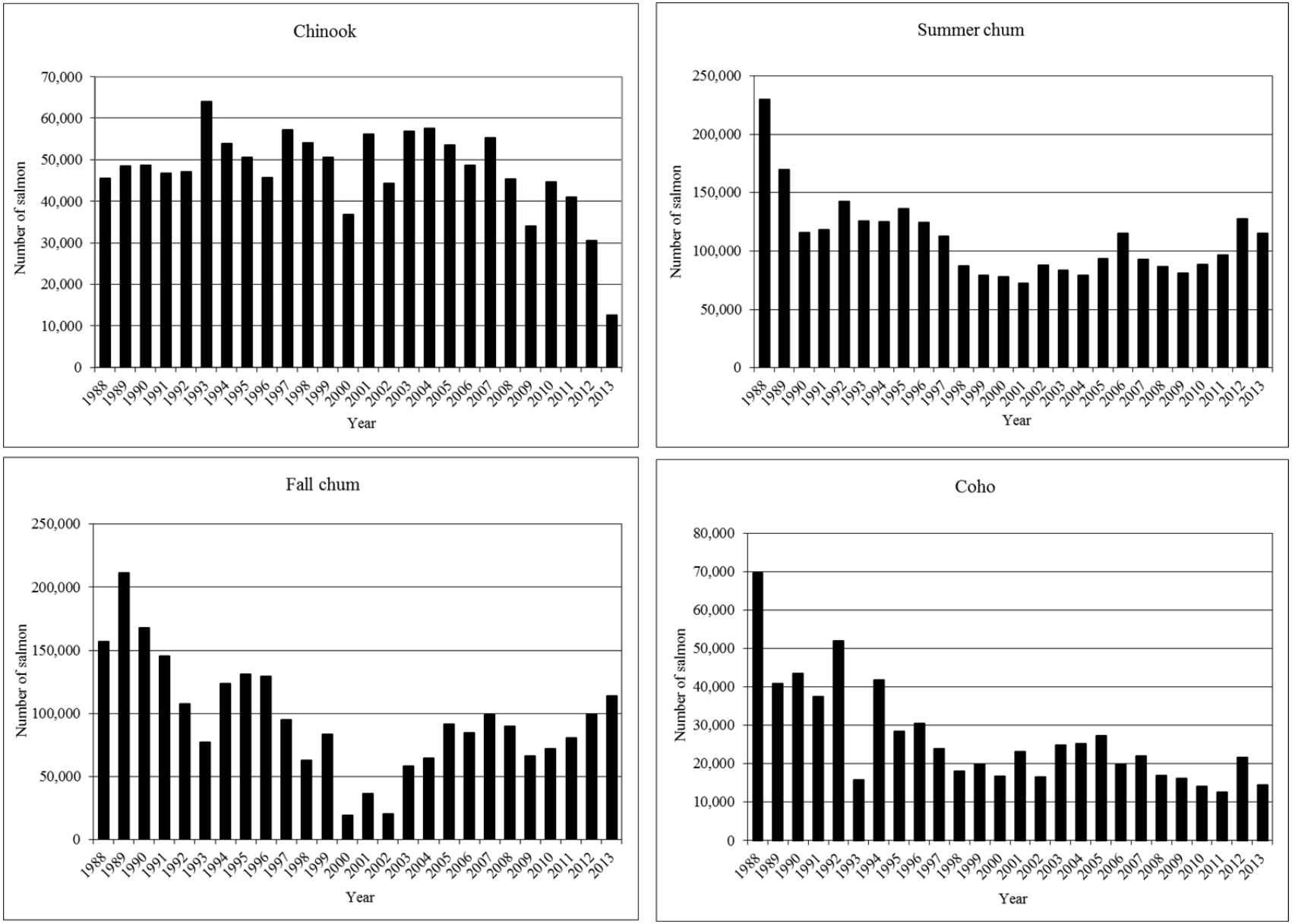

Figure 4-3.–Estimated subsistence salmon harvests by species, Yukon Area, 1988–2013.

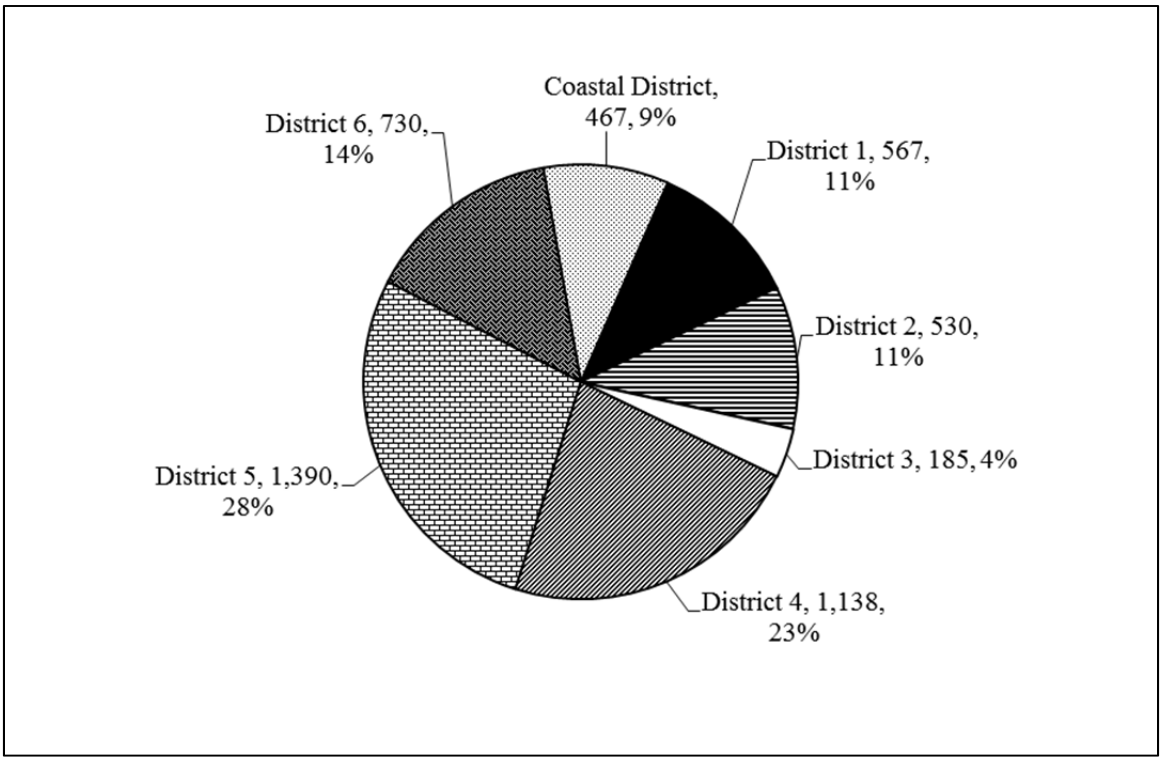

Figure 4-4.–Estimated number of dogs by district, Yukon Area, 2013.

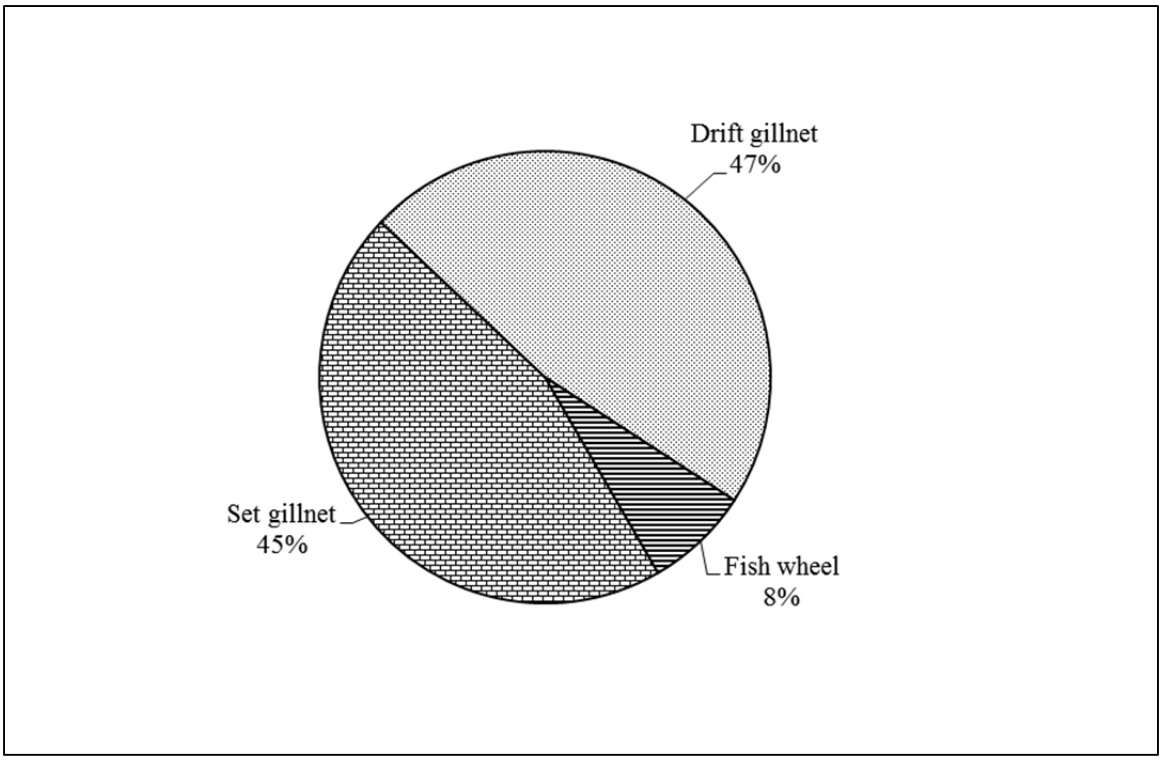

Figure 4-5.–Primary gear type utilized for subsistence salmon fishing, Yukon Area, 2013.

CHAPTER 5: KUSKOKWIM AREA

BACKGROUND

The subsistence salmon fisheries in the Kuskokwim Area are some of the largest in the state of Alaska, in terms of the number of residents who participate and the number of salmon harvested (Fall et al. 2014). Since 1994, when the Alaska Department of Fish and Game (ADF&G) began acquiring reasonably complete statewide coverage of subsistence harvest survey data, over 50% of Chinook salmon harvested under subsistence regulations have been taken in the Kuskokwim Area, mostly in the Kuskokwim River drainage. Between 2010 and 2014 (study years 2009–2013), the Division of Subsistence conducted comprehensive subsistence harvest and use surveys in 23 Kuskokwim Management Area communities. The results indicate that, on average, salmon contribute 42% of the total wild resource harvest (in edible pounds) in the Lower Kuskokwim communities, 65% in the Central Kuskokwim communities, and 25% in the Upper Kuskokwim communities (Brown et al. 2012, 2013; Ikuta et al. 2014).[1] Residents of the Kuskokwim Area harvest 5 species of Pacific salmon for subsistence purposes: Chinook salmon *Oncorhynchus tshawytscha*, chum salmon *O. keta*, coho salmon *O. kisutch*, pink salmon *O. gorbuscha*, and sockeye salmon *O. nerka*. Drift gillnetting, set gillnetting, and hook and line fishing are the primary methods used when harvesting salmon, although additional gear types are allowed as specified in 5 AAC 01.270. Kuskokwim Area communities are heavily reliant upon the annual returns of salmon not only for basic nutrition, but also for maintenance of cultural identity and cultural values, in addition to economic opportunities for commercial sales (Andrews and Coffing 1986; Andrews 1989:154; Barker 1993; Brown et al. 2012, 2013; Coffing 1991; Fienup-Riordan 1990:184, 1995:120, 123; Himmelheber 1987:32; Ikuta et al. 2013, 2014; Oswalt 1963a–b, 1990; Pete 1993; Senecal-Albrecht 1998, 1990; Walker and Coffing 1993; Wolfe et al. 1984).

ADF&G has been estimating Kuskokwim Area subsistence salmon harvests annually by postseason subsistence harvest survey since 1960. Simon et al. (2007) discussed the history of annual harvest monitoring methods used by the Division of Commercial Fisheries from 1960–1987 as well as the different methods used from 1988–2007 by the Division of Subsistence (see also Walker and Coffing 1993). Beginning in 2008, the Division of Commercial Fisheries once again assumed responsibility for the annual postseason subsistence salmon harvest monitoring program using methods outlined in Carroll and Hamazaki (2012a). In the Kuskokwim Area, there are 38 communities, 28 of which are surveyed each year on a voluntary basis. As Table 5-1 shows, in 2013, there were approximately 4,314 households in 32 communities, excluding the 6 Bering Sea communities.[2] Bethel is the largest community in the region, consisting of approximately 2,126 households in 2013. The north Kuskokwim Bay communities of Kwigillingok, Kongiganak, and Kipnuk are not located on the Kuskokwim River, but many subsistence salmon fishing households from these communities have traveled to the Kuskokwim River to fish, but may have also harvested salmon from coastal areas and local tributaries (Himmelheber 1987:7; Stickney 1984:60–61; Walker and Coffing 1993:1). Except in 2000 and 2004, only the community of Kongiganak (Carroll and Hamazaki 2012a) has participated in the voluntary ADF&G harvest survey. The communities of Quinhagak, Goodnews Bay, and Platinum, located in south Kuskokwim Bay, comprise 7% of the total Kuskokwim Area households (Carroll and Hamazaki 2012b) and harvest salmon primarily from the drainages of the Kanektok, Arolik, and Goodnews rivers (Walker and Coffing 1993:1; Wolfe et al. 1984:321–322). Subsistence users from Bering Sea coastal communities have chosen to not participate

1. See also Ikuta, Hiroko and David S. Koster. *In prep*. Bethel Subsistence, 2012: Wild Resource Harvests and Uses, Land Use Patterns, and Subsistence Economy in the Hub Community of the Yukon–Kuskokwim Delta. Fairbanks: Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. NNN. Hereafter referred to as (Ikuta et al. *In prep*).
2. Household number estimates are not available for the coastal communities. Subsistence users from these communities harvest salmon in coastal waters as well as in area rivers. Relatively little documentation exists of subsistence salmon harvests of Bering Sea coastal communities because the communities are not included in either the Kuskokwim or the Yukon postseason subsistence salmon harvest monitoring programs (Wolfe et al. 2012).

in the ADF&G study for most years. These include the communities of Mekoryuk (on Nunivak Island), Newtok, Tununak, Toksook Bay, Nightmute, and Chefornak (Carroll and Hamazaki 2012a–b). While little information is available, residents of Bering Sea coastal communities harvest salmon from local rivers and coastal waters, which likely include coastal stocks as well as mixed stocks that were not bound for the Kuskokwim River (Fienup-Riordan 1983:112; Walker and Coffing 1993:1). In 2011, sponsored by the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative, the Association of Village Council Presidents (AVCP) collected subsistence salmon harvest data in 7 coastal communities: Chefornak, Kipnuk, Mekoryuk, Newtok, Nightmute, Toksook Bay, and Tununak (Kwigillingok chose not to participate in the AVCP project) (Wolfe et al. 2012). This project provided the only reliable subsistence salmon harvest data in recent years for this portion of the Kuskokwim Area (Table 5-2), and in 2013, these data were considered by the Alaska Board of Fisheries as they revised the amount reasonably necessary (ANS) for subsistence uses of salmon in the remainder of the Kuskokwim Area.

REGULATIONS

Statewide eligibility criteria require individuals to be Alaska residents for the preceding 12 months before harvesting salmon for subsistence uses. Most subsistence salmon fishers in the region are Kuskokwim Area residents; however, some subsistence fishers are domiciled in other parts of Alaska and return to fish alone, or to assist family or friends with the harvesting or processing of salmon (Simon, Krauthoefer, Koster, and Caylor 2007:5).

Prior to 1990, there were additional restrictions on participation in the subsistence fishery related to the state's rural priority for subsistence, which subsequently was determined by the Alaska Supreme Court to be unconstitutional. In 1988, the State of Alaska Board of Fisheries formed the Kuskokwim River Salmon Management Working Group (KRSMWG) in response to requests from stakeholders in the Kuskokwim Area who sought a more active role in the management of salmon fishery resources (Bailey and Shelden 2014:1; Smith and Linderman Jr. 2008:1). The KRSMWG is composed of knowledgeable stakeholders, processors, and sport fishery representatives, as well as ADF&G biologists and social scientists. It acts in a representative fashion for communities throughout the Kuskokwim River drainage.

As a result of the passage of Alaska National Interest Lands Conservation Act (ANILCA) and in light of a 1989 Alaska Supreme Court decision, the federal government established the federal subsistence program, which provides subsistence opportunity for qualified rural residents on applicable federal public lands and in applicable federal public waters. Federal subsistence schedules, openings, closings, and fishing methods in the Kuskokwim Area are generally the same as those for state subsistence salmon fisheries, unless superseded by federal special action (50 CFR § 100.27). Regulatory authority for Kuskokwim River salmon management is shared by the Federal Subsistence Board (FSB) and the BOF. On the Kuskokwim, ADF&G is responsible for implementing the Kuskokwim River Salmon Management Plan (5 AAC 07.365) and also has inseason discretionary management authority of salmon in Alaska navigable waters. Waters of the lower Kuskokwim River are largely within or adjacent to federal public lands, namely the Yukon Delta National Wildlife Refuge. As such, the U.S. Fish and Wildlife Service (USFWS) shares inseason subsistence fishing management decision-making with ADF&G. USFWS holds final decision-making authority over management of salmon in these waters only in the event that the federal subsistence program determines that subsistence uses by non-federally qualified users must be eliminated in order to meet the federal subsistence priority. The KRSMWG advises state and federal managers through an established process and is currently the primary forum through which management decisions are made regarding Kuskokwim River subsistence, commercial, and sport salmon fisheries (Smith and Linderman Jr. 2008:1). The highest priority in state and federal management of the Kuskokwim River's salmon populations is biological sustainability of the resources based on principles of sustained yield. In the event that returning salmon numbers are not sufficient to meet established escapement goals that will allow for the maintenance of future generations of salmon populations, consumptive uses of salmon may be restricted. Under conditions when there is a harvestable

surplus beyond these minimum escapement levels, consumptive uses of salmon are prioritized for different user groups. Individuals must be Kuskokwim Area residents to participate in the Kuskokwim federal subsistence salmon fishery (50 CFR § 100.5)

Alaska Statute 16.05.258, "Subsistence use and allocation of fish and game," establishes the subsistence use priority (above sport, commercial, and personal uses) when resources are not abundant enough to provide for all consumptive uses, while remaining in accordance with principles of sustained yield. Subsistence uses protected by the subsistence priority are those practices identified as customary and traditional practices, as determined by the BOF. In 1993, the BOF made positive findings for customary and traditional uses of all salmon species in the entire Kuskokwim Area.[3] As part of these findings, the BOF then determined the amount reasonably necessary for subsistence (ANS) in these respective areas as one means to provide reasonable opportunities for subsistence uses. Based on historical harvest information, an ANS of 192,000–242,000 for salmon of all species in the Kuskokwim Area was determined (5 AAC 01.286). In 2001, the BOF amended these ANS ranges for Kuskokwim River using subsistence harvest data from the years 1990 to 1999. After reviewing various options, the BOF made new customary and traditional use and ANS findings for the Kuskokwim area by species.

In January 2013, the BOF again modified ANS ranges by species for each river system. The current ANS ranges for salmon in the Kuskokwim Management Area are as follows (5 AAC 01.286(b)):

67,200–109,800	king [Chinook] salmon in the Kuskokwim River drainage;
41,200–116,400	chum salmon in the Kuskokwim River drainage;
32,200–58,700	sockeye salmon in the Kuskokwim River drainage;
27,400–57,600	coho salmon in the Kuskokwim River drainage;
500–2,000	pink salmon in the Kuskokwim River drainage;
6,900–17,000	salmon in Districts 4 and 5 combined; and
12,500–14,400	salmon in the reminder of the Kuskokwim Area

The BOF in 2013 also updated and clarified the Kuskokwim River Salmon Rebuilding Management Plan (5 AAC 07.365). The new plan provides guidelines for managing the Kuskokwim River salmon fisheries to meet escapement goals and the subsistence priority. During times when the amount of fish available for subsistence harvest is limited, the commissioner may open a fishing period during which king salmon may only be taken by persons 60 years of age or older. Persons 60 years of age or older can only be assisted by family members within the second degree of kindred. The persons 60 years of age or older must be present while fishing, and proxies are not allowed.

Subsistence harvest of Pacific salmon species in the Kuskokwim River is allowed without a permit (5 AAC 01.280) and with generally no closed seasons (5 AAC 01.260), except as specified in the management plan or otherwise ordered for conservation purposes. Alaska regulations allow a variety of gear types to be used in the Kuskokwim River for subsistence salmon fishing and include specifications regarding the use of gillnets (5 AAC 01.270). There are no federal or state bag or possession limits for subsistence salmon harvests in the Kuskokwim River, except from June 1 through August 31, when subsistence fishing with a 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 2 Chinook salmon, and rainbow trout, *O. mykiss*, may not be retained (5 AAC 01.295). Federal regulations of all subsistence fish harvests in Alaska federal public lands and waterways are administered under 50 CFR §100.27, including seasons, gear types, and bag and possession limits on all salmon and nonsalmon species.

3. The Kuskokwim 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. 38 communities are located within this area.

By regulation, therefore, the subsistence salmon fishing season in the Kuskokwim Area is generally open unless a subsistence fishing schedule closure is implemented. If closures to the fishery are necessary, they are implemented by emergency order prior to, during, and after commercial fishing periods, or closures to the fishery are implemented by emergency order for conservation purposes (see 5 AAC 01.260, and 5 AAC 07.365). On the Kuskokwim River, a subsistence fishing schedule with periodic fishing closures (openings between these closures were often referred to as "windows" or "openers") was implemented from 2001–2006 and has since been discontinued.

Subsistence Fishery

In January 2013, the BOF adopted a new Kuskokwim River Salmon Management Plan (5 AAC 07.365) and established a new drainage wide sustainable escapement goal (SEG) of 65,000–120,000 Chinook salmon. The 2013 Kuskokwim River Chinook salmon forecast was for 160,000–240,000 fish. The historical average subsistence Chinook salmon harvest between 1990 and 2011 is approximately 84,000 fish. The 2013 Chinook salmon forecast indicated that there would be enough fish to meet escapement goals and provide for average subsistence harvest (Chavez and Shelden 2014).[4]

Preseason management actions included a closure on subsistence Chinook salmon fishing with hook and line gear, and a restriction on gillnet use to a mesh size of 4 inches or less and net length no greater than 60 feet in lower river tributaries. Restrictions were implemented in the mainstem Kuskokwim River beginning on June 28 from the mouth of the Kuskokwim River to the village of Tuluksak, and July 3 from Tuluksak to the village of Chuathbaluk. In each conservation section, gillnets were restricted to 6-inch or less mesh size, and hook and line fishing for Chinook salmon was closed. Each section was subject to 12 days of restriction in an attempt to allow sufficient numbers of Chinook salmon to reach spawning grounds. All actions were recommended by state and federal managers and supported by the Working Group. Except for closures around commercial fishing periods, subsistence salmon fishing was open with unrestricted gillnet mesh size and all other legal gear types from July 15 through the remainder of the salmon fishing season. During the inseason subsistence harvest monitoring project in 2013, the majority of families considered the Chinook salmon catch to be "very good." Assessment of chum and sockeye salmon catchers were mostly considered "normal" to "very good." A small minority reported it as "poor" (Chavez and Shelden 2014:7). The report about the results of 2013 postseason subsistence harvest survey is currently unavailable.

In 2013, subsistence Chinook salmon harvests (51,211) were approximately 50% higher than the 2012 harvest (25,706) (Table 5-3). However, due to low abundance and restrictions, subsistence Chinook salmon harvests did not meet the lower range of ANS (67,200) in 2011–2013. In addition, in the 2013 season, Chinook salmon escapements at tributary weirs were the lowest on record at all projects, and the Kuskokwim River drainagewide sustainable escapement goal (SEG) was not achieved (Personal communications, Travis Elison, Kuskokwim Area Biologist, December 2, 2013 and January 8, 2014). Although the minimum bound of the current escapement goal range set by BOF is 65,000 Chinook salmon spawning throughout the entire Kuskokwim drainage, possibly less than 30,000 Chinook salmon reached the spawning grounds of Alaska's second largest river system.

SUBSISTENCE SALMON HARVEST ASSESSMENT METHODS

ADF&G has been estimating Kuskokwim Area subsistence salmon harvests annually by postseason subsistence harvest survey since 1960: by the Division of Commercial Fisheries in 1960–1987, by the Division of Subsistence in 1988–2007, and by the Division of Commercial Fisheries since 2008 (Carroll and Hamazaki 2012a–b). The purpose of the survey is to collect data about the number and species of salmon harvested by area residents.

4. Alaska Department of Fish and Game Division of Commercial Fisheries. "2013 Preliminary Kuskokwim Area Salmon Season Summary Kuskokwim Area Management," news release, October 9, 2013. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/370446131.pdf

For data collection in 2013, under a cooperative program between ADF&G and the USFWS Office of Subsistence Management, subsistence salmon harvest data collection in Bethel was conducted by staff from the Orutsararmiut Native Council (ONC), which has been involved in subsistence salmon harvest monitoring in Bethel since 1999. Subsistence harvest data collection in Aniak was conducted under a similar agreement by staff from the Kuskokwim Native Association (KNA), which has been involved in subsistence salmon harvest monitoring in Aniak since 2002 (Simon, Krauthoefer, Koster, and Caylor 2007).

The data from the postseason subsistence harvest survey are analyzed to provide an estimate of the number of salmon harvested for subsistence purposes. This information has been used by ADF&G, the U.S. Fish and Wildlife Service (USFWS), the BOF, and the FSB to manage customary and traditional (C&T) uses of salmon and to provide reasonable opportunities for continued customary and traditional uses of salmon throughout the area. More detailed descriptions of subsistence salmon harvest monitoring methods utilized in the Kuskokwim Area are found elsewhere (Hamazaki 2011; Simon, Krauthoefer, Koster, and Caylor 2007; Shelden et al. 2014; Walker and Coffing 1993).

Household Harvest Surveys

Study Design

The postseason subsistence harvest survey for the majority of communities was designed based on a stratified random survey methodology (Scheaffer 1990). From 1989 to 2010, each household was classified into three strata based on the household's recent 2-year history of participation in the subsistence fishery. Beginning in 2005, surveys collected harvest data for pink salmon. In 2011, the above household classification was expanded into 5 strata based on a household's most recent 2 known years of participation within the past 5 years in the subsistence fishery.

An attempt was made to census the 2 highest harvest strata groups, and the strata group for which no past harvest level could be determined. The remaining 2 strata groups of light and non-harvesters were sampled at 30% each. A full description of methods used for harvest level classification and sampling are available in Shelden et al. (2014:4-12).

The data were entered into the subsistence harvest database maintained by the Division of Commercial Fisheries. The data were subsequently extracted and processed by Commercial Fisheries staff. The analyzed data were transmitted to Division of Subsistence analysts for final formatting and inclusion in the Alaska Subsistence Fishery Database, maintained by the Division of Subsistence. All subsistence harvest data were treated as confidential, such that individual harvest data are not shared, and all analysis is aggregated and anonymous. The study was generally conducted in accordance with the *Alaska Federation of Natives Guidelines for Research*.[5]

Estimating Bethel Salmon Harvests

In Bethel, the Division of Commercial Fisheries was responsible for designing and producing the survey instrument and selection of survey households, and ONC was responsible for conducting household surveys. Due to the impracticality of maintaining an accurate household list in order to stratify Bethel, a 25% random survey was conducted based on a simple random survey methodology where each dwelling (physical location instead of household) was the primary sampling unit. Before the harvest survey, ADF&G oriented ONC technicians to the project and instructed them in the proper implementation of the survey. ONC technicians conducted surveys in Bethel from October through November. Survey data were entered and analyzed by Division of Commercial Fisheries staff to generate subsistence salmon harvest estimates by species.

5. Alaska Federation of Natives. 2013. "Alaska Federation of Natives Guidelines for Research." Alaska Native Knowledge Network. Accessed May 14, 2014. http://www.ankn.uaf.edu/IKS/afnguide.html.

Estimating Aniak Salmon Harvests

Like Bethel, Aniak is too large to effectively maintain a reliable household list, but due to its smaller size than Bethel, an attempted census is required to obtain the level of reliability of the estimate desired for this project.

The ADF&G Division of Commercial Fisheries was responsible for designing and producing the survey instrument and selection of survey households, and KNA was responsible for conducting household surveys in Aniak. Before the harvest survey, ADF&G oriented KNA technicians to the project and instructed them in the proper implementation of the survey. KNA technicians conducted surveys in Aniak from October through December 2013. Survey data were entered and analyzed by ADF&G Commercial Fisheries staff to generate subsistence salmon harvest estimates by species.

Estimating Kuskokwim Area Community Subsistence Salmon Harvests

For the remaining communities in the Kuskokwim Area, the goal was to collect subsistence harvest data through harvest surveys conducted by Division of Commercial Fisheries staff beginning in the first week of October and continuing through November. The survey crew consulted with community officials before arriving in the community to update community household lists. Other resources were also useful in updating household lists, including telephone and utility records. Communities were prioritized based on transportation scheduling, staff time and community willingness to participate in the program. Participation in the surveys was voluntary, and some community leaders requested that the surveys not take place in their communities.

Harvest Calendars

In addition to systematic household harvest surveys, subsistence salmon harvest calendars were mailed in late April or early May so that they were available to fishers prior to the start of the salmon fishing season. The calendar data continue to be instrumental for examination of subsistence salmon harvest timing. The calendars are also used by some area fishers throughout the fishing season so that they can be referenced during postseason household harvest surveys.

Calendar mailings were based on the most up-to-date household lists used in the harvest monitoring program. Extra calendars were printed and maintained at the Bethel ADF&G office for distribution as needed or upon request. In an effort to increase the use and return rate of subsistence salmon harvest calendars, public service announcements were broadcast on local radio stations during the fishing season reminding fishers to keep logging their catches on their calendars and describing the importance of calendars for documenting subsistence salmon uses.

Most subsistence salmon harvest data obtained from the returned calendars were not used to directly calculate Kuskokwim Area subsistence salmon harvest estimates, but these data were used to corroborate household survey data. Calendars were occasionally used as the primary source of harvest data when contact was not made with a particular household. Calendars often include harvests from multiple households that fished together, so reported harvests may represent the efforts of multiple households. In such cases, every effort was made to contact the head of household to verify harvest information when using the calendar data. Calendars also provided data for assigning households to the 3-user strata, especially in cases where households were not contacted as part of the household surveys. Calendar data are not provided in this report.

Data Correction and Archiving

Division of Commercial Fisheries staff reviewed and edited all completed surveys and periodically sent reviewed surveys to staff in Bethel and Anchorage for further processing. The survey data were entered into an Arctic-Yukon-Kuskokwim Database Management System (AKDBMS) data server. The database was structured to ensure data were entered completely and accurately, and there were periodic back-ups to prevent data loss.

Data Analysis

Community estimates of subsistence salmon harvest for surveys collected in communities outside of Bethel and Aniak were generated using a stratified random sampling expansion technique. This approach applies means to unsurveyed households within each strata group and sums total estimates of the 5 strata groups to give a community harvest estimate. Communities where harvest survey data were inadequate or unavailable, for 2013 and earlier, were estimated by employing a Bayesian hierarchical multiple imputation method. The details of these approaches are described in Shelden et al. (2014).

2013 SAMPLING SUMMARY

In 2013, an estimated total of 4,314 households were located in the Kuskokwim Area, excluding households in the coastal communities that declined to participate (Table 5-1): 77 % of the households were located in the Lower Kuskokwim Region, including 2,126 households (49 % of the total estimated households) in Bethel and 1,177 households (27%) in the rest of the Lower Kuskokwim communities, followed by 357 households in Middle Kuskokwim, 309 households in Upper Kuskokwim, and 90 households in North Kuskokwim Bay (Figure 5-2).

Out of the 4,314 households, surveys were conducted with 1,755 households within 25 Kuskokwim Area communities (Table 5-1). As noted above, a new method was developed in 2008 to estimate subsistence salmon harvests in communities in which no household surveys took place if adequate harvest data for previous years existed; however, there were Kuskokwim Area communities for which there were insufficient historical data to develop annual harvest estimates using a Bayesian hierarchical multiple imputation method. As a result, the Kuskokwim Management Area total should be viewed as a minimum estimate because data for some communities are not available (Simon, Krauthoefer, Koster, and Caylor 2007:20).

For lower Kuskokwim River communities, 1,197 (36%) of the 3,303 households were contacted. Based upon 2013 data, the region represents 77% of the estimated total number of households in the Kuskokwim Area.

In the south Kuskokwim Bay region (Quinhagak, Goodnews Bay, and Platinum), 138 (54%) of the 255 households were contacted. The Bering Sea coastal communities of Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak, and Chefornak had an estimated 453 total households as of 2009, but none were surveyed in 2013, and data for previous years are incomplete. Currently, subsistence salmon harvest information collected by AVCP for 2011 is the only available and reliable data source for the region (Wolfe et al. 2012).

The 13 communities of the middle and upper Kuskokwim River regions are generally smaller than lower river communities, and together compose 15% (666 households) of total households in the Kuskokwim Area. In the middle Kuskokwim River region, defined here as communities located on the Kuskokwim River from Lower Kalskag upriver to Chuathbaluk, 272 (76%) of 357 households were contacted in 2013. For upper Kuskokwim communities, defined here as communities located on the Kuskokwim River from Crooked Creek upriver to Telida (in addition to Lime Village located on the Stony River and Takotna located on the Takotna River), 148 (48%) of 309 households were contacted. Crooked Creek, Lime Village, Takotna, and Telida were not surveyed in 2013. The communities of Georgetown and Napaimute are not currently included in the community sampling list due to limited permanent populations and primarily seasonal use patterns for these 2 communities; the large majority of Georgetown and Napaimute community members are surveyed during their residence in other Kuskokwim River communities.

2013 SUBSISTENCE SALMON HARVEST SUMMARY

A summary of the subsistence salmon harvest estimates by community and fishing area is presented in Table 5-1. In 2013, fishers harvested an estimated total of 177,643 salmon for subsistence use from the Kuskokwim Area. People in the Lower Kuskokwim communities harvested 134,160 salmon, 76% of the

estimated total subsistence salmon harvest, including 55,237 salmon (31%) in Bethel and 78,923 salmon (44%) in the rest of the Lower Kuskokwim communities (Figure 5-3). Fishers in the Middle Kuskokwim communities harvested 18,421 fish (10%), followed by 10,771 fish (6%) in South Kuskokwim Bay, 9,874 fish (6%) in the Upper Kuskokwim, and 4,417 fish (2%) in North Kuskokwim Bay.

Chum salmon contributed 31% (54,821 fish) of the estimated subsistence salmon harvest, followed by Chinook salmon (29%, 51,211), sockeye salmon (24%, 42,996 fish), coho salmon (16%, 27,874 fish), and pink salmon (0.4%, 741 fish) (Figure 5-1). In 2013, all species of subsistence salmon harvests were below the 5-year (2008–2012) and 10-year (2003–2012) averages: Chinook salmon: 51,211 Chinook salmon (76% of 5-year average, 64% of 10-year average); 54,821 chum salmon (92% of 5-year average, 85% of 10-year average); 42,996 sockeye salmon (92% of 5-year average, 94% of 10-year average); and 27,874 coho salmon (78% of 5-year average, 73% of 10-year average) (Table 5-3). It is possible that subsistence harvesters have been targeting more abundant species in years of lower Chinook salmon abundance, and they are tied to both voluntary and involuntary changes in gear usage. Chinook salmon abundance in the Kuskokwim River drainage has decreased since 2007, with some of the lowest total runs occurring in 2011–2013 (Bue et al. 2012; Personal communication with Toshihide Hamazaki, Biometrician, May 12, 2015). Lower Kuskokwim River Area communities accounted for 76% of the total estimated subsistence salmon harvests in the Kuskokwim Area and 82% of the entire estimated Chinook salmon subsistence harvest. Residents of Bethel accounted for 31% of the Kuskokwim Area subsistence salmon harvests and 34% of subsistence-caught Chinook salmon and 45% of the estimated total of subsistence-caught coho salmon (Table 5-1).

As noted, several coastal communities within the Kuskokwim Area have chosen not to participate in the postseason subsistence harvest surveys conducted by ADF&G. However, 7 of these communities participated in a study conducted by AVCP to estimated subsistence salmon harvests for 2011 (Wolfe et al. 2012; Table 5-2). The total estimated subsistence harvest of salmon for these 7 communities in 2011 was 16,593 fish, including 7,226 chum (44%), 4,439 sockeye (27%), 2,864 coho (17%), 1,298 Chinook (8%), 746 pink (4%), and 20 salmon of unknown species (<1%).

Use of Salmon for Dog Food

Historically, salmon harvested for use as dog food were a large portion of the overall subsistence salmon harvest; specifically, chum and coho salmon. In recent years, the number of households harvesting salmon specifically for dog food has declined, likely due to decreased use of dog teams for transportation. In 2013, data show a reported harvest of 4,784 salmon for use as dog food (Table 5-4). The majority of the salmon harvested for dog food were chum salmon, at 3,151 fish, while coho salmon accounted for 1,462 fish. Sockeye salmon contributed 127 fish and pink salmon 42 fish to the harvest for dog food. Households do not target Chinook salmon for dog food; however, 2 Chinook salmon, likely unfit for human consumption, were reported to have been fed to dogs in an effort to avoid wasting the fish. It is common for most households to feed scraps—backbones, entrails, and salmon unfit for human consumption—to their dogs.

Gear Types

Kuskokwim Area subsistence fishers deploy a variety of gear types to harvest salmon (e.g., set gillnet, drift gillnet, fish wheel, or rod and reel) (Table 5-5). Households that harvested salmon were asked to provide information on the primary gear type used by their household for harvesting salmon. In 2013, out of 1,093 contacted fishing households that responded to gear type questions, 894 (82%) reported drift gillnets as their primary subsistence salmon fishing gear type, 118 (11%) reported set gillnets, 70 (6%) reported subsistence rod and reel gear, and 11 (1%) reported fish wheel. Preferred gear types vary between regions of the Kuskokwim Area, and fishers often select which gear type to use based on local environmental factors such as river morphology. In recent decades drift gillnets have been the most common gear type deployed by fishers in the lower and middle Kuskokwim River communities where river depth and width permit the efficient use of this type of net. In communities of the upper Kuskokwim

River, a narrower and generally shallower river channel typically restricts fishers to the use of set gillnets and occasionally fish wheels. Also, subsistence fishers who reside near clear water streams often harvest salmon by rod and reel (e.g., Kwethluk, Takotna, and Nikolai). Perhaps equally important in determining selection of gear types are local and familial customs and traditions associated with subsistence salmon fishing.

Salmon Retained from Commercial Fishing for Subsistence Uses

Households involved in commercial salmon fishing occasionally keep a portion of their commercial harvest for subsistence uses; however, the number of salmon retained from commercial fishing activities for subsistence is usually low. In 2013, few households reported retaining commercially-caught salmon for subsistence uses. Data show a reported total of 594 salmon were retained from commercial catches, including 223 Chinook, 35 chum, 88 sockeye, 199 coho, and 49 pink salmon (Table 5-6).

OTHER FISH

Harvest data for nonsalmon fish species are also collected as part of the postseason salmon survey. In 2012, reported harvests of nonsalmon species in the Kuskokwim Area included 12,835 humpback whitefish; 12,591 broad whitefish; 8,100 cisco; 2,158 sheefish; 10,348 burbot; 188,433 blackfish; 111,104 smelt; 20,059 Northern pike; 7,135 herring; 1,467 grayling; 9,998 char; 533 rainbow trout (Table 5-7).

The Division of Subsistence has recently conducted comprehensive subsistence harvest and use surveys in the following 20 Kuskokwim River drainage communities: in 2010 (study year 2009), Aniak, Chuathbaluk, Crooked Creek, Lower Kalskag, Red Devil, Sleetmute, Stony River, and Upper Kalskag (Brown et al. 2012); in 2011 (study year 2010), Akiak, Kwethluk, Oscarville, Tuluksak, Georgetown, and Napaimute (Brown et al. 2013); in 2012 (study year 2011), Napakiak, Napaskiak, McGrath, Nikolai, and Takotna (Ikuta et al. 2014); and in 2013 (study year 2012), Bethel (Ikuta et al. *In prep*). These comprehensive surveys included questions about salmon and nonsalmon harvests as well as harvests of wildlife and plants. In addition, the division conducted an ethnographic project to understand socioeconomic patterns and trends of subsistence Chinook salmon fishing in Tuntutuliak, Kwethluk, Kalskag, Sleetmute, and Nikolai in 2009 and in the Bethel area in 2012 (Ikuta et al. 2013). Studies focusing on the traditional ecological knowledge of nonsalmon fishes and nonsalmon harvest amounts have been conducted in Aniak and Chuathbaluk for 2001–2003 (Krauthoefer et al. 2007), Bethel for 2001–2003 (Simon, Krauthoefer, Koster, Coffing, et al. 2007), Eek, Tuntutuliak, and Nunapitchuk for 2005–2009 (Ray et al. 2010), as well as Nikolai and Lime Village for 2012–2013 (Van Lanen and Runfola 2015). Information on historical and contemporary harvest and use of salmon and nonsalmon in communities along the Kuskokwim River, where data are available, can be accessed through the Community Subsistence Information System (CSIS) on the ADF&G website.

THE ROLE OF SALMON WITHIN ANNUAL SUBSISTENCE HARVESTS

According to the Subsistence Division's comprehensive subsistence surveys, salmon provide a large portion of the total subsistence food supply in Kuskokwim River communities (Brown et al. 2012, 2013, Ikuta et al. 2014, Ikuta and Koster in prep). In 2012, the top 5 resources harvested by edible weight were moose at 20%, chum salmon at 12%, coho salmon at 11%, sockeye salmon at 10%, and Chinook salmon at 8% of the estimated total subsistence harvest by Bethel residents (Ikuta and Koster *In prep*). It is important to keep in mind that the Chinook salmon harvest in Bethel was particularly low in 2012 due to the impact of declining Chinook salmon abundance and subsistence fishing restrictions during the Chinook salmon fishing season. In 2012, the total estimated Chinook salmon harvest in the Kuskokwim Area was 70% below the 10-year average Chinook salmon harvest for the region.

In other Lower Kuskokwim communities in 2010 (Oscarville, Kwethluk, Akiak, & Tuluksak) and 2011 (Napakiak, & Napaskiak), the five most heavily harvested resources were Chinook salmon at 20%, chum salmon at 12%, and northern pike, sockeye salmon, and humpback whitefish in relatively similar

proportions, each from 8 to 9% of the total subsistence harvest (Brown et al. 2013, Ikuta et al. 2014). Like people in Bethel, people living in other Lower Kuskokwim communities rely on salmon and moose, yet they tend to harvest more nonsalmon fish species, such as northern pike and humpback whitefish, than people living in Bethel. Data from other Lower Kuskokwim communities from other communities in this presentation are more representative of historical data than the 2012 Bethel data because of fewer restrictions to Chinook salmon fishing in the period 2009–2011.

In the 8 Central Kuskokwim communities (Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Crooked Creek, Red Devil, Sleetmute, and Stony River), the 5 most heavily harvested resources in 2009 were Chinook salmon at 30% of the total subsistence harvest, chum salmon providing 15%, coho salmon at 12%, moose at 11%, and sockeye salmon at 8% of the total subsistence harvest (Brown et al. 2012). Like people in Lower Kuskokwim communities, residents of Central Kuskokwim River communities heavily rely on salmon and moose. These data demonstrate that, proportionally, Chinook salmon harvests make up a greater portion of the total annual subsistence harvest than in Lower Kuskokwim River communities, 30% compared to 20%.

In the 3 Upper Kuskokwim communities (McGrath, Nikolai, and Takotna), the top 5 resources in 2012 were moose at 45%, Chinook salmon at 14%, coho salmon at 6%, and sheefish and northern pike both at 4% of the total subsistence harvest (Ikuta et al. 2014). People in Upper Kuskokwim communities are more dependent on moose than those in Lower and Central Kuskokwim communities. Yet, Chinook salmon was ranked as the second most harvested resource, demonstrating its importance to the overall subsistence economy of the Upper Kuskokwim region.

Table 5-1.–Subsistence salmon harvests by community, Kuskokwim Area, 2013.

Community	Households		Estimated salmon harvest					
	Total	Contacted	Chinook	Sockeye	Coho	Chum	Pink	Total
Kipnuk[b]	--	--	--	--	--	--	--	--
Kwigillingok[b]	--	--	--	--	--	--	--	--
Kongiganak[a]	90	0	1,203	1,222	487	1,505	--	4,417
North Kuskokwim Bay	**90**	**0**	**1,203**	**1,222**	**487**	**1,505**	**0**	**4,417**
Tuntutuliak	90	57	2,448	1,183	450	2,180	3	6,264
Eek	88	50	1,188	1,319	483	1,232	18	4,240
Kasigluk	104	49	2,919	1,470	418	2,197	14	7,018
Nunapitchuk	118	71	2,563	1,806	226	2,977	20	7,592
Atmautluak	63	37	1,592	1,316	203	2,409	47	5,567
Napakiak	97	51	1,588	1,105	634	1,185	3	4,515
Napaskiak	103	57	2,939	2,069	772	2,589	0	8,369
Oscarville	15	13	585	347	37	490	0	1,459
Bethel	2,126	519	17,246	12,616	12,662	12,506	207	55,237
Kwethluk	166	95	3,192	2,705	1,555	3,825	95	11,372
Akiachak	157	93	3,585	2,594	1,106	3,417	51	10,753
Akiak	83	46	1,449	1,731	454	2,212	110	5,956
Tuluksak	93	59	732	1,541	473	3,062	10	5,818
Lower Kuskokwim	**3,303**	**1,197**	**42,026**	**31,802**	**19,473**	**40,281**	**578**	**134,160**
Lower Kalskag	75	47	744	977	529	1,214	9	3,473
Kalskag (Upper)	58	29	1,317	662	636	1,534	0	4,149
Aniak	191	170	1,440	1,466	3,102	2,880	22	8,910
Chuathbaluk	33	26	155	480	319	935	0	1,889
Middle Kuskokwim	**357**	**272**	**3,656**	**3,585**	**4,586**	**6,563**	**31**	**18,421**
Crooked Creek[a]	37	0	96	494	228	983	--	1,801
Red Devil	15	10	77	270	318	981	0	1,646
Sleetmute	39	32	96	362	219	542	1	1,220
Stony River	15	11	51	447	120	27	33	678
Lime Village[a]	14	0	33	823	369	621	--	1,846
McGrath	129	63	95	538	523	598	7	1,761
Takotna[a]	23	0	0	1	0	6	--	7
Nikolai	35	32	283	0	119	513	0	915
Telida[b]	2	--	--	--	--	--	--	--
Upper Kuskokwim	**309**	**148**	**731**	**2,935**	**1,896**	**4,271**	**41**	**9,874**
Kuskokwim River	**4,059**	**1,617**	**47,616**	**39,544**	**26,442**	**52,620**	**650**	**166,872**
Quinhagak	165	86	3,143	2,158	1,087	1,958	73	8,419
Goodnews Bay	70	35	413	1,113	295	153	13	1,987
Platinum	20	17	39	181	50	90	5	365
South Kuskokwim Bay	**255**	**138**	**3,595**	**3,452**	**1,432**	**2,201**	**91**	**10,771**

-continued-

Table 5-1.–Page 2 of 2.

Community	Households		Estimated salmon harvest					
	Total	Contacted	Chinook	Sockeye	Coho	Chum	Pink	Total
Mekoryuk[b]	--	--	--	--	--	--	--	--
Newtok[b]	--	--	--	--	--	--	--	--
Nightmute[b]	--	--	--	--	--	--	--	--
Toksook Bay[b]	--	--	--	--	--	--	--	--
Tununak[b]	--	--	--	--	--	--	--	--
Chefornak[b]	--	--	--	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--	--	--	--
Total	**4,314**	**1,755**	**51,211**	**42,996**	**27,874**	**54,821**	**741**	**177,643**

Source Shelden et al. (2015)

Note Includes harvests using rod and reel and the removal of salmon from commercial harvests as well as subsistence nets.

a. These communities were not contacted during the 2013 study period. Harvests were estimated using historical average household harvest expanded by the number of households.

b. These communities were not contacted during the 2013 study period. Not enough data was available to estimate harvest.

-- Data not available.

Table 5-2.–Subsistence salmon harvests in 7 coastal Kuskokwim communities, 2011.

	Households		Percent	Estimated salmon harvest						
Community	Total	Surveyed	surveyed	Chinook	Sockeye	Coho	Chum	Pink	Other[a]	Total
Chefornak	83	69	83.1%	161	261	61	338	13	5	839
Kipnuk	131	49	37.4%	479	1,160	781	716	11	0	3,147
Mekoryuk	59	54	91.5%	0	2	201	3670	47	0	3,920
Newtok	63	58	92.1%	144	394	262	103	46	0	949
Nightmute	50	40	80.0%	98	289	64	475	13	3	942
Toksook Bay	104	94	90.4%	365	1834	1040	1637	433	4	5,313
Tununak	68	36	52.9%	51	499	455	287	183	8	1,483
Total	**558**	**400**	**71.7%**	**1,298**	**4,439**	**2,864**	**7,226**	**746**	**20**	**16,593**

Source Wolfe et al. (2012:17–18).

a. Unidentified species of salmon.

Table 5-3.–Historical subsistence salmon harvests, Kuskokwim Area, 1989–2013.

	Households		Estimated salmon harvest				
Year	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Total
1989	3,422	2,135	85,322	37,088	57,786	145,106	325,302
1990	3,317	1,448	114,219	48,752	63,084	157,335	383,390
1991	3,340	2,033	79,445	50,383	44,222	89,008	263,058
1992	3,308	1,308	88,106	45,994	56,907	119,794	310,801
1993	3,269	1,786	92,305	53,442	32,207	64,966	242,920
1994	3,169	1,801	111,027	46,172	40,706	89,508	287,413
1995	3,638	1,907	105,805	32,019	39,492	72,054	249,370
1996	3,630	1,524	100,437	41,644	45,101	102,033	289,215
1997	3,501	1,919	83,000	39,868	31,293	38,419	192,580
1998	3,497	1,940	85,928	38,296	27,408	73,145	224,777
1999	4,165	2,512	80,545	51,321	27,757	52,414	212,037
2000	3,317	1,448	75,201	53,498	49,158	72,896	250,753
2001	4,469	2,215	81,927	55,163	33,031	57,410	227,531
2002	4,804	2,687	84,701	34,890	43,433	94,759	257,783
2003	4,513	2,292	70,375	34,772	37,242	47,949	190,338
2004	4,638	2,398	103,183	43,425	53,186	68,068	267,862
2005	4,603	1,593	90,039	44,988	35,328	59,920	230,275
2006	4,671	1,439	97,493	49,711	42,852	97,005	287,061
2007	4,620	1,279	100,470	49,893	35,560	76,409	262,332
2008	4,735	949	92,059	56,029	47,120	66,857	262,065
2009	4,808	1,702	83,840	38,727	31,932	46,054	200,553
2010	4,215	1,739	70,575	41,645	35,696	46,791	194,707
2011	4,241	1,790	65,847	46,278	33,953	55,985	202,063
2012	4,294	1,527	25,706	51,002	30,121	81,851	188,680
2013	4,314	1,755	51,211	42,996	27,874	54,821	176,902
5-year average (2008–2012)	4,459	1,541	67,605	46,736	35,764	59,508	209,614
10-year average (2003–2012)	4,534	1,671	79,959	45,647	38,299	64,689	228,594
15-year average (1998–2012)	4,373	1,834	80,526	45,976	37,585	66,501	230,588
Historical average (1989–2012)	4,008	1,807	86,148	45,208	40,607	78,156	250,119

Source Shelden et al. (2015)

Table 5-4.–Number of households that own dogs, fed salmon to dogs, and total number of salmon fed to dogs, Kuskokwim Area, 2013.

Community	Households		Households		Total number of dogs	Reported salmon fed to dogs					
	Total	Contacted	Own dogs	Fed salmon		Chinook	Sockeye	Coho	Chum	Pink	Total
Kipnuk[a]	--	--	--	--	--	--	--	--	--	--	--
Kwigillingok[a]	--	--	--	--	--	--	--	--	--	--	--
Kongiganak	90	--	--	--	--	--	--	--	--	--	--
North Kuskokwim Bay	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	90	55	44	0	92	0	0	0	0	0	0
Eek	88	49	31	1	51	0	0	0	3	0	3
Kasigluk	104	48	34	1	65	0	0	0	0	6	6
Nunapitchuk	118	68	48	2	92	0	0	0	30	0	30
Atmautluak	63	37	32	1	114	0	0	0	25	0	25
Napakiak	97	54	31	0	43	0	0	0	0	0	0
Napaskiak	103	57	40	2	120	0	60	0	160	0	220
Oscarville	15	13	9	1	16	0	0	0	90	0	90
Bethel	2,126	514	217	4	313	0	4	105	37	0	146
Kwethluk	166	95	80	6	164	0	0	101	15	34	150
Akiachak	157	93	58	7	197	2	50	115	195	0	362
Akiak	83	46	34	3	161	0	0	0	574	0	574
Tuluksak	93	60	43	3	118	0	10	0	10	2	22
Lower Kuskokwim	**3,303**	**1,189**	**701**	**31**	**1,546**	**2**	**124**	**321**	**1,139**	**42**	**1,628**
Lower Kalskag	75	44	31	3	76	0	0	129	439	0	568
Kalskag (Upper)	58	29	20	6	70	0	0	80	295	0	375
Aniak	191	169	101	17	280	0	0	876	692	0	1,568
Chuathbaluk	33	26	20	0	40	0	0	0	0	0	0
Middle Kuskokwim	**357**	**268**	**172**	**26**	**466**	**0**	**0**	**1,085**	**1,426**	**0**	**2,511**
Crooked Creek[a]	37	--	--	--	--	--	--	--	--	--	--
Red Devil	15	8	5	2	9	0	0	0	160	0	160
Sleetmute	39	30	13	0	18	0	0	0	0	0	0
Stony River	15	11	3	0	4	0	0	0	0	0	0

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Table 5-4.–Page 2 of 2.

Community	Households		Households		Total number of dogs	Reported salmon fed to dogs					
	Total	Contacted	Own dogs	Fed salmon		Chinook	Sockeye	Coho	Chum	Pink	Total
Lime Village[a]	14	--	--	--	--	--	--	--	--	--	--
McGrath	129	62	34	3	65	0	0	10	150	0	160
Takotna[a]	23	--	--	--	--	--	--	--	--	--	--
Nikolai	35	32	23	4	59	0	0	46	222	0	268
Telida[a]	2	--	--	--	--	--	--	--	--	--	--
Upper Kuskokwim	**309**	**143**	**78**	**9**	**155**	**0**	**0**	**56**	**532**	**0**	**588**
Kuskokwim River	**4,059**	**1,600**	**951**	**66**	**2,167**	**2**	**124**	**1,462**	**3,097**	**42**	**4,727**
Quinhagak	165	85	59	4	108	0	0	0	51	0	51
Goodnews Bay	70	35	23	0	42	0	0	0	0	0	0
Platinum	20	16	10	1	21	0	3	0	3	0	6
South Kuskokwim Bay	**255**	**136**	**92**	**5**	**171**	**0**	**3**	**0**	**54**	**0**	**57**
Mekoryuk[a]	--	--	--	--	--	--	--	--	--	--	--
Newtok[a]	--	--	--	--	--	--	--	--	--	--	--
Nightmute[a]	--	--	--	--	--	--	--	--	--	--	--
Toksook Bay[a]	--	--	--	--	--	--	--	--	--	--	--
Tununak[a]	--	--	--	--	--	--	--	--	--	--	--
Chefornak[a]	--	--	--	--	--	--	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--	--	--	--	--	--	--
Total	**4,314**	**1,736**	**1,043**	**71**	**2,338**	**2**	**127**	**1,462**	**3,151**	**42**	**4,784**

Source Shelden et al. (2015)
Note Includes harvests using rod and reel and the removal of salmon from commercial harvests as well as subsistence nets.
a. These communities were not contacted during the 2013 study period.
-- Data not available.

Table 5-5.–Gear types used for subsistence fishing, Kuskokwim Area, 2013.

Community	Total households[c]	Gear types[a]			
		Setnet	Driftnet	Rod and reel	Fish wheel
Kipnuk[b]	--	--	--	--	--
Kwigillingok[b]	--	--	--	--	--
Kongiganak[b]	--	--	--	--	--
North Kuskokwim Bay	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	48	1	47	--	--
Eek	34	4	29	1	--
Kasigluk	43	--	43	--	--
Nunapitchuk	53	--	52	1	--
Atmautluak	28	2	26	--	--
Napakiak	35	5	30	--	--
Napaskiak	43	7	36	--	--
Oscarville	8	4	4	--	--
Bethel	231	13	210	7	1
Kwethluk	71	3	64	4	--
Akiachak	76	3	72	1	--
Akiak	34	6	28	--	--
Tuluksak	47	6	39	2	--
Lower Kuskokwim	**751**	**54**	**680**	**16**	**1**
Lower Kalskag	29	2	27	--	--
Kalskag (Upper)	25	1	24	--	--
Aniak	104	7	69	26	2
Chuathbaluk	19	1	15	3	--
Middle Kuskokwim	**177**	**11**	**135**	**29**	**2**
Crooked Creek[b]	--	--	--	--	--
Red Devil	6	3	2	1	--
Sleetmute	15	5	6	4	--
Stony River	5	3	--	--	2
Lime Village[b]	--	--	--	--	--
McGrath	17	12	2	1	2
Takotna[b]	--	--	--	--	--
Nikolai	16	7	--	5	4
Telida[b]	--	--	--	--	--
Upper Kuskokwim	**59**	**30**	**10**	**11**	**8**
Kuskokwim River	**987**	**95**	**825**	**56**	**11**
Quinhagak	68	7	52	9	--
Goodnews Bay	25	10	14	1	--
Platinum	13	6	3	4	--
South Kuskokwim Bay	**106**	**23**	**69**	**14**	**0**
Mekoryuk[b]	--	--	--	--	--

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Table 5-5.–Page 2 of 2.

Community	Total households[c]	Gear types[a]			
		Setnet	Driftnet	Rod and reel	Fish wheel
Newtok[b]	--	--	--	--	--
Nightmute[b]	--	--	--	--	--
Toksook Bay[b]	--	--	--	--	--
Tununak[b]	--	--	--	--	--
Chefornak[b]	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--
Total	**1,093**	**118**	**894**	**70**	**11**

Source Shelden et al. (2015)

a. Only data regarding the primary gear type from each household was collected.

b. Community was not contacted during the 2013 study period.

c. Number of households responding to the question about their primary gear type.

-- Data not available.

Table 5-6.–Reported number of salmon retained from commercial harvest for subsistence use, Kuskokwim Area, 2013.

	Households		Reported salmon					
Community	Total	Responding	Chinook	Sockeye	Coho	Chum	Pink	Total
Kipnuk[a]	--	--	--	--	--	--	--	--
Kwigillingok[a]	--	--	--	--	--	--	--	--
Kongiganak[a]	90	--	--	--	--	--	--	--
North Kuskokwim Bay	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	90	23	1	0	0	0	0	1
Eek	88	21	30	16	42	5	0	93
Kasigluk	104	7	0	0	39	0	6	45
Nunapitchuk	118	17	2	0	8	0	0	10
Atmautluak	63	5	20	0	0	0	10	30
Napakiak	97	15	9	18	10	17	3	57
Napaskiak	103	11	3	0	0	0	0	3
Oscarville	15	2	1	0	8	0	0	9
Bethel	2,126	27	18	2	43	0	3	66
Kwethluk	166	16	5	0	7	6	7	25
Akiachak	157	37	16	2	15	2	12	47
Akiak	83	7	0	0	7	0	0	7
Tuluksak	93	6	0	0	10	0	0	10
Lower Kuskokwim	**3,303**	**194**	**105**	**38**	**189**	**30**	**41**	**403**
Lower Kalskag	75	0	0	0	0	0	0	0
Kalskag (Upper)	58	0	0	0	0	0	0	0
Aniak	191	0	0	0	0	0	0	0
Chuathbaluk	33	0	0	0	0	0	0	0
Middle Kuskokwim	**357**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Crooked Creek[a]	37	--	--	--	--	--	--	--
Red Devil	15	0	0	0	0	0	0	0
Sleetmute	39	0	0	0	0	0	0	0
Stony River	15	0	0	0	0	0	0	0
Lime Village[a]	14	--	--	--	--	--	--	--
McGrath	129	0	0	0	0	0	0	0
Takotna[a]	23	--	--	--	--	--	--	--
Nikolai	35	0	0	0	0	0	0	0
Telida[a]	2	--	--	--	--	--	--	--
Upper Kuskokwim	**309**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Kuskokwim River	**4,059**	**194**	**105**	**38**	**189**	**30**	**41**	**403**
Quinhagak	165	37	112	5	10	0	4	131
Goodnews Bay	70	20	1	35	0	5	0	41
Platinum	20	4	5	10	0	0	4	19
South Kuskokwim Bay	**255**	**61**	**118**	**50**	**10**	**5**	**8**	**191**

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Table 5-6.–Page 2 of 2.

Community	Households		Reported salmon					
	Total	Responding	Chinook	Sockeye	Coho	Chum	Pink	Total
Mekoryuk[a]	--	--	--	--	--	--	--	--
Newtok[a]	--	--	--	--	--	--	--	--
Nightmute[a]	--	--	--	--	--	--	--	--
Toksook Bay[a]	--	--	--	--	--	--	--	--
Tununak[a]	--	--	--	--	--	--	--	--
Chefornak[a]	--	--	--	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--	--	--	--
Total	**4,314**	**255**	**223**	**88**	**199**	**35**	**49**	**594**

Source Shelden et al. (2015)

Note Includes harvests using rod and reel and the removal of salmon from commercial harvests as well as subsistence nets.

a. These communities were not contacted during the 2013 study period.

-- Data not available.

Table 5-7.–Subsistence nonsalmon fish harvests by community, Kuskokwim Area, 2013.

	Households		Reported nonsalmon fish harvest												
Community	Total	Contacted	Humpback whitefish	Broad whitefish	Cisco	Sheefish	Burbot	Blackfish	Smelt	Northern pike	Herring	Arctic grayling	Char	Rainbow trout	Total
Kipnuk[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kwigillingok[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kongiganak[a]	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--
North Kuskokwim Bay	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	90	52	697	1,100	190	66	623	8,015	1,425	907	21	5	0	40	13,089
Eek	88	50	163	160	423	11	410	6,310	1,525	505	230	6	218	21	9,982
Kasigluk	104	50	1,124	1,533	80	30	86	17,080	1,750	1,544	13	0	0	0	23,240
Nunapitchuk	118	72	1,524	1,717	55	76	361	56,310	4,500	2,277	0	0	15	1	66,836
Atmautluak	63	37	546	1,846	200	16	471	8,135	2,800	1,554	0	0	0	1	15,569
Napakiak	97	55	614	386	1	74	290	3,875	3,200	3,886	0	0	14	31	12,371
Napaskiak	103	58	959	102	58	81	642	1,845	8,868	1,565	39	0	0	0	14,159
Oscarville	15	13	365	141	65	20	164	1,162	1,425	381	0	0	0	0	3,723
Bethel	2,126	531	745	824	594	265	829	11,221	31,219	2,057	3,722	69	22	151	51,718
Kwethluk	166	93	1,196	442	61	53	617	8,500	6,300	1,367	65	58	4,118	46	22,823
Akiachak	157	92	2,173	1,821	798	271	1,603	31,145	17,850	1,514	390	32	59	15	57,671
Akiak	83	45	175	351	290	86	3,291	2,225	6,740	489	0	15	41	25	13,728
Tuluksak	93	59	491	379	126	129	349	17,387	7,950	696	0	2	6	3	27,518
Lower Kuskokwim	**3,303**	**1,207**	**10,772**	**10,802**	**2,941**	**1,178**	**9,736**	**173,210**	**95,552**	**18,742**	**4,480**	**187**	**4,493**	**334**	**332,427**
Lower Kalskag	75	45	203	237	41	92	288	3,010	1,275	147	0	0	0	3	5,296
Kalskag (Upper)	58	28	179	406	54	120	185	2,455	2,950	222	0	2	2	14	6,589
Aniak	191	170	682	589	3,684	273	70	6	650	287	0	172	118	90	6,621
Chuathbaluk	33	25	92	48	84	68	2	0	175	34	0	115	2	5	625
Middle Kuskokwim	**357**	**268**	**1,156**	**1,280**	**3,863**	**553**	**545**	**5,471**	**5,050**	**690**	**0**	**289**	**122**	**112**	**19,131**
Crooked Creek[a]	37	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red Devil	15	9	258	93	0	26	1	0	0	12	0	13	0	0	403

-continued-

Table 5-7.–Page 2 of 2.

	Households		Reported nonsalmon fish harvest												
Community	Total	Contacted	Humpback whitefish	Broad whitefish	Cisco	Sheefish	Burbot	Blackfish	Smelt	Northern pike	Herring	Arctic grayling	Char	Rainbow trout	Total
Sleetmute	39	29	7	95	0	30	3	0	0	4	0	163	0	0	302
Stony River	15	10	60	20	0	45	0	0	0	4	0	10	0	0	139
Lime Village[a]	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--
McGrath	129	63	110	146	75	210	20	30	0	213	0	629	30	0	1,463
Takotna[a]	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nikolai	35	32	272	127	488	113	5	0	0	166	0	43	8	0	1,222
Telida[a]	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper Kuskokwim	**309**	**143**	**707**	**481**	**563**	**424**	**29**	**30**	**0**	**399**	**0**	**858**	**38**	**0**	**3,529**
Kuskokwim River	**4,059**	**1,618**	**12,635**	**12,563**	**7,367**	**2,155**	**10,310**	**178,711**	**100,602**	**19,831**	**4,480**	**1,334**	**4,653**	**446**	**45,030**
Quinhagak	165	85	200	27	376	2	38	9,705	10,268	136	2,188	80	2,786	75	25,881
Goodnews Bay	70	35	0	0	239	0	0	2	149	0	304	30	1,183	11	1,918
Platinum	20	17	0	1	118	1	0	15	85	92	163	23	1,376	1	1,875
South Kuskokwim Bay	**255**	**137**	**200**	**28**	**733**	**3**	**38**	**9,722**	**10,502**	**228**	**2,655**	**133**	**5,345**	**87**	**29,674**
Mekoryuk[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newtok[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nightmute[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toksook Bay[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tununak[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chefornak[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	**4,314**	**1,755**	**12,835**	**12,591**	**8,100**	**2,158**	**10,348**	**188,433**	**111,104**	**20,059**	**7,135**	**1,467**	**9,998**	**533**	**46,032**

Source Shelden et al. (2015)

a. These communities were not contacted during the 2013 study period.

-- Data not available.

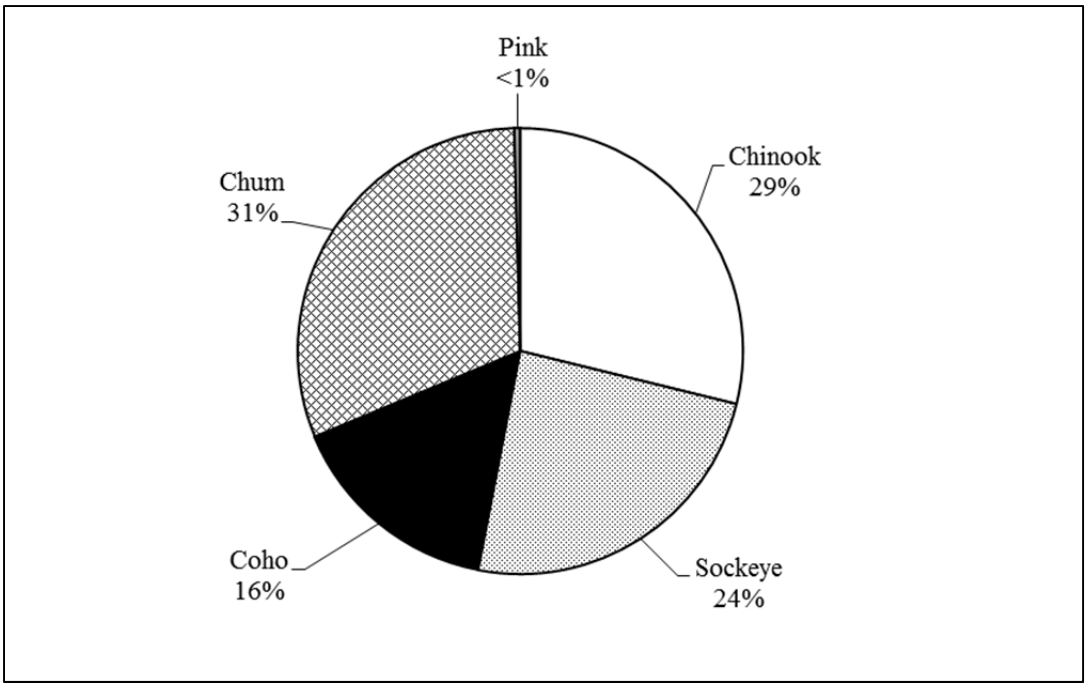

Figure 5-1.–Kuskokwim subsistence salmon harvest composition, 2013.

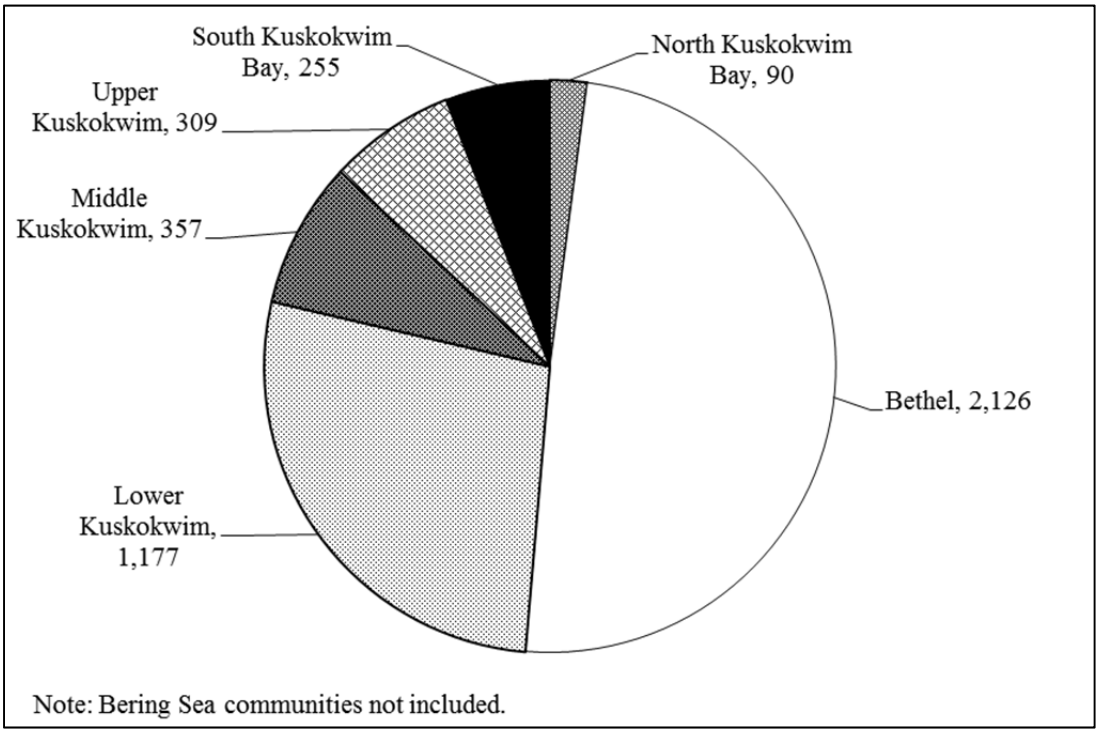

Figure 5-2.–Number of households by region, Kuksokwim Area, 2013.

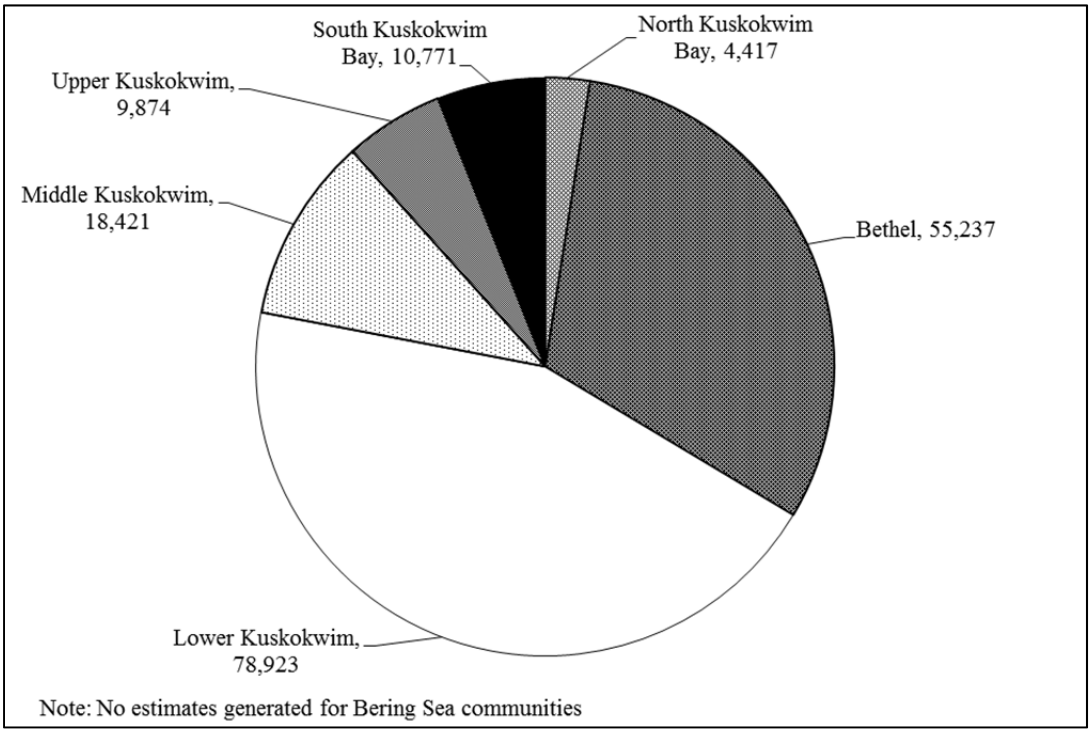

Figure 5-3.–Estimated salmon harvest by region, Kuskokwim Area, 2013.

CHAPTER 6: BRISTOL BAY AREA

BACKGROUND

In spite of numerous social, economic, environmental, and technological changes, Bristol Bay residents continue to depend on salmon and other fish species as an important source of food. Subsistence harvests still provide important nutritional, economic, and sociocultural benefits to most Bristol Bay households. The 5 species of salmon found in Alaska are utilized for subsistence purposes in Bristol Bay, but the most popular are sockeye, Chinook, and coho salmon. Many residents continue to preserve large quantities of fish through traditional methods, such as drying and smoking, and fish are also frozen, canned, salted, pickled, fermented, and eaten fresh.

REGULATIONS

Permits are required to harvest salmon for subsistence purposes in Bristol Bay. Standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Since 1990, under state regulations, all Alaska state residents have been eligible to participate in subsistence salmon fishing in all Bristol Bay drainages. From 1998 through 2006, with 3 exceptions, only gillnets were recognized as legal subsistence gear. The first exception occurred in the Togiak District, where spear fishing was also allowed. Second, in 1998 the BOF adopted new regulations for the taking of "redfish" (postspawn sockeye salmon) in portions of the Naknek District. Thirdly, at their 2006 meeting, the BOF adopted regulation that beach seines are allowed in Iliamna Lake, Six Mile Lake, and Lake Clark. Gillnets, spears, and dip nets may be used along a 100 yd length of the west shore of Naknek Lake near the outlet to the Naknek River from August 20 through September 30, at Johnny's Lake from August 15 through September 25, and at the mouth of the Brooks River from October 1 through November 15. In the Bristol Bay Area in 2010, gillnet lengths were limited to 10 fathoms in the Naknek, Egegik, and Ugashik rivers; Dillingham beaches; and within the Nushagak commercial district during emergency openings. Up to 25 fathoms could be used in the remaining areas, except that nets were limited to 5 fathoms in the special "redfish" harvest areas in the Naknek District.

Along the Dillingham beaches, and in the Naknek, Egegik, and Ugashik rivers, subsistence fishing was limited to several fishing periods per week during the peak of the sockeye salmon run. All commercial districts were open for subsistence fishing during commercial openings. In addition, all commercial districts were open for subsistence fishing in May and October, from Monday to Friday. In the late 1990s and early 2000s, declining Chinook salmon and coho salmon stocks resulted in longer commercial closures, and some residents had difficulty obtaining fish for home uses. Since 2004, there have been improvements in abundance of all species (Jones et al. 2009:20). Since 1988, the Nushagak commercial district has been open to subsistence fishing by emergency order during extended commercial closures.

In May 2001, the National Park Service (NPS) announced that it would begin enforcing the prohibition of subsistence fishing with nets in Lake Clark National Park and Preserve, including all of Lake Clark, except by federally qualified area rural residents. This was a new enforcement action of an existing NPS regulation and was applied to individuals who were not permanent residents of Iliamna, Lime Village, Newhalen, Nondalton, Pedro Bay, or Port Alsworth, or who did not have a Section 13.44 subsistence use permit issued by the park superintendent.

ADF&G has continued to issue Bristol Bay subsistence salmon permits to those Alaska residents who request them. However, ADF&G informs permit applicants that unless they live in one of the above-named communities or have a Section 13.44 permit, they need to take this NPS closure into account when they subsistence fish in waters of the park and preserve. ADF&G also informs permittees that waters outside of national park and preserve boundaries remain open for subsistence salmon fishing to all permit holders.

INSEASON MANAGEMENT IN 2013

From June 1 through September 30 in all waters of a commercial salmon district within the Bristol Bay region, subsistence salmon could be taken only during commercial fishing periods. For a list of 2013 commercial fishing emergency orders for Bristol Bay in commercial districts, see Table 6 in Jones et al. (2014:30). In the Nushagak District, subsistence salmon fishing was provided for by emergency order during periods of extended commercial fishing closures.

SALMON HARVEST ASSESSMENT PROGRAM

A permit program was gradually introduced throughout the Bristol Bay region in the late 1960s to document the harvest of salmon for subsistence uses. Much of the increase in the number of permits issued during these years reflects: 1) a greater compliance with the permitting and reporting requirements, 2) an increased level of effort expended by ADF&G in making permits available (including issuance by area vendors), 3) contacting individuals to remind them to return the harvest forms, and 4) a growing regional population. Most fishers are obtaining permits and reporting their harvests, and overall permit returns have averaged between 85% and 90%. However, fish removed for home uses from commercial catches are not included in most reported subsistence harvest totals. Also, fish caught later in the season, such as coho salmon and spawning sockeye salmon, are probably not documented as consistently as Chinook and prespawn sockeye salmon.

In 2013, a total of 1,162 permits were issued for the Bristol Bay Management Area; of those 986, or 85%, were returned (Table 6-1; Table 6-2). The largest number of permits were issued for the Nushagak (584 permits) and Naknek–Kvichak (460 permits) districts (Table 6-1). The number of permits issued in 2013 was slightly above the 5-year (1,110 permits), the 10-year (1,102 permits), and the historical (1,093 permits) averages (Table 6-2).

SUBSISTENCE SALMON HARVESTS IN 2013

Estimated total Bristol Bay subsistence salmon harvests in 2013 were 125,764 fish (Table 6-1). The 2013 salmon harvest was above the 5-year (124,787 salmon) and 10-year (125,752 salmon) averages, but below the historical (1983–2012 of 146,136 salmon) average (Table 6-2).

Chinook salmon harvests were estimated at 12,858 in 2013, a slight increase from the previous year's harvest of 12,136. Estimated sockeye salmon harvests for 2013 were 98,765, which was a little below the recent 5-year average of 98,945 fish but above the 10-year average of 97,749 fish. The historical average (1983–2012) was 114,594 fish. Because the return of pink salmon to Bristol Bay is higher in even-numbered years than odd-numbered years, the number of pink salmon harvested was significantly lower in 2013 (333 fish) than in 2012 (1,874 fish). The estimated harvest of chum salmon in 2013 (5,173 fish) was higher than both the recent 5-year (4,651 fish) and 10-year averages (4,968 fish) and below the historical average (1983–2012) of 6,395 fish. The coho harvest in 2013 (8,635 fish) was much larger than the previous year (3,837 fish) and also higher than the 5-year average at 6,312 fish, the 10-year average at 6,451 (Table 6-2) and the historical 1983–2012 average at 8,170 fish.

In 2013, the Bristol Bay subsistence salmon harvest was composed of 78.5% sockeye salmon, 10% Chinook salmon, 7% coho salmon, 4% chum salmon, and less than 1% pink salmon (Figure 6-1). Of the entire Bristol Bay Area subsistence salmon harvest in 2013, residents of Bristol Bay communities harvested 114,982 salmon (91%), and other Alaska residents harvested 10,783 salmon (9%) (Table 6-3).

In 2013, as over the last several decades, most of the Bristol Bay Area subsistence harvest was taken in the Naknek–Kvichak (50.5%) and the Nushagak (43%) districts (Figure 6-2). The Naknek–Kvichak total harvest of 63,535 salmon in 2013 (Table 6-1) was lower than in 2012 (74,578) and in 2011 (68,675 salmon). Kvichak River drainage residents within the Kvichak River–Iliamna Lake Subdistrict and other permit holders fishing in the Kvichak drainage portion of the Naknek–Kvichak District harvested an estimated 181 Chinook salmon and 42,556 sockeye salmon in 2013, while those fishing in the Naknek

River Subdistrict harvested 321 Chinook salmon and 19,587sockeye salmon (Table 6-1). The 2013 subsistence harvest of 42,556 sockeye salmon in the Kvichak drainage (Table 6-1) was lower than the 2012 harvest of 52,370 sockeye, and the 2011 harvest of 45,226 sockeye (Fall et al. 2009a:69) and below historical levels (the most recent 10-year average harvest from 2004 through 2013 was 47,559 sockeye salmon) (Jones et al. 2015:102).[1]

Subsistence sockeye salmon harvests in the Kvichak District have declined since the early 1990s (Salomone et al. 2011:113). From 1998 to 2013, estimated harvests were below the range of 55,000 to 65,000 sockeye salmon established by the BOF as the amount reasonably necessary for subsistence uses (5 AAC 01.336 (b)(1)). Poor sockeye salmon returns, like those seen in 2000–2002, are likely one factor responsible for declining harvests, but socioeconomic and sociocultural factors may be partly responsible as well (Fall et al. 2001, 2003, 2006; Fall, Turek, et al. 2009; Stickman et al. 2003).

In the Nushagak District, the total estimated subsistence harvest in 2013 of 54,176 salmon (Table 6-1) was an increase from the previous year (37,960 salmon). The next lowest estimated harvests were 39,791 salmon in 2010 and 40,373 salmon in 2006 (Jones et al. 2014:97). The estimated harvest in 2013 of 54,176 salmon was the highest since 55,159 salmon in 1994 (Jones et al. 2014:97). The 2008 estimated harvest more completely recorded harvest numbers for the season due to the administration of comprehensive baseline household subsistence harvest surveys by the Division of Subsistence in Aleknagik and Manokotak. For a more detailed description of these data see Fall et al. (2012b:75). The Nushagak District Chinook salmon harvest in 2013 was 11,602 (Table 6-1), and was an increase from the year before (10,350 fish), but lower than in 2011 (12,461). The lowest estimated harvests were 9,150 salmon in 2010 and 9,971 salmon in 2006 (Jones et al. 2014:94). The highest estimated harvest of Chinook was in 2003 with 18,686 fish.The 2013 Nushagak District sockeye salmon harvest of 30,283 fish (Table 6-1) was the highest since 1993 (Jones et al. 2014:94).

The estimated total subsistence salmon harvest for the Togiak District in 2013, 5,002 fish (Table 6-1), was lower than the previous year's estimate of 7,339 fish, but higher than the previous 10-year average (5,000 salmon) (Jones et al. 2014:95). Estimated harvests in 2002 and from 2004 through 2007 were below those for 2001 and 2003; this likely reflects at least in part the result of postseason household surveys in Togiak and Twin Hills for 2001 and 2003. Postseason household surveys included more harvesters in the estimate because fishers who did not turn in their harvest permits were contacted. Comprehensive baseline household subsistence harvest surveys conducted in Togiak for the 2008 calendar year also showed an increase in the participation in the 2008 harvest assessment program.

The estimated subsistence salmon harvest in the Ugashik District in 2013 was 672 fish, which was lower than the previous year at 1,281 fish (Table 6-1). The 2013 harvest was below than the 10-year average (2003–2012) of 1,000 fish (Jones et al. 2014:94). In the Egegik District, the estimated subsistence salmon harvest of 2,380 fish (Table 6-1) was higher than the 2012 estimate of 1,425 fish; however, the 2012 estimate was notably lower than the 4,711 fish estimated for 2004 (the second highest estimate since 1984), and was less than the previous 5-year average of 1,732 salmon (Jones et al. 2014:93).

OTHER SUBSISTENCE FISHERIES

In May 2003, new federal regulations authorizing subsistence fishing for Pacific halibut came into effect. A harvest assessment program for the subsistence halibut fishery was implemented in 2004. Subsistence halibut harvest estimates for 2012 appear in Fall and Koster (2014). Beginning in 2003 subsistence fishing for rainbow/steelhead trout *O. mykiss* and Arctic char/Dolly Varden in the Bristol Bay Area under federal subsistence regulations required a federal permit. No permits were issued (Michael Edwards,

1. Note that the Kvichak River drainage sockeye salmon harvest total for 2007 listed in the 2008 Bristol Bay Area Annual Management Report (Jones et al. 2009:106) was adjusted down to the total of 47,473 by the Division of Subsistence. The updated data were included in the 2011 Annual Management Report (Jones et al. 2012:100). Additional harvest reports collected through subsistence salmon household harvest surveys in 4 Kvichak drainage communities increased the accuracy of the reported harvests and reduced the expansion factor for the estimated subsistence salmon harvest in the Kvichak drainage in 2007.

Fisheries Biologist, USFWS, King Salmon Field Office, personal communication, 2004). The permit requirement was dropped in 2005. The following overview derives primarily from Fall and Chythlook (1997) and Fall et al. (2009).

Subsistence Regulations

The BOF determined that all finfishes of the Bristol Bay Management Area support customary and traditional uses (5 AAC 01.336). In addition, the BOF determined that approximately 250,000 lb usable weight (about 41 lb per person) was the amount reasonably necessary to provide for these uses. This amount was based upon estimates of fish harvests derived from systematic household surveys conducted by the Division of Subsistence. Amounts for specific species or more specific stocks were not established.

For the most part, subsistence fishing for species other than salmon and rainbow/steelhead trout is open year-round in the Bristol Bay Area with gear listed in 5 AAC 01.010 (a). There are no seasonal limits established by regulation. The following regulations apply to subsistence fishing for species other than salmon in the area:[2]

- Rainbow/steelhead trout taken incidentally in other subsistence net fisheries and through the ice are lawfully taken and may be retained for subsistence uses (5 AAC 01.310 (g)).
- Subsistence fishing with a line attached to a rod or pole is prohibited except when fishing through the ice (5 AAC 01.320 (l)).
- Subsistence fishing with nets is prohibited in 18 waters of the Kvichak–Iliamna Lake drainage and within one-quarter mile of the terminus of those waters from September 1 through June 14.

Subsistence Harvests and Uses

A detailed description of subsistence uses of freshwater fishes in the Bristol Bay Area appears in Fall et al. (1996) and Holen and Lemons (2012). Holen et al. (2012) and Wright and Chythlook (1985) describe the uses of herring spawn on kelp in the Togiak District. Harvests of fish other than salmon contribute about 10% of the annual subsistence harvests of wild foods in the Bristol Bay region, about 41 lb per person (Fall, Krieg, et al. 2009; Holen and Lemons 2012).

Subsistence harvests of fish other than salmon are not annually monitored by ADF&G. Harvest and use data are available for most communities through Division of Subsistence household harvest surveys (BBNA and ADF&G 1996; Coiley-Kenner et al. 2003; Evans et al. 2013; Fall et al. 2006; Holen et al. 2011; Holen, Stariwat, et al. 2012; Krieg et al. 2005, 2009). As part of an OSM project (02-034, Subsistence Fisheries Assessment: Kvichak River Watershed Resident Species), the Division of Subsistence and the Bristol Bay Native Association collected subsistence harvest data in Kvichak River watershed communities from October 2002 to September 2003. The final report for that project (Krieg et al. 2005) includes detailed information about uses of nonsalmon fish in 8 study communities. Some of the findings of ADF&G research regarding nonsalmon fish are summarized in Table 6-4. The vast majority of households in the Bristol Bay Area use fish other than salmon for subsistence purposes. Most households also participate in the harvest of these fish. Harvests, as measured in pounds usable weight per person for available study years, vary from community to community and from year to year, but generally make important contributions to annual subsistence harvests. Fish other than salmon generally rank third behind salmon and land mammals in their contribution to the total subsistence harvests in Bristol Bay communities.

Harvests and uses of the nonsalmon fish listed in Table 6-5 have been documented in Bristol Bay communities through Division of Subsistence research. Uses of other species may occur: fish taken in the

2. In 2004, the BOF eliminated a permit requirement for subsistence fishing for rainbow/steelhead trout and Arctic char/Dolly Varden in the Bristol Bay Area. ADF&G had not developed a program for issuing these permits.

largest quantities in the area as a whole include smelt, whitefishes, Dolly Varden, Arctic grayling, and northern pike (see Fall et al. [1996] for a summary of harvest data).

In the Bristol Bay Area, harvests of nonsalmon finfish occur throughout the year. Harvest effort for these fish is generally lower among Bristol Bay residents in the summer because attention is focused on salmon. Spring is important for herring, herring spawn on kelp, and rainbow smelt. Harvests of nonsalmon fish occur in winter. "Smelting" is a popular activity in October and in late winter when these fish can be caught by jigging. Halibut are mostly taken in June and July (Wright et al. 1985:34).

Many gear types are used to harvest nonsalmon fish for home uses in the Bristol Bay Area. Rod and reel is used for most fish; some, such as Arctic char/Dolly Varden and herring and other marine fishes, are removed from commercial catches. Other methods are used, including (but not necessarily limited to) the following:

- Traps (fyke nets): Alaska blackfish, burbot*;*
- Set hooks: burbot;
- Handline jigging through the ice: Arctic grayling, Arctic char/Dolly Varden, lake trout, rainbow smelt, rainbow/steelhead trout, whitefishes, northern pike;
- Set gillnets: Arctic grayling, Arctic char/Dolly Varden, lake trout, longnose suckers, rainbow/steelhead trout, herring, northern pike, burbot, whitefishes;
- Beach seining: Arctic char/Dolly Varden, lake trout, rainbow smelt, herring, whitefishes;
- Hand line in open water: Pacific halibut, rainbow/steelhead trout; and
- Dip nets: rainbow smelt, herring.

Herring spawn on kelp is usually picked by hand, although rakes, knives, and *uluaqs* (women's knives) are also used (Schichnes and Chythlook 1988:127).

Maps of areas used by Bristol Bay communities to harvest nonsalmon fish appear in the *Alaska Habitat Management Guide Reference Atlas* series (ADF&G 1985), and in Wright et al. (1985). Updated maps of harvest locations for 8 communities in the Kvichak watershed appear in Krieg et al. (2005). Harvest activities occur throughout the region in most rivers and lakes as well as along shorelines. It is likely that most effort occurs near each community and near seasonal camps such as Kulukak. See Wright and Chythlook (1985) and Schichnes and Chythlook (1988) for maps of herring camps at Kulukak Bay. For frequency of uses of various areas for freshwater fishing by Nushagak River communities, see Schichnes and Chythlook (1991) and by Togiak and Manokotak, see BBNA and ADF&G (BBNA and ADF&G 1996).

Bristol Bay residents use a wide variety of methods to process and preserve their harvests of fish other than salmon. These vary by species and community. Some freezing of harvests of most species occurs. Some examples of other methods include the following:

- Arctic grayling: dried, half-dried, fresh frozen, aged frozen and eaten with seal oil (various species);
- Dolly Varden: dried, smoked, half dried (*egamaarrluk*);
- Northern pike: dried, half-dried, fresh frozen, aged frozen and eaten with seal oil;
- Rainbow/steelhead trout: dried, half dried, smoked; and
- Whitefishes: dried, fresh frozen, aged frozen and eaten with seal oil.

Dried fish products are eaten with seal oil. Fat from brown bears *Ursus arctos* mixed with dry fish is also consumed. Rainbow smelt are fried, boiled, dried, or eaten frozen with seal oil (Fall et al. 1986:100; Fall, Krieg, et al. 2009). Herring are salted, or split, dried, and smoked (Schichnes and Chythlook 1988:126). The heads and stomachs of northern pike are boiled and eaten (Schichnes and Chythlook 1991:139). Freshwater fish that are usually eaten frozen with seal oil form a category called *kumlaneq*. This includes Arctic grayling, whitefishes, lake trout, and northern pike (Fall et al. 1986:102; Fall, Krieg, et al. 2009).

There is much traditional knowledge of the subsistence uses of nonsalmon fish in the Bristol Bay Area. For example, a Yup'ik taxonomic classification system for freshwater fish species has 3 entries, and thus 3 taxons, for the fish that Western science classifies in only 1: Dolly Varden. The Yup'ik distinctions are made depending upon the condition of the flesh for aging, freezing, and/or drying; harvest locations; and harvest methods (Fall et al. 1996; Fall, Krieg, et al. 2009).

The Division of Subsistence has compiled a traditional ecological knowledge (TEK) database, "From *Neqa* to *Tepa*," about the fish of Bristol Bay based on interviews with area residents in 2003 as part of OSM project 01-109.[3] An expanded version of the database incorporating findings from 8 Kvichak watershed communities was renamed "From *Neqa* to *Tepa*, *Łuq'a* to *Chuqilin*" to reflect the addition of Dena'ina Athabascan TEK (BBNA and ADF&G 1996; Krieg et al. 2005).

3. Coiley-Kenner, P. 2003. From Neqa to Tepa: a database with traditional knowledge about the fish of Bristol Bay and the northern Alaska Peninsula. Version 2.0. Alaska Department of Fish and Game Division of Subsistence, Juneau.

Table 6-1.–Estimated subsistence salmon harvests by district and location fished, Bristol Bay Area, 2013.

Area and river system	Number of permits issued[a]	Estimated salmon harvest					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Naknek-Kvichak District	460	502	62,143	399	403	88	63,535
Naknek River Subdistrict	270	321	19,587	372	213	80	20,573
Kvichak River/Iliamna Lake Subdistrict:	191	181	42,556	27	190	8	42,962
Igiugig	4	4	356	10	0	0	371
Iliamna Lake-General	33	0	4,596	0	0	0	4,596
Kijik	5	0	516	0	0	0	516
Kokhanok	31	162	13,477	16	190	8	13,853
Kvichak River	14	0	658	0	0	0	658
Lake Clark	54	0	5,021	0	0	0	5,021
Levelock	4	15	984	0	0	0	999
Newhalen River	31	0	7,861	0	0	0	7,861
Pedro Bay	16	0	4,264	0	0	0	4,264
Pile Bay	1	0	145	0	0	0	145
Six Mile Lake	14	0	4,678	0	0	0	4,678
Egegik District	44	45	2,108	205	17	5	2,380
Ugashik District	14	19	537	106	10	0	672
Nushagak District	584	11,602	30,283	7,717	4,368	206	54,176
Igushik/Snake River	19	98	1,484	62	23	2	1,670
Nushagak Bay Commercial	45	525	1,896	750	372	113	3,655
Nushagak Bay Noncommercial	211	2,268	9,349	2,697	872	69	15,254
Nushagak River	169	7,296	10,299	2,813	2,640	11	23,060
Site Unknown	5	45	94	47	46	0	232
Wood River	178	1,370	7,161	1,348	415	11	10,305
Togiak District	64	691	3,695	208	375	33	5,002
Total	1,162	12,858	98,765	8,635	5,173	333	125,764

Source ADF&G Division of Subsistence, ASFDB 2013 (ADF&G 2014).

Note Harvests are extrapolated for all permits issued, based on those returned and on the area fished as recorded on the permit. Due to rounding, the sum of columns and rows may not equal the estimated total. Of 1,162 permits issued for the management area, 986 were returned (84.9%).

a. Sum of sites may exceed district totals, and sum of districts may exceed area total, because permittees may use more than one site.

Table 6-2.–Estimated historical subsistence salmon harvests, Bristol Bay Area, 1983–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1983	829	674	13,268	143,639	7,477	11,646	1,073	177,104
1984	882	698	11,537	168,803	16,035	13,009	8,228	217,612
1985	1,015	808	9,737	142,755	8,122	5,776	825	167,215
1986	930	723	14,893	129,487	11,005	11,268	7,458	174,112
1987	996	866	14,424	135,782	8,854	8,161	673	167,894
1988	938	835	11,848	125,556	7,333	9,575	7,341	161,652
1989	955	831	9,678	125,243	12,069	7,283	801	155,074
1990	1,042	870	13,462	128,343	8,389	9,224	4,455	163,874
1991	1,194	1,045	15,245	137,837	14,024	6,574	572	174,251
1992	1,203	1,028	16,425	133,605	10,722	10,661	5,325	176,739
1993	1,206	1,005	20,527	134,050	8,915	6,539	1,051	171,082
1994	1,193	1,019	18,873	120,782	9,279	6,144	2,708	157,787
1995	1,119	990	15,921	107,717	7,423	4,566	691	136,319
1996	1,110	928	18,072	107,737	7,519	5,813	2,434	141,575
1997	1,166	1,051	19,074	118,250	6,196	2,962	674	147,156
1998	1,234	1,155	15,621	113,289	8,126	3,869	2,424	143,330
1999	1,219	1,157	13,009	122,281	6,143	3,653	420	145,506
2000	1,219	1,109	11,547	92,050	7,991	4,637	2,599	118,824
2001	1,226	1,137	14,412	92,041	8,406	4,158	839	119,856
2002	1,093	994	12,936	81,088	6,565	6,658	2,341	109,587
2003	1,182	1,058	21,231	95,690	7,816	5,868	1,062	131,667
2004	1,100	940	18,012	93,819	6,667	5,141	3,225	126,865
2005	1,076	979	15,212	98,511	7,889	6,102	1,098	128,812
2006	1,050	904	12,617	95,201	5,697	5,321	2,726	121,564
2007	1,063	917	15,444	99,549	4,880	3,991	815	124,679
2008	1,178	1,083	15,153	103,583	7,627	5,710	2,851	134,924
2009	1,063	950	14,020	98,951	7,982	5,052	442	126,447
2010	1,082	979	10,852	90,444	4,623	4,692	2,627	113,238
2011	1,122	1,039	14,106	101,017	7,493	3,794	333	126,744
2012	1,107	932	12,136	100,728	3,837	4,007	1,874	122,582
2013	1,162	986	12,858	98,765	8,635	5,173	333	125,764
5-year average (2008–2012)	1,110	997	13,253	98,945	6,312	4,651	1,625	124,787
10-year average (2003–2012)	1,102	978	14,878	97,749	6,451	4,968	1,705	125,752
Historical average (1983–2012)	1,093	957	14,643	114,594	8,170	6,395	2,333	146,136

Source ADF&G Division of Subsistence, ASFDB 2013 (ADF&G 2014).

Table 6-3.–Estimated subsistence salmon harvests by community, Bristol Bay Area, 2012.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Aleknagik	24	17	432	1,618	230	88	0	2,368
Clarks Point	14	13	191	981	643	113	112	2,040
Dillingham	338	281	4,056	15,058	4,038	1,315	125	24,592
Egegik	11	7	0	442	124	3	0	569
Ekwok	25	23	1,007	618	477	346	0	2,448
Igiugig	7	7	0	345	0	0	0	345
Iliamna	17	14	0	3,535	0	0	0	3,535
King Cove	2	2	0	15	20	0	0	35
King Salmon	76	68	87	4,585	65	29	10	4,776
Kokhanok	31	19	0	13,881	7	196	8	14,092
Koliganek	32	30	1,569	3,420	935	1,566	0	7,490
Levelock	5	4	15	1,034	0	0	0	1,049
Manokotak	17	16	90	1,397	12	23	2	1,525
Naknek	95	84	119	8,862	174	88	25	9,267
New Stuyahok	64	63	4,235	4,846	1,141	877	5	11,103
Newhalen	13	12	0	4,097	0	0	0	4,097
Nondalton	28	15	0	10,550	0	0	0	10,550
Pedro Bay	16	15	0	3,971	0	0	0	3,971
Pilot Point	3	2	9	189	48	6	0	252
Port Alsworth	46	43	0	3,545	16	3	0	3,564
Port Heiden	1	1	0	546	0	0	0	546
Portage Creek	1	1	39	8	0	3	0	50
South Naknek	19	15	25	1,164	76	6	5	1,277
Togiak	63	46	663	3,679	208	363	33	4,946
Twin Hills	2	2	28	16	0	12	0	56
Ugashik	9	8	10	320	108	2	0	440
Subtotal, Bristol Bay	**959**	**808**	**12,574**	**88,722**	**8,321**	**5,039**	**325**	**114,982**
Anchorage	90	80	118	4,089	51	64	2	4,323
Anderson	2	1	10	60	0	4	0	74
Barrow	1	0	0	0	0	0	0	0
Big Lake	3	3	0	166	2	0	0	168
Chugiak	4	4	2	184	0	0	0	186
Copper Center	1	1	0	168	0	0	0	168
Cordova	1	1	3	92	0	0	0	95
Craig	1	1	0	226	0	0	0	226
Delta Junction	1	0	0	0	0	0	0	0
Eagle River	7	6	0	326	0	3	0	329

-continued-

Table 6-3.–Page 2 of 2.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Elmendorf AFB	1	0	0	0	0	0	0	0
Fairbanks	11	8	34	382	0	14	0	430
Galena	1	1	0	0	0	0	0	0
Girdwood	2	2	2	81	11	6	0	100
Homer	12	11	19	988	125	2	0	1,135
Juneau	1	1	0	0	0	0	0	0
Kasilof	1	1	0	90	0	5	0	95
Kenai	6	6	19	242	34	3	0	298
Kodiak City	12	8	12	338	0	5	0	354
Kotzebue	2	1	0	0	22	8	0	30
McGrath	1	1	0	30	0	0	0	30
Moose Pass	1	1	0	0	0	0	0	0
Nikiski	2	2	0	127	32	0	0	159
Nome	1	1	0	0	0	0	0	0
North Pole	1	1	0	0	0	0	0	0
Palmer	12	11	4	918	0	0	5	927
Soldotna	3	3	0	136	0	0	0	136
Talkeetna	4	4	25	168	30	15	0	238
Wasilla	17	17	36	1,177	7	6	0	1,226
Wrangell	1	1	0	55	0	0	0	55
Subtotal, other Alaska	**203**	**178**	**284**	**10,043**	**314**	**134**	**7**	**10,783**
Total	**1,162**	**986**	**12,858**	**98,765**	**8,635**	**5,173**	**333**	**125,764**

Source ADF&G Division of Subsistence, ASFDB 2013 (ADF&G 2014).

Table 6-4.–Uses and harvests of fish other than salmon, Bristol Bay communities.

		Percentage of households[a]					Average pounds harvested	
Community	Year[a]	Use	Fish for	Harvest	Receive	Give	Per household	Per person
Aleknagik	2008	78	69	66	50	44	95	26
Clark's Point	2008	100	100	100	73	73	71	34
Dillingham	1984	75	56	55	40	20	52	17
Egegik	1984	64	60	60	24	40	37	16
Ekwok	1987	76	72	62	62	38	229	69
Igiugig	2005	100	83	83	92	58	188	59
Iliamna	2004	92	77	77	39	31	113	34
King Salmon	2007	57	55	49	16	12	15	5
Kokhanok	2005	74	66	66	51	57	137	36
Koliganek	2005	96	93	93	75	68	323	90
Levelock	2005	86	86	86	50	57	71	40
Manokotak	2008	93	80	80	84	56	173	44
Naknek	2007	76	68	65	48	32	47	18
New Stuyahok	2005	88	78	78	67	47	123	28
Newhalen	2004	88	88	88	56	52	128	32
Nondalton	2004	82	76	76	45	53	129	34
Pedro Bay	2004	89	61	61	83	39	50	15
Pilot Point	1987	94	94	94	35	59	56	16
Port Alsworth	2004	73	64	64	46	41	44	12
Port Heiden	1987	92	62	62	70	46	33	12
South Naknek	2007	86	52	52	67	43	16	8
Togiak	2008	94	85	84	81	73	264	62
Twin Hills	1999	92	92	92	75	92	303	101
Ugashik	1987	100	100	100	0	40	72	36

Sources CSIS; BBNA and ADF&G 1996; Coiley-Kenner (2003); Krieg et al. (2005); Fall et al. (2006); Krieg et al. (2009); Holen et al. (2011); Holen et al. (2012); and Fall et al. (2013)

a. Most recent year for which data are available.

Table 6-5.–Nonsalmon finfish used for subsistence purposes in the Bristol Bay Area.

Common English name	Scientific name	Yup'ik name	Dena'ina name
Arctic grayling	*Thymallus arcticus*	*Nakrullugpak* *Culugpauk*	*Ch'dat'an*
Alaska blackfish	*Dallia pectoralis*	*Can'giiq*	*Huzhegh*
Burbot	*Lota lota*	*Manignaq*[a] *Atgiaq*[b]	*Ch'unya*
Dolly Varden[c]	*Salvelinus malma*	*Yugyaq*[d] *Anerrluaq* *Anyuk*	*Qak'elay*
Lake trout	*Salvelinus namaycush*	*Cikignaq*	*Zhuk'udghuzha*
Longnose sucker	*Catostomus catostomus*	*Cungartak*	*Duch'ehdi*
Northern pike	*Esox lucius*	*Cuukvak*	*Ghelguts'i*
Rainbow smelt	*Osmerus mordax*	*Iqalluaq*	
Rainbow/steelhead trout	*Oncorhynchus mykiss*	*Talaariq*	*Tuni*
Broad whitefish[e]	*Coregonus nasus*	*Akakiik*	*Telay*
Humpback whitefish[e]	*Coregonus pidschian*	*Uraruq*	*Q'untuq'*
Round whitefish[e]	*Prosopium cylindraceum*	*Uraruq*	*Hesten*
Least cisco	*Coregonus sardinella*	*Cavirrutnaq*	*Ghelguts'i k'una*
Pacific herring	*Clupea harengus pallasi*	*Iqalluarpak*	
Pacific herring spawn on kelp		*Melucuaq*	
Starry flounder	*Platichthys stellatus*	*Naternaq*	
Pacific halibut	*Hippoglossus stenolepis*	*Naternarpak*	
Pacific cod	*Gadus macrocephalus*	*Ceturrnaq*	
Sculpin	Various species	*Kayutaq*	
Capelin	*Mallotus villosus*	*Cikaaq*	
Yellowfin sole	*Limanda aspera*	*Sagiq*	

Source Fall et al. (1996).

a. Nushagak River villages.

b. Manokotak, Aleknagik, Twin Hills, Togiak.

c. Also includes the closely related Arctic char.

d. At Togiak, Manokotak, and Aleknagik, and perhaps elsewhere, there are three Yup'ik names for Arctic char/Dolly Varden. Yugyak probably refers to resident char/Dolly Varden. Anerrluak, called "Togiak trout" in the local English dialect, probably refers to anadromous fish taken in fresh water. Finally, anyuk or "sea run dollies" are Dolly Varden or Arctic char taken in salt water. See Fall et al. (1996:16–20) for further discussion of these distinctions.

e. Broad whitefish are rare to absent in the Bristol Bay region. *Akakiik* is the word used at Aleknagik and Manokotak to refer to whitefish they receive from Kuskokwim River communities, where broad whitefish are common. Humpback whitefish are caught in the Iliamna Lake subregion and called *uraruq*. *Uraruq* is also used for round whitefish in the Togiak and Nushagak drainages.

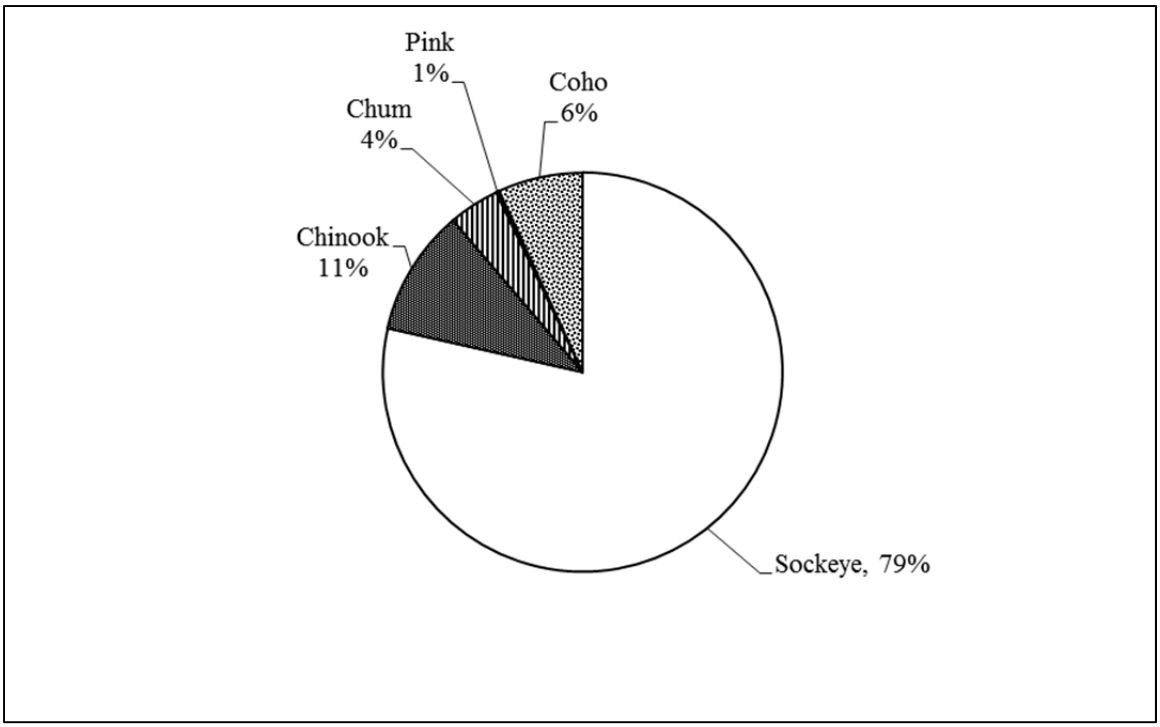

Figure 6-1.–Bristol Bay Area subsistence salmon harvest composition, 2013.

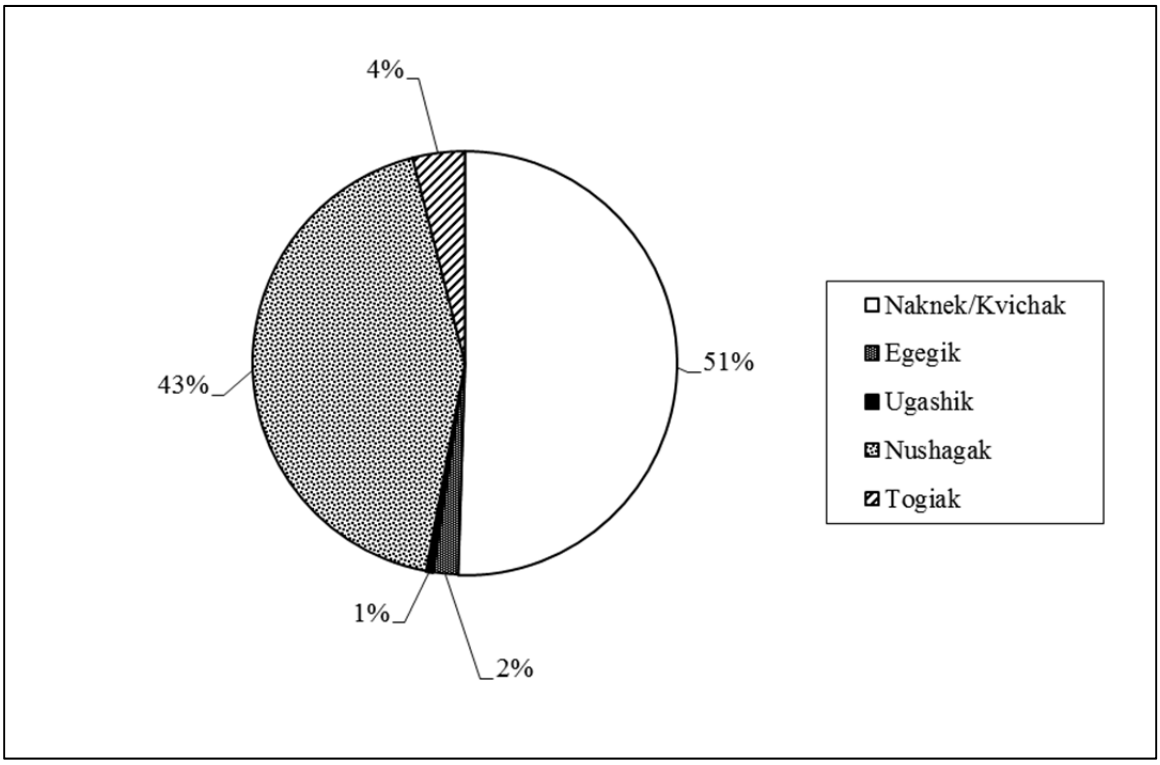

Figure 6-2.–Bristol Bay Area subsistence salmon harvests by district, 2013.

CHAPTER 7: CHIGNIK MANAGEMENT AREA

BACKGROUND

The Chignik Management Area (CMA) encompasses all coastal waters and inland drainages on the south side of the Alaska Peninsula from Kilokak Rocks at the southern entrance to Imuya Bay at 57 degrees 10.34'N. lat., 156 degrees 20.22' W. long., then due south to Kupreanof Point at 55 degrees 33.98' N. lat. 159 degrees 35.88' W. long. (5 AAC 15.100).[1] There are 5 communities in Alaska Department of Fish and Game's (ADF&G) salmon Chignik Management Area (CMA): Chignik with a 2013 estimated population of 92, Chignik Lagoon (population 78), Chignik Lake (population 76), Perryville (population 120), and Ivanof Bay (population 7) (Figure 7-1).[2] All of these communities are within the Lake and Peninsula Borough, and virtually all area residents participate in harvesting salmon in the CMA. Published Division of Subsistence reports for the CMA include annual salmon permit harvest reports, sporadic household surveys, and subsistence salmon ethnography studies.

The Division of Subsistence household harvest surveys show that salmon compose approximately 45% of all resources harvested, by weight, for subsistence in these communities (Fall et al. 1995). Chignik subsistence salmon permits are issued annually by CMA vendors, with harvest reports due to the department by December 31. The 2013 estimated total subsistence salmon harvest was 8,433 salmon; 78% sockeye salmon, 11% coho salmon, 8% pink salmon, 2% chum salmon, and 1% Chinook salmon (Table 7-1; Figure 7-2).

In 1993, the BOF made a positive determination that salmon in the CMA are customarily and traditionally taken or used for subsistence (a "positive C&T finding") and specified amounts of salmon are reasonably necessary for subsistence (ANS) in each CMA district. In 2002, the BOF modified the original finding for ANS (5 AAC 01.466 (a) and (b)) (ADF&G 1994). The current amounts necessary for subsistence for Chignik Bay, Central, and Eastern districts combined are 5,200–9,600 early-run sockeye salmon; 2,000–3,800 late-run sockeye salmon; 100–150 Chinook salmon; and 400–700 salmon other than sockeye or Chinook salmon. In the Perryville and Western districts combined, the ANS findings are 1,400–2,600 coho and 1,400–2,600 salmon other than coho salmon. The BOF has also set an ANS for rainbow/steelhead trout *O. mykiss* at 200–300 fish and for finfish other than salmon and rainbow trout at 15,200–22,800 pounds of usable weight.

REGULATIONS

Current (2013–2014) State of Alaska regulations governing subsistence salmon fishing in the Chignik Management Area require that to fish, an individual must obtain an annual subsistence salmon permit, and must be an Alaska resident (5 AAC 01.480).[3] Annually, permits are available locally at the Chignik ADF&G weir facility and from local CMA community vendors. The permit holder must record daily salmon harvests directly on the permit and return it to the Alaska Department of Fish and Game by December 31. Catch information obtained from subsistence permits is compiled annually and used to assess regional subsistence salmon fisheries. There is an annual limit of 250 salmon per permit. (5 AAC 01.480(b)(c)).

Under state regulations, all waters within the CMA are open year-around for subsistence fishing except for the following areas or conditions:

1. Alaska Department of Fish and Game. 2011–2014 Chignik and Kodiak Areas, commercial salmon fishing regulations, 89. Alaska Department of Fish and Game, Juneau. http://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/ChigKod-2011-14.pdf
2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage: Population Estimates." Accessed July 2015. http://laborstats.alaska.gov/pop/popest.htm
3. Alaska Department of Fish and Game. 2013-2014 Subsistence and personal use statewide fisheries regulations, 37. Alaska Department of Fish and Game, Juneau. http://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/Subsistence-PU-2013-2014.pdf

- Only Alaska residents are eligible to obtain a CMA subsistence salmon permit and may fish in the areas open to subsistence at any time. An Alaska resident commercial Chignik Area salmon fishing license holder (includes CFEC Permit and crewmember license holder) may subsistence fish during a commercial salmon fishing period, except for 12 hours before a commercial salmon fishing period and 12 hours after a commercial salmon fishing period (5 AAC 01.485).
- Legal gear includes seines and gillnets. Purse seines may not be used in Chignik Lake (5 AAC 01.470(a)). Additionally, any gillnet that is fixed, anchored, or otherwise held in place may not obstruct more than one half of the width of any stream open to subsistence fishing. All subsistence salmon fishing gear must be marked with a buoy listing the first initial and last name as well as the address of the person operating the gear (5 AAC 01.010(h)). Subsistence users must carry their subsistence fishing permit with them while fishing.
- Subsistence salmon fishing is permitted in the Chignik River; however, salmon may not be taken upstream from the ADF&G weir to the outlet of Chignik Lake from July 1–August 31 (5 AAC 01.475(1)), which is closed to protect the spawning Chinook salmon. The Chignik River, beginning 100 yards below the weir, is open to subsistence salmon fishing year round.
- Subsistence fishing is closed within 100 yards above or below the Chignik weir when it is operational (5 AAC 01.470).
- Subsistence fishing is closed year-round in Black Lake or any tributary to Black Lake or Chignik Lake, except the waters of Clark River and Home Creek from each of their confluences with Chignik Lake to a point 1 mile upstream (5 AAC 01.475(2)). The Alaska Board of Fisheries amended the subsistence regulations in 2008 to include these tributaries for the purposes of providing additional harvest opportunities for subsistence users.

RECENT REGULATORY HISTORY

Subsistence harvest patterns in the CMA are often influenced by Chignik commercial salmon fisheries since many of those who commercial fish are also subsistence harvesters. Regulations for subsistence salmon fishing are tied to Chignik commercial fishing operations. Prior to 2002, the CMA commercial fishery was managed by ADF&G as a competitive limited entry permit fishery. Pre-2002 regulations allowed subsistence fishing with seine and gillnet gear and required an individual permit with a seasonal limit of 250 salmon. Purse seines could be used to harvest subsistence salmon, except in Chignik Lake, which has been open by regulation to subsistence salmon fishing with gillnets or hand seines since 1985 (Morris 1987:185). Also prior to 2002, CMA commercial salmon harvesters could not subsistence fish between June 10 and September 30, although they were allowed to remove salmon caught during commercial openings for home use. Subsistence salmon fishing was not allowed in Chignik River upstream of the ADF&G weir site to Chignik Lake, in tributaries to Chignik Lake, or in Black Lake.

From 2002 to 2005, the CMA commercial salmon fishery was managed based on 2 management plans: the Chignik Area Management Plan (“competitive fishery”) and the Chignik Area Cooperative Purse Seine Salmon Management Plan ("cooperative fishery"; Stichert 2007a). After development of the cooperative fishery, ADF&G management staff initiated subsistence permit conditions in 2003 that increased subsistence harvest opportunities for commercial fishing license holders.[4] By regulation, commercial fishing permit holders could not subsistence fish for salmon from 48 hours before the first

4. Regulations providing for a cooperative commercial salmon fishery in CMA were invalidated by a decision of the Alaska Supreme Court and have not been operative since 2005.

commercial salmon fishing opening through September 30. Subsistence fishing permit conditions allowed commercial permit holders who were not engaged in commercial fishing during an opening for cooperative or competitive fleets to subsistence fish during commercial openings, after registering with ADF&G.

In 2004, through emergency order, ADF&G allowed subsistence salmon fishing within the Chignik River, excluding the waters 100 yards upstream and downstream of the Chignik weir, through June 30. Regulations had closed the Chignik River to subsistence salmon fishing (5 AAC 01.475) until 2006. In addition to obtaining a subsistence permit, commercial harvesters wishing to subsistence fish after the first commercial opening were allowed to do so, with a requirement to register with ADF&G staff working at the weir. ADF&G established a subsistence fishing schedule for these commercial harvesters depending upon whether they fished for the cooperative fleet or independently (Bouwens 2004).

At its 2004 meeting, the BOF adopted regulations to increase subsistence fishing opportunities for commercial salmon fishing license holders by allowing them, with certain restrictions (5 AAC 01.485), to harvest subsistence salmon during the commercial salmon fishing season. In addition, the BOF directed ADF&G to manage for an increase in escapement of sockeye salmon during the August commercial fishery (from 50,000 to 75,000), in order to enhance late-season subsistence opportunities in Chignik Lake. Although the commercial fishery was limited in August, the sockeye escapement goal was not achieved in 2005 (Bouwens 2005). In 2005, the BOF opened the Chignik River drainage to subsistence fishing, except for waters within 300 feet of the weir, and except for a July 1 through August 31 closure upstream of the weir to protect spawning Chinook salmon (Stichert 2007b).

The cooperative fishery plan was repealed by the Alaska Supreme Court in March 2005, but the BOF reestablished the cooperative management plan by emergency regulation because there was not enough time between the ruling and the 2005 fishing season for co-op members to revert back to fishing as independent fishers. Since 2006, however, the CMA commercial fishery has been managed solely under the *Chignik Salmon Management Plan* as a competitive fishery (Stichert 2007b).

During its January 2008 meeting, the BOF adopted regulatory changes to subsistence fishing in the CMA that allowed subsistence salmon fishing in Clark River and Home Creek from their confluences with Chignik Lake upstream 1 mile. The use of gillnets for subsistence fishing in the CMA remained legal, but when they are fixed, anchored or otherwise held in place, they may not obstruct more than one-half of the stream that is open to subsistence salmon fishing (Jackson 2009).

The Village Council of Chignik Lake submitted a regulatory proposal at the CMA BOF meeting in January 2011. The proposal, if adopted, would have legalized subsistence fishing in the only areas in the CMA closed under state regulations—Chignik Lake, Black Lake, and all tributaries to both lakes—as well as legalized the use of hook and line gear for late-run spawned-out sockeye salmon in Clark River and Home Creek (Alaska Board of Fisheries 2011a). The BOF took no action on the proposal; however the Federal Subsistence Board (FSB) adopted a similar regulation for the CMA at its January 2011 meeting (Alaska Board of Fisheries 2011b; 76 FR 45:12566, 12578–12579 [March 8, 2011]; 36 CFR 242.27 (e) (8)).

At the FSB regulatory meeting January 24, 2013, the FSB adopted a proposal submitted by the Chignik Lake Traditional Council to allow the harvest of salmon in the Chignik River, with rod and reel, from a point 300 feet upstream of the AF&G weir to Chignik Lake from January 1 through August 9, with no daily harvest or possession limit under the authority of a federal subsistence fishing permit. In addition the FSB adopted a regulation allowing the taking of salmon by gillnet in Black Lake or any tributary to Black or Chignik lakes. The BOF closed this portion of the river in 2004 to protect spawning Chinook

salmon, and it remains closed for subsistence fishing July 1–August 31, but open to sport fishing, under state regulation.[5,6]

In 2013, escapement goals for Chignik River Chinook salmon (king salmon) were never achieved. Effective July 27, 2015, ADF&G Division of Commercial Fisheries released an emergency order that in an effort to conserve Chignik River Chinook salmon, and took the following actions: effective July 27, 2013 until December 31, 2013, Chinook salmon in the Chignik River drainage from Mensis Point upstream including Chignik Lake and its tributaries could not be retained in the subsistence fishery, and the sport fishery for Chinook salmon was closed. In addition, commercial fishers fishing within the Chignik Bay and Central districts of the CMA were not allowed to retain any Chinook salmon 28 inches or greater in length and any caught had to be returned to the river unharmed.[7,8]

The Alaska Board of Fisheries at their December 2013 meeting adopted a board-generated proposal to codify a management measure first established through board intent language adopted in 2004. The management measure is intended to ensure inriver harvest opportunities above the Chignik River weir to satisfy late-run subsistence harvests. To do so, the department shall manage for 50,000 sockeye salmon, in addition to late run escapement needs, which shall be comprised of 25,000 fish in August and 25,000 fish from September 1–15 (5 AAC 15.357(b)(3)).[9]

HARVEST ASSESSMENT PROGRAM

Estimates of annual CMA subsistence salmon harvests are based on annual permit returns combined with periodic post permit household surveys in the CMA communities. The Division of Commercial Fisheries conducted its first subsistence salmon harvest assessment in the CMA in 1976. Subsistence harvest assessments for salmon have been conducted annually since then. Beginning in 1980, any fishers who chose to harvest their subsistence salmon from the Chignik Management Area had to obtain a permit. The Division of Subsistence assumed responsibility of the harvest assessment program from 1993–2011. In 1993, the Division of Subsistence obtained copies of all available subsistence permits for the CMA from the Division of Commercial Fisheries' archive in Kodiak. Permits issued prior to 1980 and for 1987 could not be located. Since 1993, harvest data from returned permits have been expanded by community of residence to estimate the harvest by all permit holders. Data from returned permits are tabulated by species and fishing area. Starting in 2012, the Division of Commercial Fisheries resumed the responsibility due to funding losses for the Division of Subsistence's harvest assessment program.

All permit data were entered into a database. The estimated harvests developed in this database and reported in subsequent Division of Commercial Fisheries reports differ slightly from those reported in earlier reports for several reasons. There are small discrepancies in some years in the number of permits issued or returned. Estimated harvests in earlier reports were based on a simple expansion from harvests reported on returned permits to the total number of permits issued.

The method of permit issuance in the communities varies by community and year, depending on the availability of vendors and other arrangements in place with area organizations. Permits are also issued upon request at the Chignik River fish weir by Division of Commercial Fisheries' seasonal staff, as well as from local community vendors. Chignik subsistence salmon permits must be returned by mail to the

5. Federal Subsistence Board. Public Regulatory Meeting Proceedings, Volume III. January 24, 2013, Anchorage. Accessed July 2014. http://www.doi.gov/subsistence/library/transcripts/upload/FSB-Mtg-24-Jan-13-2.pdf
6. Federal Subsistence Board. Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska, 2013–2015, 47–48. Federal Subsistence Board, Office of Subsistence Management, Anchorage.
7. Alaska Department of Fish and Game, 2013 Chignik Subsistence News Release #01, Emergency Order #4-FS-L-SUB-01-13. Accessed August 2015. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/330630177.pdf
8. Anderson, T.J., C.W. Russell, *In prep*, Chignik Management Area salmon and herring annual management report, 2013. Alaska Department of Fish and Game, Fishery Management Report No. XXX. Hereafter cited as (Anderson and Russell *In prep).*
9. Alaska Board of Fisheries. 2013. Chignik Finfish, Meeting, December 5–6, 2013, RC015, Anchorage. Accessed September 2014. http://www.adfg.alaska.gov/static-f/regulations/regprocess/fisheriesboard/pdfs/2013-2014/chignik/rcs/rc015_Chignik_Area_Salmon_Management_Plan.pdf

Alaska Department of Fish and Game by December 31 of the year issued. Permits include a harvest report that fishers are required to complete. The report asks for the dates fished, the specific locations fished, and the number of each species of salmon caught on each day. Nonresponses are sent reminder letters, and those that return their permit are automatically issued a new permit the following year. In addition, from 1993–2008, and 2011, the Division of Subsistence administered face-to-face household subsistence salmon harvest in order to collect harvest information from households that subsistence fished but did not obtain a permit, or did obtain a permit, but had not returned their permit to the department at the end of the year. Survey technicians trained and hired by the Division of Subsistence from each community attempted to contact all households in the CMA. Surveys were generally conducted during January, February, and March. Respondents were asked questions similar to those included on the permit as well as additional questions regarding late season harvests and whether their subsistence needs were met.

Increases in permits issued and returned beginning in 1993–2007, and consequently higher harvest estimates, reflect the use of area vendors to issue permits as well as postseason surveys conducted by ADF&G staff and area research assistants. Comparisons of household survey data and permit data collected for 1984, and 1989 suggested that permit data underestimated subsistence harvests in the Chignik Area subsistence salmon fishery (Hutchinson-Scarbrough and Fall 1996:27).[10] With the assistance of area permit vendors, ADF&G Chignik weir staff, research assistants, and area governments, subsistence salmon harvest assessments for most recent years, with some exceptions, have resulted in more reliable estimates of the total harvest.

While subsistence salmon permits are issued to an individual, other members of a household can acquire additional permits if more fish are needed. Therefore the number of permits per household, and per community, can vary each year and may not necessarily represent a change in population or household size.

The number of permits issued as well as total salmon harvest estimates have fluctuated over time; but have declined overall in recent years. The reason for decline is not clearly understood; however, year-round populations in most CMA communities have declined as well, and there have been fewer participants in CMA commercial fisheries, which provide the main economic mainstay of these communities. Declining participation may be due to lower salmon prices, increased costs in maintaining boats and associated fishing expenses, a downturn in Alaska and U.S. economies, and a co-op commercial salmon fishery that occurred between 2002–2005 that resulted in numerous boats not fished that faced considerable repair and maintenance costs when the co-op fishery terminated and the limited entry only system resumed.

CMA SUBSISTENCE SALMON HARVESTS

In 2013, the number of subsistence permits issued for the Chignik Area totaled 112 permits, and 96 (86%) were returned to the department. The previous year, was similar with 106 permits issued and 87 returned, a return rate of 82%. Since 1977, the number of subsistence salmon permits issued for the Chignik Area has averaged 104 per year, with 71 permits (68%) returned. Over the last 10 years (2003–2012), the average has been 112 permits issued and 85 permits (76%) returned, and the recent 5-year average (2008–2012) was 102 permits issued and 81 (79%) returned (Table 7-1).

Harvest reports printed on the back of subsistence salmon permits direct fishers to record each species of salmon they harvest. In 2013, the total estimated CMA salmon harvest was 8,433 fish, which was nearly the same as 2012 (8,242 fish, a 191 fish difference). The 2013 total harvest was 17% (1,707 fish) less than the recent 5-year average of 10,140 fish, and also well below the 10-year average of 11,259 fish and the 1977–2012 historical average of 11,254 fish (Table 7-1).

10. See also Hutchinson-Scarbrough, Lisa, and Meredith Ann Marchioni. *In prep*. Chignik Bay, Chignik Lagoon, Chignik Lake, and Perryville: An Ethnographic Study of Traditional Subsistence Salmon Harvests and Uses. Alaska Department of Fish and Game Division of Subsistence Technical Paper No. NNN, Anchorage. Hereafter cited as (Hutchinson-Scarbrough and Marchioni *In prep*).

The 2013 total salmon harvest consisted of 78% sockeye (6,588), a slight increase (15%) of 981 fish from the 2012 sockeye salmon harvest (5,607). Coho salmon made up 11% (916) of salmon harvested in 2013, far below (38%) the 2012 harvest of 1,488. Pink salmon represented 8% of the total salmon harvest in 2013 with a total of 686 fish, which was less than the 2012 harvest of 810. There were also 164 chum salmon harvested in 2013 (2% of the total), 56 (8%) fewer than in 2012. Chinook salmon composed 1% (79) of the 2013 salmon harvest, which was 33 (32%) fewer Chinook salmon than estimated harvested in 2012 (Table 7-1; Figure 7-2).

The 2013 composition of harvest was consistent with the recent 5-year, 10-year, and historical averages for the Chignik Management Area. The recent 5-year average (2008–2012) composition of the total salmon harvest (10,140) in the CMA comprised 76% sockeye (7,661), 13% coho (1,363), 8% pink (816), 2% chum (198), and 1% Chinook salmon (100) (Table 7-1; Figure 7-3). The 10-year average (2003–2012) composition of total salmon harvested (11,259) comprised 74% sockeye (8,277), 15% coho (1,664), 8% pink (949), 2% chum (227) and 1% Chinook salmon (142) (Table 7-1; Figure 7-4). The historical average (1977–2012) of the Chignik Management Area's total salmon harvest is 11,254 fish and has comprised an estimated 78% (8,739) sockeye, 12% (1,296) coho, 8% (883) pink, 2% (252) chum, and 1% (84) Chinook salmon (Table 7-1; Figure 7-5).

CMA Subsistence Salmon Harvests by Community

The majority of individuals who do their subsistence salmon fishing in the Chignik area are residents of Chignik Lake, Chignik Lagoon, Chignik Bay, Perryville, and Ivanof Bay. CMA residents have consistently held the majority of the CMA subsistence salmon permits and are responsible for the majority of the reported salmon harvest each year. In 2013, 69% of permits (77) were issued to CMA residents, and they were responsible for 86% of the harvest (7,223 fish) while residents of other parts of Alaska held 34 permits (31%) and harvested 14% (1,209 fish) of the total salmon harvest (Table 7-2; Figure 7-6).

Perryville harvested more salmon than all the other communities harvesting salmon in the CMA, with a harvest of 2,298 total salmon representing 27% of the total CMA subsistence salmon harvests. Chignik Lagoon harvested the second highest amount of salmon (1,863) representing 22%, followed closely by Chignik Lake, with 1,740 salmon representing 21% of total salmon harvested in the CMA. Chignik Bay (1,010 salmon or 12%) and Ivanof Bay (312 salmon or 3%) harvested the least amount of salmon by community in the CMA. All other communities outside the CMA that participated in the CMA fishery in 2013 harvested a combined total of 1,209 salmon representing 14% of the total Chignik Management Area salmon harvest (Table 7-2; Figure 7-6).

Community Salmon Harvests by Species

In 2013, the total sockeye salmon harvest in the CMA (6,588 fish) was apportioned as follows: Chignik Lagoon 1,762 (27%), Chignik Lake 1,647 (25%), Perryville 1,116 (17%), residents of other Alaska communities 1,088 (17%), Chignik Bay 905 (14%), and Ivanof Bay 70 (1%). Chignik Lagoon residents' 2013 sockeye salmon harvest of 1,762 was about the same as their 2012 harvest of 1,771 sockeye. Chignik Lake's 2013 estimated sockeye salmon harvest (1,647) was greater (19%) than what it was in 2012 (1,338). Perryville's 2013 harvest of 1,116 sockeye salmon was a 31% decline from their 2012 sockeye harvest of 1,607, and Chignik Bay's estimated harvest in 2013 (905) was significantly (58%) greater (383) than the previous year. Non-local residents harvested an estimated 1,088 sockeye in 2013, which was a notable increase from 2012 (60%) where only 436 sockeye were estimated harvested (Table 7-2; Figure 7-6; Figure 7-7). Researchers were told by residents of Chignik Lake and Chignik Lagoon that in 2011 the early run of sockeye was one of the largest in history, but that the late sockeye runs in 2012 and 2013 had poor returns, and that this explains the low harvest rates those years (Hutchinson-Scarbrough and Marchioni *In prep*).

Coho were the second most harvested species of salmon in the CMA, totaling 916 salmon in 2013, a significant decline (62%) from 2012's estimated harvest of 1,488 and the second lowest since 1992 (Table 7-1). As in all previous years, Perryville harvested the majority of coho salmon with a total of 513 harvested, which represented 56% of the total CMA coho harvests in 2013, which was significantly less (62%) than the 2012 harvest of 1,094. Perryville residents also harvested the highest numbers of pink and chum salmon in 2013, responsible for 83% (670) of pink and 55% (90) chum salmon harvests in 2013 (Table 7-2; Figure 7-7). Chignik Lake, Chignik Lagoon, and Chignik Bay are all close to strong sockeye salmon runs and therefore the majority of their salmon harvest is sockeye. Perryville is far from the other 3 communities and the Chignik River sockeye salmon runs, but they do have local coho, pink, and chum salmon runs that they target for subsistence. The majority of sockeye salmon harvested by Perryville residents are obtained from residents who commercial fish. There are fewer flights to Perryville each week than Chignik Lake, Chignik Lagoon, and Chignik Bay, and Perryville has no grocery store, making the residents of Perryville especially reliant on subsistence foods.

Location of Harvest

Subsistence salmon permits require people to record their harvest by species, date, quantity, and location. Table 7-3 shows the 2013 reported subsistence salmon harvests by species and by general locations within the CMA identified by the Division of Subsistence as: Chignik Bay and Lagoon Subarea, Chignik Lake Subarea, and Perryville Subarea. The following section describes reported salmon harvests, by location and species for 2013, obtained from 63 returned permits for a total of 4,536 salmon. This included 2,652 salmon in the Chignik Bay/Lagoon subarea (Central, Eastern, and Chignik Bay commercial management districts [CMD], excluding areas above Mensis Point at the mouth of Chignik River at high tide in Chignik Lagoon), which represented 59% of the total reported harvest by location. Sockeye salmon (2,471 fish) made up the largest portion of the harvest in this subarea and represented 93% of the subarea harvest and 61% of the overall CMA sockeye harvest. The majority of coho salmon harvested in the CMA were also harvested from this area with a harvest of 95 (54%) out of 176 harvested (Table 7-3).

The Chignik Lake subarea includes all waters of the Chignik River drainage above Mensis Point in Chignik Lagoon, including the Chignik River, Chignik Lake, and Chignik Lake tributaries. The reported subsistence harvests in the Chignik Lake Subarea totaled 1,491 salmon, which represented 33% of reported harvests of all salmon by location. The majority of salmon harvested in this subarea were sockeye, totaling 1,451 (97%) of all salmon harvested for this area, and sockeye harvested from this area represented 36% of sockeye taken from the entire CMA. The Perryville Subarea corresponds to the Perryville and Western CMA commercial fishing districts. The reported salmon harvests in the Perryville subarea totaled 394 salmon, which represented 9% of all salmon harvested in CMA. The Perryville Subarea was responsible for the majority of the CMA's harvest of pink salmon with a total of 127 fish reported harvested, which represented 69% of all CMA pink salmon harvested (185). In all prior years, the Perryville area ranked highest of all subareas for coho, pink, and chum salmon harvests; however, in 2013 this area placed second below the Chignik Bay and Lagoon subarea for reported coho salmon harvests (67 or 39%) as well as chum salmon harvests (36 or 47%) (Table 7-3).

Table 7-4 shows reported CMA subsistence salmon harvests by species, fishing location, and date in 2013. Harvest dates are divided into two periods of time, before and after July 5, because of the early and late sockeye run up the Chignik River. In 2013, 58% of the total subsistence salmon harvest and 53% of the sockeye salmon harvest took place on or after July 5. Chignik Lagoon was the primary subarea where total salmon as well as sockeye salmon were harvested during both early and later time periods (Table 7-4).

GEAR TYPE

Purse seines, hand seines, and gillnets are all allowable gear types for the harvesting of salmon for subsistence in the Chignik Management Area under state regulations. CMA subsistence salmon permits do not require that fishers record their gear type. Rod and reel or hook and line are sometimes used to harvest subsistence salmon under federal subsistence regulations (Hutchinson-Scarbrough and Fall 1996; Hutchinson-Scarbrough et al. 2010; Hutchinson-Scarbrough and Marchioni *In prep*).

FEDERAL SUBSISTENCE FISHERY IN CMA

Federal subsistence fisheries are authorized in portions of the CMA for the permanent residents of the CMA communities.

Federal regulations in the CMA apply to waters within or adjacent to the Alaska Peninsula National Wildlife Refuge, Aniakchak National Monument and Preserve, and the Alaska Maritime National Wildlife Refuge. Federal and state subsistence regulations in the CMA generally parallel each other; however, federal regulations authorize additional gear, harvest locations, and harvest seasons in portions of the CMA not authorized by the state. Starting in 2013, the federal program established a limited harvest assessment program where a federal permit would be required in order for local residents of the CMA communities to havest salmon in specific locations and/or with specific methods or seasons that are allowded by federal regualtions but not state regulations in the federal lands and waters of the CMA. For example, a Federal subsistence permit is required, in addition to a state subsistence fishing permit, to take salmon upstream of the Chignik River weir from January 1–August 9 using a rod and reel, with no daily harvest or possession limit, and to take salmon by gillnet in Black Lake or any tributary to Black or Chignik lakes. Additional information about the federal subsistence fishery is available by contacting the United States Fish and Wildlife Service, Office of Subsistence Management in Anchorage, AK.

SALMON REMOVAL FROM COMMERCIAL HARVESTS FOR HOME USE ("HOME PACK")

Commercial fishers may also retain finfish from lawfully taken commercial catch for their home use, including use for bait under 5 AAC 39.010 (called "home pack" by area residents). These fish, if taken, are required to be reported on the commercial fish ticket and not on the subsistence salmon permit. Reported harvests are included in the ADF&G Division of Commercial Fisheries CMA annual finfish management reports. In 2013, Chignik commercial fishing boats reported removing 587 sockeye, 85 Chinook, and 28 coho salmon from their commercial harvest for home pack (Anderson et al. 2013 Table 7-5).

OTHER CHIGNIK AREA SUBSISTENCE FISHERIES

Estimates of subsistence halibut harvests for eligible communities and tribes, including those of the CMA, are available for 2012 (Fall and Koster 2014).

Although state regulations require a subsistence permit for the harvest of rainbow/steelhead trout and Arctic char/Dolly Varden, there are no annual harvest assessment programs for the other subsistence fisheries of the Chignik Area. The BOF, in an update of its C&T finding in January 2002, identified positive subsistence uses of all finfishes in the Chignik Area. Table 7-6 lists the finfishes other than salmon for which subsistence uses have been documented through systematic household interviews conducted by the Division of Subsistence.

For purposes of subsistence shellfish management, the Chignik Finfish Management Area is within the ADF&G Alaska Peninsula–Aleutian Islands Area. The BOF identified positive subsistence uses of all shellfish stocks in the Alaska Peninsula–Aleutian Islands Area. There are no subsistence harvest assessment programs for these shellfish stocks in the Chignik Area. Table 7-7 lists the shellfish for which subsistence uses have been documented through systematic household interviews.

In early 2004, the Division of Subsistence and the Bristol Bay Native Association, in a project funded by the *Exxon Valdez* Oil Spill Trustee Council, conducted comprehensive household surveys in Chignik Bay, Chignik Lagoon, Chignik Lake, and Perryville that, among other things, collected updated harvest data for nonsalmon fishes and marine invertebrates. A fifth community, Ivanof Bay, was not included in the study because it had no permanent year-round population at the time. A summary of these findings appears in Fall (2006).

The reader should consult Morris (1987), Fall et al. (1995), Hutchinson-Scarbrough and Fall (1996), and ADF&G (2002) for more background on these subsistence fisheries for nonsalmon finfishes and for shellfish. For harvest estimates based on systematic household interviews, see the CSIS. Limited nonsalmon subsistence resource use and harvest information was observed and documented during the Division of Subsistence 2010–2013 Chignik Management Area Subsistence Salmon Ethnography study (Hutchinson-Scarbrough and Marchioni *In Prep*).

DISCUSSION

Prior to 2002, the years before the Chignik cooperative commercial fishery, many families processed most of their spring salmon for subsistence uses just prior to the first commercial opening in early June. Salmon were caught in early June either by purse seine or beach seine. Many families from Chignik Lake and Perryville would occupy fish camps across Chignik Lagoon. Chignik Lagoon and Chignik Bay families would, for the most part, put up their early subsistence fish as a family effort prior to the start of the first commercial fishing opening. These early-run fish (sockeye salmon) are especially important to subsistence users because these fish are traditionally smoked, and it is necessary to cure these fish before flies hatch and deposit eggs on the fish, which typically occurs in mid- to late June. Traditionally, subsistence users could maximize their early season subsistence harvests because of large pulses of early-arriving fish. Area subsistence fishers have also reported that the early-run fish taste better and freeze or salt better if harvested early in the season. The second run (late run) of sockeye salmon was traditionally taken either in Chignik Lagoon, Chignik Lake, or near the mouth of the Clark River. Gillnets and beach seines were typically used to harvest late-run salmon in Chignik Lake (Hutchinson-Scarbrough and Fall 1996:49).

During the years of the cooperative fishery (2002–2005), some changes occurred within area subsistence fishing patterns. Because many of the permit holders for Chignik were also area families who relied on subsistence fishing to feed their families, they would often use their commercial fishing boats to fish prior to the commercial fishing season. During these years, ADF&G opened the cooperative commercial fishery in early June, when many participants would have been processing their subsistence fish, and the nature of the management of the cooperative fishery resulted in fewer fish passing in the lagoon but at a more steady rate rather than experiencing pulses of fish that historically arrived when the competitive-only fishery was in operation. The management of the cooperative fishery resulted in a decrease in efficiency and an increase in effort for harvesting subsistence salmon in Chignik Lagoon.

According to verbal testimony by some Chignik families to Division of Subsistence personnel, many families had to wait until later in the summer to subsistence fish, and then the flies created spoilage. Other area residents reported both positive and negative changes occurring with their subsistence harvests and cash economy as a result of the creation of the cooperative commercial fishery. The cooperative fishing years resulted in a regulatory change that removed the restrictions on subsistence fishing for commercial fishers who could fish for subsistence throughout the summer as long as it was not done at the same time as a commercial opening and a permit was obtained. Fishers without a commercial permit and who wished to subsistence fish as before could fish for subsistence at any time as long as they had a subsistence permit. In addition, there was a reported increase in the amount of fish removed from the cooperative boats for home pack that were given to area residents to supplement their subsistence harvests. At that time, subsistence users informed ADF&G that despite the adjustments to the CMA

subsistence fishery, which allowed for more opportunity for subsistence fishing, some were still having difficulty obtaining their subsistence salmon in 2004 and 2005.

In 2002 and 2004, the USFWS implanted radio transmitters in sockeye salmon in August and early September to determine when sockeye salmon targeted in the late season subsistence fishery passed the Chignik weir. The results of the 2002 studies are described in Anderson (2003). As stated in the regulations section of this chapter, in 2004 the BOF modified the commercial fisheries management plan for late-run sockeye salmon to allow more fish to pass into Chignik Lake in September, thus providing for subsistence harvests. Late-run sockeye salmon, which are dried, are harvested from Chignik Lake in the fall by many Chignik Area residents, including some Perryville families. In 2006, several residents, particularly from Chignik Lake, commented to ADF&G that despite the limits to the August commercial fishery, they still had difficulty acquiring their late-run salmon because they were not seeing as many fish as in prior years. They needed to fish more days to achieve harvest goals, or they harvested fewer late-run salmon. By 2006, after the the cooperative commercial fishery was abolished, area subsistence patterns generally returned to the historical patterns used prior to the cooperative fishery, but on a reduced level. In 2008, there was a decrease in participation in the Chignik subsistence fishery with 89 permits issued; 39 fewer permits issued than in 2007, and 32 fewer than the previous 10-year (1996–2007) average of 121. In 2010, however, there was an increase in permits with 124 issued, which was an increase from 2009 (95). In 2012, 106 permits were issued, which was nearly the same as the historical average of 104 permits, and slightly less than the recent 10-year average of 113 permits.

Numerous fish or summer camps located on the north side of Chignik Lagoon were abundantly utilized in the 1990s but were mostly abandoned by 2006. However, in 2007 through 2012, a few families that reside in Perryville continued to stay at their camps during the commercial fishing season. A Perryville family member who has maintained and continues to utilize one of these multi-generational camps indicated that these camps are summer homes that provide housing for the families when commercial fishing; however, subsistence salmon are also harvested and processed while occupying the camps (Hutchinson-Scarbrough and Marchioni *In prep*).

In 2010 and 2011, gillnets, and purse seines were used to catch subsistence salmon, primarily sockeye from both runs in Chignik Lagoon and the lower mouth of Chignik River. In Chignik River, Chignik Lake and tributaries to Chignik Lake (primarily Clark River), salmon, primarily sockeye from both early and late runs, were harvested using gillnets or beach seines. In addition, beach seines and handlines were used to harvest the late-run “red fish” (sockeye salmon that have entered fresh waters and started to spawn) and “spawned-outs” (spawning sockeye), primarily at Hatchery Beach on Chignik Lake, the mouth of Clark River, or in Clark River and Home Creek. Also in 2011, sockeye salmon were harvested by handline in Black Lake, but not in 2012. Late-run or spawning fish are typically preserved by drying in the wind on racks after harvest. This method is preferred because residents report they have less fat than early-run sockeye salmon. Chinook salmon were caught in Chignik Lagoon and the Chignik River using gillnets, seines, and rod and reel, or removed from commercial harvests and preserved by smoking or canning (Hutchinson-Scarbrough and Marchioni *In prep*).

Perryville subsistence patterns have not changed greatly from historical times, though fewer families are going to fish camps or summer homes located on the northern side of Chignik Lagoon. In 2011, 2012 and 2013, 6 of these camps were occupied by Perryville residents who utilize these camps during commercial fishing and for subsistence fishing for sockeye salmon. Fresh sockeye salmon are brought back to the village by commercial fishing families. Area streams and beaches are used extensively for the harvest of the local runs of coho, chum, and pink salmon, as well as the occasional sockeye salmon. Due to the fluctuations in river locations and stream flow, and fluctuations in salmon runs to these systems, Perryville subsistence fishers may have to use other streams and bays as far east of the village as Mitrofania Bay and as far west as Ivanof Bay to harvest their fish. Fish are smoked, dried, canned, salted, and frozen by Perryville residents. Some Perryville families have relatives in Chignik Lake and travel to

Chignik Lake in the fall to harvest late-run sockeye salmon for drying (Hutchinson-Scarbrough and Marchioni *In prep*).

Table 7-1.–Historical subsistence salmon harvests, Chignik Area, 1977–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1977	NA	NA	50	9,700	2,400	600	1,800	14,550
1978	NA	NA	50	6,000	500	600	2,100	9,250
1979	NA	NA	14	7,750	34	0	262	8,060
1980	82	37	6	12,475	32	169	478	13,160
1981	29	7	0	2,049	0	0	0	2,049
1982	59	15	3	8,532	12	0	2	8,548
1983	32	21	0	3,078	1,319	850	1,250	6,497
1984	77	64	23	8,747	464	204	330	9,768
1985	59	48	1	7,177	50	25	26	7,279
1986	74	38	4	10,347	205	77	98	10,730
1987	NA	NA	10	7,021	278	204	261	7,774
1988	80	34	9	9,073	1,455	142	54	10,733
1989	68	23	24	7,551	384	147	81	8,187
1990	72	23	103	8,099	210	115	470	8,996
1991	95	58	42	11,483	13	81	275	11,893
1992	98	19	55	8,648	709	145	305	9,862
1993	201	141	122	14,710	3,765	642	1,265	20,503
1994	219	122	165	13,978	4,055	382	1,720	20,300
1995	111	95	98	9,563	1,191	150	723	11,726
1996	119	104	48	7,357	2,126	355	2,204	12,089
1997	126	103	28	13,442	2,678	840	2,035	19,024
1998	104	72	91	7,750	1,390	186	1,007	10,424
1999	106	88	243	9,040	1,679	136	1,191	12,290
2000	130	112	163	9,561	1,802	517	1,185	13,227
2001	135	122	171	8,633	1,859	213	2,787	13,663
2002	120	86	74	10,092	1,401	23	390	11,980
2003	146	127	267	10,989	2,256	286	1,597	15,394
2004	104	57	88	7,029	1,981	202	1,047	10,347
2005	119	100	224	8,171	2,112	353	730	11,590
2006	113	79	259	8,079	1,539	275	1,035	11,187
2007	128	83	84	10,191	1,936	165	996	13,372
2008	89	69	41	7,189	877	57	619	8,783
2009[a]	95	82	104	6,785	1,174	137	707	8,907
2010[a]	124	90	188	8,148	1,820	222	656	11,034
2011	95	76	52	10,578	1,458	355	1,289	13,732
2012[a]	106	87	116	5,607	1,488	220	810	8,242
2013[a]	112	96	79	6,588	916	164	686	8,433
5-year average (2008–2012)	102	81	100	7,661	1,363	198	816	10,140
10-year average (2003–2012)	112	85	142	8,277	1,664	227	949	11,259
Historical average (1977–2012)	104	71	84	8,739	1,296	252	883	11,254

-continued-

Table 7-1.–Page 2 of 2.

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015); Quimby and Owen (1994) for 1976–1979 and 1987.

Note NA indicates data not available. Information regarding the number of permits issued and returned was collected; however, the records containing this information no longer exist. Harvest data for these years are also recorded in ADF&G Division of Commercial Fisheries and Division of Sport Fish area management reports.

a. From 1993–2008 and 2011, post-season household surveys were conducted to supplement harvest data collected through returned permits. Limited budgets prevented administering the surveys for 2009, 2010, 2012, and 2013 likely resulting in an underestimate of subsistence harvests since not all subsistence fishing households obtained a permit. To compensate for this underestimate, the average annual harvest for the period 1999–2008 and 2011 reported during post-season surveys was added to harvests from returned permits to estimate the total subsistence harvest for 2009, 2010, 2012, and 2013.

Table 7-2.–Estimated subsistence salmon harvests by community of residence, Chignik Area, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chignik Bay	15	12	15	905	69	2	19	1,010
Chignik Lagoon	19	16	31	1,762	39	1	30	1,863
Chignik Lake	15	12	16	1,647	51	3	24	1,740
Ivanof Bay	2	2	1	70	182	27	32	312
Perryville	26	24	14	1,116	513	90	566	2,298
Subtotal, Chignik Area residents	**77**	**66**	**77**	**5,500**	**853**	**124**	**670**	**7,223**
Anchorage	8	6	0	113	0	0	0	113
Chugiak	1	1	0	142	0	0	0	142
Crooked Creek	1	1	0	150	60	40	0	250
Fairbanks	1	1	0	8	0	0	0	8
Haines	1	1	0	0	0	0	0	0
Homer	3	2	0	113	0	0	6	119
Juneau	2	1	0	22	0	0	0	22
Kodiak	12	11	0	265	3	0	0	268
Palmer	1	1	2	175	0	0	10	187
Sand Point	1	1	0	0	0	0	0	0
Slana	1	1	0	0	0	0	0	0
Unalaska	1	1	0	62	0	0	0	62
Wasilla	1	1	0	38	0	0	0	38
Subtotal, other Alaska residents	**34**	**29**	**2**	**1,088**	**63**	**40**	**16**	**1,209**
Other USA	1	1	0	0	0	0	0	0
Total	**112**	**96**	**79**	**6,588**	**916**	**164**	**686**	**8,433**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 7-3.–Reported subsistence salmon harvests by species and subarea of harvest, Chignik Area, 2013.

	Estimated salmon harvest[b]					
Subarea of harvest[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Chignik Bay and Lagoon	**5**	**2,471**	**95**	**41**	**40**	**2,652**
Chignik Bay	0	212	60	40	0	312
Chignik Lagoon	5	2,259	35	1	40	2,340
Chignik Lake	**9**	**1,451**	**12**	**0**	**18**	**1,491**
Chignik Lake	0	387	0	0	0	387
Chignik River	9	1,002	12	0	18	1,042
Clark River	0	63	0	0	0	63
Perryville	**11**	**153**	**67**	**36**	**127**	**394**
Alexander Point	3	101	7	5	15	131
Humpback Bay	0	0	3	0	0	3
Perryville	8	52	40	30	107	237
Star Point	0	0	17	0	4	22
Total	**25**	**4,074**	**175**	**77**	**185**	**4,536**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. The Chignik Bay-Lagoon Subarea corresponds to the portion of the Central District and the Chignik Bay District, not including any of the Chignik River from the outlet of Chignik Lake ("FRI Point" to the River's outlet at Mensis Point in Chignik Lagoon). The Chignik Lake Subarea includes subsistence harvests in the Chignik River from Mensis Point in Chignik Lagoon up to Black Lake. The Perryville Subarea corresponds to the Perryville and Western districts, including Ivanof Bay, Mitrofania Bay, the Kametolook River and other streams near Perryville and Ivanof Bay. In recent years there have been no subsistence harvests reported for the Eastern District.

b. Harvest estimates are based on 2013 permit returns only. Of 86 permits issued for the Chignik Area, 63 permits were returned (73%).

Table 7-4.–2013 Chignik area subsistence salmon harvests by species, fishing location, and date.

	Estimated salmon harvest					
Sub area	Chinook	Sockeye	Coho	Chum	Pink	Total
Harvest before 7/5						
Chignik Bay	0	2	0	0	0	2
Chignik Lagoon	5	1,302	0	0	0	1,307
Chignik Lake	0	216	0	0	0	216
Chignik River	0	366	0	0	0	366
Perryville	0	3	7	1	5	16
Ivanof Bay to Humpback Bay	3	7	0	0	0	10
Subtotal, early harvest	**8**	**1,895**	**7**	**1**	**5**	**1,917**
Harvest on or after 7/5						
Chignik Bay	0	210	60	40	0	310
Chignik Lagoon	7	1,364	35	1	40	1,446
Chignik Lake	0	171	0	0	0	171
Chignik River	2	229	12	0	18	262
Clark River	0	63	0	0	0	63
Perryville	8	49	51	29	106	243
Ivanof Bay to Humpback Bay	0	94	10	5	15	125
Subtotal, late harvest	**17**	**2,179**	**169**	**76**	**179**	**2,620**
Total	**25**	**4,074**	**175**	**77**	**185**	**4,536**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 7-5.–Chignik area salmon removed from commercial catch for home use, 1994–2013.

Year	Salmon harvest					
	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	0	0	0	0	0	0
1995	64	0	913	5	0	982
1996	40	40	20	21,090	5,262	26,452
1997	88	664	0	0	0	752
1998	108	267	27	155	0	557
1999	211	26	200	3	0	440
2000	20	0	0	0	0	20
2001	90	217	7	129	7	450
2002	77	1,371	164	0	0	1,612
2003	309	2,411	74	0	407	3,201
2004	158	1,690	0	0	0	1,848
2005	271	1,364	5	115	234	1,989
2006	68	267	175	0	0	510
2007	16	205	56	1	0	278
2008	15	0	0	0	0	15
2009	75	93	0	1	0	169
2010	118	973	0	0	7	1,098
2011	142	323	16	0	0	481
2012	51	513	0	240	22	826
2013	85	587	28	0	0	700
5-year average (2008–2012)	80	380	3	48	6	518
10-year average (2003–2012)	122	784	33	36	67	1,042
Historical average (1977–2012)	100	551	84	1,087	297	2,119

Source ADF&G CFMD reported commercial salmon ticket reports.

Table 7-6.–Subsistence uses of nonsalmon finfishes by community, Chignik Area, 1989.

Common English name	Scientific name, if not previously given	Percentage of households using in				
		Chignik Bay	Chignik Lagoon	Chignik Lake	Ivanof Bay	Perryville
Pacific herring		23	47	29	29	15
Pacific herring spawn on kelp		14	0	5	0	4
Walleye pollock	*Theragra chalcogramma*	3	0	0	0	0
Rainbow smelt[a]		11	0	48	0	0
Pacific halibut		89	100	67	100	96
Rainbow trout		3	0	24	57	7
Dolly Varden		23	7	38	86	56
Eulachon (candlefish)	*Thaleichthys pacificus*	23	40	33	100	78
Pacific cod (gray cod)		29	60	48	86	63
Sculpin	*Hemilepidotus sp.*	11	0	5	0	30
Starry flounder		6	0	19	14	0
Kelp greenling	*Hexagrammos decagrammus*	11	0	10	0	30
Arctic grayling		0	0	0	14	0
Sablefish (black cod)	*Anoplopoma fimbria*	0	7	5	0	0
Steelhead trout		0	13	5	0	0
Black rockfish	*Sebastes melanops*	0	7	0	0	22
Red (yelloweye) rockfish	*Sebastes ruberrimus*	3	0	0	0	4
Any nonsalmon fish		89	100	86	100	96

Source CSIS; Hutchinson-Scarbrough and Fall (1996).

a. Most likely harvested outside the Chignik Management Area; Chignik area households receive gifts of rainbow smelt from relatives and friends in Pilot Point, Ugashik, and Naknek, among other communities.

Table 7-7.–Subsistence uses of marine invertebrates by community, Chignik Area, 1989.

Common English name	Scientific name, if not previously given	Percentage of households using in				
		Chignik Bay	Chignik Lagoon	Chignik Lake	Ivanof Bay	Perryville
Alaska razor clam	*Siliqua patula*	14	33	24	43	37
Butter clam	*Saxidomus giganteus*	71	67	52	71	41
Gaper clam	*Tresus capax*	11	0	0	0	4
Nuttall cockle	*Clinocardium nuttallii*	37	7	48	100	70
Pinkneck clam (redneck)	*Spicula polynuma*	0	0	0	71	4
Pacific littleneck (steamer) clam	*Protothaca staminea*[a]	11	0	0	29	11
Chiton, black (leather)	*Katharina tunicata*	49	27	57	100	93
Chiton, red (gumboot)	*Cryptochiton stelleri*	0	0	0	86	11
Mussel (blue)	*Mytilus trossulus*	9	7	0	14	15
Octopus	*Octopus* spp	43	20	48	71	52
Sea urchin	*Stronglyocentrotus* spp	29	0	48	100	89
Sea cucumber	Varius spp	0	0	0	0	4
Shrimp	*Pandalus* spp	9	0	5	0	0
Giant Pacific scallop	*Pecten caurinus*	3	0	0	0	0
Red king crab	*Paralithades camtschatica*	40	20	33	43	0
Dungeness crab	*Cancer magister*	37	40	48	100	52
Tanner crab	*Chionoecetes bairdi*	63	67	14	0	4
Snail	*Neptunea* spp	3	0	0	0	4
Limpet	*Acmaeidae* spp	3	0	0	0	4
Any marine invertebrates		89	87	81	100	96

Source CSIS; Hutchinson-Scarbrough and Fall (1996).

a. May also include smaller-sized individuals of other species and softshell clams of the genus *Mya*.

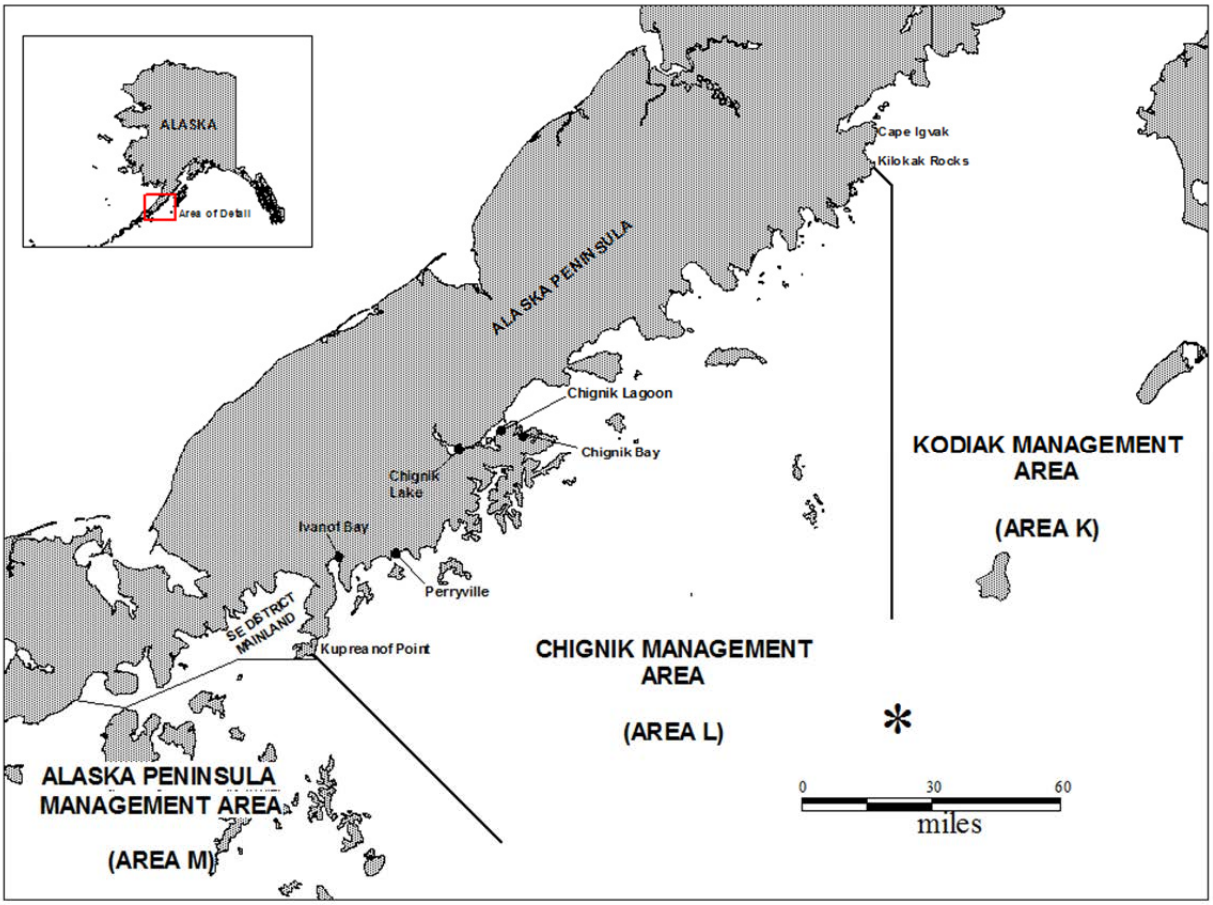

Figure 7-1.–Location of Chignik Management Area (CMA) and communities within the CMA on Alaska Peninsula.

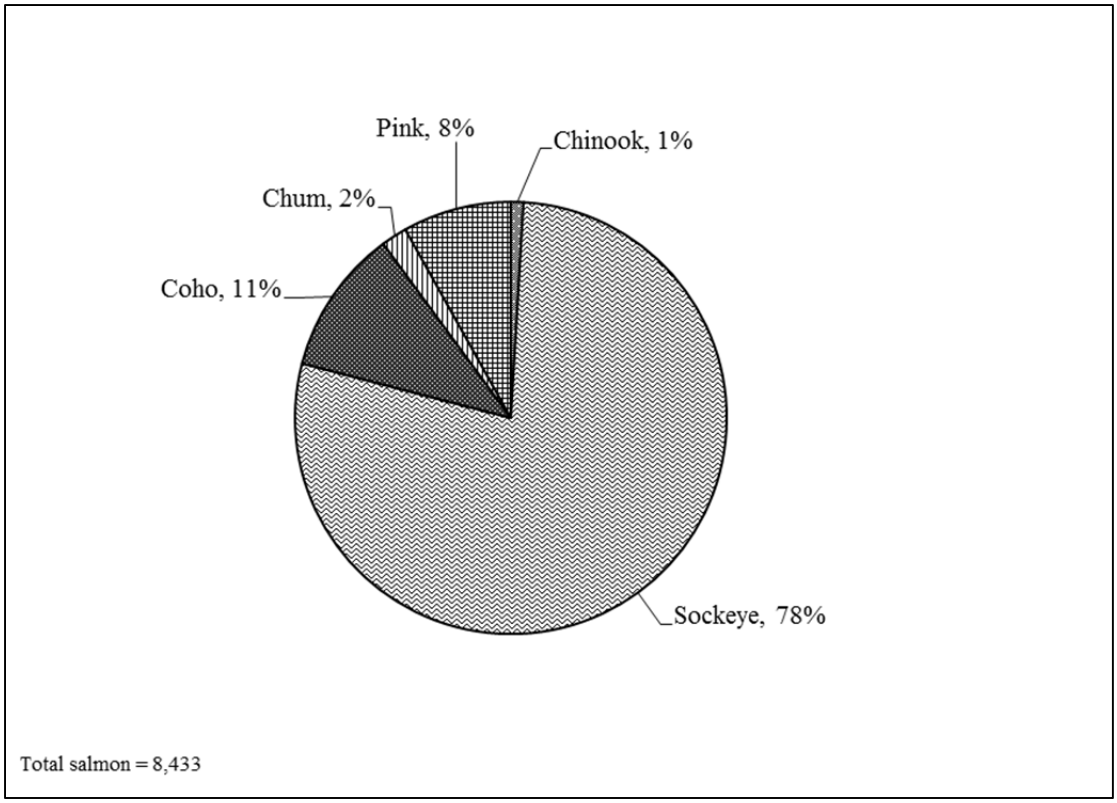

Figure 7-2.–Composition of Chignik Area subsistence salmon harvest by species, 2013.

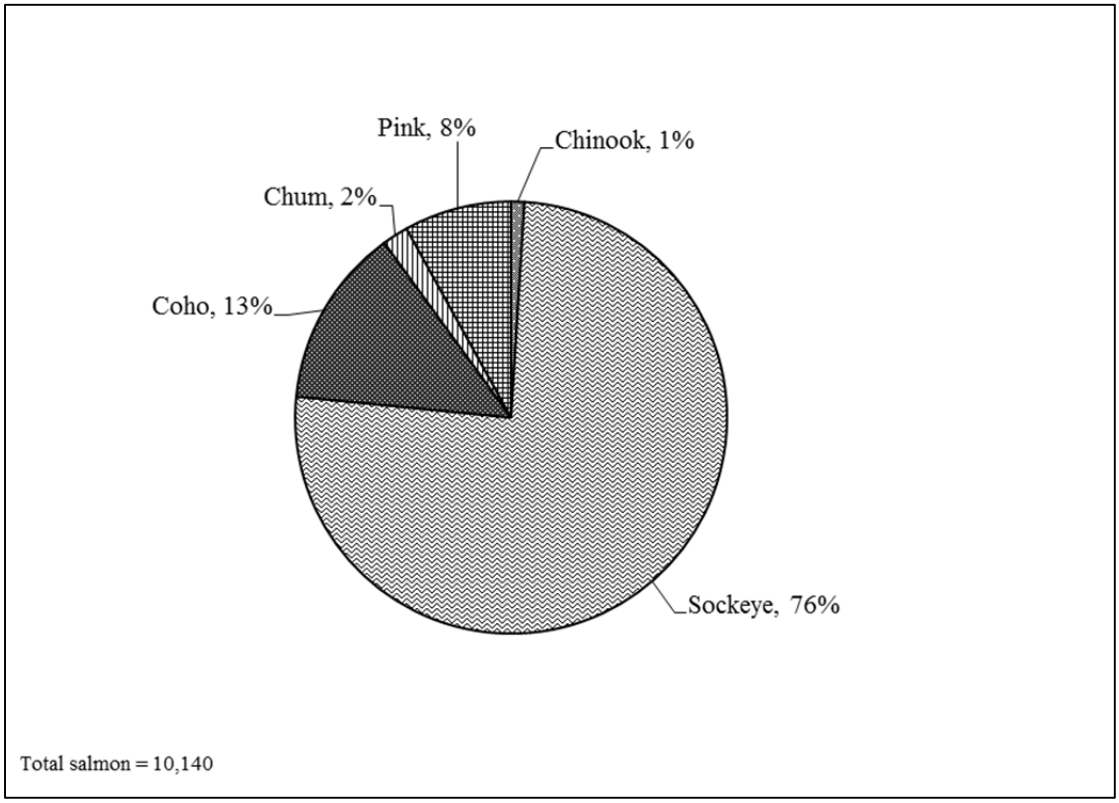

Figure 7-3.–Species composition of Chignik Area subsistence salmon harvests, 2008–2012.

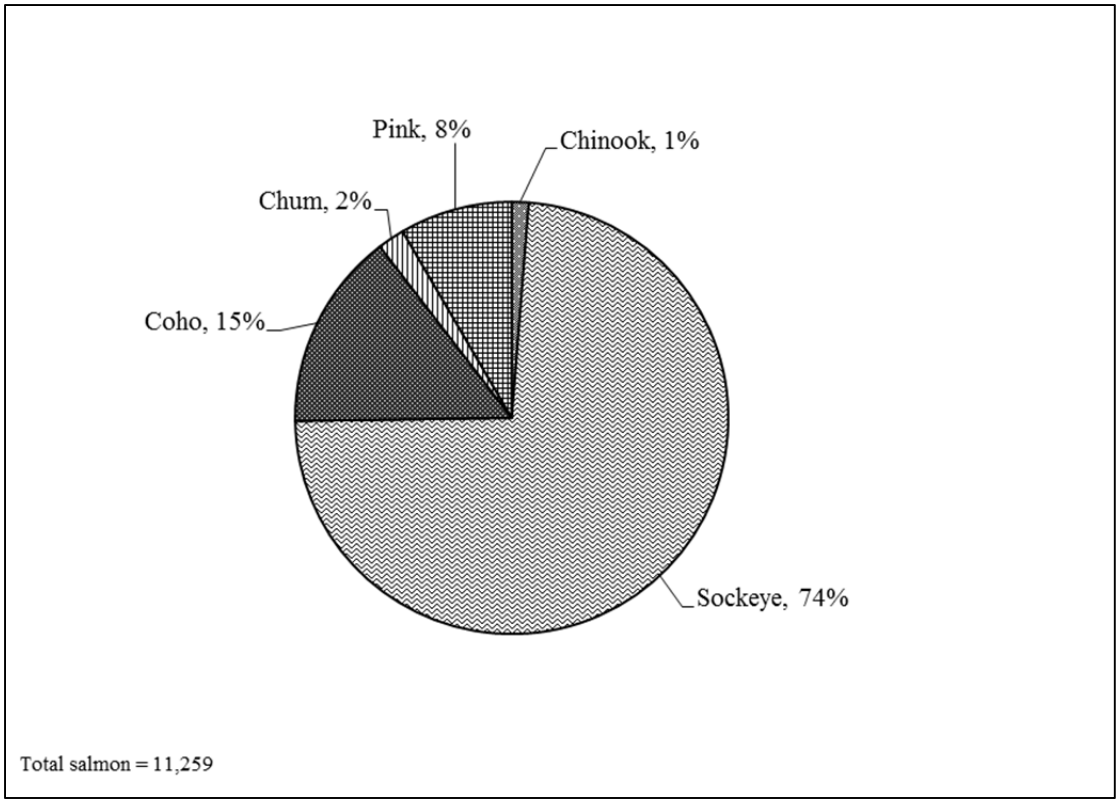

Figure 7-4.–Species composition of Chignik Area subsistence salmon harvests, 2003–2012.

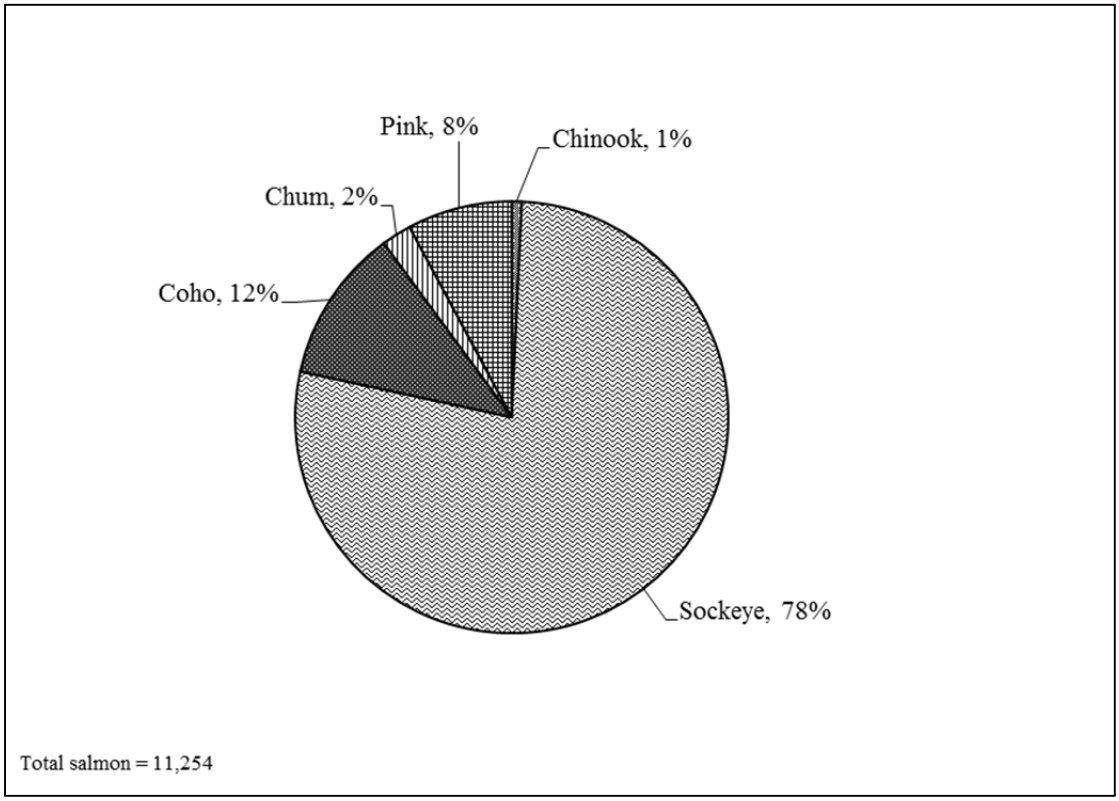

Figure 7-5.–Species composition of Chignik Area subsistence salmon harvests, 1977–2012.

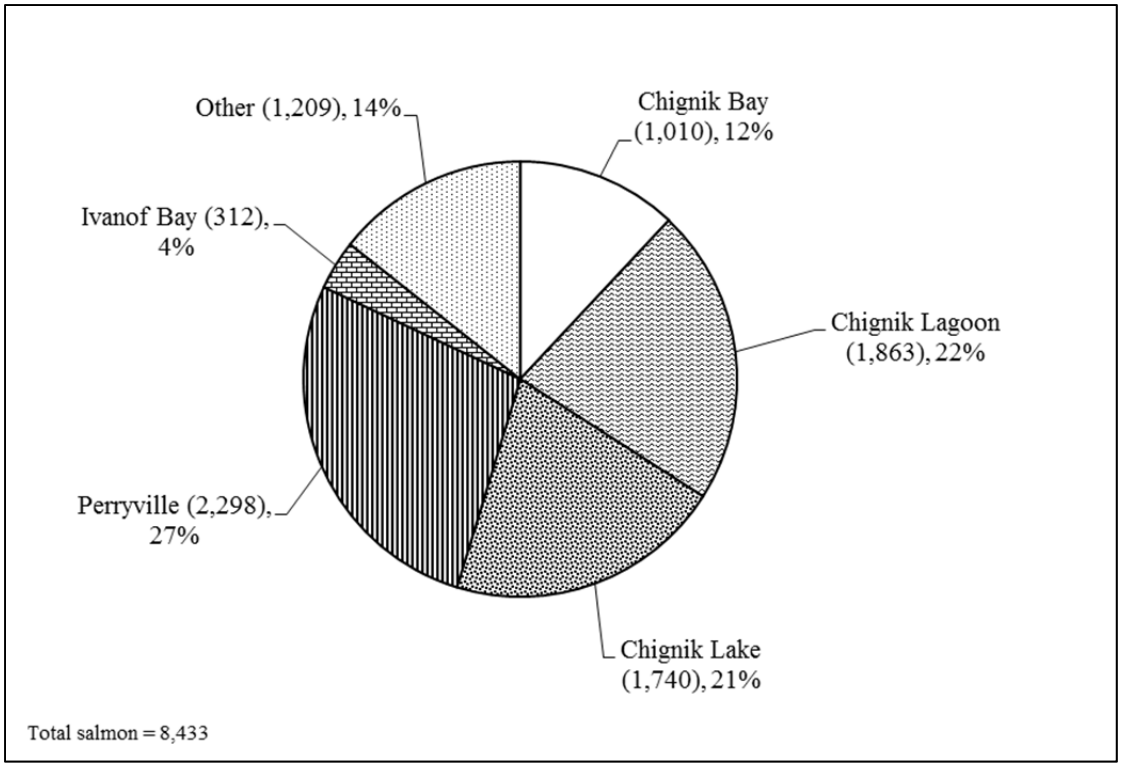

Figure 7-6.–Subsistence salmon harvests by community, Chignik Area, 2013.

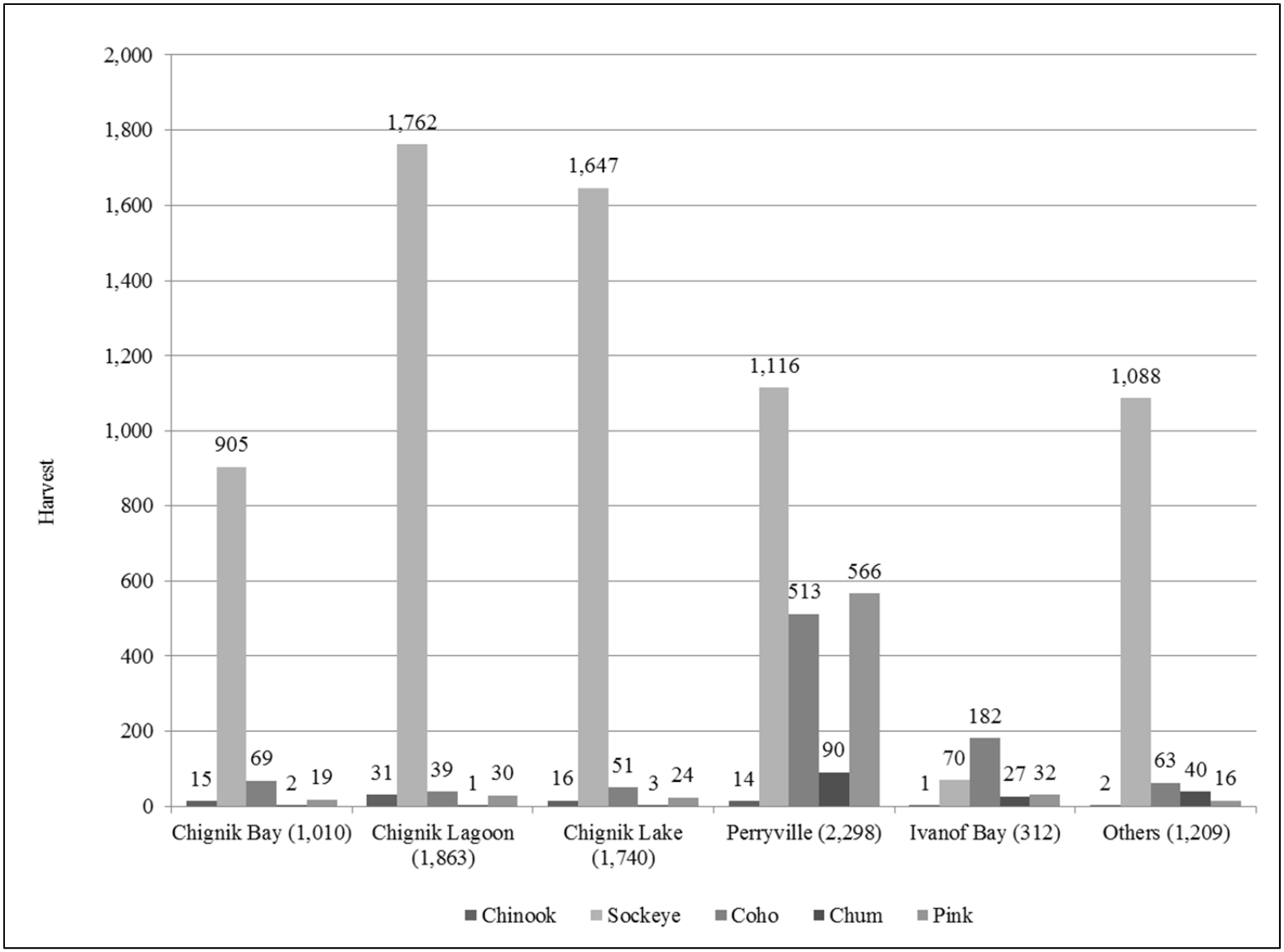

Figure 7-7.–Subsistence salmon harvests by community, Chignik Area, 2013.

CHAPTER 8: ALASKA PENINSULA AREA

BACKGROUND

The Alaska Peninsula Area includes all Pacific Ocean waters of Alaska on the north side of the Alaska Peninsula southwest of a line from Cape Menshikof to Cape Newenham and east of the longitude of Cape Sarichef Light and on the south side of the Alaska Peninsula from a line extending from Scotch Cap through the easternmost tip of Ugamak Island to a line extending 135 degrees southeast from Kupreanof Point (5 AAC 01.400). The communities of the Alaska Peninsula Area are Port Heiden (estimated population 118 in 2013), Nelson Lagoon (population 45), False Pass (population 40), Cold Bay (population 85), King Cove (population 934), and Sand Point (population 1,018).[1] Port Moller has no year-round population and is only seasonally occupied. Port Heiden is in the Lake and Peninsula Borough; the other communities are in the Aleutians East Borough (which also includes Akutan in the Aleutian Islands Area).

REGULATIONS

A subsistence permit, which must be used to record daily harvests, is required for fishing in the Alaska Peninsula Area. There is an annual limit of 250 salmon per household. Legal gear includes seines and gillnets. In waters open to commercial fishing, set and drift gillnets may not exceed 50 fathoms in length. In most other areas, set gillnets may not exceed 100 fathoms and drift gillnets may not exceed 200 fathoms. Purse seines may not exceed 250 fathoms in length. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. The Alaska Administrative Code (5 AAC 01.423) includes special provisions regarding subsistence gear for other areas, including Mortensens Lagoon, the False Pass vicinity, and Bear and Sandy rivers. Salmon may be taken at any time, except in those districts and sections that are open to commercial salmon fishing, salmon may not be taken during the 24 hours before and 12 hours following a commercial salmon fishing period. A few small areas closed to subsistence salmon fishing are listed in 5 AAC 01.425.

Federal regulations governing subsistence salmon fishing in waters under the jurisdiction of the FSB are generally identical to the state regulations summarized above, with the exception that rod and reel, in addition to gillnet and seine, is legal subsistence gear under federal rules. There is no separate federal subsistence permit; a state permit is required for subsistence fishing under the federal regulations.

HARVEST ASSESSMENT PROGRAM

The Division of Commercial Fisheries has issued subsistence permits for the Alaska Peninsula Area since 1979. Except for residents of Sand Point and Cold Bay, permits are mailed each year to fishers who returned their permits at the end of the previous fishing season. Sand Point and Cold Bay residents are issued permits upon request at the ADF&G offices in Sand Point and Cold Bay. Permits are also issued upon request at other ADF&G offices and by mail to people who telephone to request them. Regulations require that permits be returned to ADF&G by October 31. Reminder letters are sent around November 1 to people who have not yet returned their permits. If a person does not return the permit, his or her name is removed from the mailing list. Data from returned permits are tabulated by species and fishing area. Harvest data from returned permits are expanded by community of residence to estimate the harvest by all permit holders.

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed April 2015. http://labor.alaska.gov/research/pop/popest.htm

SUBSISTENCE SALMON HARVESTS IN 2013

From 1985 through 2012, the number of subsistence salmon permits issued for the Alaska Peninsula Area averaged 191 per year (Table 8-1). The recent 5-year average (2008-2012) was 170 permits. In both 2012 and 2013, 172 subsistence salmon fishing permits were issued for the Alaska Peninsula Area. This compares to the 249 permits issued for the commercial salmon fishery for the Alaska Peninsula Area in 2013 (Poetter and Nichols 2014). The response rate for subsistence permits was 91% in 2013 (157 of 172 permits were returned). Of all subsistence permits issued, 144 (84%) were issued to residents of Alaska Peninsula Area communities, and 28 (16%) were issued to residents of other Alaska communities (Table 8-2). Most nonlocal residents fish at Mortensens Lagoon, primarily because of easy road access from the Cold Bay airport which provides economically feasible transportation options (Tschersich and Russ 2008).

The estimated subsistence salmon harvest in the Alaska Peninsula Area in 2013 was 11,353 fish. This is a decrease from the prior year (14,231 salmon in 2012) and less than the recent 5-year average (13,677) and 10-year average (14,206) (Table 8-1). The 2013 subsistence harvest was made up of 59% sockeye salmon, 20% coho salmon, 10% pink salmon, 10% chum salmon, and 2% Chinook salmon (Figure 8-1). Of the total harvest, the residents of Cold Bay harvested 5%, False Pass residents 6%, Sand Point residents 39%, Port Heiden residents 1%, Port Moller residents <1%, Nelson Lagoon residents 1%, and King Cove residents 39%. Other Alaska residents harvested 7% (Table 8-2; Figure 8-2). Following historical peak harvest levels recorded in 1997, existing data indicate a general decline in the Alaska Peninsula Area subsistence salmon harvest (Table 8-1).

Home-pack from commercial fisheries can also be an important source of personal use salmon. Vessels fishing in the commercial fisheries Southern Alaska Peninsula management area reported taking 1,672 pink salmon from their commercial harvest in 2013 (Matthew Keyse, ADF&G Area Management Biologist, Alaska Peninsula and Aleutian Islands, Personal Communication, April 15, 2015). No other species of salmon was reportedly taken for personal use in this area in 2013. Homepack is required to be reported on commercial harvest tickets, but they may not be complete.

In interviews with Division of Subsistence staff in 2000, fishery managers expressed the view that the subsistence permit program did not completely document all subsistence salmon harvesting activities because some fishers did not obtain permits (Fall and Shanks 2000:30). A comparison of permit and household interview data for 1992 for King Cove found that about 31% of interviewed households that reported subsistence fishing did not have permits (Fall, Mason, et al. 1993:58–62). The estimated total subsistence salmon harvest for the community based on the interviews was 7,036 (±1,773), compared to 5,856 based on permit returns (Fall, Mason, et al. 1993:58–62.). At Sand Point in the same year, 41% of interviewed households reported that they harvested salmon for subsistence but did not have permits. The estimated total subsistence salmon harvest for Sand Point based on the household interviews was 11,338 (±2,551), compared to 7,833 based on estimates using permit return information (Fall, Andersen, et al. 1993:61).

The subsistence permit program for the Alaska Peninsula Area does not account for salmon withheld from commercial catches for home uses. Fishery managers believe that this number is substantial, especially in years when commercial salmon prices are low. For 1992, it was estimated that 51% of the salmon harvested for home uses at King Cove (Fall, Mason, et al. 1993), and 45% at Sand Point (Fall, Andersen, et al. 1993), were removed from commercial harvests.

In 2002 and 2003, the Division of Subsistence conducted the Subsistence Fisheries Harvest Assessment and Traditional Ecological Knowledge (TEK), Lower Alaska Peninsula and Aleutian Islands project, funded in part by OSM under project number 02-032. The goals of the project were to generate harvest data for salmon to supplement estimates produced through the subsistence permit program and to collect TEK about fisheries resources. Among other findings, the research documented that King Cove households removed 2,304 salmon from their commercial harvests for home uses in 2003, representing

24% of the total salmon harvest for home uses in the community (Davis 2005:116). Another product was a searchable TEK database called “The View from the Beach.” For detailed study findings, consult Davis (2005).

OTHER SUBSISTENCE FISHERIES

Subsistence Pacific halibut fishing harvest estimates for communities and tribes in the Alaska Peninsula Area are available for 2003–2012 (Fall and Koster 2014). Due to a lapse in funding, subsistence Pacific halibut fishing harvest estimates were not collected for 2013.

There are no other annual harvest assessment programs for the other finfish and shellfish subsistence fisheries of the Alaska Peninsula Area. The Division of Subsistence has conducted 1 round of systematic household harvest surveys in each of the area’s communities, except for Cold Bay. The findings of these surveys, including species used, percentage of households harvesting each species in the study year, and estimated harvest quantities for the study year, appear in the CSIS. Table 8-3 reports the percentage of households in the surveyed communities that used selected nonsalmon finfish species in the study year. Generally, Pacific cod, halibut, and Arctic char/Dolly Varden were the most frequently used by households in these communities.

Nonsalmon subsistence harvest data is also available for Nelson Lagoon, Port Heiden, and False Pass in 2009 (Reedy-Maschner and Maschner 2012). The per capita edible weight of nonsalmon fish reported for Nelson Lagoon in this study was 15.5 lb, for Port Heiden 13.7 lb, and for False Pass, 117.9 lb. The higher per capita harvests reported for False Pass represents a much greater harvest of Pacific halibut. Pacific halibut represented the highest per capita subsistence harvest among nonsalmon fish in each of these communities except Nelson Lagoon where it was surpassed by unknown trout. For more information, refer to Reedy-Maschner and Maschner (2012).

Table 8-1.–Historical subsistence salmon harvests, Alaska Peninsula Area, 1985–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1985	161	95	74	4,037	7,504	1,566	574	13,755
1986	147	84	101	5,396	2,996	1,455	1,779	11,727
1987	191	144	193	5,777	4,259	1,943	1,547	13,719
1988	183	114	257	5,501	5,646	1,692	1,666	14,762
1989	188	139	88	10,404	3,505	2,104	1,213	17,314
1990	201	157	246	8,588	4,029	1,589	736	15,188
1991	249	185	458	11,345	5,551	3,551	1,878	22,783
1992	229	177	385	10,739	4,267	2,574	1,840	19,805
1993	262	215	615	12,478	5,753	1,997	1,189	22,032
1994	256	213	674	11,884	6,086	4,406	2,206	25,256
1995	260	198	492	12,716	5,021	3,369	2,653	24,251
1996	234	178	362	12,176	7,743	2,728	2,569	25,578
1997	217	172	420	15,224	4,612	2,885	2,955	26,096
1998	233	153	407	12,920	5,820	1,326	2,286	22,759
1999	185	148	391	15,119	4,961	2,235	2,136	24,843
2000	180	152	341	9,955	5,239	1,699	950	18,185
2001	185	155	570	12,259	3,940	1,963	1,181	19,912
2002	157	133	345	9,384	3,188	1,603	532	15,052
2003	166	128	312	10,103	4,266	2,353	1,194	18,228
2004	147	135	218	9,484	3,787	951	609	15,049
2005	160	139	192	11,260	4,089	716	1,054	17,310
2006	153	131	110	7,847	2,452	910	961	12,280
2007	150	124	100	6,872	2,648	498	693	10,811
2008	199	164	280	7,623	4,355	1,078	1,687	15,022
2009	134	118	350	5,629	2,545	434	749	9,707
2010	183	138	338	9,464	2,898	1,274	985	14,959
2011	163	117	337	9,871	2,353	835	1,070	14,466
2012	172	138	287	9,429	1,936	1,637	941	14,231
2013	172	157	235	6,683	2,222	1,080	1,133	11,353
5-year average (2008–2012)	170	135	318	8,403	2,817	1,052	1,086	13,677
10-year average (2003–2012)	163	133	252	8,758	3,133	1,069	994	14,206
Historical average (1985–2012)	191	148	319	9,767	4,337	1,835	1,423	17,681

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 8-2.–Subsistence salmon harvest estimates by community, Alaska Peninsula Area, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cold Bay	28	26	0	528	18	12	1	559
False Pass	5	5	8	479	141	62	30	720
King Cove	50	46	10	2,480	1,521	299	135	4,445
Nelson Lagoon	7	5	0	62	56	7	4	129
Port Heiden	4	3	9	117	0	29	0	156
Port Moller	1	1	0	80	0	0	0	80
Sand Point	49	45	164	2,276	479	609	903	4,431
Subtotal, area residents	**144**	**131**	**192**	**6,022**	**2,215**	**1,018**	**1,073**	**10,519**
Anchorage	7	7	1	58	0	9	0	68
Eagle River	2	1	0	100	0	0	0	100
Fairbanks	2	2	0	0	0	0	0	0
Homer	4	3	1	167	7	53	60	288
Kasilof	1	1	0	134	0	0	0	134
Kodiak City	4	4	41	203	0	0	0	244
Ninilchik	1	1	0	0	0	0	0	0
Seward	2	2	0	0	0	0	0	0
Soldotna	1	1	0	0	0	0	0	0
Sterling	1	1	0	0	0	0	0	0
Wasilla	2	2	0	0	0	0	0	0
Willow	1	1	0	0	0	0	0	0
Subtotal, other Alaska residents	**28**	**26**	**43**	**662**	**7**	**62**	**60**	**834**
Total	**172**	**157**	**235**	**6,683**	**2,222**	**1,080**	**1,133**	**11,353**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 8-3.–Percentage of households using selected nonsalmon finfishes, Alaska Peninsula Area communities.

	Percentage of households using in that study year[a]				
Resource[b]	False Pass	King Cove	Nelson Lagoon	Port Heiden	Sand Point
Pacific cod	65	44	0	3	61
Sablefish	15	8	ND	ND	13
Kelp greenling	10	5	ND	ND	7
Flounder	20	4	8	11	4
Pacific halibut	95	73	0	22	89
Pacific herring	30	23	ND	3	14
Herring spawn on kelp	0	3	ND	3	1
Smelt	0	1	ND	49	5
Rockfishes	5	36	ND	ND	61
Sculpin	35	7	ND	ND	4
Walleye pollock	ND	3	ND	ND	2
Lake trout	ND	ND	ND	11	ND
Arctic char/ Dolly Varden	75	67	54	76	51
Rainbow trout/steelhead	5	4	ND	3	31

Source CSIS.

Note ND indicates no data for that resource.

a. Study year = 1987–1988 for False Pass; 1986–1987 for Nelson Lagoon and Port Heiden; 1992 for King Cove and Sand Point.

b. Most commonly used types in the study year; uses of other species occurred, or may occur in other years.

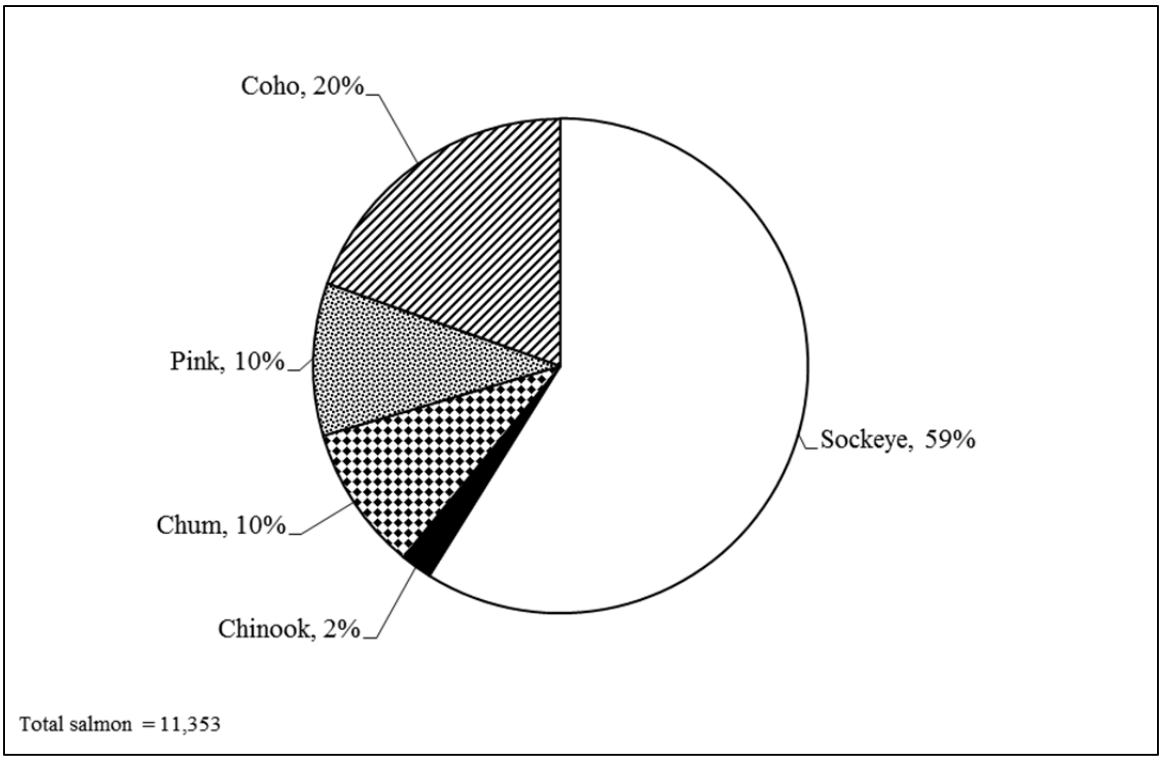

Figure 8-1.–Composition of Alaska Peninsula Area subsistence salmon harvest by species, 2013.

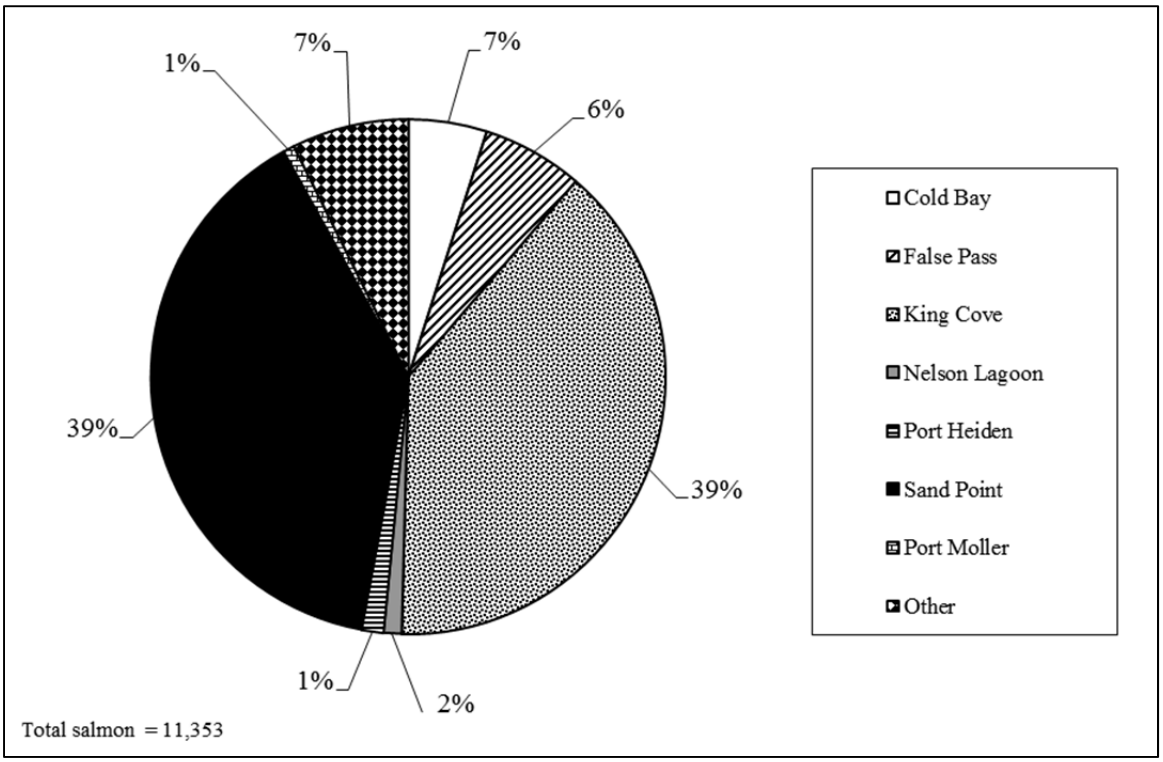

Figure 8-2.–Subsistence salmon harvests by community, Alaska Peninsula Area, 2013.

CHAPTER 9: ALEUTIAN ISLANDS AREA

INTRODUCTION

The Aleutian Islands Management Area includes all waters of Alaska in, and surrounding, the Aleutian Islands west of Cape Sarichef Light and west of a line extending from Scotch Cap through the easternmost tip of Ugamak Island, including the waters in and surrounding the Pribilof Islands (5 AAC 01.350). For subsistence purposes, the Aleutian Islands Area is divided into 6 management districts. From east to west, they are the Akutan District, Unalaska District, Umnak District, Pribilof Islands District, Atka–Amlia Islands District, and the Adak District (5 AAC 01.355). The major communities of the Aleutian Islands Area are Akutan, Unalaska–Dutch Harbor, Atka, Nikolski, and Adak. Akutan is part of the Aleutians East Borough; the other communities are part of the Aleutians West Census Area, but they are not within an organized borough.

According to the US Census, Akutan's population in 2010 totaled 1,027, of which only 90 people lived in a total of 40 households in the Native Village of Akutan, and the remaining 937 lived in group quarters at the adjacent Trident Seafoods processing plant. In 2013, the total Akutan population was estimated at 1,154; however, most of the people (1,066) were estimated as residing in group housing, and 88 resided in households. In 2010, the population of Unalaska–Dutch Harbor was 4,376 with 2,277 residents residing in a total of 927 households and the remainder (2,099) in group quarters (primarily seafood industry workers housing). In 2013, the estimated population of Unalaska–Dutch Harbor was 4,735 with 2,417 residing in households and 2,318 in group quarters. In Nikolski, the population in 2010 was 18 residing in a total of 13 housholds; and in 2013, the estimated population was 18. Atka in 2010 had a population of 61 residing in a total of 24 households; and the estimated population in 2013 totaled 67. Adak's 2010 census population totaled 326 people which 109 lived in a total of 44 households and 217 in group quarters; and in 2013, the estimated population was 282 total people, 182 of which were estimated to be in group quarters. [1]

Two communities are within the Pribilof Island District. St. Paul in 2010 had a population of 479 with 455 residing in a total of 162 households and 24 residing in group quarters; and in 2013, the population was estimated at 453 with 441 residing in households and 12 people residing in group quarters. St. George's 2010 population was 102, with 98 residing in a total of 42 households, and 4 residing in group quarters; and the 2013 population estimate was 97 people; 4 of which resided in group quarters.[2][3]

The Alaska Board of Fisheries found that halibut and all other finfish in the Aleutian Islands Area and the waters surrounding the Pribilof Islands are customarily and traditionally taken or used for subsistence. The board found that (1) 13,500–23,000 salmon and (2) 200,000–330,000 usable pounds of finfish other than salmon are reasonably necessary for subsistence uses in the Aleutian Islands area (5AAC01.366).[4] Subsistence salmon harvests are monitored annually only in the Unalaska and the Adak districts, where a permit is required for harvest. A permit is not required for subsistence salmon fishing in the waters fished by the communities of Akutan, Atka, Nikolski, or Adak; therefore, subsistence salmon harvests are not systematically monitored in these communities. Harvest estimates for Akutan are based upon data in Davis (2005), from household surveys conducted in 2009 for the 2008 harvest year, and from household surveys conducted in 2010 for the 2009 study year (Reedy-Maschner and Maschner 2012). Estimates for

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed April 2015. http://labor.alaska.gov/research/pop/popest.htm
2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed April 2015. http://labor.alaska.gov/research/pop/popest.htm
3. U.S. Census Bureau, Washington D.C. n.d. "American FactFinder." U.S. Department of Commerce. Accessed April, 2015. http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
4. Alaska Department of Fish and Game. 2013–2014 Subsistence and personal use statewide fisheries regulations. Alaska Department of Fish and Game, Juneau.

Atka and Nikolski are based upon data in Davis (2005). There are no native populations of salmon in the Pribilof Islands, and therefore there are no local subsistence salmon fisheries available for the communities of St. Paul and St. George.

Home-pack from commercial fisheries can also be an important source of personal use salmon in some areas. Despite this fact, vessels fishing in the commercial fisheries Aleutian Islands management area did not report taking salmon out of their commercial harvest in 2013 (Matthew Keyse, ADF&G Area Management Biologist, Alaska Peninsula and Aleutian Islands, Personal Communication, April 15, 2015). Although it is required that homepack be reported on commercial harvest tickets, the reports may not be complete.

SALMON HARVESTS IN THE UNALASKA DISTRICT

The Unalaska District includes all waters west of Akutan Pass up to, and including, Umnak Pass (5 AAC 12.200 (b)).

Salmon Harvest Regulations

A permit is required for subsistence salmon fishing in the Unalaska District. Fishers must record their daily harvests on the permit and return it to ADF&G by October 31. Permit holders may harvest up to 25 salmon per permit plus an additional 25 salmon for each member of the same household who is listed on the permit. A permit holder may obtain an additional permit from the department if more fish are needed. A record of subsistence-caught fish must be recorded on the reverse side of the permit and the permit must be returned to the department by October 31, even if no salmon were harvested (5 AAC 01.380).

Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Salmon may be taken from 6:00 AM until 9:00 PM beginning January 1 through December 31, except that from June 1 through September 15, a salmon seine vessel may not be used to take salmon for subsistence purposes 24 hours before, during, or 24 hours after an open commercial fishing period within a 50-mi radius of the area open to commercial fishing. Salmon may be taken by seine or gillnet, but from June 1 through September 15, a purse seine vessel may be used to take subsistence salmon only with a gillnet. In the Unalaska District, subsistence gillnets must be attended at all times while fishing. (5 AAC 01.360–5 AAC 01.370). Waters within the Unalaska District that are closed to subsistence fishing for salmon are defined in 5 AAC 01.375.

Salmon Harvest Assessment Program

The Division of Commercial Fisheries has issued subsistence salmon harvest permits for the Unalaska District since 1979. Permits are only issued in person at the ADF&G Dutch Harbor office. Unalaska District permits are required by regulation to be returned by October 31; they may be retuned in person or mailed to the ADF&G Dutch Harbor office. Reminder letters are sent on approximately November 1 to all permit holders who have not returned their permits. Data from returned permits are tabulated by species and fishing area. Harvest estimates are calculated by expanding reported harvest numbers from successfully and unsuccessfully fished permits to represent fish taken by all permit holders, including those who did not return their permits (Wilburn and Nichols 2013). Federal subsistence fisheries are authorized for permament residents residing in the Aleutian Islands Area; however they are managed consistently with the state fisheries in the region. [5]

5. Additional information about the federal subsistence fishery is available by contacting the United States Fish and Wildlife Service, Office of Subsistence Management in Anchorage, AK (http://www.doi.gov/subsistence/index.cfm).

Subsistence Salmon Harvests in 2013

In 2013, 254 subsistence salmon permits were issued for the Unalaska District which was more than the previous year, 2012, when 211 were issued, more than the recent 5-year (2008–2012) average of 214 permits (and 10-year (2003–2012) average of 210 permits issued (Table 9-1). This number was also higher than the historical annual average (1985–2012) of 170 permits. Harvest numbers are recorded on the permit and returned at the end of the harvest season to ADF&G. In 2013, the return rate for the Unalaska District was 78%, with 197 permits returned out of 254 permits issued. Dutch Harbor and Unalaska residents accounted for 230, or 91%, of all permits issued in the Unalaska District, and returned 177 permits out of 197 permits (90%) (Table 9-2).

The estimated subsistence harvest of salmon in the Unalaska District in 2013 was 4,840 fish, which was was 950 salmon less than the previous year (5,790), and less than the recent 5-year average (4,864 fish) and equal to the10-year average (4,840 fish) for the district (Table 9-1). The composition of the 2013 subsistence salmon harvest was sockeye (88%, higher than 2012 (86%), coho (4%, down from 7% in 2012), pink (6%, the same as in 2012),), chum (1%), and Chinook (<1%) salmon (Figure 9-1). The primary subsistence salmon fishing locations used in the Unalaska District occurred primarily in Reese Bay where sockeye salmon are targeted as they are migrating to McLees Lake (Hartill and Keyse 2010).

In interviews with Division of Subsistence personnel in 2000, ADF&G fishery managers expressed the view that the permit program captured most subsistence salmon harvests occurring in the Unalaska District (Fall and Shanks 2000). In their view, most subsistence fishers likely obtained permits, perhaps due to the presence of Alaska Wildlife Troopers from the Alaska Department of Public Safety as well as a population that is self-enforcing (likely to report violators). Fishery managers in the Unalaska District believe that few commercially caught salmon are retained for home uses in the Aleutian Islands Area since most commercial fishing activities in the area target shellfish and groundfish rather than salmon. A 1994 survey of randomly selected Unalaska households conducted by the Division of Subsistence supports this view: it found that 4% of all salmon harvested for home uses were removed from commercial catches, 62% were harvested with noncommercial nets, and 34% with rod and reel under sport fishing regulations (CSIS).

SALMON HARVESTS IN THE ADAK DISTRICT

The Adak District of the Aleutian Islands Area consists of waters west of Atka Pass at 175°23.00' west longitude to the terminus of the Aleutian Islands. Adak Island hosted a U.S. Navy base and military community (population of 4,633 in 1990) that was phased out between 1993 and 1996. With the Navy base closure complete, the population was estimated at 0 in 1997; however, for several years following the base closure, the Aleut Corporation worked with the Department of Interior and Department of the Navy to lease the base facilities and ultimately secure a land transfer to the corporation in 2004, with the intention of repurposing and privatizing the facility's infrastructure to support the local fisheries industry with processing, refueling, and housing services. During the lease period, the Aleut Corporation processed its first commercially caught fish in 1998 and has continued working with the Alaska seafood industry to further develop and maintain Adak as a commercial fish processing location. In 2000, the Alaska Boundary Commission approved Adak's application to become a second-class city. In 2013, Aleut Enterprises and the Aleut Corporation owned and operated a seafood processing facility, and a few Adak residents held commercial fishing permits. In addition, Adak provides a fueling port and crew transfer facility for foreign fishing fleets.[6,7] Adak's estimated population was 316 in 2000[8] and 331 in 2010, with

6. Gen. Hansford T. Johnson, USAF. 2002. Statement of H.T. Johnson Assistant Secretary of the Navy (Installations and Environment) Before the Subcommittee on Public Lands and Forests of the Senate Committee on Energy and Natural Resources To Ratify an Agreement Between the Aleut Corporation And the United States of America. Washington, D.C. Accessed September 2014. http://www.navy.mil/navydata/people/assistsecnav/asn_ie/htjohnson020509.txt.
7. Adak Update: Adak Land Transfer Fact Sheet. 2004. Engineering Field Activity (EFA) Northwest, Naval Facilities Engineering Command. Accessed September 2014. http://www.navfac.navy.mil/content/dam/navfac/PDFs/factsheets/adak-alaska.pdf.

21 students attending the Adak school. The estimated population for Adak in 2013 was 282 of which 182 resided in group quarters. [9]

Salmon Harvest Regulations

Prior to 1988, the noncommercial salmon net fishery at Adak was classified as a subsistence fishery, then a personal use fishery in 1988, followed by a return to a subsistence classification in 1998.

Subsistence regulations in place since 2001 require that fishers obtain a permit from ADF&G. Fishers must record their daily harvests on the permit, and return it to ADF&G by October 31. Permit holders may harvest up to 25 salmon per permit, plus an additional 25 salmon for each household member listed on the permit. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Also, as specified in 5 AAC 01.380 (b)(2), "a permit holder may obtain an additional permit from the department to harvest more salmon." Salmon may be taken at any time. All salt waters within 100 yards of a stream terminus, as well as all fresh waters of and around Adak Island and Kagalaska Island, are closed to subsistence fishing for salmon (5 AAC 01.375 (6)).

Salmon Harvest Assessment Program

Subsistence salmon permits are issued by the ADF&G Cold Bay office and are faxed upon request to Adak residents. Permits must be returned by mail or fax to the ADF&G Cold Bay office by October 31, after which reminder letters are sent to those who have yet to report their harvests. ADF&G fishery managers believe that the program provides reliable data on subsistence salmon fishing effort and harvests at Adak (Fall and Shanks 2000).

Subsistence Salmon Harvests in 2013, Adak District

Only 6 subsistence salmon permits were issued for the Adak District in 2013. This was more than the 5-year (3) and 10-year (4) averages, but less than the historical 1988–2012 average (16) (Table 9-3). In 2013, all permits issued were to residents of Adak (Table 9-4). The total estimated harvest in 2013 was 122 salmon, comprising 30 sockeye salmon (25%), 12 coho salmon (10%), and 80 pink salmon (66%) (Table 9-3). The 2013 estimated harvest based on permits issued and retuned was more than any recent year between 2009 and 2012 when fewer than 3 permits were issued annually, but much less than in 2008 when 10 permits were issued with an estimated harvest of 400 salmon. The recent 5-year average of total salmon harvests (2008–2012) was 100 salmon, most of which were sockeye (97), followed by pink salmon (3). For the period 1988–1993, during the Navy's occupation of their base at Adak, an average of 49 personal use permits were issued and the average annual harvest was 611 salmon, with an average of 529 sockeye, 62 pink, 20 coho and 0 Chinook harvested (Table 9-3).

SALMON HARVESTS AT AKUTAN, NIKOLSKI, AND ATKA

Permits are not required for subsistence salmon harvests in the Akutan, Umnak, and Atka–Amlia islands districts, and there are no annual harvest assessment programs in place. In these districts, no more than 250 salmon may be taken annually for subsistence purposes (5 AAC 01.380).

The Division of Subsistence conducted postseason household interviews in Akutan (Akutan District) and Nikolski (Umnak District) pertaining to 1991 subsistence harvests (all resources); again in Akutan pertaining to 2008 subsistence harvests (all resources); and in Atka (Atka–Amlia Islands District) pertaining to harvests in 1992 (salmon only), and 1994 (all resources). Salmon harvest data were also collected for Akutan and Nikolski (2002 and 2003 harvests) and Atka (2003 harvests) as part of the

8. U.S. Census Bureau, Washington D.C. n.d. "American FactFinder." U.S. Department of Commerce. Accessed April 2015. http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

9. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage: 2010 census: demographic profiles." Accessed April 2015. http://live.laborstats.alaska.gov/cen/dparea.cfm

project reported in Davis (2005). In most years, subsistence harvests of salmon in Akutan, Nikolski, and Atka are primarily composed of sockeye salmon, but coho and pink salmon also account for a relatively large proportion of yearly harvests (Table 9-5). Subsistence salmon harvests in Akutan totaled 3,268 fish in 1991, decreasing to 1,070 fish in 2002 and 1,675 fish in 2003. In 2008, Akutan harvests totaled nearly the same as in 1991 with a total of 3,363 salmon; with sockeye (1,489) and pink salmon (1,366) harvests being near equivalent. The Reedy-Maschner and Machner (2012) report indicates per capita usable weight of subsistence harvested salmon for Akutan in 2009 (73.9 lb) but it does not provide the total number of fish in total or by species. Considering the per capita harvest reported in 2009, Pink salmon was greatest (35.4 lb), followed by Sockeye salmon (27.5 lb; Reedy-Maschner and Machner 2012). Yearly salmon harvests in Nikolski also presented an apparent decreasing pattern, with 1,902 fish caught in 1991 and 604 fish in 2003; further data collection and analysis is necessary to confirm the trend. In Atka, the yearly salmon harvest varied between 1,454 and 2,387 in the 3 years for which information is available (Table 9-5).

OTHER SUBSISTENCE FISHERIES IN THE ALEUTIAN ISLANDS AREA

Finfishes

Harvest estimates of subsistence halibut for the Aleutian Islands Area are available for 2012 (Fall and Koster 2014). Due to a lapse in funding, harvest estimates of subsistence salmon are not available for 2013.

There are no annual harvest assessment programs for other subsistence finfish fisheries of the Aleutian Islands Area. Permits are required for the taking of rainbow/steelhead trout and Arctic char/Dolly Varden, but no harvest reporting program is in place. Fish other than salmon may be taken by gear specified in 5 AAC 01.010, except that under state regulations, halibut may be taken only by a single handheld line with no more than 2 hooks attached, while federal rules allow up to 30 hooks using a longline (skate). The Division of Subsistence has conducted systematic household surveys pertaining to a single year's harvests in Akutan (1991; 2008), Atka (1994), Nikolski (1991), Saint George (1994), Saint Paul (1994), and Unalaska–Dutch Harbor (1994). Results, including harvest estimates for finfishes, are available in the CSIS.

Nonsalmon subsistence harvest data is also available for Akutan in 2009 (Reedy-Maschner and Maschner 2012). The per capita edible weight of nonsalmon fish reported for Akutan in this study was 131.7 lb. This harvest was comprised primarily of Pacific halibut (105.1 lb per capita), followed by Pacific cod (19.4 lb per capita), and Dolly Varden (3.7 lb. per capita). For more information, refer to Reedy-Maschner and Maschner (2012).

Shellfish

Permits for the taking of shellfish for subsistence purposes are required only for king and Tanner crabs in that portion of the Alaska Peninsula–Aleutian Islands Area west of Scotch Cap Light and east of 168° west longitude. Estimates of subsistence harvests of all marine invertebrates for single study years, based on systematic household surveys, are available in the CSIS.

Table 9-1.–Historical subsistence salmon harvests, Unalaska District, 1985–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1985	65	22	0	897	208	20	1,293	2,418
1986	121	28	0	3,449	847	375	2,468	7,139
1987	81	49	0	1,097	378	151	1,780	3,406
1991	77	45	3	966	390	83	2,627	4,069
1989	74	42	2	1,112	470	36	1,292	2,912
1990	94	37	4	2,357	681	100	1,428	4,570
1991	89	48	0	1,294	666	45	1,075	3,080
1992	144	102	7	2,739	587	11	1,723	5,067
1993	139	102	17	2,831	697	136	587	4,268
1994	150	120	1	2,759	774	48	1,053	4,635
1995	160	129	23	4,484	484	23	791	5,805
1996	189	123	5	1,107	1,033	49	492	2,686
1997	221	163	8	4,192	864	110	554	5,728
1998	206	161	4	3,317	731	26	729	4,807
1999	208	154	0	2,485	1,234	16	1,044	4,779
2000	212	167	10	3,935	603	26	580	5,154
2001	204	165	6	4,202	724	77	784	5,793
2002	231	180	3	5,678	707	65	385	6,837
2003	227	179	25	5,124	572	40	378	6,139
2004	208	170	7	4,713	955	26	437	6,139
2005	217	152	8	4,066	424	14	527	5,038
2006	199	159	15	2,007	422	74	675	3,193
2007	178	126	14	2,575	254	42	683	3,569
2008	204	161	2	1,676	828	90	660	3,257
2009	210	130	5	3,171	616	182	443	4,416
2010	216	170	1	3,883	319	71	336	4,611
2011	230	156	8	5,525	303	65	343	6,244
2012	211	169	20	4,960	429	43	338	5,790
2013	254	197	3	4,281	199	67	290	4,840
5-year average (2008–2012)	214	157	7	3,843	499	90	424	4,864
10-year average (2003–2012)	210	157	10	3,770	512	65	482	4,840
Historical average (1985–2012)	170	122	7	3,093	614	73	911	4,698

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 9-2.–Estimated subsistence salmon harvests by community of residence, Unalaska District, 2012.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Akutan	1	1	0	0	16	0	0	16
Anchorage	5	4	0	1	0	0	0	1
Atqasuk	1	1	0	0	0	0	0	0
Chugiak	1	1	0	28	0	0	2	30
Douglas	1	1	0	0	0	0	0	0
Dutch Harbor	118	90	0	1,895	69	17	52	2,034
Eagle River	1	1	0	50	0	0	0	50
Fairbanks	1	1	0	0	0	0	0	0
Fairview	1	1	0	0	0	0	0	0
King Salmon	1	1	0	0	0	0	0	0
Kodiak City	4	2	0	0	0	0	0	0
Ninilchik	1	1	0	0	0	0	0	0
Seldovia	1	0	0	0	0	0	0	0
Sitka	2	2	0	7	0	0	0	7
Unalaska	112	87	3	2,250	113	50	236	2,652
Wasilla	2	2	0	0	0	0	0	0
Wrangell	1	1	0	50	0	0	0	50
Total	**254**	**197**	**3**	**4,281**	**199**	**67**	**290**	**4,840**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 9-3.–Historical subsistence and personal use salmon harvests, Adak District, 1988–2013.

	Permits		Estimated salmon harvest					
Year[a]	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1988	43	29	0	503	23	0	150	676
1989	64	47	0	382	0	0	117	499
1990	61	29	0	800	47	0	41	888
1991	37	31	0	281	6	0	34	321
1992	52	41	0	572	30	0	4	606
1993	36	26	0	638	12	0	26	676
1994[b]	0	0	0	0	0	0	0	0
1995	4	3	0	156	0	0	0	156
1996	6	6	0	91	0	0	0	91
1997[c]	18	12	0	229	0	4	0	233
1998	13	10	0	399	0	0	25	424
1999	5	5	0	164	4	0	0	168
2000	13	13	0	270	4	0	75	349
2001	17	15	14	489	18	0	16	537
2002	3	3	0	150	0	0	0	150
2003	6	5	0	338	0	0	0	338
2004	6	4	0	336	0	0	0	336
2005	2	2	0	188	0	0	0	188
2006	1	1	0	74	0	0	1	75
2007	9	8	0	367	2	0	29	398
2008	10	8	0	386	0	0	14	400
2009	1	1	0	25	0	0	0	25
2010	2	1	0	50	0	0	0	50
2011	0	0	0	0	0	0	0	0
2012	2	2	0	25	0	0	0	25
2013	6	3	0	30	12	0	80	122
5-year average (2008–2012)	3	2	0	97	0	0	3	100
10-year average (2003–2012)	4	3	0	179	0	0	4	183
Historical average (1988–2012)	16	12	1	277	6	0	21	304

Source ADF&G Division of Subsistence, ASFDB 2013 (ADF&G 2014).

a. Personal use fishery 1988 to 1997; subsistence fishery 1998 to present.

b. Navy presence at Adak was reduced beginning in 1994; no requests for permits that year.

c. In 1997, a number of civilians were hired to work on a clean-up effort at Adak.

Table 9-4.–Estimated subsistence salmon harvests by community of residence, Adak District, 2012.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak	6	3	0	30	12	0	80	122
Total	**6**	**3**	**0**	**30**	**12**	**0**	**80**	**122**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 9-5.–Estimated noncommercial harvests of salmon by residents of Akutan, Atka, and Nikolski.

		Estimated number of harvesting	Estimated salmon harvest[a]						
Community	Year	households	Chinook	Sockeye	Coho	Chum	Pink	Other–unknown	Total
Akutan	1991	24	10	1,872	429	36	915	6	3,268
Akutan	2002	NA	0	809	147	44	70	0	1,070
Akutan	2003	NA	3	1,270	127	0	275	0	1,675
Akutan	2008	21	2	1,489	452	54	1,366	0	3,363
Atka	1992	18	4	502	465	24	459	0	1,454
Atka	1994	23	10	394	583	133	1,267	0	2,387
Atka	2003	NA	8	1,187	333	0	264	0	1,792
Nikolski	1991	12	0	957	547	54	327	17	1,902
Nikolski	2002	NA	0	312	643	0	182	0	1,137
Nikolski	2003	NA	12	287	270	0	35	0	604

Sources ADF&G Division of Subsistence household surveys, (ADF&G 2009), Davis (2005), Reedy-Maschner and Maschner (2009).

Note NA indicates the estimated number of harvesting households cannot be calculated using available data.

a. Includes harvests for home uses by all methods, including subsistence nets, sport rod and reel, and removal from commercial harvests.

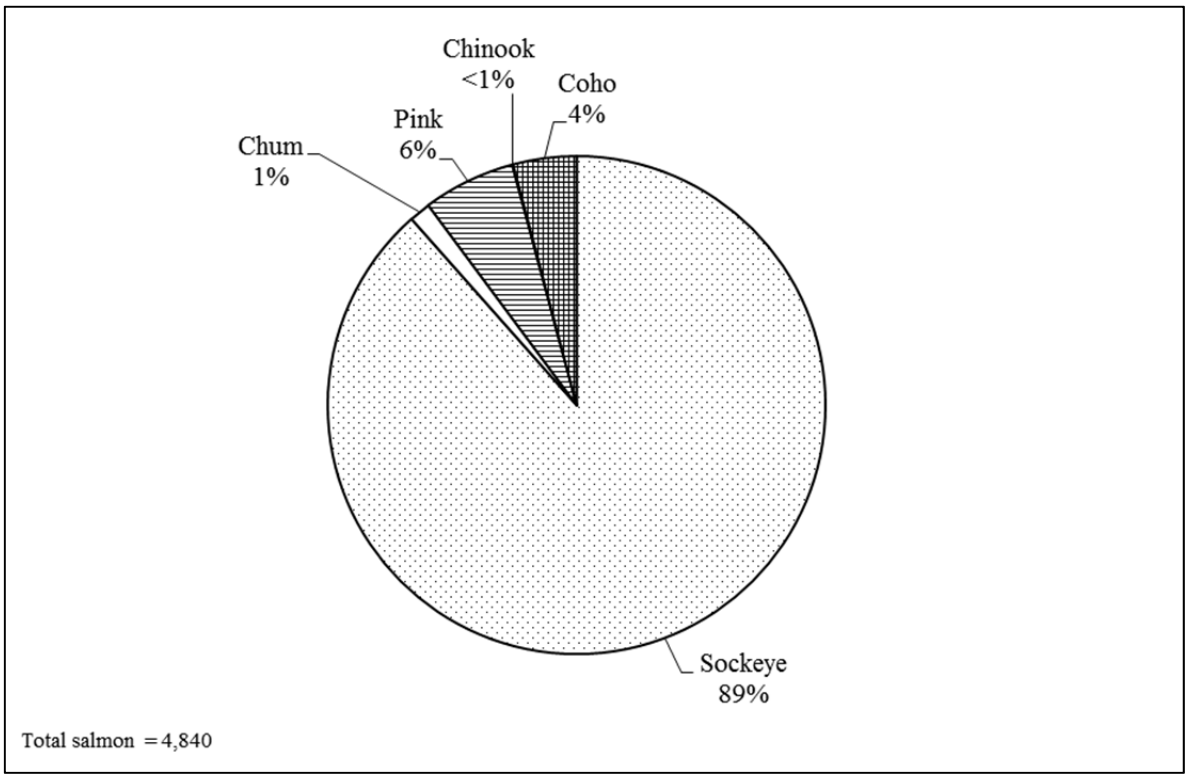

Figure 9-1.–Composition of Unalaska District estimated subsistence salmon harvest by species, 2012.

CHAPTER 10: KODIAK AREA

INTRODUCTION

The Kodiak Area encompasses the waters of the Gulf of Alaska surrounding the Kodiak Archipelago and those waters along that portion of the Alaska Peninsula that drains into Shelikof Strait (Figure 10-1). The portion of the Kodiak Island Borough's population living along the island's road system is the largest rural community in Alaska (as defined by the Federal Subsistence Board [FSB]) and the largest community outside the nonsubsistence areas defined by the Alaska Joint Board (Figure 10-1). The population of the Kodiak Island Borough according to the State of Alaska Department of Labor and Workforce Development (13,815 in 2013) comprises all individuals residing on Kodiak and nearby islands; however, this population is often distinguished by which communities have access to the road system. Communities along the Kodiak Island road system include Kodiak City (6,331), the U.S. Coast Guard base (1,199), Womens Bay (783), Chiniak (48), and the remainder of the road-accessible Kodiak Island Borough (this includes all residents of Kodiak Island who are on the road system but are not identified within the population of a census designated place [CDP] or city) (4,598). For the purposes of this report we are not including Chiniak as part of the Kodiak Road system because the community uses its own postal code, and residents consider themselves distinct from Kodiak City. However, there is a road that leads from Kodiak City to Chiniak. Communities within the Kodiak Island Borough that are located outside the range of the road system include Akhiok (85), Aleneva CDP (44), Karluk (43), Larsen Bay (88), Old Harbor (224), Ouzinkie (184), and Port Lions (188).[1]

SALMON HARVEST IN THE KODIAK AREA

Salmon Harvest Regulations

Permits have been required to harvest salmon for subsistence purposes in the Kodiak Area since 1962. Since 1990, all Alaska state residents have been eligible to participate in subsistence salmon fishing in the Kodiak Area under state regulations. In 2013, legal gear for subsistence salmon fishing under state regulations included gillnets (maximum length 50 fathoms) and seines. Fishers are required to physically attend their net while fishing and should always have a valid subsistence salmon permit with them while fishing for salmon; they should also record the numbers of all fish harvested on the permit before concealing the fish from plain view or transporting them from the harvest area. Generally, fishing is open year-round from 6:00 AM to 9:00 PM daily. From June 1 through September 15, commercial purse seine vessels may be used for subsistence fishing only before June 1 and after September 15. Purse seines cannot be used for subsistence salmon fishing 24 hours before, during, and 24 hours after any period open for commercial salmon fishing. Only gillnets can be operated for subsistence purposes from purse seine vessels between the dates of June 1 and September 15, and only when no other salmon fishing gear is on board. Permits allow individual fishers to harvest 25 salmon for their own use plus 25 additional salmon for each member of the permit holder's household. An additional permit can be obtained if the fisher could demonstrate a need for more fish. A list of waters closed to subsistence fishing within the Kodiak Area appears in 5 AAC 01.525 and 5 AAC 01.530.

In 2013, federal regulations governing subsistence salmon fishing in waters of the Kodiak Area under jurisdiction of the FSB were generally identical to the state regulations summarized above, except that rod and reel (in addition to gillnets and seines) was legal subsistence gear under federal rules. Another

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July 2014. http://labor.alaska.gov/research/pop/popest.htm

difference was that federal regulations allowed subsistence salmon fishing 24 hours per day, while state regulations limited subsistence fishing to the hours of 6:00 AM to 9:00 PM daily[2].

Salmon Harvest Assessment Program

Staff in the Division of Commercial Fisheries' Kodiak office manage the subsistence salmon harvest assessment program for the Kodiak Area. Permits are mailed each year to people who turned in their permits at the end of the previous fishing season. People may request subsistence permits by mail or in person at the Kodiak ADF&G office. In June 2001, staff from the Division of Commercial Fisheries and the Division of Subsistence visited 6 communities off the road system in the Kodiak Island Borough (Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions) to implement an area permit vendor program. A resident in each community was trained to issue subsistence fishing permits. Outreach activities were conducted in each community to encourage subsistence fishers to obtain permits, record their harvests, and return the permits at the end of the season. Research conducted in 2013 by Division of Subsistence researchers showed that outreach in regards to subsistence fishing regulations and permiting is again needed in the smaller communities on Kodiak Island. Researchers witnessed a great deal of confusion surrounding subsistence regulations and the permit system. Area managers were contacted so researchers could provide accurate answers to subsistence fishers' questions. Subsistence fishers mail permits with their harvest record to ADF&G at the end of the season or return them in person at the Kodiak ADF&G office. ADF&G sends reminder letters in February to permit holders who have not returned their permits.

Subsistence Salmon Harvests in 2013

In the Kodiak Area, ADF&G sends permits to every permit holder who returned a permit in the previous year. The U.S. Postal Service returns a number of permits to ADF&G marked "undeliverable." No record is maintained regarding the number of "undeliverable" permits—as a result, the actual number of permits issued remains unknown. For this reason, harvest reports have not been expanded for this area since 1999 (Table 10-1). Results of the harvest monitoring program therefore reflect only the reported harvests of subsistence fishers who returned permits.

In 2013, 1,688 subsistence permits with harvest information were returned to ADF&G (tables 10-1 and 10-2). Of these, 1,420 (84%) were returned by residents of Kodiak Island Borough, 262 (16%) were returned by residents of other Alaska communities, and 6 (<1%) had been issued to Alaska residents who were serving in the military outside of the state. Following a well-established trend, permit holders with addresses in Kodiak Island Borough accounted for the majority (84%) of all permits returned for 2013 (Table 10-2).

The total reported subsistence salmon harvest for the Kodiak Area in 2013 was 31,405 fish, which is higher than the recent 5-year (2008–2012) average of 29,738 salmon, but lower than the 10-year (2003-2012) average of 32,840 salmon (Table 10-1). Of the total harvest, 30,200 salmon (96%) were harvested by residents of Kodiak Island Borough communities and 1,189 salmon (4%) were harvested by permit holders in other Alaska communities (Table 10-2). Of the 30,200 salmon harvested by Kodiak Island Borough residents, 24,962 fish (80%) were taken by residents living along the Kodiak Island road system (figures 10-1 and 10-2). The Kodiak Island road system includes Kodiak City, the U.S. Coast Guard base, Womens Bay, and the remaining residents who live along the Kodiak Island road system but who are not identified within the population of a CDP or city. This is consistent with the pattern between 2000 and 20012 when 72% to 83% of all salmon harvested by Kodiak Island Borough residents for subsistence purposes was taken by residents of Kodiak City and areas along the road system. Comparatively, the 6 villages and other populated remote locations that do not have access to the road system surrounding Kodiak City, together with Chiniak, harvested 5,238 salmon in 2013 (Table 10-2).

2. USFWS began issuing a separate subsistence salmon fishing permit in 2013. ADF&G will attempt to obtain harvest resultsfor inclusion in future reports.

In 2013, the Kodiak Area subsistence salmon harvest was composed of 88% sockeye salmon, 8% coho salmon, 3% pink salmon, 1% chum salmon, and <1% Chinook salmon (Figure 10-3). The commercial harvest retained for home use was different in 2013 in terms of the composition of the harvest. As shown in Figure 10-4, in 2013, 11,576 salmon, including 1,164 coho (10%), 5,721 pink (50%), 3,032 sockeye (26%), 592 Chinook (5%), and 1,067 chum salmon (9%), were retained from commercial harvests for home use (Jackson and Keyse 2013:13). The total numbers of pink and Chinook salmon retained from commercial harvests for personal use in 2013 were both 4 times as large as they were in 2012. The 2013 commercial retention of chum for personal use increased 34 times from 2012. The commercial retention of both sockeye and coho salmon decreased significantly from 2012 to 2013 (Jackson and Keyse 2013:13).

In 2001, interviews were conducted with Division of Subsistence staff and fishery managers within the Division of Commercial Fisheries. During interviews, fishery managers expressed uncertainty regarding the accuracy of subsistence salmon harvest data collected through the Kodiak Area permit program. ADF&G staff suspected that a substantial amount of subsistence harvests occurred without permits, especially in areas off the Kodiak Island road system. Subsistence salmon harvest estimates for the Kodiak Area based on household harvest surveys and reported in the CSIS were substantially higher than harvests reported in the FMRs. Delivery of permits to subsistence fishers living in communities outside of the road system, including Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions, has proven problematic in the past. As mentioned above, an outreach effort and an area permit vendor program were implemented in 2001 to address this issue. These actions appeared to result in increased participation in the permit program in these 6 communities. A total of 100 permits were returned in 2000; from 2001 through 2006 between 189 and 143 permits were returned (Table 10-3). Accordingly, the yearly reported subsistence salmon harvest also fluctuated between 2000 and 2006 with the lowest number harvested being 6,299 fish in 2000 and the highest number being 10,172 fish in 2005. The most recent years of 2010–2013 have marked the lowest reported salmon harvests, the lowest being 5,138 in 2007 and the highest being 5,896 in 2010. In 2013, both the number of permits returned by the 6 villages, together with Chiniak, (122 permits) and the number of harvested salmon reported (5,238 fish) were the closest to data for 2000, which was prior to the implementation of the local permit vendor program and the outreach effort (Table 10-3). Due to lack of funding, in 2013 a limited local vendor program was in place only in Ouzinkie, Larsen Bay, and Port Lions (personal communication, Amanda Dorner, Division of Commercial Fisheries, Kodiak). Likewise, no outreach efforts occurred in the small communities on Kodiak Island in 2013. Additional research and outreach are needed to assess the most recent harvest data. In 2013, the Division of Subsistence conducted subsistence salmon harvest surveys with residents of Larsen Bay, Old Harbor, and Kodiak City and communities along the surrounding road system to address this need for current data and community outreach. These data are currently in the analysis stage with the Division of Subsistence Information Management team, and a final report is expected to be published in 2015.

Household surveys (with results reported in the CSIS) have documented noncommercial salmon harvests with rod and reel gear, which is legal subsistence gear under federal subsistence regulations but not under state regulations. Household surveys also document the number of salmon removed from commercial harvests for personal use. Information on these 2 types of harvests, not documented by the permit program, is needed for a better understanding of the household salmon harvest in the Kodiak Area. This need was addressed by Division of Subsistence researchers when administering 2013 subsistence salmon harvest surveys.

In early 2004, the Division of Subsistence and the Kodiak Area Native Association (KANA) conducted comprehensive household surveys in Akhiok, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions in the context of a project funded by the *Exxon Valdez* Oil Spill Trustee Council. Among other objectives, this project provided updated harvest data for salmon, nonsalmon finfishes, and marine invertebrates (Fall 2006).

In spring 2013, the Division of Subsistence conducted household harvest surveys in the communities of Kodiak City (along the road system), Old Harbor and Larsen Bay. The purpose of this project is to update the existing subsistence salmon harvest data for these communities. The project is currently in the data analysis phase.

OTHER SUBSISTENCE FISHERIES IN THE KODIAK AREA

Finfishes

Federal Pacific halibut subsistence harvest data are currently available for communities and tribes in the Kodiak Area from 2003–2012 (Fall and Koster 2014). Due to a lapse in funding, Pacific halibut subsistence harvest estimates were not collected for 2013.

There are no annual harvest assessment programs for other subsistence finfish fisheries in the Kodiak Area. Harvest estimates based on comprehensive household surveys conducted by the Division of Subsistence are available in the CSIS for freshwater and marine species spanning multiple years for each Kodiak Island Borough community. Fish harvested in the largest quantities and used by the majority of households include Pacific cod, lingcod *Ophiodon elongatus*, various species of flounders, Pacific halibut, rockfishes, and Arctic char/Dolly Varden.

Shellfish

Subsistence permits are required for the harvest of king, Tanner, and Dungeness crabs in the Kodiak Area (5 AAC 02.410). Harvesters only need one permit for both salmon and shellfish; the shellfish harvest is recorded on the back of the salmon permit. Regulations establish sex, size, and bag and possession limits for these species of crabs. Only male crabs may be taken. Other marine invertebrates used for subsistence purposes in the Kodiak Area include clams, cockles, mussels, chitons, octopuses, sea urchins, and more.

Table 10-1.–Historical subsistence salmon harvests, Kodiak Area, 1986–2013.

	Permits		Reported salmon harvest[a]					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1986	1,244	1,002	90	14,391	6,998	605	2,371	24,455
1987	1,124	880	101	13,198	6,463	1,299	2,421	23,482
1988	1,098	699	108	10,081	4,291	377	1,320	16,177
1989	2,800	717	43	12,638	4,123	419	1,553	18,776
1990	2,900	1,167	131	17,959	8,627	655	1,605	28,977
1991	1,406	1,225	177	21,835	8,208	714	1,743	32,677
1992	1,561	1,195	318	20,684	8,643	643	1,646	31,934
1993	1,496	959	243	19,471	7,176	838	2,696	30,424
1994	2,550	1,464	205	17,962	7,491	440	1,758	27,856
1995	1,950	1,194	175	19,416	5,603	293	1,548	27,035
1996	1,567	1,390	253	28,287	5,117	381	1,125	35,163
1997	2,098	1,638	383	33,293	6,369	234	1,458	41,737
1998	1,841	1,126	350	20,459	5,348	214	1,412	27,783
1999	ND	1,438	397	26,497	4,932	388	1,266	33,480
2000	ND	1,376	273	24,873	5,399	341	742	31,628
2001	ND	2,153	273	33,833	5,920	427	1,158	41,611
2002	ND	2,271	593	32,977	6,057	350	1,665	41,642
2003	ND	2,275	500	32,104	6,096	384	1,484	40,568
2004	ND	2,240	379	30,217	5,819	261	1,395	38,071
2005	ND	1,900	431	27,002	7,447	592	2,343	37,815
2006	ND	1,906	280	22,905	6,640	441	1,827	32,093
2007	ND	2,118	207	24,556	4,630	240	1,532	31,165
2008	ND	1,637	151	20,809	4,336	168	1,128	26,592
2009	ND	1,737	159	21,852	4,570	186	1,180	27,947
2010	ND	1,890	158	22,170	4,200	273	1,266	28,067
2011	ND	1,996	122	34,037	2,367	198	1,199	37,923
2012	ND	1,866	54	23,865	2,920	166	1,154	28,159
2013	ND	1,688	119	27,757	2,528	175	826	31,405
5-year average (2008–2012)	ND	1,825	129	24,547	3,679	198	1,185	29,738
10-year average (2003–2012)	ND	1,957	244	25,952	4,903	291	1,451	32,840
Historical average (1986–2012)	ND	1,536	243	23,236	5,770	427	1,555	31,231

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

ADF&G sends permits to every permit holder who returned a permit in the previous year. The U.S. Postal Service returns a number of permits to ADF&G marked "undeliverable". No record is maintained regarding the number of "undeliverable" permits. As a result the actual number of permits issued remains unknown (ND). For this reason, harvest reports have not been expanded.

Table 10-2.–Reported subsistence salmon harvests by community and species, Kodiak Area, 2013.

	Community	Permits returned	Reported salmon harvest[a]					
			Chinook	Sockeye	Coho	Chum	Pink	Total
Kodiak Island Borough								
	Akhiok	3	0	181	8	2	10	201
	Chiniak	24	3	344	62	7	24	440
	Karluk	2	0	35	5	0	0	40
	Kodiak (city)	1,298	89	22,811	1,560	82	420	24,962
	Larsen Bay	14	7	687	30	0	0	724
	Old Harbor	19	2	854	252	58	92	1,258
	Ouzinkie	29	1	858	330	15	145	1,349
	Port Lions	31	12	902	213	7	92	1,226
	Subtotal, Kodiak Island Borough	**1,420**	**114**	**26,672**	**2,460**	**171**	**783**	**30,200**
Other Alaska								
	Alexander Creek	1	0	35	0	0	0	35
	Anchor Point	4	0	0	0	0	0	0
	Anchorage	110	2	451	20	0	11	484
	Bethel	2	0	19	0	0	0	19
	Bettles	1	0	0	0	0	0	0
	Central	1	0	0	0	0	0	0
	Chickaloon	1	0	0	0	0	0	0
	Chignik Lagoon	0	0	0	0	0	0	0
	Chugiak	3	0	12	0	0	0	12
	Cold Bay	1	0	10	0	0	0	10
	Cordova	1	0	0	0	0	0	0
	Eagle River	17	0	36	0	0	0	36
	Fairbanks	9	0	38	0	0	0	38
	Girdwood	4	0	59	0	0	0	59
	Homer	16	0	81	41	0	0	122
	Hope	1	0	0	0	0	0	0
	Juneau	4	0	52	0	0	0	52
	Kasilof	4	0	25	0	0	0	25
	Kenai	3	0	0	0	0	0	0
	Nikiski	1	0	0	0	0	0	0
	Ninilchik	3	0	0	0	0	0	0
	North Pole	4	0	0	0	0	0	0
	Palmer	11	2	12	0	4	5	23
	Seldovia	2	0	0	7	0	25	32
	Seward	5	0	0	0	0	0	0
	Shishmaref	1	0	0	0	0	0	0
	Sitka	1	0	7	0	0	0	7
	Soldotna	20	1	18	0	0	2	21
	Sterling	1	0	0	0	0	0	0
	Sutton	2	0	0	0	0	0	0
	Talkeetna	4	0	61	0	0	0	61

-continued-

Table 10-2.–Page 2 of 2.

Community	Permits returned	Reported salmon harvest[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Tok	1	0	0	0	0	0	0
Trapper Creek	1	0	0	0	0	0	0
Valdez	2	0	153	0	0	0	153
Wasilla	20	0	0	0	0	0	0
Subtotal, other Alaska	**262**	**5**	**1,069**	**68**	**4**	**43**	**1,189**
Other USA[b]	6	1	16	0	0	0	16
Total	**1,688**	**120**	**27,757**	**2,528**	**175**	**826**	**31,405**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. ADF&G sends permits to every permit holder who returned a permit in the previous year. The U.S. Postal Service returns a number of permits to ADF&G marked "undeliverable". No record is maintained regarding the number of "undeliverable" permits. As a result the actual number of permits issued remains unknown (ND). For this reason, harvest reports have not been expanded.

b. These are Alaska residents serving in the military who had a mailing address outside the state.

Table 10-3.–Permits returned and salmon harvests reported by the villages of Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions.

Year	Permits returned	Reported salmon harvest	Source
2000[a]	100	6,299	(Fall et al. 2002:105)
2001	189	9,034	(Fall et al. 2003a:117)
2002	167	9,386	(Fall et al. 2003b:121)
2003	165	8,714	(Brown et al. 2005b:123)
2004	170	7,845	(Fall et al. 2007a:118)
2005	147	10,172	(Fall et al. 2007b:105)
2006	143	7,114	(Fall et al. 2009a:113)
2007	143	5,138	(Fall et al. 2009b:105)
2008	117	5,850	Fall et al. 2011:111
2009	118	5,824	Fall et al. 2012:119
2010	118	5,896	Table 10-2
2011	125	5,786	Table 10-2
2012	112	4,939	Table 10-2
2013	98	4,798	Table 10-2

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Local permit vendor program and outreach efforts implemented in 2000.

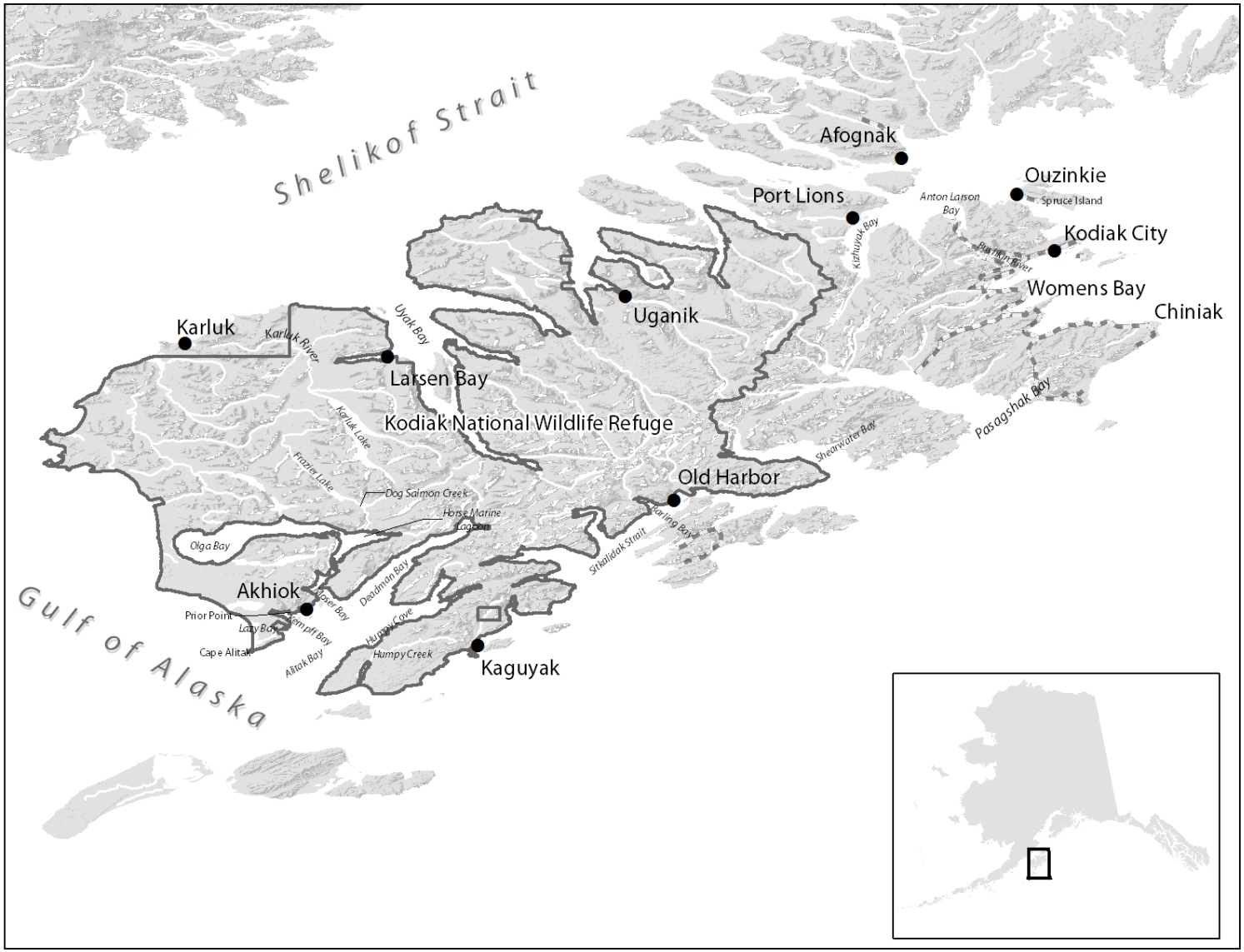

Figure 10-1.–Kodiak Area map, 2012.

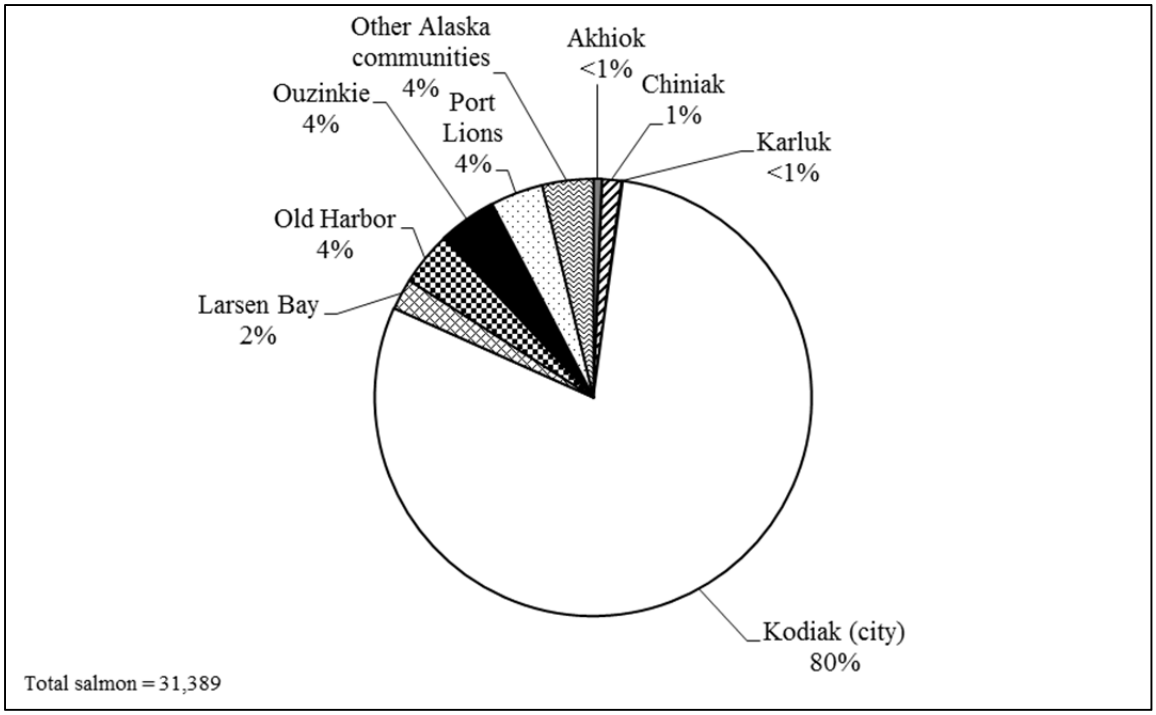

Figure 10-2.–Subsistence salmon harvests by community, Kodiak Area, 2013.

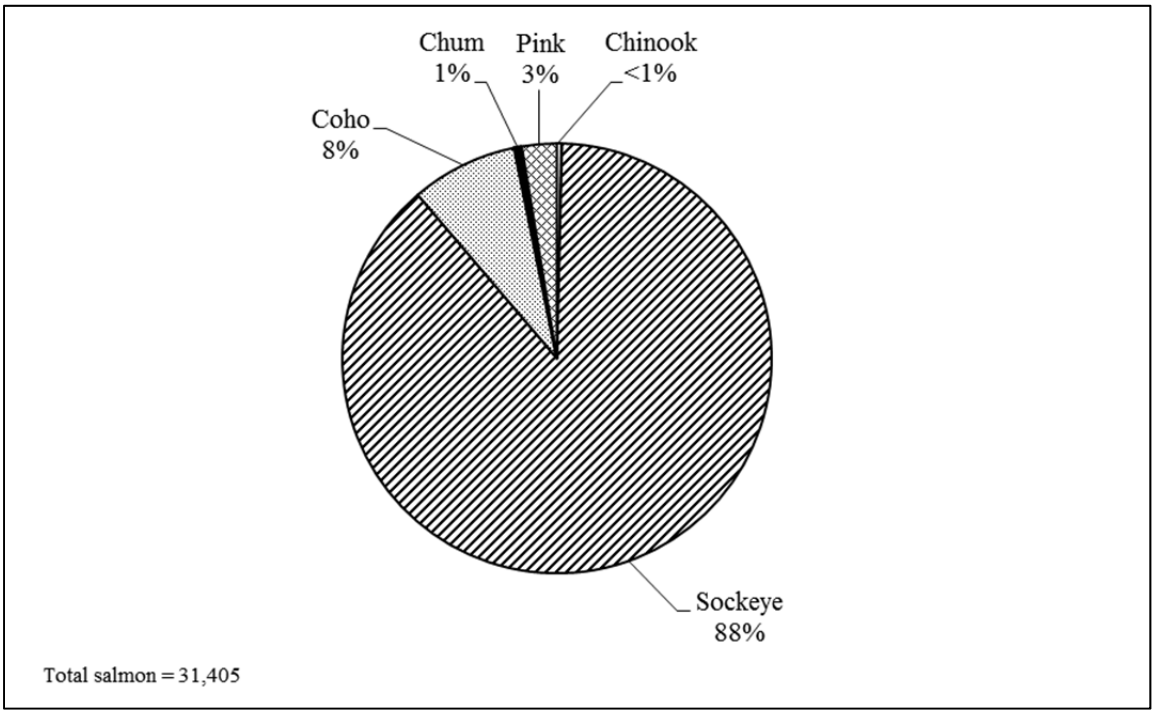

Figure 10-3.–Composition of Kodiak Area subsistence salmon harvest by species, 2013.

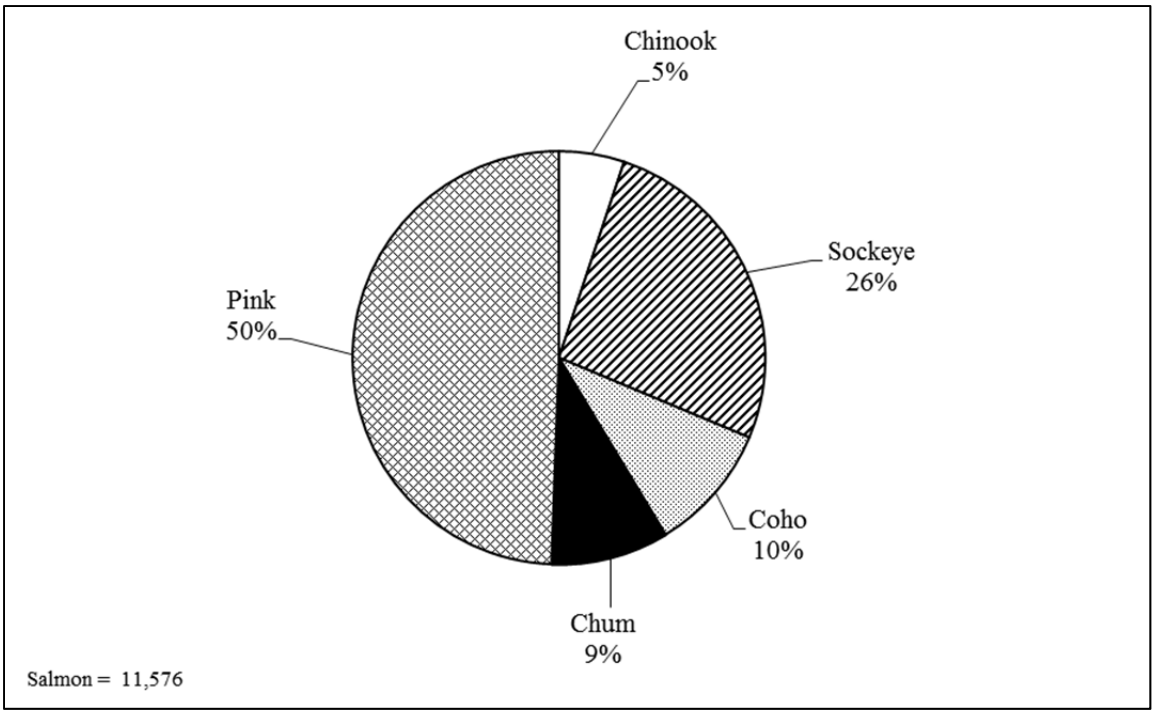

Figure 10-4.–Salmon retained from commercial harvests for home use, Kodiak Area, 2013.

CHAPTER 11: COOK INLET AREA

INTRODUCTION

As shown in Figure 11-1, most of the waters of the Cook Inlet Management Area are within the Anchorage–Matsu–Kenai Nonsubsistence Area as established by the Joint Board [5 AAC 99.015 (3)]. Because subsistence fisheries are not permitted within nonsubsistence areas, noncommercial harvesting opportunities occur under sport, personal use, and educational fishing regulations (as well as limited opportunity under federal subsistence regulations). Commercial harvesters may retain finfish from lawfully taken commercial catch for home use ("home pack"). These fish are required to be reported on the commercial fish ticket, not on the subsistence salmon permit or personal use permit. In some parts of Alaska, in addition to gear authorized under subsistence fishing regulations, subsistence users report that substantial numbers of fish for home uses are taken with rod and reel (Fall, Turek, et al. 2009), which, in this area, is allowable gear under sport fishing regulations. Harvest summaries for the personal use, sport, educational, and commercial fisheries of the Upper Cook Inlet (UCI) Management Area can be found in annual management reports prepared by the ADF&G divisions of Sport Fish and Commercial Fisheries. A summary of the personal use salmon fisheries of the Cook Inlet Area follows the discussion of Cook Inlet subsistence fisheries.

Waters outside the nonsubsistence area include the Tyonek Subdistrict; the western portion of the Susitna River drainage; waters north of Point Bede that are west of a line from the easternmost point of Jakolof Bay and north of the westernmost point of Hesketh Island, including Jakolof Bay, and that are south of a line west of Hesketh Island; and those waters south of Point Bede which are west of the easternmost point of Rocky Bay, in Lower Cook Inlet.

Communities within the areas excluded from the nonsubsistence area include Skwentna (population 33 in 2013), Tyonek (population 178), Beluga (population 16), Seldovia (population 395 in the city and village CDP), Port Graham (population 151), and Nanwalek (formerly called English Bay, population 285). The population of the entire Cook Inlet area in 2013 was 453,587, including the Municipality of Anchorage (population 300,780), the Kenai Peninsula Borough (56,813), and the Matanuska-Susitna Borough (95,994). This represented 62% of the state's total population in 2013.[1]

PORT GRAHAM AND KOYUKTOLIK SUBDISTRICTS

History and Regulations

Subsistence regulations for this subsistence setnet fishery were first established by the BOF in 1980. The fishery is located along the southern shore of outer Kachemak Bay in the Port Graham and Koyuktolik subdistricts of the Southern District, and, beginning in 2002, the Port Chatham and Wind Bay subdistricts. Two predominately Alaska Native communities, Nanwalek and Port Graham, are located in the Port Graham Subdistrict. For detailed description of this subsistence fishery and other subsistence harvests and uses in Nanwalek and Port Graham, see Stanek (1985).

The fishery is open in the Port Graham and Koyuktolik subdistricts from April 1 through September 30 and in the Port Chatham and Windy Bay subdistricts from April 1 through August 1, from 10:00 PM Thursday to 10:00 AM Wednesday. The area open for the subsistence setnet fishery includes the entire shoreline of the subdistrict to a regulatory marker near the head of Port Graham Bay. There are no household bag or possession limits. The 3 primary species harvested are sockeye, pink, and coho salmon. The gear allowed includes set gillnets no longer than 35 fathoms, no deeper than 45 meshes, and no larger than a 6-in stretched mesh. Returns of sockeye salmon, which are a majority of the harvest in the

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 2015. http://labor.alaska.gov/research/pop/popest.htm

subsistence fishery, have been poor for the past 20 years. However, in 2011 the return of sockeye salmon counted at the English Bay weir continued to surpass the inriver goal (Hollowell et al. 2012:5). In 2012, the return and harvest rates dropped again, with 961 sockeye salmon reported harvested by permit holders. Sockeye returns were much greater in 2013 with 4,888 sockeye salmon reported harvested.

Harvest Assessment Methods

In the past, the Division of Subsistence issued household permits through cooperative agreements with the Port Graham and Nanwalek village councils. However, in 2012, responsibility for the distribution, collection, and summation of subsistence permits for the communities of Seldovia, Port Graham, and Nanwalek was transferred from the Division of Subsistence to the Division of Commercial Fisheries, Homer Office. When permits are issued, a separate monthly harvest calendar is also issued for recording daily household harvests. Home use salmon harvests by the 2 communities occur with the use of setnets and rod and reel gear. While the recording of harvests in the setnet fishery is mandatory, it is not in the rod and reel fishery. Therefore, fishers are asked to voluntarily record their rod and reel harvests on their harvest permits. In order to accommodate the recording of harvests in both fisheries, the recording device has 2 pages, 1 for each gear type, and is issued separately from the permit. Area assistants hired by each village council collect the calendars periodically throughout the season. Arctic char/Dolly Varden harvests are also recorded on the calendars.

Sockeye salmon returns to the English Bay lakes were severely depressed for much of the late 1980s and early 1990s, with runs failing to achieve minimum escapement goals for 9 consecutive years between 1985 and 1993. Returns in the late 1990s were enhanced as a result of a rehabilitation enhancement project initiated by ADF&G and subsequently run by the Nanwalek Salmon Enhancement Project in association with the Chugach Regional Resources Commission (CRRC) and the village of Nanwalek (Hammarstrom and Dickson 2006:62). Inseason escapement monitoring has taken place since 1994, with openings and closures in the subsistence and commercial fisheries controlled by emergency order. Inconsistent runs in recent years have been the result of disease outbreaks in the lake-rearing portion of the program and erratic adult behavior that caused difficulty in capturing broodstock (Hammarstrom and Dickson 2006:41). A newer hatchery at Port Graham, run by the Port Graham Hatchery Corporation, contributed 6% to the subsistence harvest in Lower Cook Inlet (Hammarstrom and Ford 2011:2) and in 2010 released more than 200,000 sockeye salmon fry into the English Bay Lakes system (Hammarstrom and Ford 2011:6).

Harvest Estimates for 2013

In 2012, responsibility for the distribution, collection, and summarizing of subsistence permits for the communities of Seldovia, Port Graham, and Nanwalek were transferred from the Division of Subsistence to the Division of Commercial Fisheries, Homer Office. The change in administration authority included some change in methodology for Port Graham and Nanwalek; the Division of Subsistence contracted local research assistants in the villages to ensure distribution and collection of permits. This approach was dropped by Commercial Fisheries and instead the permits were sent to the IRA councils for distribution.

In 2013, estimated salmon harvests for home uses in the Port Graham and Koyuktolik subdistricts totaled 8,897 salmon, including both subsistence setnet and reported rod and reel harvests (Table 11-1). The 2013 harvest was significantly higher than the historical average of 5,260 salmon.

In 2013, residents of Port Graham returned 10 permits and harvested 1,228 salmon (Table 11-2), similar to the 2011 harvest of 1,117 salmon by 13 permit holders (Fall, Braem, et al. 2012b). Nanwalek residents returned 4 permits and harvested a total of 7,669 salmon in 2013, a major increase from the 2012 harvest of 905 salmon by 1 permit holder. As shown in Table 11-2 and Figure 11-2, the combined harvest of the 2 communities of Nanwalek and Port Graham included 4,888 sockeye salmon, the species with the highest harvest (55% of the overall harvest), followed by coho salmon (2,685; 30%), chum salmon (897; 10%), pink salmon (410; 5%), and Chinook salmon (17; <1%). Sockeye salmon harvests increased from 961

salmon in 2012 to 4,888 salmon in 2013 and are a major reason for the overall increase in salmon harvests.

SELDOVIA SUBSISTENCE FISHERY

History and Regulations

The BOF established this subsistence set gillnet fishery in 1995. The fishery is located on the south side of Kachemak Bay, near Seldovia, which is in the Southern District of the Lower Cook Inlet Fisheries Management Area. The subsistence fishery operates in a split season. The spring fishery, open April 1–May 30, targets natural Chinook salmon migrating through Lower Cook Inlet. The fall fishery, open the first 2 weekends of August, targets coho salmon.

In the spring season, fishing is allowed during two 48-hour periods each week, while in the fall season, fishing is open continuously during the 2-day weekends. The BOF has set a guideline harvest level (GHL) of 200 Chinook salmon and an annual possession limit of 20 Chinook salmon per household. There are no seasonal limits for other salmon species.

The area open to subsistence set gillnetting includes those waters along the eastern shore of Seldovia Bay as well as a short stretch outside Seldovia Bay to the west of Point Naskowhak. Seasons and bag limits were designed in 1995 to reduce potential interceptions of enhanced Chinook salmon bound for the stocking site in the Seldovia small boat harbor (Hollowell et al. 2012:14). The gear allowed includes set gillnets no longer than 35 fathoms, no deeper that 45 meshes, and no larger than a 6-in stretched mesh. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Methods

Household permits are issued by ADF&G prior to fishing, and harvests are recorded on the permits. Permits are also available from the harbormaster in Seldovia. Fishers are required to telephone daily harvest numbers to ADF&G or the harbormaster as well as to return their permits after each of the 2 fisheries. ADF&G sends reminder letters to permit holders if harvest records have not been returned in a timely manner, and telephone calls are also made to enhance permit returns.

The 2013 Season

There were 12 permits issued for the Seldovia subsistence fishery in 2013; 8 were returned (Table 11-3). The estimated harvest was 147 sockeye salmon (63% of the overall harvest), 68 pink salmon (29%), 15 chum salmon (6%), 3 Chinook salmon (1%), and 2 coho (<1%) (Figure 11-3). All 12 permits that were issued in 2013 were issued to residents of Seldovia (Table 11-3).

Total salmon harvests in 1998 through 2005 were higher than the first 2 years of the fishery, the result of a longer season that began in 1998 when the BOF lengthened the season by 10 days in May. The additional fishing time resulted in increased harvests of both Chinook and sockeye salmon from 1998 through 2003 (Table 11-4). However, Chinook salmon harvests have declined since 2004, with 53 harvested in 2005, 23 harvested in 2006, 24 in 2007, 4 harvested in 2008, 15 harvested in 2009, 3 harvested in 2010, and no harvests in 2011. 2012 marked an increase with 8 Chinook salmon harvested, but then in 2013 the Chinook harvest decreased to 3 Chinook salmon reported harvested. Since the extension of fishing time in 1998, the 2006 season resulted in the lowest harvest estimate on record for total salmon harvested. The 2013 harvest was more than the 5-year (2008–2012) average of 197 salmon and 10-year (2001–2012) average of 230 salmon, but less than the historical average of 241 salmon (Table 11-4).

TYONEK SUBDISTRICT

History and Regulations

Subsistence salmon fishing regulations for the Tyonek Subdistrict were established by court order in 1980 and subsequently permanently established by the BOF. This setnet fishery is located in the Tyonek Subdistrict of the Northern District of Upper Cook Inlet. The subdistrict includes the area from 1 mile south of the mouth of the Chuitna River south to the easternmost part of Granite Point and from the mean point of high tide to the mean point of lower low tide. The area is unique in that all the lands within the subdistrict are owned by the Tyonek Native Corporation. This feature often raises issues of trespass for those individuals living outside the Tyonek Area who do not seek prior permission to land their boats or set their nets on the privately-owned uplands. For a detailed discussion of this fishery and other subsistence uses at Tyonek, see Fall et al. (1984), Holen and Fall (2011) and Stanek et al. (2007).

In 2011 the Alaska Board of Fisheries modified the Northern District King Salmon Management Plan (5 AAC 21.366). This modification was in response to reduced abundance of Chinook salmon in the Northern District. The sport fishery on the Chuitna River, which is at the northern edge of the Tyonek Subdistrict, was closed, and commercial fishing was closed from a point just south of the community to the Susitna River in 2011 (Shields and Dupuis 2012:10).

The season in this subsistence fishery also operates in 2 parts. The first part, which focuses on Chinook salmon, is open on Tuesdays, Thursdays, and Fridays from May 15–June 15. The second part is open Saturdays from June 16–October 15. In 2011 the Alaska Board of Fisheries specified the amounts of salmon reasonably necessary for subsistence in the Tyonek subdistrict as 700–2,700 Chinook salmon and 150–500 other salmon. A permit is required and 5 AAC 01.595 (a)(3) specifies that each permit holder may harvest 70 Chinook salmon in the Tyonek Subdistrict and 25 other salmon for the head of household and an additional 10 salmon for each dependent of the permit holder.

Allowable gear for the Tyonek Subdistrict subsistence fishery includes set gillnets 10 fathoms in length, no deeper than 45 meshes, and a stretched mesh sized no larger than 6 in. When fishing, permit holders are required to be present at the net site. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Methods

Household permits are issued by ADF&G prior to fishing, and harvests are recorded on the permit. A Division of Subsistence staff person travels to Tyonek each April and issues approximately 40–50 permits within several hours. Permits are also available in the Anchorage ADF&G office or in the Tyonek village office. Reported harvests are not expanded in this fishery. Because of the high compliance with the permit requirement and the strong support of the Tyonek village government, ADF&G views the harvest estimates for this fishery as very reliable.

The 2013 Season

In 2013, 82 permits were issued for the Tyonek Subdistrict subsistence salmon fishery, including 59 permits issued to Tyonek residents (72%) and 23 permits issued to other Alaska residents, including 14 to residents of Anchorage (17%; Table 11-5). Residents of Tyonek accounted for 71% of the reported harvest total (842 salmon), including 78% of the reported Chinook salmon harvest (636 Chinook salmon) (Table 11-5).

The 2013 reported harvest of 1,185 salmon was lower than the historical average of 1,501 salmon. The 2013 harvest was notably higher than the 2011 harvest of 789 salmon which was the lowest reported harvest since 1981, although the number of returned permits was higher than the historical average of 58 permits (Table 11-6). Of the total reported subsistence salmon harvest in 2013, 813 were Chinook salmon

(69%), 181 were coho salmon (15%), 172 were sockeye salmon (15%), 19 were pink salmon (2%), and there were no chum salmon harvested in 2013 (Figure 11-4).

UPPER YENTNA RIVER FISH WHEEL FISHERY

History and Regulations

This subsistence fish wheel fishery began in 1996 as a personal use fishery and was reclassified as a subsistence fishery by the BOF in 1998. It is located in the mainstem of the Yentna River from its confluence with Martin Creek upstream to its confluence with the Skwentna River. The fishery occurs from July 15 through July 31. Fishing periods are from 4:00 AM to 8:00 PM Mondays, Wednesdays, and Fridays. For a more detailed discussion of this fishery see Holen and Fall (2011).

Legal gear includes a fish wheel equipped with a live box. Permit holders must be present at the fish wheel while the wheel is fishing. A season limit of 2,500 salmon was established for the fishery. Chinook salmon and rainbow/steelhead trout must be returned alive to the water. Seasonal limits for households are 25 salmon for a household of 1 plus 10 salmon for each additional household member. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Methods

A permit issued by ADF&G is required prior to fishing. Permits are available through the Division of Sport Fish offices in Palmer and Anchorage. Permit holders must record their harvests on the permit and return it to ADF&G. Participants must also report their daily harvest of salmon to the Palmer ADF&G office by noon of the day following an open period. In the view of ADF&G, compliance with the permit requirement is high and harvest estimates for this fishery are very reliable.

Harvests in 2013

In 2013, 22 subsistence permits were issued for the Yentna River subsistence fish wheel fishery and 19 were returned (tables 11-7 and 11-8). In 2013, 9 of the 22 permit holders resided in the Skwentna area (41%), with the remaining 13 permits held by residents of other Cook Inlet area communities (Figure 11-5). Permit holders living in the community of Skwentna in 2013 harvested 211 of the reported 412 salmon, or 51% of the harvest (Table 11-7).

Of the total harvest of 412 salmon reported in 2013, 160 were sockeye salmon (39%), 128 pink salmon (31%), 92 coho salmon (22%), and 32 chum salmon (8%) (Figure 11-6). There were no reported harvests of Chinook salmon nor is it legal to retain the harvest. The 2013 harvest of 412 salmon was higher than the 2012 harvest of 343 salmon. The 2013 harvest was less than the 5-year average of 561 salmon, less than the 10-year average of 538 salmon, and also less than the historical average of 557 salmon (Table 11-8).

FEDERAL SUBSISTENCE SALMON FISHERIES IN COOK INLET

Since 2007 federal regulations allow for the harvest of salmon, trout, and Dolly Varden by residents of Cooper Landing, Hope, and Ninilchik in the Kenai National Wildlife Refuge and Chugach National Forest. This includes the harvest of salmon by dip net in the Kenai River. In 2013, the total harvest in the federal fishery on the Kenai and Kasilof rivers was 1,519 salmon, all of which were sockeye salmon (Table 11-9). There were a total of 142 permits issued to residents of these 3 communities, with 83 permits issued to residents of Cooper Landing, 28 to residents of Hope, and 31 to residents of Ninilchik (Table 11-9).

Table 11-10 shows the harvest over time, but only includes the years 2007–2013 because this is a new fishery. In all 7 years, sockeye salmon are a majority of the harvest, with 2008 being the highest harvest, at 1,716 sockeye salmon harvested by residents of the 3 Kenai Peninsula communities.

COOK INLET PERSONAL USE SALMON FISHERIES

Background

The BOF first established personal use salmon fisheries in the Cook Inlet Area in 1981 (Nelson et al. 1999:146). Since Alaska statehood in 1959, opportunities had been provided to harvest salmon for home uses with noncommercial set gillnets along various Cook Inlet beaches under subsistence regulations (Braund 1982rev.). In 1978, the new Alaska subsistence statute defined, for the first time, subsistence fishing as fishing for "customary and traditional" uses [AS 16.05.940(31, 33)]. In 1980, the BOF determined that only the noncommercial net fisheries in the Tyonek and Port Graham subdistricts met the criteria to qualify as customary and traditional subsistence fisheries. Therefore, the BOF created the "personal use" category of fishing regulations to continue providing opportunities for Alaskans to harvest salmon for home use with nets in areas of Cook Inlet that are generally accessible along the road system. In 1992, the Joint Board classified most of the Cook Inlet Area as a "nonsubsistence area," where subsistence fishing may not be permitted. Thus, in these areas, personal use fisheries are the primary means by which Alaska residents may obtain salmon for home uses using setnets or dip nets.

Due primarily to court decisions and legislation, personal use fishing regulations for Cook Inlet changed frequently in the 1980s and early 1990s. In 1981, the BOF created personal use dip net fisheries targeting sockeye salmon in the Kasilof and Kenai rivers. Until 1996, these fisheries opened only after achievement of escapement goals was projected. Since then, they have taken place within a fixed season. In 1986, the BOF created a personal use dip net fishery at the mouth of Fish Creek (Knik Arm) focusing on sockeye salmon. A fourth Upper Cook Inlet dip net fishery began in 2008 in the lower portion of the Beluga River on the western shore of Cook Inlet; this fishery is open only to Alaska residents 60 years of age or older. In most years since 1981, personal use set gillnet fisheries in the Cook Inlet Area have been limited to Kachemak Bay and an area at the mouth of the Kasilof River. For more detail on the history of subsistence and personal use salmon fisheries in the Cook Inlet Area, see Braund (1982rev.), Fall and Stanek (1990), Brannian and Fox (1996), Nelson (1994), Nelson (1995), Nelson et al. (1999), and Dunker (2010). Table 11-11 summarizes harvest data for selected Cook Inlet personal use and subsistence fisheries that are no longer authorized by state regulations.

Upper Cook Inlet Personal Use Salmon Fisheries

Presently, personal use salmon fisheries in the Upper Cook Inlet Area are governed by the provisions of the Upper Cook Inlet Personal Use Salmon Fishery Management Plan (5 AAC 77.540). Participants must possess an Alaska resident sport fishing license and obtain an Upper Cook Inlet Personal Use Fishing Permit for their household. Permit holders and household members may participate in any of the upper inlet personal use salmon fisheries (except, as noted, the Beluga River fishery is only open to Alaska residents 60 years of age or older). For all the fisheries combined, the annual limit is 25 salmon for the permit holder and 10 salmon for each additional household member. Permits must be returned to ADF&G at the end of the season with a record of the harvest.

In 2013, 35,211 permits were issued for Upper Cook Inlet personal use fisheries, excluding the Beluga River dip net fishery. For the 4 fisheries combined (including unknown fishing locations), the estimated harvest was 464,995 salmon, including 454,315 sockeye (98%), and there were lower totals for the other 4 species (Table 11-12). The estimated harvest in 2013 was the lowest harvest since 2008 in these fisheries. For 1996 through 2012, the average annual harvest was 330,455 salmon, although participation and harvest grew steadily (Table 11-13).

Table 11-14 reports the number of permits issued for these 4 Upper Cook Inlet personal use fisheries and the estimated harvest by place of residence of the permit holder. Residents of the Municipality of Anchorage (including Anchorage, Chugiak, Eagle River, JBER [Joint Base Elmendorf/Richardson], and Girdwood) held the most permits (58%) and accounted for 57% of the harvest, followed by Kenai Peninsula Borough residents (19% of permits; 19% of harvests), Matanuska–Susitna Borough residents

(17% of permits; 18% of harvest), residents of other Alaska communities (4% of permits; 5% of harvest), and permit holders for whom a community of residence could not be established (2% of permits; 1% of harvest).

Kasilof River Personal Use Setnet Fishery

This fishery takes place at the mouth of the Kasilof River between regulatory markers approximately 1 mile on either side of the river. Legal gear is a set gillnet no more than 10 fathoms in length, 6 inches in mesh size, and 45 meshes in depth. The fishery is open daily from 6:00 AM to 11:00 PM from June 15 through June 24. In 2013, the total estimated harvest in the fishery was 14,622 salmon, of which 14,439 (99%) were sockeye salmon. (Note that the harvests for this setnet fishery plus the dip net fisheries in the Kasilof River, the Kenai River, and Fish Creek are reported through a single permit system, the combined estimated totals are reported above.) The average annual harvest from 1996 through 2012 was 19,868 salmon (Table 11-15).

Kasilof River Dip Net Fishery

This dip net fishery takes place in the lower mile of the Kasilof River 24 hours per day from June 25 through August 7. Retention of Chinook salmon in this fishery is prohibited. The estimated harvest in 2013 was 88,234 salmon, of which 97% was sockeye salmon. From 1996 through 2012, the average annual harvest in this fishery was 46,768 salmon (Table 11-16).

Kenai River Dip Net Fishery

This dip net fishery takes place in the lower Kenai River downriver of the Warren Ames Bridge. Fishing is open from July 10 through July 31, 7 days per week from 6:00 AM to 11:00 PM; when the abundance of sockeye salmon is greater than 2 million fish, the fishery may be open by emergency order 24 hours a day. No more than 1 Chinook salmon per permit may be retained in this fishery. Estimated harvests totaled 354,728 salmon in 2013, including 347,222 sockeye salmon (98%). The average annual harvest from 1996 through 2012 was 249,710 salmon, with harvest—along with participation—rising markedly over that period (Table 11-17).

Fish Creek Dip Net Fishery

This dip net fishery opens by emergency order if the department projects an escapement into Fish Creek (Knik Arm) of more than 50,000 sockeye salmon. The season is July 10 through July 31. Open waters extend from the terminus of Fish Creek upstream to one-quarter of a mile above the Knik–Goose Bay Road. No Chinook salmon may be retained in this fishery. The fishery did not open in 2013. The most recent harvest numbers are from 2011 when the estimated harvest totaled 6,370 salmon, 82% of which was sockeye salmon. This was substantially lower than the record harvest of 29,304 salmon estimated for 2010. The fishery did not open from 2002 through 2008. The average annual harvest for those years with an open fishery from 1996 through 2010 was 9,664 salmon (Table 11-18).

Unknown Upper Cook Inlet Personal Use Dip Net Fishery

Because not all participants in the Upper Cook Inlet personal use dip net fisheries indicate the location of their fishing activities when they return their permits, an estimate of harvests in an “unknown” Upper Cook Inlet dip net fishery is produced annually. Harvests that could not be attributed to one of the 4 Upper Cook Inlet personal use fisheries (3 dip net fisheries and 1 set net fishery) (excluding the Beluga River fishery, which is discussed below) were estimated at 7,411 salmon in 2013, 96% of which was sockeye salmon (7,126 sockeye salmon reported harvested) (Table 11-19).

Beluga River Personal Use Salmon Fishery

Participation in this dip net fishery, which first took place in 2008, is limited to Alaska residents 60 years of age or older. The fishery is open 24 hours per day from July 10 to August 31 within the Beluga River, western Cook Inlet, from about one-quarter mile upstream of the Beluga River bridge to about 1 mile

below the bridge. The fishery operates under the single seasonal limit for Cook Inlet Area personal use salmon fisheries (25 salmon for the permit holder and 10 additional salmon for each dependent), except only 1 Chinook salmon may be retained. Participants must report their harvest weekly to ADF&G, and the fishery closes when 500 salmon have been harvested (5 AAC 77.540(g)). Harvests totaled 88 salmon in 2013, compared to 16 salmon in 2012, 159 salmon in 2011, 53 salmon in 2010, 225 salmon in 2009, and 66 salmon in 2008 (Table 11-20). Harvest data by place of residence are presently not available for this fishery, and totals for this fishery are not included with other Upper Cook Inlet personal use fisheries summarized in Table 11-14.

Lower Cook Inlet Personal Use Salmon Fisheries

Kachemak Bay Setnet Fishery

This setnet fishery along Kachemak Bay in the Lower Cook Inlet Management Area was a subsistence fishery before being reclassified as a personal use fishery in the early 1980s. By regulation, the fishery is open from August 16 through September 15, from 6:00 AM Monday until 6:00 AM Wednesday and from 6:00 AM Thursday until 6:00 AM Saturday. The fishery closes when a guideline harvest range of 1,000–2,000 coho salmon has been achieved. Participants must obtain a permit from the Homer ADF&G office—this is separate from the permit program for the Upper Cook Inlet personal use fisheries. Seasonal limits are 25 salmon for the permit holder and 10 salmon for each additional household member (5 AAC 77.549). Fishers must phone the Homer ADF&G office to report their daily harvests.

In 2013, the reported harvest, based on 118 returned permits (96% of the 123 permits issued), was 2,001 salmon, of which 1,732 (87%) were coho. The recent 10-year average harvest for this fishery (2003–2012) was 1,621 salmon (Table 11-21). Harvest data by place of residence are presently not available for this fishery. Table 11-21 also provides historical harvests for this fishery for 1969 through 2013.

China Poot Dip Net Fishery

This personal use dip net fishery first opened in 1980. It takes place in China Poot Bay, approximately 4 miles southeast of the Homer Spit, on the south side of Kachemak Bay. This area is not accessible by road. The fishery targets enhanced sockeye salmon (stocked by the Cook Inlet Aquaculture Association) that have escaped the commercial fishery. Personal use fishers must have a valid Alaska resident sport fishing license, but a permit is not required. The season is July 1 through August 7. Only sockeye salmon may be retained in this fishery, with a bag and possession limit of 6 fish (5 AAC 77.545). Since 1996, ADF&G has not estimated harvests in this fishery. Table 11-22 summarizes historical harvest data for this fishery for 1980–1995. During those years, sockeye salmon harvests ranged between 794 (in 1985) and 8,605 (in 1995) and averaged 3,373 sockeye salmon. The annual average participation in this fishery was 1,215 fishers.

OTHER SUBSISTENCE FISHERIES IN COOK INLET

Federal halibut subsistence harvest data are currently available for communities and tribes in the Cook Inlet area. Residents of Port Graham, Nanwalek, and Seldovia participate in this program. For the findings for 2012, see Fall and Koster (2014). Due to funding limitations, harvest estimates for the subsistence halibut fishery are not available for 2013.

There are no annual harvest assessment programs for other subsistence finfish fisheries in Cook Inlet. Harvest estimates based on comprehensive household surveys conducted by the Division of Subsistence are available in the CSIS for freshwater and marine species spanning multiple years for selected Cook Inlet communities. Of note in Lower Cook Inlet are rockfish (*Sebastes*) documented in Turek et al. (2009). Information on other fish species used in Upper Cook Inlet by Tyonek and Beluga residents can be found in Stanek et al. (2007).

Table 11-1.–Historical subsistence salmon harvests, Port Graham and Koyuktolik subdistricts, 1981–2013.

	Permits		Reported salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1981	ND	57	138	2,670	825	177	874	4,684
1982	ND	61	124	2,354	1,493	220	2,932	7,123
1983	ND	46	67	2,480	471	95	187	3,300
1984	ND	24	45	3,262	510	6	673	4,496
1985	ND	24	146	1,177	621	26	345	2,315
1986	ND	44	125	647	481	14	1,062	2,329
1987	ND	55	21	901	914	114	714	2,664
1988	ND	48	104	1,021	844	110	1,756	3,835
1989	ND	44	51	157	1,155	74	1,495	2,932
1990	ND	60	265	1,162	1,417	151	2,960	5,955
1991	ND	63	163	688	2,053	221	4,587	7,712
1992	ND	71	200	535	1,150	236	1,421	3,542
1993	ND	56	277	1,148	913	257	2,663	5,258
1994	ND	70	300	830	1,370	504	1,979	4,983
1995	ND	87	585	1,795	538	376	1,273	4,567
1996	ND	75	310	1,744	939	276	749	4,018
1997	ND	26	202	325	203	153	511	1,394
1998	ND	19	169	289	243	240	459	1,400
1999	ND	74	485	3,157	1,747	1,104	2,023	8,516
2000	ND	67	259	4,664	1,831	953	1,606	9,313
2001	ND	49	133	1,085	1,295	228	1,454	4,195
2002	ND	79	346	10,620	1,057	488	1,831	14,342
2003	ND	52	465	5,534	1,006	532	1,572	9,109
2004	ND	80	312	3,525	1,303	213	1,600	6,953
2005	ND	68	292	2,126	1,193	180	1,608	5,399
2006	ND	53	275	2,559	1,200	296	2,131	6,461
2007[a]	ND	24	92	532	0	63	74	761
2008	ND	48	124	4,352	1,448	269	2,682	8,875
2009	ND	44	44	3,497	528	140	914	5,123
2010[a]	ND	35	30	1,630	1,448	308	1,054	4,470
2011	ND	53	53	5,702	1,491	511	2,632	10,389
2012	ND	8	24	961	414	31	482	1,912
2013	ND	14	17	4,888	2,685	897	410	8,897
5-year average (2008–2012)	-	38	55	3,228	1,066	252	1,553	6,154
10-year average (2003–2012)	-	47	171	3,042	1,003	254	1,475	5,945
Historical average (1981–2012)	-	52	1,240	1,644	635	889	3,385	5,260

Source Hollowell et al. (2014). ADF&G Division of Subsistence, 1981–2011.

Note There are no records indicating the numbers of permits issued for any year. Only the numbers of permits returned are recorded. For this reason, averages of the number of permits issued cannot be calculated (indicated with "-").

a. Harvest reports are incomplete.

Table 11-2.–Subsistence salmon harvests by community, Port Graham and Koyuktolik subdistricts, 2013.

	Permits		Reported salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Nanwalek	ND	4	2	3,854	2,619	811	383	7,669
Port Graham	ND	10	15	1,034	66	86	27	1,228
Total	**-**	**14**	**17**	**4,888**	**2,685**	**897**	**410**	**8,897**

Source Hollowell et al. (2014).

Note There are no records indicating the numbers of permits issued for any year. Only the numbers of permits returned are recorded. For this reason, averages of the number of permits issued cannot be calculated (indicated with "-").

Table 11-3.–Subsistence salmon harvests by community, Seldovia, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Seldovia	12	8	3	147	2	15	68	234
Total	**12**	**8**	**3**	**147**	**2**	**15**	**68**	**234**

Source Hollowell et al. (2014).

Table 11-4.–Historical subsistence salmon harvests, Seldovia, 1996–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1996	43	42	51	9	0	0	0	60
1997	20	17	52	22	0	0	0	74
1998	22	20	143	65	0	8	0	216
1999	16	16	136	130	0	38	0	304
2000	22	22	179	252	0	16	0	447
2001	19	16	149	142	0	0	0	290
2002	20	20	124	234	13	11	31	413
2003	18	15	117	290	2	66	22	496
2004	14	12	102	69	5	18	65	258
2005	18	16	53	74	14	11	100	251
2006	17	11	23	12	0	0	31	66
2007	19	15	24	66	12	35	103	239
2008	11	9	4	38	50	6	79	177
2009	18	17	15	115	22	13	77	242
2010	16	12	3	133	41	47	88	312
2011	7	4	0	96	0	0	18	114

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Table 11-4.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	20	7	8	79	0	0	54	141
2013	12	8	3	147	2	15	68	234
5-year average (2008–2012)	14	10	6	92	23	13	63	197
10-year average (2003–2012)	16	12	35	97	15	19	64	230
Historical average (1997–2012)	19	16	70	107	9	16	39	241

Source Hollowell et al. (2014); ADF&G Division of Subsistence, 1996–2011.

Table 11-5.–Subsistence salmon harvests by community, Tyonek Subdistrict, 2013.

Community	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Alexander Creek	1	1	0	0	0	0	0	0
Anchorage	14	8	95	69	58	0	4	226
Beluga	1	0	0	0	0	0	0	0
Big Lake	1	1	0	4	1	0	0	5
Chugiak	1	0	0	0	0	0	0	0
Eagle River	2	2	21	0	0	0	0	21
Glennallen	1	0	0	0	0	0	0	0
Kenai	1	1	57	10	0	0	0	67
Palmer	1	1	4	15	4	0	1	24
Tyonek	59	34	636	74	118	0	14	842
Total	**82**	**48**	**813**	**172**	**181**	**0**	**19**	**1,185**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 11-6.–Historical subsistence salmon harvests, Tyonek Subdistrict, 1981–2013.

Year	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1981	70	NA	2,002	269	64	32	15	2,382
1982	69	NA	1,590	310	113	4	14	2,031
1983	75	NA	2,665	187	59	6	0	2,917
1984	75	NA	2,200	266	79	23	3	2,571
1985	76	NA	1,472	164	91	10	0	1,737
1986	65	NA	1,676	203	223	46	50	2,198
1987	64	61	1,610	166	149	24	10	1,959
1988	47	42	1,587	91	253	12	8	1,951
1989	49	47	1,250	85	115	1	0	1,451
1990	42	37	781	66	352	12	20	1,231
1991	57	54	902	20	58	0	0	980

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Year	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1992	57	44	907	75	234	19	7	1,242
1993	62	54	1,370	57	77	17	19	1,540
1994	58	49	770	85	101	22	0	978
1995	70	55	1,317	45	153	15	0	1,530
1996	73	49	1,039	68	137	7	21	1,272
1997	70	42	639	101	137	8	0	885
1998	74	49	1,027	163	64	2	1	1,257
1999	77	54	1,230	144	94	11	32	1,511
2000	60	59	1,157	63	87	0	6	1,313
2001	84	58	976	172	49	6	4	1,207
2002	101	71	1,080	209	115	4	9	1,417
2003	87	74	1,183	111	44	10	7	1,355
2004	97	75	1,345	93	130	0	0	1,568
2005	78	66	982	61	139	2	0	1,184
2006	82	55	943	20	14	1	0	978
2007	84	67	1,281	200	123	2	3	1,609
2008	94	77	1,178	121	194	9	13	1,515
2009	89	69	636	184	258	2	1	1,081
2010	105	77	843	212	167	2	2	1,226
2011	114	63	595	154	26	7	7	789
2012	89	69	840	176	138	2	4	1,160
2013	82	48	813	172	181	0	19	1,185
5-year average (2008–2012)	98	71	818	169	157	4	5	1,154
10-year average (2003–2012)	92	69	983	133	123	4	4	1,247
Historical average (1981–2012)	75	58	1,221	136	126	10	8	1,501

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note NA = Information regarding the number of permits returned in 1981–1986 does exist; however, it was not available at the time this report was written.

Table 11-7.–Subsistence salmon harvests by community, Upper Yentna River, 2013.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook[a]	Sockeye	Coho	Chum	Pink	Total
Anchorage	1	1	0	4	0	0	0	4
Big Lake	2	2	0	6	2	0	20	28
Skwentna	9	9	0	69	46	22	74	211
Wasilla	3	3	0	21	14	4	34	73
Willow	2	2	0	15	16	4	0	35
Eagle River	1	1	0	6	0	0	0	6
Chugiak	1	1	0	39	14	2	0	55
Unknown Community	3	0	0	0	0	0	0	0
Total	**22**	**19**	**0**	**160**	**92**	**32**	**128**	**412**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Regulations prohibit the retention of Chinook salmon in this fishery (5 AAC 01.593).

Table 11-8.–Historical subsistence and personal use salmon harvests, Upper Yentna River, 1996–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook[b]	Sockeye	Coho	Chum	Pink	Total
1996[a]	17	17	0	242	46	51	115	454
1997[a]	24	21	0	549	83	10	30	672
1998	21	18	0	495	113	15	30	653
1999	18	16	0	516	48	13	18	595
2000	19	19	0	379	92	7	4	482
2001	16	15	0	545	50	4	10	608
2002	25	22	0	454	133	31	14	632
2003	19	15	0	553	67	8	2	630
2004	21	19	0	441	146	3	36	625
2005	18	17	0	177	42	25	24	268
2006	22	22	0	368	175	26	14	583
2007	22	22	0	367	66	18	17	468
2008	16	16	0	310	57	7	23	397
2009	17	17	0	253	14	6	0	273
2010	32	32	0	642	50	18	38	748
2011	25	25	0	598	90	21	337	1,046
2012	21	21	0	279	24	19	21	343
2013	22	19	0	160	92	32	128	412
5-year average (2008–2012)	22	22	0	416	47	14	84	561
10-year average (2003-2012)	21	21	0	399	73	15	51	538
Historical average (1996–2012)	21	20	0	422	76	17	43	557

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. This fishery was classified as personal use in 1996 and 1997; it has been a subsistence fishery since 1998.

b. Regulations prohibit the retention of Chinook salmon in this fishery (5 AAC 01.593).

Table 11-9.–Federal subsistence salmon harvests by community, Kenai and Kasilof rivers, 2013.

	Permits		Reported salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cooper Landing	83	80	0	1,057	4	0	0	1,061
Hope	28	27	0	271	0	0	0	271
Ninilchik	31	31	0	187	0	0	0	187
Total	**142**	**138**	**0**	**1,515**	**4**	**0**	**0**	**1,519**

Source Jeffry Anderson, USFWS, Kenai Fish & Wildlife Field Office, personal communication.

Table 11-10.–Historical federal subsistence salmon harvests, Kenai and Kasilof rivers, 2007–2013.

	Permits		Reported salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2007	136	131	0	742	5	0	0	747
2008	160	151	2	1,716	12	0	0	1,730
2009	160	138	0	1,104	9	0	0	1,113
2010	169	151	0	943	0	0	0	943
2011	131	123	0	1,090	0	0	0	1,090
2012	133	121	0	1,438	0	0	0	1,438
2013	142	138	0	1,515	4	0	0	1,519

Source Jeffry Anderson, USFWS, Kenai Fish & Wildlife Field Office, personal communication.

Table 11-11.–Miscellaneous Upper Cook Inlet personal use and subsistence salmon harvests, 1981–1995.

	Permits		Reported salmon harvest					
Year[a]	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Noncommercial gillnet fishery								
1981	1,108	NA	68	466	12,713	305	149	13,701
Fall coho personal use/subsistence								
1983	295	NA	0	0	712	0	0	712
1984	309	NA	1	2	2,261	7	10	2,281
1985	998	NA	50	805	11,265	53	108	12,281
1986	892	NA	0	0	2,422	0	0	2,422
1987	486	NA	8	9	2,213	37	2	2,269
1988	449	NA	2	19	2,662	10	38	2,731
1989	365	NA	0	0	2,376	0	0	2,376
1990	420	NA	0	0	2,290	0	0	2,290
1991[b]	360	NA	0	0	2,703	8	0	2,711
1993	535	NA	0	0	1,168	0	23	1,191
Northern/Central districts subsistence/personal use setnet								
1985[d]	638	NA	117	2,218	1,427	121	90	3,973
1991	7,065[e]	NA	496	20,855	3,372	1,596	517	26,836
1992	9,200[e]	NA	957	28,949	8,821	1,753	1,217	41,697
1994	10,127[e]	NA	1,260	36,701	9,509	1,601	1,653	50,724
1995	9,300[e]	NA	1,294	45,259	9,678	1,665	1,236	59,132
Knik Arm subsistence								
1985	405	NA	4	1,649	2,055	212	48	3,968

Source Ruesch and Fox (1996); Brannian and Fox (1996).

a. Years listed are only the years in which the fishery was open.

b. In 1991, the fall coho fishery operated as a personal use fishery separate from subsistence setnet fisheries (Ruesch and Fox 1992).

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c. Summary data reported in Ruesch and Fox (1996) and in Brannian and Fox (1996) include dip net and setnet harvests. Here, only setnet harvests are included. See separate tables for the Kasilof River dip net fishery and the Kenai River dip net fishery for harvest data for those fisheries.

d. In 1985, this subsistence fishery was open in areas generally open to commercial fishing, except for the Upper Subdistrict, which had a separate season and permit (called the "fall coho fishery" in this table). The Knik Arm subsistence gillnet fishery was also administered separately in 1985 (Ruesch 1987).

e. For 1991, 1992, 1994, and 1995, the number of permits issued includes all Upper Cook Inlet dip net and setnet fisheries except the Tyonek subdistrict.

NA = Data not available.

Table 11-12.–Cook Inlet personal use salmon fisheries, 2013.

	Permits		Estimated salmon harvest[b]					
Year[a]	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Lower Cook Inlet								
Kachemak Bay setnet	123	118	9	122	1,732	3	135	2,001
China Poot Bay dip net[a]								
Subtotal, Lower Cook Inlet	**123**	**118**	**9**	**122**	**1,732**	**3**	**135**	**2,001**
Upper Cook Inlet								
Kasilof River setnet[c]			46	14,439	129	5	3	14,622
Kasilof River dip net[c]			18	85,528	1,666	339	683	88,234
Kenai River dip net[c]			11	347,222	3,169	701	3,625	354,728
Fish Creek dip net[c]			--	--	--	--	--	--
Unknown Upper Cook Inlet[c]			9	7,126	155	8	113	7,411
Subtotal, common permit fisheries[c]	**35,211**	**26,772**	**84**	**454,315**	**5,119**	**1,053**	**4,424**	**464,995**
Beluga River dip net	8	8	0	30	55	1	2	88
Subtotal, Upper Cook Inlet	**35,219**	**26,780**	**84**	**454,345**	**5,174**	**1,054**	**4,426**	**465,083**
Cook Inlet Total	**35,342**	**26,898**	**93**	**454,467**	**6,906**	**1,057**	**4,561**	**467,084**

Source ADF&G Division of Sport Fish

a Permits are not issued for this fishery and harvest estimates are not produced.
b Estimated harvests for all fisheries except Kachemak Bay setnet. Only reported harvests are available.
c A single permit is issued for the Kasilof setnet, Kasilof dip net, Kenai dip net, and Fish Creek dip net fisheries. In some cases, returned permits did not indicate the area fished.

Table 11-13.–Estimated personal use salmon harvests, Upper Cook Inlet personal use fishery total, 1996–2013.

	Permits		Estimated salmon harvest					
Year	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1996	14,576	13,452	452	145,545	4,811	350	2,973	154,131
1997	14,919	13,756	464	148,940	777	88	844	151,113
1998	15,535	13,190	549	176,581	2,685	220	1,933	181,968
1999	17,197	14,216	1,108	208,589	1,413	168	2,078	213,356
2000	16,107	13,582	1,102	149,267	3,638	290	2,482	156,779
2001	16,915	14,398	1,138	218,688	2,637	276	1,821	224,560
2002	17,568	14,284	1,070	259,623	3,271	757	8,470	273,191
2003	19,110	15,726	1,711	298,831	2,250	371	2,082	305,245
2004	21,910	17,748	1,098	350,091	3,754	502	2,715	358,160
2005	21,905	19,081	1,132	369,776	3,415	428	2,520	377,271
2006	18,563	16,532	1,405	216,047	3,759	746	12,434	234,391
2007	23,046	20,312	1,924	356,717	2,727	614	2,352	364,334
2008	23,722	20,259	1,601	318,594	3,249	727	11,869	336,040
2009	29,619	25,029	1,384	457,539	4,204	559	6,969	470,655
2010	31,590	25,222	1,059	514,255	8,405	1,090	6,482	531,291
2011	34,515	27,193	1,453	630,242	6,754	1,169	4,879	644,497
2012	34,315	27,080	167	629,757	5,512	627	4,854	640,757
2013	35,211	26,772	84	454,315	5,119	1,053	4,424	464,995
5-year average (2008–2012)	30,752	24,957	1,133	510,077	5,625	834	7,011	524,648
10-year average (2003–2012)	25,830	21,418	1,293	414,185	4,403	683	5,716	426,264
Historical average (1996–2012)	21,830	18,298	1,107	320,534	3,721	528	4,574	330,455

Source ADF&G Division of Sport Fish

Note Does not include the Beluga River dip net fishery.

Table 11-14.–Personal use salmon harvest estimates by community, Upper Cook Inlet, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchor Point	287	240	1	3,765	11	1	55	3,834
Clam Gulch	46	40	0	762	12	0	3	777
Cooper Landing	18	14	0	206	1	0	0	207
Fritz Creek	69	57	0	907	2	0	11	921
Homer	952	771	1	11,525	36	39	113	11,715
Hope	22	19	0	312	1	0	4	316
Kasilof	481	406	5	6,977	74	2	22	7,080
Kenai	1,658	1,314	4	20,926	169	33	140	21,272
Moose Pass	28	24	0	334	3	0	4	341
Nanwalek	1	1	0	25	0	0	0	25
Nikiski	231	180	0	2,917	9	2	16	2,944
Nikolaevsk	15	12	0	258	1	0	0	258
Ninilchik	182	151	0	2,222	13	11	14	2,261
Seldovia	13	13	0	148	0	0	1	149
Seward	253	206	0	2,779	12	2	24	2,818
Soldotna	2,037	1,658	2	24,991	119	27	125	25,265
Sterling	497	410	1	6,321	24	21	25	6,393
Subtotal, Kenai Peninsula Borough	**6,790**	**5,516**	**15**	**85,373**	**487**	**141**	**560**	**86,577**
Anchorage	16,844	12,444	46	210,371	2,356	544	2,277	215,595
Chugiak	742	619	1	10,517	63	8	82	10,672
Eagle River	2,114	1,788	2	28,964	329	61	266	29,622
Girdwood	269	209	0	3,729	25	4	38	3,797
Joint Base Elmendorf Richardson	372	247	0	4,439	77	16	105	4,638
Subtotal, Anchorage Municipality	**20,341**	**15,307**	**50**	**258,020**	**2,851**	**634**	**2,769**	**264,323**
Big Lake	191	142	0	2,787	64	2	11	2,865
Chickaloon	11	10	0	152	0	0	0	152
Houston	33	22	0	340	21	0	3	364
Palmer	1,722	1,342	1	23,282	161	19	250	23,714
Sutton	61	45	1	723	3	0	14	741
Talkeetna	83	67	0	1,343	51	4	10	1,408
Trapper Creek	19	14	0	385	1	0	3	388
Wasilla	3,737	2,849	14	51,691	985	199	451	53,340
Willow	187	155	0	2,899	54	1	43	2,997
Subtotal, Matanuska-Susitna Borough	**6,044**	**4,646**	**16**	**83,603**	**1,339**	**228**	**785**	**85,970**
Adak	1	1	0	0	0	0	0	0
Akutan	2	2	0	60	0	0	0	60
Ambler	2	0	0	20	0	0	0	21
Anaktuvuk Pass	1	0	0	10	0	0	0	10

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	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anderson	4	4	0	88	0	0	1	89
Aniak	2	0	0	20	0	0	0	21
Atqasuk	2	1	0	22	0	0	0	22
Barrow	50	25	0	838	4	14	3	859
Bethel	13	8	0	145	1	1	2	148
Cantwell	11	11	0	142	0	0	0	142
Chevak	3	3	0	33	0	0	0	33
Chuathbaluk	1	1	0	18	0	0	0	18
Circle	1	0	0	10	0	0	0	10
Clear	2	2	0	63	0	0	0	63
Copper Center	4	4	0	65	0	0	1	66
Cordova	6	4	0	77	0	0	0	78
Craig	2	0	0	20	0	0	0	21
Deering	1	1	0	0	0	0	0	0
Delta Junction	38	35	0	517	133	0	57	706
Denali Park	23	21	0	403	7	0	2	413
Dillingham	2	2	0	3	0	0	0	3
Eagle River	1	1	0	20	0	0	0	20
Eielson AFB	16	14	0	213	0	0	2	216
Emmonak	1	0	0	10	0	0	0	10
Ester	8	7	0	48	0	0	0	48
Fairbanks	654	521	0	10,064	60	14	67	10,204
Fort Greely	3	1	0	22	0	0	0	23
Fort Wainwright	19	17	0	170	22	0	1	194
Galena	4	3	0	108	0	4	1	113
Gambell	1	0	0	10	0	0	0	10
Glennallen	4	4	0	84	0	0	0	84
Grayling	2	1	0	35	0	0	0	35
Gustavus	1	1	0	5	0	0	0	5
Haines	1	1	0	0	0	0	0	0
Healy	42	36	0	576	16	0	14	606
Hoonah	1	1	0	15	0	0	0	15
Igiugig	1	0	0	10	0	0	0	10
Juneau	50	35	0	761	4	0	5	769
Kaktovik	1	0	0	10	0	0	0	11
Kalskag	1	1	0	0	0	0	0	0
Kasigluk	1	1	0	0	0	0	0	0
Ketchikan	11	9	0	149	0	0	1	151
Kiana	1	1	0	7	0	0	0	7
Killeen	1	1	0	25	0	0	0	25
Kodiak (city)	11	10	0	151	0	0	0	151
Kotzebue	28	17	0	448	4	0	7	459
Kwethluk	2	1	0	20	0	0	0	20
Kwigillingok	2	1	0	15	0	0	0	15
Lower Kalskag	1	1	0	0	0	0	0	0
Manley Hot Springs	2	1	0	11	0	0	0	11

-continued-

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	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
McCarthy	1	0	0	10	0	0	0	10
McGrath	4	3	0	143	0	0	0	143
Mekoryuk	1	0	0	10	0	0	0	10
Metlakatla	1	0	0	10	0	0	0	10
Naknek	2	2	0	31	2	0	0	33
Napakiak	2	2	0	3	0	0	0	3
Nenana	17	13	0	275	1	0	2	278
Noatak	1	0	0	10	0	0	0	10
Nome	7	7	0	129	0	0	0	129
Noorvik	2	0	0	20	0	0	0	21
North Pole	199	157	2	2,826	9	2	19	2,859
Nuiqsut	1	0	0	10	0	0	0	10
Nulato	1	1	0	0	0	0	0	0
Ouzinkie	1	1	0	0	0	0	0	0
Point Hope	1	1	0	0	0	0	0	0
Port Alsworth	3	2	0	76	0	0	0	76
Port Lions	1	0	0	10	0	0	0	10
Prudhoe Bay	1	1	0	10	0	0	0	10
Saint Marys	2	1	0	10	0	0	0	10
Saint Paul Island	4	4	0	43	0	0	0	43
Salcha	4	4	0	22	0	0	0	22
Sand Point	1	0	0	10	0	0	0	10
Savoonga	1	1	0	12	0	0	0	12
Scammon Bay	1	1	0	0	0	0	0	0
Selawik	1	0	0	10	0	0	0	10
Shishmaref	1	1	0	25	0	0	0	25
Sitka	4	4	0	10	0	0	0	10
Skagway	1	1	0	33	0	0	0	33
Skwentna	1	0	0	10	0	0	0	10
Stevens Village	1	1	0	15	0	0	0	15
Tanana	1	1	0	25	0	0	0	25
Tatitlek	1	0	0	10	0	0	0	10
Tok	8	7	0	196	0	0	0	196
Toksook Bay	1	0	0	10	0	0	0	10
Two Rivers	1	1	0	27	0	0	0	27
Unalakleet	4	4	0	68	0	0	0	68
Unalaska	7	4	0	74	1	0	0	74
Valdez	34	30	0	683	1	0	1	685
Wainwright	1	1	0	3	0	0	0	3
White Mountain	2	2	0	51	0	0	0	51
Whittier	10	9	0	61	0	0	0	61
Subtotal, other Alaska	**1,308**	**1,035**	**10**	**27,253**	**257**	**9**	**120**	**27,649**

-continued-

Table 11-4.–Page 4 of 4.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Unknown Communities	646	219	1	6,659	170	13	118	6,960
Other USA	7	4	0	112	1	0	0	112
Total	**35,211**	**26,772**	**84**	**454,314**	**5,119**	**1,053**	**4,424**	**464,995**

Source ADF&G Division of Sport Fish

Note Includes Kasilof River setnet fishery, Kasilof River dip net fishery, Kenai River dip net fishery, Fish Creek (Knik Arm) dip net fishery and unknown fishery.

Table 11-15.–Estimated personal use salmon harvests, Kasilof River setnet fishery, 1982–2013.

Year[a]	Permits		Estimated salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1982	649	NA	372	7,543	24	NA	17	7,956
1983	684	NA	307	8,846	NA	NA	NA	9,153
1984	698	NA	165	12,926	NA	NA	NA	13,091
1985	692	NA	203	10,746	NA	NA	NA	10,949
1986	NA	NA	168	9,609	NA	NA	NA	9,777
1987	NA	NA	184	9,375	NA	NA	NA	9,559
1988	NA	NA	118	9,803	NA	NA	NA	9,921
1989	NA	NA	186	9,928	NA	NA	NA	10,114
1990	NA	NA	133	7,123	NA	NA	NA	7,256
1991[b]	NA	NA	34	8,380	NA	NA	NA	8,414
1992	--	--	--	--	--	--	--	--
1993	NA	NA	47	7,942	NA	NA	NA	7,989
1994	--	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	--	--
1996[c]	NA	NA	46	9,506	0	1	8	9,561
1997	NA	NA	65	17,997	1	3	102	18,168
1998	NA	NA	126	15,975	0	12	15	16,128
1999	NA	NA	442	12,832	25	10	10	13,319
2000	NA	NA	514	14,774	9	10	17	15,324
2001	NA	NA	174	17,201	6	7	11	17,399
2002	NA	NA	192	17,980	12	13	30	18,227
2003	NA	NA	400	15,706	107	4	9	16,226
2004	NA	NA	163	25,417	58	0	6	25,644
2005	NA	NA	87	26,609	326	1	16	27,039
2006	NA	NA	287	28,867	420	6	11	29,591
2007	NA	NA	343	14,943	68	0	2	15,356
2008	NA	NA	151	23,432	65	23	35	23,706
2009	NA	NA	127	26,646	165	11	14	26,963
2010	NA	NA	136	21,924	23	1	23	22,107
2011	NA	NA	167	26,780	47	3	23	27,020
2012	NA	NA	103	15,638	161	15	53	15,970

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Year[a]	Permits		Estimated salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2013	NA	NA	46	14,439	129	5	3	14,622
5-year average (2008–2012)	NA	NA	137	22,884	92	11	30	23,153
10-year average (2003–2012)	NA	NA	196	22,596	144	6	19	22,962
Historical average (1996–2012)[d]	NA	NA	207	19,543	88	7	23	19,868

Source Ruesch and Fox (1996) for 1982-1995; Division of Sport Fish for 1996-2013.

a The fishery was closed 1992, 1994, and 1995.

b This fishery was administered separately from the subsistence setnet fisheries that operated in 1991 (Ruesch and Fox 1992).

c Current regulations in place since 1996. Permits since 1996 issued for 4 Upper Cook Inlet personal use salmon fisheries.

d Historical average based on years since 1996 when current regulations were adopted.

Table 11-16.–Estimated personal use salmon harvests, Kasilof River dip net fishery, 1981–2013.

Year[b]	Permits		Estimated salmon harvest[a]					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1981	NA	NA	NA	10,300	NA	NA	NA	10,300
1982	NA	NA	NA	1,800	NA	NA	NA	1,800
1983	NA	NA	NA	11,124	NA	NA	NA	11,124
1984	NA	NA	NA	12,771	NA	NA	NA	12,771
1985	NA	NA	NA	16,284	NA	NA	NA	16,284
1986	NA	NA	NA	38,674	NA	NA	NA	38,674
1987	NA	NA	NA	18,454	NA	NA	NA	18,454
1988	NA	NA	NA	3,547	NA	NA	NA	3,547
1989	--	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	--	--
1991[cd]	7,065	5,480	10	907	2	0	3	922
1992	9,500	4,104	24	1,230	24	0	3	1,281
1993	--	--	--	--	--	--	--	--
1994[e]	10,127	4,823	54	6,414	137	14	59	6,678
1995	NA	NA	NA	4,160	NA	NA	NA	4,160
1996[f]	NA	NA	50	11,197	334	17	103	11,701
1997	NA	NA	35	9,737	90	19	19	9,900
1998	NA	NA	134	45,161	731	74	610	46,710
1999	NA	NA	127	37,176	286	52	264	37,905
2000	NA	NA	134	23,877	1,004	34	841	25,890
2001	NA	NA	138	37,612	766	23	307	38,846

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Year[b]	Permits		Estimated salmon harvest[a]					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2002	NA	NA	106	46,769	1197	139	1862	50,073
2003	NA	NA	57	43,870	592	30	286	44,835
2004	NA	NA	44	48,315	668	90	396	49,513
2005	NA	NA	16	43,151	538	102	658	44,465
2006	NA	NA	55	56,144	1,057	105	992	58,353
2007	NA	NA	35	43,293	487	136	383	44,334
2008	NA	NA	46	54,051	509	143	787	55,536
2009	NA	NA	34	73,035	1,441	173	1,274	75,957
2010	NA	NA	31	70,774	1,768	279	974	73,826
2011	NA	NA	24	49,766	977	144	652	51,563
2012	NA	NA	16	73,419	1170	147	896	75,648
2013	NA	NA	18	85,528	1,666	339	683	88,234
5-year average (2008–2012)	NA	NA	30	64,209	1,173	177	917	66,506
10-year average (2003–2012)	NA	NA	36	55,582	921	135	730	57,403
Historical average (1996–2012)[g]	NA	NA	64	45,138	801	100	665	46,768

Source Nelson et al. (1999) for 1981–1990 and 1993-1995; Brannian and Fox (1996) for 1991, 1992, and 1994; Division of Sport Fish for 1996-2013.

a. Personal use harvests are estimated based on the annual sport harvest survey conducted by the Division of Sport Fish prior to 1996, and are estimated based on permit returns since 1996. Only sockeye salmon harvests reported, 1981–1990.

b. Fishery closed 1989–1990, and 1993. Classified as a subsistence fishery in 1991 and 1992.

c. In 1991, 1992, and 1994, a single permit issued for all Upper Cook Inlet subsistence fisheries except Tyonek (central dip net, central setnet, northern setnet) (Brannian and Fox 1996). Permit return rate for 1992 was approximately 43.2% (Ruesch and Fox 1993).

d. Harvests for 1991 and 1992, and subsistence harvests for 1994, are reported, not estimated.

e. In 1994 both a subsistence and a personal use dip net fishery took place in the Kasilof River (Nelson 1999). Sockeye harvests included 3,679 salmon in the personal use fishery and 2,735 salmon in the subsistence fishery. Harvest data for other species in the personal use fishery are not available.

f. Current regulations have been in place since 1996. Permits have been required since 1996 and are issued for 4 Upper Cook Inlet personal use fisheries.

g. Historical average based on years since 1996 when current regulations were adopted.

NA = Data not available.

Table 11-17.–Estimated personal use salmon harvests, Kenai River dip net fishery, 1981–2013.

	Permits		Estimated salmon harvest[a]					
Year[b]	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1981	–	–	–	–	–	–	–	–
1982[c]	NA	NA	NA	NA	NA	NA	NA	0
1983	NA	NA	NA	7,562	NA	NA	NA	7,562
1984	–	–	–	–	–	–	–	–
1985	–	–	–	–	–	–	–	–
1986	–	–	–	–	–	–	–	–
1987	NA	NA	NA	24,086	NA	NA	NA	24,086
1988	NA	NA	NA	16,880	NA	NA	NA	16,880
1989	NA	NA	NA	48,976	NA	NA	NA	48,976
1990	–	–	–	–	–	–	–	–
1991[de]	7,065	5,480	44	10,468	146	2	17	10,677
1992[f]	9,500	4,104	158	28,429	1,475	74	598	30,734
1993	NA	NA	NA	33,467	NA	NA	NA	33,467
1994	10,127	4,823	187	13,897	2,535	114	1,263	17,996
1995	NA	NA	NA	14,352	NA	NA	NA	14,352
1996[g]	NA	NA	295	102,821	1,932	175	2,404	107,627
1997	NA	NA	364	114,619	559	58	619	116,219
1998	NA	NA	254	103,847	1,011	85	1,032	106,229
1999	NA	NA	488	149,504	1,009	102	1,666	152,769
2000	NA	NA	410	98,262	1,449	193	1,457	101,771
2001	NA	NA	638	150,766	1,555	155	1,326	154,440
2002	NA	NA	606	180,028	1,721	551	5,662	188,568
2003	NA	NA	1,016	223,580	1,332	249	1,647	227,824
2004	NA	NA	792	262,831	2,661	387	2,103	268,774
2005	NA	NA	997	295,496	2,512	321	1,806	301,132
2006	NA	NA	1,034	127,630	2,235	551	11,127	142,577
2007	NA	NA	1,509	291,270	2,111	472	1,939	297,301
2008	NA	NA	1,362	234,109	2,609	504	10,631	249,215
2009	NA	NA	1,189	339,993	2,401	285	5,482	349,350
2010	NA	NA	865	389,552	2,870	508	3,655	397,450
2011	NA	NA	1,243	537,765	4,745	915	3,914	548,582
2012	NA	NA	40	526,992	4,008	425	3,770	535,235
2013	NA	NA	11	347,222	3,169	701	3,625	354,728
5-year average (2008–2012)	NA	NA	940	405,682	3,327	527	5,490	415,966
10-year average (2003–2012)	NA	NA	1,005	322,922	2,748	462	4,607	331,744
Historical average (1996–2012)[h]	NA	NA	771	242,886	2,160	349	3,544	249,710

Source Nelson et al. (1999) for 1981–1990 and 1993–1995; Brannian and Fox (1996) for 1991, 1992, and 1994; Division of Sport Fish for 1996–2013.

a. Personal use harvests are estimated based on the annual sport harvest survey conducted by the Division of Sport Fish prior to 1996, and are estimated based on permit returns since 1996. Only sockeye salmon harvests reported, 1981–1990.

b. Fishery closed 1981, 1984–1986, and 1990. Classified as a subsistence fishery in 1991, a portion of 1992 and 1994.

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c. The 1982 harvest is reported as "unknown" but "insignificant" (Nelson 1999; Brannian and Fox 1996).

d. Subsistence harvests for 1991, 1992, and 1994 are reported, not estimated.

e. 1991, 1992, and 1994 permits: single permit issued for all Upper Cook Inlet subsistence fisheries except Tyonek.

f. Harvests for 1992 include 16,240 sockeye salmon in the subsistence fishery and 12,189 sockeye in the personal use fishery. Harvests for other species are for the subsistence fishery only. Personal use harvests are not available for the other species.

g. Current regulations have been in place since 1996. Permits have been required since 1996 and are issued for 4 Upper Cook Inlet personal use fisheries.

h. Historical average based on years since 1996 when current regulations were adopted.

NA = Data not available.

Table 11-18.–Estimated personal use salmon harvests, Fish Creek dip net fishery, 1987–2013.

	Permits		Estimated salmon harvest[a]					
Year[b]	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1987	NA	NA	0	2,200	0	0	2,200	4,400
1988	NA	NA	0	3,000	0	0	3,000	6,000
1989	NA	NA	0	5,000	0	0	5,000	10,000
1990	NA	NA	0	6,500	0	0	6,500	13,000
1991	NA	NA	0	14,369	0	549	567	15,485
1992	NA	NA	0	19,002	0	607	678	20,287
1993	NA	NA	0	37,224	973	503	2,068	40,768
1994	NA	NA	0	16,012	1,336	248	632	18,228
1995	NA	NA	0	9,102	2,640	99	290	12,131
1996	NA	NA	37	17,260	2,414	153	331	20,195
1997	NA	NA	0	3,277	63	4	53	3,397
1998	NA	NA	1	4,036	649	29	80	4,795
1999	NA	NA	0	1,083	17	0	12	1,112
2000	NA	NA	0	6,925	958	29	83	7,995
2001	NA	NA	0	436	18	1	2	457
2002	–	–	–	–	–	–	–	–
2003	–	–	–	–	–	–	–	–
2004	–	–	–	–	–	–	–	–
2005	–	–	–	–	–	–	–	–
2006	–	–	–	–	–	–	–	–
2007	–	–	–	–	–	–	–	–
2008	–	–	–	–	–	–	–	–
2009	NA	NA	10	9,898	53	33	66	10,060
2010	NA	NA	12	23,705	3,576	290	1,721	29,304
2011	NA	NA	2	5,236	905	72	155	6,370
2012	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--
Historical average (1996–2012)	NA	NA	7	7,984	961	68	278	9,298

Source Brannian and Fox (1996) for 1987–1994; Howe et al. (1996) for 1995; Division of Sport Fish for 1996–2011.

a. Estimates derived from statewide sport harvest survey prior to 1996. Permits required since 1996.

b. Fishery closed 2002 through 2008, 2012, and 2013.

Table 11-19.–Estimated personal use salmon harvests, unknown fishery, 1996–2013

	Permits		Estimated salmon harvest					
Year	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1996	NA	NA	24	4,761	131	4	127	5,047
1997	NA	NA	0	3,310	64	4	51	3,429
1998	NA	NA	34	7,562	294	20	196	8,106
1999	NA	NA	51	7,994	76	4	126	8,251
2000	NA	NA	44	5,429	218	24	84	5,799
2001	NA	NA	188	12,673	292	90	175	13,418
2002	NA	NA	166	14,846	341	54	916	16,323
2003	NA	NA	238	15,675	219	88	140	16,360
2004	NA	NA	99	13,527	366	25	210	14,227
2005	NA	NA	32	4,520	39	4	40	4,635
2006	NA	NA	29	3,406	47	84	304	3,870
2007	NA	NA	37	6,729	61	6	28	6,861
2008	NA	NA	41	6,890	66	58	412	7,467
2009	NA	NA	25	7,968	144	57	133	8,327
2010	NA	NA	15	8,300	168	12	109	8,604
2011	NA	NA	17	10,695	80	35	135	10,962
2012	NA	NA	8	13,548	173	40	135	13,904
2013	NA	NA	9	7,126	155	8	113	7,411
5-year average (2008–2012)	NA	NA	21	9,480	126	40	185	9,853
10-year average (2003–2012)	NA	NA	54	9,126	136	41	165	9,522
Historical average (1996–2012)	NA	NA	62	8,696	163	36	195	9,152

Source ADF&G Division of Sport Fish.

Table 11-20.–Beluga River senior personal use dip net fishery summary, 2008–2013.

	Permits		Reported salmon harvest					
Year	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2008	20	20	0	31	35	0	0	66
2009	11	11	0	140	78	0	7	225
2010	14	14	0	47	1	5	0	53
2011	13	12	0	137	17	5	0	159
2012	7	7	0	9	7	0	0	16
2013	8	8	0	30	55	1	2	88
Historical average (2008–2012)	13	13	0	73	28	2	1	104

Source ADF&G Division of Sport Fish.

Table 11-21.–Personal use/subsistence salmon harvests, Kachemak Bay setnet fishery (excluding the Port Graham/Nanwalek subsistence fishery and the Seldovia subsistence fishery), Lower Cook Inlet, 1969–2013.

	Households or permits		Reported salmon harvest					
Year	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1969	47	44	0	9	752	0	38	799
1970	78	73	0	12	1,179	13	143	1,347
1971	112	95	2	16	1,549	7	44	1,618
1972	135	105	1	11	975	69	48	1,104
1973	143	128	0	18	1,304	40	84	1,446
1974	148	118	0	16	376	77	43	512
1975	292	276	4	47	1,960	61	632	2,704
1976	242	221	16	46	1,962	56	1,513	3,593
1977	197	179	12	46	2,216	119	639	3,032
1978	311	264	4	35	2,482	34	595	3,150
1979	437	401	6	37	2,118	41	2,251	4,453
1980	533	494	43	32	3,491	25	1,021	4,612
1981	403	383	15	73	4,370	68	718	5,244
1982	395	372	41	49	7,398	154	956	8,598
1983	344	328	5	17	2,701	44	305	3,072
1984	368	346	3	25	3,639	105	804	4,576
1985	328	302	5	49	3,317	34	138	3,543
1986	349	310	7	68	3,831	56	3,132	7,094
1987	363	339	5	50	3,979	61	279	4,374
1988	439	417	14	73	5,007	75	1,445	6,614
1989	477	453	41	156	7,219	53	883	8,352
1990	578	543	12	200	8,323	69	1,846	10,450
1991	472	459	8	47	4,931	23	366	5,375
1992	365	350	5	63	2,277	21	643	3,009
1993	326	317	6	44	1,992	18	463	2,523
1994	286	284	66	80	4,097	18	1,178	5,439
1995	235	232	118	108	2,916	7	343	3,492
1996	299	293	302	102	3,347	24	1,022	4,797
1997	276	264	384	191	1,817	12	257	2,661
1998	227	214	135	20	1,461	5	167	1,788
1999	146	141	276	119	1,803	3	168	2,369
2000	213	206	104	28	2,064	4	304	2,504
2001	154	148	86	27	1,579	16	150	1,858
2002	122	113	61	33	1,521	12	251	1,878
2003	104	96	17	57	1,071	9	170	1,324
2004	91	83	7	56	1,554	16	172	1,805
2005	108	96	8	57	833	13	296	1,207
2006	89	82	15	41	1,295	5	221	1,577
2007	141	133	10	113	1,431	34	641	2,229
2008	146	142	2	92	1,844	14	687	2,639
2009	145	142	9	273	646	4	101	1,033
2010	128	122	14	149	875	17	251	1,306
2011	119	112	15	223	806	5	145	1,194

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Year	Households or permits		Reported salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	98	95	5	137	1,471	6	275	1,894
2013	123	118	9	122	1,732	3	135	2,001
5-year average (2008–2012)	127	123	9	175	1,128	9	292	1,613
10-year average (2003–2012)	117	110	10	120	1,183	12	296	1,621
Historical average (1969–2012)	250	234	43	71	2,540	35	587	3,277

Source Hallowell et al. (2014).

Table 11-22.–Estimated personal use salmon harvests, China Poot dip net fishery, 1980–1995.

Year	Fishers	Estimated salmon harvest					
		Chinook	Sockeye	Coho	Chum	Pink	Total
1980	NA	0	1,000	0	0	0	1,000
1981[a]	–	–	–	–	–	–	–
1982	NA	0	1,320	0	0	0	1,320
1983	1,956	0	5,910	0	0	0	5,910
1984	1,237	0	1,794	0	0	0	1,794
1985	398	0	794	0	0	12	806
1986	993	0	1,815	0	0	673	2,488
1987	1,016	0	1,231	0	0	0	1,231
1988	1,361	0	1,910	0	127	36	2,073
1989	1,428	0	5,416	0	0	239	5,655
1990	1,537	0	5,835	0	178	68	6,081
1991	395	0	1,528	0	0	33	1,561
1992	810	0	3,468	0	76	183	3,727
1993	1,036	0	4,260	0	0	45	4,305
1994	1,372	0	5,715	0	0	34	5,749
1995[b]	2,261	0	8,605	0	0	77	8,682
Historical average (1980–1995)	1,215	0	3,373	0	25	93	3,492

Source Fall and Stanek (1990), for 1980 to 1989, based on annual reports of the sport fish harvest survey. 1990 through 1995: annual sport fish angler survey report. Harvest data as reported in annual sport fish angler survey reports differ from data reported in Nelson (1995:222), which reports "sport and personal use harvests combined."

a. Fishery was closed in 1981.

b. Harvest data not collected after 1995.

NA = Data not available.

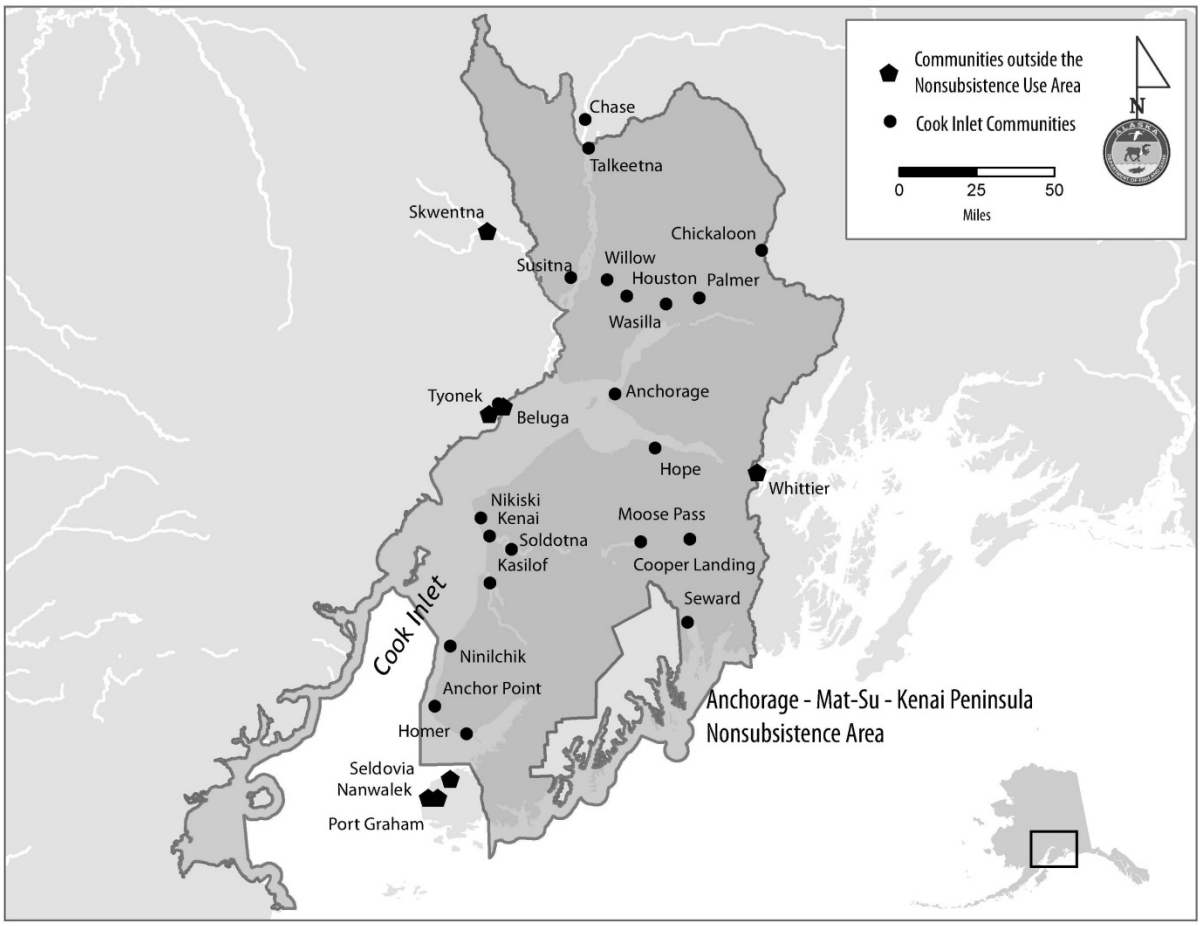

Figure 11-1.–Anchorage–Matsu–Kenai Nonsubsistence Area map.

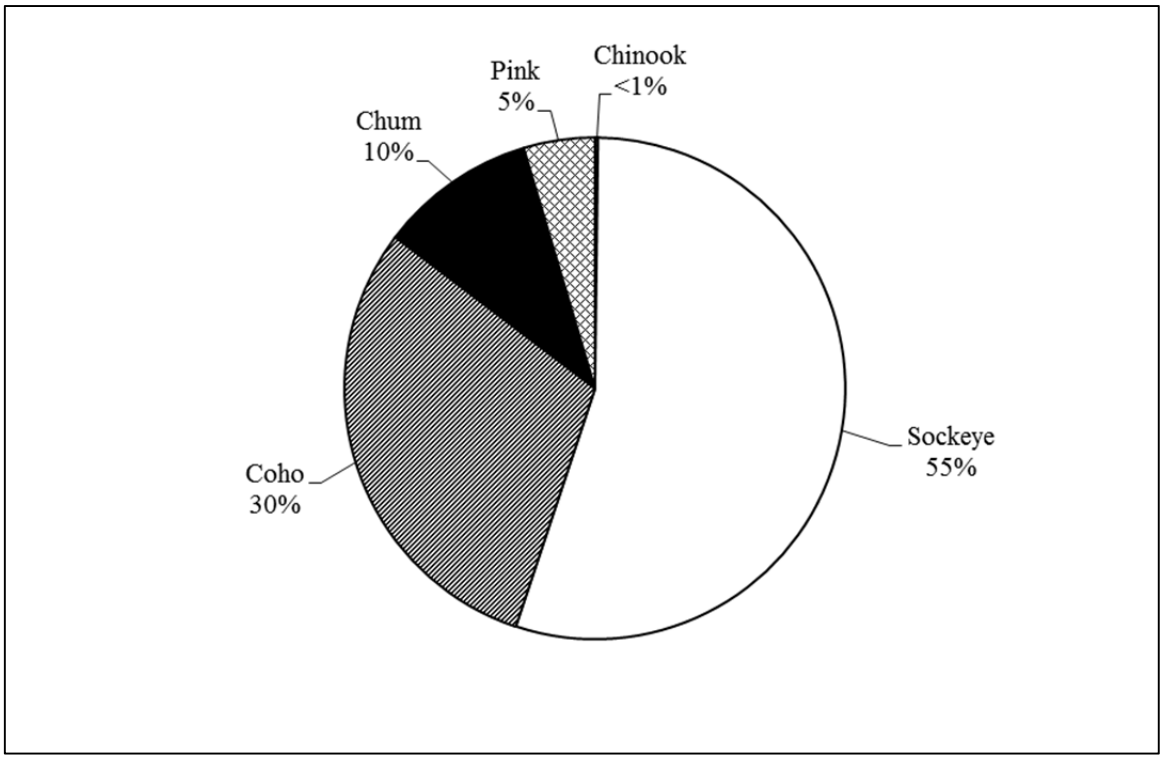

Figure 11-2.–Subsistence salmon harvests in the Port Graham and Koyuktolik subdistricts, 2013.

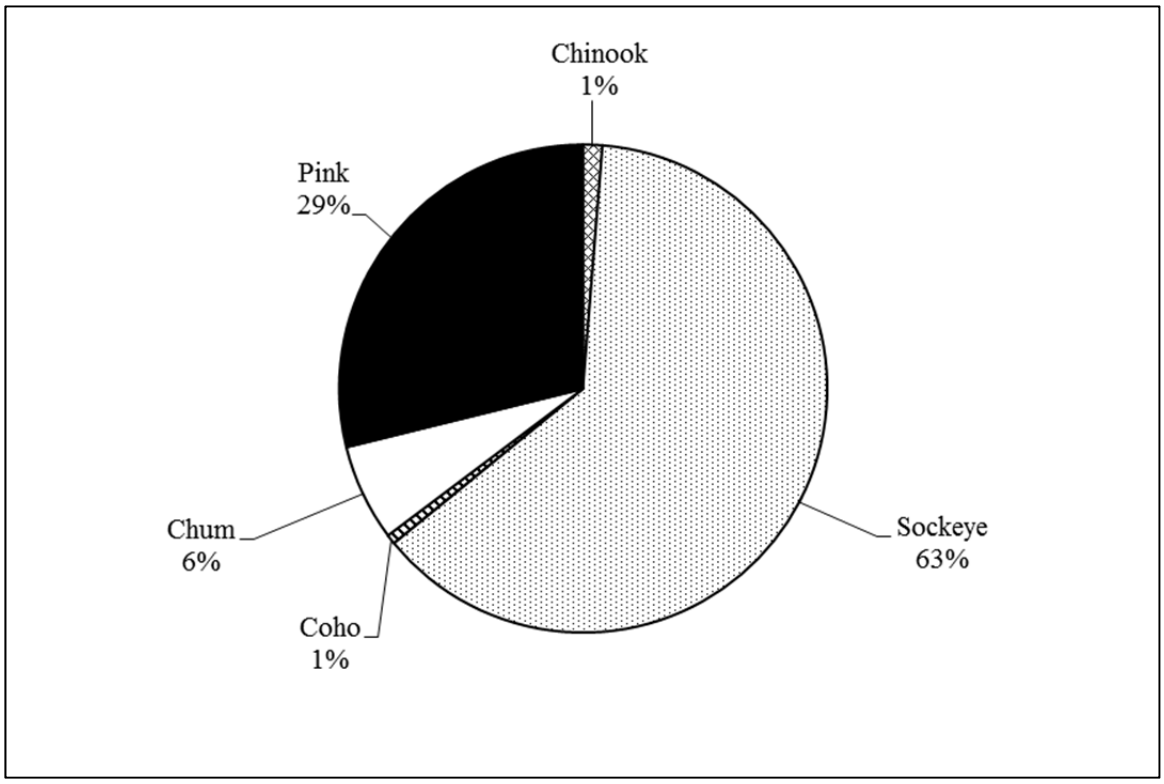

Figure 11-3.–Subsistence salmon harvests in Seldovia, 2013.

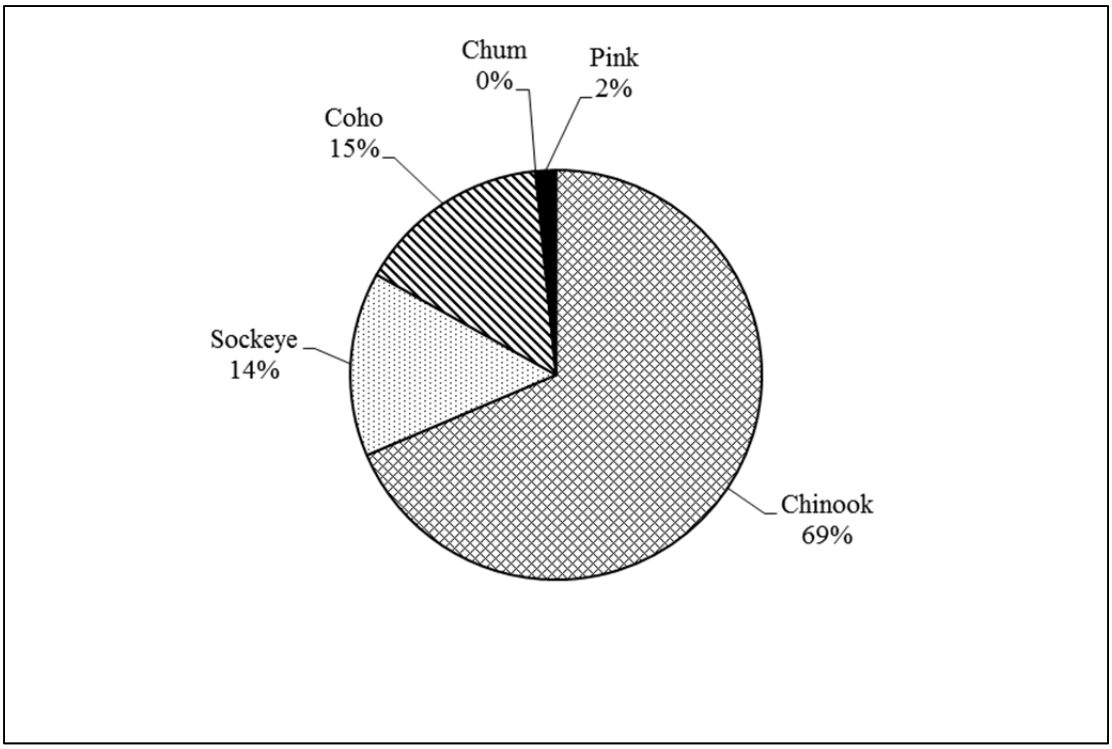

Figure 11-4.–Subsistence salmon harvests in the Tyonek Subdistrict, 2013.

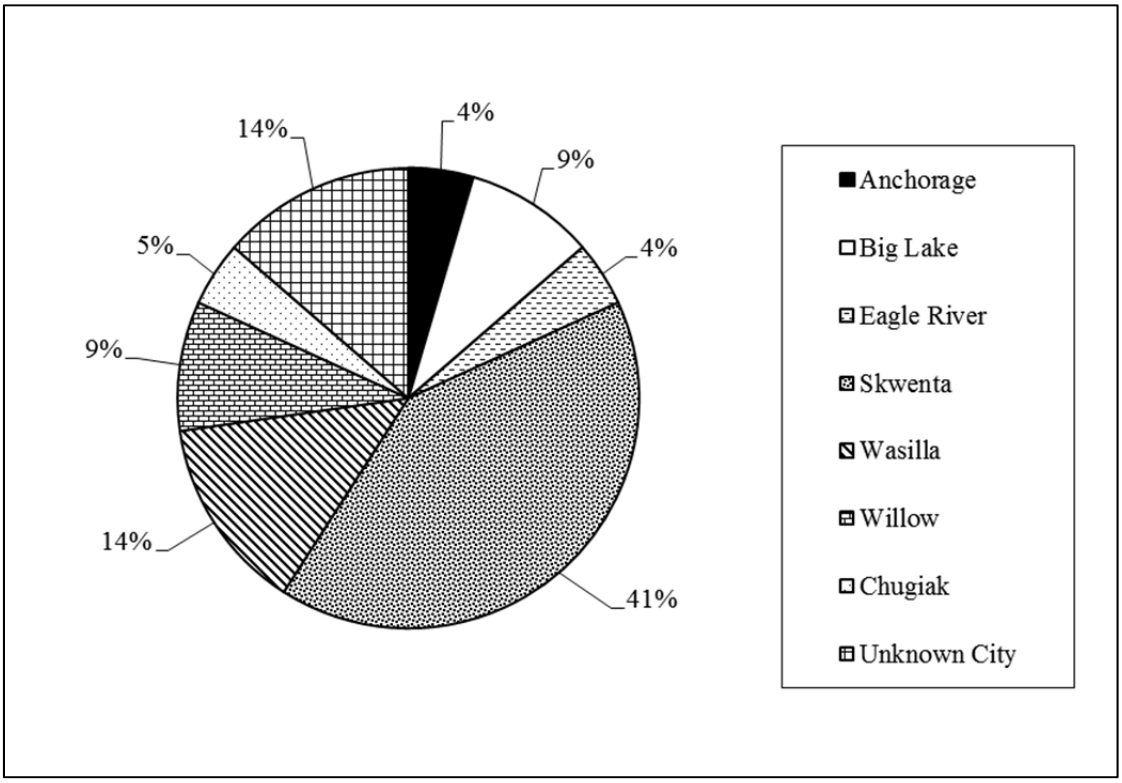

Figure 11-5.–Permits issued, by place of residence, for the Upper Yentna River fishery, 2013.

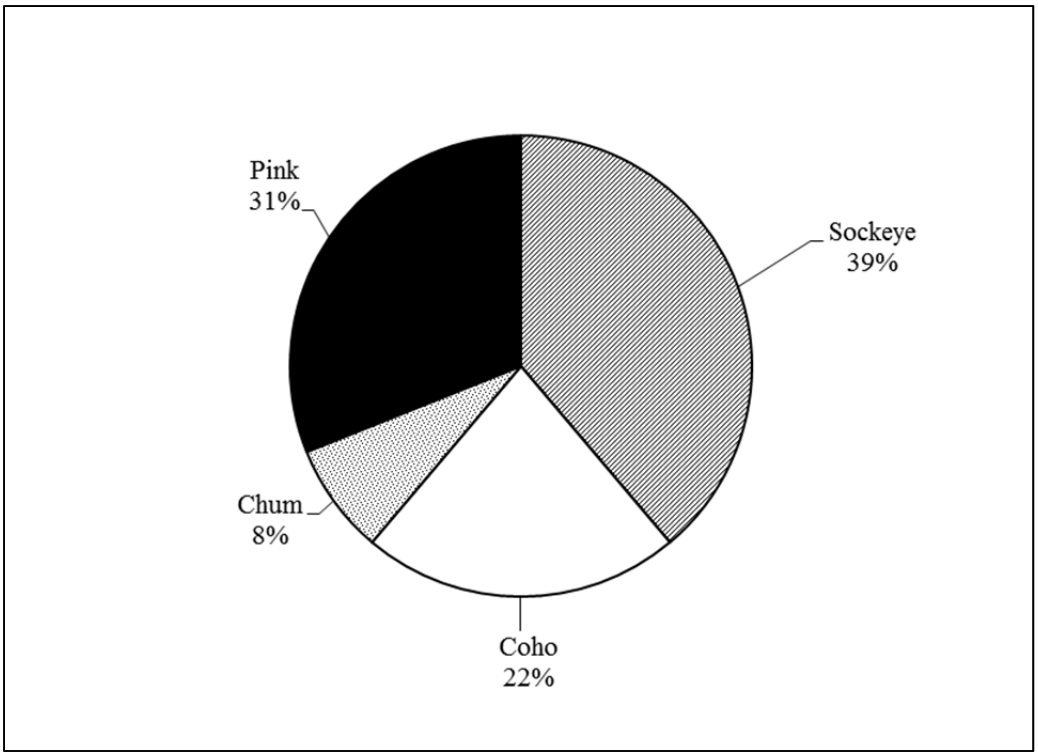

Figure 11-6.–Subsistence salmon harvests in the Upper Yentna River, 2013.

CHAPTER 12: PRINCE WILLIAM SOUND AREA

INTRODUCTION

The Prince William Sound (PWS) Management Area includes all waters of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling. The PWS Management Area's main geographical features are the Copper River, the Copper River's tributaries, and Prince William Sound. It has a total land area of 38,000 square miles.

The topography of the large and complex Prince William Sound on the edge of the Gulf of Alaska along with the Copper River and other smaller freshwater systems feeding into the sound create ecological conditions supporting many salmon runs. The area supports both natural and enhanced runs of pink (*Onchorhychus gorbuscha*), sockeye (*O. nerka*), chum (*O. keta*), coho (*O. kisutch*) and Chinook (*O. tshawytscho*) salmon.

Personal use and subsistence fisheries within these waters provide salmon to households within the Copper River Basin, Prince William Sound, and other communities across Alaska. Subsistence fisheries are not permitted in the Valdez Nonsubsistence Area (5 AAC 99.015(a) (5)). In 2013, approximately 12,800 personal use and subsistence permits for the Prince William Sound Area were issued to Alaska residents. The personal use and subsistence harvest totaled 285,000 salmon in 2013.

The area supports commercial gillnet and purse seine fisheries for all salmon types. Six hatcheries run by nonprofit aquaculture associations contribute pink, sockeye, and chum salmon to the area's fisheries. The Gulkana Hatchery in Paxson augments production of sockeye salmon to the Copper River.

In 2013 there were 8 subsistence and 1 personal use fisheries with annual harvest assessment programs in the Prince William Sound Management Area:

- In the Upper Copper River:
    - Glennallen Subdistrict: state subsistence permit program,
    - Glennallen Subdistrict: federal subsistence permit program
    - Chitina Subdistrict: state personal use permit program,
    - Chitina Subdistrict: federal subsistence permit program,
    - Batzulnetas: a federal subsistence permit program,
- In Copper River Flats–Prince William Sound: state subsistence permit program
- In Prince William Sound's waters:
    - Eastern District–Tatitlek: state subsistence permit program
    - Southwestern District–Chenega Bay: state subsistence permit program, and
    - Prince William Sound, general area: state subsistence permit program.

The Upper Copper River area is accessible by the Richardson Highway and the Glenn Highway. The Copper River Delta and communities along the Prince William shoreline are accessible primarily via the Alaska Marine Highway, boat, or plane, with the exception of Valdez, which is accessed by the Richardson Highway. The permit holder data reported in this chapter reflect different levels of use depending on the accessibility of these areas and demonstrate which areas are used by local or regional users, or both, for subsistence and personal use fishing. Other communities that show a high amount of use of the PWS fisheries are Anchorage, Fairbanks, Palmer, and Wasilla.

The communities of the Copper River Basin generally range from around 90 people up to over 350 people. The total population of the Copper River Basin in 2010 was nearly 3,000 people. There are fewer communities along the coastline of the Prince William Sound Management Area, but the largest communities within the management area are Valdez with about 4,000 residents and Cordova with about 2,200 residents. The other smaller coast communities are Tatitilek with 87 residents, Whittier with 220 residents, and Chenega with 63 residents.[1]

For both state and federal management purposes, the Upper Copper River District of the Prince William Sound Management Area consists of all waters of the mainstem Copper River from the mouth of the Slana River downstream to an east–west line crossing the Copper River approximately 200 yards upstream of Haley Creek as designated by ADF&G regulatory markers. There are 2 subdistricts: the Chitina Subdistrict, which consists of all waters of the Upper Copper River District downstream of the downstream edge of the Chitina–McCarthy Road Bridge, and the Glennallen Subdistrict, which consists of all remaining waters of the Upper Copper River District.

The Glennallen and Chitina subdistricts have had separate state and federal permit programs since 2002. The year 2013 was the 12th year with separate state and federal permit programs for the Glennallen and Chitina subdistricts. It should also be noted that the dip net fishery that takes place in the Chitina Subdistrict of the Upper Copper River District under state regulations was classified as a personal use fishery through 1999. The BOF reclassified this fishery as subsistence in 2000, and again as personal use in 2003 (with no other regulatory changes). Historical data for this fishery, including years when it was classified as subsistence or personal use, are included in statewide summaries as personal use. The state established the Glennallen and Chitina subdistricts in 1977. Prior to that time, the Upper Copper River was treated as one unit for management purposes. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996).

Under the provisions of 5 AAC 01.630 (h), a village council or other similarly qualified organization may obtain a permit to operate a fish wheel on behalf of its members upon approval of a harvest assessment plan submitted to ADF&G. These organizations may also issue household permits and register fish wheels. Table 12-1 summarizes data for the permits issued for village fish wheels by ADF&G from 1997 through 2011; in 2012 and 2013, no fish wheel permits were issued. Since 1997 permits have been issued to tribal organizations from Chistochina, Gakona, Kluti-Kaah, Chickaloon, and Chitina.

UPPER COPPER RIVER STATE AND FEDERAL SUBSISTENCE FISHERIES: GLENNALLEN SUBDISTRICT

Regulations

The Glenallen Subdistrict is that portion of the mainstem Copper River upstream of the McCarthy Bridge to the mouth of the Slana River. It is open June 1 to September 30 for continuous fishing. The federal subsistence fishery opens earlier on May 15. All tributaries of the Copper River, including the Chitina River are closed to subsistence fishing.

In the Glennallen Subdistrict permits are issued on a household basis and are required to participate in the state and federal subsistence salmon fisheries. ADF&G issues state permits upon request at ADF&G offices (in Glennallen, Tok, Delta Junction, Fairbanks, Palmer, and Anchorage) under the authority of 5 AAC 01.630. In 2002, the FSB created a federal permit requirement for qualified rural residents (primarily residents of Copper River Basin and Upper Tanana communities), which is administered by the National Park Service (NPS). Federal permits can be applied for in person at the NPS Wrangell-St. Elias Visitor's Center in Copper Center or the Slana Ranger Station.

1. ADLWD (Alaska Department of Labor and Workforce Development). "Population of Alaska by Economic Region, Borough and Census Area, 2010–2014." Juneau: State of Alaska Department of Labor and Workforce Development, Research and Analysis Homepage: Population, n.d. http://laborstats.alaska.gov/pop/popest.htm.

In the state fishery, households may participate in either the Chitina Subdistrict personal use fishery or the Glennallen Subdistrict subsistence fishery in any given year, but not both. Federally-qualified rural resident households may hold permits for both the federal and state Glennallen Subdistrict fisheries, or for the Glennallen federal fishery and the Chitina state personal use fishery, although state and federal harvest limits are not additive. Other standard permit conditions include prohibition of fishing within 300 ft. of a dam, fish ladder, weir, culvert, or other artificial obstruction. Under federal regulations, the total number of salmon per household taken within the Upper Copper River District exchanged in customary trade may not exceed 50% of the annual harvest limit per household and may not exceed the total cash value of $500 annually. State regulations for the district do not allow exchange of subsistence-caught fish for cash.

In the Glennallen Subdistrict under state regulations, fishers may use either fish wheels or dip nets, but not both types of gear. Federal subsistence permit holders may use rod and reel in addition to fish wheels and dip nets, and they may use all 3 types of gear, but not at the same time. The state season is June 1–September 30; the federal season is May 15–September 30. Annual limits are the same under state and federal regulations: 30 salmon for a household with 1 person or 60 salmon for a household of 2 persons, of which no more than 5 may be Chinook salmon if taken with a dip net. For a household of more than 2, 10 salmon for each additional person may be added to the annual limit. Upon request, permits can be issued for additional salmon, with limits of 200 salmon for 1-person households and 500 for households of 2 or more persons. The number of Chinook salmon (5) taken by dip net does not increase under state regulations; federal permit holders may take up to 5 additional Chinook salmon with rod and reel.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been conducted for the Upper Copper River since 1960, originally by the Division of Commercial Fisheries but currently by the Division of Sport Fish. Permits include harvest reports, and fishers are required to record the dates they fished and the number of each species harvested each day. Total harvest estimates for the fishery are made based on reported harvests expanded to all permit holders. Beginning in 2002, the NPS, on behalf of the FSB, has compiled the data from federal permit returns in a program separate from that administered by ADF&G.

The creation of a dual permit program for subsistence fishing in the Upper Copper River creates challenges for the compilation of a single subsistence harvest estimate for this subsistence fishery, which is the goal of this annual report. Issues include the following:

- As noted above, federal permits allow fishing with multiple gear types, including rod and reel, but state permits allow fishing with only 2 gear types—dip nets or fish wheels. Thus while prior to 2003, annual report summaries for the Glennallen Subdistrict showed the number of permits issued by gear type, this is not possible for the combined state and federal data summaries reported here.
- Some households obtain both the state and federal permit for the Glennallen Subdistrict. Of these "dual-permitted" households, some report harvest and effort only on their state permits (not returning the federal permit), some report harvest and effort only on their federal permits (not returning the state permit), some report identical harvests and efforts on both permits, and some return neither permit. Editing the data to compensate for double-reporting of salmon harvest and effort requires 2 assumptions: 1) permittees returning only 1 permit did not report harvest or effort on the other, and 2) permittees reporting identical harvests and efforts on both permits reported identical harvests twice rather than split their harvests between permits. These assumptions were employed in the analysis only after discussing the dual-permitted households with the program administrators in the Division of Sport Fish and NPS. All households obtaining both state and federal permits were counted as receiving only 1 permit in the summary tables for the Glennallen Subdistrict included here.

- Until 2006, state permits collected only the permit holder's city in terms of their mailing address, but federal permits collected this and the "community of primary residence." Since the Copper River area has a number of smaller communities without their own post offices, state permits issued to residents of these communities prior to 2006 did not provide adequate information to assure analysis results accurately reflect the true community residency of harvesters. But because of the precision of the federal permit regarding place of residence, the federal permit place of residence data were used to compile the harvest tables, in combination with the mailing address data from state permits. Since there were several dual-permitted households in the Glennallen Subdistrict fishery, the federal residence community was used as the default where this information differed.

Subsistence Salmon Harvests in 2013

As shown in Table 12-2, ADF&G and NPS issued a total of 1,616 subsistence salmon permits for the Glennallen Subdistrict for 2013. This total is higher than both the recent 5-year average (1,559 permits), 10-year average (1,417 permits), and the historical average (1989–2012; 1,118) and represents a relatively steady increase in issued permits since 1989.

Table 12-2 also reports the estimated total Glennallen Subdistrict subsistence salmon harvest in 2013 for both federal and state fisheries was 99,390 salmon, the majority of which were sockeye salmon. The 2013 harvest by species was as follows: 96,573 sockeye salmon (approximately 97% of the year's salmon harvest), 2,663 Chinook salmon, and 154 coho salmon. Pink and chum salmon are not generally available in the Upper Copper River, although a few chum salmon are sometimes reported.

As reported in Table 12-2, the 2013 harvest was higher than the 5-year average (82,946 salmon), 10-year average (83,850 salmon), and the historical average (1989–2012; 70,106 salmon). Table 12-3 reports subsistence salmon harvests in the Glennallen Subdistrict by place of residence of permit holders in 2013. Copper Basin residents caught 27% of the harvest (27,188 salmon) and other Alaska residents harvested 73% (72,202 salmon). Of all Glennallen Subdistrict permits issued for both federal and state, residents of Copper Basin communities held 353 permits (approximately 22%) and other Alaska residents held 1,263 permits (78%) (Table12-3). The communities with the most permits and salmon harvested were Anchorage with 359 permits, Fairbanks with 247 permits, Wasilla with 192 permits, Palmer with 108 permits, and Copper Center with 110 permits issued.

UPPER COPPER RIVER STATE PERSONAL USE FISHERY: CHITINA SUBDISTRICT

Background and History

The Chitina Subdistrict consists of all waters of the Upper Copper River District downstream of the downstream edge of the Chitina–McCarthy Road Bridge to an east–west line crossing the Copper River approximately 200 yd. upstream of Haley Creek. The Chitina personal use fishery is restricted to the waters of the mainstem Copper River. In 1984, and from 1986 through 1999, the Chitina Subdistrict was closed to subsistence fishing, and the dip net fishery was operated as a personal use fishery. At its December 1999 meeting, the BOF reversed an earlier decision, determined that the Chitina Subdistrict supported C&T uses of salmon, and returned the classification to subsistence. In February 2003, the BOF reconsidered the subsistence classification of the Chitina dip net fishery, reversed its decision of 1999, made a negative C&T finding, and returned the classification to personal use. No other regulatory changes were made at that time. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996) and ADF&G (2003).

The Chitina Subdistrict personal use fishery is open by emergency order from week to week from June 7 through September 30. The weekly fishing periods and limits are established by emergency order and are based on the projected in-river returns on escapement estimates at the sonar station located at Miles Lake.

Regulations

There are state and federal permit programs for the Chitina Subdistrict. Under state regulations, a household permit and an Alaska state resident sport fishing license are required for personal use fishing in the Chitina Subdistrict. Households may not possess both the Chitina state personal use permit and the Glennallen state subsistence permit in the same year. Under state regulations, dip nets are the only legal gear in the Chitina Subdistrict. Annual limits are 15 salmon for a 1-person household and 30 salmon for households of 2 or more. Only 1 Chinook salmon may be harvested annually. If ADF&G authorizes a supplemental harvest period by emergency order, permit holders who have already filled their original limit may take 10 additional sockeye salmon during each announced supplementary period. Rainbow/steelhead trout taken by dip net under the state fishery must be released immediately and returned to the water unharmed. Other standard permit conditions include prohibition of fishing within 300 ft. of a dam, fish ladder, weir, culvert, or other artificial obstruction.

The Chitina Subdistrict state fishery is managed under the Copper River Personal Use Dip Net Salmon Fishery Management Plan (5AAC 77.591).

Harvest Assessment Program

Annual subsistence–personal use salmon harvest assessments have been conducted by ADF&G, currently by the Division of Sport Fish, in the Upper Copper River Area since 1960. Chitina Subdistrict permits include harvest reports, and fishers are required to record the dates they fish, the number of each species harvested each day, whether they fished from a boat or from shore, and if they fished during a supplemental harvest period. Total harvest estimates for the state personal use fishery are made based on reported harvests expanded to all permit holders.

Personal Use Salmon Harvests in 2013

As reported in Table 12-4, the estimated total salmon harvest in the Chitina Subdistrict personal use fishery in 2013 was 187,614 fish, including 185,970 sockeye salmon (99%), 762 Chinook salmon, and 882 coho salmon, by 10,424 permit holders. The 2013 total estimated harvest for the Chitina Subdistrict was the highest ever estimated for this fishery, well above the recent 5-year (121,116 salmon) and 10-year (121,433 salmon) averages, as well as the historical average (1989–2012; 114,311 salmon). It should be noted however that the 2013 Chinook salmon harvest was down significantly from the 5-year, 10-year, and historical averages, as was the 2013 coho salmon harvest.

Table 12-5 reports estimated salmon harvests in the Chitina Subdistrict personal use fishery by mailing address of state permit holders in 2013; most participants in this fishery lived in Fairbanks, Anchorage, or the Matanuska–Susitna Borough. Only 43 Copper Basin residents (<1%) obtained state personal use salmon permits for the Chitina Subdistrict in 2013. The other 10,381 permits were issued to non-area residents. Non-area residents harvested all but 654 of the salmon harvested and harvested only sockeye salmon in this fishery in 2013 (>99%). The communities with the most permits issued were Fairbanks with 3,019 permits, Anchorage with 2,780 permits, Wasilla with 983 permits, North Pole with 929 permits, Palmer with 548 permits, and Delta Junction with 438 permits.

UPPER COPPER RIVER FEDERAL SUBSISTENCE FISHERY: CHITINA SUBDISTRICT

Regulations

In 2013, qualified Alaska rural residents could obtain federal subsistence permits for the Chitina Subdistrict from NPS. Legal gear included fish wheels, dip nets, and rod and reel. Federally-qualified rural resident households may hold permits for both the federal and state Chitina Subdistrict fisheries, or for the Chitina federal fishery and the Glennallen state subsistence fishery, although state and federal harvest limits are not additive. Federal seasonal limits for the Chitina Subdistrict were the same as for the Glennallen Subdistrict, but also cannot be combined. Under federal regulations, rainbow/steelhead trout

incidentally taken from fish wheels could be retained. Other standard permit conditions include prohibition of fishing within 300 ft. of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Federal Subsistence Harvests in 2013

As reported in Table 12-6, an estimated 2,428 salmon were harvested in the federal Chitina Subdistrict subsistence fishery in 2013. The recent 5-year average is 2,444 salmon and the historical average (1989–2012) is 1,980 salmon.

The total harvest included 2,399 sockeye salmon (99%), 8 coho salmon, and 20 Chinook salmon. A total of 99 permits were issued, which is greater than the 5-year average of 83. Table 12-7 reports harvest and permit numbers according to each permittee's community of residence in 2013 for the Chitina Subdistrict. Kenny Lake, Chitina, Glennallen, McCarthy, and Copper Center had the most permits issued.

NATIVE VILLAGE OF BATZULNETAS SUBSISTENCE FISHERY

The state created the Batzulnetas fishery in 1987 through an emergency regulation to settle the federal district court case of *John vs. Alaska*. There is also a federal permit program for a federal fishery in this area. Participants in this fishery are largely from the community of Mentasta. Legal gear includes fish wheels and dip nets in the Copper River and dip nets and spears in Tanada Creek.

For both state and federal fisheries, the open area is all waters from regulatory markers near the mouth of Tanada Creek and approximately one-half mile downstream from that mouth; and all waters of Tanada Creek between regulatory markers.

The state fishing season is open June 1–September 1 or until the season is closed by emergency order. During the season fishing periods are established by emergency order and are limited to 48 hour periods per week in June and 84-hour periods per week from July 1 till the end of the season. The federal fishing season is May 15–September 30 or until the season is closed by special action.

Since 1987, subsistence permits have been issued in 15 of the 25 years (Table 12-8). One permit was issued and returned every year from 1998 through 2004. No permits were issued for the years 2005 through 2009. Three permits were issued and returned from 2010 to 2013. The total 2013 harvest included 862 sockeye salmon and 5 Chinook salmon. The historical average (1987–2012) harvest for this fishery is 102 sockeye salmon, with the highest harvest occurring in 1994 with a take of 997 sockeye salmon.

COPPER RIVER DISTRICT SUBSISTENCE FISHERY

Background and Regulations

This fishery takes place in the Copper River District at the mouth of the Copper River (Copper River Flats) near the community of Cordova. Boundary lines for the Copper River District subsistence fishing are the same as for the commercial drift gillnet fishery. Permits are required to participate in subsistence fishing for salmon and freshwater fish species under the authority of 5 AAC 01.630. Permits are issued upon request either in person or by telephone to the Cordova ADF&G office. Fishers must declare their intent to fish in the Copper River Flats Area or in Prince William Sound, since the permit is valid for only one or the other location. Legal gear is set or drift gillnet no longer than 50 fathoms; open season is May 15–September 30, with additional restrictions during times of commercial fishing activity, as follows: subsistence fishing is allowed 7 days per week in the Copper River District from May 15 until 2 days before the opening of the commercial fishery. Once commercial fishing has commenced subsistence fishing is generally allowed only during commercial fishing periods. Regulations stipulate that 2 days following the closure of the Copper River District to commercial salmon fishing for the season, subsistence fishing is allowed 7 days a week until September 30. Annual limits for salmon are 15 salmon for a household of one; 30 salmon for a household of 2 or more; and 10 salmon for each additional person in the household. There is a limit of 5 Chinook salmon per permit. Other standard permit conditions

include prohibition of fishing within 300 ft. of a dam, fish ladder, weir, culvert, or other artificial obstruction.

ADF&G with the direction of the Alaska Board of Fisheries (BOF) manages salmon runs to the Copper River District to assure sustained yield to meet all user group allocations as outlined in the Copper River District Salmon Management Plan (5 AAC 24.360).

Harvest Assessment Program

A permit program with annual subsistence salmon harvest assessments has been in place for Prince William Sound at least since 1960. Permits are returned to the Cordova ADF&G office either in person or by mail at the end of the fishing season. Permits include a harvest report, and fishers are required to record the dates fished and the number of each species of fish harvested each day.

Subsistence Salmon Harvests in 2013

As reported in Table 12-9, 531 permits were issued for this fishery in 2013, and 497 (94%) were returned. Participation in this fishery as represented by issued permits has fluctuated over time, generally increasing from the historical average (171) and remaining somewhat consistent for the 5-year (361) and 10-year (383) averages. The estimated harvest in 2013 of 7,010 salmon was a significant increase from the previous year (4,767). The 2013 harvest was composed mainly of 6,073 sockeye salmon (87%) and included 916 Chinook salmon (13%), 18 pink salmon (<1%), 1 coho salmon (<1%) and 2 chum salmon (<1%). Most permit holders lived in Cordova (386; 73%) and took 69% of the total harvest (Table 12-10).

EASTERN DISTRICT (TATITLEK) SUBSISTENCE SALMON FISHERY

Although the Eastern District is defined as those waters of the eastern mainland shore from the radio tower at Whitshed Village to Point Freemantle, including Bligh Island, Goose Island, and other adjacent islands (5 AAC 24.200 (c)), under regulations in place since 1988, salmon may be taken for subsistence purposes only in those waters north of a line from Porcupine Point near Goose Island to Granite Point near Glacier Island, and south of a line from Point Lowe to Tongue Point in Valdez Arm (5 AAC 01.648 (b)). The primary participants in this fishery are residents of Tatitlek. Prior to 1992, permits were issued only in Tatitlek, but since 1992, they have been issued at the Cordova ADF&G office as well. Permits may be returned in person to the Cordova ADF&G office or the Tatitlek Village Council office, or mailed at the end of the fishing season. Permits include a harvest report, and fishers are required to fill in the dates fished and the number of each species of salmon caught each day.

Legal gear for this fishery includes seines up to 50 fathoms in length and 100 meshes deep with a maximum mesh size of 4 in, or gillnets up to 150 fathoms in length with a maximum size of 6¼ in. Pink salmon may be taken in fresh water with dip nets only. The open season is May 15–October 31, under the following fishing periods: 7 days per week from May 15 until 2 days before the commercial opening of the Eastern District; during the commercial fishing season, but only during commercial openers; and 7 days per week from 2 days after the closure of the commercial season through October 31. There are no bag or possession limits for this fishery.

In 2013, there were 22 permits issued for this fishery, the most permits issued since 1988 (Table 12-11). The permittees reported a total harvest of 1,019 salmon, down slightly from the past few years but representing a general increase over the 5-year, 10-year, and historical averages. The 2013 harvest numbers align with survey efforts from 2003 (Fall 2006), indicating that until just recently, the harvest assessment program for this fishery has consistently and substantially underestimated harvests. As shown in Table 12-12, household surveys in Tatitlek provided an estimate of 1,075 salmon taken with subsistence methods in 2003, compared to the 298 salmon (Table 12-11) based on returned permits for that year. In Tatitlek, salmon for home use have also been acquired via rod and reel and removal from commercial harvests. However, all salmon that were reported harvested in the 2003 surveys were taken with subsistence nets or seines (Fall 2006).

SOUTHWESTERN DISTRICT (CHENEGA) SUBSISTENCE SALMON FISHERY

The Southwestern District is described as the mainland waters from the outer point of the north shore of Granite Bay to Cape Fairfield, as well as the waters surrounding Knight, Chenega, Bainbridge, Evans, Elrington, and Latouche islands and their adjacent islands (5 AAC 24.200 (i)). Under regulations in place since 1988, salmon may be taken in the Southwestern District as well as in waters along the northwestern shore of Green Island from the westernmost tip of the island to the northernmost tip (5 AAC 01.648 (a)). The primary participants in this fishery are residents of Chenega Bay. Prior to 1992, permits were issued only in Chenega Bay, but since 1992, they have also been issued at the Cordova ADF&G office. Permits may be returned in person to the Cordova ADF&G office or the Chenega Village Council office, or mailed at the end of the fishing season. Permits include a harvest report, and fishers are required to fill in the dates fished and the number of each species of salmon caught each day.

Legal gear for this fishery includes seines up to 50 fathoms in length and 100 meshes deep with a maximum mesh size of 4 in, and gillnets up to 150 fathoms in length with a maximum size of 6¼ in. Pink salmon may be taken in fresh water with dip nets only. The open season is May 15–October 31 under the following fishing periods: 7 days per week from May 15 until 2 days before the commercial opening of the Southwestern District; during the commercial fishing season at the time of commercial openers; and 7 days per week from 2 days after the closure of the commercial season through October 31. There are no bag or possession limits for this fishery.

In 2013, 13 permits were issued for this fishery and 4 were returned. Both the harvest and number of permits were down from the previous years. Because permit return rates for this fishery have been low in the past, data in Table 12-13 reflect reported harvests only. The reported harvest for 2013 was 82 salmon, consisting of 19 sockeye salmon, 63 chum salmon, and 0 coho salmon. The 2013 harvest represented an increase of the reported harvest in comparison with the recent 5-year (336 salmon), 10-year (467 salmon), and historical averages (562 salmon). However, it is likely that the harvest assessment program for this fishery continues to underestimate harvests. As shown in Table 12-14, household surveys in Chenega Bay in 2003 (Fall 2006) provided an estimate of 1,690 salmon taken with subsistence methods compared to 677 (Table 12-13) based on returned permits for that same year.

PRINCE WILLIAM SOUND: GENERAL DISTRICTS

Subsistence fishing for salmon in the other districts of the Prince William Sound Area (other than the Upper Copper River, Copper River, Eastern, and Southwestern districts; also, the Valdez Nonsubsistence Area is closed to subsistence fishing) is open in conformance with commercial fishing regulations regarding gear, open areas, and open periods. Permits are required and may be obtained from the Cordova ADF&G office. Annual limits are 15 salmon for a household of one, 30 salmon for a household of 2, and 10 salmon for each additional person in the household.

Since the creation of separate regulations for the waters fished by Tatitlek and Chenega Bay residents in 1988, it appears that participation in the general Prince William Sound fishery has been limited. In the last 22 years, issued permits have been typically low, with a 5-year average of 4 and a 10-year average of 8 (Table 12-15). In 2013, 8 permits were issued, and 8 were returned; down from the record 14 permits issued in 2012. The reported harvest for 2013 was 36 salmon, consisting of 12 sockeye salmon and 24 chum salmon. The 2013 harvest for the Prince William Sound general area is similar to the 5 and 10-year average; 42 and 37 respectively (tables 12-15 and 12-16).

OTHER SUBSISTENCE FISHERIES IN THE PRINCE WILLIAM SOUND AREA

Subsistence halibut harvest estimates for eligible communities and tribes in the Prince William Sound Area communities of Cordova, Chenega Bay, and Tatitlek are available for 2012; no estimates are available for 2013 (Fall and Koster 2014).

In 2013, on-going harvest assessment programs did not exist for other subsistence finfish fisheries in the Prince William Sound Area. However, there is a subsistence permit available for the harvest of freshwater finfish species, which is issued out of the Glennallen ADF&G office. Also, in the Upper Copper River watershed, resident species such as Arctic grayling, burbot, and whitefishes, among other species, are harvested for home use. Harvest estimates based on household surveys are available in the CSIS.

The Division of Subsistence, in collaboration with the Copper River Native Association, the Cheesh'Na Tribal Council, the Mentasta Tribal Council, and the Chitina Tribal Council, conducted a household survey to collect nonsalmon fish harvests and use information in Copper Basin communities for a 12-month period from October 2000–September 2001. In total, 472 households were interviewed, 42% of the estimated 1,193 households living in Copper Basin communities. The study produced estimated harvests by study community and gear type for burbot, Arctic char/Dolly Varden, lake trout, Arctic grayling, northern pike, longnose suckers, rainbow/steelhead trout, and whitefishes. Detailed summaries of study methods and findings appear in Simeone and Kari (2005).

Residents of Cordova, Chenega Bay, Tatitlek, Valdez, and Whittier take a variety of shellfish and marine finfishes for subsistence uses. Harvest estimates are available in the CSIS based upon systematic household surveys. Subsistence fishing for shrimp is open April 15–September 15, with no more than 5 pots per person and 5 pots per vessel, and no bag or possession limits. The year 2006 was the first year in which a permit was not required. In March 2009, the BOF adopted a Prince William Sound Pot Shrimp Management Plan that allocated 40% of the harvestable surplus of shrimp to commercial users and 60% to noncommercial users. Harvestable surplus is estimated annually prior to the start of the fishing season (April 15) with a surplus production model that requires more timely and precise estimates of noncommercial harvest than are provided by the statewide harvest survey (SWHS). This made it necessary to reinstate the noncommercial shrimp permit prior to the start of the 2009 shrimp pot fishery season. The Prince William Sound noncommercial shrimp permit requires all noncommercial users to report the date, location, duration, number of pots, and harvest of shrimp (gallons) for each set of pot gear made throughout the fishing season (April 15–September 15). Detailed summaries of harvest estimates and data from returned permits appear in Hochhalter and Hansen (2011) for 2010. Data for 2012 is available from the ADF&G Division of Sport Fish statewide harvest survey.[2] Subsistence fishing for Dungeness, Tanner, and king crabs in the Prince William Sound Management Area was closed, either by regulation or by emergency order, due to low stock status.

2. "Alaska Sport Fishing Survey, Southcentral Alaska Region." 2014. Alaska Department of Fish and Game, Alaska Sport Fishing Survey. Accessed September 2014. http://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=region.target&targetRegion=2.

Table 12-1.–Subsistence harvests by village fish wheel permits, Glennallen Subdistrict, 1997–2013.

		Reported subsistence harvest					
Year[a]	Village	Chinook	Sockeye	Coho	Steelhead	Other	Total
1997	Chistochina	105	342	139	88	1	675
1997	Gakona	8	1,242	0	0	0	1,250
1997	Kluti-Kaah	12	61	0	0	0	73
1999	Chickaloon	1	5	0	0	0	6
1999	Gakona[b]	0	0	0	0	0	0
1999	Kluti-Kaah	46	85	0	0	0	131
2000	Chickaloon	73	200	0	0	0	273
2000	Chistochina	1	880	0	0	0	881
2000	Kluti-Kaah	20	110	0	0	0	130
2001	Chickaloon	20	120	0	0	0	140
2001	Chistochina	4	1,203	0	0	0	1,207
2001	Kluti-Kaah	3	259	114	0	0	376
2002	Chickaloon	0	91	0	0	0	91
2002	Chitina[c]	0	0	0	0	0	0
2003	Chickaloon	8	105	0	0	0	113
2004	Chickaloon	5	178	0	0	0	183
2004	Chistochina	17	1,563	0	0	0	1,580
2005	Chistochina	4	545	0	0	0	549
2005	Chickaloon	20	533	0	0	1	554
2005	Gakona	9	442	0	0	0	451
2006	Chistochina	8	559	0	0	0	567
2006	Chickaloon[c]	0	0	0	0	0	0
2006	Chitina	0	497	0	0	0	497
2007	Chitina[c]	0	0	0	0	0	0
2008	Chickaloon[c]	0	0	0	0	0	0
2008	Gakona	1	241	15	0	0	257
2009	Chickaloon[c]	0	0	0	0	0	0
2009	Kluti-Kaah	0	30	0	0	0	30
2010	Chickaloon	2	237	0	0	0	239
2010	Gakona[a]	0	0	0	0	0	0
2010	Kluti-Kaah[c]	0	0	0	0	0	0
2011	Gulkana	2	50	0	0	0	52
2011	Gakona	5	37	0	0	0	42

Source Mark Somerville, ADF&G Division of Sport Fish, Glennallen personal communication.

a. No fish wheel permits were issued in 2012 and 2013.

b. Did not fish

c. Did not return permit.

Table 12-2.–Historical subsistence salmon harvests, Glennallen Subdistrict, 1989–2013.

	Permits		Estimated salmon harvest[a]					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1989	386	360	796	28,724	67	0	0	29,587
1990	406	384	639	32,219	91	0	0	32,949
1991	712	645	1,314	39,364	241	0	0	40,919
1992	655	619	1,440	45,115	345	0	0	46,900
1993	773	696	1,443	54,003	76	0	0	55,523
1994	970	776	1,979	69,143	71	0	0	71,193
1995	858	726	1,968	54,336	975	0	0	57,280
1996	850	788	1,483	52,269	552	0	0	54,305
1997	1,136	1,058	2,608	83,692	183	0	0	86,483
1998	1,010	951	1,846	64,876	553	0	0	67,275
1999	1,102	1,040	3,234	76,456	1,145	0	0	80,835
2000	1,251	1,197	4,937	60,551	539	5	0	66,032
2001	1,239	1,176	3,480	81,960	1,142	20	0	86,601
2002	1,308	1,162	4,446	63,028	686	1	0	68,161
2003	1,227	1,101	3,344	64,618	650	0	0	68,612
2004	1,212	1,032	4,503	82,174	880	0	0	87,557
2005	1,234	1,070	2,785	91,715	252	0	0	94,752
2006	1,239	1,100	3,233	78,244	266	0	0	81,743
2007	1,458	1,277	4,125	86,678	308	0	0	91,110
2008	1,455	1,269	3,417	59,293	694	0	0	63,404
2009	1,364	1,138	3,341	67,887	287	0	0	71,515
2010	1,587	1,331	2,653	92,632	422	0	0	95,706
2011	1,586	1,328	3,649	81,216	1,131	0	0	85,996
2012	1,805	1,557	2,649	94,991	470	0	0	98,110
2013	1,616	1,400	2,663	96,573	154	0	0	99,390
5-year average (2008–2012)	1,559	1,325	3,142	79,204	601	0	0	82,946
10-year average (2003–2012)	1,417	1,220	3,370	79,945	536	0	0	83,850
Historical average (1989–2012)	1,118	991	2,721	66,883	501	1	0	70,106

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Starting in 2002, estimates include salmon harvested under federal as well as state subsistence fishing regulations and permits.

Table 12-3.–Subsistence salmon harvests by community of residence, Glennallen Subdistrict, 2013.

	Permits		Estimated salmon harvest[a]					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chistochina	8	6	36	908	0	0	0	944
Chitina	25	19	26	1,732	0	0	0	1,758
Copper Center	110	93	157	10,426	1	0	0	10,585
Copperville	6	6	25	849	0	0	0	874
Gakona	23	21	23	1,900	0	0	0	1,923
Glennallen	65	59	119	4,131	15	0	0	4,266
Gulkana	3	3	27	591	0	0	0	618
Kenny Lake	35	31	38	1,768	0	0	0	1,806
Lake Louise	1	1	0	3	0	0	0	3
McCarthy	14	13	0	20	0	0	0	20
Nelchina	5	5	13	384	0	0	0	397
Slana	19	19	4	945	0	0	0	949
Tazlina	30	26	127	2,638	0	0	0	2,765
Tolsona	9	9	0	280	0	0	0	280
Subtotal, Copper Basin	**353**	**311**	**596**	**26,576**	**17**	**0**	**0**	**27,188**
Alpine	1	1	1	17	0	0	0	18
Anchor Point	1	1	1	33	0	0	0	34
Anchorage	359	284	611	20,956	23	0	0	21,589
Anderson	1	1	0	0	0	0	0	0
Barrow	3	2	20	326	0	0	0	345
Beaver	1	1	0	0	0	0	0	0
Big Lake	9	7	12	801	0	0	0	813
Cantwell	2	2	0	52	0	0	0	52
Chickaloon	5	5	1	87	0	0	0	88
Chugiak	16	16	32	732	0	0	0	764
Cooper Landing	1	1	2	42	0	0	0	44
Delta Junction	36	33	70	1,687	5	0	0	1,762
Dot Lake	1	0	0	0	0	0	0	0
Eagle River	57	48	103	1,858	0	0	0	1,962
Ester	4	4	32	396	0	0	0	428
Fairbanks	247	227	335	9,934	25	0	0	10,295
Fort Wainwright	3	2	0	2	0	0	0	2
Girdwood	1	1	0	22	0	0	0	22
Healy	1	1	1	140	0	0	0	141
Homer	1	1	5	38	0	0	0	43
Houston	1	1	0	0	0	0	0	0
Joint Base Elmendorf Richardson	1	1	0	9	0	0	0	9
Kennicott	1	1	0	0	0	0	0	0
Meadow Lake	2	2	2	127	0	0	0	129
Mentasta Lake	5	5	5	1,151	0	0	0	1,156

-continued-

Table 12-3.–Page 2 of 2.

	Permits		Estimated salmon harvest[a]					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Nabesna	3	3	0	186	0	0	0	186
Nenana	2	2	4	465	0	0	0	469
Ninilchik	1	1	3	95	0	0	0	98
North Pole	79	64	185	4,951	0	0	0	5,136
Northway	5	4	3	384	0	0	0	386
Palmer	108	100	136	4,440	33	0	0	4,609
Peters Creek	1	1	1	9	0	0	0	10
Salcha	7	5	7	304	0	0	0	311
Seldovia	1	0	0	0	0	0	0	0
Soldotna	3	3	24	453	0	0	0	477
Sutton	2	2	0	27	0	0	0	27
Tanacross	2	2	0	97	0	0	0	97
Tok	52	47	72	4,037	0	0	0	4,109
Tonsina	7	6	2	249	0	0	0	251
Trapper Creek	1	1	0	16	0	0	0	16
Two Rivers	2	2	3	61	0	0	0	64
Unknown Community	1	1	1	103	16	0	0	120
Valdez	29	28	57	2,238	0	0	0	2,295
Wasilla	192	164	335	13,453	35	0	0	13,823
Willow	5	5	2	21	0	0	0	23
Subtotal, other communities	**1,263**	**1,089**	**2,067**	**69,998**	**138**	**0**	**0**	**72,202**
Total	**1,616**	**1,400**	**2,663**	**96,573**	**154**	**0**	**0**	**99,390**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. Includes salmon harvested under federal as well as state subsistence fishing regulations and permits.

Table 12-4.–Historical subsistence and personal use salmon harvests, state Chitina Subdistrict permits, 1989–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1989	4,584	4,353	2,269	56,547	865	0	0	59,681
1990	5,689	5,475	2,711	66,435	1,516	0	0	70,662
1991	6,222	5,990	4,092	78,412	3,378	0	0	85,882
1992	6,387	6,229	3,422	87,090	1,524	0	0	92,036
1993	7,914	7,914	2,729	89,629	1,358	0	0	93,716
1994	7,060	5,939	4,198	106,163	2,204	0	0	112,566
1995	6,762	5,442	5,617	94,494	5,861	0	0	105,972
1996	7,196	6,962	3,607	95,645	3,404	0	0	102,656
1997	9,086	8,919	5,470	149,020	160	0	0	154,650
1998	10,002	9,751	6,746	137,530	2,156	0	0	146,431
1999	9,941	9,607	5,964	142,682	2,199	0	0	150,845
2000	8,145	7,676	3,219	109,370	3,758	0	0	116,347
2001	9,458	8,356	3,171	137,047	2,687	0	0	142,905
2002	6,804	5,736	2,093	90,655	2,034	0	0	94,782
2003	6,440	5,438	1,962	84,790	2,579	0	0	89,332
2004	8,153	6,855	2,521	111,203	2,751	0	0	116,476
2005	8,232	6,768	2,155	129,506	1,885	0	0	133,546
2006	8,497	6,762	2,598	128,469	2,343	0	0	133,410
2007	8,378	7,187	2,782	131,460	1,747	0	0	135,990
2008	8,041	6,861	1,991	82,961	2,747	0	0	87,699
2009	7,958	6,908	229	93,766	1,667	0	0	95,662
2010	9,308	7,757	700	140,089	1,892	0	0	142,680
2011	9,167	7,566	1,118	138,089	1,866	0	0	141,073
2012	10,016	8,030	613	136,441	1,411	0	0	138,465
2013	10,424	8,482	762	185,970	882	0	0	187,614
5-year average (2008–2012)	8,898	7,424	930	118,269	1,917	0	0	121,116
10-year average (2003–2012)	8,419	7,013	1,667	117,677	2,089	0	0	121,433
Historical average (1989–2012)	7,893	7,020	2,999	109,062	2,250	0	0	114,311

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note Under state regulations, this fishery was classified as personal use from 1986 through 1999; in 2000, 2001, and 2002, it was classified as a subsistence fishery, in 2003, it was reclassified as personal use.

Table 12-5.–Personal use salmon harvests by community of residence, state Chitina Subdistrict permits, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chitina	2	2	0	25	0	0	0	25
Copper Center	19	13	0	224	0	0	0	224
Glennallen	22	17	0	405	0	0	0	405
Subtotal, Copper Basin	**43**	**32**	**0**	**654**	**0**	**0**	**0**	**654**
Allakaket	3	2	0	45	0	0	0	45
Ambler	1	1	1	5	0	0	0	6
Anaktuvuk Pass	2	1	0	20	0	0	0	20
Anchor Point	2	2	0	60	0	0	0	60
Anchorage	2,780	2,199	225	42,446	177	0	0	42,848
Anderson	5	5	0	66	0	0	0	66
Arctic Village	3	2	0	45	0	0	0	45
Auke Bay	3	2	0	83	0	0	0	83
Barrow	13	8	0	185	0	0	0	185
Bethel	2	0	0	0	0	0	0	0
Bettles Field	1	0	0	0	0	0	0	0
Big Lake	46	36	6	755	0	0	0	762
Birch Creek	1	1	0	40	0	0	0	40
Bird Creek	1	1	0	30	0	0	0	30
Cantwell	4	3	0	93	0	0	0	93
Central	2	2	1	52	0	0	0	53
Chickaloon	18	18	6	371	0	0	0	377
Chugiak	139	115	17	2,351	0	0	0	2,368
Clear	5	4	0	136	19	0	0	155
Cooper Landing	2	1	0	0	0	0	0	0
Delta Junction	438	387	48	9,335	6	0	0	9,388
Denali National Park	17	14	0	279	16	0	0	295
Dot Lake	1	1	0	40	0	0	0	40
Dutch Harbor	1	1	0	0	0	0	0	0
Eagle	1	1	0	25	0	0	0	25
Eagle River	292	255	24	4,784	5	0	0	4,813
Eielson AFB	84	63	9	1,860	0	0	0	1,869
Elmendorf AFB	15	12	0	388	0	0	0	388
Emmonak	1	1	0	30	0	0	0	30
Ester	66	54	1	1,464	12	0	0	1,478
Fairbanks	3,019	2,453	162	58,337	331	0	0	58,831
Fort Greely	23	19	2	551	0	0	0	553
Fort Richardson	23	16	0	391	0	0	0	391
Fort Wainwright	114	83	5	2,110	0	0	0	2,115
Fort Yukon	3	2	0	32	0	0	0	32
Gakona	4	3	0	75	0	0	0	75
Galena	1	1	0	0	0	0	0	0
Girdwood	34	26	3	628	0	0	0	630
Healy	29	28	0	639	0	0	0	639
Homer	15	13	1	186	0	0	0	187

-continued-

Table 12-5.–Page 2 of 2

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Hope	1	1	0	17	0	0	0	17
Houston	8	5	3	234	0	0	0	237
Hydaburg	1	0	0	0	0	0	0	0
Indian	5	5	1	84	0	0	0	85
Joint Base Elmendorf Richardson	1	1	0	34	0	0	0	34
Juneau	6	6	1	149	0	0	0	150
Kaktovik	3	3	0	30	0	0	0	30
Kenai	6	4	2	75	0	0	0	77
Ketchikan	3	2	2	65	0	0	0	66
Kobuk	1	1	0	0	0	0	0	0
Kodiak (city)	3	1	0	90	0	0	0	90
Kotzebue	3	3	0	0	0	0	0	0
Manokotak	1	0	0	0	0	0	0	0
McGrath	3	2	0	45	0	0	0	45
Minto	1	0	0	0	0	0	0	0
Mountain Village	1	1	0	0	0	0	0	0
Nanwalek	1	1	0	30	0	0	0	30
Nenana	24	21	2	502	1	0	0	505
Nikiski	1	1	1	36	0	0	0	37
Nikolaevsk	1	1	0	25	0	0	0	25
Ninilchik	1	1	0	22	0	0	0	22
Nome	7	5	1	123	0	0	0	125
North Pole	929	755	65	18,012	50	0	0	18,127
Northway	1	0	0	0	0	0	0	0
Nulato	3	3	0	46	5	0	0	51
Palmer	548	474	29	9,226	59	0	0	9,314
Point Hope	1	1	0	30	0	0	0	30
Point Lay	1	1	0	10	0	0	0	10
Quinhagak	1	1	0	1	0	0	0	1
Rampart	2	1	0	60	0	0	0	60
Salcha	76	61	0	1,392	12	0	0	1,404
Savoonga	1	1	0	0	0	0	0	0
Seward	11	11	0	253	0	0	0	253
Shishmaref	1	1	0	0	0	0	0	0
Sitka	2	2	0	45	0	0	0	45
Skagway	2	2	0	60	0	0	0	60
Slana	1	1	1	16	0	0	0	17
Soldotna	4	3	1	65	0	0	0	67
Stebbins	1	0	0	0	0	0	0	0
Sterling	2	2	0	40	0	0	0	40
Sutton	57	47	7	942	0	0	0	950
Talkeetna	13	10	3	252	0	0	0	255
Tok	16	14	1	386	0	0	0	387
Toksook Bay	2	2	0	0	0	0	0	0
Trapper Creek	5	5	0	86	0	0	0	86
Tuntutuliak	1	1	0	0	0	0	0	0
Two Rivers	23	20	0	461	25	0	0	486
Valdez	238	197	8	4,528	4	0	0	4,540

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Table 12-5.–Page 2 of 2

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Wainwright	1	1	0	0	0	0	0	0
Wasilla	983	791	109	17,449	153	0	0	17,711
Willow	51	34	6	753	2	0	0	761
Wiseman	1	0	0	0	0	0	0	0
Other USA	2	2	0	50	0	0	0	50
Unknown Community	105	105	5	1,657	6	0	0	1,668
Subtotal, other communities	**10,381**	**8,450**	**762**	**185,316**	**882**	**0**	**0**	**186,960**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 12-6.–Historical subsistence salmon harvests, federal Chitina Subdistrict permits, 2003–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2003	99	71	33	1,316	152	0	0	1,500
2004	109	83	9	1,631	28	0	0	1,668
2005	77	64	27	1,498	0	0	0	1,526
2006	76	62	16	1,681	26	0	0	1,723
2007	97	86	29	1,095	41	0	0	1,165
2008	81	65	26	939	97	0	0	1,062
2009	68	34	15	1,522	22	0	0	1,560
2010	92	38	36	5,352	88	0	0	5,476
2011	84	42	21	3,090	14	0	0	3,125
2012	90	80	5	981	9	0	0	996
2013	99	85	20	2,399	8	0	0	2,428
5-year average (2008–2012)	83	52	21	2,377	46	0	0	2,444
Historical average (1989–2012)	87	63	22	1,911	48	0	0	1,980

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 12-7.–Subsistence salmon harvests by community of residence, federal Chitina Subdistrict permits, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cantwell	1	1	0	0	0	0	0	0
Chitina	10	8	3	370	0	0	0	373
Copper Center	17	13	5	228	0	0	0	233
Copperville	2	2	0	0	0	0	0	0
Glennallen	9	8	2	281	0	0	0	284
Kennicott	2	1	0	112	0	0	0	112
Kenny Lake	17	13	5	960	0	0	0	965
McCarthy	20	19	0	249	8	0	0	258
Slana	1	1	0	0	0	0	0	0
Tazlina	3	2	0	0	0	0	0	0
Tok	9	9	0	24	0	0	0	24
Tolsona	2	2	0	0	0	0	0	0
Tonsina	6	6	5	175	0	0	0	180
Total	**99**	**85**	**20**	**2,399**	**8**	**0**	**0**	**2,428**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 12-8.–Historical subsistence salmon harvests, Batzulnetas fishery, 1987–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1987	8	8	0	22	0	0	0	22
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	1	1	0	160	0	0	0	160
1994	4	4	0	997	0	0	0	997
1995	4	2	0	32	0	0	0	32
1996	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0
1998	1	1	0	382	0	0	0	382
1999	1	1	0	55	0	0	0	55
2000	1	1	0	55	0	0	0	55
2001	1	1	1	61	0	0	0	62
2002	1	1	0	208	0	0	0	208
2003	1	1	0	164	0	0	0	164
2004	1	1	0	182	0	0	0	182
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	3	3	0	106	0	0	0	106
2011	3	3	0	101	0	0	0	101
2012	3	3	1	136	0	0	0	137
2013	3	3	5	862	0	0	0	867
5-year average (2008–2012)	2	2	0	69	0	0	0	69
10-year average (2003–2012)	1	1	0	69	0	0	0	69
Historical average (1987–2012)	1	1	0	102	0	0	0	102

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 12-9.–Historical subsistence salmon harvests, Copper River District (Copper River Flats), 1965–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1965	31	20	19	711	132	0	0	862
1966	45	31	68	254	0	0	0	322
1967	61	56	90	167	0	0	0	257
1968	17	15	12	41	0	0	0	53
1969	49	33	24	94	126	0	0	244
1970	32	27	78	212	0	0	0	290
1971	29	26	11	36	4	0	0	51
1972	104	79	196	749	70	0	0	1,015
1973	94	89	162	344	190	0	0	696
1974	9	5	9	7	4	0	0	20
1975	2	2	0	5	0	0	0	5
1976	27	14	2	19	0	0	0	21
1977	23	22	10	74	0	0	0	85
1978	34	28	45	22	15	0	0	81
1979	49	41	54	31	20	0	0	105
1980	39	35	21	30	19	0	0	70
1981	72	51	68	205	147	0	0	419
1982	108	90	72	761	127	0	0	960
1983	87	73	94	128	68	0	0	290
1984	118	104	77	368	153	0	0	598
1985	94	94	88	261	83	0	0	432
1986	88	85	89	360	49	0	0	498
1987	95	89	52	383	15	0	0	450
1988	114	97	69	266	49	0	0	384
1989	75	64	66	397	60	0	0	523
1990	88	76	69	543	95	0	0	707
1991	129	115	153	931	43	0	0	1,126
1992	126	113	158	875	47	0	0	1,080
1993	111	93	143	511	35	0	0	689
1994	101	97	171	494	70	0	0	734
1995	126	112	173	779	35	0	0	987
1996	176	157	309	1,086	53	0	0	1,448
1997	269	243	223	1,144	1,967	0	0	3,333
1998	245	230	314	905	724	0	0	1,944
1999	294	275	377	1,422	729	0	0	2,528
2000	416	400	717	4,534	46	18	3	5,318
2001	468	439	881	3,275	75	2	0	4,232
2002	355	331	589	3,289	30	2	0	3,910
2003	384	367	730	1,655	37	0	16	2,439
2004	511	487	1,163	1,910	48	5	3	3,129
2005	237	224	260	830	15	0	1	1,106
2006	421	399	779	4,355	1	0	0	5,135
2007	469	445	1,211	6,458	16	2	6	7,694
2008	506	482	495	4,161	55	0	21	4,732
2009	323	293	232	1,916	23	1	0	2,173
2010	326	320	281	2,034	27	22	0	2,365
2011	273	263	220	1,839	35	2	0	2,096

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Table 12-9.–Page 2 of 2.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	378	359	248	4,499	0	19	0	4,767
2013	531	497	916	6,073	1	2	18	7,010
5-year average (2008–2012)	361	343	295	2,890	28	9	4	3,227
10-year average (2003–2012)	383	364	562	2,966	26	5	5	3,564
Historical average (1965–2012)	171	158	237	1,154	115	2	1	1,508

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 12-10.–Subsistence salmon harvests by community of residence, Copper River District (Copper River Flats), 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchor Point	1	1	4	11	0	0	0	15
Anchorage	46	42	50	444	0	0	0	494
Big Lake	1	1	5	0	0	0	0	5
Chugiak	3	3	6	25	0	0	0	31
Cordova	386	363	725	4,110	1	1	18	4,855
Delta Junction	6	6	8	191	0	0	0	199
Eagle River	2	2	1	6	0	0	0	7
Girdwood	1	1	0	0	0	0	0	0
Homer	24	23	44	686	0	0	0	729
Juneau	1	1	5	13	0	0	0	18
Kasilof	1	1	0	0	0	0	0	0
Kenai	1	1	0	0	0	0	0	0
Kodiak	1	1	0	0	0	0	0	0
Moose Pass	2	2	1	11	0	0	0	12
Nikolaevsk	2	2	0	0	0	0	0	0
Palmer	4	4	9	54	0	0	0	63
Seward	12	10	8	94	0	0	0	102
Soldotna	4	4	6	40	0	0	0	46
Sterling	3	3	3	0	0	0	0	3
Tatitlek	2	2	4	25	0	0	0	29
Valdez	6	5	11	44	0	0	0	55
Wasilla	20	17	25	171	0	1	0	196
Willow	2	2	1	149	0	0	0	150
Total	**531**	**497**	**916**	**6,073**	**1**	**2**	**18**	**7,010**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 12-11.–Historical subsistence salmon harvests, Prince William Sound, Eastern District, 1988–2013.

	Permits		Reported salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1988	17	NA	2	210	249	297	143	901
1989	14	NA	1	107	653	43	28	832
1990	13	NA	0	5	241	4	10	260
1991	19	NA	0	107	984	28	320	1,439
1992	15	NA	2	441	369	49	30	891
1993	18	NA	2	512	305	74	144	1,037
1994	14	NA	0	50	143	70	50	313
1995	15	0						
1996	6	NA	0	0	38	0	0	38
1997	6	NA	0	107	45	54	0	206
1998	11	NA	0	2	71	28	4	105
1999	17	NA	0	344	541	31	31	947
2000	12	3	0	140	468	40	40	688
2001	14	9	0	114	230	12	60	416
2002	19	8	6	437	278	66	71	858
2003	15	8	0	81	185	12	20	298
2004	18	12	2	358	505	28	105	998
2005	16	3	0	98	286	16	200	600
2006	11	1	0	3	18	25	35	81
2007	14	0						
2008	1	1	0	60	0	0	0	60
2009	12	4	0	170	131	0	0	301
2010	8	5	0	165	142	10	50	367
2011	10	4	0	922	536	22	0	1,480
2012	16	8	15	954	75	8	0	1,052
2013	22	11	0	613	277	129	0	1,019
5-year average (2008–2012)	9	4	3	454	177	8	10	652
10-year average (2003–2012)	13	5	2	325	216	19	48	610
Historical average (1988–2012)	13	5	1	234	282	40	58	616

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

NA = Data not available.

Table 12-12.–Estimated harvests of salmon for home use, Tatitlek, 2003.

	Estimated salmon harvest			
Species	Subsistence methods	Rod and reel	Removed from commercial harvests	All methods
Chinook	27	0	0	27
Sockeye	306	0	0	306
Coho	651	0	0	651
Chum	13	0	0	13
Pink	77	0	0	77
All salmon	**1,075**	**0**	**0**	**1,075**
Estimated number of households harvesting[a]	13 households	0 households	0 households	13 households (any method)

Source Fall (2006).

a. Number of households in the community = 27; 15 (93%) were interviewed.

Table 12-13.–Historical subsistence salmon harvests, Prince William Sound, Southwestern District, 1988–2013.

	Permits		Reported salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1988	10	NA	1	50	8	294	251	604
1989	8	NA	0	322	0	180	554	1,056
1990	7	NA	1	36	5	2	20	64
1991	12	NA	3	345	42	53	195	638
1992	14	NA	1	526	23	99	313	962
1993	22	NA	2	835	50	124	232	1,243
1994	16	NA	5	192	77	161	402	837
1995	10	NA	2	152	67	41	67	329
1996	7	NA	0	107	7	46	105	265
1997	5	NA	44	193	30	272	110	649
1998	4	NA	13	114	20	119	65	331
1999	14	NA	57	499	62	101	168	887
2000	12	8	24	39	229	143	211	646
2001	16	9	2	119	92	146	95	454
2002	10	5	10	142	123	60	83	418
2003	13	7	6	219	156	147	149	677
2004	8	5	3	535	44	84	56	722
2005	13	8	10	515	84	174	124	907
2006	7	6	0	159	1	111	28	299
2007	4	3	2	293	27	55	4	381
2008	15	3	4	97	75	30	70	276
2009	5	4	2	168	26	84	5	285
2010	9	5	0	55	0	87	6	148
2011	17	6	2	134	26	60	50	272

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Table 12-13.–Page 2 of 2.

Year	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	23	14	0	603	20	77	0	700
2013	13	4	0	19	0	63	0	82
5-year average (2008–2012)	14	6	2	211	29	68	26	336
10-year average (2003–2012)	11	6	3	278	46	91	49	467
Historical average (1988–2012)	11	6	8	258	52	110	135	562

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

NA = Data not available.

Table 12-14.–Estimated harvests of salmon for home use, Chenega Bay, 2003.

Species	Estimated salmon harvest			
	Subsistence methods	Rod and reel	Removed from commercial harvests	All methods
Chinook	79	36	19	134
Sockeye	829	100	0	929
Coho	331	263	0	594
Pink	201	131	0	333
Chum	250	81	0	331
Other/unknown	0	56	0	56
All salmon	**1,690**	**668**	**19**	**2,376**
Estimated number of households harvesting[a]	8 households	10 households	1 household	14 households (any method)

Source Fall (2006).

a. Number of households in the community = 20; 16 (80%) were interviewed.

Table 12-15.–Historical subsistence salmon harvests, Prince William Sound general, 1960–2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1960	50	NA	1	139	505	27	1,292	1,964
1961	12	NA	3	41	123	3	732	902
1962	9	NA	0	0	119	142	214	475
1963	9	NA	0	0	406	24	298	728
1964	15	NA	0	11	0	0	900	911
1965	22	16	0	0	0	34	246	281
1966	3	3	0	3	19	50	20	92
1967	4	3	0	0	5	0	5	11
1968	4	3	0	0	27	0	208	235
1969	7	3	0	0	37	0	0	37
1970	1	1	0	0	0	0	0	0
1971	3	2	0	0	0	0	69	69
1972	0	0	0	0	0	0	0	0
1973	19	16	0	0	343	0	0	343
1974	3	1	0	0	0	0	0	0
1975	2	0						
1976	0	0	0	0	0	0	0	0
1977	4	4	0	0	0	0	0	0
1978	3	2	0	0	0	0	0	0
1979	15	2	0	0	0	0	0	0
1980	26	15	0	12	10	0	0	23
1981	12	8	0	5	44	3	0	51
1982	35	27	0	109	5	31	40	185
1983	26	21	0	27	45	98	11	181
1984	8	8	0	10	0	2	11	23
1985	22	16	1	37	22	36	19	116
1986	25	14	0	9	27	0	0	36
1987	18	17	5	33	6	17	0	61
1988	7	7	2	51	7	9	10	79
1989	11	7	0	0	0	5	0	5
1990	8	8	0	0	7	0	4	11
1991	9	5	0	4	0	0	0	4
1992	10	6	0	33	0	0	0	33
1993	6	6	1	104	10	0	0	115
1994	5	4	0	0	0	0	0	0
1995	4	2	0	0	0	0	0	0
1996	10	7	0	0	0	0	0	0
1997	4	3	0	4	0	0	0	4
1998	4	3	0	0	0	0	0	0
1999	3	3	0	0	0	0	0	0
2000	3	3	0	0	0	0	0	0
2001	5	5	0	0	0	0	0	0
2002	11	9	0	38	0	9	11	57
2003	11	11	0	48	0	3	0	51
2004	8	7	0	12	0	5	0	17
2005	14	13	0	4	0	0	0	4
2006	11	9	0	20	30	0	0	50

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Table 12-15.–Page 2 of 2.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2007	3	3	0	30	0	0	0	30
2008	11	10	1	33	0	0	0	34
2009	1	1	0	0	0	0	0	0
2010	1	1	0	0	0	0	0	0
2011	4	4	29	40	1	10	5	85
2012	14	12	0	67	0	32	0	99
2013	8	8	0	12	0	24	0	36
5-year average (2008–2012)	6	6	6	28	0	8	1	42
10-year average (2003–2012)	8	7	3	25	3	5	1	37
Historical average (1960–2012)	9	7	1	15	25	10	55	107

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

NA = Data not available.

Table 12-16.–Subsistence salmon harvests by community of residence, Prince William Sound general, 2012.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	4	4	0	0	0	23	0	23
Chugiak	1	1	0	0	0	0	0	0
Palmer	3	3	0	12	0	1	0	13
Total	**8**	**8**	**0**	**12**	**0**	**24**	**0**	**36**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

CHAPTER 13: THE SOUTHEAST REGION

INTRODUCTION

The Southeast region is divided by subsistence regulations into 2 areas: the Southeastern Alaska Area, which includes all waters between a line projecting southwest from the westernmost tip of Cape Fairweather and Dixon Entrance, and the Yakutat Area, which includes all waters of Alaska between the longitude of Cape Suckling and the longitude of Cape Fairweather. Positive customary and traditional use (C&T) findings, which allow for subsistence fishing opportunity, have been made for most of the waters in the Southeast region (5 AAC 01.716) (Figure 13-1). In areas where no positive C&T finding exists, personal use fisheries may be authorized. In addition, the Joint Board identified 2 nonsubsistence areas in the Southeast region: the Juneau Nonsubsistence Area and the Ketchikan Nonsubsistence Area (Figure 13-1) (5 AAC 99.015). By statute, no subsistence fisheries may be authorized in nonsubsistence areas.

The Southeast region is divided into 6 areas for management purposes:

- Yakutat Management Area,
- Haines Management Area,
- Juneau Management Area,
- Sitka Management Area,
- Petersburg Management Area, and
- Ketchikan Management Area.

HARVEST ASSESSMENT PROGRAMS

Since 1990, any Alaska resident may harvest salmon under state subsistence regulations. In the Southeast region permits are required for both subsistence and personal use salmon fishing. In most management areas, one permit is issued for both fisheries. In the Haines and Yakutat management areas, the permit is only for subsistence fisheries; no personal use fisheries are authorized in these areas. The Division of Commercial Fisheries is responsible for administering the subsistence and personal use salmon permit programs in the Southeast region. Permits are available at area offices. Department personnel or authorized designees also travel to Angoon, Hoonah, and Kake in the spring of each year to issue permits. There has been an annual salmon harvest assessment in the Southeast Alaska area since 1985, based on the permit reporting program. Permits are valid for one year and must be returned by the date specified on the permit, usually in November. New permits will not be issued to anyone who has failed to return a permit issued for the previous year. Generally, however, area management offices will accept a harvest record for the previous year at the time a person applies for a current year's permit. Annual harvest assessments did not begin in the Yakutat area until 1989. Permit information, including names, addresses and details from the harvest calendars, such as locations and amount of harvest, species harvested, and date of harvest, is entered into *Alexander: the Integrated Fisheries Database for Southeast Alaska and Yakutat*. All of the harvest information collected each year through returned permits composes the basis of the harvest assessment program in the Southeast region.

REGULATIONS

Subsistence regulations are valid in areas where there are fish stocks with positive C&T determinations; outside of these areas personal use regulations apply. To participate in a subsistence fishery, a person must obtain a free permit for the area to be fished. To participate in personal use fisheries requires a permit as well as a valid resident sport fishing license, or to be exempt from licensing. Area management biologists have discretionary authority to change permit conditions, such as season length or possession

limits, either before the season begins or inseason, through issuing emergency orders. Permits are issued at the household level; one permit is issued per household, and the recipient must be an Alaska resident. The content of subsistence and personal use permits is a mixture of personal information about the permittee, rules and regulations governing harvesting methods and means, and a harvest calendar that details all the fish caught under each permit. Permits are not issued for the taking of coho salmon in the Taku or Stikine River drainages, or for Chinook salmon, trout or char; however, such fish taken incidentally under the conditions of a permit are legally taken and must be recorded on the permit. The personal use limits on Chinook and coho salmon are 2 and 6 fish, respectively. Other regulations concerning the subsistence and personal use fisheries can be found in 5 AAC 01 (*Subsistence Finfish*) and 5 AAC 77 (*Personal Use Fishery*). These regulations include: fishermen must record their harvests on a daily basis prior to leaving the immediate fishing area; the permit must be with the permittee, other authorized members of the household, or authorized proxy while taking or transporting subsistence salmon; the dorsal fins of subsistence salmon and both tips of the tail fin of personal use salmon must be removed immediately when taken; fishing is not allowed within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction; sport-caught and subsistence-caught/personal use-caught salmon cannot be possessed on the same day; salmon taken under personal use or subsistence permits cannot be used for bait, and; salmon may not be harvested for subsistence or personal use by a line attached to a rod or pole, except in the Redoubt bay and lake subsistence salmon fishery. Regulations that apply to specific management areas are included in the relevant sections below.

SUBSISTENCE/PERSONAL USE SALMON HARVESTS IN 2013

In 2013, the total estimated subsistence and personal use salmon harvest for the Southeast region, based on returned permits, was 59,343 fish (Table 13-1). This is slightly below the total estimated harvest for 2012 (59,938 salmon) as well as the 10-year average (59,797 salmon), but above the recent 5-year average (56,792 salmon) (Table 13-2). Sockeye salmon usually make up the largest proportion of subsistence/personal use salmon catches in Southeast Alaska, in contrast to the commercial fishery, which has been dominated by pink salmon harvests since the early 1900s (Tingley and Davidson 2011). As expected, in 2013, sockeye salmon contributed the greatest amount to the overall harvest at 49,547 fish (84%), followed by 3,799 coho salmon (6%), 3,597 pink salmon (6%), 1,417 chum salmon (2%), and 983 Chinook salmon (2%) (Table 13-1; Figure 13-2). While the numbers of each species of salmon harvested differed from the 2012 harvest, the overall contribution of each species to the total harvest did not change significantly: the 2013 harvest was slightly weaker in sockeye salmon and slightly stronger in pink and Chinook salmon. Harvests of pink, coho, chum, and Chinook salmon increased over 2012 estimates; only the harvest of sockeye salmon decreased in total number. For a comparison, in the commercial fisheries in 2013, sockeye and Chinook salmon were well below their 10-year and historical averages, while coho, pink, and chum salmon harvests were well above the ten-year and historical averages (Conrad and Gray 2014). Pink salmon have exhibited a strong odd-year, weak even-year return to the commercial fisheries since 2006, and this pattern appears visible in the subsistence/personal use harvests of 2013 as well. The estimated subsistence/personal use salmon harvests by management area were as follows: Sitka 13,012 (22%), Haines 12,060 (20%), Juneau 11,282 (19%), Ketchikan 9,116 (15%), Petersburg 7,218 (12%), and Yakutat 6,655 (11%) (Table 13-3, Figure 13-3). Compared to 2012, harvests in Petersburg increased the most dramatically with 4,000 more salmon harvested in 2013; harvests in the Haines and Juneau management areas also increased by 2,000 salmon each. Harvests in Sitka, Ketchikan, and Yakutat decreased from 2012.

The number of permits issued per year, on average, for the 10-year time period of 2003–2012, has been 3,267 (Table 13-2). In 2013, a higher than average number of permits was issued, with a total of 3,564 permits issued and 3,170 returned. This corresponds to a regionwide response rate of 89%, higher than the 5- and 10-year averages of 88% and 82%, respectively. The numbers reported on the returned permits are expanded to account for the unreturned permits. Prior to 1996, only permits returned with harvest data

were included in the database and reported harvests were not expanded to account for permits not returned.

YAKUTAT MANAGEMENT AREA

Yakutat Area Subsistence Fisheries

Background and History

The Yakutat Management Area stretches from Cape Fairweather to Cape Suckling and encompasses the Yakutat area subsistence fisheries. Fishing areas used by Yakutat residents are under the management responsibility of the Division of Commercial Fisheries' Yakutat Area offices. C&T findings by the Alaska Board of Fisheries (BOF) for salmon identify the freshwaters upstream from the terminus of streams and rivers from the Doame River to the Tsiu River, the waters of Yakutat Bay and Russell Fjord, and the waters of Icy Bay (5 AAC 01.666 (a)(3)). Unlike the other management areas, in the Yakutat Management Area subsistence salmon fishing locations are not restricted to specific streams, nor are there daily or annual limits on the number of fish harvested.

Yakutat is the only community within the Yakutat Management Area. The population of the Yakutat City and Borough did not change from 2012 and was estimated at 622 in 2013.[1]

Regulations

There were no significant changes made to the subsistence permit in 2013. No daily or annual limits or restrictions to allowable subsistence gear were specified. Regulations specific to the Yakutat area were that the weekly subsistence fishing period during the commercial salmon net season was from 6:00 AM Friday to 6:00 PM Saturday. On the Situk River, subsistence fishers were required to attend their nets when they were being used to harvest salmon. In Yakutat Bay, each permit holder needed to attend their net at least once a day. An emergency order was released on May 2, 2013, which set the weekly subsistence fishery period in Yakutat Bay from 12:01 AM Wednesday through 11:59 PM Saturday, which would be in effect for the duration of the spring commercial troll fishery. [2] The order was issued to maintain separation of the fish harvested in the subsistence fishery and the commercial troll fishery. The same news release closed subsistence fishing for Chinook salmon in the Situk-Ahrnklin Inlet at 6:00 AM May 19. The order was issued because the preseason forecast of the Situk River Chinook salmon return suggested that the return would be below desired levels and conservative actions were required to limit harvest on the stock. On July 8, Chinook salmon in this area were allowed to be retained because the escapement goal had been met.[3] On May 9, 2013, another emergency order was released, which opened subsistence fishing by set gillnet in Yakutat Bay until further notice but maintained the subsistence fishing period for subsistence troll gear.[4] Subsistence fishing by all gear types in the waters of Yakutat Bay was closed on June 12 and then implemented through a weekly subsistence period from 6 AM Friday to 6:00 PM Saturday, in accordance with regulations.[5] The last news release of the season was issued on July 25, 2013, and reopened the subsistence fishery until further notice.[6]

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1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July 2014. http://labor.alaska.gov/research/pop/popest.htm
2. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, May 2, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/263516746.pdf
3. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, July 8, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/309732111.pdf
4. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, May 9, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/267275557.pdf
5. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, June 12, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/282228539.pdf
6. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, July 25, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/330888483.pdf

Harvest Assessment Program

The estimated total subsistence salmon harvest for the Yakutat Management Area in 2013 was 6,655 salmon, including 5,185 sockeye salmon (78%), 818 coho salmon (12%), 615 Chinook salmon (9%), 31 chum salmon (<1%), and 5 pink salmon (<1%) (Table 13-3). An estimated 115 permits were fished in the Yakutat Management Area (Table 13-3). There was no change in the number of permits fished compared to 2012; however, there was a decrease in the number of salmon harvested, particularly of sockeye salmon (8,036 salmon harvested in 2012).

Residents of Yakutat were issued 130 subsistence permits, with 109 returned (84%). The estimated total subsistence salmon harvest for the community of Yakutat in 2013 was 5,615 fish, down from 7,034 salmon in 2012. The 2013 harvest composition was 4,224 sockeye salmon (75%), 748 coho salmon (13%), 610 Chinook salmon (11%), 31 chum salmon (1%), and 2 pink salmon (<1%) (Table 13-4).

HAINES MANAGEMENT AREA

Haines Area Subsistence Fisheries

Background and History

The Haines Management Area, encompassing the Haines area subsistence fisheries, stretches from Little Island in Lynn Canal north to Chilkat Inlet, and includes the waters of the Chilkat River, as well as the waters in the Chilkoot Inlet to Skagway. Subsistence salmon fisheries in the waters traditionally used by the residents of the Haines area are under the management responsibility of the Division of Commercial Fisheries' Haines Area office. Positive C&T findings for salmon identify all the waters of the Chilkat River and Chilkat Inlet north of the latitude of Glacier Point, and in the Chilkoot River, Lutak Inlet, and Chilkoot Inlet north of the latitude of Battery Point, excluding waters of Taiya Inlet north of the latitude of the tip of Taiya Point (5 AAC 01.716 (a)(2)).

There are several communities in the Haines Management Area: the city of Haines and surrounding borough, which includes the settlements of Covenant Life, Lutak, Mosquito Lake, Mud Bay, and Excursion Inlet, as well as Klukwan on the Chilkat River and Skagway at the head of Chilkoot Inlet. In 2013, the combined population of these communities was 3,508, which is approximately the same estimate as in 2012.[7] The populations of Haines and Skagway are predominantly non-Native, while Klukwan continues to have a predominantly Alaska Native population.

Regulations

There were no changes in regulations from 2012. The permit provided for an open season of June 1–September 30 for sockeye, coho, pink, and chum salmon in the Chilkat River, Chilkat Inlet, and Lutak Inlet. Inseason, subsistence salmon fishing was extended through October 13, 2013, to allow additional subsistence harvest opportunity on late-run sockeye, chum, and coho salmon.[8] The subsistence salmon fishery in Chilkat Inlet north of Glacier Point was open the Saturday before and during and commercial drift gillnet openings through October 13. Limits for the season for sockeye salmon were 25 in possession and 50 annually; for coho salmon, 20 in possession and 40 annually; and for pink salmon, chum salmon, or a combination of the two species, 75 in possession and 100 annually.

Allowable gear types in the Haines Management Area subsistence fishery are set and drift gillnets. This gear could be used to take salmon in the mainstem and side channels, but not in the tributaries, of the Chilkat River from Mile 4 of the Haines Highway to 1 mile upstream of Wells Bridge. Drift and set gillnets could not exceed 50 ft in length when fishing in the Chilkat River, and drift gillnets fished in

7. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm
8. Alaska Department of Fish and Game Division of Commercial Fisheries, "Chilkat Inlet and Chilkat River subsistence salmon fishery," news release, September 26, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/366704213.pdf

marine waters could not exceed 50 fathoms in length. In the Chilkat River, fishers must attend their nets while fishing.

Harvest Assessment Program

The estimated subsistence salmon harvest in the Haines Management Area in 2013 was 12,060 salmon, including 9,158 sockeye salmon (76%), 1,639 pink salmon (14%), 607 chum salmon (5%), 473 coho salmon (4%), and 183 Chinook salmon (2%) (Table 13-3). The overall salmon harvest was almost 2,000 fish greater than the 2012 harvest. The majority of this increased harvest came from pink and sockeye salmon. An estimated 403 permits were fished in the Haines Management Area in 2013.

In the Haines Borough, 434 permits were issued and 419 were returned (97%). Permits issued to residents of the city of Haines, Mud Bay, Mosquito Lake, Covenant Life, or Lutak are included in the Haines totals. In Klukwan, 9 permits were issued and all were returned. Twenty residents of Skagway were issued permits and 18 were returned. In Excursion Inlet, 4 permits were issued and 3 were returned. The estimated salmon harvest by Haines, Klukwan, Skagway, and Excursion Inlet residents combined (10,664 salmon total) included 7,985 sockeye salmon (75%), 1,499 pink salmon (14%), 528 chum salmon (5%), 492 coho salmon (5%), and 159 Chinook salmon (1%) (Table 13-4). In 2012, 457 permits were issued and 9,339 salmon in total were reported.

JUNEAU MANAGEMENT AREA

The Juneau Management Area encompasses subsistence fisheries in the Angoon area and the Hoonah area, as well as personal use fisheries in the Juneau area. Subsistence and personal use harvests by residents of Elfin Cove, Tenakee Springs, Gustavus, and Pelican occur primarily, but not exclusively, in the Juneau Management Area. Management responsibility for the area rests with both the Division of Commercial Fisheries' Juneau and Sitka area offices. Overall, in 2013 there were an estimated 484 permits fished in the Juneau Management Area with an estimated harvest of 11,282 (Table 13-3). About 10 more permits were issued than in 2012 and over 1,500 more fish were harvested. Sockeye salmon harvests constituted 92% of the total harvest.

Angoon Area Subsistence Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Angoon are under the management responsibility of the Division of Commercial Fisheries' Juneau and Sitka area offices. In 1989, the BOF adopted a positive C&T finding for salmon in the waters of District 12 south of a line from Fishery Point to South Passage Point and north of the latitude of Point Caution, and in waters of Section 13C east of the longitude of Point Elizabeth (5 AAC 01.716 (a)(6)).

The residents of Angoon are the principal subsistence fishers in this area. In 2013, Angoon had a population of 438, continuing a slightly decreasing trend.[9] Angoon Tlingit have traditionally used most of the west coast of Admiralty Island, from Hawk Inlet to the southern tip of Admiralty Island, and lands and waters of the east coasts of Chichagof and Baranof islands. Based on permit data from 1996 through 2006, as well as interviews with local fishers, the waters of Kootznahoo Inlet, Favorite Bay, and Hood Bay to the south; Mitchell Bay, Salt Lake, and Kanalku bays further east; and Chatham Strait to the west continue to provide the people of Angoon with salmon and other marine resources.

Regulations

The 2013 permit conditions did not differ from 2012. The open season for sockeye salmon in Kanalku Bay and Basket Bay (Kook Lake outlet) was from June 1–July 31, with a limit of 20 fish in possession and annually at Kanalku Bay, and 15 fish in possession with an annual limit of 30 fish in Basket Bay; in

9. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

Sitkoh Bay from June 1–August 31, with a possession and annual limit of 50 fish; and in Hasselborg River–Salt Lake from July 1–August 15, with a limit of 25 fish in possession and annually. The open period for subsistence coho salmon fishing on Hasselborg River–Salt Lake was from July 1–October 31 with a possession and annual limit of 20 fish. Coho salmon could also be taken in other streams in the Angoon area with positive C&T findings from June 1–October 31, with limits of 20 in possession and 40 annually from all combined streams. Pink salmon could be harvested in all streams in the area from June 1–September 30, with a possession and annual limit of 150 fish. The season for chum salmon in all streams of the area was from June 1–October 31, and the possession and annual limit was 50 fish. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets were the allowable subsistence gear types. Drift gillnets could not exceed 50 fathoms in length.

Harvest Assessment Program

The estimated salmon harvest in the Angoon area subsistence fisheries in 2013 was 1,513 salmon, including 1,435 sockeye salmon (95%), 44 pink salmon (3%), 28 coho salmon (2%), and 6 chum salmon (<1%) (Table 13-3). The 2013 salmon harvest was similar to the 2012 harvest, but the relative contributions of each species to the overall harvest changed. Sockeye salmon harvests increased the most, with decreases of a similar magnitude in Chinook, pink, and coho salmon harvests. An estimated 47 permits were fished in the area, compared to 54 permits fished in 2012.

The estimated salmon harvest for the community of Angoon in 2013, based on 96 permits issued and 77 returned (80%), totaled 1,182 salmon, including 1,156 sockeye salmon (98%), 19 coho salmon (2%), and 7 pink salmon (1%) (Table 13-4). Not all permits were fished solely in the Angoon area. The number of permits issued in Angoon in 2013 was similar to the number issued in 2012, with a slightly smaller harvest. There was a higher percentage of sockeye salmon caught, although the total number of sockeye salmon caught was less than in 2012 (1,410). The harvest of coho and pink salmon also declined.

Hoonah Area Subsistence Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Hoonah are under the management responsibility of the Division of Commercial Fisheries' Juneau and Sitka area offices. In 1989, the BOF adopted a positive C&T finding for salmon in those waters of District 12 that are in Basket Bay west of 134º 53.88′ W. longitude; in those waters of District 13 that are along the western shore of Yakobi Island east of a line from Cape Spencer light to Surge Bay light; and in the waters of sections 14B and 14C (5 AAC 01.716 (a)(4)).

The residents of Hoonah are the principal subsistence users of the waters in the area. In 2013, Hoonah had a population of 797, continuing a slightly increasing trend in population estimates since 2010.[10]

Regulations

No changes were made to the 2012 subsistence salmon permit for the Hoonah area. It provided open seasons and limits for sockeye salmon at the following locations: Surge Bay, Hanus Bay (Lake Eva), and Neva Creek from June 1–August 15; Hoktaheen Cove from June 1–July 20; and Berg Bay from June 1–July 31. Limits at these locations varied: 50 sockeye salmon annually and in possession were allowed at Surge and Hanus bays and at Hoktaheen Cove; a limit of 40 fish in possession and annually was in effect at Neva Creek; and Berg Bay had a limit of 25 fish annually and in possession. Pink salmon could be harvested under a subsistence permit in all streams in the Hoonah area from June 1–September 30, with a possession and annual limit of 150 fish. Chum salmon could be harvested in the same waters from June 1–October 31, with a possession and annual limit of 50 fish. Coho salmon could be taken in streams in the areas with positive C&T findings from June 1–October 31, with limits of 20 in possession and 40

10. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July 2014. http://labor.alaska.gov/research/pop/popest.htm

annually. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets were the types of subsistence gear allowed in the Hoonah area subsistence fisheries. Drift gillnets could not exceed 50 fathoms in length.

Harvest Assessment Program

The estimated salmon harvest in the Hoonah area subsistence fisheries in 2013 was 2,231 salmon, including 1,979 sockeye salmon (89%), 121 pink salmon (5%), 72 coho salmon (3%), and 58 chum salmon (3%) (Table 13-3). The 2013 harvest was about 1,000 salmon more than the 2012 harvest. The majority of this increase came from harvests of sockeye salmon, which increased from 969 fish in 2012. An estimated 83 permits were fished in the Hoonah area in 2013 in comparison to 54 permits fished in 2012.

For the community of Hoonah, in 2013, 101 permits were issued and 83 were returned (82%) with a total estimated harvest of 848 salmon. Not all permits were fished solely in the Hoonah area. The harvest consisted of 624 sockeye salmon (74%), 134 pink salmon (16%), 52 chum salmon (6%), and 37 coho salmon (4%). No Chinook salmon were harvested (Table 13-4). Fewer permits were issued to Hoonah residents compared to 2012, but a greater percentage of those permits were returned. The overall harvest was lower than in 2012, by more than 1,000 salmon, with decreases in all harvests, but most noticeably in sockeye salmon, which was estimated at 1,543 salmon in 2012.

Elfin Cove, Gustavus, Pelican, and Tenakee Springs Subsistence and Personal Use Salmon Fisheries

Background

Subsistence and personal use salmon fisheries in the waters traditionally used by the residents of Elfin Cove, Gustavus, Pelican, and Tenakee Springs are under the management responsibility of the Division of Commercial Fisheries' Juneau and Sitka area offices. Fishers from these communities fish primarily in districts 11, 12, 13, and 14; harvests are included in the Angoon area subsistence fisheries, Hoonah area subsistence fisheries, and Juneau area personal use fisheries categories in Table 13-3. Elfin Cove fishers harvest salmon from Hoktaheen Cove in District 13. Gustavus fishers harvest salmon primarily from Surge Bay and Hoktaheen Cove in District 13, but also from the Taku River in District 11, the Berg River in District 14, and the Chilkat River in District 15. Residents of Pelican and Tenakee Springs harvest salmon at Kook Creek and Kook Lake Outlet in Basket Bay, and Takanis Bay and Hoktaheen Cove in District 13. Most of the salmon stocks in these areas have positive C&T findings as described in other sections of this report.

In 2013, Elfin Cove had a population of 16; Gustavus–501 residents; Pelican–79 residents; and Tenakee Springs–140 residents.[11] The population of each community, with the exception of Gustavus, decreased slightly over 2012 estimates.

Regulations

Permit regulations applying to fishers in this area can be found under the Hoonah, Angoon, Haines, and Juneau subsections.

Harvest Assessment Program

In 2013, the number of salmon reported on permits issued to residents of Elfin Cove, Gustavus, Pelican, and Tenakee Springs was modest (Table 13-4). One permit was issued but not returned in Elfin Cove. In Gustavus, 29 permits were issued and 28 were returned. The estimated harvest for Gustavus was 304 total salmon, a significant increase from 2012, when 88 fish were reported. The harvest consisted of 284 sockeye salmon (94%), 15 pink salmon (5%), 2 chum salmon (1%) and 1 coho salmon (<1%). Two

11. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

permits were issued to Pelican residents and two to Tenakee Springs residents; all were returned. Estimated harvests for these 2 communities were 30 salmon, about half the harvest of 2012. All fish harvested were sockeye salmon (Table 13-4).

Juneau Area Personal Use Fisheries

Juneau fishers primarily harvest sockeye salmon from the Taku River and Sweetheart Creek in District 11, which is in the Juneau Nonsubsistence Area (Figure 13-1). These waters are under the management responsibility of the Division of Commercial Fisheries' Juneau Area office. Personal use regulations apply to salmon fishing for home uses in this area. Juneau area residents were the principal participants in the designated personal use fisheries in District 11. In 2013, the city and borough of Juneau had a population of 33,030, an increase of approximately 200 residents over 2012.[12]

Regulations

The 2013 personal use permit conditions remained the same as 2012. The permit provided open seasons and limits for sockeye salmon at the following locations: in the Taku River from July 1–July 31, with a possession and annual limit of 5 sockeye salmon for a household of 1 person and 10 sockeye salmon for a household of 2 or more people; and in Sweetheart Creek from June 1–October 31, with a possession limit of 25 sockeye salmon and no annual limit. In all streams in the Juneau Management Area, except along the Juneau road system, the open season for pink salmon was June 1–September 30 with a 150 fish limit annually and in possession; for chum salmon, the open season was June 1–October 31 with an annual and possession limit of 50 fish.

Beach seines, set and drift gillnets, cast nets, dip nets, gaffs, and spears were the types of personal use gear allowed in the Juneau area. Drift gillnets could not exceed 50 fathoms in length. Set gillnets could be used only in the Taku River, where they could not exceed 15 fathoms in length, had to be set from the Taku River Lodge upstream to the U.S.–Canada border, and could not be fished within 100 yd of the ADF&G fish wheels. Additionally, the permit holder had to be present at the net while it was in use. In Sweetheart Creek, salmon could be taken for personal use only upstream from the ADF&G regulatory marker located near the stream mouth. Chinook and coho salmon, rainbow/steelhead trout, and Arctic char/Dolly Varden could be retained only if taken incidentally under a personal use permit.

Harvest Assessment Program

The total estimated salmon harvest for the Juneau area personal use fisheries in 2013 was 7,537 salmon, consisting of 6,997 sockeye salmon (93%), 223 pink salmon (3%), 264 coho salmon (4%), 30 chum salmon (<1%), and 23 Chinook salmon (<1%) (Table 13-3). This was a slightly higher harvest than 2012. Sockeye, coho, and chum salmon harvests increased, while harvests of Chinook and pink salmon declined. An estimated 402 permits were fished in the Juneau area personal use fisheries in 2013, compared to 367 permits fished in 2012.

The estimated personal use and subsistence salmon harvest for the community of Juneau (including the communities of Douglas and Auke Bay), based on 793 permits issued and 719 returned (91%), totaled 11,252 salmon, including 10,275 sockeye salmon (91%), 389 pink salmon (3%), 358 coho salmon (3%), 180 chum salmon (2%), and 50 Chinook salmon (<1%) (Table 13-4). Not all permits were fished solely in the Juneau area. More permits were issued and returned in 2013 than in 2012. Overall salmon harvests were greater in 2013: harvests of sockeye, chum, and pink salmon increased while coho and Chinook salmon harvests decreased slightly.

12. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

SITKA MANAGEMENT AREA

Sitka Subsistence and Personal Use Salmon Fisheries

Background and History

Subsistence and personal use salmon fisheries in the waters traditionally used by the residents of Sitka are under the management responsibility of the Division of Commercial Fisheries' Sitka Area office. In 1989, the BOF adopted a positive C&T finding for sockeye salmon in in those waters of District 13 that were along the western shore of Yakobi Island east of a line from Cape Spencer light to Surge Bay light (5 AAC 01.716 (a)(4)) as well as the waters of Section 13A south of the latitude of Cape Edward, in waters of Section 13B north of the latitude of Redfish Cape, and in waters of Section 13C (5 AAC 01.716 (a)(8)). At the March 1997 BOF meeting in Sitka, this finding was extended to include all other salmon species in all waters of District 13 (5 AAC 01.716 (a)(21)). Sockeye salmon stocks without a positive C&T finding in this area can only be fished under personal use regulations, not subsistence regulations. Principal salmon waters and streams used by Sitka fishers include Klag Bay–Lake Anna, Lake Stream–Ford Arm, Necker Bay, Redoubt Bay, Salmon Lake, and Redfish Bay.

The residents of Sitka are the principal subsistence users of the salmon stocks in the area. In 2013, the city and borough of Sitka had a population of 9,034.[13] The Sitka Tlingit have traditionally used most of the Pacific coast of Baranof and Chichagof islands from Point Urey to Cape Ommaney, including the myriad islands lying off the coast, and up Peril Strait between Chichagof and Baranof islands into Hoonah Sound as far as Patterson Bay. Sitkans share the use of Yakobi Island and the sockeye salmon fisheries at Hoktaheen Cove and Surge Bay with the residents of Hoonah. Sitka residents' territory touches that of Angoon residents' in Peril Strait and Sitkoh Bay.

Regulations

Specific conditions on the 2013 subsistence/personal use salmon permit remained the same as in 2012. The season for sockeye salmon for all Sitka locations opened June 1 and closed between July 13 and August 31. As stated on the permit, Falls Lake and Bay closed on July 13, but was open again from July 23 to August 15. On July 20, Hoktaheen Cove, Takanis Bay, and Gut Bay closed to sockeye salmon fishing. Leo's Anchorage closed on July 25. On July 31, Silver Bay, Politofski Lake, and other unlisted areas with positive C&T findings closed to subsistence/personal use fishing. On August 15, Klag and Surge bays, Lake Anna, Ford Arm, and Hanus Bay (Lake Eva) closed. The last areas closed on August 31 and included Necker, Redfish, Redoubt, and Sitkoh bays.

Possession and annual limits for sockeye salmon varied from 10 fish in possession and annually at Leo's Anchorage and Silver Bay to 100 fish in possession and annually at Necker Bay. Sitkoh, Takanis, Surge, Klag, and Hanus bays, Hoktaheen Cove, and Politofski Lake had possession and annual limits of 50 sockeye salmon. Lake Anna, Ford Arm, Falls Lake, and Falls Bay had possession and annual limits of 25 fish. Redfish Bay had limits of 50 in possession and 100 fish annually. Gut Bay limits were 10 fish in possession and 20 fish annually. For subsistence/personal use locations not listed on the permit, the possession limit and annual limit was 10 sockeye salmon. Redoubt Bay had a possession limit of 10 fish with an annual limit of 50, but this was altered inseason by an emergency order as discussed below.

In January 2003, the BOF adopted the *Redoubt Bay and Lake Sockeye Salmon Management Plan* (5 AAC 01.760). The plan provides a management approach for subsistence, sport, and commercial fisheries that target Redoubt Lake sockeye salmon based on an optimal escapement goal of 7,000–25,000 fish. As specified on the permit, by default the fishery is open from June 1–August 31 with a possession limit of 10 fish and an annual limit of 50 fish. If the projected run falls below 7,000 fish or above 10,000 fish, the season or limits will change inseason. In 2013, the projected escapement for the season exceeded

13. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

30,000 sockeye salmon. In accordance with the plan, an emergency order was published on June 27, 2013, which increased the subsistence possession limit for sockeye salmon to 25 fish with an annual limit of 100.[14]

Salmon streams flowing across or adjacent to the Sitka road system were closed to subsistence/personal use fishing for coho and chum salmon. The season for chum salmon in other waters with positive C&T findings within the Sitka Management Area, except for the listed sockeye salmon streams, was July 15–October 31, with a possession and annual limit of 50 fish. Coho salmon within the Sitka Management Area could be taken under subsistence fishing permit conditions from August 16–October 31 and in Redoubt, Necker, Redfish, and Sitkoh bays from September 1–October 31 with a possession limit of 20 fish and an annual limit of 40 fish for any combination of streams. Pink salmon within the Sitka Management Area, except those sockeye salmon streams listed on the permit, could be taken under subsistence fishing permit conditions from July 15–September 30, with a possession limit of 50 fish and annual limit of 150.

Allowable subsistence gear for all areas except for Redoubt Bay included hand purse seines, beach seines, drift gillnets, dip nets, cast nets, gaffs, and spears. Drift gillnets could not exceed 50 fathoms. Cast nets were allowed in all areas except Redoubt Bay. In Redoubt Bay only, the use of rod and reel gear was allowed as subsistence gear and limitations listed in sport regulations applied to this gear. Portions of Falls Lake, Gut Bay, Silver Bay, and Indian River had closed areas and/or restricted gear types specified on the permit.

Harvest Assessment Program

As reported in Table 13-3, the estimated salmon harvest in the Sitka Management Area subsistence and personal use fisheries in 2013 was 13,012 salmon, consisting of 12,389 sockeye salmon (95%), 258 pink salmon (2%), 246 coho salmon (2%), 112 chum salmon (1%), and 7 Chinook salmon (<1%). This was a decrease from the 2012 harvest estimate of 15,650 fish; contributions of each species to the overall harvest remained similar, but the harvest of most species decreased, except for pink and chum salmon. An estimated 419 permits were fished in the Sitka Management Area in 2013, compared to 449 permits in 2012.

As reported in Table 13-4, the estimated salmon harvest for the community of Sitka in 2013, based on 684 permits issued and 608 returned (89%), was 12,617 salmon, including 12,003 sockeye salmon (95%), 250 pink salmon (2%), 246 coho salmon (2%), 112 chum salmon (1%), and 7 Chinook salmon (<1%). Not all permits were fished solely in the Sitka Management Area. The number of permits issued and returned increased from 2012, but harvests decreased, particularly for sockeye and coho salmon. Chinook salmon also decreased by approximately half, while pink and chum salmon harvests increased.

PETERSBURG MANAGEMENT AREA

The Petersburg Management Area includes the Kake area subsistence fisheries, the Petersburg–Wrangell area personal use fisheries, the federal Stikine River subsistence fishery, and the Point Baker–Port Protection area subsistence fisheries. Overall, an estimated 316 state subsistence permits were fished in the Petersburg Management Area in 2013. The total estimated salmon harvest was 7,218 fish, with 80% of the harvest coming from sockeye salmon (Table 13-3). More permits were fished in 2013 and more salmon were harvested (185 permits in 2012 with a harvest of 3,280 salmon).

14. Alaska Department of Fish and Game Division of Commercial Fisheries, "Redoubt Bay and Lake subsistence and sport sockeye salmon fishery announcement," news release, June 27, 2013. Accessed May 8, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/296407933.pdf

Kake Area Subsistence Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Kake are under the management responsibility of the Division of Commercial Fisheries' Petersburg Area office. In 1989, the BOF adopted a positive C&T finding for salmon in the waters of sections 9A and 9B north of the latitude of Swain Point, in the waters of District 10 west of a line from Pinta Point to False Point Pybus, and in the waters of District 5 north of a line from Point Barrie to Boulder Point (5 AAC 01.716 (a)(10)). Principal salmon waters and streams used predominately by Kake fishers include Gut Bay and Falls Lake Creek on the southwest coast of Baranof Island, as well as Saginaw, Security (Salt Lake), Pillar (Kutlaku Creek), and Tebenkof (Alecks Creek) bays on Kuiu Island.

In 2012, Kake had a population of 621, an increase of about 20 residents over 2012.[15] Kake residents shared the use of the southern coastal waters of Admiralty Island with residents of Angoon and Petersburg. In recent years, principal subsistence salmon fishing by Kake residents has occurred in Gut Bay and Falls Creek on Baranof Island, and at Kutlaku Creek in Pillar Bay.

Regulations

Discretionary permit conditions did not change from 2012. The 2013 subsistence salmon permit provided for an open season for sockeye salmon in Alecks Creek and Shipley Bay of June 1–July 31. In the former stream, harvest limits were set at 50 salmon in possession and annually. In the latter area, the possession limit was 25 fish and the annual limit was 50 fish. In Bay of Pillars, the open season was from June 1–August 15 with annual and possession limits of 50 fish. For Falls Lake, the open seasons were June 1–July 13 and July 23–August 15 with possession and annual limits of 25 fish. The season for sockeye salmon in Gut Bay was June 1–July 20 with a limit of 10 fish in possession and 20 fish annually. Pink, chum, and coho salmon could be harvested in all streams in the Kake area, except for the sockeye salmon streams identified on the permits. The open season for pink salmon was July 15–September 15, and there was a possession limit of 100 pink salmon and no annual limit. Chum salmon could be harvested from July 1–October 31, and there was a possession limit of 50 fish and no annual limit. The coho salmon season lasted from August 16–October 31, and there was a limit of 20 fish in possession and 40 fish annually.

Permitted subsistence gear included gaffs, spears, beach seines, dip nets, drift and set gillnets, and cast nets. Set gillnets could be used only in Shipley Bay within 100 yd of the terminus of Shipley Creek, and the permit holder was required to be physically present at the net while in operation. Drift gillnets could not exceed 50 fathoms in length.

Harvest Assessment Program

As reported in Table 13-3, the estimated salmon harvest in the Kake area subsistence fisheries in 2013 was 2,061 salmon, including 1,899 sockeye salmon (92%), 77 coho salmon (4%), 38 pink salmon (2%), 25 Chinook salmon (1%), an 22 chum salmon (1%). An estimated 85 permits were fished in the Kake area subsistence fisheries in 2013.This compares to 53 permits issued in 2012 with a total harvest of 950 salmon.

The estimated subsistence salmon harvest for the community of Kake in 2013, based on 162 permits issued and 138 returned (85%), was 2,004 salmon. The harvest consisted of 1,869 sockeye salmon (93%), 50 coho salmon (3%), 38 pink salmon (2%), 25 Chinook salmon (1%), and 22 chum salmon (1%) (Table 13-4). Not all permits were fished solely in the Kake area. More permits were issued in 2013 than in 2012 and the total harvest increased from an estimated 2012 harvest of 1,235. The largest increase was seen in

15. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

sockeye salmon. Coho salmon harvests also increased, while harvests of the remaining 3 species decreased.

Petersburg–Wrangell Area Subsistence/Personal Use Fisheries

Background and History

Subsistence and personal use salmon fisheries in the waters traditionally used by the residents of Wrangell and Petersburg are under the management responsibility of the Division of Commercial Fisheries' Petersburg Area office. In 1989, the BOF adopted a positive C&T finding for salmon in many of the waters of Southeast Alaska. At that time, the BOF did not act on proposals requesting a positive C&T finding for salmon in the waters of districts 7 and 8, the principal waters used by Petersburg and Wrangell residents. In 2002, however, the BOF made a positive C&T finding for salmon stocks in these districts (5 AAC 01.716 (a)(23)). These waters include Thoms Place, Harding River, Mill Creek, and the Stikine River. Some salmon stocks in this area still do not have a positive C&T finding; these can be fished under personal use regulations.

Petersburg and Wrangell residents are the principal users of the salmon stocks of Salmon Bay on Prince of Wales Island, as well as Crystal Creek, Thoms Creek, Earl West Cove, Mill Creek, and the Stikine River. In 2013, the population of Petersburg was 2,954 and that of Wrangell was 2,453.[16] Both estimates are similar to the 2012 estimates.

Regulations

Few changes were made to the discretionary permit conditions from 2012. The 2013 permit provided an open season (June 1–July 31) for subsistence sockeye salmon in Shipley, Salmon, and Red bays, along with Thoms Place and Mill Creek. Limits for sockeye salmon were 25 in possession and 50 annually from Shipley Bay and 30 in possession and annually from Salmon Bay and Red Bay, combined. Thoms Place and Mill Creek had a combined possession limit of 20 fish and an annual limit of 40 fish.

For all streams in the Wrangell and Petersburg areas with positive C&T findings, except the sockeye salmon locations listed on the permit, subsistence fishing for pink, chum, and coho salmon was permitted. The open season for subsistence pink salmon fishing was July 15–September 15, with a daily possession limit of 100 pink salmon and no annual limit. The open season for subsistence chum salmon fishing was July 1–October 31, with a daily possession limit of 50 fish and no annual limit. Subsistence coho salmon was permitted from August 16–October 31, with a limit of 20 fish in possession and 40 annually.

Allowed subsistence and personal use gear included gaffs, spears, beach seines, dip nets, drift and set gillnets, and cast nets. Drift gillnets could not exceed 50 fathoms in length. Set gillnets could be used only in Shipley Bay within 100 yards of the terminus of Shipley Creek, and the permit holder was required to be physically present at the net while in operation. A federal subsistence permit was needed to fish the Stikine River.

Personal use regulations establish a weekly sockeye salmon season at Hatchery Creek, which drains into Sweetwater Lake. The fishery was open only Thursdays through Sundays from June 1–June 30. In 2013, harvest limits were restricted to 3 fish daily and 9 annually. In 2013, this fishery was closed inseason on June 23 due to low sockeye salmon returns.[17] Personal use coho salmon fishing was open in Blind Slough and North Wrangell Narrows on Fridays from 6:00 AM to 8:00 PM from August 16 to September 6 with possession and annual limits of 25 fish. The Anita Bay personal use permit allowed the harvest of Chinook, chum, and coho salmon May 1–October 31 with possession and annual limits of 25 fish in any

16. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

17. Alaska Department of Fish and Game Division of Commercial Fisheries, "Hatchery Creek personal use fishery closure," news release, June 21, 2013. Accessed May 11, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/290051068.pdf

combination. Outside of this area and Blind Slough, the possession limit was 6 coho salmon. Salmon could be taken only by drift gillnets in the Anita Bay Terminal Harvest Area.

Harvest Assessment Program

The estimated salmon harvest in the Petersburg area subsistence/personal use fisheries in 2013 was 1,854 salmon, including 1,231 sockeye salmon (66%), 572 coho salmon (31%), 27 pink salmon (1%), 23 chum salmon (1%), and 1 Chinook salmon (<1%) (Table 13-3). Compared to 2012, there was an increase in the overall estimated harvest, coming from an increase in the estimated harvest of sockeye and coho salmon. Harvests of the other species was consistent with 2012 levels. As has been seen in years past, the Petersburg area subsistence/personal use fisheries show a much lower reliance on sockeye salmon that any other fishery. An estimated 86 permits were fished in 2013.

As reported in Table 13-4, the estimated subsistence/personal use salmon harvest for the community of Petersburg in 2013, based on 194 permits issued and 184 returned (95%), was 2,682 salmon, including 1,913 sockeye salmon (71%), 615 coho salmon (23%), 73 pink salmon (3%), 43 chum salmon (2%), and 38 Chinook salmon (1%). Not all permits were fished solely in the Petersburg area. About 100 more permits were issued in 2013 and the overall harvest of salmon was also higher than the 2012 estimate of 1,207 fish. More of each salmon species was harvested in 2013, with the biggest increase coming from sockeye salmon harvests.

As shown in Table 13-3, the estimated salmon harvest in the Wrangell area subsistence/personal use fisheries in 2013 was 1,118 salmon, which included 984 sockeye salmon (88%), 67 pink salmon (6%), 46 chum salmon (4%), 17 Chinook salmon (2%), and 4 coho salmon (<1%). Compared to the 2012 harvest estimate of 798 salmon, the estimated overall harvest, as well as that of every species save chum and coho salmon, increased. An estimated 68 permits were fished in 2013.

The estimated subsistence salmon harvest for the community of Wrangell in 2013, based on 189 permits issued and 181 returned (96%), was 2,492 salmon, including 1,955 sockeye salmon (78%), 174 coho salmon (7%), 169 pink salmon (7%), 113 chum salmon (5%), and 81 Chinook salmon (3%) (Table 13-4). Not all permits were fished solely in the Wrangell area. Harvests were greater than the estimated 2012 harvest of 732 fish, both in overall numbers and in numbers of each species harvested. Sockeye salmon harvests increased by more than 1,000 fish, but their contribution to the overall harvest decreased. Harvests of Chinook, coho, and pink salmon increased by a factor of 10 or more.

2013 Federal Stikine River Subsistence Salmon Fishery: Regulations

In January 2004, the U.S. and Canada negotiated a modified Pacific Salmon Treaty that allowed for a U.S. subsistence salmon fishery on the Stikine River. The Federal Subsistence Board implemented a Stikine River subsistence sockeye salmon fishery in 2004, followed by directed Chinook and coho salmon subsistence fisheries authorized in 2005. Regulatory changes implemented for the 2006 season included an increase in the mesh size of gillnets during the Chinook salmon fishery and an earlier starting date for the sockeye salmon fishery. In 2008, 2 additional regulatory changes were made: subsistence fishing permits became valid for the entire season (May 15–October 1); and the start date of the coho salmon fishery was moved up to August 1. The latter change allowed a continuous subsistence fishery throughout the season. There were no changes in subsistence fishing regulations or permit conditions for the 2013 fishing season. The department's preseason forecast was for low abundance, resulting in an emergency closure of the Chinook salmon subsistence fishery. On June 15, once the inseason return estimate provided for an allowable catch, the subsistence fishery was opened.

Current Federal Regulations

The federal subsistence fisheries regulatory year begins April 1. Regulations are detailed in Subpart C and D of the *Code of Federal Regulations* (36 CFR part 242 and 50 CFR part 100). The sections relevant to the Stikine River are as follows:

50 CFR 100.24 Customary and traditional use determinations.

(2) Fish determinations. The following communities and areas have been found to have a positive customary and traditional use determination in the listed area for the indicated species:

Southeastern Alaska Area:

District 8 and waters draining into that District: Salmon, Dolly Varden, trout, smelt, and eulachon. Residents of drainages flowing into Districts 7 & 8, residents of drainages flowing into District 6 north of the latitude of Point Alexander (Mitkof Island), and residents of Meyers Chuck.

36 CFR 242.27 Subsistence taking of fish.

(e) Fishery management area restrictions.

(13) Southeastern Alaska Area.

(xiii) You may take Chinook, sockeye, and coho salmon in the mainstem of the Stikine River only under the authority of a Federal subsistence fishing permit. Each Stikine River permit will be issued to a household. Only dip nets, spears, gaffs, rod and reel, beach seine, or gillnets not exceeding 15 fathoms in length may be used. The maximum gillnet mesh size is 51⁄2 inches, except during the Chinook season when the maximum gillnet mesh size is 8 inches.

(A) You may take Chinook salmon from May 15 through June 20. The annual limit is 5 Chinook salmon per household.

(B) You may take sockeye salmon from June 21 through July 31. The annual limit is 40 sockeye salmon per household.

(C) You may take coho salmon from August 1 through October 1. The annual limit is 20 coho salmon per household.

(D) You may retain other salmon taken incidentally by gear operated under terms of this permit. The incidentally taken salmon must be reported on your permit calendar.

(E) The total annual guideline harvest level for the Stikine River fishery is 125 Chinook, 600 sockeye, and 400 coho salmon. All salmon harvested, including incidentally taken salmon, will count against the guideline for that species.

Seasons, harvest limits, and the C&T determinations enumerated in regulations are also included on the federal subsistence fishing permit for the Stikine River. In addition, the permit specifies several other limitations:

- allowable gear—Gillnets not exceeding 15 fathoms in length may be used. The maximum gillnet mesh size is 5 1/2 inches, except during the Chinook season when the maximum gillnet mesh size is 8 inches;
- size—"Jack" Chinook salmon are defined as less than 28 inches. Only Chinook salmon equal to or greater than 28 inches are included in the annual harvest limit. Fishers must indicate the number of Chinook salmon taken that are greater than and less than 28 inches separately.
- harvest recording—Fishers may retain other salmon taken incidentally; however, they must be recorded on the permit.

The total annual harvest level for the Stikine River is controlled by the inseason manager and may be closed or expanded by special action.

Harvest Assessment Program

For Chinook, coho, and sockeye salmon fisheries harvest assessment, a telephone-based monitoring program is used inseason, with permits and harvest reporting used for overall harvest assessment

postseason. In 2013, 124 fishing permits were issued, with approximately 56% going to Wrangell households and 44% to Petersburg households. An estimated 77 permits were fished. In 2012, 130 permits were issued, with 65% going to Wrangell households. Year-end harvest reports were obtained from all but seven permit holders. The Stikine River subsistence harvest totaled 2,185 salmon, well above the 2012 harvest amount and the 5-year average harvest (Table 13-6). The 2013 harvest consisted of 1,655 sockeye salmon (76%), 186 coho salmon (9%), 156 pink salmon (7%), 101 Chinook salmon (5%), and 87 chum salmon (4%) (Table 13-3). There were also 15 Dolly Varden char and 2 steelhead trout harvested.[18] Compared to 2012, a similar number of permit holders caught more salmon overall. Most of the increase came from the harvest of sockeye salmon, which rose from a 2012 estimate of 1,302 sockeye, but harvests of each salmon species increased over 2012. The proportion of the catch contributed by each species changed slightly, with sockeye salmon contributing less overall. The first Chinook salmon and the first sockeye salmon were harvested on June 17 and the first coho salmon was harvested on June 30.[19]

Residents of Petersburg were issued 55 permits in 2013; all were returned. Based on the permit data, residents of Petersburg harvested 860 salmon in the federal fishery, approximately 40% of the entire harvest. The catch comprised 721 sockeye salmon (84%), 44 pink salmon (5%), 38 coho salmon (4%), 37 Chinook salmon (4%), and 20 chum salmon (2%) (Table 13-5). In Wrangell, based on 69 permits issued and returned, 1,325 salmon were harvested. The catch consisted of 934 sockeye salmon (70%), 148 coho salmon (11%), 112 pink salmon (8%), 67 chum salmon (5%), and 64 Chinook salmon (5%) (Table 13-5).

Point Baker–Port Protection Subsistence Fisheries

Background and History

The Division of Commercial Fisheries' Petersburg Area office manages subsistence and personal use salmon fisheries in the waters used by fishers from the communities of Point Baker and Port Protection. These fishers rely especially on the Salmon Bay and Red Bay sockeye salmon stocks at the northern end of Prince of Wales Island. In 1989, when the BOF adopted a positive C&T finding for salmon in some waters of Southeast Alaska, it did not act on proposals to make a similar finding for the principal waters used by Point Baker and Port Protection residents. In 1997, however, the BOF did adopt a positive C&T finding for salmon and other fishes in the waters of District 5 north of a line from Point St. Albans to Cape Pole, in the waters of Section 6A west of a line from Macnamara Point to Mitchell Point, and in the waters of Section 6B west of the longitude of Macnamara Point (5 AAC 01.716 (a)(20)). Harvests in these waters are included in the Petersburg area subsistence-personal use fisheries category in Table 13-3.

In 2013, Point Baker had a population of 15 and Port Protection had a population of 57, a significant increase over 2012, when the estimate was 42 residents.[20]

Regulations

The Point Baker drift gillnet subsistence sockeye salmon fishery occurs in the waters of Sumner Strait within 3 miles of the Prince of Wales Island shoreline north of Hole-in-the-Wall and west of the western side of Buster Bay. The fishery was open Wednesdays at 12:00 PM to Sundays at 12:00 PM, from June 12–July 31. Only drift gillnet gear, not to exceed 50 fathoms in length, was allowed. Harvest was limited to 25 sockeye salmon in possession and annually. Fishers could retain other species incidentally harvested during this fishery. Pink and chum salmon subsistence harvests were allowed in all streams within the Point Baker–Port Protection area for stocks with positive C&T findings, except for the sockeye salmon streams identified on the permit. There was a 100-fish possession limit for pink salmon, with no annual limit. For chum salmon, 50 fish were allowed in possession with no annual limit. Coho salmon could be

18. Robert Larson, USFS. Stikine River subsistence salmon fishery: 2013 season summary. United States Department of Agriculture Forest Service, unpublished report, 2013.

19. Robert Larson, USFS. Stikine River subsistence salmon fishery: 2013 season summary. United States Department of Agriculture Forest Service, unpublished report, 2013.

20. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2013. http://labor.alaska.gov/research/pop/popest.htm

harvested under subsistence regulations for stocks with positive C&T findings in all streams in the Point Baker–Port Protection area with a possession limit of 20 fish and annual limit of 40 fish.

Harvest Assessment Program

Port Protection households maintain either a Ketchikan or Point Baker post office address and can also receive mail via private carrier from Ketchikan. Port Protection harvests can be included in either the Point Baker or Ketchikan harvest estimates. In 2013, 1 permit was issued in Port Protection and one was issued in Point Baker. Both were returned with no salmon harvest recorded (Table 13-4).

KETCHIKAN MANAGEMENT AREA

The Ketchikan Management Area includes subsistence fisheries in the Hydaburg area, the Craig-Klawock area, and the Kasaan area, and personal use fisheries outside of these three areas as well as in the Ketchikan area. All of these areas are under the management responsibilities of the Division of Commercial Fisheries' Ketchikan Area office. There were an estimated 261 permits fished in the Ketchikan Management Area in 2013, slightly fewer than the 308 permits fished in 2012. The total estimated salmon harvest was 9,116 fish, less than the 2012 estimate of 11,510 salmon (Table 13-3). Sockeye salmon harvests contributed 73% of this harvest; in 2012 sockeye salmon contributed 85% to the overall salmon harvest.

Craig, Klawock, and Hydaburg Subsistence Fisheries

Background and History

Hydaburg area waters with a positive C&T finding for salmon include Section 3A and the waters of District 2 in Nichols Bay north of lat. 54º 42.12′ N (5 AAC 01.716 (a)(18)). Craig–Klawock area waters with a positive C&T finding for salmon include Section 3B east of a line from Point Ildefonso to Tranquil Point; Warm Chuck Inlet north of a line from a point on Heceta Island at lat. 55º 44′ N, long. 133º 25′ W to Bay Point; Section 3C in Karheen Passage north of lat. 55º 48′ N and east of long. 133º 20′ W; and Sarkar Cove and the Sarkar lakes (5 AAC 01.716 (a)(15)).

Residents of the communities of Hydaburg, Craig, and Klawock on the west coast of Prince of Wales Island primarily use the salmon stocks of sections 3A and 3B, with the main harvest locations at Hetta Inlet–Sukkwan Strait (Eek Creek), Big Salt–Trocadero Bay (Klawock River), and Sea Otter Sound (Sarkar River).

In 2013, Craig had a population of 1,194, Klawock had a population of 785, and Hydaburg had a population of 405.[21] Estimates for Craig and Klawock are similar to 2012; the 2013 estimate for Hydaburg is an increase of approximately 40 residents.

Regulations

The 2013 subsistence sockeye salmon schedule in the Klawock River was from Monday at 8:00 AM to Friday at 5:00 PM from July 7–August 7, with a 20 sockeye salmon possession limit and no annual limit; in Hetta Inlet and Eek Creek, the season was June 1–August 31 with a possession limit of 20 sockeye salmon and no annual limit,; and in Hugh Smith Lake fishing was open June 22–July 31 with a 12 sockeye salmon possession limit and no annual limit. Karta River, Klakas Lake, and Sarkar were open from June 1 to July 31. The possession limit for all 3 systems was 20 fish; Karta River and Klakas Lake had no annual limit but Sarkar had a 40 fish limit. Other systems in the Ketchikan Management Area with positive C&T findings for salmon were open to sockeye salmon fishing June 1–July 31, with a 10 sockeye salmon possession limit and a 25 sockeye annual limit. Such streams had to be approved by ADF&G and listed on the permit. All streams in the Ketchikan Management Area with positive customary and traditional use findings were open for pink salmon July 1–September 30 with a 150 fish

21. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July 2014. http://labor.alaska.gov/research/pop/popest.htm

possession limit and no annual limit. Chum and coho salmon fishing was open in the same waters July 1–October 31 with a possession limit of 25 chum and 20 coho salmon. There was no annual limit for chum salmon, but there was a 40 coho salmon limit annually. Additional conditions on the 2013 subsistence/personal use salmon permit for the Ketchikan Management Area stipulated that hand purse seines, beach seines, gillnets, spears, gaffs, cast nets, and dip nets were allowable subsistence/personal use gear. Gillnets were allowed in Yes Bay, Kendrick Bay, Nakat Inlet, and Neets Bay but could not exceed 50 fathoms in length. Herring gillnets could not exceed 10 fathoms in length, with no mesh size restrictions. A beach seine could not obstruct more than one-half the width of any fish stream and any channel or side channel of a fish stream, including the estuary leading to a fish stream. Sockeye salmon could not be retained as incidental catch.

Harvest Assessment Program

The estimated salmon harvest for the Craig–Klawock–Hydaburg area subsistence fisheries in 2013 was 4,179 salmon, including 3,105 sockeye salmon (74%), 798 coho salmon (19%), 265 pink salmon (6%), and 12 chum salmon (<1%) (Table 13-3). The 2013 harvest decreased from 6,023 fish in 2012. Sockeye salmon harvests decreased the most, down from 5,670 sockeye in 2012. Chum salmon harvests also decreased, while harvests of pink and coho salmon increased. An estimated 82 permits were fished in the area in 2013.

As reported in Table 13-4, 127 permits were issued to residents of Craig and 109 (86%) were returned. The total estimated salmon harvest of Craig residents was 810, a decrease of 500 fish from 2012 estimates. By species, the harvest consisted of 628 sockeye salmon (78%), 122 coho salmon (15%), 59 pink salmon (7%), and 1 chum salmon (<1%). The total estimated salmon harvest for Klawock, based on 106 permits issued and 79 returned (75%), was 1,830, a decrease of about 1,000 fish from 2012, consisting of 1,234 sockeye salmon (67%), 439 coho salmon (24%), 145 pink salmon (8%), and 12 chum salmon (1%). The proportion of sockeye salmon in the overall harvest decreased from 90% in 2012, while the proportion of coho salmon increased from 7%. The total estimated salmon harvest for Hydaburg, based on 69 permits issued and 44 returned (64%), was 1,531 salmon, the majority of which were sockeye salmon (1,356). An estimated 138 coho salmon and 36 pink salmon were also harvested. Not all permits were fished solely in their respective areas. Of the three communities, Hydaburg harvests showed the smallest decrease in salmon harvests. In 2012, the estimated harvest of salmon by Hydaburg residents was 1,797, mainly sockeye salmon. Fewer permits were issued in Craig and Klawock, more were issued in Hydaburg.

Kasaan Area Subsistence Fisheries

Background and History

There is a positive C&T finding for salmon in waters on the east coast of Prince of Wales Island for the Kasaan area waters of District 2 north of the latitude of the northernmost tip of Chasina Point then west of a line from the northernmost tip of Chasina Point to the easternmost tip of Grindall Island to the easternmost tip of the Kasaan Peninsula (5 AAC 01.716 (a)(12)). Salmon fishing in all other marine waters along the east coast of Prince of Wales Island occurs under personal use and sport regulations. The principal waters used for personal use salmon fishing along the eastern coast of Prince of Wales Island are Kegan Lake, the Thorne River, and Hatchery Creek–Sweetheart Creek. The personal use fisheries are described in the Ketchikan Area Personal Use Fisheries section.

In 2012, Coffman Cove had a population of 162, Edna Bay's population was 49, Hollis had a population of 119, Kasaan's population was 75, Thorne Bay's population was 518, and the population of Whale Pass was 39.[22]

22. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed May 11, 2015. http://labor.alaska.gov/research/pop/popest.htm

Regulations

All streams in the Ketchikan Management Area with positive C&T findings not otherwise listed on the permit were open for subsistence sockeye salmon fishing June 1–July 31, with a 10 fish possession limit and a 25 fish annual limit. All streams with a positive C&T determination were open to pink salmon fishing July 1–September 30, with a limit of 150 fish in possession and no annual limit. Coho and chum salmon fishing was also open in these waters July 1–October 31, with a limit on coho salmon harvests of 20 fish in possession and 40 fish annually. The limit on chum salmon harvests was 25 fish in possession and no annual limit.

Allowable gear in the subsistence fishery included hand purse seines, beach seines, spears, gaffs, cast nets, and dip nets. Salmon could not be taken with a line attached to a rod or pole. Sockeye salmon could not be retained as incidental catch.

Harvest Assessment Program

As reported in Table 13-3, in 2013 an estimated 70 permit holders fished in the Kasaan area subsistence fisheries with an estimated salmon harvest of 1,870 salmon. The harvest included 1,366 sockeye salmon (73%), 277 pink salmon (15%), 225 coho salmon (12%), and 1 chum salmon (<1%). The total harvest decreased from a 2012 estimate of 2,366. Only the harvest of coho salmon increased over 2012 levels. Fewer permits were fished in 2013 compared to 2012.

Based on 12 permits issued to residents of Kasaan and 10 returned (83%) in 2013, an estimated 226 salmon were harvested, the majority consisting of sockeye salmon (182) as well as 35 coho and 8 pink salmon (Table 13-4). Thorne Bay residents were issued 24 permits, 23 of which were returned (96%), resulting in a harvest estimate of 154 salmon, including 83 sockeye salmon, 69 coho salmon, and 2 pink salmon (Table 13-4). Four permits were issued to Naukati Bay residents and 3 were returned. No salmon harvest was reported. In Hollis, 32 permits were issued and 27 were returned (84%). An estimated 383 salmon were harvested, including 325 sockeye salmon, 31 pink salmon, and 27 coho salmon. In Coffman Cove 7 permits were issued and 5 were returned (71%). An estimated 146 salmon were harvested, including 60 sockeye salmon, 46 coho salmon, and 39 pink salmon. No permits were issued in Whale Pass. Not all permits were fished solely in their respective areas. While harvests in Hollis decreased significantly from 2012, harvests of other communities remained the same or slightly increased from 2012. Harvests of coho salmon increased in all communities except Hollis.

Ketchikan Area Personal Use Fisheries

Background and History

The Division of Commercial Fisheries' Ketchikan Area office is responsible for oversight of the subsistence and personal use salmon fisheries in districts 1, 2, 3, and 6. Some waters within sections 1A, 1C, 1D, 1E, 1F, and District 2 fall within the Ketchikan Nonsubsistence Area (Figure 13-1). The BOF made a positive C&T finding for salmon stocks in the waters traditionally used by the Tongass Tlingit of Saxman. These waters include the Naha River, Boca de Quadra in the waters of Sockeye Creek and Hugh Smith Lake, as well as the salt waters within 500 yards of the terminus of Sockeye Creek (5 AAC 01.716 (a)(19)).

The communities of Ketchikan and Saxman are the principal users of the fisheries in the Ketchikan area. In 2013, the population of the Ketchikan borough, excluding Saxman, was 13,417. Saxman, located within the Ketchikan Gateway Borough, had a population of 411.[23]

23. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July 2014. http://labor.alaska.gov/research/pop/popest.htm

Regulations

The 2013 subsistence/personal use salmon permit for the Ketchikan Management Area provided for a July 1–August 30 open season for sockeye salmon at McDonald Lake (Yes Bay), with a possession and annual limit of 30 fish. Kegan Lake and Thorne River were open from June 1–July 31, with a possession limit of 12 sockeye salmon and an annual limit of 50 sockeye salmon. Hatchery Creek was open June 1–June 30, Thursdays through Sundays, with a limit of 3 sockeye salmon in possession and 9 annually. The Hatchery Creek personal use fishery closed inseason on June 23 for the remainder of the season due to low sockeye salmon returns. Other streams in the Ketchikan Management Area that were open to personal use fishing, except the Ketchikan road system, were open June 1–July 31 with a limit of 10 sockeye salmon in possession and a 25 fish annual limit. Leask Creek and Mahoney creek and lake, and marine waters within 500 yards of the terminus of these streams, remained closed. For pink and chum salmon, all stocks in streams with no positive C&T finding within the Ketchikan Management Area, except the Ketchikan road system, were open to personal use fishing. The season for pink salmon ran from June 1–September 30 with a limit of 150 fish in possession and no annual limit. For chum salmon, the open season was from June 1–October 31 with a possession limit of 25 and no annual limit. The season for Chinook salmon ran from July 1 to August 30 in the Herring Bay Terminal Harvest Area only; the possession limit was 50 fish with no annual limit. Sockeye salmon could not be retained as incidental catch. The legal gear types specified under the terms of this permit included hand purse seines, beach seines, gillnets, spears, gaffs, cast nets, and dip nets. Gillnets were allowed only in Yes Bay, Kendrick Bay, Nakat Inlet, and Neets Bay; they could not exceed 50 fathoms in length. Herring gillnets could not exceed 10 fathoms in length, with no mesh size restrictions., A beach seine could not obstruct more than one-half the width of any fish stream and any channel or side channel of a fish stream, including the estuary leading to a fish stream.

Harvest Assessment Program

The total estimated salmon harvest in the Ketchikan area personal use fisheries in 2013 was 3,067 fish, including 2,163 sockeye salmon (71%), 477 pink salmon (16%), 381 chum salmon (12%), 35 coho salmon (1%), and 10 Chinook salmon (<1%) (Table 13-3). An estimated 108 personal use permits were fished. The 2013 harvest is similar to the 2012 harvest. Harvest of sockeye salmon decreased, while harvests of all other species increased.

As reported in Table 13-4, the total estimated salmon harvest for the community of Ketchikan (including Ward Cove), based on 253 permits issued and 221 returned (87%), was 3,288, including 2,255 sockeye salmon (69%), 307 chum salmon (9%), 556 pink salmon (17%), 160 coho salmon (5%), and 10 Chinook salmon (<1%). In Saxman, based on 20 permits issued and 18 returned (90%), a total of 361 salmon were harvested. Not all permits were fished solely in their respective areas. Of the total, sockeye salmon constituted the largest proportion at 324 fish (90%) followed by coho salmon with 22 fish (6%), chum salmon at 12 fish (3%), and then pink salmon at 2 fish (1%). Based on 2 permits issued and 1 returned (50%), in 2013 residents of Metlakatla harvested no salmon under state permit regulations. Fewer permits were issued in each community and harvests decreased slightly in all three communities as well. Harvest of coho salmon increased in Ketchikan and Saxman.

Table 13-1.–Subsistence and personal use salmon harvests by district, Southeast region, 2013.

		Permits fished		Estimated salmon harvest					
Fishing location	Name	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
District 1	Ketchikan-Behm Canal	189	215	10	2,163	35	381	477	3,067
District 2	Clarence Strait-East Prince of Wales Island	114	138	0	1,366	225	1	273	1,866
District 3	Inside Waters-West Prince of Wales Island	147	197	0	3,105	798	12	265	4,179
District 5	Sumner Strait	0	0	0	0	0	0	0	0
District 6	East Sumner Strait-North Frederick Sound	99	110	1	1,231	572	23	31	1,858
District 7	East Etolin Island-Wrangell Island-Ernest Sound	123	131	17	968	3	30	43	1,061
District 8	Stikine River	7	8	0	16	1	16	23	56
District 9	South Chatham Strait-West Frederick Sound	88	105	25	1,841	77	13	16	1,972
District 10	East Frederick Sound	3	4	0	59	0	9	21	89
District 11	Juneau-Taku Inlet-Stephens Passage	462	501	23	6,997	264	30	223	7,537
District 12	Angoon-North Chatham Strait-East Chichagof	46	56	0	1,032	28	6	37	1,104
District 13	Sitka-Outer Baranof and Chichagof-Peril Strait	649	729	8	14,106	259	124	291	14,789
District 14	Icy Strait-Glacier Bay	72	79	0	664	59	46	95	864
District 15	Lynn Canal-Chilkat Inlet	1,141	1,188	183	9,158	473	607	1,639	12,060
Yakutat Forelands	Yakutat Forelands	150	178	118	5,009	705	25	5	5,862
Yakutat Bay-Troll	Yakutat Bay-Troll	137	164	497	177	113	6	0	793
Subtotal, state permit fisheries		**–**	**–**		**882**	**47,892**	**3,613**	**1,330**	**3,441**
Stikine River	Stikine River Federal Fishery			101	1,655	186	87	156	2,185
Total		**–**	**–**	**983**	**49,547**	**3,799**	**1,417**	**3,597**	**59,343**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Note In the Southeast Region, ADF&G Division of Commercial fisheries issues a single permit for both fisheries and reports the data as subsistence/personal use combined (Conrad and Gray 2014).

– Fishers with permits may fish at more than one location. As a result, the total number of permits cannot be derived simply by adding column values.

Table 13-2.–Historical subsistence and personal use salmon harvests, Southeast region, 1985–2013.

	Permits		Estimated salmon harvest					
Year[a]	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1985	ND	1,271	19	20,006	360	2,951	2,136	25,472
1986	ND	1,354	29	21,974	277	2,840	971	26,091
1987	ND	1,322	34	25,405	117	3,878	1,474	30,908
1988	ND	1,013	94	19,898	97	3,013	1,145	24,247
1989	ND	1,479	580	32,860	1,381	3,113	3,664	41,598
1990	ND	1,543	524	36,376	1,615	3,433	3,529	45,477
1991	ND	1,554	262	37,765	766	3,271	1,741	43,805
1992	ND	1,860	614	53,131	4,939	3,201	2,942	64,827
1993	ND	2,121	537	56,249	3,515	2,583	2,143	65,027
1994	ND	2,239	800	57,097	3,607	4,211	3,639	69,354
1995	ND	2,005	1,203	45,087	3,702	3,370	3,215	56,577
1996	4,172	3,341	1,170	69,216	3,090	5,553	3,204	82,233
1997	4,211	3,529	780	58,782	2,701	4,515	4,080	70,858
1998	4,273	3,629	1,082	62,551	3,264	6,442	3,910	77,250
1999	4,308	3,717	1,393	56,618	1,933	5,557	3,280	68,782
2000	3,771	3,170	1,359	52,867	2,151	3,414	2,619	62,411
2001	3,605	3,116	1,457	55,157	3,266	3,968	4,230	68,080
2002	3,326	2,732	1,857	56,379	3,176	2,183	3,210	66,804
2003	3,595	2,924	1,543	64,670	3,052	6,275	3,894	79,434
2004	3,703	3,235	1,583	61,419	2,446	3,151	3,164	71,763
2005	3,304	2,772	887	39,694	2,283	1,831	4,959	49,655
2006	3,405	2,809	1,356	54,862	1,873	1,731	3,603	63,425
2007	3,156	1,622	1,199	43,100	1,444	721	3,273	49,737
2008	3,153	2,820	1,052	41,548	3,555	1,421	1,897	49,472
2009	3,421	3,097	1,208	49,507	3,616	2,006	3,290	59,627
2010	2,217	1,829	1,828	52,258	3,885	878	3,721	62,571
2011	3,315	2,918	916	41,733	3,060	1,147	5,494	52,350
2012	3,397	2,983	816	51,729	3,322	1,233	2,838	59,938
2013	3,564	3,170	983	49,547	3,799	1,417	3,597	59,343
5-year average (2008–2012)	3,101	2,729	1,164	47,355	3,488	1,337	3,448	56,792
10-year average (2003–2012)	3,267	2,701	1,239	50,052	2,854	2,039	3,613	59,797
Historical average (1985–2012)	3,549	2,429	935	47,069	2,446	3,139	3,117	56,706

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

a. For years prior to 1996, only permits returned with harvest data were included, and harvests reported in these years were not expanded into estimates. Caution should be used if comparing pre-1996 data with later data.

ND = no data.

Table 13-3.–Estimated subsistence and personal use salmon harvests by management and fishery, Southeast region, 2013.

	Permits fished		Estimated salmon harvest					
Area	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
Yakutat Management Area	97	115	615	5,185	818	31	5	6,655
Haines Management Area	385	403	183	9,158	473	607	1,639	12,060
Juneau Management Area	484	532	24	10,411	364	95	388	11,282
Juneau Personal Use Area	370	402	23	6,997	264	30	223	7,537
Angoon Subsistence Area	39	47	0	1,435	28	6	44	1,513
Hoonah Subsistence Area	75	83	1	1,979	72	58	121	2,231
Sitka Management Area	373	419	7	12,389	246	112	258	13,012
Petersburg Management Area	291	316	144	5,770	839	178	287	7,218
Petersburg Subsistence-Personal Use Area	79	86	1	1,231	572	23	27	1,854
Wrangell Subsistence-Personal Use Area	64	68	17	984	4	46	67	1,118
Kake Subsistence Area	71	85	25	1,899	77	22	38	2,061
Stikine River Federal Subsistence Fishery	77	77	101	1,655	186	87	156	2,185
Ketchikan Management Area	215	261	10	6,634	1,058	395	1,019	9,116
Ketchikan Personal Use Area	95	108	10	2,163	35	381	477	3,067
Kasaan Subsistence Area	58	70	0	1,366	225	1	277	1,870
Craig-Klawock-Hydaburg Subsistence Area	62	82	0	3,105	798	12	265	4,179
Total	**–**	**–**	**983**	**49,547**	**3,799**	**1,417**	**3,597**	**59,343**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

– Fishers with permits may fish at more than one location. As a result, the total number of permits cannot be derived simply by adding column values.

Table 13-4.–Subsistence and personal use salmon harvests by community of residence, Southeast region, 2013.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	21	18	1	211	1	0	7	220
Angoon	96	77	0	1,156	19	0	7	1,182
Arctic Village	1	0	0	0	0	0	0	0
Auke Bay	4	4	0	49	11	37	21	118
Barrow	1	0	0	0	0	0	0	0
Chefornak	1	0	0	0	0	0	0	0
Chitina	1	1	0	0	0	0	0	0
Coffman Cove	7	5	0	60	46	0	39	146
Craig	127	109	0	628	122	1	59	810
Dillingham	1	1	0	0	0	0	0	0
Douglas	55	53	2	595	44	10	26	677
Eastchester	1	1	0	3	0	0	0	3
Elfin Cove	1	0	0	0	0	0	0	0
Ester	1	1	0	0	0	0	0	0
Excursion Inlet	4	3	0	0	27	0	8	35
Fairbanks	13	12	1	246	0	1	112	360
Gustavus	29	28	1	284	1	2	15	304
Haines	434	419	155	7,391	453	486	1,387	9,872
Hollis	32	27	0	325	27	0	31	383
Hoonah	101	83	0	624	37	52	134	848
Hydaburg	69	44	0	1,356	138	0	36	1,531
Juneau	734	662	48	9,631	303	133	342	10,457
Kake	162	138	25	1,869	50	22	38	2,004
Kasaan	12	10	0	182	35	0	8	226
Ketchikan	253	221	10	2,255	160	307	556	3,288
Klawock	106	79	0	1,234	439	12	145	1,830
Klukwan	9	9	0	424	13	39	54	530
Kodiak City	1	0	0	0	0	0	0	0
Metlakatla	2	1	0	0	0	0	0	0
Naukati Bay	4	3	0	0	0	0	0	0
Nondalton	1	1	0	15	0	0	0	15
Palmer	2	2	0	36	0	0	0	36
Pelican	2	2	0	10	0	0	0	10
Petersburg	194	184	38	1,913	615	43	73	2,682
Point Baker	1	1	0	0	0	0	0	0
Port Alexander	4	4	0	200	0	0	12	212
Port Protection	1	1	0	0	0	0	0	0
Saxman	20	18	0	324	22	12	2	361
Sitka	684	608	7	12,003	246	112	250	12,617
Skagway	20	18	3	170	0	3	50	227
Tenakee Springs	2	2	0	20	0	0	0	20
Thorne Bay	24	23	0	83	69	0	2	154
Tok	1	1	0	10	0	0	0	10
Wasilla	5	5	0	60	0	0	11	71
Willow	1	1	0	0	0	0	0	0
Wrangell	189	181	81	1,955	174	113	169	2,492
Yakutat	130	109	610	4,224	748	31	2	5,615
Total	**3,564**	**3,170**	**983**	**49,547**	**3,799**	**1,418**	**3,596**	**59,343**

Source ADF&G Division of Subsistence, ASFDB 2014 (ADF&G 2015).

Table 13-5.– Subsistence salmon harvests by community of residence for the federal Stikine River subsistence salmon fishery, Southeast region, 2013.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Petersburg	55	55	37	721	38	20	44	860
Wrangell	69	69	64	934	148	67	112	1,325
Total	**124**	**124**	**101**	**1,655**	**186**	**87**	**156**	**2,185**

Source Larson (2013).

Table 13-6.– Historical subsistence salmon harvests for the federal Stikine River subsistence salmon fishery, Southeast region, 2004–2013.

	Permits	Estimated salmon harvest					
Year	issued	Chinook	Sockeye	Coho	Chum	Pink	Total
2004	40	12	243	0	11	22	288
2005	35	15	252	53	22	69	411
2006	48	37	390	21	20	23	491
2007	44	36	244	23	11	59	373
2008	50	25	428	42	12	18	525
2009	80	31	723	21	46	66	887
2010	107	61	1,653	135	37	60	1,946
2011	129	66	1,741	40	74	189	2,110
2012	130	53	1,302	112	47	32	1,546
2013	124	101	1,655	186	87	156	2,185
5-year average (2008–2012)	99	47	1,169	70	43	73	1,403
Historical average (2004–2012)	74	37	775	50	31	60	953

Source Larson (2013).

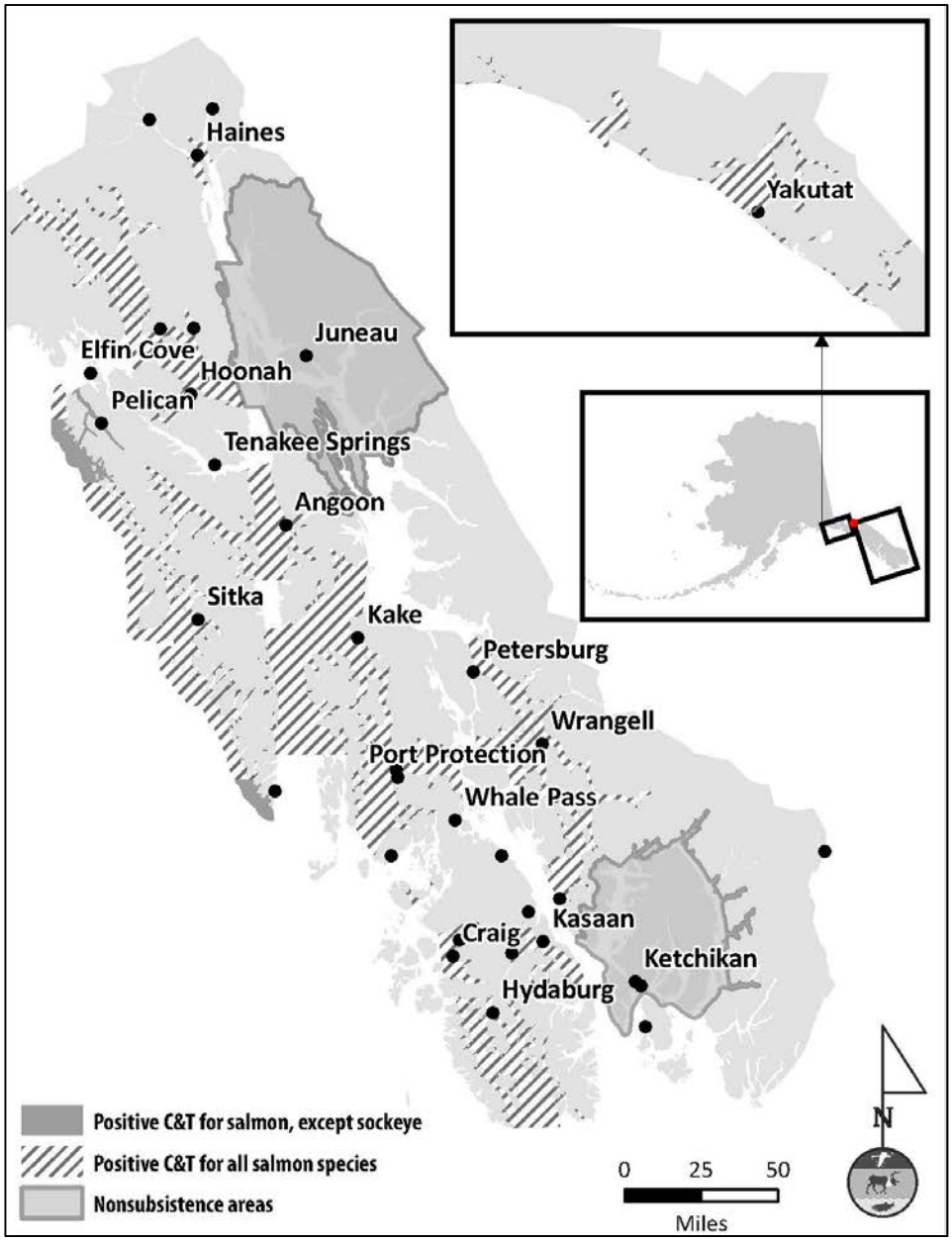

Figure 13-1.–Customary and traditional use findings for salmon, and nonsubsistence areas, Southeast region, 2013.

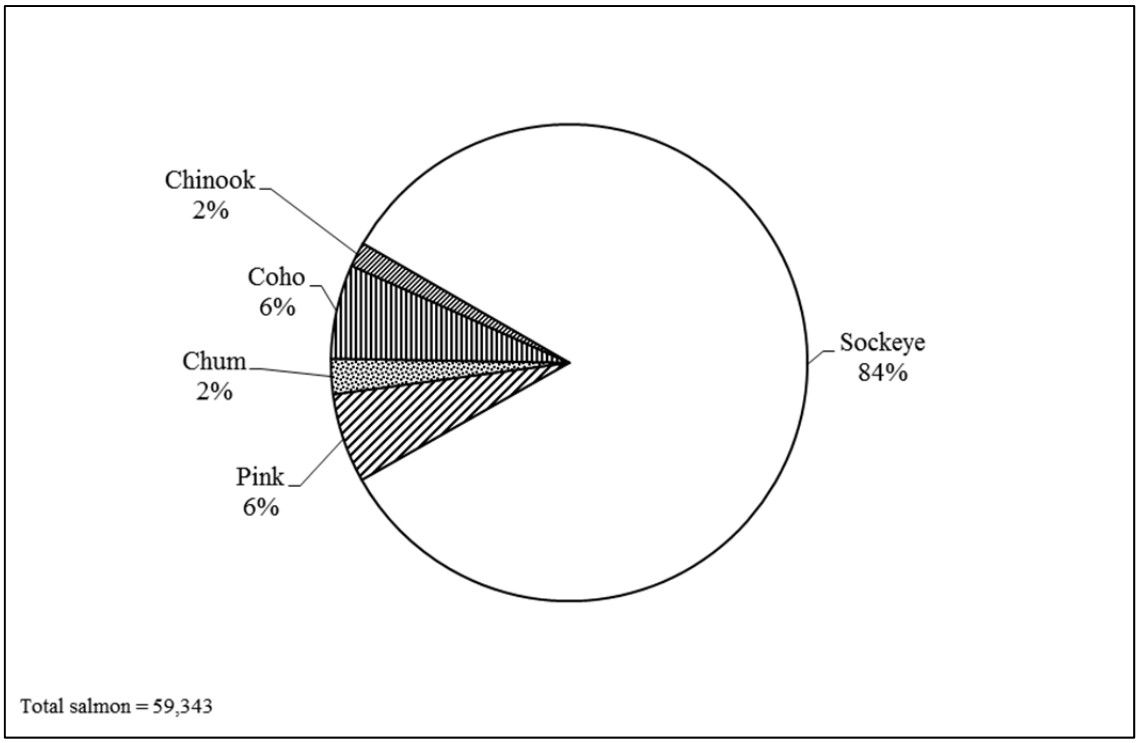

Figure 13-2.–Southeast region subsistence and personal use harvests by species, 2013.

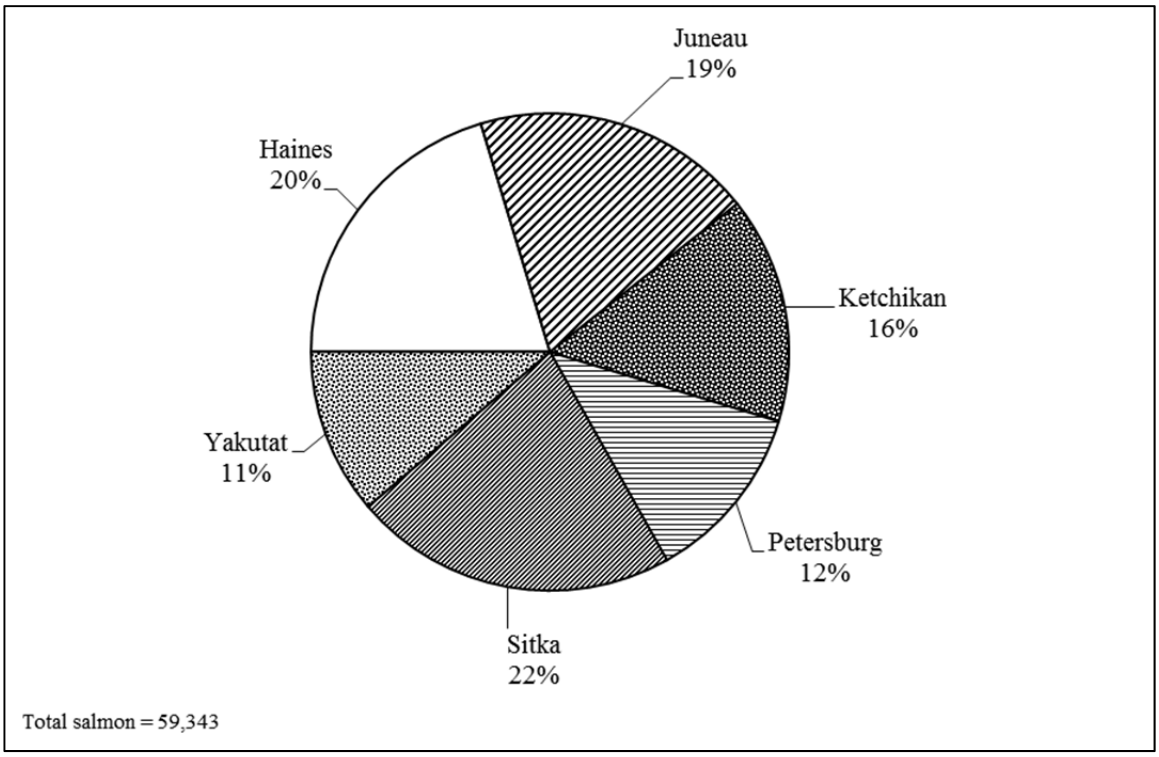

Figure 13-3.–Total salmon harvested in subsistence and personal use fisheries by management area, Southeast region, 2013.

ACKNOWLEDGEMENTS

Each year, thousands of Alaska residents who participate in subsistence and personal use fisheries take the time to provide harvest information to ADF&G. We acknowledge their support with profound gratitude, for without it, a report like this would be impossible to produce.

We also offer thanks to the numerous ADF&G staff in the divisions of Commercial Fisheries, Sport Fish, and Subsistence who conduct the programs that collect, analyze, and report the subsistence and personal use fisheries harvest data every year. They, too, made this report possible.

Many ADF&G personnel generously made time to allow Division of Subsistence staff to interview them about subsistence databases and harvest assessment programs. We have relied upon their numerous insights about these programs to develop the Alaska Subsistence Fisheries Database, as well as to evaluate the data that appear in this report. We sincerely appreciate their help.

This annual report for 2013 is the result of the work of a number of Division of Subsistence staff. Former division employees Dave Caylor, Jeannie Heltzel, and Brian Davis helped design and update the Alaska Subsistence Fisheries Database. Data for 2013 were compiled by Terri Lemons, with assistance from Dave Koster. Division personnel who authored report chapters were James A. Fall, Caroline L. Brown, Sarah S. Evans, Rosalie A. Grant, Hiroko Ikuta, Lisa Hutchinson-Scarbrough, Bronwyn Jones, Meredith Ann Marchioni, Elizabeth Mikow, Joshua T. Ream, and Lauren A. Sill. We also acknowledge the contributions of Eunice Dyasuk, who administers the division's subsistence salmon permit program for Bristol Bay in Dillingham, as well as Lisa Olson, Garrett Zimpelman, and Adam Knight, who reviewed and edited the report.

As noted in the report itself, this is the 15th in a series of statewide summaries of subsistence and personal use fisheries harvest data. We encourage those who use this report to offer ideas and suggestions to improve future volumes in this series.

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