Technical Paper No. 427

Alaska Subsistence and Personal Use Salmon Fisheries 2014 Annual Report

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Alaska Department of Fish and Game **Division of Subsistence**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the reports by the Division of Subsistence. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Errata

Table 5-7 In the original version of this document tables 3-4, 5-7, and 11-6 displayed incorrect calculations for the Kotzebue District salmon harvest, Kuskokwim River subtotal, and Tyonek Subdistrict historical harvests, respectively. These have been corrected on pages 47, 114, and 195 of the online document to reflect the correct data.

TECHNICAL PAPER NO. 427

ALASKA SUBSISTENCE AND PERSONAL USE SALMON FISHERIES 2014 ANNUAL REPORT

by

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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.

Technical Paper series reports are available through the Alaska Resources Library and Information Services (ARLIS), the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/. This publication has undergone editorial and professional review.

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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 2014 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 sixteenth 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 2014 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 2017, 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 (2014). Both date and numeric ranges are inclusive. The following list illustrates named-ranges used in this report and their meanings.

- 5-year average: 2009–2013
- 10-year average: 2004–2013
- 15-year average: 1999–2013
- Historical average: yyyy–2013, beginning of range varies depending on available data

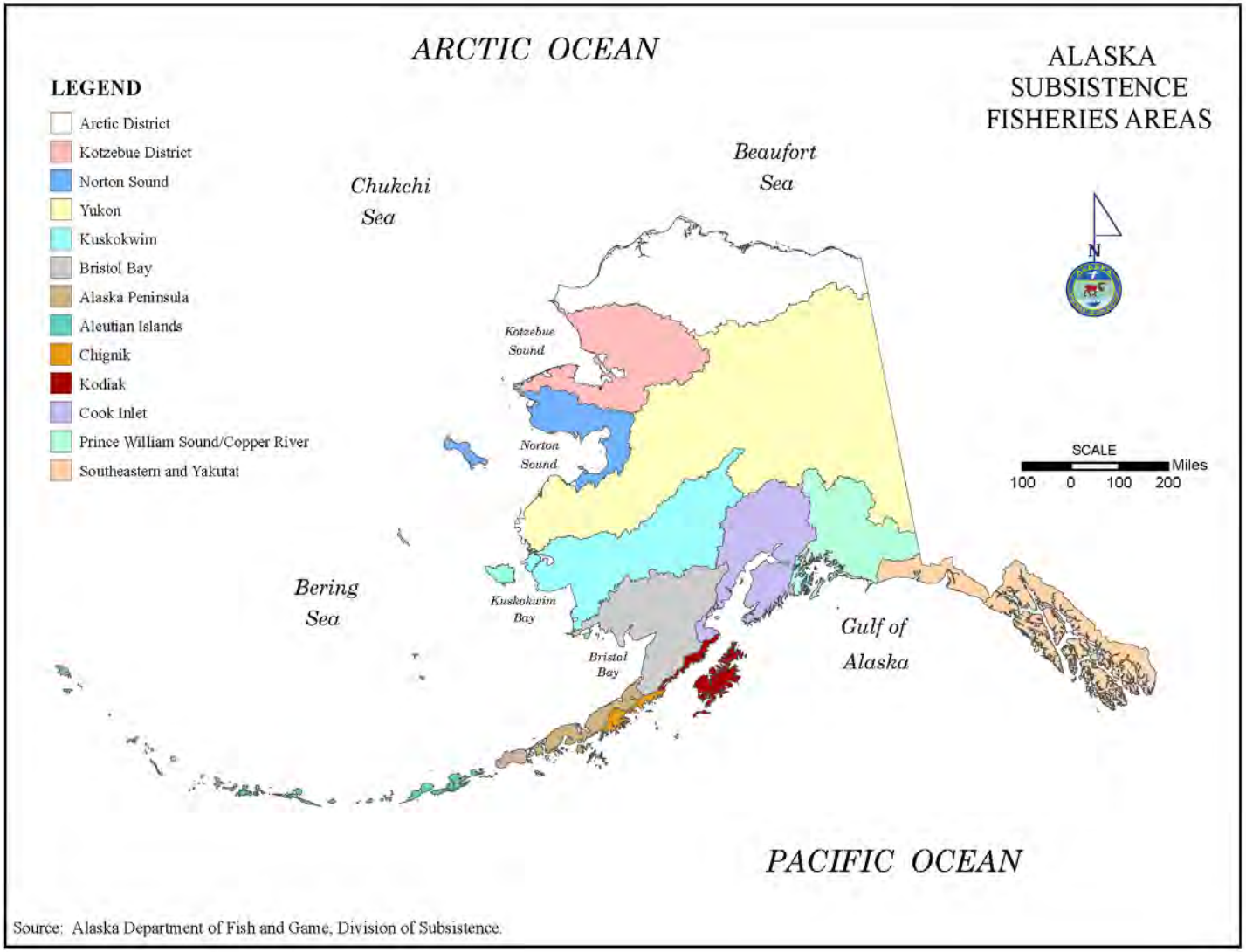

Figure 1-1.–Alaska subsistence fisheries areas.

CHAPTER 2: OVERVIEW OF SUBSISTENCE FISHERIES IN ALASKA

SUBSISTENCE HARVESTS IN RURAL ALASKA

Of the estimated 34.3 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 2016:2, 3) (Figure 2-1). On average, the subsistence fisheries harvest provides about 155 lb of food per person annually in rural Alaska (Fall 2016:2). 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 0.9% (fish, game, and other resources combined), as measured in usable (edible) pounds. Commercial fisheries take 98.5% of the wild resource harvest, personal use fishing and general hunting by Alaskans take 0.2%, and sport fisheries and hunts take about 0.4% of the fish and game harvest.

SUBSISTENCE SALMON HARVESTS IN 2014

The estimated total subsistence harvest of salmon in Alaska in 2014, based on annual harvest assessment programs, was 932,596 fish (Table 2-1).[1] The estimated statewide harvest by species was as follows: 357,579 chum salmon *O. keta* (38%), 348,651 sockeye salmon *O. nerka* (38%), 115,085 coho salmon *O. kisutch* (12%), 68,621 pink salmon *O. gorbuscha* (7%), and 42,661 Chinook salmon *O. tshawytscha* (5%) (Figure 2-2).

In 2014, fisheries in 8 management areas accounted for 95% of the total estimated statewide subsistence salmon harvest (Table 2-1; Figure 2-3). These were the Yukon Management Area (206,933 salmon; 22% of the statewide total); the Kuskokwim Management Area (194,358 salmon; 21%); the Bristol Bay Management Area (134,775 salmon; 14%); the Glennallen Subdistrict of the Prince William Sound Management Area (106,024 salmon; 11%); the Norton Sound-Port Clarence Area[2] (98,789 salmon; 11%); the Kotzebue District (72,595; 8%); Southeast Region[3] (including the Stikine River federal fishery) (43,086 salmon; 5%); and the Kodiak Management Area (27,472; 3%).

The largest estimated subsistence harvests of Chinook salmon in 2014 occurred in the Bristol Bay Management Area (17,417 salmon; 41%), followed by the Kuskokwim Management Area (15,434 salmon; 36%), Yukon Management Area (3,287 salmon; 8%), the Glennallen Subdistrict (1,869 salmon; 4%); and the Norton Sound-Port Clarence Area (1,734 salmon; 4%) (Figure 2-4). For sockeye salmon, the largest estimated subsistence harvests in 2014 were in the Glennallen Subdistrict (103,860 salmon; 30%), followed by the Bristol Bay Area (99,008 salmon; 28%), the Kuskokwim Management Area (53,030 salmon; 15%), the Southeast Region (35,157 salmon; 10%), and the Kodiak Management Area (22,617 salmon; 7%) (Figure 2-5).

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.

In 2014, as in past recent years, 4 areas dominated the subsistence chum salmon estimated harvest: the Yukon Management Area (179,642 salmon; 50% of the statewide harvest), Kuskokwim Management Area (70,687 salmon; 20%), Kotzebue District (63,699 salmon; 18%), and the Norton Sound-Port Clarence Area (28,887 salmon; 8%) (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 (52,587 salmon; 46%), followed by the Norton Sound-Port Clarence Area (18,821 salmon; 16%), Yukon Area (17,072 salmon; 15%), Bristol Bay Management Area (8,984 salmon; 8%), the Kotzebue District (4,432 salmon; 4%), the Kodiak Management Area (3,915 salmon; 3%), and the Southeast Region (2,727 salmon; 2%) (Figure 2-7). Finally, the largest portion by far of the statewide estimated pink salmon subsistence harvest in 2014 occurred in the Norton Sound-Port Clarence Area (44,613 salmon; 65%), followed by the Yukon Management Area (6,932 salmon; 10%), the Kotzebue District (2,931 salmon; 4%), the Bristol Bay Management Area (2,689 salmon; 4%), and the Kuskokwim Area (2,620 salmon; 4%) (Figure 2-8).

Table 2-2 reports historical estimated subsistence salmon harvests for 1994 through 2014 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 21-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 21-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 2014 estimate of 932,596, was up from 2013, was higher than the recent 5-year average (857,877 salmon) and the recent 10-year average (886,794 salmon), but slightly lower than the historical average since 1994 (940,444 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, 2013, and 2014 compared to recent years. It should also be noted that the estimate of 42,661 Chinook salmon harvested in subsistence fisheries in 2014 is by far the lowest estimate on record, and is just 29% of the annual average since 1994 and 43% below the next-lowest annual estimate (74,381 Chinook salmon in 2012).

PERSONAL USE SALMON HARVESTS IN 2014

In 2014, personal use fisheries produced an estimated harvest of 728,225 salmon (Table 2-1). The Kenai River dip net fishery accounted for 56% of the statewide personal use salmon harvest (404,867 fish), followed by the Chitina Subdistrict dip net fishery (24%; 171,842 salmon), the Kasilof River dip net fishery (13%; 94,230 salmon), the Kasilof River setnet fishery (3%; 22,770 salmon), the Fish Creek (upper Cook Inlet) dip net fishery (2%; 12,169 salmon), the Southeast Region (Juneau and Ketchikan non-subsistence areas only) (1%; 9,422 salmon), and the Kachemak Bay setnet fishery (<1%; 2,794 salmon). Sockeye salmon composed 94% of the Alaska personal use salmon harvest in 2014 (Figure 2-9).

The personal use harvest of 728,225 salmon in 2014 was the third-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 1996 of 477,598 salmon is 66% of the 2014 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, 1994–2014

Table 2-4 reports historical estimated subsistence and personal use salmon harvests for 1994 through 2014 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 21-year period reflected in Table 2-4 shows generally stable to slightly increasing statewide harvest totals: the recent (2009–2013) 5-year average harvest was 1,560,006 salmon compared to a 20-year annual average of 1,387,148 salmon. The total harvest estimate for 2014 of 1,660,821 salmon is the second-highest within the 21-year period. As noted above, however, harvests in subsistence fisheries have generally declined since 1994 while personal use harvests have increased. In 2014, sockeye salmon made up 62% of the combined subsistence and personal use salmon harvests, followed by chum (22%), coho (8%), pink (6%), and Chinook salmon (3%) (Figure 2-10).

Table 2-5 reports subsistence and personal use harvests in 2014 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, 2014.

Fishery	Households or permits: Total[a]	Households or permits: Surveyed or returned	Estimated salmon harvest: Chinook	Sockeye	Coho	Chum	Pink	Total
Subsistence								
Adak District	0	0	0	0	0	0	0	0
Alaska Peninsula Management Area	177	156	53	8,910	1,523	737	1,704	12,927
Arctic District[b]	2,175	590	268	532	1,969	5,970	3,764	12,504
Batzulnetas Fishery	2	2	0	116	0	0	0	116
Bristol Bay Management Area	1,158	1,031	17,417	99,008	8,984	6,677	2,689	134,775
Chignik Management Area	113	101	148	7,855	1,401	207	339	9,950
Chitina Subdistrict: Federal	113	102	15	1,709	74	0	0	1,797
Copper River Flats	288	269	161	1,771	0	5	2	1,939
Glennallen Subdistrict	1,972	1,660	1,869	103,860	295	0	0	106,024
Kenai and Kasilof Rivers: Federal	153	145	0	1,941	2	0	0	1,943
Kodiak Management Area[a]	1,666	1,666	183	22,617	3,915	184	573	27,472
Kotzebue District[b]	1,623	866	397	1,136	4,432	63,699	2,931	72,595
Kuskokwim Management Area	4,229	1,862	15,434	53,030	52,587	70,687	2,620	194,358
Norton Sound - Port Clarence Area[b]	1,339	1,234	1,734	4,735	18,821	28,887	44,613	98,789
Port Graham & Koyuktolik Subdistricts[a]	7	7	19	347	10	44	164	584
Prince William Sound (General)	23	21	0	6	0	0	0	6
PWS Eastern District (Tatitlek)	18	5	0	46	103	0	0	149
PWS Southwestern District (Chenega Bay)	10	5	0	0	0	0	10	10
Seldovia Fishery	21	15	7	162	0	91	7	267
Southeast Region	2,809	2,406	866	35,157	2,727	630	1,808	41,188
Stikine River Federal Fishery	125	125	86	1,527	143	60	82	1,898
Tyonek Fishery	92	73	714	385	457	12	4	1,572
Unalaska District	249	173	3	3,473	486	14	363	4,339
Upper Yentna Fishery	20	18	0	328	84	32	17	460
Yukon Management Area[c]	3,195	1,704	3,287	0	17,072	179,642	6,932	206,933
Subtotal, Subsistence	**21,577**	**14,236**	**42,661**	**348,651**	**115,085**	**357,579**	**68,621**	**932,596**

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Table 2-1.–Page 2 of 2.

Personal use								
Chitina Subdistrict: State[d]	11,618	9,332	812	169,971	1,059	0	0	171,842
Kachemak Bay setnet[e]	160	154	13	310	2,273	178	20	2,794
Kasilof River setnet[e]	NA	NA	50	22,567	30	18	105	22,770
Kasilof River dip net[e]	NA	NA	0	88,513	2,606	342	2,769	94,230
Kenai River dip net[e]	NA	NA	0	379,823	4,710	1,194	19,140	404,867
Fish Creek dip net[e]	NA	NA	0	5,829	1,895	227	4,218	12,169
Unknown Upper Cook Inlet[e]	NA	NA	0	9,315	129	78	563	10,085
Beluga River dip net	10	10	0	32	12	1	1	46
Southeast Region	504	504	61	8,102	483	296	478	9,422
Subtotal, Personal use[e]	**48,281**	**37,866**	**936**	**684,462**	**13,197**	**2,334**	**27,294**	**728,225**
Total	**69,858**	**52,102**	**43,598**	**1,033,113**	**128,282**	**359,914**	**95,915**	**1,660,821**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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 setnet, 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 35,989 permits issued and 27,866 permits returned for these fisheries.

NA = Data not available.

Table 2-2.–Historical Alaska subsistence salmon harvests, 1994–2014.

	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
2014	21,577	14,236	42,661	348,651	115,085	357,579	68,621	932,596
5-year average (2009–2013)	17,493	12,061	112,264	331,152	81,066	287,048	46,346	857,877
10-year average (2004–2013)	17,338	11,789	135,740	326,088	88,961	276,807	59,198	886,794
Historical average (1994–2013)	17,224	12,038	149,102	326,866	97,252	306,383	60,841	940,444

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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

Table 2-3.–Historical Alaska personal use salmon harvests, 1994–2014.

Year	Households or permits		Estimated salmon harvest					
	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
2014	48,280	37,866	936	684,462	13,197	2,334	27,294	728,225
5-year average (2009–2013)	43,040	34,616	1,572	683,797	9,104	1,147	6,510	702,130
10-year average (2004–2013)	36,867	30,459	2,768	565,895	8,182	1,162	7,096	585,103
Historical average (1996–2013)	31,764	26,869	3,885	459,291	7,637	1,091	5,694	477,598

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 1994–2014.

Year	Households or permits		Estimated salmon harvest					
	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
2014	69,858	52,102	43,598	1,033,113	128,282	359,914	95,915	1,660,821
5-year average (2009–2013)	60,533	46,677	113,836	1,014,949	90,170	288,195	52,856	1,560,006
10-year average (2004–2013)	54,205	42,248	138,509	891,983	97,143	277,968	66,294	1,471,897
Historical average (1994–2013)	46,528	36,815	153,226	754,368	105,838	307,529	66,187	1,387,148

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

Community	Households or permits		Estimated salmon harvest					
	Total	Included[a]	Chinook	Sockeye	Coho	Chum	Pink	Total
Akhiok	4	4	0	196	23	0	13	232
Akiachak	153	97	1,033	3,047	1,845	4,744	123	10,792
Akiak	85	60	530	2,428	1,501	2,982	283	7,724
Akutan	1	1	0	6	0	0	0	6
Alakanuk	149	67	214	0	443	9,713	970	11,340
Alatna	8	6	0	0	0	15	0	15
Aleknagik	26	23	919	2,166	365	90	19	3,560
Alexander Creek	1	1	0	0	0	0	0	0
Allakaket	65	26	8	45	109	1,786	1	1,949
Ambler	78	58	5	134	369	4,182	337	5,027
Anaktuvuk Pass	102	56	0	59	0	0	0	59
Anchor Point	294	243	2	4,458	57	43	167	4,728
Anchorage	21,104	16,189	1,012	303,516	4,988	1,154	12,110	322,781
Anderson	10	8	4	273	0	0	2	279
Angoon	97	83	0	1,587	6	1	8	1,602
Aniak	184	163	344	1,578	9,566	4,695	636	16,819
Anvik	34	23	0	0	197	3,080	0	3,277
Arctic Village	5	1	0	54	1	0	3	58
Atmautluak	66	45	108	1,531	176	3,327	62	5,204
Atqasuk	1	1	0	13	0	0	4	17
Auke Bay	5	5	0	38	10	10	3	61
Barrow	1,675	316	77	2,162	505	3,640	1,331	7,715
Beaver	30	26	0	0	2	323	0	325
Bethel	2,070	584	3,089	14,938	19,366	18,017	1,052	56,463
Bettles	33	23	1	45	0	4	0	50
Big Lake	294	224	41	4,731	136	47	202	5,157
Birch Creek	12	6	0	0	0	0	0	0
Bird Creek	2	2	0	80	0	0	0	80
Brevig Mission	47	47	14	1,140	423	2,573	3,033	7,183
Buckland	100	91	250	332	1,144	4,188	958	6,872
Cantwell	13	13	2	198	0	0	0	200
Central	15	12	0	88	0	0	0	88
Chalkyitsik	31	22	5	0	38	141	0	184
Chenega Bay	6	1	0	10	0	0	1	11
Chevak	1	0	0	10	0	0	1	11
Chickaloon	24	20	0	450	1	0	1	452
Chignik Bay	18	14	17	1,413	62	46	99	1,637
Chignik Lagoon	20	18	27	1,642	110	5	13	1,798
Chignik Lake	13	13	5	2,770	80	1	13	2,869
Chiniak	25	25	18	309	75	10	4	416
Chistochina	7	6	4	825	0	0	0	828
Chitina	42	36	73	1,884	16	0	0	1,973
Chuathbaluk	33	27	90	481	291	805	0	1,667
Chugiak	906	760	23	13,850	152	26	439	14,490
Circle	14	11	0	32	0	1,277	1	1,310
Clam Gulch	49	41	2	863	2	1	22	891
Clark's Point	11	10	77	2,530	1,660	72	36	4,375

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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
Clear	10	9	0	314	0	0	0	314
Coffman Cove	8	6	0	9	15	0	1	25
Cold Bay	29	27	1	1,052	11	16	0	1,080
Cooper Landing	108	102	1	1,526	3	0	2	1,532
Copper Center	157	134	139	9,134	18	0	1	9,291
Copperville	4	3	7	783	0	0	0	789
Cordova	254	241	140	1,738	0	5	3	1,886
Craig	114	84	0	558	176	0	15	749
Crooked Creek	34	25	35	401	198	391	2	1,027
Delta Junction	505	458	78	12,101	15	0	37	12,232
Denali National Park	55	49	6	991	2	0	20	1,019
Dillingham	341	302	6,714	13,200	3,487	2,637	1,546	27,584
Dot Lake	1	1	0	19	0	0	0	19
Douglas	57	54	2	338	83	2	24	449
Dutch Harbor	124	86	1	1,407	172	7	62	1,650
Eagle	19	19	76	0	1	17,450	0	17,527
Eagle River	2,600	2,191	110	39,138	502	79	1,512	41,340
Eek	87	48	665	1,450	555	1,182	15	3,867
Egegik	8	6	12	285	85	3	1	387
Eielson AFB	105	83	5	1,392	2	0	8	1,407
Ekwok	18	18	1,356	294	817	302	71	2,840
Elim	63	63	274	38	1,749	2,075	4,365	8,501
Elmendorf AFB	21	15	3	276	0	0	0	279
Emmonak	188	103	463	0	613	9,608	588	11,272
Ester	83	75	12	1,627	24	0	6	1,668
Fairbanks	4,337	3,526	436	73,883	4,180	7,620	319	86,438
False Pass	5	3	0	180	260	0	0	440
Fort Greely	32	29	1	343	0	0	0	344
Fort Richardson	26	19	1	259	21	0	0	281
Fort Wainwright	141	88	3	1,606	23	0	3	1,635
Fort Yukon	233	84	94	54	201	8,044	0	8,393
Fox	1	1	0	0	0	0	0	0
Fritz Creek	64	52	0	918	11	2	34	965
Gakona	27	24	30	2,108	0	0	5	2,143
Galena	160	63	2	109	718	3,745	6	4,580
Gambell	1	1	0	0	0	1	3	4
Girdwood	293	238	13	4,320	21	5	132	4,490
Glennallen	126	119	139	5,810	9	0	1	5,958
Golovin	29	29	26	72	533	656	2,529	3,816
Goodnews Bay	72	38	431	1,370	371	268	0	2,440
Grayling	54	28	3	0	403	3,068	39	3,513
Gulkana	5	2	16	252	0	0	0	268
Gustavus	24	24	0	342	1	3	9	355
Haines	446	441	103	7,898	444	169	565	9,180
Halibut Cove	1	1	0	3	0	0	0	3
Healy	85	74	1	1,290	878	1,735	20	3,924
Hollis	29	24	0	353	58	11	99	521

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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
Holy Cross	66	33	0	25	103	1,937	0	2,065
Homer	966	822	59	13,314	171	54	443	14,040
Hoonah	110	95	0	1,137	47	15	79	1,278
Hooper Bay	233	90	455	0	118	13,373	712	14,658
Hope	55	52	0	642	1	1	11	655
Houston	61	46	0	743	11	15	20	789
Hughes	35	29	13	0	17	1,237	0	1,267
Huslia	92	32	38	82	265	2,904	0	3,289
Hydaburg	49	28	0	718	0	0	14	732
Igiugig	7	5	2	645	0	0	0	647
Iliamna	22	21	0	5,122	0	0	1	5,123
Indian	9	9	3	131	0	0	0	134
Joint Base Elmendorf Richardson	340	223	0	4,098	161	19	288	4,565
Juneau	771	692	57	8,325	257	12	290	8,941
Kake	138	124	38	995	111	101	91	1,337
Kaktovik	3	2	0	10	0	0	1	11
Kaltag	57	19	10	0	514	3,782	0	4,306
Karluk	0	0	0	0	0	0	0	0
Kasaan	12	10	0	110	36	0	0	146
Kasigluk	103	54	205	1,990	851	3,612	12	6,670
Kasilof	502	418	8	7,831	47	17	322	8,226
Kenai	1,785	1,448	38	26,574	278	74	1,461	28,425
Kennicott	3	2	0	0	0	0	0	0
Kenny Lake	53	48	20	1,968	2	0	0	1,990
Ketchikan	290	234	38	3,353	205	239	238	4,073
Kiana	101	75	3	63	75	2,849	32	3,021
King Cove	51	44	5	3,491	758	85	355	4,693
King Salmon	79	77	124	6,068	188	25	51	6,457
Kipnuk	2	1	15	40	0	0	1	56
Klawock	113	86	0	1,106	214	13	127	1,461
Klukwan	10	10	4	364	46	25	4	443
Kobuk	33	28	0	0	4	1,840	0	1,843
Kodiak (city)	1,285	1,272	124	17,865	3,048	128	362	21,526
Kokhanok	14	13	5	6,740	0	3	0	6,749
Koliganek	20	10	1,708	1,054	346	1,326	220	4,654
Kongiganak[b]	90	0	964	1,230	561	1,915	--	4,669
Kotlik	120	59	617	10	573	6,507	1,065	8,772
Kotzebue	855	229	76	1,050	345	21,149	380	23,001
Koyuk	81	77	162	31	1,267	4,568	2,575	8,603
Koyukuk	45	19	52	0	50	1,298	0	1,400
Kwethluk	174	108	959	5,921	4,422	4,318	125	15,745
Kwigillingok	1	0	0	10	0	0	1	11
Lake Louise	1	1	0	33	0	0	0	33
Lake Minchumina	1	1	0	15	0	0	0	15
Larsen Bay	22	22	17	871	15	0	0	903
Levelock	9	8	18	1,170	14	24	18	1,243
Lime Village[b]	14	0	32	888	226	295	--	1,441

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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
Lower Kalskag	75	47	283	1,040	907	1,458	30	3,718
Manley Hot Springs	18	18	92	14	1,177	2,818	0	4,101
Manokotak	16	13	101	1,682	59	0	18	1,861
Marshall	103	71	128	0	468	7,289	1	7,886
McCarthy	38	36	5	506	54	0	0	565
McGrath	123	62	177	565	1,190	659	16	2,607
Meadow Lakes	1	1	0	48	0	0	0	48
Mekoryuk	2	1	0	8	0	0	0	8
Mendeltna	2	2	0	83	0	0	0	83
Mentasta Lake	6	6	2	547	0	0	0	549
Metlakatla	8	7	0	0	0	0	0	0
Minto	40	38	0	42	37	496	1	576
Moose Pass	28	23	0	442	2	0	21	465
Mountain Village	171	78	178	27	202	8,543	233	9,183
Nabesna	4	4	0	303	0	0	0	303
Naknek	100	91	243	11,816	190	199	273	12,720
Nanwalek	3	3	3	228	0	4	3	238
Napakiak	96	57	311	1,590	740	2,392	52	5,085
Napaskiak	99	60	422	2,514	1,153	3,171	20	7,280
Naukati Bay	8	4	0	0	0	0	0	0
Neets Bay	1	1	0	0	0	20	20	40
Nelchina	3	3	0	160	0	0	0	160
Nelson Lagoon	4	4	0	95	0	15	1	111
Nenana	77	69	141	898	1,943	2,785	23	5,790
New Stuyahok	47	40	4,733	1,162	597	1,012	109	7,613
Newhalen	21	19	0	6,574	0	0	0	6,574
Newtok	1	0	0	0	0	0	0	0
Nikiski	246	180	5	3,360	60	19	241	3,685
Nikolaevsk	14	12	0	237	1	0	19	257
Nikolai	36	31	235	236	256	1,356	2	2,085
Nikolski	1	1	0	22	0	0	0	22
Ninilchik	225	201	0	2,810	8	3	138	2,959
Noatak	127	106	38	27	1,859	6,577	127	8,628
Nome	498	496	32	2,977	3,564	4,469	7,606	18,649
Nondalton	29	21	0	9,004	0	0	0	9,004
Noorvik	131	98	32	212	620	16,668	921	18,453
North Pole	1,205	985	132	22,128	160	5	73	22,498
Northway	9	8	1	508	0	0	0	509
Nuiqsut	111	59	0	23	1	261	100	384
Nulato	90	36	0	10	454	3,997	8	4,469
Nunam Iqua (Sheldon Point)	36	32	62	0	153	2,138	670	3,023
Nunapitchuk	121	78	287	2,059	1,305	5,213	42	8,906
Old Harbor	20	19	0	514	246	45	25	830
Oscarville	15	13	68	679	128	599	24	1,498
Other communities[d]	32	32	12	0	6	338	0	356
Ouzinkie	26	26	22	709	432	30	62	1,255
Palmer	2,615	2,132	187	40,988	789	94	1,490	43,548

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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
Pedro Bay	17	17	0	3,999	0	0	0	3,999
Pelican	2	1	0	0	0	0	0	0
Perryville	39	36	96	1,552	1,135	152	215	3,150
Petersburg	177	172	60	1,759	339	65	134	2,356
Pilot Point	6	3	0	64	34	0	1	98
Pilot Station	127	65	163	21	569	6,524	28	7,305
Pitka's Point	33	19	79	0	123	1,988	45	2,235
Platinum	21	16	46	349	240	62	29	726
Point Baker	2	2	0	21	7	0	3	31
Point Hope	181	107	142	33	1,125	1,723	1,173	4,196
Point Lay	63	40	32	358	142	258	1,151	1,940
Port Alexander	5	5	0	0	0	0	0	0
Port Alsworth	51	47	0	4,457	0	0	0	4,457
Port Graham	5	5	16	136	10	40	164	366
Port Heiden	3	2	4	51	0	35	0	90
Port Lions	36	36	15	1,388	14	0	99	1,516
Port Moller	1	1	0	60	0	0	0	60
Port Protection	1	0	0	0	0	0	0	0
Quinhagak	177	112	3,723	2,939	2,240	1,959	40	10,901
Rampart	6	4	0	0	0	70	0	70
Red Devil	9	5	83	151	792	284	5	1,315
Ruby	68	24	6	0	335	1,001	13	1,355
Russian Mission	80	30	16	0	124	3,546	8	3,694
Saint George Island	1	1	0	30	0	0	0	30
Saint Marys	138	66	68	0	408	7,607	614	8,697
Saint Michaels	88	84	344	0	469	2,279	733	3,825
Saint Paul Island	6	5	0	78	0	0	0	78
Salcha	81	67	30	1,875	1	0	6	1,911
Sand Point	53	46	28	3,090	470	520	1,195	5,302
Saxman	26	18	0	328	55	22	0	404
Scammon Bay	122	60	108	15	86	6,183	1,925	8,317
Selawik	184	162	23	14	11	1,151	122	1,321
Seldovia	36	25	7	429	1	91	12	540
Seward	252	212	22	3,220	21	10	114	3,387
Shageluk	29	19	32	0	113	722	3	870
Shaktoolik	67	59	215	82	1,164	710	4,080	6,250
Shishmaref	4	3	0	25	0	0	1	26
Shungnak	63	44	0	3	29	5,101	72	5,205
Sitka	620	541	3	9,094	186	160	362	9,806
Skagway	35	34	19	454	0	6	68	547
Skwentna	10	8	0	127	50	16	16	209
Slana	30	28	12	1,968	0	0	0	1,980
Sleetmute	38	30	58	541	993	633	0	2,225
Soldotna	2,171	1,826	18	31,596	302	82	1,630	33,628
South Naknek	22	18	68	1,365	242	4	16	1,695
Stebbins	138	99	207	20	1,549	5,129	1,184	8,088
Sterling	488	417	2	7,022	33	4	417	7,479
Stevens Village	10	8	0	0	0	6,700	0	6,700

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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	13	24	137	177	89	4	431
Sutton	139	110	4	1,783	85	3	48	1,923
Takotna[b]	23	0	0	3	0	0	--	3
Talkeetna	127	100	48	2,181	30	51	98	2,409
Tanacross	3	1	0	320	0	0	0	320
Tanana	97	46	88	30	1,788	16,743	9	18,658
Tatitlek	16	7	7	100	103	0	0	210
Tazlina	36	30	169	3,538	0	0	0	3,707
Telida[c]	2	0	--	--	--	--	--	--
Teller	56	56	7	550	88	2,073	1,634	4,352
Thorne Bay	17	14	0	51	0	0	24	75
Togiak	58	51	602	4,542	486	646	190	6,467
Tok	94	86	23	5,774	16	0	3	5,816
Toksook Bay	1	1	2	23	0	0	0	25
Tolsona	9	7	3	399	0	0	0	402
Tonsina	9	8	2	218	0	0	0	220
Trapper Creek	33	25	1	584	2	0	4	592
Tuluksak	95	63	404	622	808	2,274	30	4,138
Tuntutuliak	90	1	574	1,774	794	2,967	--	6,109
Tununak	1	1	0	15	0	4	0	19
Twin Hills	2	2	9	57	0	23	1	90
Two Rivers	32	30	3	420	0	0	0	423
Tyonek	61	48	585	262	309	9	4	1,169
Ugashik	7	7	48	401	191	1	0	641
Unalakleet	239	186	444	280	7,232	3,477	12,715	24,149
Unalaska	119	82	2	2,135	315	7	300	2,760
Upper Kalskag	63	44	258	839	938	1,038	24	3,097
Valdez	340	268	58	6,435	12	0	3	6,508
Venetie	79	28	12	0	0	1,538	0	1,550
Wainwright	146	75	27	96	209	89	97	519
Wasilla	5,649	4,399	500	95,936	2,314	325	4,485	103,560
Whale Pass	2	2	0	0	0	0	0	0
White Mountain	47	47	10	23	732	864	4,071	5,700
Whittier	5	4	0	68	0	0	7	75
Willow	242	188	8	3,929	113	21	97	4,168
Wiseman	4	2	0	60	0	0	0	60
Wrangell	196	186	52	1,778	125	63	71	2,088
Yakutat	139	109	636	4,993	944	46	129	6,749
Other USA	8	7	0	65	0	0	0	65
Unknown community	1,023	521	48	10,138	2,570	207	536	13,499
Total	**69,858**	**52,102**	**43,597**	**1,033,113**	**128,282**	**359,914**	**95,915**	**1,660,821**

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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 2014 study period. Harvests were estimated using historical average household harvest expanded by the number of households.
c. These communities were not contacted during the 2014 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. Also includes residents from Chugiak, Lake Minchumina, Nenana, Palmer, Wasilla, and Wiseman who were issued a subsistence and/or personal use permit for the Yukon Area.

-- Data not available.

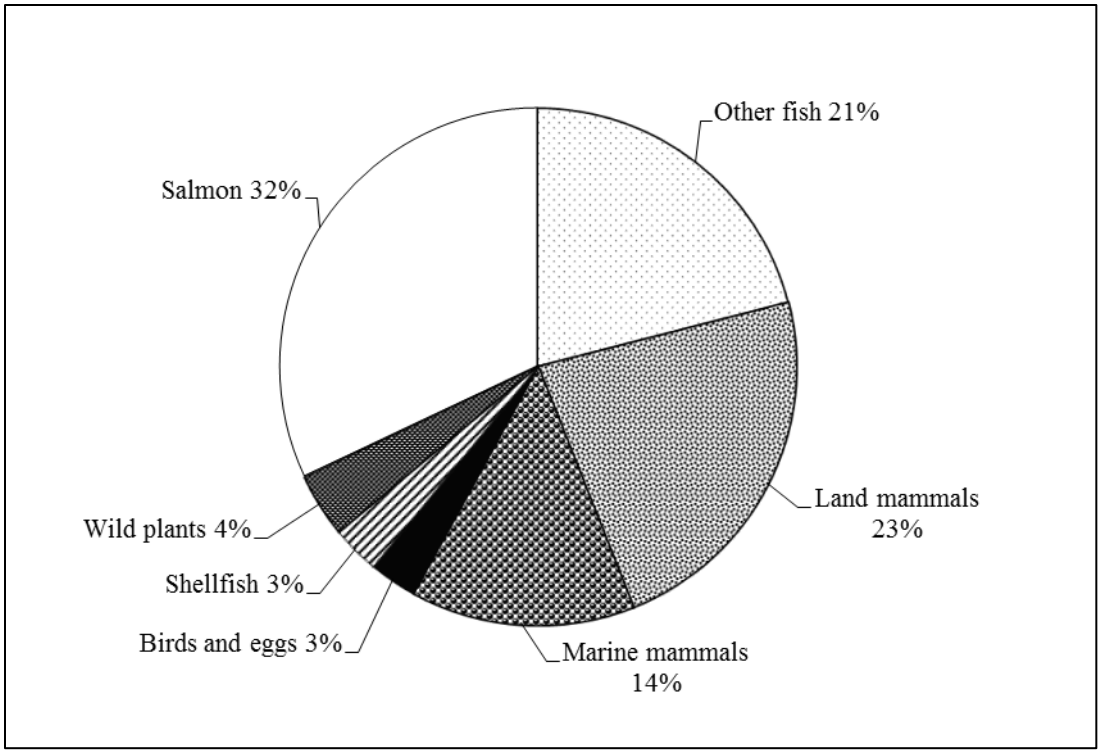

Figure 2-1.–Composition of subsistence harvest by rural Alaska residents, 2012.

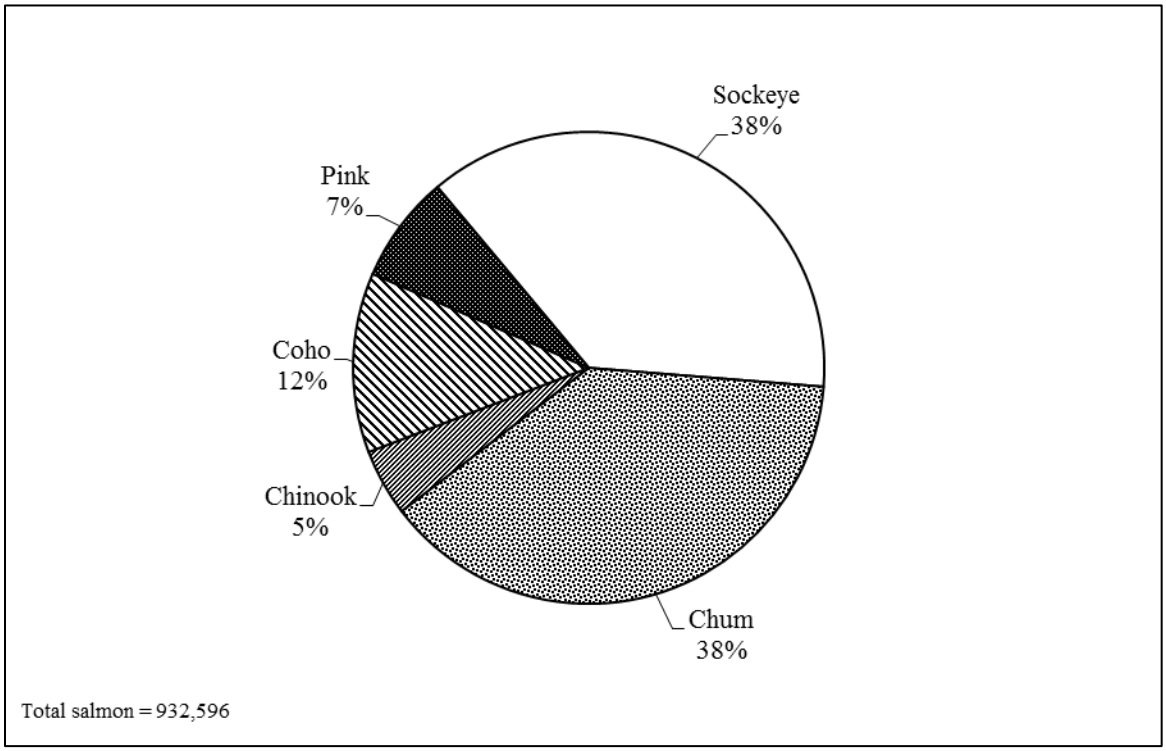

Figure 2-2.–Alaska subsistence salmon harvest by species, 2014.

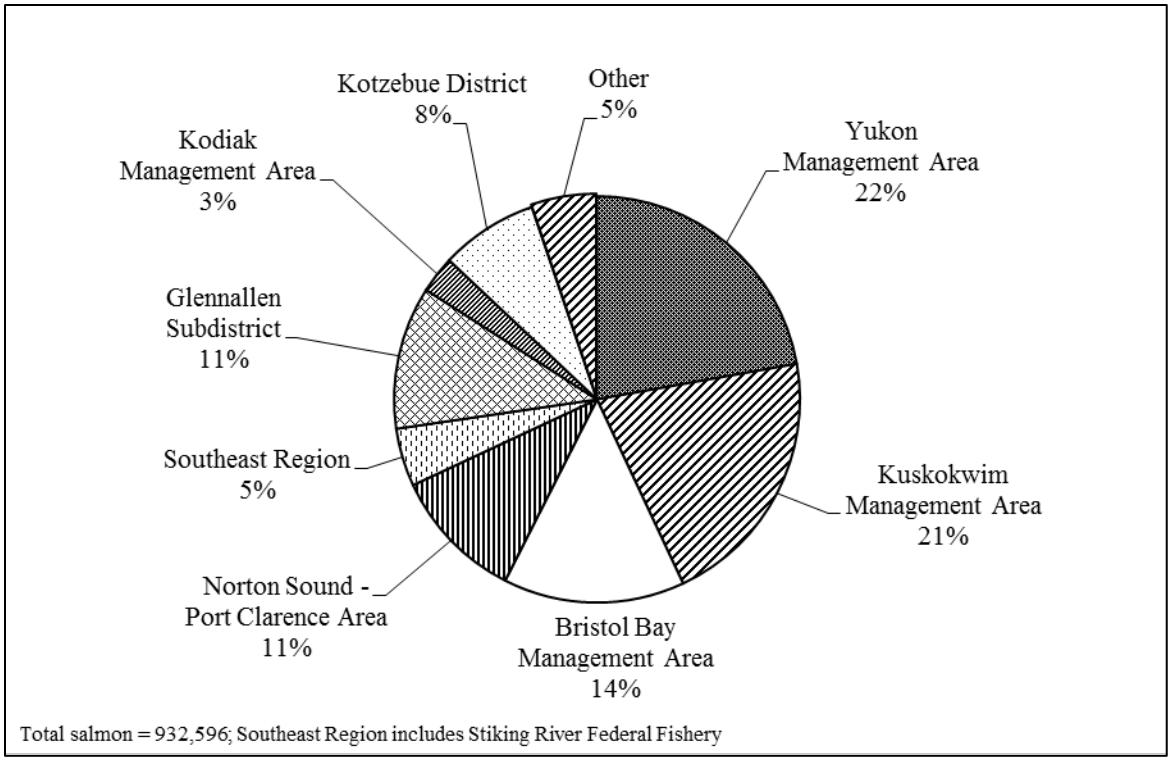

Figure 2-3.–Alaska subsistence salmon harvest by area, 2014.

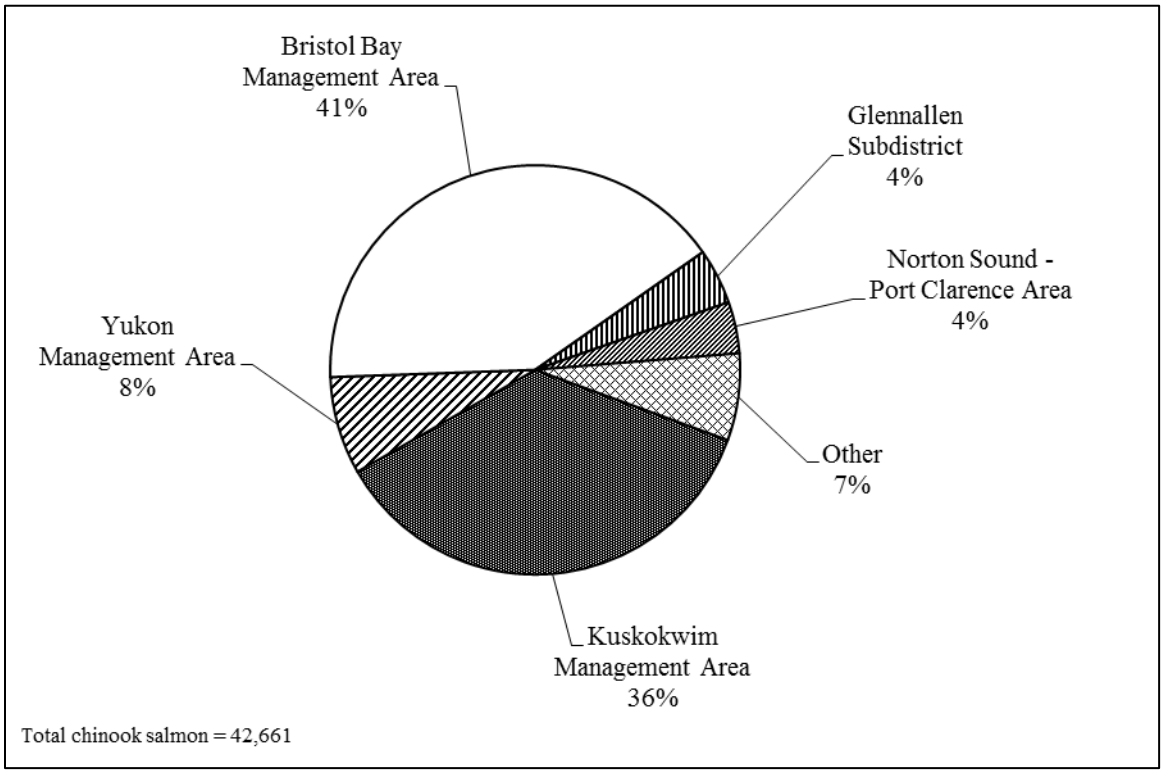

Figure 2-4.–Subsistence Chinook salmon harvest by area, 2014.

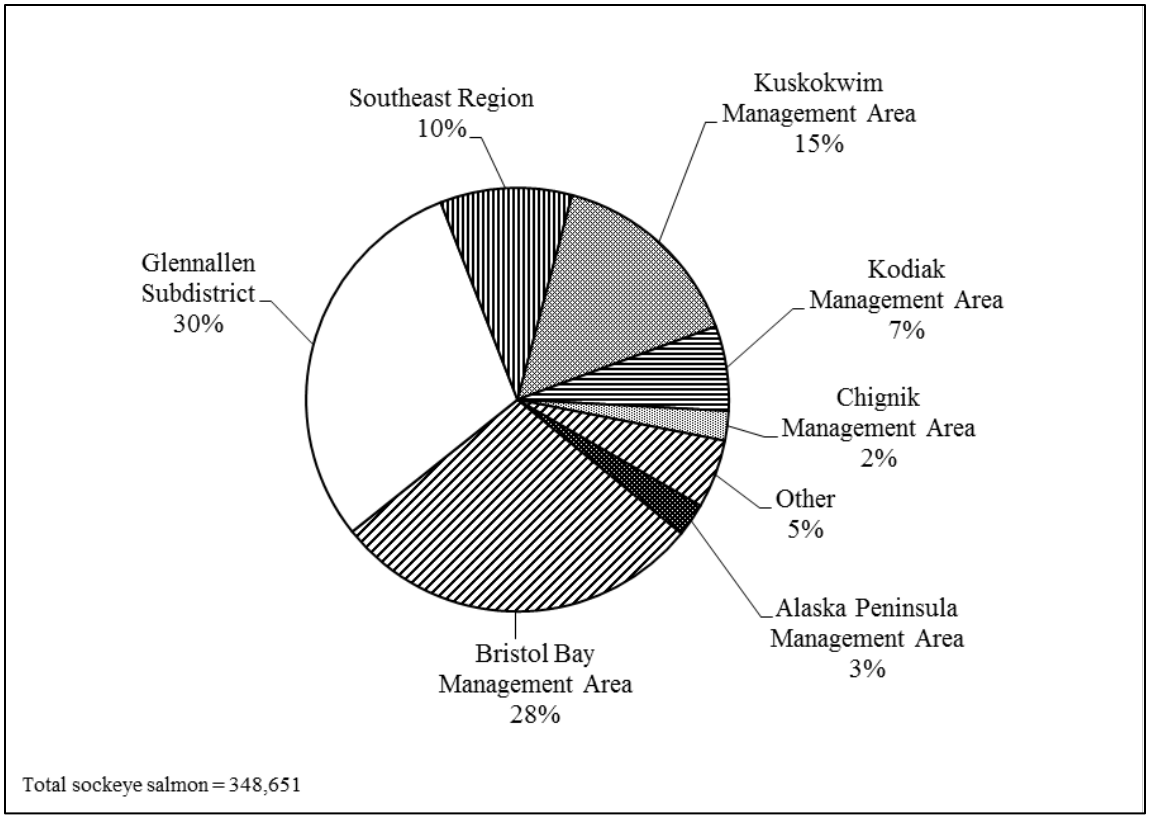

Figure 2-5.–Subsistence sockeye salmon harvest by area, 2014.

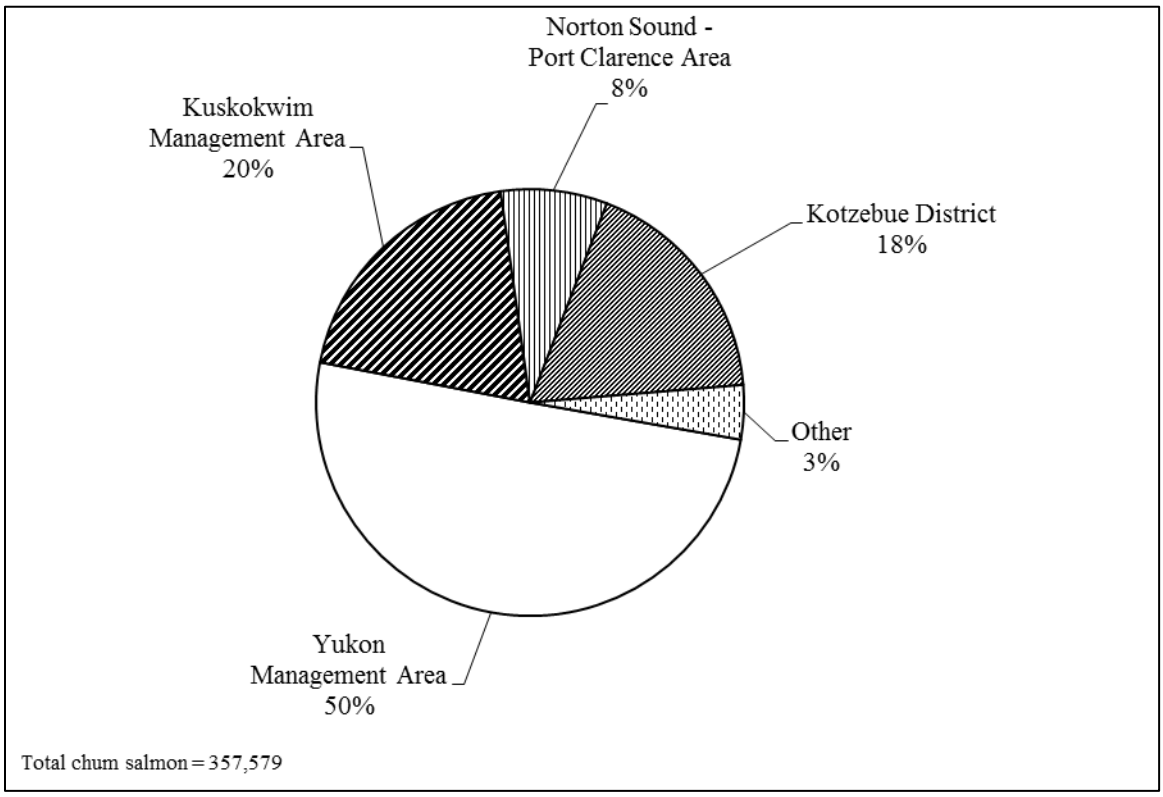

Figure 2-6.–Subsistence chum salmon harvest by area, 2014.

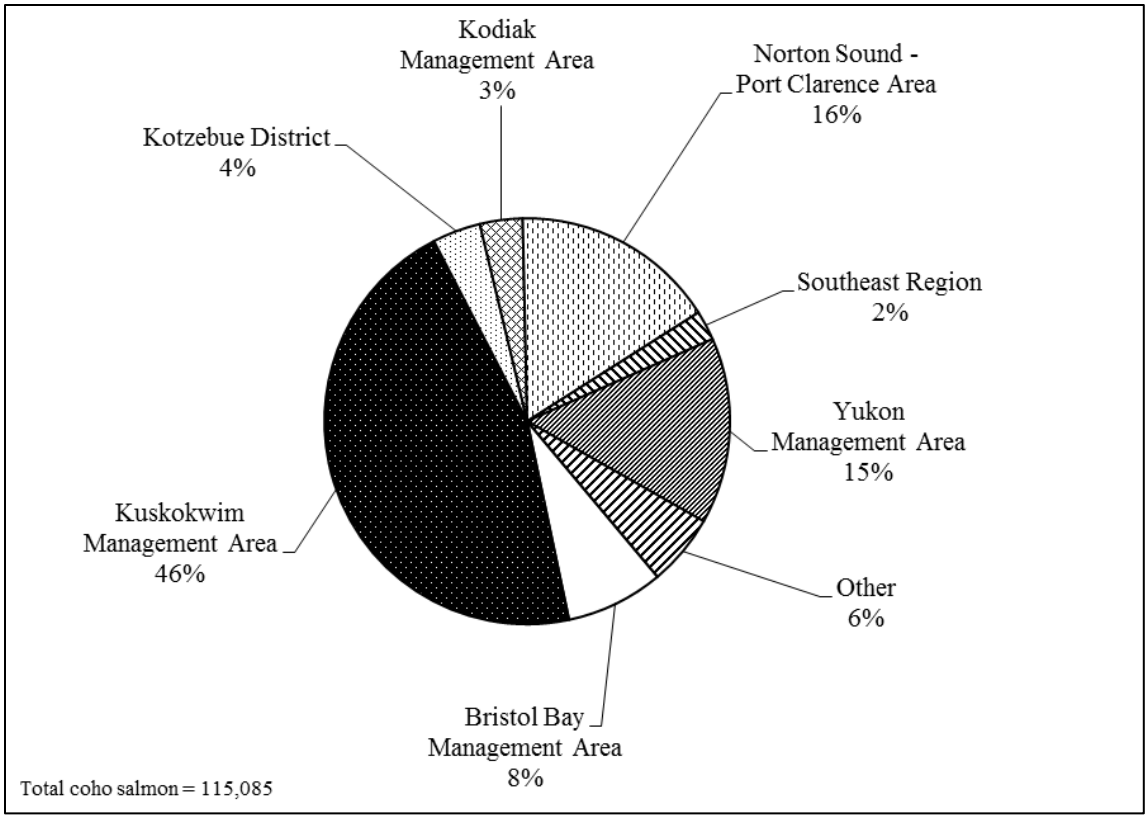

Figure 2-7.–Subsistence coho salmon harvest by area, 2014.

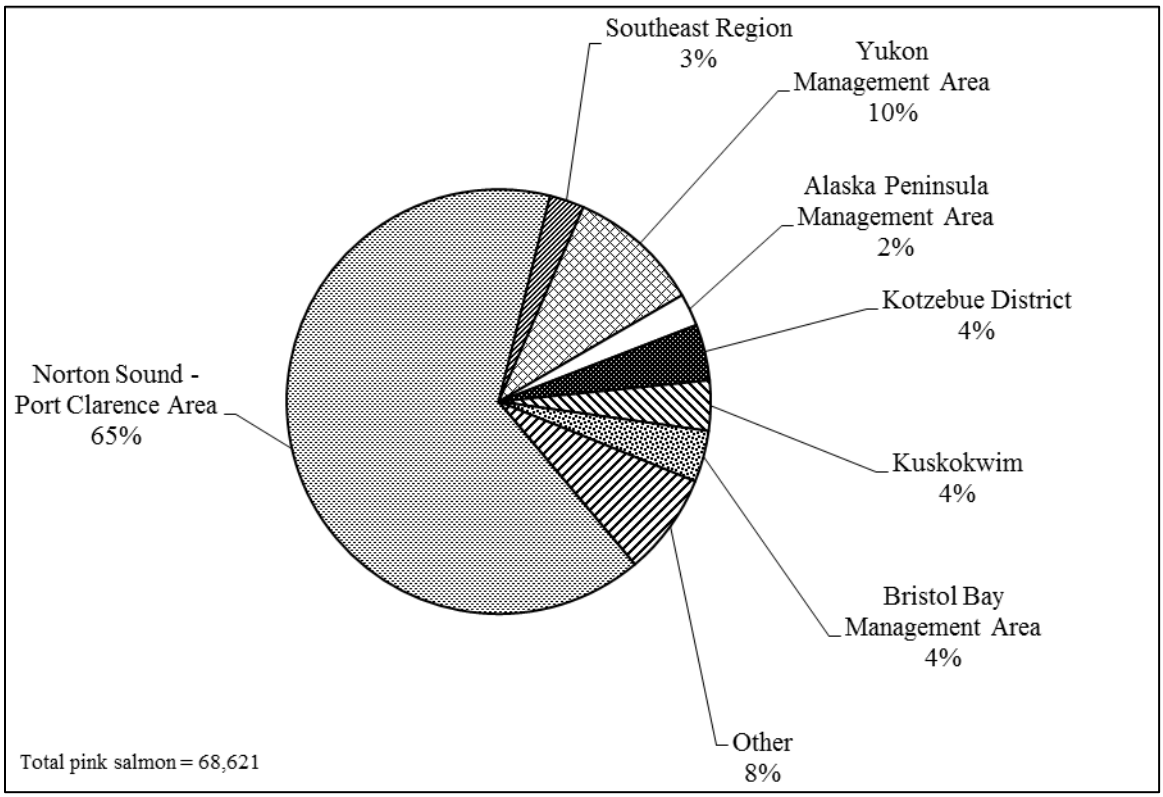

Figure 2-8.–Subsistence pink salmon harvest by area, 2014.

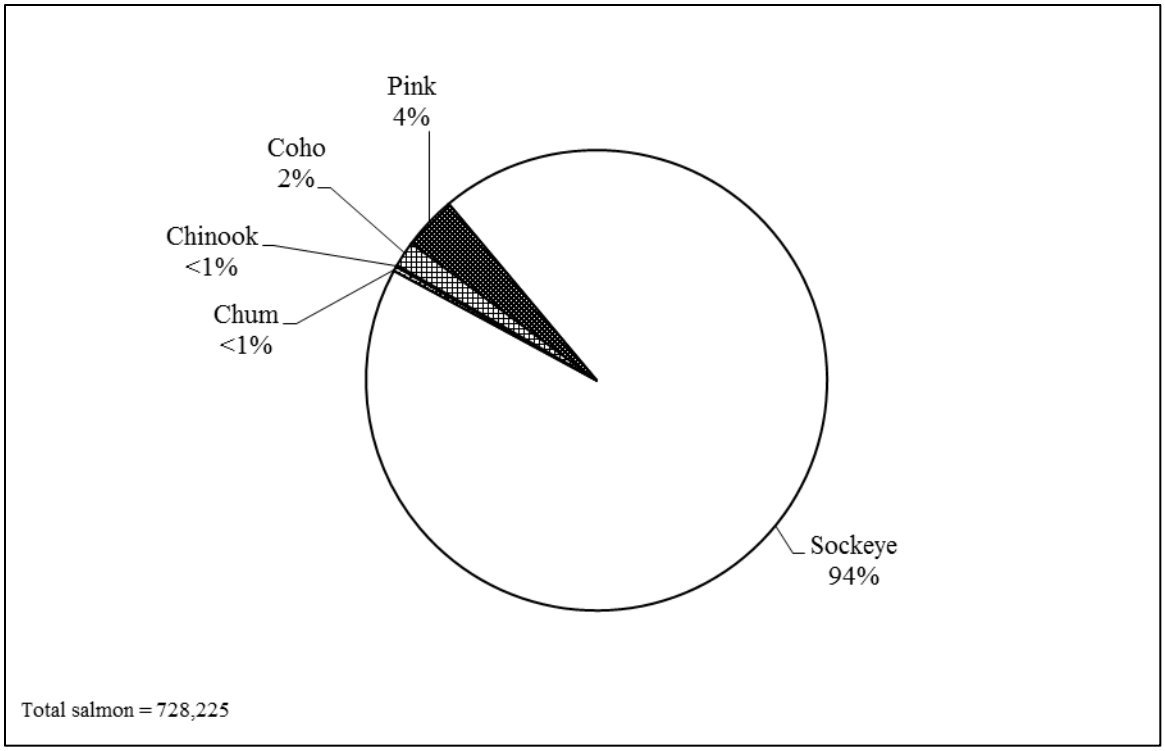

Figure 2-9.–Alaska personal use salmon harvest by species, 2014.

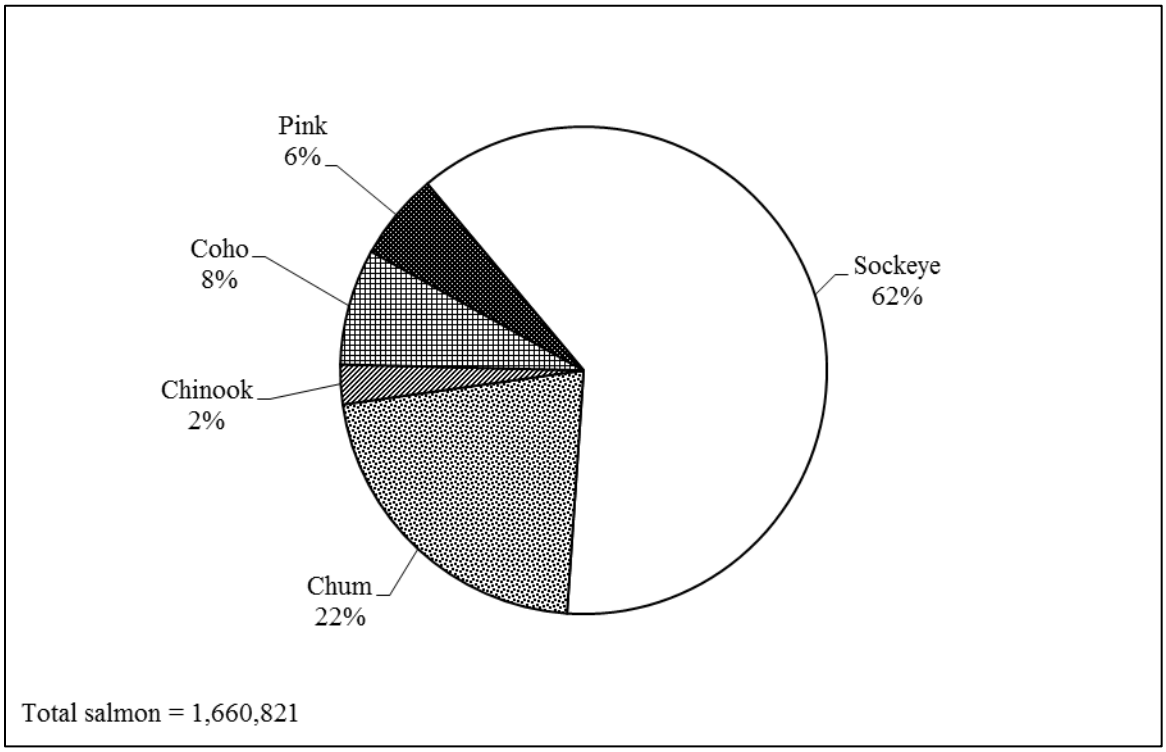

Figure 2-10.–Alaska subsistence and personal use salmon harvest by species, 2014.

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 reflects these changes to the subsistence fisheries management area. It has been expanded to include the results of recent subsistence research conducted in the area, including subsistence fisheries harvest information to supplement the existing annual subsistence harvest monitoring program in Norton Sound.

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 2014 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 also 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://live.laborstats.alaska.gov/pop/estimates/data/TotalPopulationPlace.xls

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 2014, 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 2006–2014

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; Menard, Soong, Kent, Harlan, and Brown 2015; Menard, Soong, Kent, Harlan, and Leon 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 2014: (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: Subsistence 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 2014, 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, Soong, Kent, Harlan, and Leon 2015). The Nome ADF&G office issued 490 subsistence (Tier I) salmon permits, all of which were returned. This was an increase from the 477 permits issued in 2013, and close to the record 494 permits issued during the 2010 fishing season (Menard, Soong, Kent, Harlan, and Leon 2015) (Table 3-1). A total of 352 households fished their permits, with the largest number of permits fished on the Nome River (224) and Snake River (80) (harvests largely came from those rivers, the Bonanza River, and marine waters) (Menard, Soong, Kent, Harlan, and Leon 2015).

4. The Policy 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 2014, 18 permits were issued for the Cape Woolley Area; all were returned to ADF&G (Table 3-1). Of those, 5 households fished their permits (Menard, Soong, Kent, Harlan, and Leon 2015), an increase over the 3 that fished in 2013 (Menard, Soong, Kent, Harlan, and Brown 2015).

Subsistence permits have been required for salmon fishing in Subdistrict 2 (Golovin) and Subdistrict 3 (Moses Point/Elim) since 2004, when 199 permits were issued (the highest number yet). In 2014, 170 permits were issued for Subdistrict 2, nearly as many as in 2005 (174) (Fall, Braem, et al. 2012a:23). All 170 permits were returned (Table 3-1); 95 households reported fishing (Menard, Soong, Kent, Harlan, and Leon 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 (Menard et al. 2010). The number of permits issued to residents of White Mountain and Golovin has held steady. In 2014, ADF&G issued 66 permits for Subdistrict 3, continuing a slow increase since 2011 when 60 permits were issued. All permits were returned and 53 households reported fishing, a slight increase over the 45 in 2013 (Menard et al. 2013; Menard, Soong, Kent, Harlan, and Brown 2015; Menard, Soong, Kent, Harlan, and Leon 2015) (Table 3-1).

Port Clarence District: Salmon Lake and Pilgrim River Subsistence 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 2014, 429 Port Clarence and Pilgrim River permits were issued, very slightly below the record-setting 431 issued in 2013 and much higher than other immediately prior years (tables 3-2 and 3-3). Of the permits issued in 2014, 260 were to fish the Pilgrim River only, down from the record of 265 in 2013 (all were returned with 148 having been fished); no permits were issued for Salmon Lake; and 170 were issued for other waters in the district (all were returned with 103 having been fished) (Menard, Soong, Kent, Harlan, and Leon 2015:50). 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; Menard, Soong, Kent, Harlan, and Brown 2015). The 2013 sockeye run, with 12,428 salmon passing through the weir, was unusually high—followed by a lower but robust escapement of 9,719 in 2014 (Menard, Soong, Kent, Harlan, and Leon 2015).

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. Very little 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 and only time since 2008, with no such permits issued in 2014 (Menard, Soong, Kent, Harlan, and Brown 2015; Menard, Soong, Kent, Harlan, and Leon 2015).

Household Surveys

In 2014, ADF&G Division of Commercial Fisheries conducted annual subsistence fisheries household surveys in Koyuk, Shaktoolik, St. Michael, Stebbins, and Unalakleet. Researchers attempted to contact all of the households in each of the surveyed communities. Actual sample rates varied: 182 of 233 Unalakleet households (78%) were contacted, as were 59 of 67 Shaktoolik households (88%), and 76 of 80 Koyuk households (95%). 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 2014

Norton Sound District Subsistence Salmon Harvest

The estimated 2014 subsistence harvest of salmon by communities in the Norton Sound District was 84,210 fish, a dramatic increase from the 2013 harvest of 48,271 fish (tables 3-1, 3-3), which 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. In 2014, the total Norton Sound pink salmon subsistence harvest (39,673 fish) was the third lowest even-year since 1994, and closer to the odd-year average (30,339 fish) than the even-year average (52,931 fish). Coho harvests were higher in 2014 over recent years in Subdistricts 1-4, most substantially to the west.

Total Norton Sound subsistence catches of all five salmon species were greater in 2014 than 2013 (Table 3-3). Overall the estimated 2014 subsistence salmon harvest was just over the average for even years from 2000 to 2012 (82,020 fish), but lower than harvests in the 1990s. Between 1994 and 2014, 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 92,632 salmon.

Chum salmon abundance in 2014 was expected to provide for both subsistence and commercial harvests, and for the second consecutive year after a 20 year hiatus, commercial fishing for chum salmon occurred in the Nome Subdistrict. The commercial chum salmon harvest in Norton Sound was the fourth largest in over 25 years, and the fourth of the last 5 to exceed 100,000 fish. In Subdistricts 2 and 3 chum salmon runs were the stronger in 2014 than 2013. In 2014, chum salmon escapement in Subdistrict 1 was the third highest over that time span. Total coho escapement was the highest since 1994 (Menard, Soong, Kent, Harlan, and Leon 2015).

Although stronger, Chinook salmon runs were still weak throughout Norton Sound in 2014, which required inseason restrictions. The record low 15 Chinook salmon counted at the Kwiniuk River tower in 2013 improved to 429 Chinook salmon in 2014, falling within the SEG range of 300–550 fish. The final escapement at the Unalakleet River weir was 1,048 Chinook salmon (the second highest count in the 5-year project history). However, the subsistence harvest for Chinook salmon in Subdistrict 6 was the record low since 1994 at 345 fish, prompting full closure of coastal southern Norton Sound subsistence

salmon fisheries for the month of June, with the exception of a few emergency order openings for small mesh nets described below (Menard, Soong, Kent, Harlan, and Leon 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 in 2014. The Board also passed regulations allowing for a commercial chum salmon fishery in the Subdistrict based on conservative management guidelines. For the ninth 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 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 2014. 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, as in 2013. Beach seining was allowed during the subsistence salmon gillnet schedule 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 highest since 1990. Fishing opportunity for sockeye salmon at Pilgrim River (the fishery closed for 2 weeks but was open most of the summer) 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 exceptionally high (Menard, Soong, Kent, Harlan, and Leon 2015). The estimated 2014 subsistence salmon harvest in the Nome Subdistrict was 6,648 pink salmon, 3,844 chum salmon, 3,042 coho salmon, 405 sockeye salmon, and 31 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 salmon dominated the harvest (67% of fish in Subdistrict 2 and 51% in Subdistrict 3). Chum and coho salmon made up most of the rest, with some Chinook and a few sockeye salmon. In 2014, a total of 10,929 salmon were harvested in Subdistrict 2 (Golovin) (Table 3-1), the highest number since 2010 (Menard, Soong, Kent, Harlan, and Leon 2015). Pink salmon composed 67% of the number of salmon harvested, with 16% chum, 16% coho, almost 1% sockeye, and less than 0.5% Chinook salmon making up the rest of the harvest. Early indicators of 2014 chum salmon abundance to the Golovin Subdistrict included subsistence catch reports of very good harvests. The Niukluk River counting tower was 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. In 16 of the 18 years that both were operational, the Niukluk and Kwiniuk counting towers tracked together on escapement achievement. Large numbers of chum salmon at the Kwiniuk River tower indicated that the escapement goal range there would easily be exceeded, and ADF&G expected that this would also be the case in the Fish River drainage (Menard, Soong, Kent, Harlan, and Leon 2015). In late June, managers opened directed commercial fishing of chum salmon for one 24 hour period, which was increased to two 48 hour periods per week, and then to continuous fishing for the third week of July once they were confident that escapement goals would be met. In late July, managers opened an additional 54 hour commercial fishing window directed at chum salmon, after which ADF&G switched to coho management, allowing two 48-hour fishing periods per week for the remainder of the season. Aerial surveys of the Niukluk River and Ophir creek exceeded the survey goal of 950–1900 coho salmon, and the commercial harvest was the

third 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, Soong, Kent, Harlan, and Leon 2015).

Based upon subsistence fishing permits, residents of Golovin harvested an estimated 3,816 salmon in 2014, the majority of which were pink salmon (2,529 fish, 66%; Table 3-2). Chum and coho salmon harvests (656 fish, 17% and 533 fish, 14% respectively) filled out the bulk of the remainder. Chinook salmon (26) contributed <1%, and sockeye salmon harvests (72) contributed about 2% to the total Golovin salmon harvest. White Mountain residents harvested an estimated 5,692 salmon, 4,071 (72%) of which were pink salmon. The remainder of the harvest was chum salmon (864) at 15%, and coho salmon (732) at 13%, with sockeye (15) and Chinook salmon (10) at less than 1% each.

In Subdistrict 3 (Moses Point/Elim), early projections of the chum salmon escapement by the Kwiniuk River tower counts indicated that escapement goals would be met. On June 25, a 24 hour chum period was opened, and on June 28 a 24 hour pink period was opened. By June 29, escapement at the Kwiniuk River tower enabled managers to open two 48 hour periods for chum salmon per week until they opened continuous chum fishing for one week in mid-july, and another 54 hour opening in late July. Once management switched to coho salmon, two 48 hour periods were open per week for the rest of the season. (Menard, Soong, Kent, Harlan, and Leon 2015). Subsistence fishers harvested an estimated 8,798 salmon, 52% of the fish were pink salmon, 24% chum salmon, 21% coho salmon, 3% Chinook salmon, and less than 1% sockeye salmon.

Subdistrict 4 Harvest

Fishers caught an estimated 8,316 salmon for subsistence in the Norton Bay subdistrict (Table 3-1). Most of the harvest was made up of chum and pink salmon (55% and 28%, respectively). Of the remainder, 15% were coho salmon, and 2% were Chinook salmon. One sockeye salmon was reported harvested in Subdistrict 4 (Table 3-1). By comparison, in 2013, an estimated 6,145 salmon were harvested in the subdistrict, 28% of which were pink salmon (1,341) and 63% chum (3,853). Coho salmon made up 13% of that year's subsistence salmon harvest, another 2% were Chinook salmon, and there was no reported harvest of sockeye salmon (Menard, Soong, Kent, Harlan, and Leon 2015).

In 2014, the seventh consecutive annual subsistence salmon survey was conducted in Koyuk by the Division of Commercial Fisheries. 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 8,573 salmon, the majority of which were chum salmon (53%) and pink salmon (30%). Households caught lesser amounts of coho (15%), chinook (2%), and sockeye (<1%) salmon (Table 3-2).

Subdistrict 5 and 6 Harvests

Preseason forecasts by ADF&G called for another very poor Chinook salmon run to subdistricts 5 and 6, where management was the same in 2014. Restrictions were put in place on subsistence fishing per the management plan (5 AAC 04.395) that included an unprecedented pre-season closure to all marine and freshwater subsistence salmon fishing from north of Wood Point near St. Michael, to Bald Head near Elim. Fishery managers opened 5 periods for subsistence fishing in marine waters by emergency order in June: three with a net-mesh size restricted to 6 inches or less (two 30 hour periods and one 48 hour period), and two periods with mesh size restricted to 4.5 inches. 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, which was allowed during these openings. Beginning July 7, subsistence fishing was open 7 days a week with nets up to 6 inches.

Commercial fishing in both subdistricts was opened for pink salmon on July 1 (24 hours) for chum salmon on July 3 (48 hours), for pink on July 6 (24 hours), and for chum on July 8 (24 hours). Thereafter, with minimal incidental catch of Chinook salmon, chum openings ranged from 48 hours to 168 hours

until early August when ADF&G switched to coho management. Overall, the chum runs in Subdistricts 5 and 6 were above average, and commercial harvests ranked second highest in Subdistrict 5 (approaching the 1991 record) and the fifth highest on record for Subdistrict 6 in the last 25 years. The strength of the coho salmon run in both subdistricts allowed for limited commercial fishing and no subsistence restrictions (Menard, Soong, Kent, Harlan, and Leon 2015).

In subdistrict 5 (Shaktoolik), subsistence fishers caught an estimated 6,250 salmon in 2014, two thirds of which (4,080 or 65%) were pink salmon. Coho salmon (1,164) composed 19% of the total harvest. The rest of the harvest was composed of chum salmon (710) and Chinook salmon (215), which provided 11% and 3% of the total, respectively. About 1% of the harvest consisted of sockeye salmon (Table 3-1).

In subdistrict 6 (Unalakleet), subsistence fishers caught an estimated 24,004 salmon, 53% (12,707) of which were pink salmon. Coho salmon (7,232) made up 30% of the annual harvest, followed by chum salmon (3,476 or 15%), and Chinook salmon (442 or 2%). Less than1% of the total harvest was sockeye salmon (Table 3-1)[5].

Table 3-2 presents harvests at the community level. Because residents of Shaktoolik and Unalakleet sometimes fish outside of their subdistrict, the community harvests are usually slightly different than the total harvest for the individual subdistricts. Households in Shaktoolik harvested the same number of salmon (6,250) as is reported at the Subdistrict level in 2014. Unalakleet households harvested an estimated 24,012 salmon, the majority of which were pink salmon (12,714 or 53%) and coho salmon (7,232 or 30%).

Norton Sound Harvest Overall

Of the estimated total 2014 subsistence salmon harvest in Norton Sound, 1% were sockeye salmon, 2% were Chinook salmon, 22% were coho salmon, 28% were chum salmon, and 47% were pink salmon (Figure 3-1). Total harvest estimates for the Norton Sound District for 1994–2014 are presented in Table 3-5. Methods changed 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 2014 subsistence salmon harvest was taken by residents from outside the district. Eighteen subsistence permits were issued to residents of Anchorage, Fairbanks, Barrow, Gambell, Homer, Point Hope, Soldotna, and Wasilla; their combined total salmon harvest was 234 salmon (Table 3-2).

Port Clarence District Subsistence Salmon Harvest

The estimated 2014 subsistence harvest of salmon in the Port Clarence District was 14,579 fish (tables 3-3 and 3-4). This harvest, slightly above 2013, was the second highest since 2008 (15,957 fish) and slightly lower than the 10-year average (2004–2013) of 14,693 fish. Of the total salmon harvest, less than 1% was Chinook salmon, 4% was coho salmon, 27% was sockeye salmon, 34% was pink salmon, and 35% was chum salmon (Figure 3-2).

ARCTIC-KOTZEBUE AREA SALMON

Introduction

In 2012, the Arctic-Yukon-Kuskokwim Region was reorganized with respect to fisheries management districts and areas. In particular, the North Slope (often called the Arctic Area or Arctic district) is named the "Northern District" and combined with the Kotzebue Area's single Kotzebue Sound District, together compose the Arctic-Kotzebue Area. Previous annual reports have not addressed subsistence fisheries information from the Northern District, as there have been no annual harvest monitoring programs

5. Harvest numbers vary slightly in Subdistrict 5 and 6 between this report and Menard et al. (2015). In the manangement report, Subdistrict 5 subsistence harvest numbers are presented as 149 Chinook salmon, 0 sockeye salmon, 1116 coho salmon, 3696 chum salmon, 883 pink salmon (total of 5,844 salmon) and Subdistrict 6 subsistence harvest numbers are presented as 345 Chinook salmon, 114 sockeye salmon, 5,642 coho salmon, 9,914 pink salmon, and 2,712 chum salmon (total of 18,727 salmon). The difference between these harvest numbers is due to expansion methods.

conducted by ADF&G. Ongoing Division of Subsistence research will continue 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

Kotzebue Sound District

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 District 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 *Salvelinus 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 recently completed a 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 2012–2014, discussed below.

Northern District

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 District 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 conducted 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 (2012–2014).

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, except that during commercial fishing closures in the Kotzebue District, commercial fishers may not fish for subsistence purposes (5AAC 01.110). Salmon may be taken only by gillnets, beach seines, or, in the Kotzebue Sound District, 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 subsistence fishers 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, detailed in 5 AAC 70.011.

Subsistence Salmon (and nonsalmon) 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, subsistence salmon harvest estimates since then are available for only for communities participating in special projects, which also collected data about nonsalmon fish harvests.[6] These data are presented in tables 3-6–3-9, and are discussed below.

The average yearly subsistence harvest for the regularly surveyed communities between 1994 and 2004 was 59,650 salmon, the majority of which were chum salmon (Table 3-3). This average is inevitably low due to incomplete datasets resulting in low total harvest estimates for several years during that period; no year includes *all* Kotzebue District communities. 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). However, data regarding the subsistence harvest of salmon in Kotzebue in 2014 (22,507/72,595 salmon (31%); Table 3-6) do not support this hypothesis.

Kotzebue District data for 2014 is more complete than for any year since 2004, missing only 3 communities: Deering, Shishmaref, and Wales (tables 3-6 and 3-7).

Very little fisheries information has been collected by ADF&G in the Arctic District. In Point Lay, a comprehensive survey of 2012 (Braem et al. *in prep*) was followed by fish harvest surveys for 2013 and 2014 (Mikow et al. 2016). In Wainwright, fish harvest data was collected for 2012, 2013, and 2014 (Mikow et al 2016). Additionally, comprehensive harvest surveys for 2014 were conducted in the Arctic District communities of Anaktuvuk Pass, Barrow, Nuiqsut, and Point Hope (Brown et al. 2016).

6. Although systematic subsistence salmon harvest surveys were eliminated in 2004, the Division of Subsistence has collected subsistence fishery harvest information from some Arctic-Kotzebue Area communities as part of other subsistence research projects since 2007 (Fall et al. 2007:33) (Magdanz et al. 2011:49–50) (Magdanz et al. 2010) (Braem et al. 2013) (Braem et al. 2015) (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]) (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]).

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 less abundant, these nonsalmon fish are more prevalent in local diets. ADF&G has conducted far more extensive research in the Kotzebue District compared with Northern District and has a substantial data set for 2014.

Kotzebue District

In 2013, Ambler households harvested an estimated 14,775 fish, of which 4,784 (32%) were salmon. In 2014, about 21,333 fish were caught, 23% of which were salmon. The total estimated Ambler salmon harvest in 2014 (4,933) was similar to 2013 (4,784), with slightly higher harvests of coho and pink salmon and slightly lower harvests of chum and Chinook salmon (Table 3-6). The sockeye harvest was the most dramatically different: with 40 fish taken in 2014 compared to 9 in 2013, that harvest was 344% higher but still a small contribution to the total. Ambler nonsalmon harvests were much greater in 2014 than in 2013, with higher numbers of some species (especially burbot and broad whitefish), and lower numbers of others (Dolly Varden, northern pike, and sheefish; Table 3-7). Variation may reflect environmental conditions and also demonstrates flexibility among subsistence fishers; for example, the 2014 broad whitefish harvest was 172% of 2013 (9,492 fish compared to 3,496), whereas the sheefish harvest was about 68% of the 2013 harvest (1,806 compared to 2,649).

In 2013, Shungnak household harvested an estimated 20,117 fish, of which 36% (7,257 fish) were chum salmon. Fishers did not report catching any other kinds of salmon. In 2014, Shungnak fishers caught an estimated 18,548 fish, of which 28% (5,202 fish) were salmon—including 29 coho salmon and 72 pink salmon (Table 3-6). The total number of nonsalmon fish caught in 2014 was similar to 2013, with over 3000 sheefish making the largest contribution to the nonsalmon fish harvest (3,123 in 2014 compared to 3,559 in 2013; Table 3-7). Other portions of the 2014 composition were very different. In particular, the dominance of broad whitefish vs. humpback whitefish flipped (578 broad and 8,400 humpback in 2013 compared to 7,776 broad and 1,067 humpback in 2014) and about 10 times as many Arctic grayling were reported (1,116 compared to 110 in 2013).

In 2013, Kobuk residents harvested about 18,074 fish, of which 11% (2,056 fish) were salmon. . The vast majority the salmon harvest was chum salmon (2,043 fish). In 2014, Kobuk fishers caught 10% fewer salmon (1,843) again almost exclusively chum (1,840), and 79% fewer nonsalmon (3,377 in 2014 compared to 16,018 in 2013) about 5,220 fish. Portions of the nonsalmon harvest in 2014 were somewhat similar to 2013, but there were 3 striking differences: 1) the 2014 harvest did not include any unspecified whitefish (compared with over 12,000 in 2013), 2) the 2014 harvest included just a few broad whitefish (7, compared with 1,337 in 2013), and 3) no burbot were reported in 2013, but about 41 burbot were caught by Kobuk residents in 2014

In 2013, Noorvik households harvested 63,877 fish, of which 34% (21,404 fish) were salmon. Although the pink salmon harvest was higher in 2014, chum and sockeye salmon harvests were lower, and the total 2014 salmon harvest was about 18,371 fish; 14% lower compared to the 2013 study year. Chum salmon (16,668 fish) was again the largest single-species component of the total fish harvest (91% of salmon and 32% of fish). In 2014, Noorvik fishers caught about 51,833 fish, of which 32% (18,371 fish) were salmon and the species composition of the salmon harvest was slightly different from 2013. More sockeye salmon and pink salmon did not make up for less coho salmon and much less chum salmon. The 2014 nonsalmon harvest in Noorvik (11,728 broad whitefish, 11,660 humpback whitefish, 5,975 northern pike, 2,964 sheefish, and 306 burbot) was also smaller than in 2013, by about 21%. Harvests of most nonsalmon species were lower than in 2013. Dolly Varden was the only exception; 260 fish represents a 26% increase over 2013.

In 2013, Kiana households harvested 12,066 fish, of which 28% (3,384 fish) were salmon, primarily chum salmon (2,969 fish). Salmon harvests were slightly lower in 2014 and nonsalmon harvests were higher, such that 2,960 salmon (2,849 chum salmon) made up a smaller portion (21%) of the 13,806 fish harvest. Nonsalmon fish catches were about 28% greater in 2014 (10,846 fish) than in 2013 (8,482 fish); broad whitefish and humpback whitefish accounted for the bulk of the increase; northern pike and Dolly Varden harvests were also larger. Those harvests may have been intensified because of a lower sheefish harvest (1,073 compared to 1,787 in 2013), which occurs mostly in the spring. The 2014 nonsalmon fish harvest included 1,073 sheefish, 4,113 broad whitefish, 4,570 humpback whitefish, 419 northern pike, and 320 burbot.

In 2013, Noatak residents harvested about 16,113 fish, of which 43% (6,925 fish) were salmon, primarily chum salmon (6,577 fish), but Noatak fishers also catch substantial numbers of coho salmon (1,233 coho in 2013) and a few of other salmon species. In 2014, the harvest of salmon overall was higher (8,605 salmon), but salmon composed a similar portion (42%) of the fish. Increases were dramatic for the three less harvested species (Chinook, sockeye, and pink salmon), but those still made up small portions of the total. About half of the salmon caught were chum salmon in both years, with coho making up 41% and 38%, respectively. Nonsalmon fish catches were about 28% higher in 2014 over 2013, with the most substantial increases in the harvest of Dolly Varden, and a flip in the ratio of broad whitefish to humpback whitefish. The largest contributions to the 2014 nonsalmon fish harvest were made by 9,289 Dolly Varden, 879 broad whitefish, and 1,165 humpback whitefish. In contrast to Kobuk River communities, Noatak harvested about 206 sheefish.

In 2013, Selawik residents harvested about 51,435 fish, of which less than 1% (378 fish) were salmon (362 chum salmon, 15 pink salmon, and 1 Chinook salmon). In 2014, salmon harvests were about 250% higher (1,151 chum salmon of 1,317 total salmon), but salmon still accounted for less than 4% of the individual fish. Estimates of 84,102 nonsalmon fish in 2011, 51,057 nonsalmon fish in 2013, and 35,897 nonsalmon fish in 2014, seems to indicate a decline in availability, access, or desire related to nonsalmon harvests; additional research would be required to know more about the trend. As in prior surveys, broad whitefish was the species harvested in the largest numbers (17,202 fish) in 2014. The remainder of nonsalmon included 8,855 northern pike, 5,250 humpback whitefish, 4,164 Sheefish, 298 burbot, 126 Arctic grayling, and 2 Dolly Varden

In 2013, Buckland residents harvested an estimated 7,713 fish, of which 59% (4,533 fish) were salmon; about 69% of the salmon were chum salmon and 19% were coho salmon. In 2014 salmon harvests were about 51% higher: 6,857 salmon included 4,188 chum salmon (61%) and 1,144 coho salmon (17%). A higher portion of the harvest was pink salmon: 957 pink salmon made up 14% of the salmon in 2014. Buckland's total nonsalmon fish harvests were very similar in 2013 and 2014; however, burbot was the only fish caught at the same level in both years. In 2014, Buckland residents caught about 1,150 broad whitefish, 747 Dolly Varden, 470 sheefish, 451 saffron cod, 110 burbot, 105 humpback whitefish, and 99 Northern pike. Buckland also has a substantial smelt fishery that is not included in this presentation of the data (Braem and Kostick *In prep*).

Northern District

The Division of Subsistence has conducted multiple harvest surveys on the North Slope in recent years, such that data in this section are drawn from three separate projects identified above. Data for 2014 document the fisheries in 6 of the 8 communities in the Arctic District (tables 3-8 and 3-9).

Fish harvest estimates for Point Lay are highly variable for the 3 years that information was collected. Salmon harvests were consistently dominated by chum salmon, and pink salmon were harvested in greater numbers in even years; 2012 saw the highest salmon harvest, and 2013 the lowest. About 37% of the fish harvested in 2012 were salmon, 9% in 2013, and 31% in 2014. Nonsalmon fish harvests were also lowest in 2013, but were higher in 2014 than in 2012. Arctic grayling dominate those harvests, especially in 2014, with more different kinds of fish harvested in high numbers in 2012.

Likewise, fish harvests in Wainwright over the 3 study years were highly variable, and included consistently small but increasing portions of salmon (2% in 2012, 5% in 2013, and 6% in 2014). Coho were the most often reported salmon (30% of all salmon for the 3 years), followed by pink salmon (25%), chum salmon (21%), sockeye salmon (18%), and Chinook salmon (7%). Nonsalmon fish harvests in Wainwright were dominated by smelt (counted by gallons rather than individual fish) and Arctic grayling, with smaller numbers of Dolly Varden and whitefishes.

In 2014, residents of 6 Arctic district communities harvested about 12,504 salmon and 192,296 nonsalmon fish (about 2,111 of which were actually gallons of about 33 tiny fish). The composition of harvests varied dramatically between communities, both in the ratio of nonsalmon to salmon and also within the categories of salmon and nonsalmon fishes.

The ratio of salmon generally increased east to west. The inland community of Anaktuvuk Pass, high in the Brooks Range, reported zero harvest of salmon. The Colville River delta community of Nuiqsut, 150 miles east of Barrow, reported less than 1% of the fish harvests as salmon. In contrast, the westernmost coastal communities of Point Hope and Point Lay reported that 25% and 31% of the fish they caught were salmon.

Harvests also varied within the salmon category, with a general east to west trend of increasing diversity in the composition of the harvests. Chum salmon were the majority of fish reported in Nuiqsut (72%) and Barrow (66%), augmented primarily by pink salmon (27% and 23%). (The salmon supply in Barrow is augmented by catches from farther south, such as the Kenai Peninsula (Brown et al. 2016), probably more heavily than in the other communities because of statewide travel by many residents.) In Wainwright, 41% of the salmon were reported as coho salmon, followed by 19% pink, 18% chum salmon, and 17% sockeye salmon. In Point Lay, 60% of salmon were reported as pink salmon, followed by 18% sockeye, and just 13% chum. In Point Hope, the catch was reported as 41% chum salmon, and nearly 30% each pink salmon and coho salmon.

Nonsalmon harvests also varied dramatically between communities, with Anaktuvuk Pass standing out with its harvest of freshwater species: Arctic grayling and Arctic char/Dolly Varden composed the vast bulk of fish harvested by residents there. For the coastal communities, there is one remarkable east west trend: the Arctic cisco harvest was greatest by far in Nuiqsut (46,277 fish), with lesser numbers in Barrow (17,510), Wainwright (696), and Point Lay (9 fish); zero Arctic cisco were reported in the Point Hope harvest. Barrow (2013 population of 4,373), nearly half again larger than the other 5 communities combined (2013 combined population of 2,275), harvested the greatest numbers of most fish species and the highest total number of (88,797) nonsalmon fish. Of the 5 smaller communities, Nuiqsut (2013 population 415) harvested nonsalmon fish in the greatest numbers (73,632). Broad whitefish, Arctic cisco, and least cisco figure prominently in the harvests for both Nuiqsut and Barrow.

Arctic-Kotzebue Area Salmon Harvest Overall

In 2013, the composition of the total documented harvest of 50,754 salmon in the Kotzebue Area (8 communities not including Kotzebue) was dominated by chum salmon (90%), followed by coho salmon (7%), pink salmon (2%), sockeye salmon (<1%), and Chinook salmon (<1%). In 2014, the 9 communities in the Kotzebue Area for which we have data, including Kotzebue, harvested an estimated 72,595 salmon. The vast majority of the reported harvest was chum salmon (88%), followed by coho salmon (6%), pink salmon (4%), sockeye salmon (2%), and Chinook salmon (<1%) (Table 3-6; Figure 3-3).

In 2013, salmon harvests were documented in only 2 Arctic District communities: Point Lay and Wainwright. The majority of the 935 salmon harvested was chum salmon (36%), followed by pink salmon (25%), coho salmon (16%), sockeye salmon (16%), and Chinook salmon (7%). In 2014 salmon

harvests were documented in 6 of the 8 Arctic District communities, including Barrow. The 6 communities harvested an estimated 12,504 salmon for subsistence use. The reported composition of the salmon harvest was 48% chum salmon, 30% pink salmon, 16% coho salmon, 4% sockeye salmon, and 2% Chinook salmon (Figure 3-4). As described by Mikow et al (2016), fisheries in Alaska's Arctic are overshadowed by the volume of marine mammal and large land mammal harvests and the intensity of hunting for those resources, but salmon are an increasingly important feature of the seasonal round. Even without consideration of the actual edible pounds provided, 12,500 salmon clearly represent a substantial amount of food. Additional research is needed to monitor and document changes to salmon abundance and availability near these communities, as well as the efforts made to catch them.

Table 3-1.–Subsistence salmon harvests by Norton Sound subdistricts, Northwest Alaska, 2014.

Subdistrict	Households surveyed or permits returned	Estimated salmon harvest[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Cape Woolley	18	0	3	6	5	36	50
Elim	66	276	38	1,808	2,081	4,595	8,798
Golovin	170	36	91	1,720	1,719	7,363	10,929
Nome	490	31	405	3,042	3,844	6,648	13,970
Norton Bay	73	162	1	1,267	4,560	2,326	8,316
Shaktoolik	59	215	82	1,164	710	4,080	6,250
St Michael	84	344	0	469	2,279	733	3,825
Stebbins	98	207	0	1,549	5,129	1,184	8,068
Unalakleet	181	442	146	7,232	3,476	12,707	24,004
Total	**1,239**	**1,713**	**766**	**18,257**	**23,802**	**39,673**	**84,210**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

	Households or permits		Estimated salmon harvest[a]					
Community[b]	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	10	10	0	50	44	8	56	158
Barrow	1	1	0	0	0	0	0	0
Brevig Mission	47	47	14	1,140	423	2,573	3,033	7,183
Elim	63	63	274	38	1,749	2,075	4,365	8,501
Fairbanks	2	2	0	0	0	0	0	0
Gambell	1	1	0	0	0	1	3	4
Golovin	29	29	26	72	533	656	2,529	3,816
Homer	1	1	2	0	5	6	30	43
Kotzebue	1	1	0	0	0	0	0	0
Koyuk	80	76	162	1	1,267	4,568	2,575	8,573
Nome	474	474	31	2,613	3,564	4,469	7,603	18,280
Point Hope	1	1	0	0	2	0	2	4
Shaktoolik	67	59	215	82	1,164	710	4,080	6,250
Shungnak	1	1	0	3	0	0	0	3
Soldotna	1	1	0	0	0	0	0	0
St Michael	88	84	344	0	469	2,279	733	3,825
Stebbins	136	98	207	0	1,549	5,129	1,184	8,068
Teller	56	56	7	550	88	2,073	1,634	4,352
Unalakleet	233	182	442	146	7,232	3,477	12,714	24,012
Wasilla	1	1	0	25	0	0	0	25
White Mountain	46	46	10	15	732	864	4,071	5,692
Total	**1,339**	**1,234**	**1,734**	**4,735**	**18,821**	**28,887**	**44,613**	**98,789**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 1994–2014.

	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
2014	1,239	1,713	766	18,257	23,802	39,673	84,210

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Table 3-3.–Page 2 of 4.

Year	Port Clarence District						
	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
2014	429	21	3,969	564	5,085	4,940	14,579

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Table 3-3.–Page 3 of 4.

Year	Kotzebue District[b,i] 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
2014[l]	866	397	1,136	4,432	63,699	2,931	72,595

Year	Arctic District[m] 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
2014	590	268	532	1,969	5,970	3,764	12,504

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Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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 communities from 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.

l. Includes Ambler, Buckland, Kiana, Kobuk, Noatak, Noorvik, Selawik, and Shungnak.

m. Includes Point Lay and Wainwright.

ND = no data.

Table 3-4.–Subsistence salmon harvests by district, Northwest Alaska, 2014.

District	Households surveyed or permits returned	Estimated salmon harvest[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Norton Sound District[b]	1,239	1,713	766	18,257	23,802	39,673	84,210
Port Clarence District[c]	429	21	3,969	564	5,085	4,940	14,579
Kotzebue District[d,f]	866	397	1,136	4,432	63,699	2,931	72,595
Arctic District	590	268	532	1,969	5,970	3,764	12,504
Total[e]	**2,690**	**2,399**	**6,403**	**25,222**	**98,557**	**51,307**	**183,888**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 1975–2014.

Year	Households or permits		Estimated salmon harvest[a]					
	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
2014[f,i]	5,137	2,690	2,399	6,403	25,222	98,557	51,307	183,888
5-year average (2009–2013)	1,519	1,341	2,326	2,848	14,198	34,011	33,632	87,014
10-year average (2004–2013)	1,413	1,297	2,988	5,942	15,145	26,683	43,943	94,699
Historical average (1975–2013)	992	767	2,600	2,725	9,760	31,713	27,446	74,244

-continued-

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2007–2014.

		Households		Estimated salmon harvest					
Year	Community	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
2007	Kivalina	81	42	41	0	33	401	120	594
	Noatak	119	90	11	42	247	4,167	163	4,630
Total, 2007		**200**	**132**	**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	2,043	9	2,056
	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**	**45,682**	**830**	**50,721**
2014	Ambler	74	55	5	40	369	4,182	336	4,933
	Buckland	98	90	250	318	1,144	4,188	957	6,857
	Kiana	98	73	3	3	75	2,849	31	2,960
	Kobuk	33	28	0	0	4	1,840	0	1,843
	Noatak	125	106	38	6	1,859	6,577	126	8,605
	Noorvik	124	96	32	133	619	16,668	920	18,371
	Selawik	183	161	23	10	11	1,151	122	1,317
	Shungnak	62	43	0	0	29	5,101	72	5,202
	Kotzebue	826	214	46	625	324	21,144	367	22,507
Total, 2014		**1,623**	**866**	**397**	**1,136**	**4,432**	**63,699**	**2,931**	**72,595**

Source ADF&G Division of Subsistence, household surveys, 2008, 2012, 2013, 2014, 2015.

a. Formerly Kotzebue Area.

Table 3-7.–Subsistence nonsalmon harvests by Kotzebue District[a] communities, 2007–2014.

		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]	81	42	20,527	786	15	ND	ND	0	0	25,824	0	47,152
	Noatak[b]	119	90	10,234	1,222	42	ND	ND	0	144	192	99	11,933
Total, 2007		**200**	**132**	**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	341	10	120	333	1,118	0	246	ND	1,013	3,180
	Kiana	93	68	54	ND	316	2,832	3,251	0	242	ND	1,787	8,482
	Kobuk	31	24	22	140	0	1,337	1,382	12,211	61	ND	865	16,018
	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**	**7,066**	**939**	**2,206**	**48,334**	**40,403**	**12,211**	**19,937**	**38**	**22,116**	**153,249**

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Table 3-7.–Page 2 of 2

Year	Community	Households		Estimated number of fish									
		Total	Surveyed	Dolly Varden	Arctic grayling	Burbot	Broad whitefish	Humpback whitefish	Unknown whitefishes	Northern pike	Saffron cod	Sheefish	Total
2014	Ambler	74	55	67	908	417	9,492	3,352	0	358	ND	1,806	16,400
	Buckland	98	90	747	1	312	1,150	105	0	99	11,807	1,067	15,288
	Kiana	98	73	351	ND	320	4,113	4,570	0	419	0	1,073	10,846
	Kobuk	33	28	11	231	41	7	2,251	0	55	ND	781	3,377
	Noatak	125	106	9,289	84	21	879	1,165	0	44	47	206	11,735
	Noorvik	124	96	260	ND	306	11,728	11,660	568	5,975	0	2,964	33,462
	Selawik	183	161	2	126	298	17,202	5,250	0	8,855	0	4,164	35,897
	Shungnak	62	43	216	1,116	19	7,776	1,067	0	29	ND	3,123	13,346
	Kotzebue	826	214	2,116	182	50	201	367	0	436	17,118	17,322	37,792
Total, 2014		**1623**	**866**	**13,059**	**2,648**	**1,583**	**52,548**	**29,787**	**568**	**16,270**	**17,616**	**31,909**	**165,987**

Source ADF&G Division of Subsistence, household surveys, 2008, 2012, 2013, 2014, 2015.

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.

ND = no data

Table 3-8.–Subsistence salmon harvests by Arctic District communities, 2012–2014.

		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	2,178
	Wainwright	152	78	20	66	105	51	136	378
Total, 2012		**219**	**120**	**34**	**79**	**477**	**710**	**1,256**	**2,556**
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**
2014	Anaktuvuk Pass	99	53	0	0	0	0	0	0
	Barrow	1,584	259	67	73	495	3,639	1,248	5,523
	Nuiqsut	108	58	0	2	0	261	99	361
	Point Hope	176	105	142	13	1,123	1,723	1,170	4,172
	Point Lay	63	40	32	358	142	258	1,151	1,940
	Wainwright	145	75	27	86	209	89	97	507
Total, 2014		**2,175**	**590**	**268**	**532**	**1,969**	**5,970**	**3,764**	**12,504**

Source ADF&G Division of Subsistence, household surveys, 2015.

Table 3-9.–Subsistence nonsalmon harvests by Arctic District communities, 2012–2014.

		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	55	3,770
	Wainwright	152	78	0	0	7,513	648	1,562	1,606	624	0	0	3,237	15,442
Total, 2012		**219**	**120**	**493**	**279**	**9,458**	**1,127**	**1,562**	**1,611**	**624**	**479**	**37**	**3,292**	**19,212**
2013	Point Lay	64	42	20	0	2,670	0	0	8	0	0	0	73	2,771
	Wainwright	150	80	62	934	3,056	4,104	508	253	1,554	19	38	1,480	12,008
Total, 2013		**214**	**122**	**82**	**934**	**5,726**	**4,104**	**508**	**261**	**1,554**	**19**	**38**	**1,553**	**14,779**
2014	Anaktuvuk Pass	99	53	1,200	0	2,519	0	0	47	19	4	0	0	3,787
	Barrow	1,584	259	398	17,510	11,173	0	43,962	1,500	13,375	654	0	225	88,797
	Nuiqsut	108	58	648	46,277	1,626	19	11,439	119	13,332	19	0	152	73,632
	Point Hope	176	105	5,692	0	7,006	29	240	39	97	35	0	74	13,211
	Point Lay	63	40	69	9	4,078	11	25	3	2	0	0	97	4,294
	Wainwright	145	75	213	696	2,714	58	3,180	44	97	0	10	1,563	8,575
Total, 2014		**2,175**	**590**	**8,219**	**64,492**	**29,116**	**116**	**58,847**	**1,752**	**26,922**	**712**	**10**	**2,111**	**191,120**

Source ADF&G Division of Subsistence, household surveys, 2015.

a. Smelt are counted in gallons.

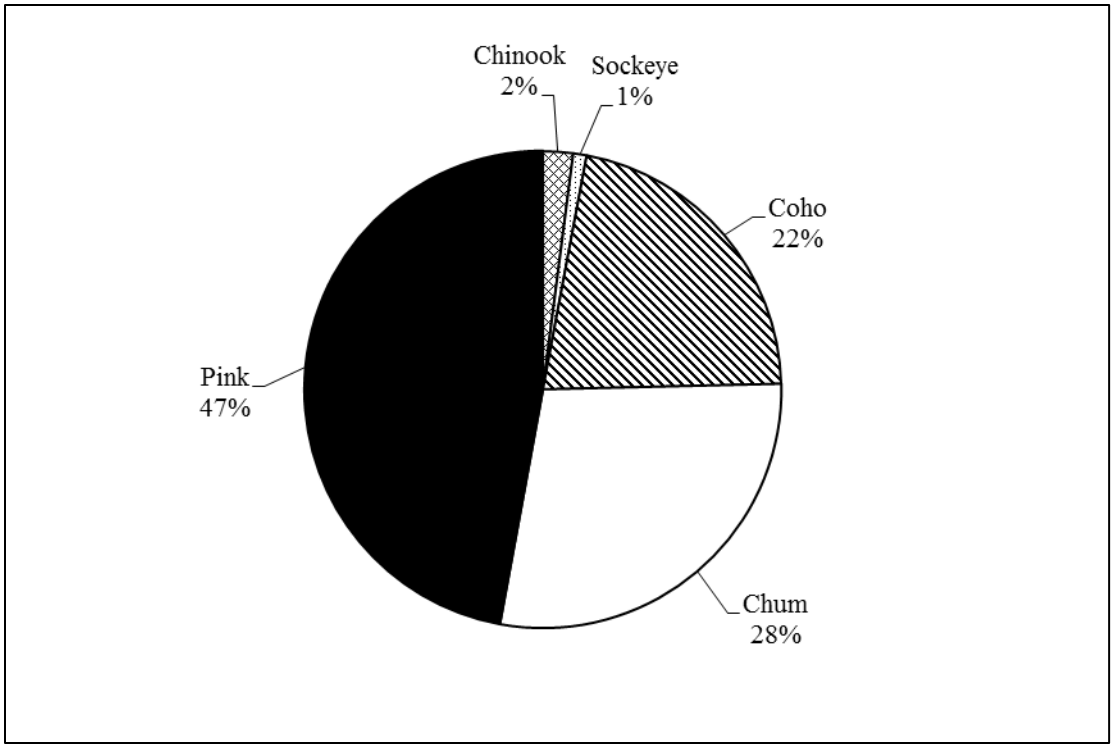

Figure 3-1.–Species composition of estimated subsistence salmon harvests, Norton Sound District, 2014.

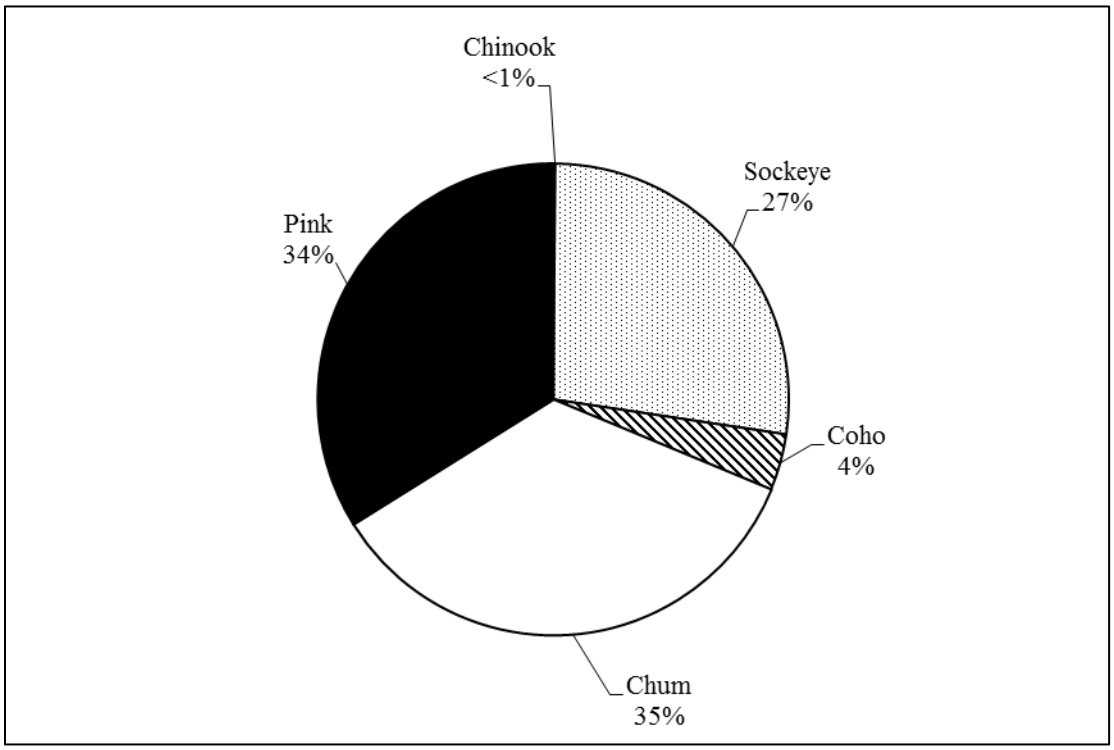

Figure 3-2.–Species composition of estimated subsistence salmon harvests, Port Clarence District, 2014.

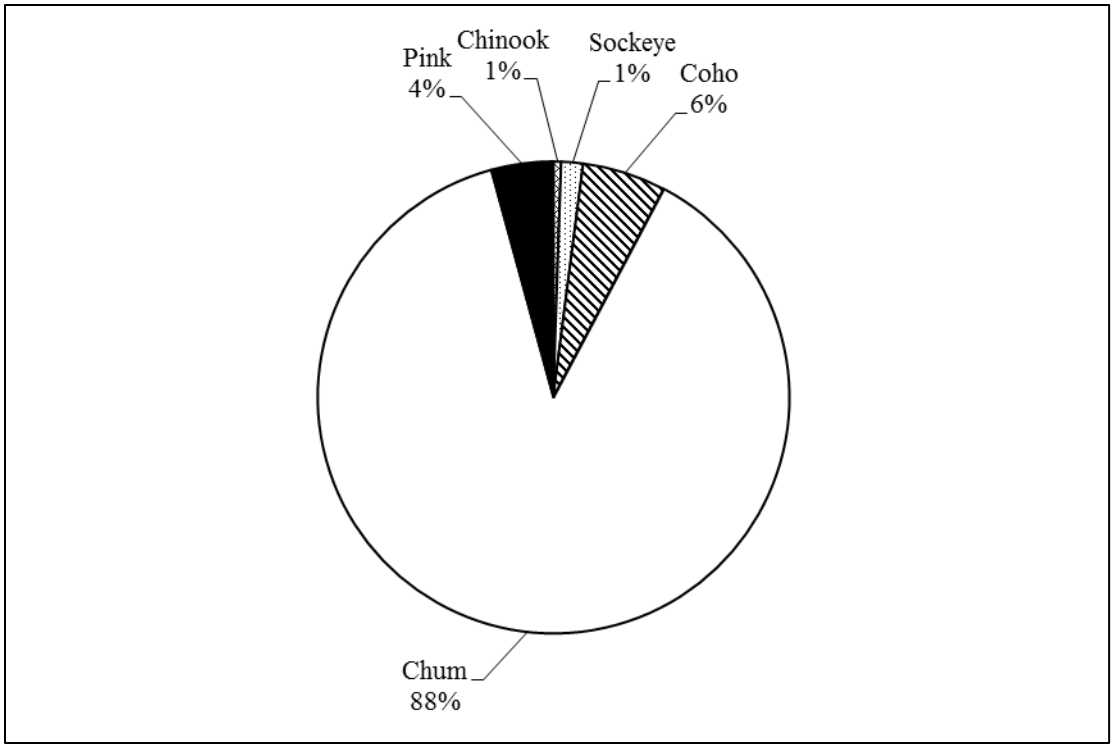

Figure 3-3.–Species composition of estimated subsistence salmon harvests, Kotzebue District, 2014.

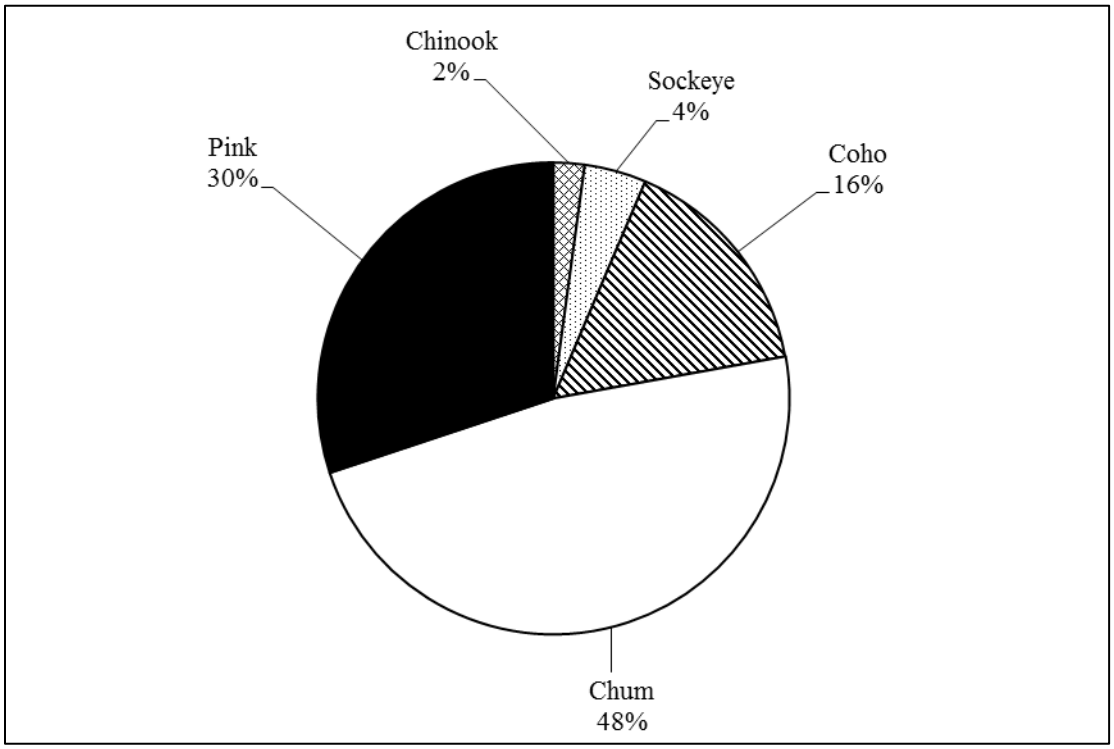

Figure 3-4.–Species composition of estimated subsistence salmon harvests, Arctic District, 2014.

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 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 often 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.

While the regulatory authority for Yukon River salmon management is shared by the Federal Subsistence Board (FSB) and the State of Alaska Board of Fisheries (BOF), Yukon River salmon fisheries are also managed in accordance with the Pacific Salmon Treaty. The Yukon River Panel, a board of appointed members from both Alaska and Canada, meets twice a year to negotiate annual aspects of the treaty, such as escapement goals and border passage goals, and to approve funding of scientific research addressing salmon biology and use patterns.

Over the last 2 decades, several regulatory changes have affected the subsistence salmon fishery in the Yukon River drainage. In 1993, the BOF adopted regulations that separated subsistence and commercial salmon fishing times in districts 1, 2, and 3 and in the lower portion of District 4 (Subdistrict 4A) (Figure 4-1). 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.

Since 1996, Yukon River salmon stocks have fluctuated in terms of abundance. The disastrous 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). 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.

Also 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

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.

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.

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.

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 both its January 2010 and 2013 meetings in Fairbanks, the BOF continued the stock of yield concern designation for Yukon River Chinook salmon.[4] However, the returns of fall chum rebounded after 2007 and the BOF lifted the stock of concern designation.

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.

Finally, at their 2013 meeting, the BOF required first pulse protection, or the prohibition of fishing on the first Chinook salmon pulse entering the river, in order to account for the uncertainty in the preseason Chinook salmon run projection and to protect the continued low runs. This prohibition may be relaxed in districts 3–6 if run assessment information suggests sufficient abundance. During the 2013 meeting, the BOF also prohibited the sale of Chinook salmon incidentally caught during directed summer chum commercial openings when subsistence salmon fishing is restricted (5AAC 05.360(i)).

Preseason outlooks for 2014 projected a poor Chinook salmon run (64,000–121,000) (JTC 2014:59), especially for Canadian-origin fish. In an effort to gather input from fishermen and other stakeholders, YRDFA held an annual meeting with U.S. management agencies including ADF&G and USFWS (JTC 2015:5). Together, managers and stakeholders developed several strategies to increase opportunities to harvest abundant summer chum salmon while avoiding the harvest of Chinook salmon and ensuring that adequate numbers of Chinook salmon reach their spawning grounds in Alaska and Canada. The 2014 subsistence fishing schedule for the Lower Yukon Area is presented in Table 4-1. Table 4-2 displays the

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

2014 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 2014, the regulatory subsistence fishing schedule began on May 16. The 2014 summer chum salmon run was expected to range from 1.3 to 1.5 million fish and provide for escapements, a normal subsistence harvest, and a surplus for commercial harvest. A projected run of 802,000–1,040,000 fall chum salmon was expected to provide for escapement, subsistence harvests, and a projected commercial harvest of 300,000–540,000 fish. Coho salmon runs were projected to be of average strength, based on escapements observed in 2010 of 147,000 fish, just above the average of 145,000 fish (JTC 2014:66).

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 May 9, which was considerably earlier than the average of May 23, and the first Chinook salmon was reportedly caught on May 19 which was earlier than any Chinook salmon harvest in over a decade (JTC 2015:8). The first Chinook salmon caught in the Lower Yukon Test Fishery (LYTF) occurred on May 27 (JTC 2015:7). Consistent with the regulatory requirement to close fishing on the first pulse of Chinook salmon for conservation purposes, subsistence closures were initiated in District 1–3 and the northern portion of the Coastal District on May 26 and implemented chronologically upriver as the pulse migrated. As the Chinook salmon migration progressed upriver, inseason assessment projects indicated that the run was better than anticipated but was still below average run. In an effort to provide some subsistence and commercial fishing opportunity for summer chum salmon, managers allowed fishing between Chinook salmon pulses with selective fishing gear to target abundant summer chum salmon and nonsalmon species while still protecting Chinook salmon. During these openings, commercial fishermen were allowed to use dip nets and beach seines, releasing all Chinook salmon alive. Once the first pulse of Chinook salmon migrated past District 4 subsistence and commercial opportunity for summer chum was provided for District 4 fishermen with fish wheels and dip nets with the requirement that all Chinook salmon be released alive. Fishermen could use dip nets and fish wheels with the stipulation that all Chinook salmon would be released back to the water unharmed. Subsistence closures were most pronounced in Subdistrict 5-D where very few summer chum migrate and where the closures were necessary to ensure Chinook salmon passage into Canada (JTC 2015:8).

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.

The preseason outlook projected the 2014 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 1.9 million fish in 2014, which is the same as the historical median (JTC 2015:9). To reduce the incidental catch of Chinook salmon in the summer chum commercial fishery, commercial fishing was delayed until the first pulse of 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 9 in Districts 1 and 2. Fishermen were required to immediately release incidentally caught Chinook salmon. Subsistence and commercial fishing periods were scheduled concurrently to reduce the time Chinook salmon were susceptible to harvest. A new regulation adopted by the BOF in 2012 allowed ADF&G to

open a commercial summer chum fishery in Subdistrict 4-A using fish wheels that were attended at all times in order to immediately release Chinook salmon back to the water alive. In 2014 commercial fishing for summer chum salmon in subdistrict 4-A began June 23 (JTC 2015:10). A total of 5,440 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 531Chinook salmon were reported caught and released back to the water alive in the fish wheel fishery in upper river districts. A total of 41 Chinook salmon were incidentally harvested and reported as caught but not sold during commercial chum salmon openings.[5]

The preseason outlook for fall chum salmon estimated a return of greater than 850,000 fish, enough to meet the escapement goal and provide for subsistence harvests, and support a commercial harvest.[6] In 2014, the first pulse of fall chum salmon entered the river between July 20 and July 23. Daily sonar passages continued to be below historical medians until mid-August when the fourth pulse of fall chum salmon passed the sonar site, measuring approximately 252,000 fish and raising the cumulative fall chum salmon passage to above average numbers. Based on the preseason projections, District 1 and 2 were initially placed on a twice weekly commercial fishing schedule, but the below average passage of fall chum past the sonar project near Pilot Station warranted a more conservative approach. As a result, there were no commercial fishing periods announced between August 3 and 15 (JTC 2014:11). On August 19, once the large pulse of fall chum salmon passed the sonar site near Pilot Station, the number of fish exceeded the historical median, and commercial fishing along the river resumed, continuing through the end of September. A directed commercial fall chum salmon fishery resulted in a harvest of 115,593 fall chum salmon. This harvest was lower than both the most recent 5-year (2009–2013) and 10-year (2004–2013) averages. For most of the season, coho salmon passage past the Yukon River sonar near Pilot Station was above average. In addition to the coho salmon caught in the fall chum salmon commercial fishery, ADF&G identified a surplus of coho salmon and opened a coho salmon commercial fishery in District 1 from September 1 through September 5. A total of 445 permit holders participated in the fall season salmon commercial fishery; 441 in districts 1 and 2 combined and 4 in districts 4, 5, and 6 combined. Participation in lower river districts during the 2014 fishing season was well above historical averages while participation in the upper river districts was lower than historical averages.[7]

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.

5 Alaska Department of Fish and Game Division of Commercial Fisheries. "2014 Preliminary Yukon River Summer Season Summary," news release, December 5, 2014. Accessed April 2016. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/505439194.pdf

6. Alaska Department of Fish and Game Division of Commercial Fisheries. "2014 Preliminary Yukon River Summer Season Summary," news release, December 5, 2014. Accessed April 2016. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/505439194.pdf

7. Alaska Department of Fish and Game Division of Commercial Fisheries. "2014 Yukon River Fall Season Summary," news release, December 5, 2014. . Accessed April 2016.. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/505439194.pdf

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 2014, 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 1,827 calendars were sent to Yukon River households. Approximately 16% of calendar recipients (288) 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 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 400 salmon fishing permits were issued to households in the Yukon Area in 2014, including 329 subsistence and 71 personal use permits (Table 4-4). Of these permits, 321 (98%) subsistence permits and 71 (100%) 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 1,312 households in the Yukon Area concerning their subsistence salmon harvests (Table 4-5).

SUBSISTENCE SALMON HARVESTS IN 2014

In 2014, 1,312 surveyed households (48% of the total households in surveyed communities) and 321 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 3,287 Chinook salmon (2% of the estimated total salmon harvest), 87,135 summer chum salmon (42%), 92,507 fall chum salmon (45%), 17,072 coho salmon (8%), and 6,932 pink salmon (3%), for a total of 206,933 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 2014 Chinook salmon harvest estimates were below the most recent Yukon Area 5-year averages (2009–2013), likely reflecting the restrictions put in place to protect them. The estimated subsistence and personal use harvest of 3,287 Chinook salmon in 2014 was 90% below the most recent 5-year average of 32,557 fish, and 92% below the most recent 10-year average of 42,316 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 7 years (2008–2014). In response to reduced Chinook salmon harvests, many households may try to replace some of their Chinook harvest with other, more abundant, salmon species. For example, in years when Chinook salmon harvests drop to record lows, the harvest of summer and fall chum salmon often increase. However, in 2014 the harvest of summer chum salmon fell below the last 5- and 10-year averages. Conservation measures to protect Chinook salmon likely had an effect on the harvest of summer chum salmon, since the two species co-migrate. The harvests of both fall chum and pink salmon in 2014 were higher than their respective 5-year and 10-year averages. The 2014 harvest of coho salmon was higher than the 5-year average but lower than the 10-year average.

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. After 1996, the harvest of summer chum steadily fell, dropping from 124,738 fish in 1996 to a low of 72,392 in 2001. Since then, summer chum harvests have been relatively stable. The estimated 2014 subsistence harvest of 87,135 summer chum salmon was 14% below the 5-year average of 101,713 fish and 11% below the 10-year average of 97,647 fish. While the harvest of summer chum salmon was lower in 2014 than in recent years, they may 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, fluctuations 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. 2014 marks the third time in 7 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 1,759 households in the Yukon Area that own dogs, about 12% (210 households) fed whole salmon to their dogs in 2014 (Jallen et al. *In prep*). Most households that own dogs feed fish scraps but do not harvest salmon to feed to dogs. Of the 5,388 dogs owned by Yukon Area households in 2014, upper Yukon households in districts 4, 5, and 6 owned 3,221 dogs (60% of the total number of dogs owned in Yukon River districts) (Figure 4-4). In 2014, 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 5,105 summer chum salmon, 28,218 fall chum salmon, and 1,946 coho salmon were retained

for dog food from subsistence salmon harvests. Dog food retention in 2014 was significantly lower than prior years, including 2013 when Yukon River fishers retained 18,890 summer chum for dog food, more than 3 times more those harvested in 2014. Similarly fall chum retention for dogs was nearly half of what it was in 2013 (51,427 fish). Additionally, permit holders in Y-5 and Y-6 fed 31,339 whole salmon to dogs (Jallen et al. *In prep*).

Primary gear types used by Yukon Area fishing households in 2014 included set gillnet (51%), drift gillnet (41%), and fish wheel (8%) (Figure 4-5), largely the same as the last several years.

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. Beginning in 2014 the Division of Commercial Fisheries no longer is reporting data on whether households met their subsistence needs. Historic needs met data can be found in prior issues of this report.

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 45% (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. For the seventh year in a row Chinook salmon harvests fell below the minimum bound of the ANS range (Table 4-8). Both summer and fall chum harvests fell within their respective ANS ranges; the 5th year in a row and 3rd year in a row respectively. Similar to 2013, the harvest of coho salmon (16,898 fish) was below the minimum bound of the ANS range (20,500 fish). See Table 4-8 for a comparison of ANS ranges and subsistence salmon harvests from 1998–2014.

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 federal regulations established by the Federal Subsistence Board, 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.[8]

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 2014 Yukon Area fishers from districts 1–5 harvested a total of 112,324 of these nonsalmon fish. This represents a considerable increase since 2010 when the total harvest of these species was 76,967 fish and even an increase over 2012 harvests of 106,030 fish (Table 4-7). 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 nonsalmon fishes (35,561), followed by District 4 (21,478). On a drainagewide level, small whitefish species were harvested in greater numbers than any other nonsalmon fish and made up 46% of the total nonsalmon harvest. Approximately 34,047 small whitefishes, or 30% of the total nonsalmon harvest, were harvested by Yukon River fishers from the coastal district and districts 1–2. Fishers in districts 1 and 5 harvested the greatest number of small whitefish (22,435 and 8,646 respectively); fishers in District 2 and 5 harvested the greatest numbers of large whitefishes (9,928 and 8,344 respectively). 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 14,852 northern pike and 12,583 sheefish in 2014. Districts 1, 2, and 4 households all harvested approximately the same numbers of northern pike (~3,574). District 1 households harvested more sheefish than in any other district (5,021). Permit fishers, primarily along the Tanana River and a few other locations along the Yukon River reported an additional harvest of 3,747 whitefish, 648 northern pike, and 215 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 (Brown et al. 2015); Anvik, Grayling, Russian Mission (Ikuta et al. 2014); Shageluk, Pilot Station (Ikuta et al. 2016), Minto and Manley Hot Springs (Brown et al. 2014); and Tanana, Stevens Village, and Rampart.[9] 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

[8]. 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.

[9]. 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

Yukon 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

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 have conducted comprehensive subsistence surveys in 11 Yukon River communities since 2010 (Brown et al. 2013, 2015; Ikuta et al. 2016). In all communities, salmon was a primary subsistence resource, accounting for an average of 41% of total community subsistence harvests by edible weight and was used by the majority of Yukon River households.

In 2014, residents of Scammon Bay, located in the Coastal District, Pilot Station, in District Y2, and Shageluk in District Y3, participated in comprehensive subsistence surveys. In 2014, fish was among the most widely harvested resource category of wild foods in each study community, making up the bulk of the community harvest by edible weight: 34% in Pilot Station, 45% in Scammon Bay, and 66% in Shageluk. Of the fish harvested in each community, salmon made up the majority of that harvest and contributed nearly the same percentage to each community's total subsistence harvest by edible weight: 20% in Scammon Bay, 27% in Pilot Station, and 24% in Shageluk (Ikuta et al. 2016). Together, the three communities harvested an estimated 86,406 edible pounds of salmon.

In a continued attempt to protect declining numbers of Chinook salmon in the Yukon River, ADF&G implemented conservative management strategies in 2014. Discussed above, the 2014 harvest of Chinook salmon on the Yukon River was low, especially compared to prior years (3,287 fish compared to the most recent 10 year average of 42,316 Chinook salmon). On a community level, the 2014 harvest of Chinook salmon was 45% less in Scammon Bay, 87% less in Pilot Station, and 76% less in Shageluk compared to the most recent 10-year harvest averages. Ethnographic data gathered during comprehensive subsistence research in 2014 concluded that these decreases in Chinook salmon harvest on the Yukon River was not reflective of a change in social or cultural significance, dietary preferences, or interest in Chinook salmon fishing. Instead, the reduction in harvest was generally considered a sacrifice to support future production and recovery that should not be understated.

Table 4-1.–Subsistence fishing schedule by district, Lower Yukon Area, 2014.

		Coastal District [a]				
		Southern [b]	Northern [c]	District 1	District 2	District 3
Fri	5/9	Open - no schedule		Open - no schedule	Open - no schedule	Open - no schedule
Sat	5/10	Open 7.5" mesh		Open 7.5" mesh	Open 7.5" mesh	Open 7.5" mesh
Sun	5/11	Open	Open	Open	Open	Open
Mon	5/12	Open	Open	Open	Open	Open
Tue	5/13	Open	Open	Open	Open	Open
Wed	5/14	Open	Open	Open	Open	Open
Thu	5/15	Open	Open	Open	Open	Open
Fri	5/16	8 pm 6" mesh	8 pm 6" mesh	8 pm 6" mesh	8pm 6" mesh	Open
Sat	5/17	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Sun	5/18	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Mon	5/19	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Tue	5/20	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Wed	5/21	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Thu	5/22	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Fri	5/23	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Sat	5/24	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Sun	5/25	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open 6" mesh	Open
Mon	5/26	Open 6" mesh	Close 8 pm	Close 8 pm	Close 8 pm	Close 8 pm
Tue	5/27	Open 6" mesh	Closed	Closed	Closed	Closed
Wed	5/28	Open 6" mesh	Closed	Closed	Closed	Closed
Thu	5/29	Open 6" mesh	Closed	Closed	Closed	Closed
Fri	5/30	Open 6" mesh	Closed	Closed	Closed	Closed
Sat	5/31	Open 6" mesh	Closed	Closed	Closed	Closed
Sun	6/1	Open 6" mesh	Closed	Open 8 am Dipnet only	Open 8 am Dipnet only	Open 8 am Dipnet only
Mon	6/2	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only
Tue	6/3	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only
Wed	6/4	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only
Thu	6/5	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only
Fri	6/6	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only
Sat	6/7	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only

-continued-

Table 4-1.–Page 2 of 5.

		Coastal District [a]				
		Southern [a]	Northern [b]	District 1	District 2	District 3
Sun	6/8	Open 6" mesh	Closed	Open Dipnet only	Open Dipnet only	Open Dipnet only
Mon	6/9	Open 6" mesh	Closed	Close 12 am [d]. **Comm. 12 pm-12 am**	Open [d] close 10 pm	Open Dipnet only
Tue	6/10	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Wed	6/11	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Thu	6/12	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Fri	6/13	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am e	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Sat	6/14	Open 6" mesh	Closed	Dipnet, b.seine; 6 am-12 am [f]	Dipnet, b.seine; 6 am-12 am [f]	Open Dipnet only
Sun	6/15	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Mon	6/16	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Tue	6/17	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Wed	6/18	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Thu	6/19	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Fri	6/20	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Sat	6/21	Open 6" mesh	Closed	Dipnet, b.seine; 6 am-12 am [f]	Dipnet, b.seine; 6 am-12 am [f]	Open Dipnet only
Sun	6/22	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Mon	6/23	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Tue	6/24	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Wed	6/25	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Thu	6/26	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Fri	6/27	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Sat	6/28	Open 6" mesh	Closed	6" mesh only 4 pm-7 pm	6" mesh only 1 pm-4 pm	Open Dipnet only
Sun	6/29	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Mon	6/30	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Tue	7/1	Open 6" mesh	Closed	Dipnet, b. seine; Noon-12 am [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Wed	7/2	Open 6" mesh	Closed	Dipnet, b. seine; Noon-8 pm [e]	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Thu	7/3	Open 6" mesh	Closed	Open 8 pm-12 am 6" mesh only [g]	Dipnet, b. seine; Noon-10 pm [e]	6" mesh 6 pm-9 pm [h]
Fri	7/4	Open 6" mesh	Closed	Closed	Dipnet, b. seine; Noon-10 pm [e]	Open Dipnet only
Sat	7/5	8 am 7.5" mesh	Closed	Open 10 am-2 pm 6" mesh only	Open 1 pm-5 pm 6" mesh only	Open Dipnet only
Sun	7/6	Open	Closed	Open Noon 6" mesh	Open 4 pm-10 pm Subs. & Comm.	Open Dipnet only

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Table 4-1.–Page 3 of 5.

		Coastal District [a]				
		Southern [a]	Northern [b]	District 1	District 2	District 3
Mon	7/7	Open	Closed	Close 9 am. **Open 3 pm-12 am**	Open 4 am 6" mesh	Open Dipnet only
Tue	7/8	Open	8 am 7.5" mesh	Open 6 am 6" mesh	Close 8 am. **Open 4 pm-10 pm**	Open Dipnet only
Wed	7/9	Open	Open 7.5" mesh	Close 9 am. **Open 3 pm-12 am**	Open 4 am 6" mesh	8pm 6" mesh only
Thu	7/10	Open	Open	Open 6 am 6" mesh	Close 10 am. **Open 4 pm-10 pm**	Open 6" mesh
Fri	7/11	Open	Open	Close 9 am. **Open 3 pm-12 am**	Open 4 am 6" mesh	Close 8 am
Sat	7/12	Open	Open	Open 6 am 6" mesh	Close 8 am. **Open 2 pm-11 pm**	Closed
Sun	7/13	Open	Open	Close 6 am. **Open Noon-12 am**	Open 5 am 6" mesh	Open 8 pm 6" mesh
Mon	7/14	Open	Open	Open 6 am 6" mesh	Close 8 am. **Open 2 pm-11 pm**	Open 6" mesh
Tue	7/15	Open	Open	Close 6 am. **Open Noon-12 am**	Open 5 am 6" mesh	Close 8 am
Wed	7/16	Open	Open	Open 12 pm 7.5" mesh	Close 8 am. **Open 2 pm-11 pm**	Open 8 pm 6" mesh
Thu	7/17	Open	Open	Close 4 am. **Open 4 pm-10 pm** [i]	Open 5 am 6" mesh	Open 6" mesh
Fri	7/18	Open	Open	Open 10 am	Open	Close 8 am
Sat	7/19	Open	Open	Open	11 am 7.5" mesh	Closed
Sun	7/20	Open	Open	Open	Close 2 am. **Open 2 pm-8 pm**	Open 8 pm 7.5" mesh
Mon	7/21	Open	Open	Close 6 am. **Open 6 pm-12 am** [i]	Open 8 am 7.5" mesh	Open
Tue	7/22	Open	Open	Open Noon	Open	Open
Wed	7/23	Open	Open	Open	Open	Open
Thu	7/24	Open	Open	Open	Open	Open
Fri	7/25	Open	Open	Close 4 am. **Open 4 pm-10 pm** [i]	Open	Open
Sat	7/26	Open	Open	Open 10 am	Open	Open
Sun	7/27	Open	Open	Open	Close 2 am. **Open 2 pm-8 pm**	Open
Mon	7/28	Open	Open	Close 4 am. **Open 4 pm-10 pm** [i]	Open 8am	Open
Tue	7/29	Open	Open	Open 10am	Open	Open
Wed	7/30	Open	Open	Open	Open	Open
Thu	7/31	Open	Open	Open	Open	Open
Fri	8/1	Open	Open	Open	Open	Open
Sat	8/2	Open	Open	Open	Open	Open
Sun	8/3	Open	Open	Open	Close 2 am. **Open 2 pm-7 pm**	Open
Mon	8/4	Open	Open	Open	Open 7 am	Open
Tue	8/5	Open	Open	Open	Open	Open

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Table 4-1.–Page 4 of 5.

		Coastal District [a]				
		Southern [a]	Northern [b]	District 1	District 2	District 3
Wed	8/6	Open	Open	Open	Open	Open
Thu	8/7	Open	Open	Open	Open	Open
Fri	8/8	Open	Open	Open	Open	Open
Sat	8/9	Open	Open	Open	Open	Open
Sun	8/10	Open	Open	Open	Open	Open
Mon	8/11	Open	Open	Open	Open	Open
Tue	8/12	Open	Open	Open	Open	Open
Wed	8/13	Open	Open	Open	Open	Open
Thu	8/14	Open	Open	Open	Open	Open
Fri	8/15	Open	Open	Close 1 pm. **Open 4 pm-10 pm** [i]	Open	Open
Sat	8/16	Open	Open	Open 10 am	Open	Open
Sun	8/17	Open	Open	Open	Open	Open
Mon	8/18	Open	Open	Open	Close 12 pm. **Open 2 pm-7 pm**	Open
Tue	8/19	Open	Open	Close 11 am. **Open 5 pm-11 pm** [i]	Open 7 am	Open
Wed	8/20	Open	Open	Open 11am	Open	Open
Thu	8/21	Open	Open	Open	Open	Open
Fri	8/22	Open	Open	Open	Close 2 am. **Open 2 pm-8 pm**	Open
Sat	8/23	Open	Open	Open	Open 8 am	Open
Sun	8/24	Open	Open	Open	Close 2 am. **Open 2 pm-6 pm**	Open
Mon	8/25	Open	Open	Close Midnight. **Open 12 pm-9 pm** [i]	Open 6 am	Open
Tue	8/26	Open	Open	Open 9 am - 12 pm **Open 5 pm-9 pm** [i]	Open	Open
Wed	8/27	Open	Open	Open 9 am	Close 1 am. **Open 1 pm-7 pm**	Open
Thu	8/28	Open	Open	Close Midnight. **Open 12 pm-9 pm** [i]	Open 7 am	Open
Fri	8/29	Open	Open	Open 9 am	Open	Open
Mon	8/30	Open	Open	Open	Close 1 am. **Open 1 pm-7 pm**	Open
Sun	8/31	Open	Open	Open	Open	Open
Mon	9/1	Open	Open	Close Midnight. **Open 12 pm-9 pm** [i]	Open	Open
Tue	9/2	Open	Open	Open 9 am. Close 9 pm	Open	Open
Wed	9/3	Open	Open	**Open 9 am-6 pm** [i]	Open	Open
Thu	9/4	Open	Open	Open 6 am. Close 11 pm	Open	Open

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Table 4-1.–Page 5 of 5.

		Coastal District [a]				
		Southern [a]	Northern [b]	District 1	District 2	District 3
Fri	9/5	Open	Open	**Open 11 am-8 pm [i]**	Open	Open
Mon	9/6	Open	Open	Open 8 am	Open	Open
Sun	9/7	Open	Open	Open	Open	Open

Note Shaded areas indicate fishery closures, outlined shaded days were closed to protect pulses of Chinook salmon. Dates with double lines on the left contain concurrent subsistence and commercial fishery openings limited to dip nets only or dip nets and beach seines only 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. Beach seine (abbreviated 'b. seine') is restricted to 4-inch or smaller mesh . 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 Romanoff and 3 miles offshore.

d. Subsistence only opening with dip nets until 12pm noon. Subsistence and commercial fishing with dip nets and beach seines open concurrently from 12 pm to 12 am (District 1) or 10 pm (District 2).

e. Subsistence and commercial fishing fishing with dip nets and beach seines for summer chum salmon open concurrently for 12 hour periods from 12 pm to 12 am (District 1) or 10 hour periods from 12 pm to 10 pm (District 2). Chinook salmon must be released alive from subsistence and commercial gear.

f. Subsistence only opening with dip nets and beach seines. Chinook salmon must be released alive.

g. Subsistence and commercial fishing open for 4 hours with 6-inch or smaller mesh only.

h. Subsistence fishing open with 6-inch mesh for 3 hours. Subsistence fishing open 24 hours a day with dip nets.

i. Commercial fishing open in Set Net Only area of District Y-1 concurrent with commercial fishing in the remainder of District Y-1.

Table 4-2.–Subsistence fishing schedule by district, Upper Yukon Area, 2014.

	Subdistrict 4-A [a]		Sub 4-B / 4-C [b]	5-A/5-B / 5-C	Subdistrict 5-D [c]		
	Lower	Upper			Lower	Middle	Upper
5/12	Open - no schedule		Open - no schedule		Open - no schedule		
5/13	Open 7.5"	Open 7.5"	Open 7.5"	Open 7.5"	Open 7.5"	Open 7.5"	Open 7.5"
5/14	Open	Open	Open	Open	Open	Open	Open
5/15	Open	Open	Open	Open	Open	Open	Open
5/16	Open	Open	Open	Open	Open	Open	Open
5/17	Open	Open	Open	Open	Open	Open	Open
5/18	Open	Open	Open	Open	Open	Open	Open
5/19	Open	Open	Open	Open	Open	Open	Open
5/20	Open	Open	Open	Open	Open	Open	Open
5/21	Open	Open	Open	Open	Open	Open	Open
5/22	Open	Open	Open	Open	Open	Open	Open
5/23	Open	Open	Open	Open	Open	Open	Open
5/24	Open	Open	Open	Open	Open	Open	Open
5/25	Open	Open	Open	Open	Open	Open	Open
5/26	Open	Open	Open	Open	Open	Open	Open
5/27	Open	Open	Open	Open	Open	Open	Open
5/28	Open	Open	Open	Open	Open	Open	Open
5/29	Open	Open	Open	Open	Open	Open	Open
5/30	Open	Open	Open	Open	Open	Open	Open
5/31	Close 8 pm	Open	Open	Open	Open	Open	Open
6/1	Closed	Open	Open	Open	Open	Open	Open
6/2	Closed	Close 8 pm	Open	Open	Open	Open	Open
6/3	Closed	Closed	Open	Open	Open	Open	Open
6/4	Closed	Closed	Close 8 pm	Open	Open	Open	Open
6/5	Closed	Closed	Closed	Open	Open	Open	Open
6/6	Closed	Closed	Closed	Open	Open	Open	Open
6/7	Closed	Closed	Closed	Close 8 pm	Open	Open	Open
6/8	Closed	Closed	Closed	Closed	Open	Open	Open
6/9	Closed	Closed	Closed	Closed	Open	Open	Open

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Table 4-2.–Page 2 of 5.

	Subdistrict 4-A [a]		Sub 4-B / 4-C [b]	5-A/5-B / 5-C	Subdistrict 5-D [c]		
	Lower	Upper			Lower	Middle	Upper
6/10	Closed	Closed	Closed	Closed	Open	Open	Open
6/11	Closed	Closed	Closed	Closed	Close 8 pm	Open	Open
6/12	Closed	Closed	Closed	Closed	Closed	Open	Open
6/13	Closed	Closed	Closed	Closed	Closed	Open	Open
6/14	Closed	Closed	Closed	Closed	Closed	Open	Open
6/15	Closed	Closed	Closed	Closed	Closed	Close 8 pm	Open
6/16	Closed	Closed	Closed	Closed	Closed	Closed	Open
6/17	Closed	Closed	Closed	Closed	Closed	Closed	Close 8 pm
6/18	Open 8 am: Gear [d]	Closed	Closed	Closed	Closed	Closed	Closed
6/19	Open Dip net, b.seine	Closed	Closed	Closed	Closed	Closed	Closed
6/20	Open Dip net, b.seine	Closed	Closed	Closed	Closed	Closed	Closed
6/21	Open Dip net, b.seine	Closed	Closed	Closed	Closed	Closed	Closed
6/22	Open Dip net, b.seine	Closed	Closed	Closed	Closed	Closed	Closed
6/23	Open Dip net, b.seine [d, e]	Open 8 am: Gear [e, f]	Closed	Closed	Closed	Closed	Closed
6/24	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Closed	Closed	Closed	Closed	Closed
6/25	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Closed	Closed	Closed	Closed	Closed
6/26	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open 8 am: Gear [f]	Closed	Closed	Closed	Closed
6/27	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
6/28	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
6/29	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
6/30	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear 8 pm [g]	Closed	Closed	Closed
7/1	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear	Closed	Closed	Closed
7/2	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear	Closed	Closed	Closed
7/3	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear	Closed	Closed	Closed
7/4	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear	Closed	Closed	Closed
7/5	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear	Closed	Closed	Closed
7/6	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear	Closed	Closed	Closed
7/7	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	All gear 8 am	Closed	Closed	Closed
7/8	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/9	Open Dip net, b.seine [d, e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed

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Table 4-2.–Page 3 of 5.

	Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D [c]		
	Lower	Upper	4-C [b]	5-C	Lower	Middle	Upper
7/10	Open 6 pm 6" mesh [d, e, h]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/11	Close 6 pm [e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/12	Closed [e]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/13	Open 6 pm [e, h]	Open Dip net, fish wheel [e]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/14	Open [h]	6 pm 6" mesh [h]	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/15	Close 6 pm	Close 6 pm	Open D. net, f. wheel [f]	Closed	Closed	Closed	Closed
7/16	Open 6 pm [h]	Open 6 pm [h]	6 pm 6" mesh [h]	Closed	Closed	Closed	Closed
7/17	Open [h]	Open [h]	Open [h]	Closed	Closed	Closed	Closed
7/18	Close 6 pm [e]	Close 6 pm [e]	Close 6 pm	Closed	Closed	Closed	Closed
7/19	Closed [e]	Closed [e]	Closed	Closed	Closed	Closed	Closed
7/20	Open 6 pm 7.5" mesh [e]	Open 6 pm 7.5" mesh [e]	Open 6 pm [h]	Closed	Closed	Closed	Closed
7/21	Open 7.5" mesh [i]	Open 7.5" mesh [i]	Open [h]	Closed	Closed	Closed	Closed
7/22	Close 6 pm [i]	Close 6 pm [i]	Close 6 pm	6 pm 6" mesh [j]	Closed	Closed	Closed
7/23	Open 6 pm [i]	Open 6 pm [i]	Open 6 pm 7.5" mesh	Open 6" mesh [j]	Closed	Closed	Closed
7/24	Open [i]	Open [i]	Open 7.5" mesh	Close 6 pm	Closed	Closed	Closed
7/25	Open [i]	Open [i]	Close 6 pm	Open 6 pm 6" [j]	6 pm 6" mesh [j]	Closed	Closed
7/26	Open	Open	Closed	Open 6" mesh [j]	Open 6" mesh [j]	Closed	Closed
7/27	Close 6 pm	Close 6 pm	Open 6 pm	Close 6 pm	Open 6" mesh [j]	Closed	Closed
7/28	Closed	Closed	Open	Closed	Open 6" mesh [j]	6 pm 6"mesh [j]	Closed
7/29	Open 6 pm	Open 6 pm	Open	Open 6 pm 7.5"	Open 6" mesh [j]	Open 6" mesh [j]	Closed
7/30	Open	Open	Open	Open 7.5" mesh	6 pm 7.5" mesh	Open 6" mesh [j]	Closed
7/31	Open	Open	Open	Close 6 pm	Open	Open 6" mesh [j]	Closed
8/1	Open	Open	Close 6pm	Open 6 pm	Open	Open 6" mesh [j]	6 pm 6" mesh [j]
8/2	Open	Open	Closed	Open	Open	6 pm 7.5" mesh	Open 6" mesh [j]
8/3	Close 6 pm	Close 6 pm	Open 6 pm	Close 6 pm	Open	Open	Open 6" mesh [j]
8/4	Closed	Closed	Open	Closed	Open	Open	Open 6" mesh [j]
8/5	Open 6 pm	Open 6 pm	Open	Open 6 pm	Open	Open	6 pm 7.5" mesh
8/6	Open	Open	Open	Open	Open	Open	Open
8/7	Open	Open	Open	Open	Open	Open	Open
8/8	Open	Open	Open	Open	Open	Open	Open

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Table 4-2.–Page 4 of 5.

	Subdistrict 4-A [a]		Sub 4-B /	5-A/5-B /	Subdistrict 5-D [c]		
	Lower	Upper	4-C [b]	5-C	Lower	Middle	Upper
8/9	Open	Open	Open	Open	Open	Open	Open
8/10	Open	Open	Open	Close 6 pm	Open	Open	Open
8/11	Open	Open	Open	Closed	Open	Open	Open
8/12	Open	Open	Open	Open 6pm [k]	Open	Open	Open
8/13	Open	Open	Open	Open [k]	Open	Open	Open
8/14	Open	Open	Open	Open [k]	Open	Open	Open
8/15	Open	Open	Open	Open [k]	Open	Open	Open
8/16	Open	Open	Open	Open [k]	Open	Open	Open
8/17	Open	Open	Open	Open [k]	Open	Open	Open
8/18	Open	Open	Open	Open	Open	Open	Open
8/19	Open	Open	Open	Open 6 pm [k]	Open	Open	Open
8/20	Open	Open	Open	Open [k]	Open	Open	Open
8/21	Open	Open	Open	Open [k]	Open	Open	Open
8/22	Open	Open	Open	Open [k]	Open	Open	Open
8/23	Open	Open	Open	Open [k]	Open	Open	Open
8/24	Open	Open	Open	Open [k]	Open	Open	Open
8/25	Open	Open	Open	Open	Open	Open	Open
8/26	Open	Open	Open	Open [l]	Open	Open	Open
8/27	Open	Open	Open	Open [l]	Open	Open	Open
8/28	Open	Open	Open	Open [l]	Open	Open	Open
8/29	Open	Open	Open	Open [l]	Open	Open	Open
8/30	Open	Open	Open	Open [l]	Open	Open	Open
8/31	Open	Open	Open	Open [l]	Open	Open	Open
9/1	Open	Open	Open	Open	Open	Open	Open
9/2	Open	Open	Open	Open	Open	Open	Open
9/3	Open	Open	Open	Open	Open	Open	Open
9/4	Open	Open	Open	Open	Open	Open	Open
9/5	Open	Open	Open	Open	Open	Open	Open
9/6	Open	Open	Open	Open	Open	Open	Open
9/7	Open	Open	Open	Open	Open	Open	Open

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Table 4-2.–Page 5 of 5.

	Subdistrict 4-A [a]		Sub 4-B / 4-C [b]	5-A/5-B / 5-C	Subdistrict 5-D [c]		
	Lower	Upper			Lower	Middle	Upper
9/8	Open	Open	Open	Open	Open	Open	Open
9/9	Open	Open	Open	Open	Open	Open	Open
9/10	Open	Open	Open	Open	Open	Open	Open
9/11	Open	Open	Open	Open	Open	Open	Open

Note Shaded areas indicate fishery closures following the regulatory schedule. Outlined shaded days were closed to protect pulses of Chinook salmon. Unless noted, mesh size was restricted to 7.5 inch or less in all districts and subdistricts. The Koyukuk River was closed from 8 pm June 18 to 8 pm July 2, and restricted to 6-inch or smaller mesh from 8 pm July 2 to 6 pm July 28. Previously published in Jallen et al. 2016

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. Subsistence fishing for summer chum salmon open in the Anvik River Special Management Area (lower 12 miles of Anvik River upstream from regulatory markers) with dip nets and beach seine gear only. Remainder of Subdistrict 4-A Lower open for dip net gear and live-release fish wheels only.

e. Commercial fishing open concurrently with subsistence for 24-hour fishing periods. Commercial fishing gear restricted to fish wheels that must be manned at all times and all Chinook salmon immediately released to the water alive.

f. Subsistence fishing for summer chum salmon with dip net gear and live-release fish wheels only. Subsistence dip net fishermen were required to immediately release Chinook salmon alive from this gear type. Fish wheels must be equipped with a chute or a live box and closely attended while in operation and all Chinook salmon caught in fish wheels must be returned to the water alive.

g. Fishing closed for all gear types, including 4-inch or smaller mesh, from 8 pm June 30 to 8 am July 7.

h. Fishing open for 6-inch mesh and live release fish wheels only. Fishing with beach seine and dip net gear discontinued. Chinook salmon caught in fish wheels must be returned to the water alive.

i. Commercial fishing allowed concurrent with subsistence fishing with fish wheels and 6-inch or smaller mesh. Chinook salmon may be retained and must be recorded on fish tickets if caught but not sold.

j. Subsistence fishing allowed with 6-inch or smaller mesh and fish wheels equipped with a chute or live box that must be closely attended and all Chinook salmon caught in fish wheels must be returned to the water alive.

k. Commercial fishing open in 5-B and 5-C concurrent with subsisence fishing periods. Gill nets used for commercial fishing restricted to 6-inch or smaller mesh. Chinook salmon can not be sold but may be released or retained for subsistence.

l. Commercial fishing open in 5-B and 5-C from 6 pm Tuesday unitl 6 pm Sunday concurrent with subsisence fishing. Gill nets used for commercial fishing restricted to 6" or smaller mesh.

Table 4-3.–Subsistence and commercial salmon fishing schedule and gear restrictions, Old Minto Area, Tanana River, and Koyukuk River, 2014.

	Tanana River Subdistricts			Old Minto		Tanana River Subdistricts			Old Minto
Date	6A	6B	6C	Area	Date	6A	6B	6C	Area
5/13	Open [a]	Open [a]	Open [a]	Open [a]	6/13	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm
5/14	Close noon	Close noon	Close noon	Close 6 pm	6/14	Open	Open	Open	Open
5/15	Closed	Closed	Closed	Closed	6/15	Close noon	Close noon	Close noon	Open
5/16	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm	6/16	Open 6 pm	Open 6 pm	Open 6 pm	Open
5/17	Open	Open	Open	Open	6/17	Open	Open	Open	Open
5/18	Close noon	Close noon	Close noon	Open	6/18	Close noon	Close noon	Close noon	Close 6 pm
5/19	Open 6 pm	Open 6 pm	Open 6 pm	Open	6/19	Closed	Closed	Closed	Closed
5/20	Open	Open	Open	Open	6/20	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm
5/21	Close noon	Close noon	Close noon	Close 6 pm	6/21	Open	Open	Open	Open
5/22	Closed	Closed	Closed	Closed	6/22	Close noon	Close noon	Close noon	Open
5/23	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm	6/23	Open 6 pm	Open 6 pm	Open 6 pm	Open
5/24	Open	Open	Open	Open	6/24	Open	Open	Open	Open
5/25	Close noon	Close noon	Close noon	Open	6/25	Close noon	Close noon	Close noon	Close 6 pm
5/26	Open 6 pm	Open 6 pm	Open 6 pm	Open	6/26	Closed	Closed	Closed	Closed
5/27	Open	Open	Open	Open	6/27	Open 6 pm	Open 6 pm	Closed	Open 6 pm
5/28	Close noon	Close noon	Close noon	Close 6 pm	6/28	Open	Open	Closed	Open
5/29	Closed	Closed	Closed	Closed	6/29	Close noon	Close noon	Closed	Close 12 pm
/013	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm	6/30	Closed	Closed	Closed	Closed
5/31	Open	Open	Open	Open	7/1	Closed	Closed	Closed	Closed
6/1	Close noon	Close noon	Close noon	Open	7/2	Closed	Closed	Closed	Close 6 pm
6/2	Open 6 pm	Open 6 pm	Open 6 pm	Open	7/3	Closed	Closed	Closed	Closed
6/3	Open	Open	Open	Open	7/4	Closed	Closed	Closed	Closed
6/4	Close noon	Close noon	Close noon	Close 6 pm	7/5	Closed	Closed	Closed	Closed
6/5	Closed	Closed	Closed	Closed	7/6	Close noon	Close noon	Close noon	Closed
6/6	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm	7/7	Open 6 pm	Open 6 pm	Closed	Open 6 pm
6/7	Open	Open	Open	Open	7/8	Open	Open	Closed	Open
6/8	Close noon	Close noon	Close noon	Open	7/9	Close noon	Close noon	Closed	Close 6 pm
6/9	Open 6 pm	Open 6 pm	Open 6 pm	Open	7/10	Closed	Closed	Closed	Closed
6/10	Open	Open	Open	Open	7/11	Open 6 pm [b]	Open 6 pm [b]	Closed	Open 6 pm
6/11	Close noon	Close noon	Close noon	Close 6 pm	7/12	Open [b]	Open [b]	Closed	Open
6/12	Closed	Closed	Closed	Closed	7/13	Close noon	Close noon	Close noon	Open

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Table 4-3.–Page 2 of 3.

Date	Tanana River Subdistricts 6A	6B	6C	Old Minto Area	Date	Tanana River Subdistricts 6A	6B	6C	Old Minto Area
7/14	Open 6 pm[b]	Open 6 pm[b]	Closed	Open	8/14	Closed	Closed	Closed	Closed
7/15	Open[b]	Open[b]	Closed	Open	8/15	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm
7/16	Close noon	Close noon	Closed	Close 6 pm	8/16	Open	Open	Open	Open
7/17	Closed	Closed	Closed	Closed	8/17	Close noon	Close noon	Close noon	Open
7/18	Open 6 pm[b]	Open 6 pm[b]	Closed	Open 6 pm	8/18	Open 6 pm	Open 6 pm	Open 6 pm	Open
7/19	Open[b]	Open[b]	Closed	Open	8/19	Open	Open	Open	Open
7/20	Close noon	Close noon	Closed	Open	8/20	Close noon	Close noon	Close noon	Close 6 pm
7/21	Open 6 pm[b]	Open 6 pm[b]	Closed	Open	8/21	Closed	Closed	Closed	Closed
7/22	Open[b]	Open[b]	Closed	Open	8/22	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm
7/23	Close noon	Close noon	Closed	Close 6 pm	8/23	Open[d]	Open[d]	Open[d]	Open
7/24	Closed	Closed	Closed	Closed	8/24	Close noon	Close noon	Close noon	Open
7/25	Open 6 pm[b]	Open 6 pm[b]	Closed	Open 6 pm	8/25	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm[d]	Open
7/26	Open[b]	Open[b]	Closed	Open	8/26	Open[d]	Open[d]	Open[d]	Open
7/27	Close noon	Close noon	Closed	Open	8/27	Close noon	Close noon	Close noon	Close 6 pm
7/28	Open 6 pm[c]	Open 6 pm[c]	Open 6 pm	Open	8/28	Closed	Closed	Closed	Closed
7/29	Open[c]	Open[c]	Open	Open	8/29	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm
7/30	Close noon	Close noon	Close noon	Close 6 pm	8/30	Open[d]	Open[d]	Open[d]	Open
7/31	Closed	Closed	Closed	Closed	8/31	Close noon	Close noon	Close noon	Open
8/1	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm	Open 6 pm	9/1	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm[d]	Open
8/2	Open[d]	Open[d]	Open	Open	9/2	Open[d]	Open[d]	Open[d]	Open
8/3	Close noon	Close noon	Close noon	Open	9/3	Close noon	Close noon	Close noon	Close 6 pm
8/4	Open 6 pm[d]	Open 6 pm[d]	Open 6 pm	Open	9/4	Closed	Closed	Closed	Closed
8/5	Open[d]	Open[d]	Open	Open	9/5	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm
8/6	Close noon	Close noon	Close noon	Close 6 pm	9/6	Open	Open	Open	Open
8/7	Closed	Closed	Closed	Closed	9/7	Close noon	Close noon	Close noon	Open
8/8	Open 6 pm	Open 6 pm	Open 6 pm	Open 6 pm	9/8	Open 6 pm	Open 6 pm	Open 6 pm	Open
8/9	Open	Open	Open	Open	9/9	Open	Open	Open	Open
8/10	Close noon	Close noon	Close noon	Open	9/10	Close noon	Close noon	Close noon	Open
8/11	Open 6 pm	Open 6 pm	Open 6 pm	Open	9/11	Closed	Closed	Closed	Open
8/12	Open	Open	Open	Open	9/12	Open 6 pm	Open 6 pm	Open 6 pm	Open
8/13	Close noon	Close noon	Close noon	Close 6 pm	9/13	Open	Open	Open	Open

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Table 4-3.–Page 3 of 3.

Date	Tanana River Subdistricts 6A	6B	6C	Old Minto Area	Date	Tanana River Subdistricts 6A	6B	6C	Old Minto Area
9/14	Close noon	Close noon	Close noon	Open	9/24	Close noon	Close noon	Close noon	Open
9/15	Open 6 pm	Open 6 pm	Open 6 pm	Open	9/25	Closed	Closed	Closed	Open
9/16	Open	Open	Open	Open	9/26	Open 6 pm	Open 6 pm	Open 6 pm	Open
9/17	Close noon	Close noon	Close noon	Open	9/27	Open	Open	Open	Open
9/18	Closed	Closed	Closed	Open	9/28	Close noon	Close noon	Close noon	Open
9/19	Open 6 pm	Open 6 pm	Open 6 pm	Open	9/29	Open 6 pm	Open 6 pm	Open 6 pm	Open
9/20	Open	Open	Open	Open	9/30	Open	Open	Open	Open
9/21	Close noon	Close noon	Close noon	Open	10/1	Open	Open	Close noon	Open
9/22	Open 6 pm	Open 6 pm	Open 6 pm	Open	10/2	Open	Open	Closed	Open
9/23	Open	Open	Open	Open	10/3	Open	Open	Open 6 pm	Open

Note: Shaded areas indicate fishery closures following regulatory schedule, outlined shaded days were closed to protect pulses of Chinook salmon. Unless noted, mesh size was restricted to 7.5-inch or less in all districts and subdistricts. The Upper Tanana river remained open all season for 7.5-inch or smaller mesh. Previously published in Jallen et al. 2016

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

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 concurrent with subsistence openings. Commercial fishermen may use either set gillnets with 6-inch or smaller mesh or fish wheels. Sale of Chinook salmon is prohibited; fishermen may retain them for subsistence purposes.

d. Commercial fishing open concurrent with subsistence fishing. Commercial fishermen restricted to fish wheels or 6-inch or smaller mesh. Chinook salmon may be retained for subsistence.

Table 4-4.–Household subsistence and personal use permits, listed by fishery and community of residence, Yukon Area, 2014.

Community	Permits		Percent returned	Number of permits returned that fished
	Issued	Returned		
Subsistence permits				
Central	7	7	100%	2
Circle	12	10	83%	7
Eagle	17	17	100%	12
Rampart	4	3	75%	3
Fairbanks (FNSB)[a]	171	169	99%	93
Healy	3	3	100%	3
Manley	16	16	100%	9
Minto	35	35	100%	11
Nenana	37	34	92%	19
Stevens Village	2	2	100%	0
Upper Tanana Villages[b]	15	15	100%	10
Other Subsistence[c]	10	10	100%	5
Subsistence permit subtotal	**329**	**321**	**98%**	**174**
Personal use permits				
Fairbanks (FNSB)[a]	64	64	100%	29
Other personal use[d]	7	7	100%	4
Personal use permit subtotal	**71**	**71**	**100%**	**33**
Total	**400**	**392**	**98%**	**207**

Source Jallen et al. *In prep*

a. Fairbanks North Star Borough (FNSB) residents from the communities of Ester, Fairbanks, North Pole, Salcha, and Two Rivers.
b. Includes residents from Delta Junction, Dot Lake, Northway, Tanacross, and Tok who were issued a subsistence fishing permit for the Yukon, Tanana, Tolovana, and Upper Koyukuk Rivers.
c. Includes residents from Chugiak, Lake Minchumina, Palmer, Wasilla, and Wiseman who were issued a subsistence fishing permit.
d. Includes residents from Delta Junction, Nenana, and Wasilla who were issued a personal use permit.

Table 4-5.–Estimated number of subsistence fishing households in surveyed communities, with community and district totals, Yukon Area, 2014.

Community	Households		Estimated number of fishing households
	Total	Surveyed	
Hooper Bay	233	90	146
Scammon Bay	121	59	71
Coastal District subtotal	**354**	**149**	**217**
Alakanuk	149	67	121
Emmonak	188	103	79
Kotlik	119	59	76
Nunam Iqua	36	32	23
District 1 subtotal	**492**	**261**	**299**
Marshall	102	70	80
Mountain Village	169	76	103
Pilot Station	125	65	36
Pitkas Point	33	19	20
St Mary's	138	66	94
District 2 subtotal	**567**	**296**	**333**
Holy Cross	64	31	23
Russian Mission	80	30	58
Shageluk	29	19	7
District 3 subtotal	**173**	**80**	**88**
Alatna	8	6	5
Allakaket	62	24	16
Anvik	34	23	23
Bettles	30	20	1
Galena	155	58	42
Grayling	54	28	43
Hughes	35	29	3
Huslia	89	29	12
Kaltag	57	19	47
Koyukuk	45	19	23
Nulato	87	33	67
Ruby	68	24	12
District 4 subtotal	**724**	**312**	**294**
Beaver	30	26	5
Birch Creek	12	6	0
Chalkyitsik	31	22	3
Fort Yukon	230	81	46
Stevens Village	8	6	3
Tanana	95	45	33
Venetie	79	28	14
District 5 subtotal	**485**	**214**	**104**
Total	**2,795**	**1,312**	**1,335**

Source Jallen et al. *In prep*

Table 4-6.–Estimated subsistence salmon harvests by community, Yukon Area, 2014.

Community	Households or permits		Estimated salmon harvest[a]					
	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	Total
Hooper Bay	233	90	455	118	13,236	137	712	14,658
Scammon Bay	121	59	108	86	6,068	115	1,923	8,300
Coastal District subtotal	**354**	**149**	**563**	**204**	**19,304**	**252**	**2,635**	**22,958**
Alakanuk	149	67	214	443	9,120	593	970	11,340
Emmonak	188	103	463	613	7,143	2,465	588	11,272
Kotlik	119	59	617	573	5,621	886	1,064	8,761
Nunam Iqua (Sheldon Point)	36	32	62	153	2,010	128	670	3,023
District 1 subtotal	**492**	**261**	**1,356**	**1,782**	**23,894**	**4,072**	**3,292**	**34,396**
Marshall	102	70	128	468	6,189	1,100	1	7,886
Mountain Village	169	76	178	202	7,059	1,484	233	9,156
Pilot Station	125	65	163	568	5,728	796	27	7,282
Pitkas Point	33	19	79	123	1,588	400	45	2,235
Saint Marys	138	66	68	408	5,570	2,037	614	8,697
District 2 subtotal	**567**	**296**	**616**	**1,769**	**26,134**	**5,817**	**920**	**35,256**
Holy Cross	64	31	0	103	97	1,840	0	2,040
Russian Mission	80	30	16	124	3,181	365	8	3,694
Shageluk	29	19	32	113	470	252	3	870
District 3 subtotal	**173**	**80**	**48**	**340**	**3,748**	**2,457**	**11**	**6,604**
Alatna	8	6	0	0	0	15	0	15
Allakaket	62	24	8	109	1,276	510	0	1,903
Anvik	34	23	0	197	2,052	1,028	0	3,277
Bettles	30	20	1	0	4	0	0	5
Galena	155	58	1	718	377	3,368	6	4,470
Grayling	54	28	3	403	1,617	1,451	39	3,513
Hughes	35	29	13	17	889	348	0	1,267
Huslia	89	29	38	265	2,325	579	0	3,207
Kaltag	57	19	10	514	954	2,828	0	4,306
Koyukuk	45	19	52	50	300	998	0	1,400
Nulato	87	33	0	454	158	3,839	8	4,459
Ruby	68	24	6	335	29	972	13	1,355
District 4 subtotal	**724**	**312**	**132**	**3,062**	**9,981**	**15,936**	**66**	**29,177**
Beaver	30	26	0	2	0	323	0	325
Birch Creek	12	6	0	0	0	0	0	0
Central	7	7	0	0	0	0	0	0
Chalkyitsik	31	22	5	38	16	125	0	184
Circle	12	10	0	0	0	1,277	0	1,277

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Table 4-6.–Page 2 of 2.

Community	Households or permits: Total	Households or permits: Surveyed or returned	Estimated salmon harvest[a]: Chinook	Coho	Summer chum	Fall chum	Pink	Total
Eagle	17	17	76	1	0	17,450	0	17,527
Fairbanks	235	233	55	3,863	715	6,874	0	11,507
Fort Yukon	230	81	93	201	19	8,025	0	8,338
Rampart	4	3	0	0	70	0	0	70
Stevens Village	10	8	0	0	0	6,700	0	6,700
Tanana	95	45	88	1,788	2,612	14,131	8	18,627
Venetie	79	28	12	0	0	1,538	0	1,550
District 5 subtotal	**762**	**486**	**329**	**5,893**	**3,432**	**56,443**	**8**	**66,105**
Healy	3	3	0	864	0	1,735	0	2,599
Manley	16	16	92	1,177	239	2,579	0	4,087
Minto	35	35	0	37	24	472	0	533
Nenana	37	34	139	1,938	275	2,510	0	4,862
District 6 subtotal	**154**	**151**	**894**	**6,474**	**884**	**12,619**	**0**	**20,871**
Other communities	32	32	12	6	104	234	0	356
Total	**3,195**	**1,704**	**3,287**	**17,072**	**87,135**	**92,507**	**6,932**	**206,933**

Source Jallen et al. *In prep*

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, 1976–2014.

Year	Households or permits[a]		Estimated salmon harvest[a]					
	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

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Table 4-7.–Page 2 of 2.

Year	Households or permits[a] Total	Households or permits[a] Surveyed or returned	Estimated salmon harvest[a] Chinook	Coho	Summer chum	Fall chum	Pink	Total
2014	3,195	1,704	3,287	17,072	87,135	92,507	6,932	206,933
5-year average (2009–2013)	3,068	1,585	32,557	15,792	101,713	86,417	3,004	239,482
10-year average (2004–2013)	2,941	1,519	42,316	19,050	97,647	86,129	4,435	249,578
Historical average (1976–2013)	2,866	1,405	43,618	26,411	148,738	112,641	4,067	325,078

Source Jallen et al. *In prep*

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, 1998–2014.

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	**1,076**
2014	**3,286**	**16,898**	86,900	92,229	6,932

Source Jallen et al. *In prep*

a. Estimates for 1998–2004 do not include personal use harvests, ADF&G test fishery distributions, or salmon removed from commercial harvests. Estimates for 2005–2014 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, 2014.

Community	Households		Estimated nonsalmon harvest				
	Total	Surveyed[a]	Large whitefish[b]	Small whitefish	Northern pike	Sheefish	Total
Hooper Bay	233	90	957	5,103	380	38	6,478
Scammon Bay	121	59	1,373	2,908	1,542	62	5,885
Coastal District subtotal	**354**	**149**	**2,330**	**8,011**	**1,922**	**100**	**12,363**
Nunam Iqua (Sheldon Point)	36	32	66	371	13	462	912
Alakanuk	149	67	1,496	7,890	1,030	2,131	12,547
Emmonak	188	103	2,049	6,981	934	1,391	11,355
Kotlik	119	59	751	7,193	1,766	1,037	10,747
District 1 subtotal	**492**	**261**	**4,362**	**22,435**	**3,743**	**5,021**	**35,561**
Mountain Village	169	76	3,125	1,665	862	784	6,436
Pitkas Point	33	19	2,697	171	35	270	3,173
Saint Marys	138	66	2,803	202	534	547	4,086
Pilot Station	125	65	989	218	177	267	1,651
Marshall	102	70	314	1,345	1,729	694	4,082
District 2 subtotal	**567**	**296**	**9,928**	**3,601**	**3,337**	**2,562**	**19,428**
Russian Mission	80	30	1,026	95	494	520	2,135
Holy Cross	64	31	284	0	78	65	427
Shageluk	29	19	101	0	78	26	205
District 3 subtotal	**173**	**80**	**1,411**	**95**	**650**	**611**	**2,767**
Anvik	34	23	681	25	1,147	148	2,001
Grayling	54	28	570	201	106	330	1,207
Kaltag	57	19	940	47	79	236	1,302
Nulato	87	33	1,281	246	92	433	2,052
Koyukuk	45	19	63	0	33	42	138
Galena	155	58	1,529	0	171	173	1,873
Ruby	68	24	330	35	64	53	482
Huslia	89	29	669	70	1,844	93	2,676
Hughes	35	29	616	7,895	41	29	8,581
Allakaket	62	24	321	0	66	539	926
Alatna	8	6	207	0	0	33	240
Bettles	30	20	0	0	0	0	0
District 4 subtotal	**724**	**312**	**7,207**	**8,519**	**3,643**	**2,109**	**21,478**
Tanana	95	45	7,447	5,418	263	1,408	14,536
Stevens Village	8	6	0	0	0	0	0
Birch Creek	12	6	75	15	60	45	195
Beaver	30	26	67	0	137	27	231
Fort Yukon	230	81	642	3,213	904	644	5,403

-continued-

Table 4-9.–Page 2 of 2.

Community	Households		Estimated nonsalmon harvest				
	Total	Surveyed[a]	Large whitefish[b]	Small whitefish	Northern pike	Sheefish	Total
Venetie	79	28	65	0	0	0	65
Chalkyitsik	31	22	48	0	193	56	297
District 5 subtotal	**485**	**214**	**8,344**	**8,646**	**1,557**	**2,180**	**20,727**
Total	**2,795**	**1,312**	**33,582**	**51,307**	**14,852**	**12,583**	**112,324**

Source Jallen et al. *In prep*

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.

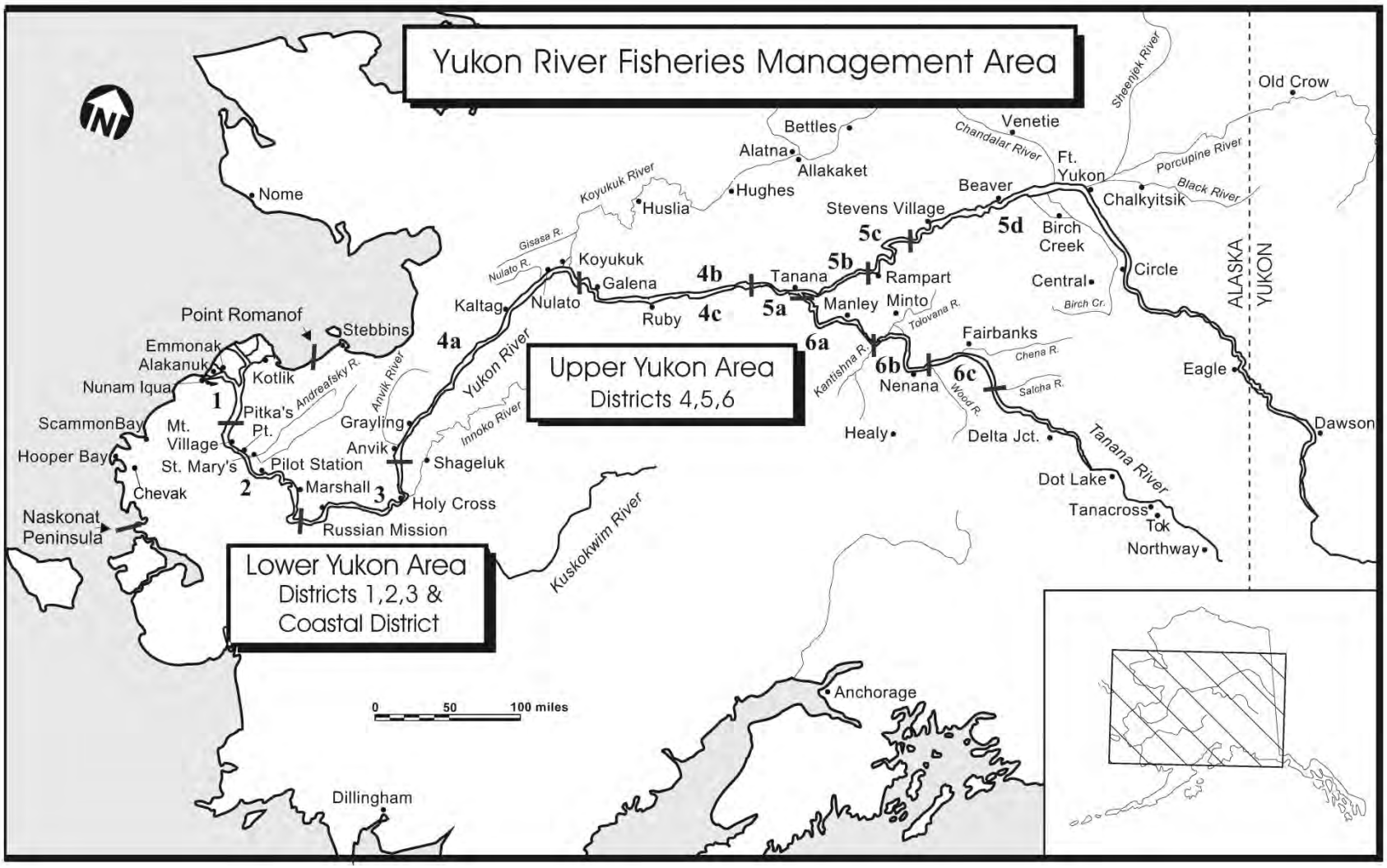

Figure 4-5.–Map of the Alaska portion of the Yukon River drainage, showing communities and districts.

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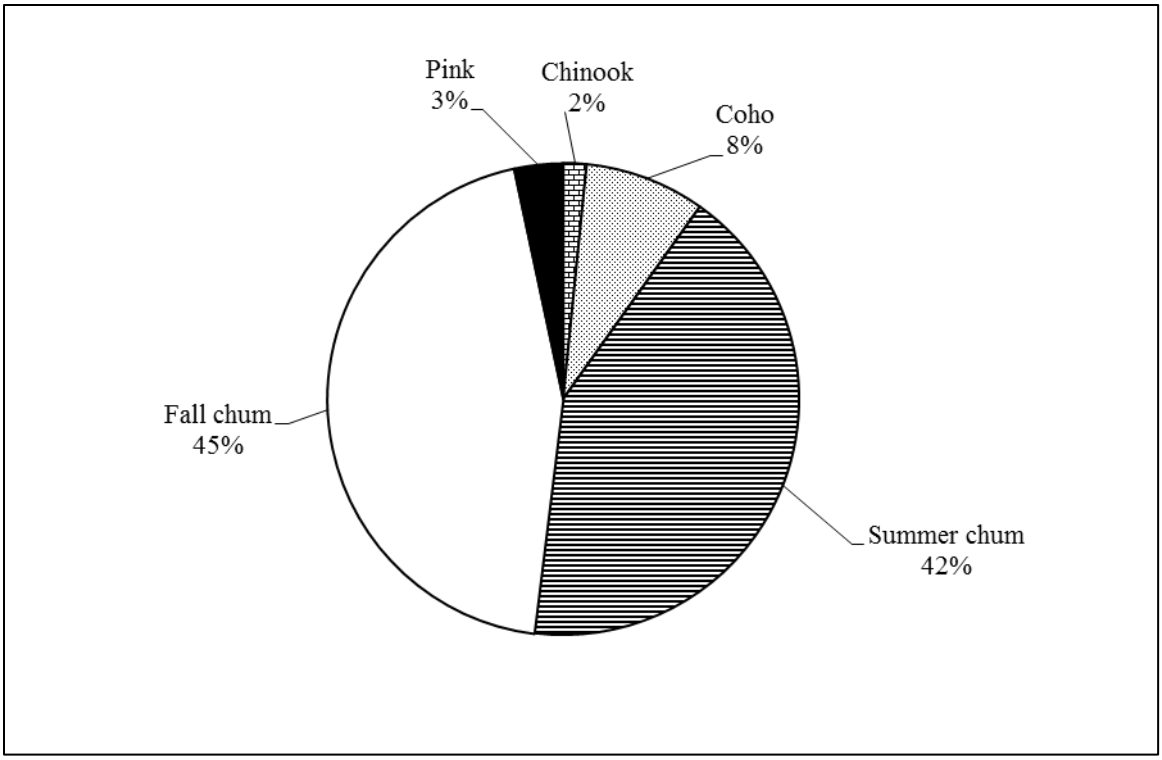

Figure 4-6.–Yukon Area estimated subsistence salmon harvests, 2014.

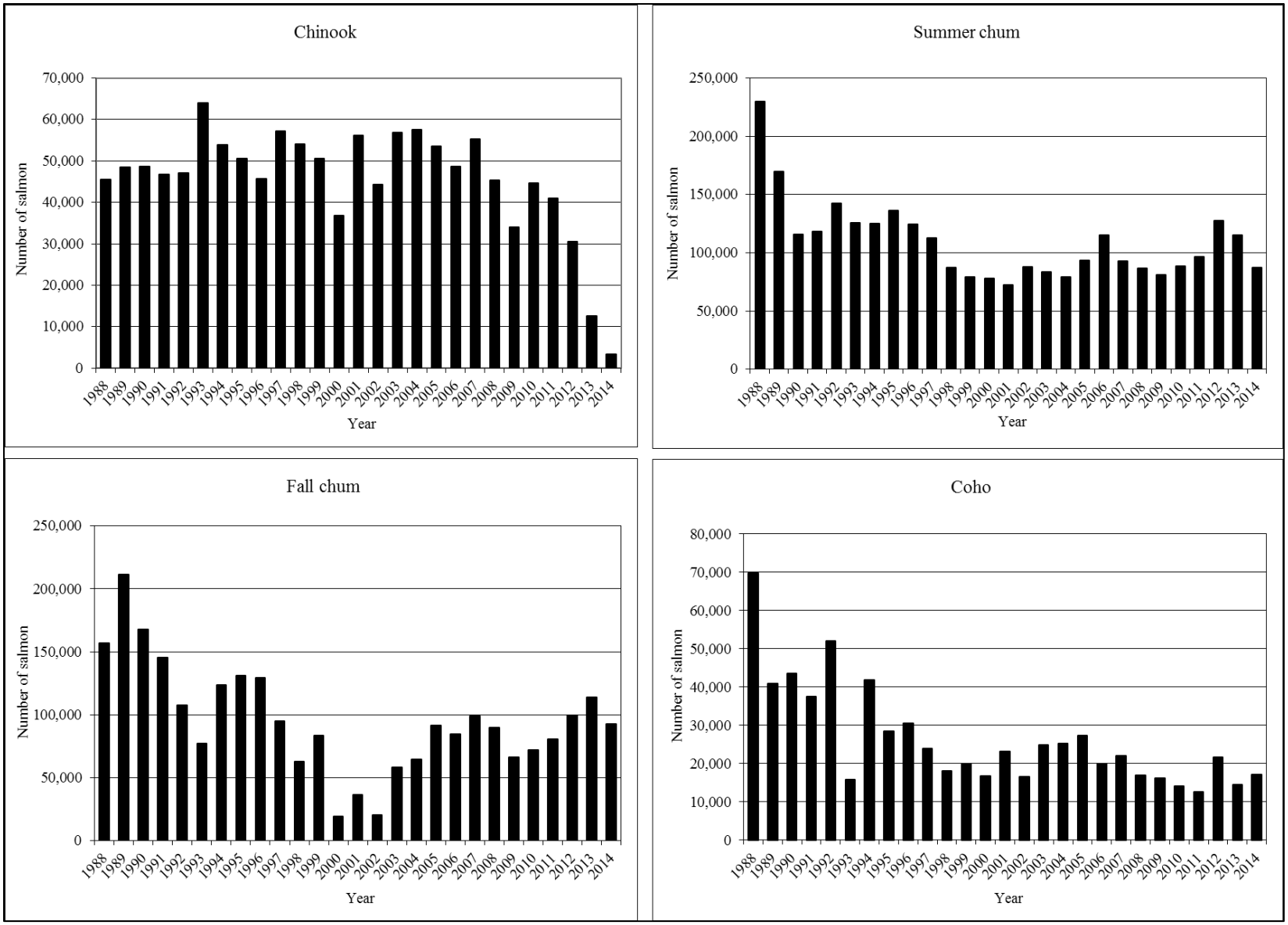

Figure 4-7.–Estimated subsistence salmon harvests by species, Yukon Area, 1988–2014.

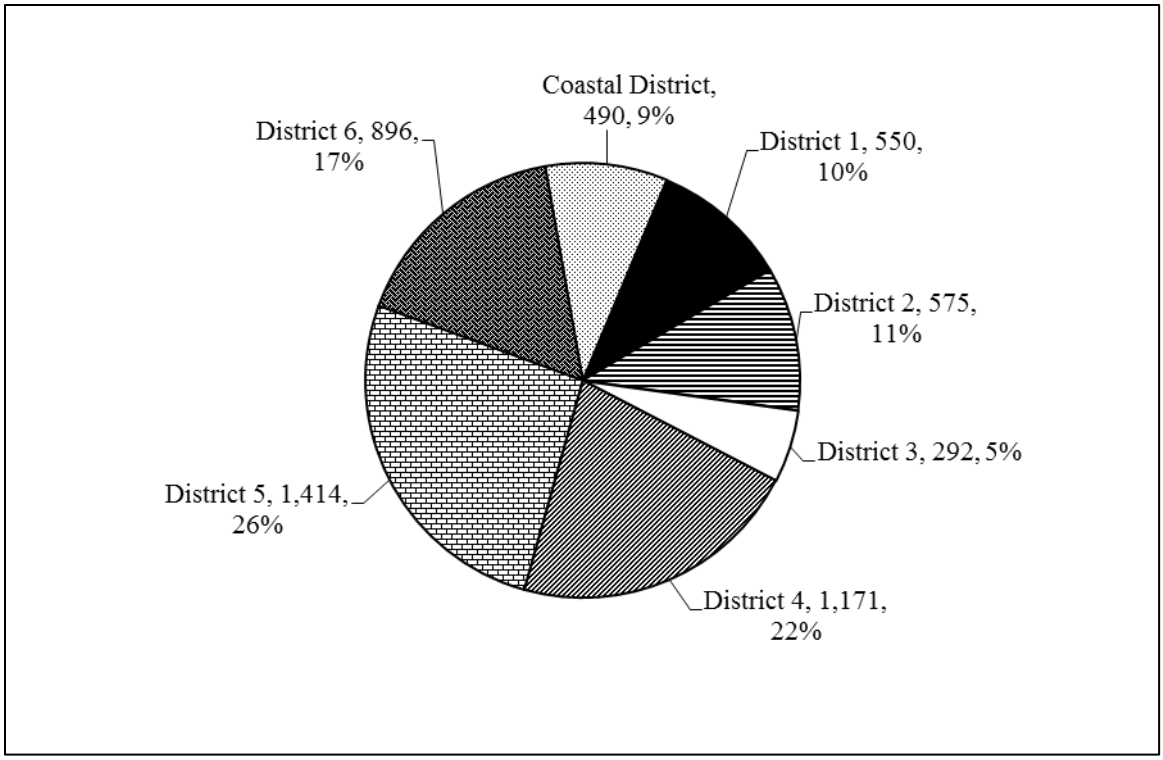

Figure 4-8.–Estimated number of dogs by district, Yukon Area, 2014.

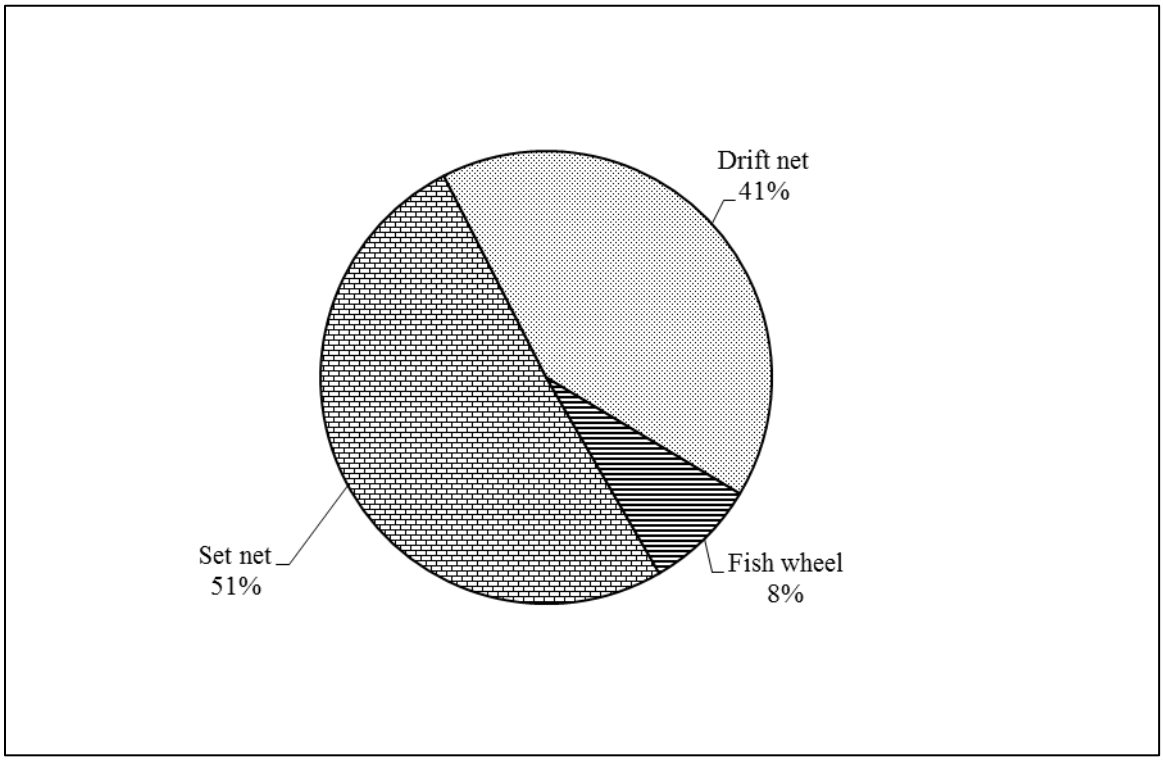

Figure 4-9.–Primary gear type utilized for subsistence salmon fishing, Yukon Area, 2014.

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. In 2014, there were approximately 4,229 households in 32 communities, excluding the 6 Bering Sea communities (Table 5-1).[2] Bethel is the largest community in the region, consisting of approximately 2,051 households in 2014. The north Kuskokwim Bay communities of Kwigillingok, Kongiganak, and Kipnuk are not located on the Kuskokwim River. 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, compose 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 not to participate in the ADF&G study for most years. These include the communities of Mekoryuk (on Nunivak Island),

1. See also Ikuta, H., D.M. Runfola, A. Brenner, D.S. Koster, M.L. Kostick, and J. Park. In Prep. Subsistence Harvests and Uses in Bethel, 2012. Alaska Department of Fish and Game Division of Subsistence, Fairbanks. Hereinafter 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).

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 (Working Group) 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 Working Group 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. The portion of the Kuskokwim River drainage from the Aniak River downstream to Kuskokwim Bay is within the boundaries of the Yukon Delta National Wildlife Refuge (YDNWR). As such, the U.S. Fish and Wildlife Service (USFWS) shares inseason subsistence fishing management decision-making with ADF&G in this section of the Kuskokwim River. The USFWS holds final decision-making authority over management of salmon in these waters 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 Working Group 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 use) when resources are not abundant enough to provide for all consumptive uses and 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

The department's preliminary management strategy for the 2014 salmon fishing season in the Kuskokwim Area was to institute restrictive management actions at the onset of the fishery with the potential to relax restrictions based on inseason information if warranted.[4] In expectation of a very conservative management approach by the department, the Working Group submitted two emergency petitions to the BOF related to regulations of salmon fishing gear in the Kuskokwim River. The first petition sought to add dip nets as legal subsistence salmon fishing gear. The second petition requested the BOF to provide the department the ability to restrict the length of subsistence gillnets from 50 fathoms to 25 fathoms during times of Chinook salmon conservation. The Working Group's expectation was that both the use of dip nets and shorter gillnets would give the department additional methods to reduce overall Chinook salmon harvests while allowing for some subsistence salmon fishing opportunity. Both petitions were adopted by the BOF and went into effect during the 2014 salmon fishing season.

Prior to the start of the salmon fishing season, a number of Kuskokwim River area tribal governments submitted requests to the Federal Subsistence Board (FSB) to initiate a Federal Special Action to allow only federally qualified subsistence users to fish for salmon within the boundaries of the YDNWR. On April 17, 2014 the FSB adopted Federal Special Action FSA14-03 supporting these requests. This directed the USFWS to enforce Federal fishing regulations within the waters of the YDNWR. The department continued to have jurisdiction over salmon fishing management beyond the boundaries of the refuge. Under the Federal Special Action, fishing was closed effective May 20, 2014, except for federally qualified subsistence users. On this date, USFWS restricted fishing to use of 4-inch mesh set gillnets to target nonsalmon fish within the waters of the YDNWR. The department also restricted fishing to similar gear in the Kuskokwim River drainage above the boundary of the YDNWR effective June 1, 2014. Beginning June 11, 2014, USFWS allowed subsistence salmon fishing with gillnets with mesh up to 6 inches only for those Kuskokwim Area communities that were issued a Social and Cultural Harvest Permit. The USFWS issued these permits to qualifying communities that fished under the permits and distributed harvests to members of their communities.

Other than the Social and Cultural Harvest Permits, the first opportunity for directed subsistence salmon fishing occurred on June 20, 2014 when USFWS allowed all federally qualified subsistence users to fish for salmon with 6-inch mesh drift gillnets. Two similar opportunities occurred under Federal jurisdiction on June 24 and June 27. Following the June 27 federally managed fishing opener the FSB suspended the Federal Special Action and the department reinstated its management of Kuskokwim River salmon fishing within the boundaries of the YDNWR. Beginning June 27, the department began to allow subsistence fishing for chum and sockeye salmon with 6-inch or less mesh gillnets up to 50 fathoms in length for the remainder of the season, unless otherwise restricted for conservation purposes. This opportunity was initiated in the lowest portion of the river and progressed to sections upriver on subsequent dates.

Beginning on July 12, the department allowed limited commercial fishing opportunities for directed chum and sockeye salmon harvests in the lower Kuskokwim River. Following these commercial openers, the Working Group and members of the public expressed concern that lower Kuskokwim River commercial

4. Travis Elison, ADF&G News Release, 2013 Preliminary Kuskokwim Area Salmon Season Summary, October 9, 2013. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/370446131.pdf

fishers were harvesting fish that middle and upper Kuskokwim River fishers could potentially harvest for subsistence. The Working Group and members of the public felt this was a particularly critical issue due to middle and upper Kuskokwim River fishers' very low subsistence harvests of any salmon species at that point in the 2014 season. As a result of these concerns and with the expectation that subsistence coho salmon harvests would be greater than normal due to earlier restrictions on Chinook salmon fishing, the department suspended commercial salmon fishing in the Kuskokwim River on July 22, 2014. On August 4 the department lifted all restrictions to subsistence salmon fishing in the entire Kuskokwim Area.

In its preliminary summary of the 2014 salmon season, the department reported that the Chinook salmon run that year was estimated to have been within the drainagewide escapement goal range of 65,000–120,000 fish. The department also noted that this goal would not have been achieved without significant sacrifices made by subsistence fishers and their families. The 2014 estimated total Chinook salmon subsistence harvest of 15,434 fish (Table 5-1) was the smallest estimated harvest on record, and well below the overall average annual Chinook salmon subsistence harvest of 84,000 fish.[5]

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.

For data collection in 2014, 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 sample 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 stratum group for which no past harvest level could be determined. The remaining 2 strata groups of light and non-harvesters were

5. Aaron Poetter, ADF&G News Release, 2014 Kuskokwim River Chinook Salmon Run Reconstruction and 2015 Outlook; Upcoming Public Outreach, February 24, 2015. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/513424019.pdf

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*.[6]

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.

Estimating Aniak Salmon Harvests

In Aniak 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 2014. 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

6. 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.

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. Especially in cases where households were not contacted as part of the household surveys, calendars also provided data for determining the manner in which households participated in the subsistence salmon fishery. These households were then assigned to one of the 5 sampling strata accordingly (Shelden et al. 2014:8). 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).

2014 SAMPLING SUMMARY

In 2014, an estimated total of 4,229 households were located in the Kuskokwim Area, excluding households in the coastal communities that declined to participate (Table 5-1): 76% of the total estimated households were located in the Lower Kuskokwim region, including 2,051 households (48% of the total estimated households) in Bethel and 1,179 households (28%) in the remainder of Lower Kuskokwim communities, followed by 355 households in Middle Kuskokwim, 284 households in Upper Kuskokwim, and 90 households in North Kuskokwim Bay (Table 5-1).

Out of the 4,229 households, surveys were conducted with 1,862 households within 26 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, 1,255 (39%) of the 3,230 households were contacted. In the south Kuskokwim Bay region (Quinhagak, Goodnews Bay, and Platinum), 166 (61%) of the 270 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 2014, 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% (639 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, 281 (79%) of 355 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), 160 (56%) of 284 households were contacted. Lime Village, Takotna, and Telida were not surveyed in 2014. 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.

2014 SUBSISTENCE SALMON HARVEST SUMMARY

A summary of the subsistence salmon harvest estimates by community and fishing area is presented in Table 5-1. In 2014, fishers harvested an estimated total of 194,358 salmon for subsistence use from the Kuskokwim Area. People in the Lower Kuskokwim communities harvested 139,355 salmon, 72% of the estimated total subsistence salmon harvest, including 56,346 salmon (29%) in Bethel and 82,989 salmon (43%) in the remaining Lower Kuskokwim communities (Table 5-1). Fishers in the Middle Kuskokwim communities harvested 25,301 fish (13%), followed by 14,067 fish (7%) in South Kuskokwim Bay, 10,986 fish (6%) in the Upper Kuskokwim, and 4,669 fish (2%) in North Kuskokwim Bay.

Chum salmon contributed 36% (70,687 fish) of the estimated subsistence salmon harvest, followed by sockeye salmon (27%, 53,030 fish), coho salmon (27%, 52,587 fish), Chinook salmon (8%, 15,434), and pink salmon (1%, 2,620 fish) (Figure 5-1). In 2014, subsistence harvests of Chinook salmon (15,434 fish) were 74% below the 5-year (2009–2013) average harvest of 59,436 and 80% below the 10-year (2004–2013) average harvest of 78,042 fish. Harvests of chum, sockeye, and coho salmon were substantially greater than average: 70,687 chum salmon (23% greater than the 5-year average, 8% greater than the 10-year average); 53,030 sockeye salmon (20% greater than the 5-year average, 14% greater than the 10-year average); and 52,587 coho salmon (64% greater than the 5-year average, 40% greater than the 10-year average) (Table 5-3). Key respondents contacted by Division of Subsistence staff during the 2014 salmon fishing season discussed increasing their harvests of chum, sockeye, and coho salmon in order to obtain enough salmon to meet their households' needs during a summer of restrictions that significantly limited their Chinook salmon harvests. Chinook salmon abundance in the Kuskokwim River drainage has decreased since 2007, with some of the lowest total runs occurring in 2011–2014 (Bue et al. 2012).[7] Lower Kuskokwim River Area communities accounted for 56% of the total estimated Chinook salmon subsistence harvest in the Kuskokwim Area, 76% of the total chum salmon harvest, 76% of the total sockeye salmon harvest, and 64% of the total coho salmon harvest. Residents of Bethel accounted for 20% of subsistence-caught Chinook salmon, 37% of the estimated total coho salmon harvest, 28% of the total sockeye salmon harvest, and 25% of the total estimated chum salmon harvest (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%).

7. Aaron Poetter, Kuskokwim Area Management Biologist, ADF&G, Anchorage, personal communication, May 20, 2016.

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 due to decreased use of dog teams for transportation. In 2014, data show a reported harvest of 10,941 salmon for use as dog food (Table 5-4). The majority of the salmon reported as fed to dogs were sockeye salmon, at 6,299 fish, while chum salmon accounted for 4,284 fish. Coho salmon contributed 228 fish and pink salmon 146 fish to the harvest that was used for dog food. Households do not target Chinook salmon for dog food; however, 4 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 2014, out of 989 contacted fishing households that responded to gear type questions, 611 (62%) reported drift gillnets as their primary subsistence salmon fishing gear type, 303 (31%) reported set gillnets, 65 (7%) reported subsistence rod and reel gear, and 10 (1%) reported a fish wheel as a gear type used for subsistence salmon fishing. 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 as well as salmon species to be targeted. 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 community or family customs and traditions associated with subsistence salmon fishing, such as rod and reel gear used for Chinook salmon in the Pitka Fork Salmon River by Nikolai fishers and for coho salmon along the Kuskokwim riverfront in Aniak in July and August.

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 2014, 230 Kuskokwim Area fishing households reported retaining commercially-caught salmon for subsistence uses. A total of 442 salmon were retained from commercial catches, including 113 Chinook, 110 coho, 93 sockeye, 66 pink salmon, and 60 chum salmon (Table 5-6).

OTHER FISH

Harvest data for nonsalmon fish species are also collected as part of the postseason salmon survey. In 2014, reported harvests of nonsalmon species in the Kuskokwim Area included 43,193 humpback whitefish; 18,415 broad whitefish; 11,582 cisco (including Bering and least ciscoes); 5,849 sheefish; 22,202 burbot; 39,964 northern pike; 248,231 Alaska blackfish; 165,791 smelt (predominantly rainbow smelt); 7,853 Pacific herring; 3,826 Arctic grayling; 17,260 Dolly Varden; and 2,242 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); in 2013 (study year 2012), Bethel (Ikuta et al. *In prep*); and in 2014 (study year 2013), Tuntutuliak and Eek (Ikuta et al. 2016). 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

As indicated by recent Division of Subsistence comprehensive harvest survey data, salmon provide a large portion of the total subsistence food supply in Kuskokwim River communities (Brown et al. 2012, 2013; Ikuta et al. 2014, 2016; Ikuta et al. *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 et al. *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, and Tuluksak) and 2011 (Napakiak and 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.

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 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, 2014.

Community	Households		Estimated salmon harvest					
	Total	Contacted	Chinook	Sockeye	Coho	Chum	Pink	Total
Kipnuk[b]	--	--	--	--	--	--	--	--
Kwigillingok[b]	--	--	--	--	--	--	--	--
Kongiganak[a]	90	0	964	1,230	561	1,915	--	4,669
North Kuskokwim Bay	**90**	**0**	**964**	**1,230**	**561**	**1,915**	**0**	**4,669**
Tuntutuliak	90	1	574	1,774	794	2,967	--	6,109
Eek	87	48	665	1,450	555	1,182	15	3,867
Kasigluk	103	54	205	1,990	851	3,612	12	6,670
Nunapitchuk	121	78	287	2,059	1,305	5,213	42	8,906
Atmautluak	66	45	108	1,531	176	3,327	62	5,204
Napakiak	93	55	311	1,573	740	2,392	51	5,067
Napaskiak	99	60	422	2,514	1,153	3,171	20	7,280
Oscarville	15	13	68	679	128	599	24	1,498
Bethel	2,051	574	3,089	14,828	19,364	18,017	1,048	56,346
Kwethluk	174	108	959	5,921	4,422	4,318	125	15,745
Akiachak	153	97	1,033	3,047	1,845	4,744	123	10,792
Akiak	83	59	530	2,418	1,501	2,982	282	7,713
Tuluksak	95	63	404	622	808	2,274	30	4,138
Lower Kuskokwim	**3,230**	**1,255**	**8,655**	**40,406**	**33,642**	**54,798**	**1,834**	**139,335**
Lower Kalskag	75	47	283	1,040	907	1,458	30	3,718
Kalskag (Upper)	63	44	258	839	938	1,038	24	3,097
Aniak	184	163	344	1,578	9,566	4,695	636	16,819
Chuathbaluk	33	27	90	481	291	805	0	1,667
Middle Kuskokwim	**355**	**281**	**975**	**3,938**	**11,702**	**7,996**	**690**	**25,301**
Crooked Creek[a]	33	25	35	391	198	391	1	1,016
Red Devil	9	5	83	151	792	284	5	1,315
Sleetmute	38	30	58	541	993	633	0	2,225
Stony River	15	13	24	137	177	89	4	431
Lime Village[a]	14	0	32	888	226	295	--	1,441
McGrath	114	56	173	451	1,189	642	15	2,470
Takotna[a]	23	0	0	3	0	0	--	3
Nikolai	36	31	235	236	256	1,356	2	2,085
Telida[b]	2	0	--	--	--	--	--	--
Upper Kuskokwim	**284**	**160**	**640**	**2,798**	**3,831**	**3,690**	**27**	**10,986**
Kuskokwim River	**3,959**	**1,696**	**11,234**	**48,372**	**49,736**	**68,398**	**2,551**	**180,291**
Quinhagak	177	112	3,723	2,939	2,240	1,959	40	10,901
Goodnews Bay	72	38	431	1,370	371	268	0	2,440
Platinum	21	16	46	349	240	62	29	726
South Kuskokwim Bay	**270**	**166**	**4,200**	**4,658**	**2,851**	**2,289**	**69**	**14,067**

-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	**4,229**	**1,862**	**15,434**	**53,030**	**52,587**	**70,687**	**2,620**	**194,358**

Source Shelden et al. (2016)

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 2014 study period. Harvests were estimated using historical average household harvest expanded by the number of households.

b. These communities were not contacted during the 2014 study period. Not enough data were 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, 1989–2014.

Year	Households		Estimated salmon harvest					
	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink[a]	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	102,336	41,558	48,693	65,805	--	258,392
2005	4,603	1,593	90,311	44,933	35,170	59,762	1,343	231,519
2006	4,671	1,439	96,733	47,763	43,211	93,091	2,710	283,508
2007	4,620	1,279	100,297	49,613	35,890	76,281	1,259	263,340
2008	4,735	949	92,977	56,205	47,476	66,275	1,341	264,274
2009	4,808	1,702	83,838	38,795	31,933	46,047	561	201,174
2010	4,215	1,739	70,576	41,722	35,695	46,797	751	195,541
2011	4,241	1,790	65,850	46,290	33,943	55,990	739	202,812
2012	4,294	1,527	25,353	50,781	30,086	82,030	2,160	190,410
2013	4,314	1,755	50,708	42,834	27,841	55,828	741	177,952
2014	4,229	1,862	15,434	53,030	52,587	70,687	2,620	194,358
5-year average (2009–2013)	4,374	1,703	59,265	44,084	31,900	57,338	990	193,578
10-year average (2004–2013)	4,514	1,617	77,898	46,049	36,994	64,791	NA	226,892
15-year average (1999–2013)	4,427	1,822	78,115	46,009	37,371	64,889	NA	227,158
Historical average (1989–2013)	4,020	1,805	84,693	44,952	39,951	76,988	1,289	247,048

Source Shelden et al. (2016)

a. Prior to 2008, harvest estimates for pink salmon were calculated by ADF&G Division of Subsistence

-- Data not available.

Table 5-4.–Number of households that own dogs, fed salmon to dogs, and total number of salmon fed to dogs, Kuskokwim Area, 2014.

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	0	--	--	--	--	--	--	--	--	--
North Kuskokwim Bay	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	90	1	1	0	2	0	0	0	0	0	0
Eek	87	39	22	1	45	0	0	0	20	0	20
Kasigluk	103	49	33	0	86	0	0	0	0	0	0
Nunapitchuk	121	77	64	2	132	0	0	25	65	0	90
Atmautluak	66	36	27	0	101	0	0	0	0	0	0
Napakiak	93	49	30	0	50	0	0	0	0	0	0
Napaskiak	99	51	35	2	147	0	60	0	160	0	220
Oscarville	15	10	7	2	19	0	0	0	45	0	45
Bethel	2,051	497	229	16	391	0	249	5	355	52	661
Kwethluk	174	84	66	1	194	0	0	0	0	2	2
Akiachak	153	91	54	2	224	0	362	2	220	0	584
Akiak	83	50	35	6	188	0	180	75	480	80	815
Tuluksak	95	52	36	2	95	0	30	0	105	0	135
Lower Kuskokwim	**3,230**	**1,086**	**639**	**34**	**1,674**	**0**	**881**	**107**	**1,450**	**134**	**2,572**
Lower Kalskag	75	42	26	2	59	0	3	0	25	0	28
Kalskag (Upper)	63	39	19	1	66	0	0	0	0	10	10
Aniak	184	162	96	7	275	0	5,125	100	1,515	0	6,740
Chuathbaluk	33	23	18	0	32	0	0	0	0	0	0
Middle Kuskokwim	**355**	**266**	**159**	**10**	**432**	**0**	**5,128**	**100**	**1,540**	**10**	**6,778**
Crooked Creek[a]	33	21	15	1	24	0	0	0	20	0	--
Red Devil	9	4	3	0	5	0	0	0	0	0	0
Sleetmute	38	28	18	2	36	0	200	0	220	0	420
Stony River	15	13	5	0	7	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	0	--	--	--	--	--	--	--	--	--
McGrath	114	48	27	1	52	4	0	1	50	0	55
Takotna[a]	23	0	--	--	--	--	--	--	--	--	--
Nikolai	36	27	16	1	61	0	90	20	1,000	2	1,112
Telida[a]	2	0	--	--	--	--	--	--	--	--	--
Upper Kuskokwim	**284**	**141**	**84**	**5**	**185**	**4**	**290**	**21**	**1,290**	**2**	**1,587**
Kuskokwim River	**3,959**	**1,493**	**882**	**49**	**2,291**	**4**	**6,299**	**228**	**4,280**	**146**	**10,937**
Quinhagak	177	101	61	2	107	0	0	0	4	0	4
Goodnews Bay	72	36	20	0	37	0	0	0	0	0	0
Platinum	21	15	10	0	17	0	0	0	0	0	0
South Kuskokwim Bay	**270**	**152**	**91**	**2**	**161**	**0**	**0**	**0**	**4**	**0**	**4**
Mekoryuk[a]	--	--	--	--	--	--	--	--	--	--	--
Newtok[a]	--	--	--	--	--	--	--	--	--	--	--
Nightmute[a]	--	--	--	--	--	--	--	--	--	--	--
Toksook Bay[a]	--	--	--	--	--	--	--	--	--	--	--
Tununak[a]	--	--	--	--	--	--	--	--	--	--	--
Chefornak[a]	--	--	--	--	--	--	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--	--	--	--	--	--	--
Total	**4,229**	**1,645**	**973**	**51**	**2,452**	**4**	**6,299**	**228**	**4,284**	**146**	**10,941**

Source Shelden et al. (2016)
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, 2014.

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	1	--	1	--	--
Eek	26	3	23	--	--
Kasigluk	41	3	38	--	--
Nunapitchuk	60	6	54	--	--
Atmautluak	27	3	24	--	--
Napakiak	31	10	21	--	--
Napaskiak	46	36	10	--	--
Oscarville	11	9	2	--	--
Bethel	208	52	142	14	--
Kwethluk	61	33	23	5	--
Akiachak	62	31	31	--	--
Akiak	32	11	21	--	--
Tuluksak	36	12	21	3	--
Lower Kuskokwim	**642**	**209**	**411**	**22**	**0**
Lower Kalskag	30	9	21	--	--
Kalskag (Upper)	27	16	11	--	--
Aniak	88	17	48	21	2
Chuathbaluk	14	1	7	1	5
Middle Kuskokwim	**159**	**43**	**87**	**22**	**7**
Crooked Creek[b]	13	1	11	1	--
Red Devil	4	2	1	1	--
Sleetmute	17	9	6	2	--
Stony River	5	2	3	--	--
Lime Village[b]	--	--	--	--	--
McGrath	17	10	1	3	3
Takotna[b]	--	--	--	--	--
Nikolai	14	10	--	4	--
Telida[b]	--	--	--	--	--
Upper Kuskokwim	**70**	**34**	**22**	**11**	**3**
Kuskokwim River	**871**	**286**	**520**	**55**	**10**
Quinhagak	86	2	75	9	--
Goodnews Bay	24	8	16	--	--
Platinum	8	7	--	1	--
South Kuskokwim Bay	**118**	**17**	**91**	**10**	**0**
Mekoryuk[b]	--	--	--	--	--

-continued-

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	**989**	**303**	**611**	**65**	**10**

Source Shelden et al. (2016)

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

b. Community was not contacted during the 2014 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, 2014.

Community	Households		Reported salmon					
	Total	Responding	Chinook	Sockeye	Coho	Chum	Pink	Total
Kipnuk[a]	--	--	--	--	--	--	--	--
Kwigillingok[a]	--	--	--	--	--	--	--	--
Kongiganak[a]	90	0	--	--	--	--	--	--
North Kuskokwim Bay	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	90	1	3	0	0	0	0	3
Eek	87	8	0	0	0	0	10	10
Kasigluk	103	11	4	0	18	0	4	26
Nunapitchuk	121	29	5	1	10	2	3	21
Atmautluak	66	8	0	0	17	2	4	23
Napakiak	93	11	1	0	0	0	0	1
Napaskiak	99	11	0	0	22	0	0	22
Oscarville	15	2	3	0	3	0	0	6
Bethel	2,051	22	7	17	0	0	8	32
Kwethluk	174	17	1	0	12	22	4	39
Akiachak	153	40	33	4	3	0	21	61
Akiak	83	7	2	2	2	0	0	6
Tuluksak	95	2	0	0	0	0	0	0
Lower Kuskokwim	**3,230**	**169**	**59**	**24**	**87**	**26**	**54**	**250**
Lower Kalskag	75	0	0	0	0	0	0	0
Kalskag (Upper)	63	0	0	0	0	0	0	0
Aniak	184	0	0	0	0	0	0	0
Chuathbaluk	33	0	0	0	0	0	0	0
Middle Kuskokwim	**355**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Crooked Creek[a]	33	0	0	0	0	0	0	0
Red Devil	9	0	0	0	0	0	0	0
Sleetmute	38	0	0	0	0	0	0	0
Stony River	15	0	0	0	0	0	0	0
Lime Village[a]	14	0	--	--	--	--	--	--
McGrath	114	0	0	0	0	0	0	0
Takotna[a]	23	0	--	--	--	--	--	--
Nikolai	36	0	0	0	0	0	0	0
Telida[a]	2	0	--	--	--	--	--	--
Upper Kuskokwim	**284**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Kuskokwim River	**3,959**	**169**	**59**	**24**	**87**	**26**	**54**	**250**
Quinhagak	177	45	28	1	16	0	9	54
Goodnews Bay	72	11	21	52	0	31	0	104
Platinum	21	5	5	16	7	3	3	34
South Kuskokwim Bay	**270**	**61**	**54**	**69**	**23**	**34**	**12**	**192**

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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	**4,229**	**230**	**113**	**93**	**110**	**60**	**66**	**442**

Source Shelden et al. (2016)

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 2014 study period.

-- Data not available.

Table 5-7.–Subsistence nonsalmon fish harvests by community, Kuskokwim Area, 2014.

Community	Households		Reported nonsalmon fish harvest												
	Total	Contacted	Humpback whitefish	Broad whitefish	Cisco	Sheefish	Burbot	Alaska blackfish	Smelt	Northern pike	Pacific herring	Arctic grayling	Dolly Varden (char)	Rainbow trout	Total
Kipnuk[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kwigillingok[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kongiganak[a]	90	0	--	--	--	--	--	--	--	--	--	--	--	--	--
North Kuskokwim Bay	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tuntutuliak	90	1	--	--	--	--	--	--	--	--	--	--	--	--	--
Eek	87	48	122	70	24	6	770	1,137	1,405	43	7	0	52	12	3,648
Kasigluk	103	54	3,591	2,347	172	64	222	3,489	15,062	0	112	0	533	11	25,603
Nunapitchuk	121	78	5,138	2,499	130	224	605	4,585	30,645	0	43	0	3,993	4	47,866
Atmautluak	66	45	1,199	1,310	125	74	276	1,053	20,786	0	7	0	6,962	4	31,796
Napakiak	93	55	934	449	162	107	260	3,508	19,288	0	184	0	3,473	84	28,449
Napaskiak	99	60	4,640	1,008	286	189	845	1,980	446	27	781	0	5,696	139	16,037
Oscarville	15	13	2,826	25	15	129	587	764	1,854	0	43	0	737	241	7,221
Bethel	2,051	574	9,329	3,944	2,589	2,370	3,957	12,407	49,240	504	1,555	646	65,781	376	152,698
Kwethluk	174	108	2,470	2,028	1,564	441	1,084	3,201	55,138	263	4,328	372	16,860	321	88,070
Akiachak	153	97	4,350	759	203	350	2,411	2,361	35,815	136	210	0	19,968	174	66,737
Akiak	83	59	4,928	723	1,795	270	9,678	2,184	2,488	89	124	0	12,763	76	35,118
Tuluksak	95	63	873	538	98	168	834	1,404	851	104	5	0	10,332	5	15,212
Lower Kuskokwim	**3,230**	**1,255**	**40,400**	**15,700**	**7,163**	**4,392**	**21,529**	**38,073**	**233,018**	**1,166**	**7,399**	**1,018**	**147,150**	**1,447**	**518,455**
Lower Kalskag	75	47	430	473	13	252	288	333	2,705	0	3	0	3,481	0	7,978
Kalskag (Upper)	63	44	408	271	153	170	30	136	536	0	14	23	946	6	2,693
Aniak	184	163	733	931	1,387	191	92	471	5	76	139	0	1,505	36	5,566
Chuathbaluk	33	27	113	66	67	132	56	1	0	593	31	0	50	1	1,110
Middle Kuskokwim	**355**	**281**	**1,684**	**1,741**	**1,620**	**745**	**466**	**941**	**3,246**	**669**	**187**	**23**	**5,982**	**43**	**17,347**
Crooked Creek[a]	33	25	400	379	105	160	31	17	0	180	39	0	0	7	1,318
Red Devil	9	5	9	0	95	--	--	--	0	50	16	0	0	0	170

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Table 5-7.–Page 2 of 2.

Community	Households		Reported nonsalmon fish harvest												
	Total	Contacted	Humpback whitefish	Broad whitefish	Cisco	Sheefish	Burbot	Alaska blackfish	Smelt	Northern pike	Pacific herring	Arctic grayling	Dolly Varden (char)	Rainbow trout	Total
Sleetmute	38	30	101	96	38	35	5	135	0	245	31	0	0	0	686
Stony River	15	13	277	38	135	61	0	24	0	45	0	0	0	1	581
Lime Village[a]	14	0	--	--	--	--	--	--	--	--	--	--	--	--	--
McGrath	114	56	101	192	38	383	0	364	394	954	0	0	0	6	2,432
Takotna[a]	23	0	--	--	--	--	--	--	--	--	--	--	--	--	--
Nikolai	36	31	160	215	1,525	73	4	205	0	19	4	0	0	0	2,205
Telida[a]	2	0	--	--	--	--	--	--	--	--	--	--	--	--	--
Upper Kuskokwim	**284**	**160**	**1,048**	**920**	**1,936**	**712**	**40**	**745**	**394**	**1,493**	**90**	**0**	**0**	**14**	**7,392**
Kuskokwim River	**3,959**	**1,696**	**43,132**	**18,361**	**10,719**	**5,849**	**22,035**	**39,759**	**236,658**	**3,328**	**7,676**	**1,041**	**153,132**	**1,504**	**543,194**
Quinhagak	177	112	61	45	696	0	167	205	11,573	390	7,512	1,507	11,888	728	34,772
Goodnews Bay	72	38	0	9	97	0	0	0	0	7	1,512	5,140	714	0	7,479
Platinum	21	16	0	0	70	0	0	0	0	101	560	165	57	10	963
South Kuskokwim Bay	**270**	**166**	**61**	**54**	**863**	**0**	**167**	**205**	**11,573**	**498**	**9,584**	**6,812**	**12,659**	**738**	**43,214**
Mekoryuk[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Newtok[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nightmute[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toksook Bay[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tununak[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chefornak[a]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bering Sea Coast	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	**4,229**	**1,862**	**43,193**	**18,415**	**11,582**	**5,849**	**22,202**	**39,964**	**248,231**	**3,826**	**17,260**	**7,853**	**165,791**	**2,242**	**586,408**

Source Shelden et al. (2016)
a. These communities were not contacted during the 2014 study period.
-- Data not available.

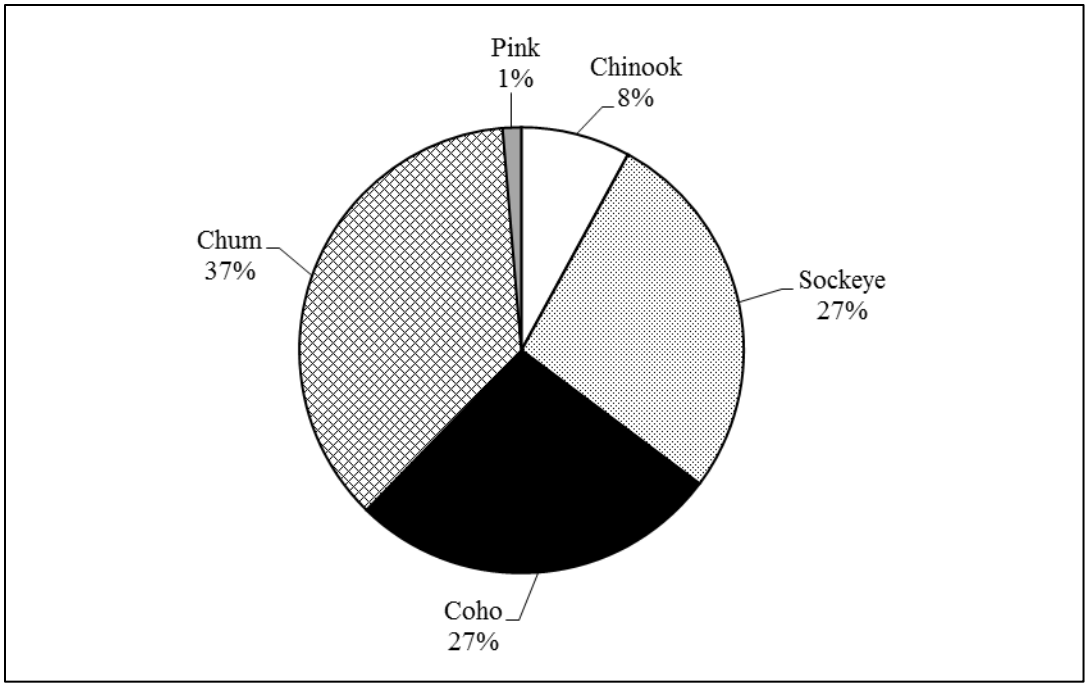

Figure 5-1.–Kuskokwim subsistence salmon harvest composition, 2014.

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 regulations stating 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 2014, 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 2014

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 2014 commercial fishing emergency orders for Bristol Bay in commercial districts, see Table 6 in Elison et al. (2015:28). 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 2014, a total of 1,158 permits were issued for the Bristol Bay Management Area; of those 1,031, or 89%, were returned (Table 6-1; Table 6-2). The largest number of permits were issued for the Nushagak (581 permits) and Naknek–Kvichak (473 permits) districts (Table 6-1). The number of permits issued in 2014 was slightly above the 5-year (1,107 permits), the 10-year (1,100 permits), and the historical (1,095 permits) averages (Table 6-2).

SUBSISTENCE SALMON HARVESTS IN 2014

Estimated total Bristol Bay subsistence salmon harvests in 2014 were 134,775 fish (Table 6-1). The 2014 salmon harvest was above the 5-year (122,955 salmon) and 10-year (125,162 salmon) averages, but below the historical average (1983–2013) of 145,478 salmon (Table 6-2).

Chinook salmon harvests were estimated at 17,417 in 2014, an increase from the previous year's harvest of 12,858. Estimated sockeye salmon harvests for 2014 were 99,008, which was a slight increase from the previous year's harvest of 98,765 fish. The 2014 sockeye harvest was slightly higher than recent 5-year average of 97,981 fish and above the 10-year average of 98,057 fish. The historical average (1983–2013) was 114,084 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 higher in 2014 (2,689 fish) than in 2013 (333 fish). The estimated harvest of chum salmon in 2014 (6,677 fish) was higher than the recent 5-year (4,544 fish), 10-year averages (4,898 fish) and the historical average (1983–2013) of 6,356 fish. The coho harvest in 2014 (8,984 fish) was slightly higher than the previous year (8,635 fish) and also higher than the 5-year average at 6,514 fish, the 10-year average at 6,533 (Table 6-2), and the historical 1983–2013 average at 8,185 fish.

In 2014, the Bristol Bay subsistence salmon harvest was composed of 73% sockeye salmon, 13% Chinook salmon, 7% coho salmon, 5% chum salmon, and 2% pink salmon (Figure 6-1). Of the entire Bristol Bay Area subsistence salmon harvest in 2014, residents of Bristol Bay communities harvested 118,849 salmon (88%), and other Alaska residents harvested 15,926 salmon (12%) (Table 6-3).

In 2014, as over the last several decades, most of the Bristol Bay Area subsistence harvest was taken in the Naknek–Kvichak (50%) and the Nushagak (43%) districts (Figure 6-2). The remaining portion was taken in the Togiak district (5%), and the Egegik and Ugashik districts each at 1% (Figure 6-2). The Naknek–Kvichak total harvest of 67,603 salmon in 2014 (Table 6-1) was higher than in 2013 (63,535 salmon), but lower than the 2012 harvest (74,578 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 30 Chinook salmon and 41,016 sockeye salmon in 2014 while those fishing in the Naknek River Subdistrict harvested 530 Chinook salmon and 24,439 sockeye salmon (Table 6-1). The 2014 subsistence harvest of 41,016 sockeye salmon in the Kvichak drainage (Table 6-1) was lower than the 2013 harvest of 42,556 and lower than the 2012 harvest of 52,370 sockeye salmon (Jones et al. 2014:96).

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)).

In the Nushagak District, the total estimated subsistence harvest in 2014 of 58,425 salmon (Table 6-1) was an increase from the previous year (54,176 salmon). The estimated harvest in 2014 of 58,425 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 2014 was 16,049 (Table 6-1), and was an increase from the previous two years 11,602 salmon in 2013, and 10,350 salmon in 2012. The lowest estimated Chinook harvests were 9,150 salmon in 2010 and 9,971 salmon in 2006 (Jones et al. 2014:94). The 2013 Nushagak District sockeye salmon harvest of 27,073 fish was lower than the previous study year (30,283 fish) (Table 6-1), which was the highest since 1993 (Jones et al. 2014:94).

The estimated total subsistence salmon harvest for the Togiak District in 2014, 6,539 fish (Table 6-1), was higher than the previous year's estimate of 5,002 fish, but lower than the 2012 season (7,339 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 2014 was 842 fish, which was higher than the previous year at 672, but lower than the 2012 season (1,281 fish) (Table 6-1). The 2014 harvest was below than the 10-year average (2004–2013) of 1,206 fish (Elison et al. 2015:100). In the Egegik District, the 2014 estimated subsistence salmon harvest of 1,366 fish (Table 6-1) was lower than the 2013 estimate of 2,380 and the 2012 estimate of 1,425 fish. The 2014 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 2,285 salmon (Elison et al. 2015:99).

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 2014 appear in Fall and Lemons (2016). 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, 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:[1]

- 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 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

1. 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.

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 lines: 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.[2] 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).

In addition a recent report conducted in collaboration between The Division of Subsistence and BBNA outlines harvest patterns of whitefish and other freshwater nonsalmon fish by the communities around Lake Clark and Iliamna Lake for 2012 and 2013 (Hazell et al. 2015). The report presents the results of a study of whitefish and other freshwater nonsalmon fish harvest patterns and trends by communities around Lake Clark and Iliamna Lake, Alaska; the study focuses on climate change in context with harvesting patterns and trends. The study communities include: Igiugig, Iliamna, Newhalen, Nondalton, Pedro Bay, and Port Alsworth. The project was implemented using social science methods—including harvest surveys, participant observation, and key respondent interviews—over a 2-year period. The results of this study indicate the continued significance of whitefish and other nonsalmon freshwater fish subsistence harvests to inhabitants of the study communities. Freshwater nonsalmon fish resources are particularly vital to residents in the spring and fall when salmon and other resources are not available in abundance. Additionally, local residents consistently reported a climate characterized by a warming trend in recent decades (i.e., at least 20–25 years), which has affected their ability to obtain nonsalmon fish resources.

2. 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, 2014.

Area and river system	Number of permits issued[a]	Estimated salmon harvest					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Naknek-Kvichak District	473	562	65,810	573	272	386	67,603
Naknek River Subdistrict	270	530	24,439	559	243	368	26,139
Kvichak River/Iliamna Lake Subdistrict:	200	30	41,016	14	28	18	41,106
Chekok	1	0	5	0	0	0	5
Igiugig	2	1	267	0	0	0	268
Iliamna Community	1	0	0	0	0	0	0
Iliamna Lake-General	38	0	7,981	0	0	0	7,981
Kijik	4	0	847	0	0	0	847
Kokhanok	13	5	6,357	0	3	0	6,366
Kvichak River	18	0	1,480	0	0	0	1,480
Lake Clark	57	0	5,388	0	0	0	5,388
Levelock	10	18	1,170	14	24	18	1,243
Newhalen River	27	0	7,785	0	0	0	7,785
Pedro Bay	13	0	3,262	0	0	0	3,262
Pile Bay	1	0	258	0	0	0	258
Six Mile Lake	25	5	6,216	1	1	0	6,223
Naknek or Kvichak (Site Unknown)	5	3	355	0	1	0	359
Egegik District	36	150	972	237	4	2	1,366
Ugashik District	20	50	566	224	1	0	842
Nushagak District	581	16,049	27,073	7,463	5,731	2,110	58,425
Igushik/Snake River	20	107	2,061	59	1	18	2,246
Nushagak Bay Commercial	42	603	3,784	1,978	338	111	6,814
Nushagak Bay Noncommercial	215	3,345	8,091	1,914	1,652	822	15,823
Nushagak River	140	8,072	3,970	1,979	2,714	484	17,219
Site Unknown	11	1,102	185	297	127	268	1,980
Wood River	188	2,819	8,983	1,237	900	406	14,344
Togiak District	59	607	4,586	486	669	190	6,539
Total	**1,158**	**17,417**	**99,008**	**8,984**	**6,677**	**2,689**	**134,775**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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 1,158 permits issued for the management area, 1,031 were returned (89.0%).

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, 1983–2014.

	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
2014	1,158	1,031	17,417	99,008	8,984	6,677	2,689	134,775
5-year average (2009–2013)	1,107	977	12,794	97,981	6,514	4,544	1,122	122,955
10-year average (2004–2013)	1,100	971	14,041	98,057	6,533	4,898	1,632	125,162
Historical average (1983–2013)	1,095	958	14,585	114,084	8,185	6,356	2,268	145,478

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 6-3.–Estimated subsistence salmon harvests by community, Bristol Bay Area, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Aleknagik	26	23	919	2,166	365	90	19	3,560
Clark's Point	11	10	77	2,530	1,660	72	36	4,375
Dillingham	340	301	6,714	13,193	3,487	2,637	1,546	27,577
Egegik	8	6	12	285	85	3	1	387
Ekwok	18	18	1,356	294	817	302	71	2,840
Igiugig	7	5	2	645	0	0	0	647
Iliamna	21	21	0	5,112	0	0	0	5,112
King Salmon	77	75	124	6,062	188	25	50	6,450
Kipnuk	1	1	15	30	0	0	0	45
Kokhanok	14	13	5	6,740	0	3	0	6,749
Koliganek	20	10	1,708	1,054	346	1,326	220	4,654
Levelock	9	8	18	1,170	14	24	18	1,243
Manokotak	16	13	101	1,682	59	0	18	1,861
Naknek	99	90	243	11,808	188	199	272	12,709
New Stuyahok	47	40	4,733	1,162	597	1,012	109	7,613
Newhalen	21	19	0	6,574	0	0	0	6,574
Nondalton	29	21	0	9,004	0	0	0	9,004
Pedro Bay	17	17	0	3,999	0	0	0	3,999
Pilot Point	5	3	0	53	33	0	0	87
Port Alsworth	50	46	0	4,457	0	0	0	4,457
South Naknek	22	18	68	1,365	242	4	16	1,695
Togiak	57	50	602	4,539	486	646	189	6,463
Tununak	1	1	0	15	0	4	0	19
Twin Hills	2	2	9	57	0	23	1	90
Ugashik	7	7	48	401	191	1	0	641
Subtotal, Bristol Bay	**925**	**818**	**16,755**	**84,398**	**8,757**	**6,370**	**2,568**	**118,849**
Anaktuvuk Pass	1	1	0	11	0	0	0	11
Anchorage	104	95	268	5,938	26	67	2	6,301
Barrow	7	7	1	73	0	0	0	74
Big Lake	5	4	14	354	0	36	3	406
Chugiak	3	3	0	139	0	6	0	145
Copper Center	1	1	0	0	0	0	0	0
Cordova	1	1	0	156	0	0	0	156
Eagle River	3	3	0	1,240	0	6	0	1,246
Fairbanks	11	11	23	631	0	9	0	663
Girdwood	4	3	8	320	0	0	0	328
Homer	17	15	39	1,129	75	24	54	1,320

-continued-

Table 6-3.–Page 2 of 2.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Kasilof	1	1	3	242	0	0	0	245
Kenai	5	5	30	83	11	2	2	128
Kodiak (city)	7	6	12	145	0	1	0	158
Kotzebue	2	2	30	40	17	2	6	95
McGrath	2	2	4	56	0	17	0	77
Moose Pass	1	1	0	48	0	0	11	59
Nikiski	3	3	5	27	35	0	0	67
North Pole	3	3	3	75	0	1	0	79
Palmer	16	14	41	1,283	8	16	6	1,354
Seward	1	1	0	46	0	0	0	46
Soldotna	2	2	14	47	25	27	35	148
Sterling	1	0	0	0	0	0	0	0
Talkeetna	4	4	47	248	0	46	0	341
Wasilla	27	24	122	2,279	29	46	2	2,478
Wrangell	1	1	0	0	0	0	0	0
Subtotal, other Alaska	**233**	**213**	**663**	**14,610**	**226**	**306**	**121**	**15,926**
Total	**1,158**	**1,031**	**17,417**	**99,008**	**8,984**	**6,677**	**2,689**	**134,775**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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	2010	69	42	42	53	29	23	7
Egegik	1984	64	60	60	24	40	37	16
Ekwok	1987	76	72	62	62	38	229	69
Igiugig	2013	94	78	61	83	61	14	5
Iliamna	2013	79	69	69	59	31	79	30
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	2013	88	70	67	73	33	38	12
Nondalton	2013	84	73	73	62	60	147	45
Pedro Bay	2013	73	64	46	55	36	41	17
Pilot Point	1987	94	94	94	35	59	56	16
Port Alsworth	2013	41	37	37	14	8	14	4
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); Fall et al. (2013); Evans et al. (2013); and Hazell et al. (2015).

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.

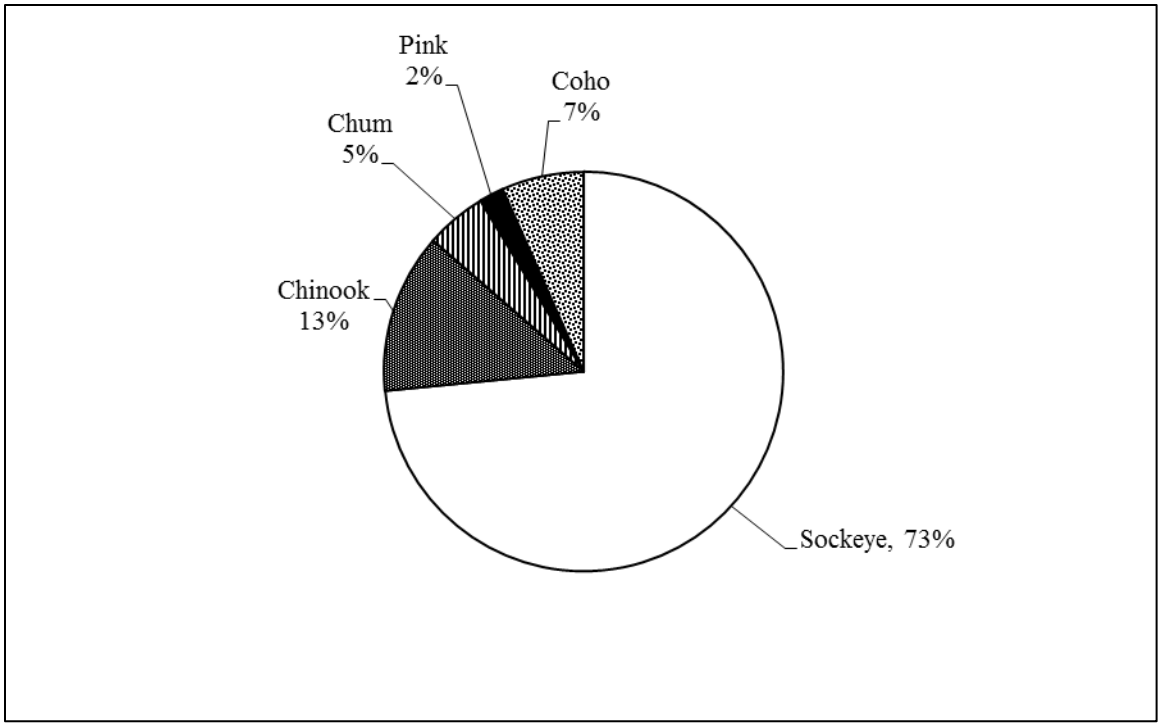

Figure 6-1.–Bristol Bay Area subsistence salmon harvest composition, 2014.

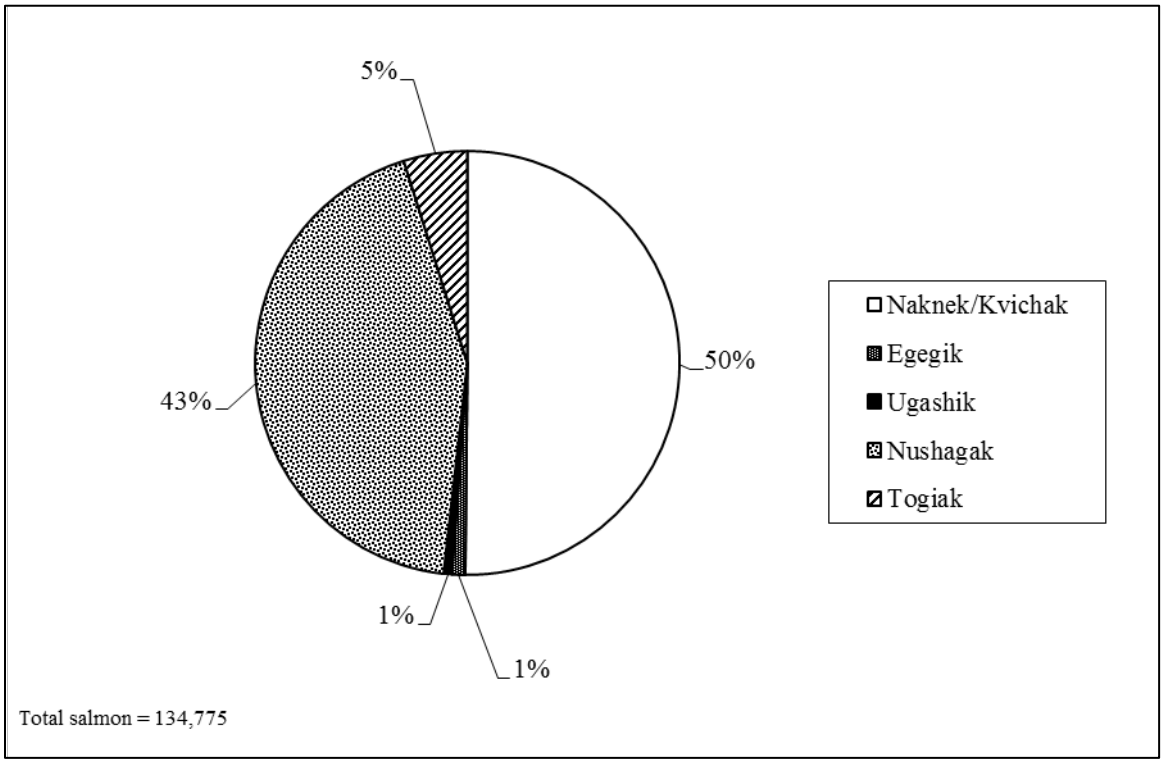

Figure 6-2.–Bristol Bay Area subsistence salmon harvests by district, 2014.

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 2014 estimated population of 96, Chignik Lagoon (population 73), Chignik Lake (population 71), Perryville (population 101), 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 2014 estimated total subsistence salmon harvest was 9,950 salmon; 79% sockeye salmon, 14% coho salmon, 3% 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 (2014–2015) 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, but an additional permit may be obtained if more fish are needed (5 AAC 01.480(b)(c)). Salmon may be taken by seines and gillnets, except that in Chignik Lake salmon may not be taken with purse seines. A gillnet may not be set, staked, anchored or otherwise fixed in a stream while it obstructs more than one-half of the width of the waterway or any channel of the waterway (5AAC 01.470).

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." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm
3. Alaska Department of Fish and Game. 2014-2015 Subsistence and personal use statewide fisheries regulations. Alaska Department of Fish and Game, Juneau.

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

- 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 Chignik Area commercial 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 from a point 300 feet 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 300 feet below the weir, is open to subsistence salmon fishing year round.
- Subsistence fishing is closed within 300 feet 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)).

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 commercial salmon fishing opening through September 30. Subsistence fishing permit conditions allowed

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 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]

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

In 2013, escapement goals for Chignik River Chinook salmon (king salmon) were never achieved. Effective July 27, 2013, 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 (Anderson et al. 2013).[7,]

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)).[8]

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 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, 2011, and 2014 the Division of Subsistence staff and survey technicians trained and hired by the Division of Subsistence from each community administered face-to-face household subsistence

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. 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

salmon harvest surveys in each of CMA communities 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. 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, 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 et al. 2016; Hutchinson-Scarbrough and Fall 1996:27). 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 2014, the number of subsistence permits issued for the Chignik Area totaled 113 permits, and 101 (89%) were returned to the department, which was a higher return rate than average historic returns. The previous year was similar with 112 permits issued and 96 returned, a return rate of 86%. Since 1977, the number of subsistence salmon permits issued for the Chignik Area has averaged 104 per year, with 72 permits (69%) returned. Over the last 10 years (2004–2013), the average has been 109 permits issued and 82 permits (75%) returned, and the recent 5-year average (2009–2013) was 106 permits issued and 86 (81%) 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 2014, the total estimated CMA salmon harvest was 9,950 fish, which was 18 % higher than in 2013 (8,433) fish. The 2014 total harvest was nearly the same as the recent 5-year average of 10,069 fish, and 10-year average of 10,563 fish but was 11% less than the 1977–2013 historical average of 11,178 fish (Table 7-1).

The 2014 total salmon harvest consisted of 79% sockeye (7,855), an increase (19%) of 1,267 fish from the 2013 sockeye salmon harvest (6,588). Coho salmon made up 14% (1,401) of salmon harvested in 2014, an increase of 53% (485 fish) from the 2013 harvest, but similar to the recent 5-year (1,371 fish) and 10-year (1,530 fish) and historical (1,286 fish) averages of coho salmon harvested. Pink salmon represented 3% of the total salmon harvest in 2014 with a total of 339 fish, which was half of the 2013 harvest of 686 and 60 percent less than the recent 5-year, 10-year and historical averages. There were also 207 chum salmon harvested in 2% of the total) which was similar to prior harvests. Chinook salmon composed 1% (148) of the 2014 salmon harvest, which was 69 (87%) more Chinook salmon than

estimated harvested in 2013, and also higher than previous 5-year (108); 10-year (123) and historical 1977–2013 (84) averages harvests (Table 7-1; Figure 7-2).

The 2014 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 (2009–2013) composition of the total salmon harvest (10,069) in the CMA comprised 75% sockeye (7,541), 14% coho (1,371), 8% pink (830), 2% chum (220), and 1% Chinook salmon (108) (Table 7-1; Figure 7-3). The 10-year average (2004–2013) composition of total salmon harvested (10,563) comprised 74% sockeye (7,836), 14% coho (1,530), 8% pink (857), 2% chum (215) and 1% Chinook salmon (123) (Table 7-1; Figure 7-4). The historical average (1977–2013) of the Chignik Management Area's total salmon harvest is 11,178 fish and has comprised an estimated 78% (8,681) sockeye, 12% (1,286) coho, 8% (878) pink, 2% (250) 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 2014, 79% of permits (89) were issued to CMA residents, and they were responsible for 95% of the harvest (9,443 fish) while residents of other parts of Alaska held 24 permits (21%) and harvested 5% (507 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 3,150 total salmon representing 32% of the total CMA subsistence salmon harvests. Chignik Lake harvested the second highest amount of salmon (2,869) representing 29%, followed by Chignik Lagoon and Chignik Bay harvesting near equivalent total salmon, with Chignik Lagoon harvesting 1,787 salmon representing 18% and Chignik Bay harvesting 1,637 salmon or 17% of total salmon harvested in the CMA. All other communities outside the CMA that participated in the CMA fishery in 2014 harvested a combined total of 507 salmon representing 5% of the total Chignik Management Area salmon harvest (Table 7-2; Figure 7-6).

Community Salmon Harvests by Species

Sockeye were the most harvested species of salmon in the CMA in 2014 as well as historically, totaling 7,855 salmon, a 19% increase from 2013 sockeye harvests of 6,588 fish. In 2014, the total sockeye salmon harvest in the CMA was apportioned as follows: Chignik Lake 2,770 (35%), Chignik Lagoon 1,632 (21%), Perryville 1,552 (20%), Chignik Bay 1,413 (18%), and residents of other Alaska communities 488 (6%).

Coho were the second most harvested species of salmon in the CMA in 2014, totaling 1,401 salmon, a significant increase (53%) from 2013's estimated harvest of 916 (Table 7-1). As in all previous years, Perryville harvested the majority of coho salmon with a total of 1,135 harvested, which represented 81% of the total CMA coho harvests in 2014. Perryville residents also harvested the highest numbers of pink and chum salmon in 2014, responsible for 63% (215) of pink and 73% (152) chum salmon harvests in 2014 (Table 7-2; Figure 7-7). Chignik Bay residents harvested the second highest quantity of pink and chum salmon, with 99 (29%) of total pink salmon harvested and 46 (22%) of total chum salmon harvested. 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 2014 estimated 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 estimated salmon harvests, by location and species for 2014. The majority of total salmon harvested occurred in the Chignik Lake subarea (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 estimated subsistence harvests in the Chignik Lake Subarea totaled 3,871 salmon, which represented 39% of estimated harvests of all salmon by location. The majority of sockeye salmon harvested in the CMA also were harvested from the Chignik Lake subarea, with an estimated 3,746 sockeye harvested (48%) of all CMA sockeye harvests.

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) total salmon harvests were just 578 less than estimated harvests in the Chignik Lake subregion, with a total of 3,293 salmon harvested representing 33% of total CMA harvests. Like the Chignik Lake subregion, sockeye were the species of salmon harvested the most in this region with a total of 2,921 harvested representing 37% of all CMA sockeye harvested. This subarea also represented the second highest harvests of coho salmon (172 fish; 12%), as well as pinks (112 fish; 33%), chum (52 fish; 25%) and Chinook salmon (37 fish; 25%) harvested in the CMA. (Table 7-3).

The Perryville Subarea corresponds to the Perryville and Western CMA commercial fishing districts. The reported salmon harvests in the Perryville subarea totaled 2,787 salmon, which represented28% of all salmon harvested in CMA. The Perryville subarea ranked highest of all CMA subareas for coho, pink, chum and Chinook salmon harvests. Coho salmon harvested in this subarea totaled 1,135 coho salmon, which represented 81% of all CMA coho salmon harvested (1,401). An estimated 215 pink salmon were harvested in the Perryville sub area representing 64% of total CMA pink salmon harvests (339); 152 chum salmon were estimated harvested in this area which represented 73% of the total CMA harvests for chum salmon (207) in 2014, and 96 Chinook salmon were estimated harvested in this area which represented 65% of all Chinook salmon harvested in the CMA area. (Table 7-3).

Table 7-4 shows reported CMA subsistence salmon harvests by species, fishing location, and date in 2014. Harvest dates are divided into two periods of time, before and after July 5, the date the Department historically uses to define objectives for escapements between the early and late sockeye run up the Chignik River (Wilburn et al. 2015) . In 2014, 59% (5,913 salmon) of the total subsistence salmon harvest and 51% (4,033 salmon) 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 the early season, and Clark River including the Clark River mouth at Chignik Lake was the primary area used for harvesting sockeye in the late season. Coho, chum and pinks were primarily harvested in the Perryville subarea from Perryville to Ivanof Bay after July 5 (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 et al. 2010; Hutchinson-Scarbrough and Fall 1996).

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 harvest salmon in specific locations and/or with specific methods or seasons that are allowed by federal regulations but not state regulations in the federal lands and waters of the CMA. For example, a federal subsistence permit, that can only be issued to residents of the CMA communities, 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 catches 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 2014, Chignik commercial fishing boats reported removing 6 sockeye, and 35 Chinook, from their commercial harvest for home pack (Wilburn et al. 2015; 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 2014 (Fall and Lemons 2016).

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 et al. 2016).

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 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. The decline of subsistence permits issued and subsistence salmon harvested in 2008 and 2009 was likely in part a consequence of declines in the populations of the local communities, which were influenced by the U.S. financial crisis and global recession that affected the economy of these communities. This is in part evident from the more than 30% decline in value of Chignik commercial purse seine limited entry permits from 2007 to 2008 that did not rebound until 2013 (Gho 2016).

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 et al. 2016).

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 et al. 2016).

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 et al. 2016).

In 2014, the first sockeye run arrived late and the June sockeye salmon escapement into the Chignik River was below average and did not meet minimum escapement objectives during the month of June. Commercial salmon fishing in the CMA did not open until July 12 due to the weak early-run Chignik River sockeye salmon escapement. The Chignik River sockeye salmon early run peaked in mid-June and the late run peaked in late-July and though the escapement goals for early and late run sockeye were met in 2014, both escapements were below the recent 5-,10-, and 20 year averages as well as the 2014 total CMA sockeye salmon commercial harvests. (Wilburn et al. 2015). Some residents of the CMA communities commented to ADF&G Division of Subsistence Staff during post season surveys conducted in February 2015, that there was plenty of time and opportunity in June and early July 2014 to subsistence fish, because the commercial fishery was closed. But many respondents commented that because the first run arrived late and was weak, it was difficult to find and harvest subsistence fish as well. Others reported lots of rain in the fall and the Clark River where many of the late sockeye salmon are harvested was flooded and access was limited, and the weather made it difficult to dry their salmon ("redfish") if obtained (Hutchinson-Scarbrough, 2015 field notes).

Table 7-1.–Historical subsistence salmon harvests, Chignik Area, 1977–2014.

Year	Permits		Estimated salmon harvest					
	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
2014	113	101	148	7,855	1,401	207	339	9,950
5-year average (2009–2013)	106	86	108	7,541	1,371	220	830	10,069
10-year average (2004–2013)	109	82	123	7,836	1,530	215	857	10,563
Historical average (1977–2013)	104	72	84	8,681	1,286	250	878	11,178

-continued-

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016); 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, 2011, and 2014 postseason 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, 2014.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chignik Bay	18	14	17	1,413	62	46	99	1,637
Chignik Lagoon	19	18	27	1,632	110	5	13	1,787
Chignik Lake	13	13	5	2,770	80	1	13	2,869
Perryville	39	36	96	1,552	1,135	152	215	3,150
Subtotal, Chignik Area residents	**89**	**81**	**146**	**7,367**	**1,387**	**204**	**339**	**9,443**
Anchorage	6	3	0	28	0	0	0	28
Chugiak	1	1	0	0	0	0	0	0
Fairbanks	1	1	0	4	2	0	0	6
Homer	3	3	1	149	8	1	0	159
Juneau	1	1	0	10	0	0	0	10
Kodiak	8	8	0	157	4	2	0	163
Palmer	2	1	0	0	0	0	0	0
Unalaska	1	1	1	65	0	0	0	66
Wasilla	1	1	0	75	0	0	0	75
Subtotal, other Alaska residents	**24**	**20**	**2**	**488**	**14**	**3**	**0**	**507**
Total	**113**	**101**	**148**	**7,855**	**1,401**	**207**	**339**	**9,950**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 7-3.–Estimated subsistence salmon harvests by species and subarea of harvest, Chignik Area, 2014.

Subarea of harvest[a]	Estimated salmon harvest[b]					
	Chinook	Sockeye	Coho	Chum	Pink	Total
Chignik Bay and Lagoon	**37**	**2,921**	**172**	**52**	**112**	**3,293**
Chignik Bay	1	375	17	46	99	538
Chignik Lagoon	36	2,546	155	5	13	2,754
Chignik Lake	**14**	**3,746**	**94**	**4**	**13**	**3,871**
Chignik Lake	2	809	40	0	0	2
Chignik River	12	1,020	24	4	11	12
Clark River	0	1,916	30	0	2	0
Perryville	**96**	**1,189**	**1,135**	**152**	**215**	**2,787**
Ivanof Bay to Humpback Bay	0	222	340	34	30	626
Kametolook River	0	43	119	0	0	163
Perryville	96	923	676	118	184	1,998
Total	**148**	**7,855**	**1,401**	**207**	**339**	**9,950**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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.

Table 7-4.–2014 Chignik area subsistence salmon harvests by species, fishing location, and date.

Sub area	Estimated salmon harvest					
	Chinook	Sockeye	Coho	Chum	Pink	Total
Harvest before 7/5						
Chignik Bay	1	285	4	21	9	320
Chignik Lagoon	21	1,617	0	2	6	1,646
Chignik Lake	2	421	0	0	0	423
Chignik River	2	572	0	1	0	575
Clark River	0	220	0	0	0	220
Perryville	55	535	9	17	65	681
Ivanof Bay to Humpback Bay	0	171	0	0	0	171
Subtotal, early harvest	**81**	**3,822**	**13**	**41**	**80**	**4,037**
Harvest on or after 7/5						
Chignik Bay	0	90	13	26	90	219
Chignik Lagoon	15	929	155	3	6	1,108
Chignik Lake	0	388	40	0	0	428
Chignik River	10	448	24	3	11	496
Clark River	0	1,696	30	0	2	1,728
Perryville	41	388	667	101	119	1,317
Kametolook River	0	43	119	0	0	163
Ivanof Bay to Humpback Bay	0	51	340	34	30	455
Subtotal, late harvest	**66**	**4,033**	**1,388**	**166**	**259**	**5,913**
Total	**148**	**7,855**	**1,401**	**207**	**339**	**9,950**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 7-5.–Chignik area salmon removed from commercial catch for home use, 1994–2014.

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	21090	5262	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	1690	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
2014	35	6	0	0	0	41
5-year average (2009–2013)	94	498	9	48	6	655
10-year average (2004–2013)	100	602	28	36	26	791
Historical average (1977–2013)	97	525	80	1,035	283	2,020

Source: Alaska Department of Fish and Game, Division of Commercial Fisheries. Kodiak.

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*.

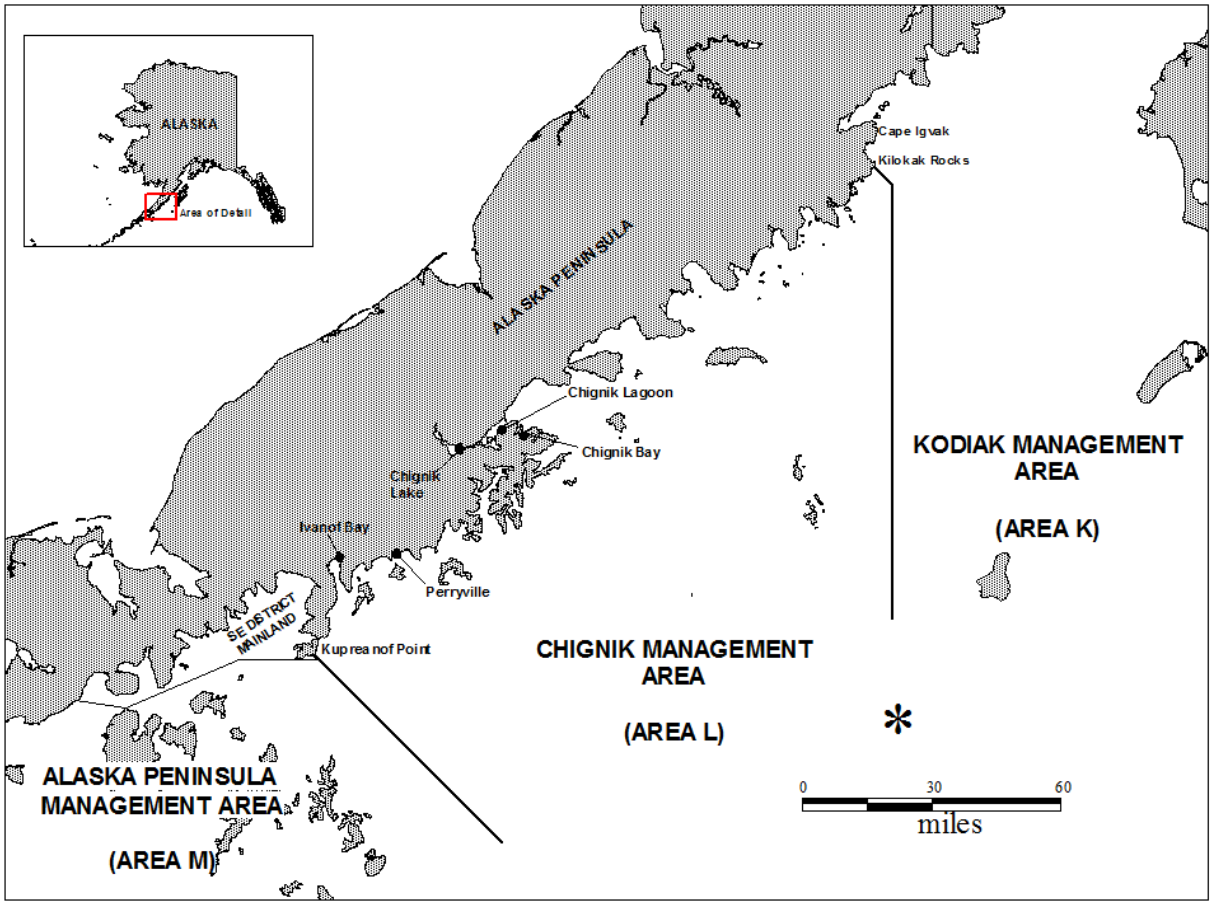

Figure 7-1.–Location of Chignik Management Area (CMA) and communities within the CMA on Alaska Peninsula.

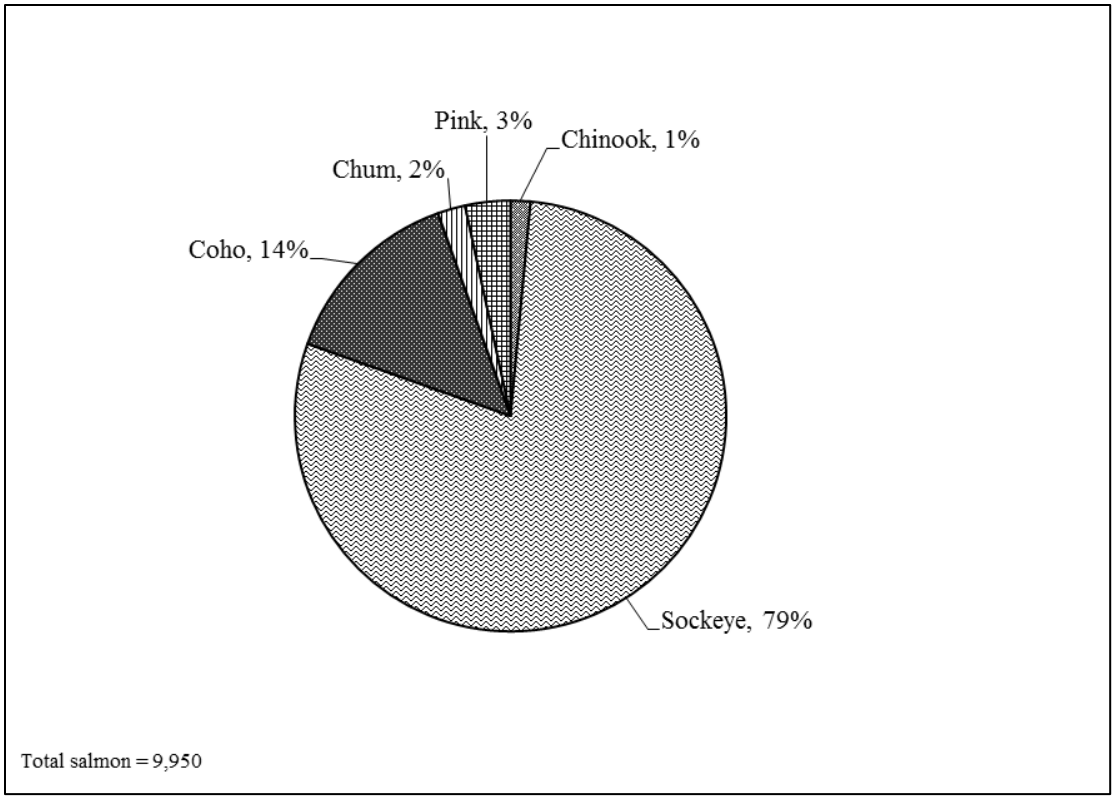

Figure 7-2.–Composition of Chignik Area subsistence salmon harvest by species, 2014.

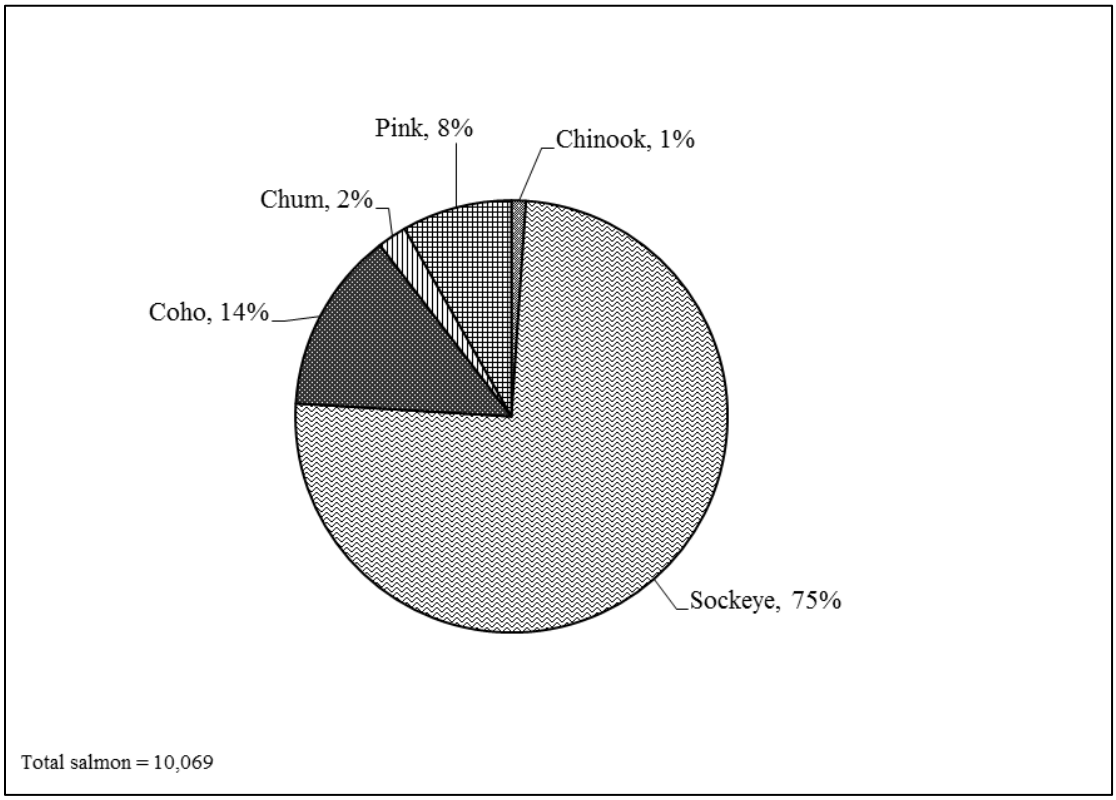

Figure 7-3.–Species composition of Chignik Area subsistence salmon harvests, 2009–2013.

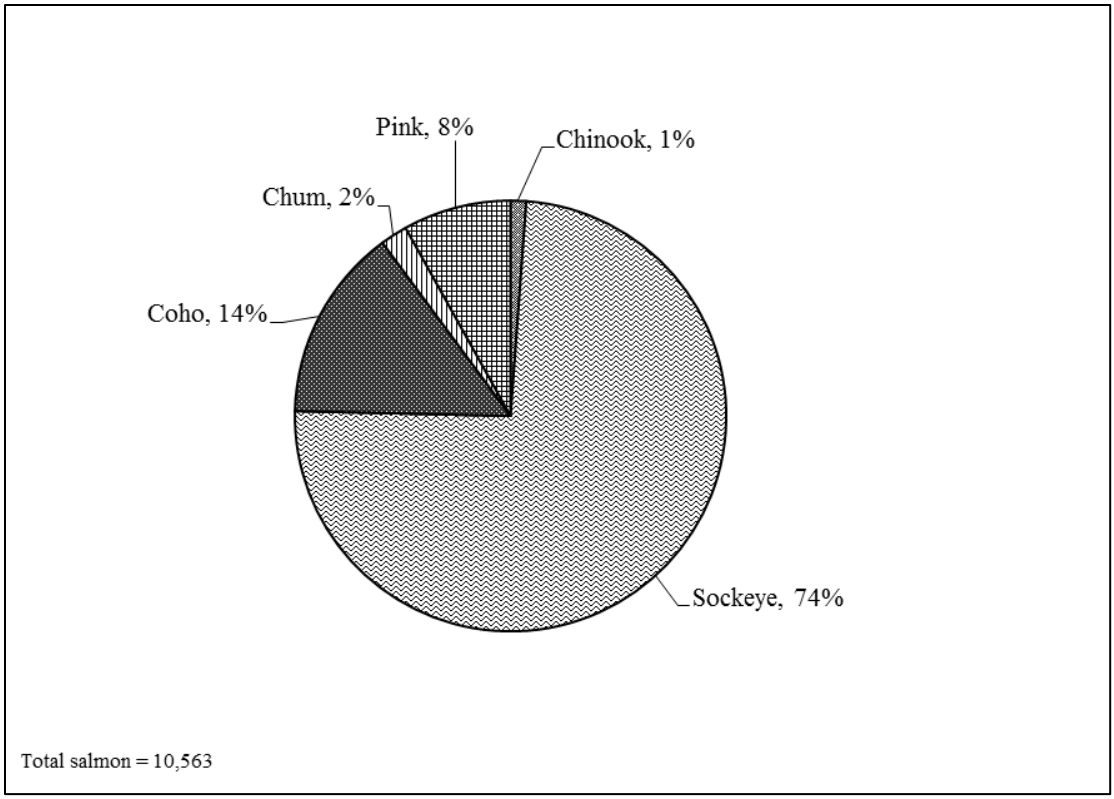

Figure 7-4.–Species composition of Chignik Area subsistence salmon harvests, 2004–2013.

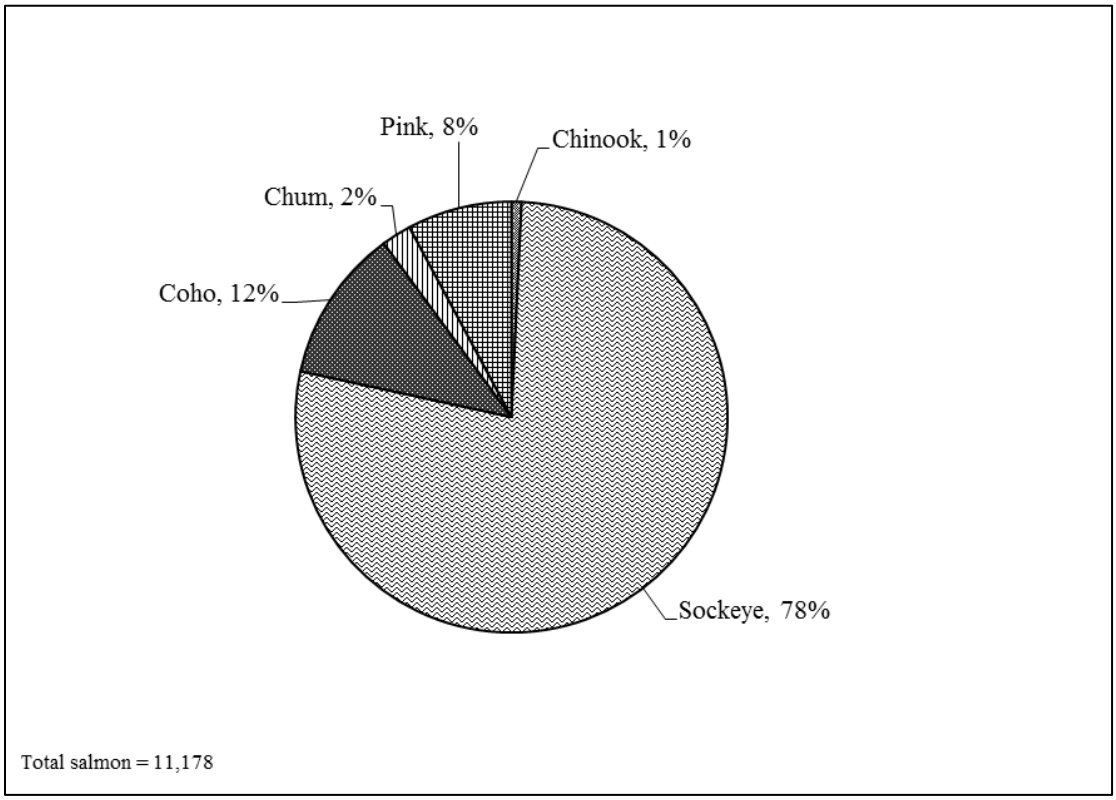

Figure 7-5.–Species composition of Chignik Area subsistence salmon harvests, 1977–2013.

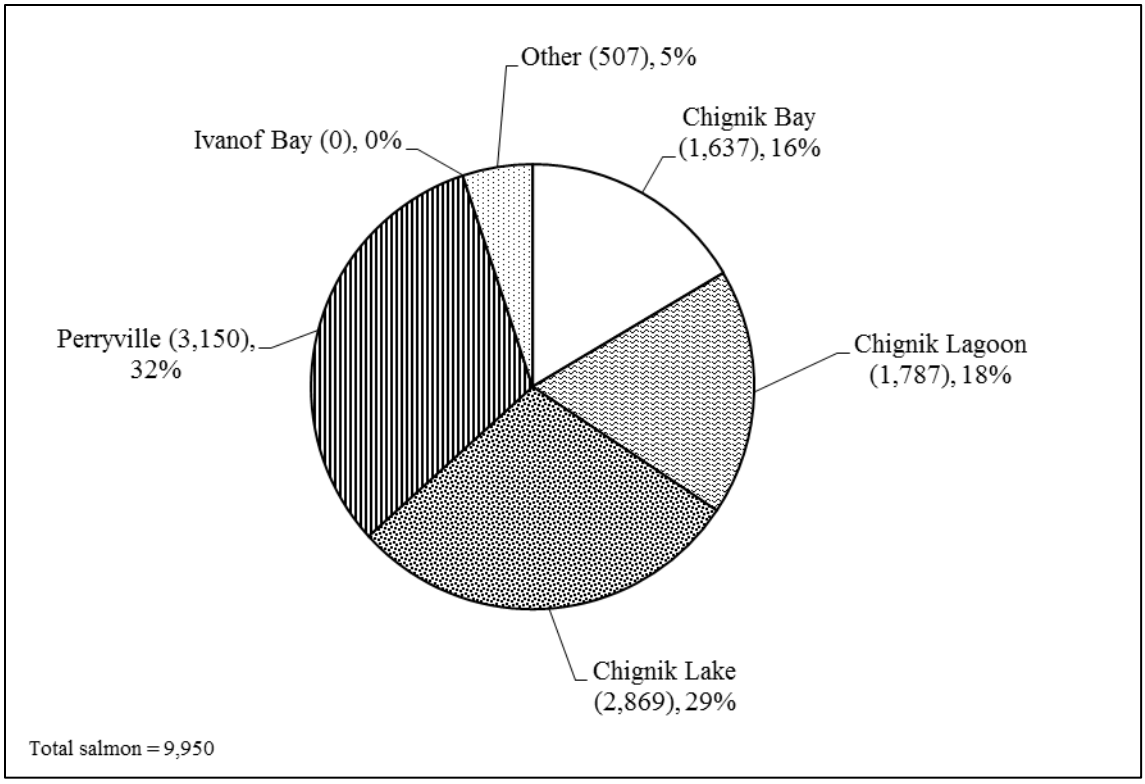

Figure 7-6.–Subsistence salmon harvests by community, Chignik Area, 2014.

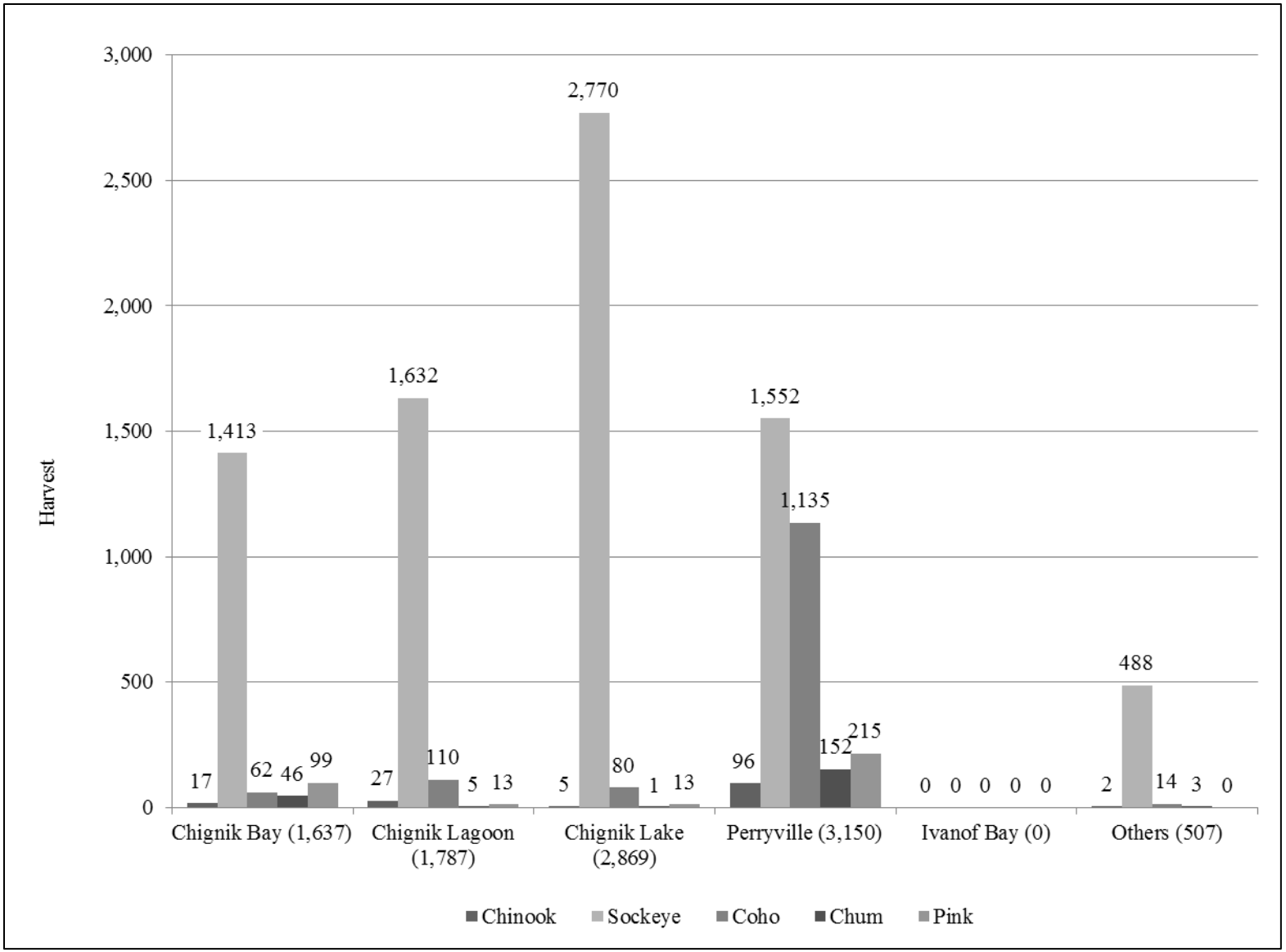

Figure 7-7.–Subsistence salmon harvests by community, Chignik Area, 2014.

CHAPTER 8: ALASKA PENINSULA AREA

BACKGROUND

The Alaska Peninsula Salmon Management Area (Area M) includes all the 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 area for salmon management purposes is divided into two portions; the North Alaska Peninsula portion includes the waters from Cape Menshikof west to Cape Sarichef, and the South Alaska Peninsula includes the waters from Kupreanof Point west to Scotch Cap on Unimak Island (Keyse and Fox 2015). The communities of the Alaska Peninsula Area are Port Heiden (estimated population 115 in 2014), Nelson Lagoon (population 44), False Pass (population 34), Cold Bay (population 89), King Cove (population 907), and Sand Point (population 949).[1] Port Moller has no year-round population and is only seasonally occupied from May–September. 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 (5AAC 01.430). Legal gear includes seines and gillnets. In waters open to commercial fishing, no set gillnet may exceed 100 fathoms in length and no drift gillnet may exceed 200 fathoms in length. In areas open to commercial salmon fishing, salmon can only be taken with gillnets of not more than 50 fathoms in length (5AAC 01.420). 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 Federal Subsistence Board are generally identical to the state regulations summarized above, with the exception that in addition to gillnet and seine, rod and reel, handline, spear, bow and arrow and bare hand capture are all legal subsistence gear under federal rules for federally qualified rural residents. There is no separate federal subsistence permit; a state permit is required for subsistence fishing under the federal regulations. Additional information about the federal subsistence fishery is available by contacting the United States Fish and Wildlife Service, Office of Subsistence Management in Anchorage, Alaska.

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

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed September 12, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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.

SUBSISTENCE SALMON HARVESTS IN 2014

From 1985 through 2013, the number of subsistence salmon permits issued for the Alaska Peninsula Area averaged 190 per year (Table 8-1). The recent 5-year average (2009–2013) was 165 permits. In 2014, 177 subsistence salmon fishing permits were issued for the Alaska Peninsula Area which was nearly the same as the previous two years when 172 permits were issued. This compares to the 241 Commercial Fishery Entry Commission (CFEC) permits issued for the commercial salmon fishery for the Alaska Peninsula Area in 2014 (Keyse and Fox 2015). The response rate for subsistence permits was 76% in 2014 (134 of 177 permits were returned). Of all subsistence permits issued, 142 (80%) were issued to residents of Alaska Peninsula Area communities, and 35 (20%) were issued to residents of other Alaska communities (Table 8-2). Most nonlocal residents fish at Mortensens Lagoon which is located approximately 9 road miles southeast of Cold Bay, primarily because of easy road access from the Cold Bay airport which provides economically feasible transportation options (Tschersich and Russ 2008). Also Mortensens Lagoon, Thin Point Lagoon located 12 miles west of King Cove, and Leonard Harbor near the King Cove road system are some of the primary areas utilized for obtaining subsistence sockeye and coho salmon particularly for King Cove and Cold Bay residents (Johnson and Fox 2015).

The estimated total subsistence salmon harvest in the Alaska Peninsula Area in 2014 was 12,927 fish. This is a 14% increase from the prior year (11,353 salmon in 2013) and nearly the same as the recent 5-year average (2009–2013) (12,943) but 4% less than the 10-year (2004–2013) average of 13,519 and a 26% decrease from the historical average (1985–2013) of 17,463 fish (Table 8-1). The 2014 subsistence harvest consisted of 69% sockeye salmon (8,910), 13% pink salmon (1,704), 12% coho salmon (1,523), 6% chum salmon 737), and 0.4% Chinook salmon (53) (Table 8-1; Figure 8-1).

Chinook, coho and chum salmon harvests in 2014 all had declined from the previous year, as well as recent 5-year (2009–2013), 10-year (2004-2013) and historical (1985–2013) average harvests. Chinook salmon harvests in 2014 totaled only 53 fish, a 77% decline from the previous year harvest of 235; and a 83% decline from previous 5-year (309), 10-year (316), and historical (316) averages. The 2014 coho harvest of 1,523 was 31% less from the 2013 harvests or 2,222; a 48% decline from 10-year average (2,928); and a 64% decline from the 1985–2013 historical average. Chum harvests totaled 737 in 2014 which was a 32% decline from 2013 harvest (1,080); 22% less from 10-year (2004–2013) average (941); and a 59% decline from the historical (1985–2013) average of 1,809 chum salmon (Table 8-1).

Sockeye salmon and pink salmon 2014 estimated harvests by contrast to the other species increased from their previous year harvests. The sockeye salmon harvest in 2014 (8,910) was a 33% increase from 2013 harvests (6,683), but was close to the 5-year average (8,215) and 10-year average (8,416) but less than 8% of the historical (1985–2013) average of 9,661 fish. Pink salmon harvests in 2014 totaled 1,704 which 50% higher than the previous year; 75% higher than the recent 5-year (2009–2013) average (976), but closer (21% higher) than the historical (1985–2013) average (Table 8-1).

Of the total salmon harvested in 2014, the residents of Sand Point harvested 41% (5,302 fish); King Cove residents 36% (4,693); Cold Bay residents 7% (1,026); False Pass residents 3% (380); Nelson Lagoon residents, 2% (111); and Port Heiden residents 1% (90). Port Moller is only a summer residence for commercial fishermen, yet a winter caretaker of the cannery and ADF&G facilities might reside there and could account for the 60 salmon that were reported harvested from this community. Other Alaska residents not residing year around in any of the Alaska Peninsula Management Area communities, harvested 1,265 salmon, which represented 10% of the total harvest for this area in 2014 (Table 8-2; Figure 8-2).

Home-pack from commercial fisheries can also be an important source of personal use salmon. Vessels fishing in the commercial salmon fisheries in the South Alaska Peninsula Area in 2014 reported on their fish tickets removing from their commercial salmon harvest for personal use, locally called "home pack", a total of 419 salmon, of which, 58% (242) were Chinook salmon; 26% (107) sockeye salmon; and 17% (70) coho salmon. There were no reported salmon removed for personal use by commercial salmon fisherman in the North Alaska Peninsula in 2014. Homepack is required to be reported on commercial harvest tickets (5AAC39.130(c)(12)), but they may not be complete, or some of this homepack salmon is sometimes reported on a commercial fisher's subsistence permit.[2]

In interviews with Division of Subsistence staff in 2000, fishery managers for the Alaska Peninsula Area 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 and 2014 (Fall and Lemons 2016). Due to a lapse in funding, subsistence Pacific halibut fishing harvest estimates were not collected for 2013. The primary method used for obtaining subsistence halibut harvest estimates state wide is through the use of mail-out surveys. In addition, in 2014 a special objective also included in person interviews with active subsistence halibut permit holders in the communities of King Cove and Sand Point (Fall and Lemons 2016).

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.

2. Elizabeth Fox, ADF&G Area Management Biologist, Alaska Peninsula and Aleutian Islands, Personal Communication, October 27, 2016.

Generally, Pacific cod, halibut, and Arctic char/Dolly Varden were the most frequently used by households in these communities.

Nonsalmon subsistence harvest data are also available for Nelson Lagoon, Port Heiden, and False Pass for 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, 1985–2014.

	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
2014	177	156	53	8,910	1,523	737	1,704	12,927
5-year average (2009–2013)	165	134	309	8,215	2,391	1,052	976	12,943
10-year average (2004–2013)	163	136	245	8,416	2,928	941	988	13,519
Historical average (1985–2013)	190	148	316	9,661	4,264	1,809	1,413	17,463

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 8-2.–Subsistence salmon harvest estimates by community, Alaska Peninsula Area, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cold Bay	27	25	1	998	11	16	0	1,026
False Pass	4	2	0	120	260	0	0	380
King Cove	51	44	5	3,491	758	85	355	4,693
Nelson Lagoon	4	4	0	95	0	15	1	111
Port Heiden	2	2	4	51	0	35	0	90
Port Moller[a]	1	1	0	60	0	0	0	60
Sand Point	53	46	28	3,090	470	520	1,195	5,302
Subtotal, area residents	**142**	**124**	**37**	**7,905**	**1,499**	**670**	**1,550**	**11,662**
Anchorage	18	15	0	536	0	12	14	563
Chugiak	1	1	0	50	0	0	0	50
Eagle River	1	1	0	50	0	0	0	50
Fairbanks	1	1	0	0	0	0	0	0
Homer	3	3	0	32	1	1	14	48
Kasilof	1	1	0	93	0	0	0	93
King Salmon	1	1	0	0	0	0	0	0
Kodiak City	4	4	16	107	0	32	0	155
Ninilchik	1	1	0	0	0	0	0	0
Seward	2	2	0	0	0	0	0	0
Sterling	1	1	0	36	0	0	0	36
Wasilla	1	1	0	100	23	22	125	270
Subtotal, other Alaska residents	**35**	**32**	**16**	**1,004**	**24**	**67**	**153**	**1,265**
Total	**177**	**156**	**53**	**8,910**	**1,523**	**737**	**1,704**	**12,927**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

a. Port Moller is a seasonal (May–September) community. The only year-round resident is the caretaker of the cannery.

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.

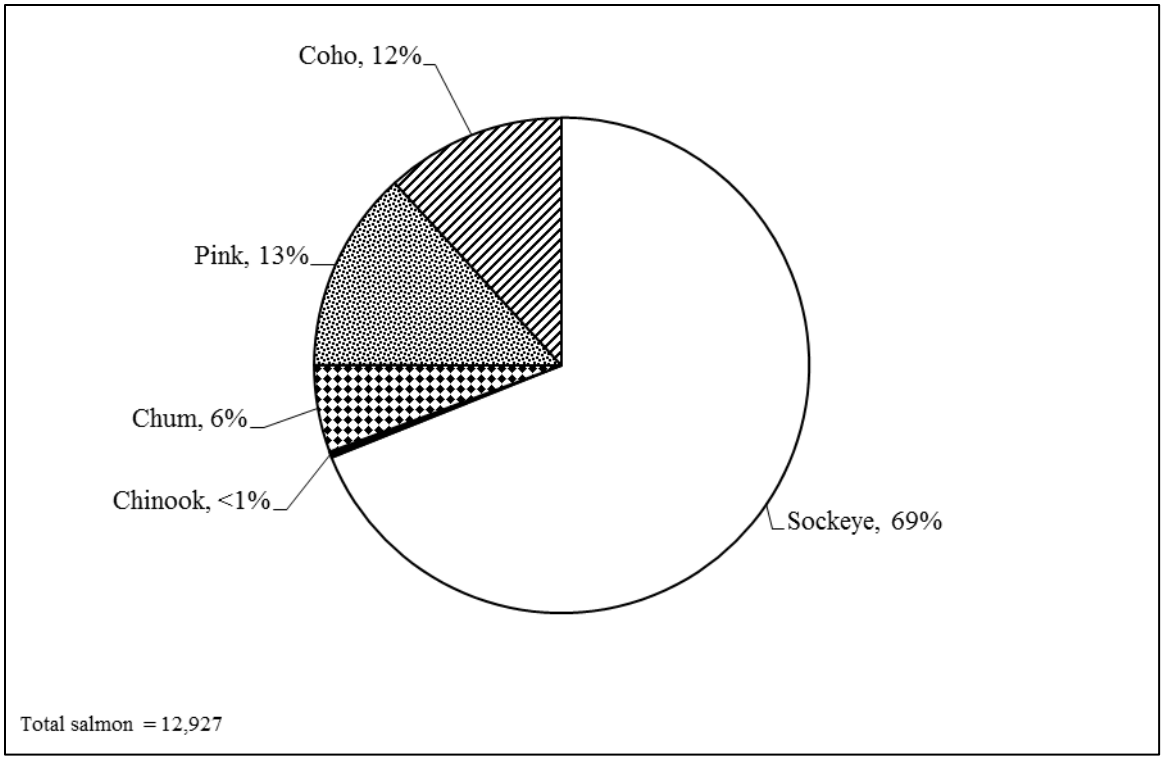

Figure 8-1.–Composition of Alaska Peninsula Area subsistence salmon harvest by species, 2014.

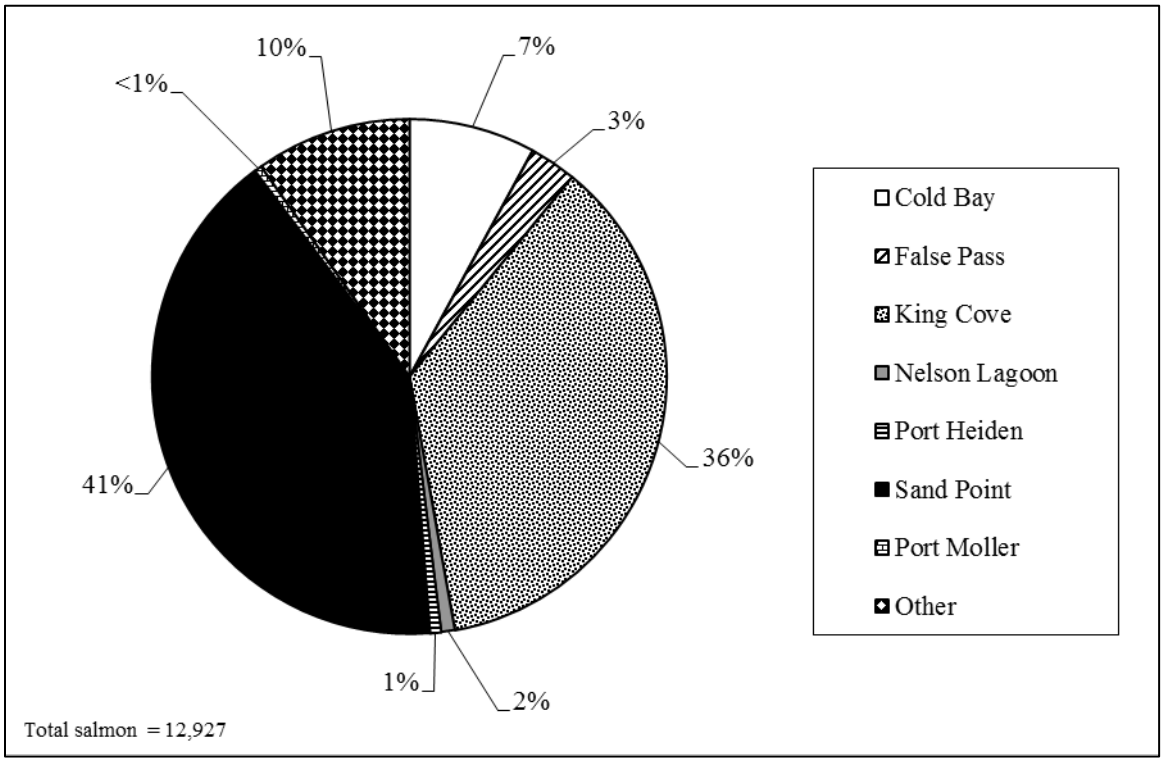

Figure 8-2.–Subsistence salmon harvests by community, Alaska Peninsula Area, 2014.

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 2014, the total Akutan population was estimated at 1,053; however, most of the people (982) were estimated as residing in group housing, and 71 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 2014, the estimated population of Unalaska–Dutch Harbor was 4,986 with 2,280 residing in households and 2,706 in group quarters. In Nikolski, the population in 2010 was 18 residing in a total of 13 households; and in 2014, the estimated population was 15. Atka in 2010 had a population of 61 residing in a total of 24 households; and the estimated population in 2014 totaled 71. Adak's 2010 census population totaled 326 people which 109 lived in a total of 44 households and 217 in group quarters; and in 2014, the estimated population was 247 total people, 157 of which were estimated to be in group quarters. [1]

Two communities are within the Pribilof Islands 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 2014, the population was estimated at 437 with 425 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 2014 population estimate was 92 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 July, 2016. http://live.laborstats.alaska.gov/pop/index.cfm
2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July, 2016. http://live.laborstats.alaska.gov/pop/index.cfm
3. U.S. Census Bureau, Washington D.C. n.d. "American FactFinder." U.S. Department of Commerce. Accessed July, 2016. 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.

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 permanent residents residing in the Aleutian Islands Area; however they are managed consistently with the state fisheries in the region. [5]

Subsistence Salmon Harvests in 2014

In 2014, 249 subsistence salmon permits were issued for the Unalaska District, which was slightly lower than the previous year, 2013, when 254 were issued, but more than the recent 5-year (2009–2013) average of 224 permits and the 10-year (2004–2013) average of 213 permits issued (Table 9-1). This number was also higher than the historical annual average (1985–2013) of 173 permits. Harvest numbers are recorded on the permit and returned at the end of the harvest season to ADF&G. In 2014, the return rate for the Unalaska District was 69%, with 173 permits returned out of 249 permits issued. Dutch Harbor and Unalaska residents accounted for 234, or 94%, of all permits issued in the Unalaska District, and returned 162 permits out of 173 permits (93%) (Table 9-2).

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).

The estimated subsistence harvest of salmon in the Unalaska District in 2014 was 4,339 fish, which was 501 salmon less than the previous year (4,840), less than the recent 5-year average (5,180 fish), and less than the10-year average (4,710 fish) for the district (Table 9-1). The composition of the 2014 subsistence salmon harvest was sockeye (80%, lower than 2013 (88%), coho (11%, up from 4% in 2013), pink (9%, up from the 6% in 2012), Chinook (<1%, equal to 2013) and chum (0%, lower than the 1% in 2013) (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 because 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 21 students attending the Adak school. The estimated population for Adak in 2014 was 247 of which 217 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.

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.

8. U.S. Census Bureau, Washington D.C. n.d. "American FactFinder." U.S. Department of Commerce. Accessed July 2016. 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 July 2016. http://live.laborstats.alaska.gov/cen/dparea.cfm

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 2014, Adak District

In 2014, no subsistence salmon permits were issued for the Adak District. This was less than the 6 issued in the previous year, and also less than the 5-year (2) and 10-year (4), and the historical 1988–2013 averages (16) (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 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 Maschner (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 2014 (Fall and Lemons 2016).

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, 1985–2014.

	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
2014	249	173	3	3,473	486	14	363	4,339
5-year average (2009–2013)	224	164	7	4,364	373	86	350	5,180
10-year average (2004–2013)	213	159	8	3,686	475	67	473	4,710
Historical average (1985–2013)	173	124	7	3,134	600	73	889	4,703

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 9-2.–Estimated subsistence salmon harvests by community of residence, Unalaska District, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	4	3	0	40	0	0	0	40
Chugiak	2	2	0	63	0	0	2	65
Dutch Harbor	123	85	1	1,392	172	7	62	1,635
Fairbanks	1	0	0	0	0	0	0	0
Homer	2	0	0	0	0	0	0	0
Kodiak (city)	2	2	0	0	0	0	0	0
Palmer	1	1	0	0	0	0	0	0
Unalaska	111	77	1	1,978	314	7	298	2,599
Wasilla	2	2	0	0	0	0	0	0
Other USA	1	1	0	0	0	0	0	0
Total	**249**	**173**	**3**	**3,473**	**486**	**14**	**363**	**4,339**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 9-3.–Historical subsistence and personal use salmon harvests, Adak District, 1988–2014.

	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
2014	0	0	0	0	0	0	0	0
5-year average (2009–2013)	2	1	0	26	2	0	16	44
10-year average (2004–2013)	4	3	0	148	1	0	12	162
Historical average (1988–2013)	16	12	1	267	6	0	24	297

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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).

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.

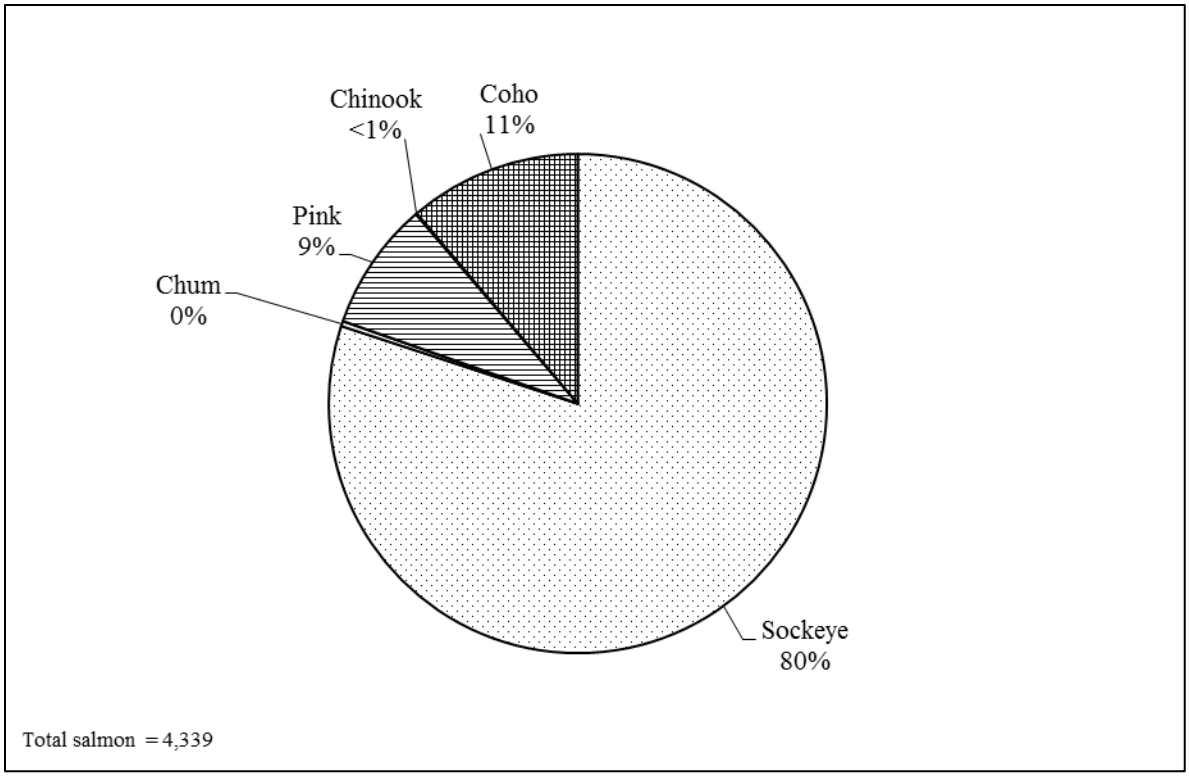

Figure 9-1.–Composition of Unalaska District estimated subsistence salmon harvest by species, 2014.

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 (13,850 in 2014) 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 (6,362), the U.S. Coast Guard base (1,305), Womens Bay (786), 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) (4,568). 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 (82), Aleneva CDP (21), Karluk (43), Larsen Bay (72), Old Harbor (214), Ouzinkie (172), and Port Lions (177).[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 2014, 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. . However, from June 1 to 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. Between the same dates, gillnets are the only allowable gear that can be operated for subsistence purposes from purse seine vessels and no other salmon fishing gear may be on board. In the fresh waters of Kodiak Island, east of the line from Crag Point south to the westernmost point of Saltery Cove, including the waters of Woody and Long Islands, and the salt waters bordering this area within a mile of Kodiak Island, excluding the waters bordering Spruce Island, 25 salmon may be taken by the permit holder annually plus an additional 25 salmon for each member of the same household whose names are listed on the permit. An additional permit maybe obtained if the fisher can demonstrate that additional fish are needed. In the remainder of the Kodiak area, there is no annual harvest limit. A list of waters closed to subsistence salmon fishing within the Kodiak Area under state regulations appears in 5 AAC 01.525.

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 30, 2016. http://live.laborstats.alaska.gov/pop/index.cfm.

In 2014, federal regulations governing subsistence salmon fishing by eligible rural residents of the Kodiak Island Borough in federally managed public waters of the Kodiak Area 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 difference was that federal regulations allowed subsistence salmon fishing 24 hours a day, while state regulations limited subsistence fishing to the hours of 6:00 AM to 9:00 PM daily[2]. A list of federal public waters closed to subsistence salmon fishing in the Kodiak area is available in the 2013–2015 Subsistence Management and Regulations for the harvest of fish and shellfish on Federal Public Lands and Waters in Alaska published by the Federal Subsistence Management Program.[3]

According to Cinda Childers, Refuge Clerk in the Kodiak National Wildlife Refuge (KNWR), refuge staff have been issuing a separate subsistence salmon fishing permit for federally-qualified residents of the Kodiak Island Borough from the KNWR office in Kodiak since approximately 2010. Records received from the Refuge office indicate that in 2014 a total of 18 permits were issued that year, an increase of 8 permits from 2013. The total 2014 reported harvest with gillnets was 139 sockeye salmon, a noticeable increase from the small harvest of 36 sockeye salmon harvested with gillnets in 2013. (Brian Davis, Division of Subsistence Southern Region Program Manager, personal communication with Cinda Childers, June 30, 2016)

Salmon Harvest Assessment Program

ADF&G staff in the Division of Commercial Fisheries' Kodiak office manage the annual subsistence salmon harvest assessment program for the Kodiak Area. Each year new permits are mailed to permit holders who turned in their permits at the end of the previous fishing season; permits maybe returned via mail, or in person at the Kodiak ADF&G office. In 2014, permit holders were also able to submit their annual subsistence salmon harvest information via e-mail or by calling in the Kodiak ADF&G office (personal communication with Amanda Dorner, Division of Commercial Fisheries Kodiak Office, September 7, 2016). New subsistence salmon harvest permits may, however, only be requested in person, or via mail from the same location. All permit holders are required to record their harvest on the permit, listing areas fished by date and salmon harvested by species, and return the permit after the conclusion of the fishing season (Jackson and Keyse 2013). ADF&G continues to send reminder postcards in February to permit holders who have not returned their permits.

Over the years, a continuous challenge for the Division of Commercial Fisheries' salmon harvest assessment program has been a large number of permits that annually are returned to ADF&G by the U.S. Postal Service marked as "undeliverable." No record is maintained regarding the number of "undeliverable" permits—as a result, the actual number of permits issued per year 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. Furthermore, the permit harvest assessment program does not collect noncommercial salmon harvests with rod and reel gear, which is legal subsistence gear under federal subsistence regulations but not under state regulations. Annual rod and reel harvest completed under state sport fishing regulations are tracked through a small sample of statewide mail-out surveys managed by the Division of Sport Fish. Another challenge for the Kodiak area fishery managers is the number of salmon removed from commercial harvests for personal use, which is also not documented on the subsistence salmon harvest permit Information on these 2 additional types of harvests is needed for a better understanding of the household salmon harvest in the Kodiak Area.

2. USFWS began issuing a separate subsistence salmon fishing permit in 2013.

3. U.S. Fish and Wildlife Service. n.d. [2013], "Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska, April 1, 2013–March 31, 2015." Federal Subsistence Board, Office of Subsistence Management, Accessed September 12, 2016. http://www.doi.gov/subsistence/regulation/fish_shell/upload/entireFishRegbook.pdf.

To assist in the assessment of the subsistence salmon harvest, use, and dependence of Kodiak Island Borough residents on these resources, ADF&G Division of Subsistence has been collecting subsistence harvest data on Kodiak Island communities periodically (see for example Fall 2006; Fall and Utermohle 1995, 1999; Williams et al. 2010). The data collection instrument used for over 20 years to collect these data is a systematic, in-person household harvest survey. The results of these surveys are reported in the Community Subsistence Information System (CSIS), a depository of Alaska subsistence information maintained by the Division of Subsistence. In early 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. 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. A review of the annual permit program by the Division of Subsistence in Kodiak Island communities during 2004-2006 concluded that unreturned or lost permits had contributed to the under estimation of the annual subsistence salmon harvest and that additional communication between fisheries managers and community residents about the importance of an accurate annual harvest estimate should be improved (Williams et al. 2010). Recent research conducted in Kodiak City, Larsen Bay, and Old Harbor between 2012 and 2014 by Division of Subsistence researchers showed that outreach in regards to subsistence fishing regulations and permitting is again needed in Kodiak Island communities (Marchioni et al. 2016). During the project, researchers witnessed a great deal of confusion surrounding subsistence regulations and the permit system, and area managers were contacted so researchers could provide accurate answers to subsistence fishers' questions. The final report for the study also calls for a revision of the language on the subsistence salmon permit to better reflect the actual language in the regulation book, which states that additional permits are available upon request. A similar recommendation was previously made by Williams et al. in their report (Williams et al. 2010).

Subsistence Salmon Harvests in 2014

In 2014, a total of 1,666 subsistence permits with harvest information were returned to ADF&G (tables 10-1 and 10-2). Of these, 1,372 (or 82%) were returned by residents of Kodiak Island Borough, 289 (or 17%) were returned by residents of other Alaska communities, and 5 (<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 (82%) of all permits returned for 2014 (Table 10-2).

The total reported subsistence salmon harvest for the Kodiak Area in 2014 was 27,472 fish, which is lower than both the recent 5-year (2009–2013) average of 30,700 salmon, and the 10-year (2004-2013) average of 31,924 salmon (Table 10-1). Of the total harvest, 25,995 salmon (or 95%) were harvested by residents of Kodiak Island Borough communities and 1,417 salmon (or 5%) were harvested by permit holders in other Alaska communities (Table 10-2). Of the 25,995 salmon harvested by Kodiak Island Borough residents, 20,796 fish (or 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 result is similar to the 2013 finding and consistent with the pattern between 2000 and 2012 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. In comparison, the 6 villages and other populated remote locations that do

not have access to the road system surrounding Kodiak City, harvested 4,690 salmon in 2014 (Table 10-2, Table 10-3).

In 2014, the Kodiak Area subsistence salmon harvest was composed of 82% sockeye salmon, 14% coho salmon, 2% pink salmon, 1% chum salmon, and <1% Chinook salmon (Figure 10-3). In terms of the composition of the harvest, the 2014 commercial harvest retained for home use was however somewhat different. As shown in Figure 10-4, the majority of the 8,843 salmon retained for home use were sockeye salmon (3,371 fish or 38%) followed by pink salmon (3,035 fish or 35%), coho salmon (2,230 fish or 25%), Chinook salmon (189 fish or 2%), and chum salmon (18 fish or <1%; Figure 10-4). Compared to 2013, the total number of salmon removed from commercial harvest for home use was approximately 24% smaller in 2014 (Jackson and Keyse 2013). A noticeable difference from 2013 was the decline in chum salmon retained for home use, which in 2014 declined to less than 1% (Figure 10-4). Regarding the individual species retained for home use, sockeye, pink, and coho salmon continued to make up the largest portion of this harvest, similar to 2013.

According to Jackson and Keyse (2013) the long-term, primary harvest areas for Kodiak area subsistence salmon fisheries are the Buskin and Pasagshak Rivers located in the north end of Kodiak Island and the southeast side of Afognak Island at Litnik. Additional harvest areas documented during the recent research by the Division of Subsistence researchers are presented in Marchioni et al. (2016).

As discussed earlier, the subsistence salmon harvest estimates for the Kodiak Area based on household harvest surveys and reported in the CSIS have often been 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 and continues to be a challenge. 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 2007 between 189 and 143 permits were returned (Table 10-3). Accordingly, the yearly reported subsistence salmon harvest fluctuated between 2000 and 2007. Since 2008, the number of returned permits from these communities has not exceeded 125. In fact, the most recent years of 2012–2014 have marked the lowest reported salmon harvests recorded since 2000 (Table 10-3). In 2014, both the number of permits returned by the 6 villages, together with Chiniak, (131 permits) and the number of harvested salmon reported (5,106 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). In 2014, a limited local vendor program was in place in Ouzinkie, Larsen Bay, Port Lions, Old Harbor, and Karluk (personal communication with Amanda Dorner, Division of Commercial Fisheries, Kodiak office, September 7, 2016). Other than the work conducted by Division of Subsistence researchers and project partners during an ethnographic study of subsistence salmon harvests and uses in Kodiak City, Larsen Bay, and Old Harbor presented in Marchioni et al. (2016), no additional outreach efforts occurred in the small communities on Kodiak Island in 2014.

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) and 2014 (Fall and Lemons 2016). 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, 1986–2014.

Year	Permits Issued	Returned	Reported salmon harvest[a] 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
2014	ND	1,666	183	22,617	3,915	184	573	27,472
5-year average (2009–2013)	ND	1,835	122	25,936	3,317	200	1,125	30,700
10-year average (2004–2013)	ND	1,898	206	25,517	4,546	270	1,385	31,924
Historical average (1986–2013)	ND	1,541	238	23,397	5,654	418	1,529	31,237

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

Community	Permits returned	Reported salmon harvest[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Kodiak Island Borough							
Akhiok	4	0	196	23	0	13	232
Chiniak	25	18	309	75	10	4	416
Karluk	0	0	0	0	0	0	0
Kodiak (city)	1,241	94	17,305	3,041	92	357	20,889
Larsen Bay	22	17	871	15	0	0	903
Old Harbor	19	0	504	246	45	24	819
Ouzinkie	26	22	709	432	30	62	1,255
Port Lions	35	15	1,360	14	0	92	1,481
Subtotal, Kodiak Island Borough	**1,372**	**166**	**21,254**	**3,846**	**177**	**552**	**25,995**
Other Alaska							
Alexander Creek	1	0	0	0	0	0	0
Anchor Point	7	0	0	0	0	0	0
Anchorage	117	16	701	35	3	10	765
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	4	0	0	23	0	0	23
Clam Gulch	1	0	0	0	0	0	0
Cold Bay	2	0	54	0	0	0	54
Cooper Landing	1	0	0	0	0	0	0
Cordova	2	0	0	0	0	0	0
Delta Junction	0	0	0	0	0	0	0
Eagle River	15	1	45	3	0	0	49
Fairbanks	10	0	22	2	1	2	27
False Pass	1	0	60	0	0	0	60
Fort Wainwright	1	0	0	0	0	0	0
Girdwood	5	0	30	0	0	0	30
Glennallen	0	0	0	0	0	0	0
Homer	21	0	55	0	0	0	55
Juneau	4	0	42	0	0	0	42
Kasilof	5	0	0	0	0	0	0
Kenai	3	0	6	3	1	3	13
Nikiski	1	0	0	0	0	0	0
Ninilchik	3	0	0	0	0	0	0
North Pole	3	0	0	0	0	0	0
Palmer	13	0	0	0	0	6	6
Seldovia	3	0	0	0	0	0	0
Seward	5	0	0	0	0	0	0
Shishmaref	1	0	0	0	0	0	0
Sitka	2	0	0	0	0	0	0
Soldotna	19	0	50	3	2	0	55

continued

Table 10-2.–Page 2 of 2.

Sterling	3	0	0	0	0	0	0
Sutton	1	0	0	0	0	0	0
Talkeetna	5	0	5	0	0	0	5
Tok	1	0	0	0	0	0	0
Unknown Community	1	0	8	0	0	0	8
Valdez	2	0	101	0	0	0	101
Wasilla	21	0	105	0	0	0	105
Subtotal, other Alaska	**289**	**17**	**1,303**	**69**	**7**	**21**	**1,417**
Other USA[b]	5	0	60	0	0	0	60
Total	**1,666**	**183**	**22,617**	**3,915**	**184**	**573**	**27,472**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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
2014	106	4,690	Table 10-2

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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

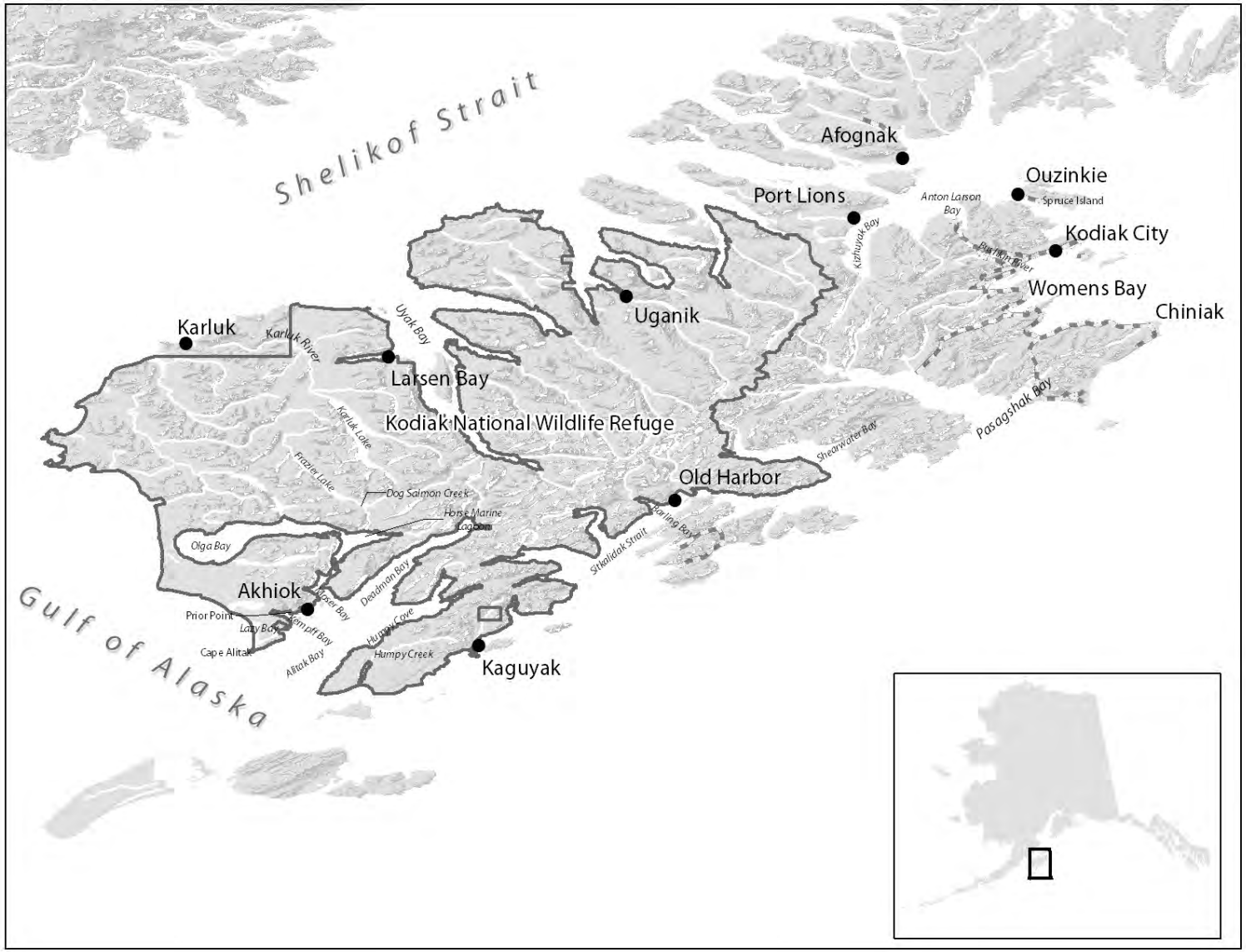

Figure 10-1.–Kodiak Area map, 2014.

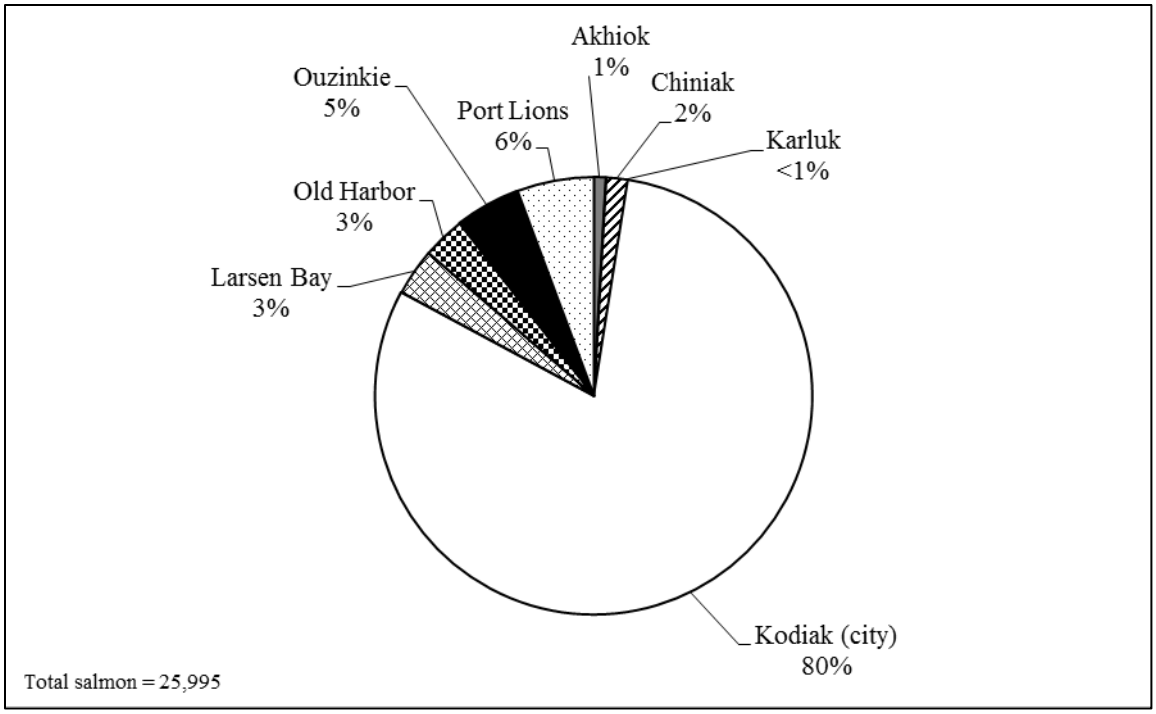

Figure 10-2.–Subsistence salmon harvests by community, Kodiak Area, 2014.

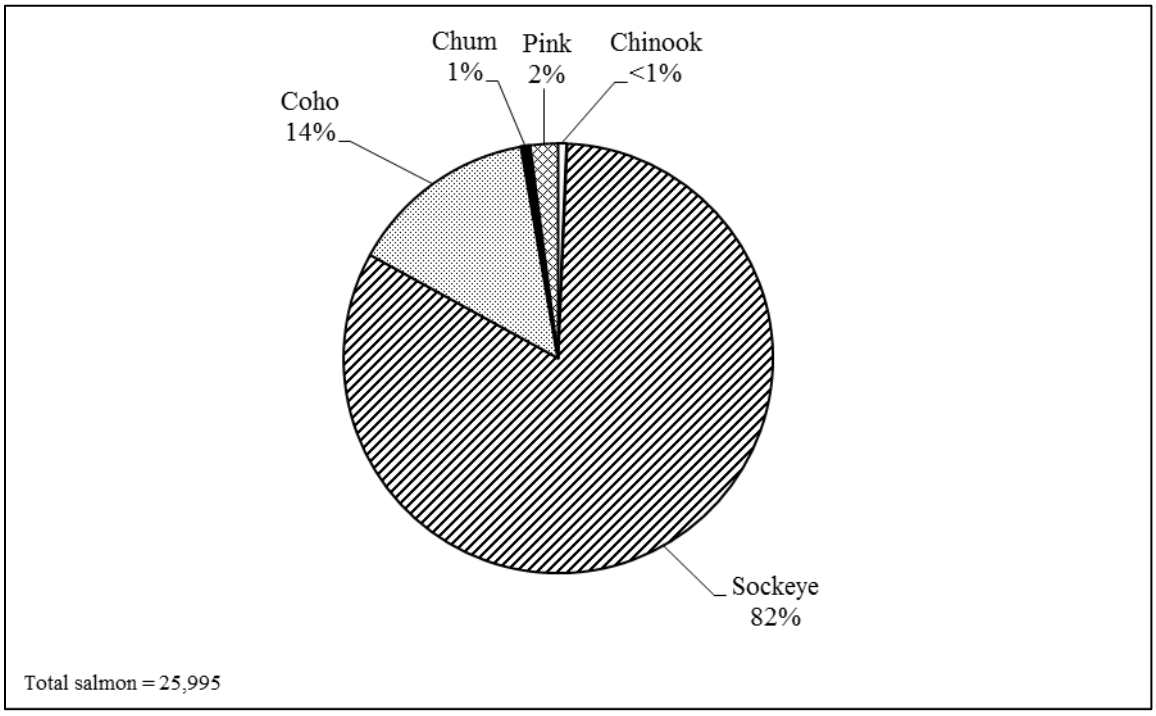

Figure 10-3.–Composition of Kodiak Area subsistence salmon harvest by species, 2014.

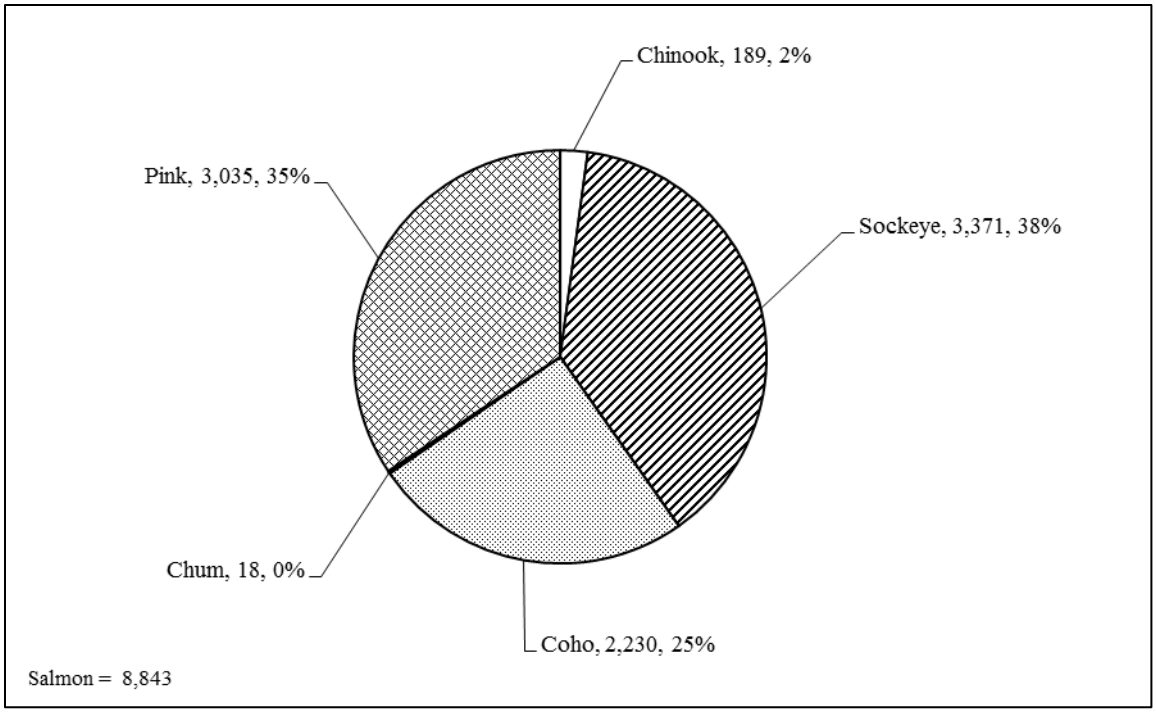

Figure 10-4.–Salmon retained from commercial harvests for home use, Kodiak Area, 2014.

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 2014), Tyonek (population 175), Beluga (population 17), Seldovia (population 404 in the city and village CDP), Port Graham (population 169), and Nanwalek (formerly called English Bay, population 276). The population of the entire Cook Inlet area in 2014 was 457,532, including the Municipality of Anchorage (population 300,666), the Kenai Peninsula Borough (57,415), and the Matanuska-Susitna Borough (98,377). This represented 62% of the state's total population in 2014.[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 subsistence fishery, have been poor for the past 20 years. However, in 2011 the return of sockeye salmon

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed July 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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, however in 2014 the number of sockeye harvest reported dropped significantly to 347 fish.

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 2014

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 2014, estimated salmon harvests for home uses in the Port Graham and Koyuktolik subdistricts totaled 584 salmon, including both subsistence setnet and reported rod and reel harvests (Table 11-1). The 2014 harvest was significantly lower than previous year (8,897 salmon), and also a major decrease from the historical average of 5,370 salmon.

In 2014, the number of permits issued was not recorded; however of those Port Graham residents that did obtain a permit, 5 returned permits and harvested 366 salmon (Table 11-2). Similarly, in Nanwalek the number of permits issued was not recorded, but residents returned 2 permits and harvested 218 salmon, a major decrease from 7,669 salmon in 2013 (Table 11-2). As shown in Table 11-2 and Figure 11-2, the combined harvest of the 2 communities of Nanwalek and Port Graham included 347 sockeye salmon, the species with the highest harvest (59% of the overall harvest), followed by coho salmon (10; 2%), chum

salmon (44; 8%), pink salmon (164; 28%), and Chinook salmon (19; 3%). Sockeye salmon harvests increased from 961 salmon in 2012 to 4,888 salmon in 2013, before dropping to 347 sockeye in 2014.

The Division of Subsistence conducted comprehensive household surveys in early 2015 in Nanwalek and Port Graham that collected harvest estimates for salmon and other resources for 2014 (Jones and Kostick 2016). The survey results suggest that the permit data substantially underestimated salmon harvests in the 2 communities in 2014. Based on the surveys, the estimated salmon harvest for Nanwalek in 2014 was 10,055 fish; of these, 9,163 salmon (91%) were taken with rod and reel, with most of the rest harvested with subsistence nets. The approximate composition of the harvest was 38% sockeye salmon, 33% pink salmon, 24% coho salmon, 5% chum salmon, and less than 1% Chinook salmon (Van Lanen 2016:236). For Port Graham, the surveys resulted in an estimated harvest for 2014 of 3,779 salmon. Of these, 2,384 salmon were taken in set nets (64%); rod and reel accounted for 33% of the harvest (1,219 salmon), trolling produced 7% (96 salmon, all Chinook), and commercial removal produced about 2% (86 salmon). In Port Graham, the approximate composition of the 2014 salmon harvest was 47% sockeye, 26% pink, 13% chum, 9% coho, and 5% Chinook (Kukkonen and Mitchell 2016:334–336).

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 2014 Season

There were 21 permits issued for the Seldovia subsistence fishery in 2014; 15 were returned (Table 11-3). The estimated harvest was 162 sockeye salmon (61% of the overall harvest), 7 pink salmon (3%), 91 chum salmon (34%), 7 Chinook salmon (2%), and no coho salmon harvest (Figure 11-3). All 21 permits that were issued in 2014 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. The year 2012 marked an increase with 8 Chinook salmon harvested, but then in 2013 the Chinook harvest decreased to 3 Chinook salmon reported harvested. In 2014, the number of Chinook harvest increased to 7. Since the extension of fishing time in 1998, the 2006 season resulted in the lowest harvest estimate on record for total salmon harvested. The 2014 harvest was more than the 5-year (2009–2013) average of 209 salmon and 10-year (2004–2013) average of 203 salmon, and more 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 Jones et al. (2015), Holen and Fall (2011), Stanek et al. (2007), and Fall et al. (1984).

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 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 2014 Season

In 2014, 92 permits were issued for the Tyonek Subdistrict subsistence salmon fishery, including 61 permits issued to Tyonek residents (66%) and 31 permits issued to other Alaska residents, including 24 to residents of Anchorage (26%; Table 11-5). Residents of Tyonek accounted for 74% of the reported harvest total (1,169 salmon), including 82% of the reported Chinook salmon harvest (585 Chinook salmon) (Table 11-5).

The 2014 reported harvest of 1,572 salmon was higher than the historical average of 1,491 salmon. The 2014 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 2014, 714 were Chinook salmon (45%), 457 were coho salmon (29%), 385 were sockeye salmon (25%), 12 were chum salmon (1%), and 4 were pink salmon (<1%) (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 2014

In 2014, 20 subsistence permits were issued for the Yentna River subsistence fish wheel fishery, and 18 were returned (tables 11-7 and 11-8). In 2014, 9 of the 20 permit holders resided in the Skwentna area (45%), with the remaining 11 permits held by residents of other Cook Inlet area communities (Figure 11-5). Permit holders living in the community of Skwentna in 2014 harvested 198 of the reported 460 salmon, or 43% of the harvest (Table 11-7).

Of the total harvest of 460 salmon reported in 2014, 328 were sockeye salmon (71%), 84 coho salmon (18%), 32 chum salmon (7%) and 17 pink salmon (4%), (Figure 11-6). There were no reported harvests of Chinook salmon nor is it legal to retain the harvest. The 2014 harvest of 460 salmon was higher than the 2013 harvest of 412 salmon. The 2014 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 2014, the total harvest in the federal fishery on the Kenai and Kasilof rivers was 1,943 salmon, all of which were sockeye salmon (Table 11-9). There were a total of 153 permits issued to residents of these 3 communities, with 84 permits issued to residents of Cooper Landing, 32 to residents of Hope, and 37 to residents of Ninilchik (Table 11-9).

Table 11-10 shows the harvest over time, but only includes the years 2007–2014 because this is a new fishery. In all 8 years, sockeye salmon are a majority of the harvest, with 2014 being the highest harvest, followed by 2008 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 2014, 36,159 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 544,121 salmon, including 506,047 sockeye (93%), and there were lower totals for the other 4 species (Table 11-12). The estimated harvest in 2014 was higher than the previous two years in these fisheries, but was below the 5-year (2009–2013) average of 550,439 salmon. For 1996 through 2013, the average annual harvest was 337,930 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 (56%) and accounted for 56% of the harvest, followed by Kenai Peninsula Borough residents (19% of permits; 19% of harvests), Matanuska–Susitna Borough residents (18% of permits; 19% of harvest), residents of other Alaska communities (4% of permits; 4% of harvest), and permit holders for whom a community of residence could not be established (3% of permits; 2% 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 2014, the total estimated harvest in the fishery was 22,770 salmon, of which 22,567 (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 2013 was 19,576 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 2014 was 94,230 salmon, of which 94% was sockeye salmon. From 1996 through 2013, the average annual harvest in this fishery was 49,072 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 404,867 salmon in 2014, including 379,823 sockeye salmon (94%). The average annual harvest from 1996 through 2013 was 255,544 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. In 2014, the fishery opened for the first time since 2011. In 2014 the estimated harvest totaled 12,169 salmon, 48% of which was sockeye salmon, 35% pink salmon and 16% coho salmon and <1% chum salmon. This was 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 2013 was 9,298 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 10,085 salmon in 2014, 92% of which was sockeye salmon (9,315 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 46 salmon in 2014, compared to 88 salmon in 2013, 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 2014, the reported harvest, based on 154 returned permits (96% of the 1,260 permits issued), was 2,794 salmon, of which 2,273 (81%) were coho. The recent 10-year average harvest for this fishery (2004–2013) was 1,689 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 2014.

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, as well as tribal members living in other Cook Inlet Area communities. For the findings for 2014, see Fall and Lemons (2016).

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, 1981–2014.

	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
2014	ND	7	19	347	10	44	164	584
5-year average (2009–2013)	-	31	34	3,336	1,313	377	1,098	6,158
10-year average (2004–2013)	-	43	126	2,977	1,171	291	1,359	5,924
Historical average (1981–2013)	-	51	1,277	1,709	670	881	3,423	5,370

Source Hollowell et al. (2015). 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, 2014.

	Permits		Reported salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Nanwalek	ND	2	3	211	0	4	0	218
Port Graham	ND	5	16	136	10	40	164	366
Total	**-**	**7**	**19**	**347**	**10**	**44**	**164**	**584**

Source Hollowell et al. (2015).

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	21	15	7	162	0	91	7	267
Total	**21**	**15**	**7**	**162**	**0**	**91**	**7**	**267**

Source Hollowell et al. (2014).

Table 11-4.–Historical subsistence salmon harvests, Seldovia, 1996–2014.

	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
2014	21	15	7	162	0	91	7	267
5-year average (2009–2013)	15	10	6	114	13	15	61	209
10-year average (2004–2013)	15	11	23	83	15	14	68	203
Historical average (1997–2013)	18	16	66	110	9	16	41	241

Source Hollowell et al. (2015); ADF&G Division of Subsistence, 1996–2011.

Table 11-5.–Subsistence salmon harvests by community, Tyonek Subdistrict, 2014.

Community	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	24	18	72	94	103	1	0	270
Big Lake	2	2	0	9	29	0	0	38
Eagle River	1	1	5	1	0	0	0	6
Palmer	1	1	3	0	4	0	0	7
Seward	1	1	16	0	0	0	0	16
Tyonek	61	48	585	262	309	9	4	1,169
Unknown	2	2	33	19	12	2	0	66
Total	**92**	**73**	**714**	**385**	**457**	**12**	**4**	**1,572**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 11-6.–Historical subsistence salmon harvests, Tyonek Subdistrict, 1981–2014.

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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Table 11-6.–Page 2 of 2.

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
2014	92	73	714	385	457	12	4	1,572
5-year average (2009–2013)	96	65	745	180	154	3	7	1,088
10-year average (2004–2013)	91	67	946	139	137	3	5	1,230
Historical average (1981–2013)	75	58	1,209	137	128	10	8	1,491

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook[a]	Sockeye	Coho	Chum	Pink	Total
Big Lake	2	1	0	42	0	0	0	42
Skwentna	9	8	0	117	50	16	16	198
Talkeetna	1	1	0	0	0	0	0	0
Wasilla	3	3	0	78	7	0	0	85
Willow	3	3	0	45	20	15	0	80
Eagle River	1	1	0	0	0	0	0	0
Chugiak	1	1	0	46	7	1	1	55
Total	**20**	**18**	**0**	**328**	**84**	**32**	**17**	**460**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 1996–2014.

	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
2014	20	18	0	328	84	32	17	460
5-year average (2009–2013)	23	23	0	386	54	19	105	564
10-year average (2004–2013)	22	21	0	360	76	17	64	516
Historical average (1996–2013)	21	20	0	407	77	17	48	549

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

	Permits		Reported salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cooper Landing	84	80	0	1,322	2	0	0	1,324
Hope	32	31	0	405	0	0	0	405
Ninilchik	37	34	0	214	0	0	0	214
Total	**153**	**145**	**0**	**1,941**	**2**	**0**	**0**	**1,943**

Source Jeffry Anderson, USFWS, Kenai Fish & Wildlife Field Office, personal communication.

Table 11-10.–Historical federal subsistence salmon harvests, Kenai and Kasilof rivers, 2007–2014.

Year	Permits		Reported salmon harvest					
	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
2014	153	145	0	1,941	2	0	0	1,943

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.

Year[a]	Permits		Reported salmon harvest					
	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, 2014.

	Permits		Estimated salmon harvest[b]					
Year[a]	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Lower Cook Inlet								
Kachemak Bay setnet	160	154	13	310	2,273	178	20	2,794
China Poot Bay dip net[a]								
Subtotal, Lower Cook Inlet	**160**	**154**	**13**	**310**	**2,273**	**178**	**20**	**2,794**
Upper Cook Inlet								
Kasilof River setnet[c]			50	22,567	30	18	105	22,770
Kasilof River dip net[c]			0	88,513	2,606	342	2,769	94,230
Kenai River dip net[c]			0	379,823	4,710	1,194	19,140	404,867
Fish Creek dip net[c]			0	5,829	1,895	227	4,218	12,169
Unknown Upper Cook Inlet[c]			0	9,315	129	78	563	10,085
Subtotal, common permit fisheries[c]	**35,989**	**27,866**	**50**	**506,047**	**9,370**	**1,859**	**26,795**	**544,121**
Beluga River dip net	10	10	0	32	12	1	1	46
Subtotal, Upper Cook Inlet	**35,999**	**27,876**	**50**	**506,079**	**9,382**	**1,860**	**26,796**	**544,167**
Cook Inlet Total	**36,159**	**28,030**	**63**	**506,389**	**11,655**	**2,038**	**26,816**	**546,961**

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, 1996–2014.

	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
2014	35,989	27,866	50	506,047	9,370	1,859	26,795	544,121
5-year average (2009–2013)	33,050	26,259	829	537,222	5,999	900	5,522	550,439
10-year average (2004–2013)	27,440	22,523	1,131	429,733	4,690	752	5,950	442,239
Historical average (1996–2013)	22,574	18,768	1,050	327,967	3,799	558	4,566	337,930

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, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchor Point	282	233	0	4,348	57	43	167	4,616
Clam Gulch	46	39	2	837	2	1	22	865
Cooper Landing	20	18	0	169	1	0	2	172
Fritz Creek	63	51	0	896	11	2	34	943
Halibut Cove	1	1	0	3	0	0	0	3
Homer	894	758	1	11,455	82	22	344	11,904
Hope	22	20	0	227	1	1	11	240
Kasilof	490	408	4	7,413	47	17	322	7,804
Kenai	1,769	1,434	8	26,376	264	71	1,456	28,175
Moose Pass	27	22	0	394	2	0	10	406
Nanwalek	1	1	0	17	0	0	3	20
Nikiski	239	175	0	3,273	25	19	241	3,558
Nikolaevsk	14	12	0	237	1	0	19	257
Ninilchik	183	162	0	2,566	8	3	138	2,715
Seldovia	9	6	0	147	1	0	5	153
Seward	228	189	0	2,862	21	10	114	3,008
Soldotna	2,133	1,790	3	30,483	274	53	1,595	32,407
Sterling	478	408	2	6,902	33	4	417	7,359
Subtotal, Kenai Peninsula Borough	**6,899**	**5,727**	**21**	**98,605**	**828**	**247**	**4,902**	**104,603**
Anchorage	16,937	12,910	15	234,558	4,537	1,063	12,025	252,197
Chugiak	710	590	0	10,862	122	19	436	11,439
Eagle River	2,099	1,756	1	29,770	485	73	1,512	31,840
Girdwood	245	198	0	3,374	21	5	132	3,532
Joint Base Elmendorf Richardson	334	218	0	4,085	161	19	288	4,553
Subtotal, Anchorage Municipality	**20,325**	**15,672**	**16**	**282,650**	**5,325**	**1,179**	**14,392**	**303,562**
Big Lake	222	170	0	2,693	105	11	200	3,009
Chickaloon	6	4	0	81	1	0	1	83
Houston	46	31	0	547	11	15	20	593
Palmer	1,817	1,448	6	25,062	556	78	1,474	27,177
Sutton	75	57	0	918	71	3	48	1,039
Talkeetna	90	68	0	1,475	30	5	98	1,608
Trapper Creek	29	22	0	474	2	0	4	481
Wasilla	4,126	3,175	2	60,294	1,889	257	4,341	66,783
Willow	164	126	0	2,422	49	6	97	2,574
Subtotal, Matanuska-Susitna Borough	**6,575**	**5,101**	**9**	**93,966**	**2,713**	**375**	**6,284**	**103,347**
Akiak	2	1	0	10	0	0	1	11
Akutan	1	1	0	6	0	0	0	6
Allakaket	1	0	0	10	0	0	1	11

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Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Ambler	3	2	0	78	0	0	1	79
Anderson	4	3	0	78	0	0	2	80
Arctic Village	4	1	0	54	1	0	3	58
Atqasuk	1	1	0	13	0	0	4	17
Barrow	63	33	0	1,351	9	1	84	1,446
Bethel	13	6	0	91	2	0	4	98
Buckland	2	1	0	14	0	0	1	15
Cantwell	5	5	0	47	0	0	0	47
Central	1	1	0	28	0	0	0	28
Chenega Bay	1	0	0	10	0	0	1	11
Chevak	1	0	0	10	0	0	1	11
Chignik Lagoon	1	0	0	10	0	0	1	11
Circle	2	1	0	32	0	0	1	33
Clear	4	4	0	142	0	0	0	142
Copper Center	4	3	0	94	0	0	1	95
Cordova	4	3	0	35	0	0	1	36
Crooked Creek	1	0	0	10	0	0	1	11
Delta Junction	37	34	0	886	1	0	37	924
Denali National Park	26	23	0	382	2	0	20	404
Dillingham	1	1	0	7	0	0	0	7
Eielson AFB	19	14	0	172	2	0	8	182
Ester	11	8	0	147	1	0	6	154
Fairbanks	626	496	0	10,224	100	18	315	10,657
Fort Greely	1	1	0	13	0	0	0	13
Fort Wainwright	20	15	0	243	18	0	3	264
Fort Yukon	1	1	0	17	0	0	0	17
Gakona	2	2	0	77	0	0	5	82
Galena	4	4	0	70	0	0	0	70
Glennallen	7	6	0	110	0	0	1	111
Haines	2	2	0	17	0	0	0	17
Healy	50	41	0	753	14	0	20	788
Holy Cross	2	2	0	25	0	0	0	25
Hoonah	2	1	0	14	0	0	2	16
Huslia	2	2	0	50	0	0	0	50
Iliamna	1	0	0	10	0	0	1	11
Juneau	41	36	2	767	4	0	22	795
Kaktovik	1	0	0	10	0	0	1	11
Ketchikan	12	9	0	131	15	0	2	148
Kiana	3	2	0	60	0	0	1	61
King Salmon	1	1	0	6	0	0	1	7
Kipnuk	1	0	0	10	0	0	1	11
Kodiak (city)	17	9	0	127	3	0	5	134
Kotlik	1	0	0	10	0	0	1	11
Kotzebue	24	11	0	326	4	3	8	341
Kwigillingok	1	0	0	10	0	0	1	11
Marshall	1	1	0	0	0	0	0	0

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Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
McGrath	4	3	0	55	1	0	1	57
Minto	1	0	0	10	0	0	1	11
Mountain Village	2	2	0	27	0	0	0	27
Naknek	1	1	0	8	2	0	1	11
Napakiak	3	2	0	17	0	0	1	18
Nenana	21	16	0	264	5	0	23	292
Nikolski	1	1	0	22	0	0	0	22
Noatak	2	0	0	21	1	0	1	23
Nome	20	19	0	272	0	0	3	275
Noorvik	4	1	0	31	1	0	2	34
North Pole	202	161	0	2,733	40	4	73	2,850
Nuiqsut	3	1	0	21	1	0	1	23
Nulato	1	1	0	9	0	0	0	9
Old Harbor	1	0	0	10	0	0	1	11
Petersburg	2	1	0	21	0	0	1	22
Pilot Point	1	0	0	10	0	0	1	11
Pilot Station	2	0	0	21	1	0	1	23
Point Hope	2	1	0	19	0	0	1	20
Port Alsworth	1	1	0	0	0	0	0	0
Port Lions	1	1	0	28	0	0	7	35
St Paul Island	3	3	0	78	0	0	0	78
Salcha	6	4	0	92	1	0	6	99
Scammon Bay	1	1	0	15	0	0	2	17
Shishmaref	2	1	0	25	0	0	1	26
Sitka	8	6	0	94	1	0	1	96
Skagway	2	2	0	66	0	0	0	66
Skwentna	1	0	0	10	0	0	1	11
Tanana	1	0	0	10	0	0	1	11
Tatitlek	1	1	0	16	0	0	0	16
Togiak	1	1	0	3	0	0	1	4
Tok	5	4	0	34	2	0	3	39
Toksook Bay	1	1	2	23	0	0	0	25
Two Rivers	4	4	0	22	0	0	0	22
Unalakleet	4	3	0	76	0	0	1	77
Unalaska	7	4	0	92	1	0	2	95
Valdez	27	23	0	462	1	0	3	467
Wainwright	1	0	0	10	0	0	1	11
White Mountain	1	1	0	8	0	0	0	8
Whittier	5	4	0	68	0	0	7	75
Wrangell	3	3	0	0	0	0	0	0
Subtotal, other Alaska	**1,394**	**1,066**	**4**	**21,611**	**241**	**32**	**703**	**22,592**

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	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Unknown Communities	796	300	0	9,214	263	26	515	10,018
Total	**35,989**	**27,866**	**50**	**506,047**	**9,370**	**1,859**	**26,796**	**544,121**

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, 1982–2014.

	Permits		Estimated salmon harvest					
Year[a]	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
2014	NA	NA	50	22,567	30	18	105	22,770
5-year average (2009–2013)	NA	NA	116	21,085	105	7	23	21,336
10-year average (2004–2013)	NA	NA	161	22,470	146	7	19	22,802
Historical average (1996–2013)[d]	NA	NA	198	19,259	90	7	22	19,576

Source Ruesch and Fox (1996) for 1982–1995; Division of Sport Fish for 1996–2014.

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, 1981–2014.

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

-continued-

Table 11-16.–Page 2 of 2.

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
2014	NA	NA	0	88,513	2,606	342	2,769	94,230
5-year average (2009–2013)	NA	NA	25	70,504	1,404	216	896	73,046
10-year average (2004–2013)	NA	NA	32	59,748	1,028	166	770	61,743
Historical average (1996–2013)[g]	NA	NA	61	47,382	849	114	666	49,072

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 1996–2014.

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, 1981–2014.

Year[b]	Permits		Estimated salmon harvest[a]					
	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
2014	NA	NA	0	379,823	4,710	1,194	19,140	404,867
5-year average (2009–2013)	NA	NA	670	428,305	3,439	567	4,089	437,069
10-year average (2004–2013)	NA	NA	904	335,286	2,932	507	4,805	344,434
Historical average (1996–2013)[h]	NA	NA	729	248,683	2,216	369	3,548	255,544

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 1996–2014.

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.

-continued-

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, 1987–2014.

	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	--	--	--	--	--	--	--	--
2014	NA	NA	0	5,829	1,895	227	4,218	12,169
Historical average (1996–2013)	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 and 2014.

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, 1996–2014

Year	Permits		Estimated salmon harvest					
	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
2014	NA	NA	0	9,315	129	78	563	10,085
5-year average (2009–2013)	NA	NA	15	9,527	144	30	125	9,842
10-year average (2004–2013)	NA	NA	31	8,271	130	33	162	8,627
Historical average (1996–2013)	NA	NA	59	8,609	163	34	191	9,056

Source ADF&G Division of Sport Fish.

Table 11-20.–Beluga River senior personal use dip net fishery summary, 2008–2014.

Year	Permits		Reported salmon harvest					
	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
2014	10	10	0	32	12	1	1	46
Historical average (2008–2013)	12	12	0	66	32	2	2	101

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, 1969–2014.

	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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Table 11-21.–Page 2 of 2.

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
2014	160	154	13	310	2,273	178	20	2,794
5-year average (2009–2013)	123	118	10	181	1,106	7	181	1,486
10-year average (2004–2013)	119	113	9	126	1,249	12	292	1,689
Historical average (1969–2013)	247	232	42	73	2,522	34	577	3,249

Source Hallowell et al. (2015).

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.

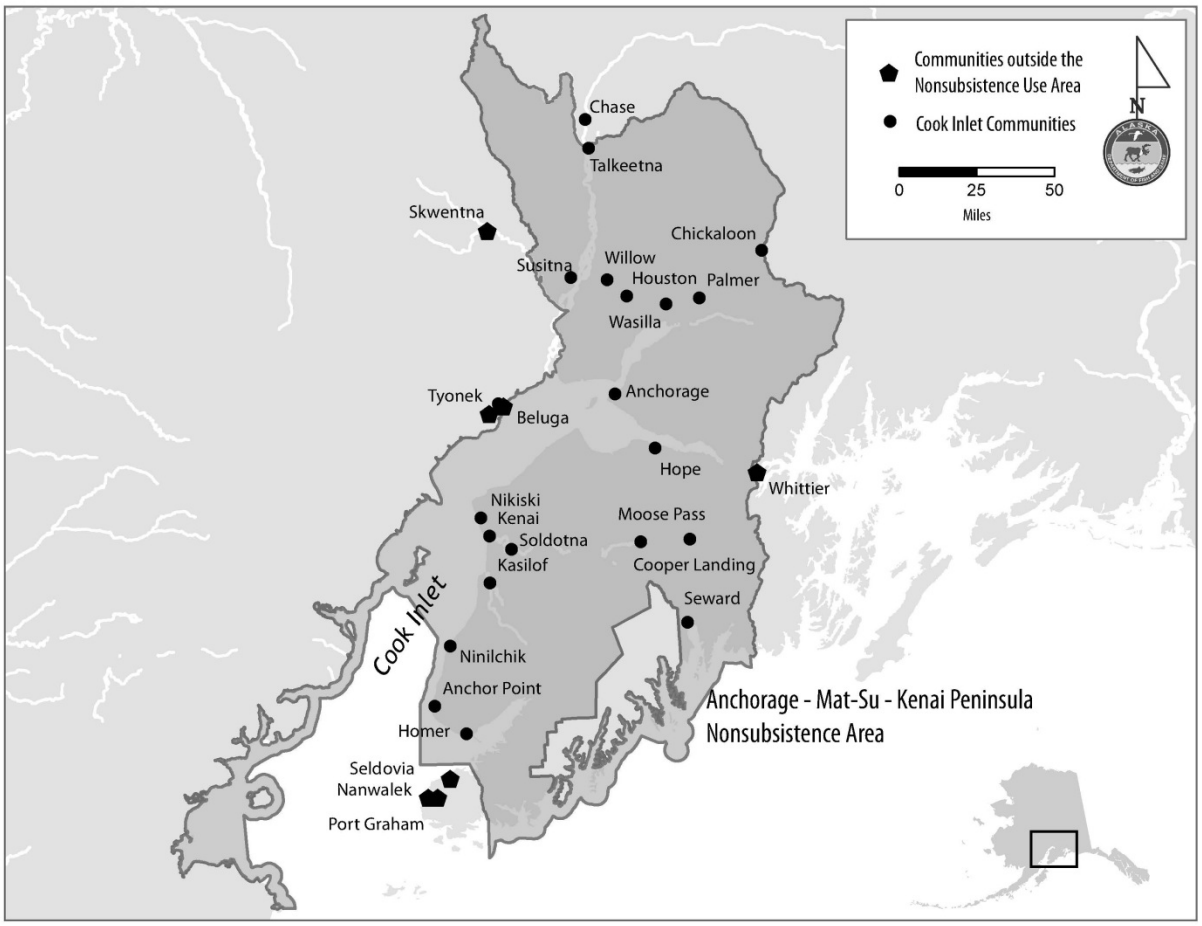

Figure 11-1.–Anchorage–Matsu–Kenai Nonsubsistence Area map.

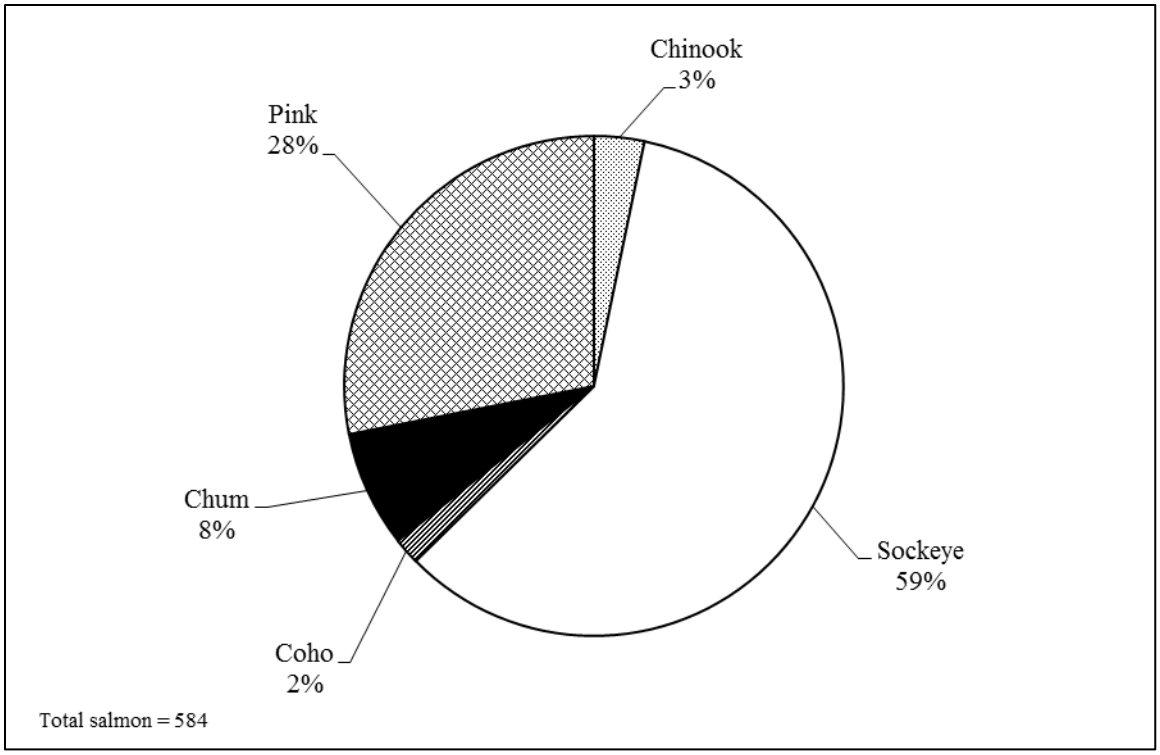

Figure 11-2.–Subsistence salmon harvests in the Port Graham and Koyuktolik subdistricts, 2014.

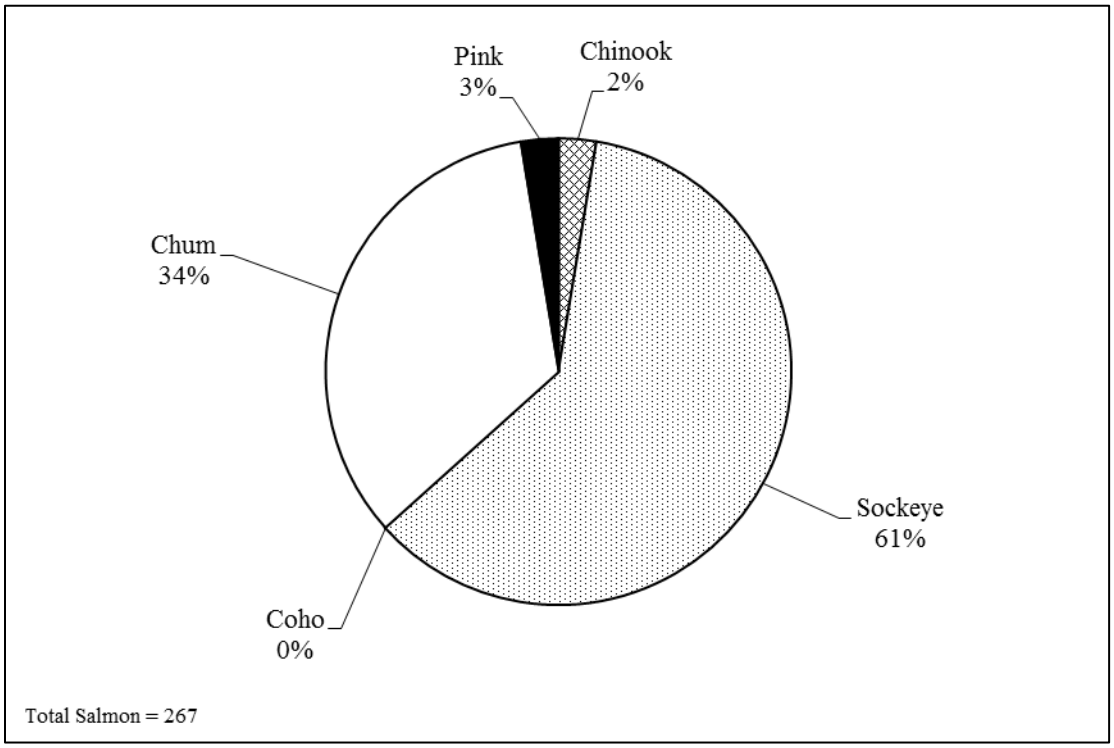

Figure 11-3.–Subsistence salmon harvests in Seldovia, 2014.

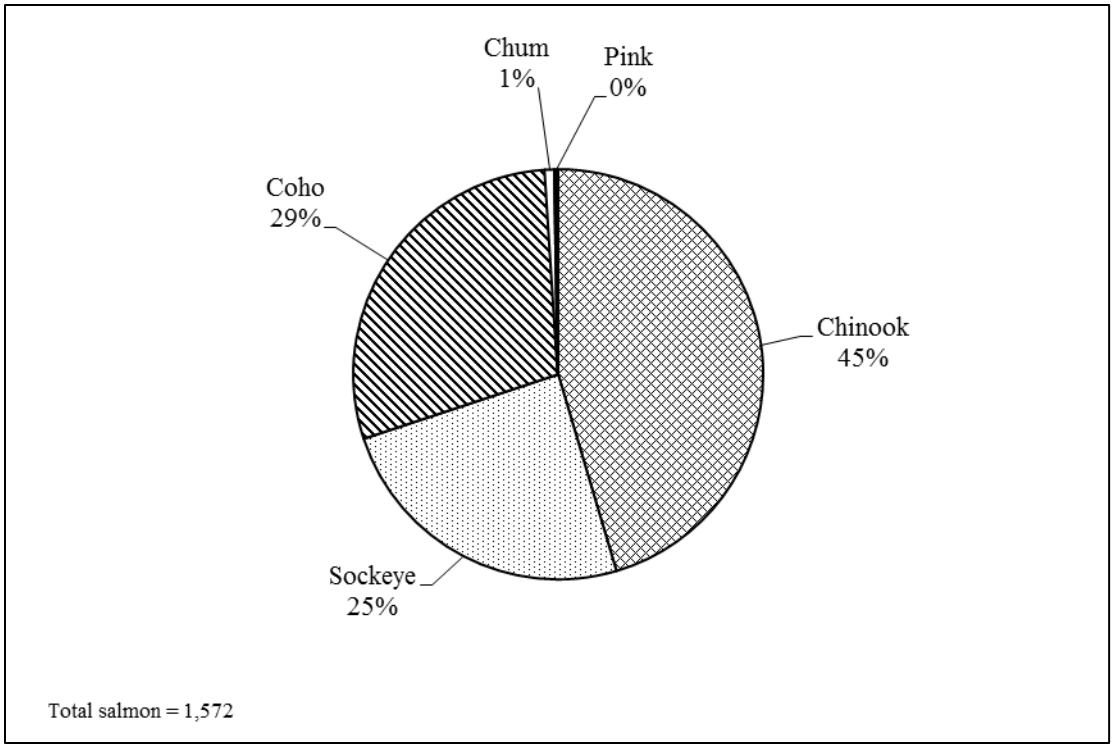

Figure 11-4.–Subsistence salmon harvests in the Tyonek Subdistrict, 2014.

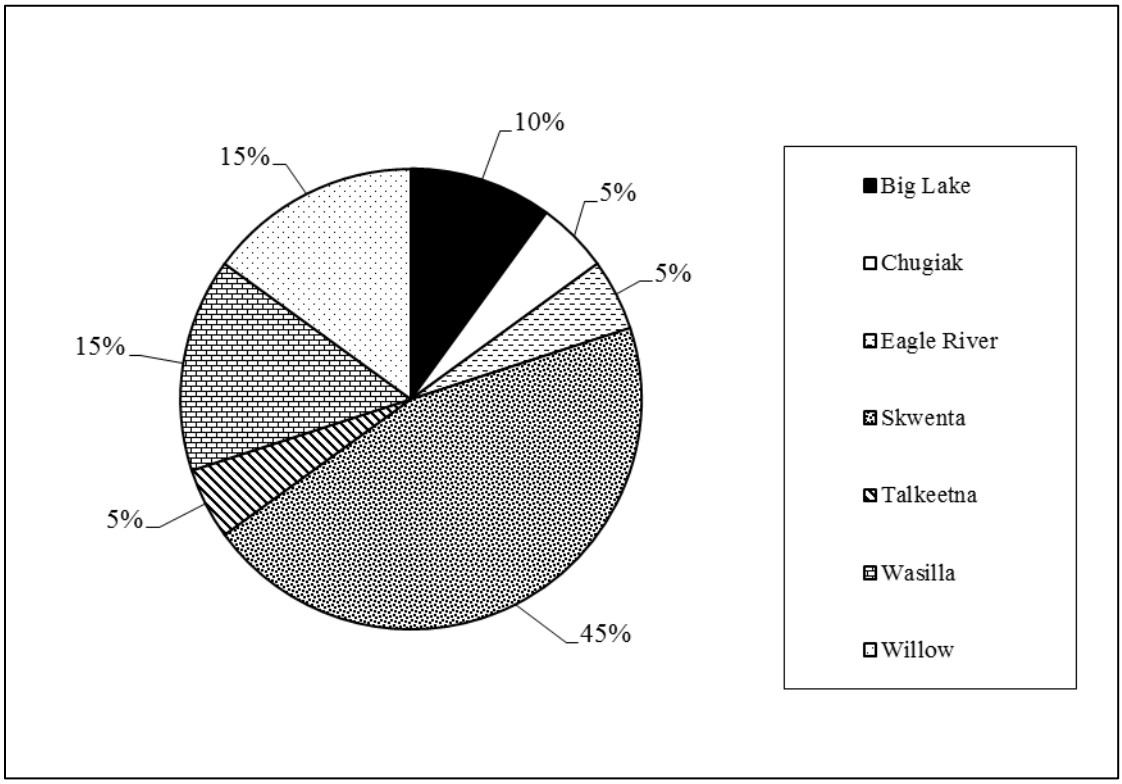

Figure 11-5.–Permits issued, by place of residence, for the Upper Yentna River fishery, 2014.

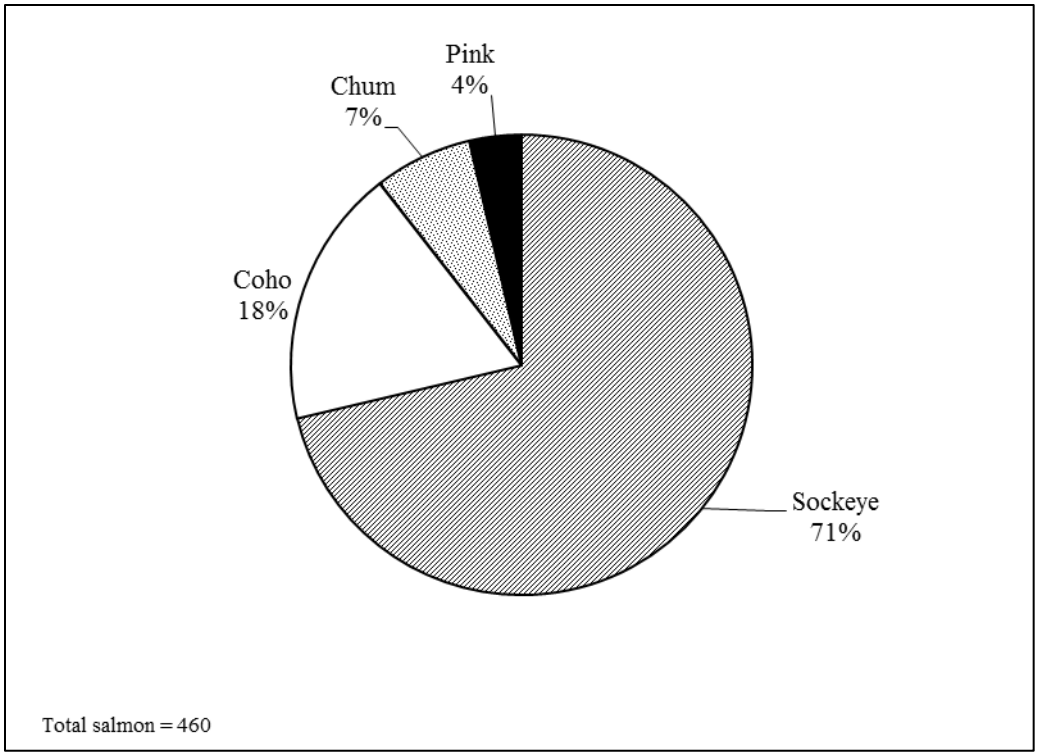

Figure 11-6.–Subsistence salmon harvests in the Upper Yentna River, 2014.

CHAPTER 12: PRINCE WILLIAM SOUND AREA

INTRODUCTION

The Prince William Sound (PWS) Management Area includes all waters of the Gulf of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling south of the Yukon Area described in 5 AAC 05.100, and all waters of the Upper Susitna River drainage upstream of the Susitna River's confluence with the Oshetna River. The PWS Management Area's main geographical features are the Copper River, its 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 system creates ecological conditions that support many salmon runs. The area supports both natural and enhanced runs of pink *Oncorhynchus gorbuscha*, sockeye *O. nerka*, chum *O. keta*, coho *O. kisutch* and Chinook *O. tshawytscha* salmon.

State managed personal use and state and federal 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 2014, approximately 14,000 personal use and subsistence permits for the Prince William Sound Management Area were issued to Alaska residents, with a total estimated harvest of 282,000 salmon.

In addition to subsistence and personal use fisheries, the area supports commercial gillnet and purse seine fisheries, as well as sport 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 2014 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: 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 Sound shoreline are accessible primarily via boat or plane, with the exception of Valdez, which is also accessible by the Richardson Highway. Besides Copper River and PWS communities, other communities show a high amount of use of some of the PWS fisheries, including Anchorage, Fairbanks, Palmer, and Wasilla.

The 20 communities of the Copper River Basin range from around 90 people to over 350, with a total population in 2014 of approximately 2,700 people. Fewer communities are situated along the coastline of

the Prince William Sound Management Area than in the Copper River Basin. These communities range in size from Valdez and Cordova (2014 population estimates of 4,046 and 2,295 residents, respectively) to Whittier (235 residents), Tatitlek (98 residents) and Chenega Bay (56 residents).[1]

HARVEST ASSESSMENT PROGRAMS

Annual subsistence-personal use salmon harvest assessments have been conducted in the PWS Management Area since at least 1960, conducted by either the Division of Commercial Fisheries or Division of Sport Fish for the state-managed fisheries. Harvest assessment programs for the federal subsistence fisheries in the Upper Copper River are administered by the National Park Service. For both state and federal subsistence and personal use fisheries, the harvest assessment program is based on required fishing permits. Permits include harvest reports and fishers are required to record at least the dates they fished and the number of each species harvested each day. Other standard permit conditions include prohibition of fishing within 300 ft. of a dam, fish ladder, weir, culvert, or other artificial obstruction. Any specific permit requirements for each fishery are detailed in the relevant sections below. Harvest estimates for the fisheries are made based on reported harvests expanded to all permit holders.

UPPER COPPER RIVER DISTRICT

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. All tributaries to the Copper River are closed to subsistence fishing. The state also created the Batzulnetas fishery in 1987 through an emergency regulation to settle the federal district court case of *John vs. Alaska*. There is currently a federal permit program for a federal fishery in this area.

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. 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). The Glennallen and Chitina subdistricts have had separate state and federal permit programs since 2002. The personal use dip net fishery that takes place in the Chitina Subdistrict under state regulations has in the past been classified as both subsistence and personal use. Historical data for this fishery, including years when it was classified as subsistence, are included in statewide summaries as personal use. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996).

The creation of a dual permit program for subsistence fishing in the Upper Copper River (Glennallen Subdistrict) 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:

- 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

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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.

Glennallen Subdistrict State and Federal Subsistence Fisheries

Regulations

The Glennallen Subdistrict is that portion of the mainstem Copper River upstream of the McCarthy Bridge to the mouth of the Slana River. The BOF has found that all waters of the Glennallen Subdistrict sustain customary and traditional uses.

ADF&G issues state permits at ADF&G offices (in Glennallen, Tok, Delta Junction, Fairbanks, Palmer, and Anchorage) under the authority of 5 AAC 01.630. 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.

In the state fishery, households may participate in either the Glennallen Subdistrict subsistence fishery or the Chitina Subdistrict personal use fishery in any given year, but not both. In the Glennallen Subdistrict, fishers may use either fish wheels or dip nets, but not both. Federally-qualified rural resident households may hold permits for both the federal and state Glennallen Subdistrict subsistence fisheries, or for the federal Glennallen fishery and the Chitina state personal use fishery, but state and federal harvest limits are not additive. Federal subsistence permit holders may use rod and reel in addition to fish wheels and dip nets; all 3 types of gear may be used, but not at the same time. 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.

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.

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. Since 1997 permits have been issued to tribal organizations from Chistochina, Gakona, Kluti-Kaah, Chickaloon, and Chitina. Table 12-1 summarizes data for the permits issued for village fish wheels by ADF&G from 1997 through 2011; in 2012, 2013, and 2014 no fish wheel permits were issued.

Subsistence Salmon Harvests in 2014

As shown in Table 12-2, ADF&G and NPS issued a total of 1,972 subsistence salmon permits for the Glennallen Subdistrict for 2014. This total is higher than both the recent 5-year average (1,592 permits), 10-year average (1,456 permits), and the historical average (1989–2013; 1,138) and continues a relatively steady increase in issued permits since 1989.

The estimated total Glennallen Subdistrict subsistence salmon harvest in 2014 for both federal and state fisheries was 106,024 salmon, the majority of which were sockeye salmon (Table 12-2). The harvest was composed of 103,860 sockeye salmon (approximately 98% of the year's salmon harvest), 1,869 Chinook salmon, and 295 coho salmon. Pink and chum salmon are generally not available in the Upper Copper River. The 2014 harvest was higher than the 5-year average (90,143 salmon), 10-year average (86,928 salmon), and the historical average (1989–2013; 71,278 salmon).

Table 12-3 reports subsistence salmon harvests in the Glennallen Subdistrict by place of residence of permit holders in 2014. Copper Basin residents caught 26% of the harvest (27,673 salmon) and other Alaska residents harvested 74% (78,351 salmon). Of all Glennallen Subdistrict permits (federal and state), residents of Copper Basin communities held 377 permits (approximately 19%) and other Alaska residents held 1,595 permits (81%) (Table12-3). The communities with the most permits and salmon harvested were Anchorage with 471 permits (20,093 salmon harvested), Fairbanks with 291 permits (10,958 salmon harvested), Wasilla with 265 permits (16,478 salmon), Palmer with 138 permits (6,798 salmon), and Copper Center with 106 permits issued (8,701 salmon harvested).

Chitina Subdistrict State Personal Use Fishery

Regulations

The regulatory history of the Chitina Subdistrict is complex; in 1984, and from 1986 through 1999, the Chitina Subdistrict was closed to subsistence fishing. The dip net fishery was operated as a personal use fishery during this time. At its December 1999 meeting, the BOF reversed its earlier decision and determined that the Chitina Subdistrict supported customary and traditional (C&T) uses of salmon, returning the classification of the fishery to subsistence. In February 2003, the BOF reconsidered that decision, resulting in a negative C&T finding, which returned the classification to personal use.

The Chitina Subdistrict personal use fishery is managed under the Copper River Personal Use Dip Net Salmon Fishery Management Plan (5AAC 77.591). The fishing season runs from June 7 to September 30. Inseason, this fishery is managed by emergency orders which set weekly fishing periods and harvest limits, based on the projected in-river returns and escapement estimates at the sonar station located at Miles Lake.

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; several such

periods were announced during the 2014 season.[2] Additional inseason action closed the fishery to the retention of king salmon on June 16, 2014.[3] Rainbow/steelhead trout taken by dip net under the state fishery must be released immediately and returned to the water unharmed. Additional permit requirements are for the fisher to indicate whether they fished from a boat or from shore, and if they fished during a supplemental harvest period.

Personal Use Salmon Harvests in 2014

As reported in Table 12-4, the estimated total salmon harvest in the Chitina Subdistrict personal use fishery in 2014 was 171,842 fish, including 169,971 sockeye salmon (99%), 812 Chinook salmon, and 1,059 coho salmon. In 2014, 11,618 permits were issued. The 2014 total estimated harvest was the second highest ever estimated for this fishery, well above the recent 5-year (146,223 salmon) and 10-year (131,262 salmon) averages, as well as the historical average (1989–2013; 117,243 salmon). The number of permits issued, as well as the number of sockeye salmon harvested were above the 5- and 10-year averages, as well as the historical average. Harvests of Chinook salmon were above the recent 5-year average, but below the 10-year and historical averages. Coho salmon harvests in 2014 were below all three averages.

Table 12-5 reports estimated salmon harvests in the Chitina Subdistrict personal use fishery by mailing address of state permit holders in 2014; most participants in this fishery lived in Fairbanks, Anchorage, or the Matanuska–Susitna Borough. Only 45 Copper Basin residents (<1%) obtained state personal use salmon permits for the Chitina Subdistrict in 2014. The other 11,573 permits were issued to non-area residents, who harvested all but 555 of the salmon harvested (>99%). The communities with the most permits issued were Anchorage (3,350 permits), Fairbanks (3,153 permits), Wasilla (1,192), North Pole (910 permits), and Palmer (625 permits).

Chitina Subdistrict Federal Subsistence Fishery

Regulations

In 2014, 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 could hold permits for both the federal and state Chitina Subdistrict fisheries, or for the Chitina federal fishery and the Glennallen state subsistence fishery, but 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 could not be combined. In 2014, inseason special actions were taken to liberalize fishing opportunity for federally qualified users of the Chitina Subdistrict.[4] Under federal regulations, rainbow/steelhead trout incidentally taken from fish wheels could be retained.

Federal Subsistence Harvests in 2014

As reported in Table 12-6, an estimated 1,797 salmon were harvested in the federal Chitina Subdistrict subsistence fishery in 2014. This is below both the recent 5-year average of 2,717 salmon and the historical average (2003–2013) of 2,021 salmon.

The total harvest included 1,709 sockeye salmon (99%), 74 coho salmon, and 15 Chinook salmon. A total of 113 permits were issued, which is the largest number of issued permits since 2003. Table 12-7 reports harvest and permit numbers according to each permittee's community of residence in 2014 for the Chitina Subdistrict. Kenny Lake, Chitina, Glennallen, McCarthy, and Copper Center had the most permits issued.

2. Alaska Department of Fish and Game Division of Sport Fish, "Emergency Orders and News Releases - Upper Copper Upper Susitna." Accessed August 30, 2016. http://www.adfg.alaska.gov/sf/EONR/index.cfm?ADFG=area.list&Year=2014&AreaID=33
3. Alaska Department of Fish and Game Division of Sport Fish, "Copper River Personal Use Dip Net Salmon Fishing Schedule Week of June 16-22." news release, June 11, 2014. Accessed August 11, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/414669738.pdf
4. U.S. Department of the Interior Federal Subsistence Management Program, "Subsistence News," Accessed September 9, 2016, https://doi_dev.opengov.ibmcloud.com/subsistence/news

Native Village of Batzulnetas Subsistence Fishery

Regulations

For both state and federal subsistence fisheries in the Batzulnetas area, 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. Legal gear includes fish wheels and dip nets in the Copper River and dip nets and spears in Tanada Creek. 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.

Subsistence Harvests in 2014

Since 1987, subsistence permits have been issued in 16 of the 26 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. Two permits were issued and returned in 2014, accounting for an estimated harvest of 116 salmon, all of which were sockeye. The historical average (1987–2013) harvest for this fishery is 130 sockeye salmon, with the highest harvest occurring in 1994 with a take of 997 sockeye salmon.

COPPER RIVER DISTRICT

State Subsistence Fishery

Background and History

The Copper River District is defined as waters surrounding Hinchinbrook Island between the tip of Hook Point and Boswell Rock, including Boswell Bay waters south of a line from Boswell Rocks to the radio tower at Whitshed Village, and waters between Whitshed Village and west of a line from a point on the mainland at 60° 10.21′ N lat. 144° 35.57′ W long. to the northernmost tip of Fox Island and then extending south from Fox Island along 144° 36.12′ W long. All waters in this district have been determined to support customary and traditional uses of salmon. The subsistence fishery takes place in the Copper River District at the mouth of the Copper River (Copper River Flats) near the community of Cordova. Residents of Cordova are the primary participants in this fishery.

ADF&G, with the direction of the 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).

Regulations

Permits are required to participate in subsistence fishing for salmon and freshwater fish species under the authority of 5 AAC 01.630. 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. The fishing season is May 15–September 30, with additional restrictions during times of commercial fishing activity. 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 allowed only during commercial fishing periods, generally lasting 12 to 36 hours. Commercial fishing periods began on May 15 in 2014. 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. In 2014, the commercial salmon fishing season in the Copper River District closed on October 9. Annual limits for salmon are 15 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.

Subsistence Salmon Harvests in 2014

As reported in Table 12-9, 288 permits were issued for this fishery in 2014, and 269 (93%) were returned. Participation in 2014 was lower than in recent years, below both the 5-and 10-year averages (366 and 398 permits, respectively), but greater than the historical average (1965–2013; 179 permits). The estimated 2014 harvest of 1,939 salmon was a substantial decrease from the previous year (7,010) and was well below the recent 5- and 10-year averages. The 2014 harvest was composed of 1,771 sockeye salmon (91%), 161 Chinook salmon (8%), 5 chum salmon (<1%), and 2 pink salmon (<1%). Most permit holders lived in Cordova (246; 85%) and took 87% of the total harvest (Table 12-10).

PRINCE WILLIAM SOUND

Eastern District (Tatitlek) Subsistence Salmon Fishery

Background and History

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)), 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 IRA Council office, or mailed at the end of the fishing season.

Regulations

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 mesh 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.

Subsistence Harvests in 2014

In 2014, there were 18 permits issued for this fishery (Table 12-11). The estimated total harvest was 149 salmon, down substantially from the past few years and well below the 5-year, 10-year, and historical averages. The 2014 harvest numbers from permit returns are substantially lower than household survey results from 2014 (Fall and Zimpelman 2016), indicating that the harvest assessment program for this fishery may underestimate harvests; similar indications arise from comparisons of past household survey results as well. As shown in Table 12-12, household surveys in Tatitlek provided an estimated 1,085 salmon taken with subsistence methods in 2014, compared to the 149 salmon (Table 12-11) based on returned permits. In Tatitlek, salmon for home use are also acquired via rod and reel and removal from commercial harvests.

Southwestern District (Chenega) Subsistence Salmon Fishery

Background and History

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 IRA Council office, or mailed at the end of the fishing season.

Regulations

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 mesh 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.

Subsistence Harvests in 2014

In 2014, 10 permits were issued for this fishery and 5 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 2014 was 10 salmon, consisting entirely of pink salmon. The 2014 harvest is the lowest reported harvest on record and the only year that no sockeye or chum salmon were reported harvested. 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 2014 (Fall and Zimpelman 2016) provided an estimate of 758 salmon taken with subsistence methods, including sockeye, chinook, and chum salmon harvests which were absent from the reported permit harvests.

Prince William Sound General Districts

Background and History

Subsistence fishing for salmon is allowed in the districts of the Prince William Sound Area that are outside of the Valdez Nonsubsistence Area and are not included in the above sections. 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. Residents of Anchorage are the primary participants in this fishery.

Regulations

Subsistence fishing in the other districts of the Prince William Sound Area 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.

Subsistence Harvests in 2014

In the last 27 years, issued permits have been typically low, with a 5-year average of 6 and a 10-year average of 8 (Table 12-15). In 2014, 23 permits were issued and 21 were returned; a record number of permits issued since 1988. The reported harvest for 2014 was 6 salmon, consisting entirely of sockeye salmon. This is one of the lowest salmon harvests estimated for this fishery, and is well below 5- and 10-year averages; 44 and 35 respectively (Table 12-15). The majority of permit holders in this fishery were residents of Anchorage (18), with one or two permit holders coming from other Southcentral communities (Table 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 2014 (Fall and Lemons 2016).

In 2014, ongoing 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 Wessel et al (2015) for 2014. 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.

Table 12-1.–Subsistence harvests by village fish wheel permits, Glennallen Subdistrict, 1997–2014.

		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, 2013, and 2014.

b. Did not fish

c. Did not return permit.

Table 12-2.–Historical subsistence salmon harvests, Glennallen Subdistrict, 1989–2014.

	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
2014	1,972	1,660	1,869	103,860	295	0	0	106,024
5-year average (2009–2013)	1,592	1,351	2,991	86,660	493	0	0	90,143
10-year average (2004–2013)	1,456	1,250	3,302	83,140	486	0	0	86,928
Historical average (1989–2013)	1,138	1,007	2,719	68,070	487	1	0	71,278

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

	Permits		Estimated salmon harvest[a]					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chistochina	7	6	4	825	0	0	0	828
Chitina	25	23	70	1,636	16	0	0	1,722
Copper Center	106	91	137	8,555	9	0	0	8,701
Copperville	4	3	7	783	0	0	0	789
Gakona	21	18	30	2,007	0	0	0	2,037
Glennallen	86	82	137	5,290	0	0	0	5,427
Gulkana	4	2	16	252	0	0	0	268
Kenny Lake	34	31	16	1,418	0	0	0	1,435
Lake Louise	1	1	0	33	0	0	0	33
McCarthy	16	16	3	284	0	0	0	287
Mendeltna	2	2	0	83	0	0	0	83
Nelchina	2	2	0	138	0	0	0	138
Slana	29	27	12	1,968	0	0	0	1,980
Tazlina	33	27	169	3,516	0	0	0	3,685
Tolsona	7	6	1	259	0	0	0	260
Subtotal, Copper Basin	**377**	**337**	**601**	**27,046**	**26**	**0**	**0**	**27,673**
Anchor Point	1	1	2	50	0	0	0	52
Anchorage	471	359	336	19,747	10	0	0	20,093
Anderson	2	2	4	145	0	0	0	149
Barrow	4	4	9	170	0	0	0	179
Big Lake	9	5	22	934	2	0	0	958
Cantwell	1	1	0	29	0	0	0	29
Chickaloon	4	4	0	83	0	0	0	83
Chugiak	21	18	13	644	0	0	0	657
Cooper Landing	2	2	1	35	0	0	0	36
Delta Junction	42	38	56	2,177	0	0	0	2,234
Denali National Park	1	1	0	0	0	0	0	0
Eagle River	63	51	56	2,854	0	0	0	2,909
Eielson AFB	1	1	0	14	0	0	0	14
Ester	3	3	9	366	0	0	0	375
Fairbanks	291	244	206	10,751	0	0	0	10,958
Fort Greely	1	1	0	0	0	0	0	0
Fort Wainwright	1	0	0	0	0	0	0	0
Girdwood	4	3	0	47	0	0	0	47
Healy	1	1	0	0	0	0	0	0
Homer	2	2	8	46	0	0	0	54
Houston	4	4	0	66	0	0	0	66
Joint Base Elmendorf Richardson	1	1	0	0	0	0	0	0
Juneau	2	1	0	0	0	0	0	0
Kasilof	1	0	0	0	0	0	0	0
Kenai	2	1	0	0	0	0	0	0

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Table 12-3.–Page 2 of 2.

Community	Permits		Estimated salmon harvest[a]					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Kennicott	1	1	0	0	0	0	0	0
Meadow Lakes	1	1	0	48	0	0	0	48
Mentasta Lake	4	4	2	431	0	0	0	433
Nabesna	4	4	0	303	0	0	0	303
Nenana	3	3	1	260	0	0	0	261
North Pole	86	75	55	3,789	30	0	0	3,873
Northway	7	7	1	502	0	0	0	503
Palmer	138	123	90	6,666	43	0	0	6,798
Salcha	13	11	27	755	0	0	0	782
Seward	2	2	4	97	0	0	0	101
Soldotna	4	3	0	881	0	0	0	881
Sutton	3	3	3	96	0	0	0	99
Talkeetna	1	0	0	0	0	0	0	0
Tanacross	2	1	0	320	0	0	0	320
Tok	58	55	18	5,205	0	0	0	5,223
Tonsina	6	5	0	138	0	0	0	138
Two Rivers	3	3	2	72	0	0	0	74
Valdez	46	41	47	2,757	0	0	0	2,804
Wasilla	265	220	292	16,002	184	0	0	16,478
Willow	11	11	5	327	0	0	0	332
Yakutat	1	1	0	2	0	0	0	2
Other USA	1	1	0	5	0	0	0	5
Subtotal, other communities	**1,595**	**1,323**	**1,268**	**76,814**	**269**	**0**	**0**	**78,351**
Total	**1,972**	**1,660**	**1,869**	**103,860**	**295**	**0**	**0**	**106,024**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 1989–2014.

	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
2014	11,618	9,332	812	169,971	1,059	0	0	171,842
5-year average (2009–2013)	9,375	7,749	684	138,871	1,544	0	0	146,223
10-year average (2004–2013)	8,817	7,318	1,547	127,795	1,919	0	0	131,262
Historical average (1989–2013)	7,995	7,079	2,910	112,139	2,195	0	0	117,243

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chitina	4	1	0	0	0	0	0	0
Copper Center	22	18	0	225	5	0	0	230
Glennallen	19	17	1	315	9	0	0	325
Subtotal, Copper Basin	**45**	**36**	**1**	**540**	**14**	**0**	**0**	**555**
Allakaket	2	2	0	35	0	0	0	35
Ambler	1	1	0	15	0	0	0	15
Anaktuvuk Pass	2	2	0	48	0	0	0	48
Anchor Point	4	2	0	60	0	0	0	60
Anchorage	3,350	2,603	296	41,509	233	0	0	42,038
Anderson	4	3	0	49	0	0	0	49
Arctic Village	1	0	0	0	0	0	0	0
Auke Bay	1	1	0	30	0	0	0	30
Barrow	12	9	0	161	0	0	0	161
Bethel	4	2	0	0	0	0	0	0
Bettles Field	2	2	0	45	0	0	0	45
Big Lake	54	42	5	699	0	0	0	705
Bird Creek	2	2	0	80	0	0	0	80
Cantwell	7	7	2	122	0	0	0	124
Central	6	3	0	60	0	0	0	60
Chickaloon	13	11	0	286	0	0	0	286
Chugiak	161	138	11	2,045	0	0	0	2,056
Clam Gulch	2	1	0	26	0	0	0	26
Clear	6	5	0	172	0	0	0	172
Cordova	1	1	0	0	0	0	0	0
Delta Junction	426	386	22	9,038	14	0	0	9,074
Denali National Park	28	25	6	609	0	0	0	615
Dot Lake	1	1	0	19	0	0	0	19
Douglas	1	0	0	0	0	0	0	0
Dutch Harbor	1	1	0	15	0	0	0	15
Eagle	2	2	0	0	0	0	0	0
Eagle River	414	360	47	5,176	14	0	0	5,237
Eielson AFB	84	67	5	1,181	0	0	0	1,186
Elmendorf AFB	21	15	3	276	0	0	0	279
Ester	69	64	3	1,114	23	0	0	1,140
Fairbanks	3,153	2,524	151	52,039	206	0	0	52,397
Fort Greely	30	27	1	330	0	0	0	331
Fort Richardson	26	19	1	259	21	0	0	281
Fort Wainwright	119	72	3	1,364	5	0	0	1,372
Fort Yukon	2	2	1	37	0	0	0	38
Fox	1	1	0	0	0	0	0	0
Fritz Creek	1	1	0	22	0	0	0	22
Gakona	4	4	0	24	0	0	0	24
Galena	1	1	1	39	0	0	0	40
Girdwood	32	27	5	549	0	0	0	553

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Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Haines	2	2	1	62	0	0	0	63
Healy	31	29	1	537	0	0	0	538
Homer	21	17	2	446	0	0	0	448
Hoonah	1	1	0	15	0	0	0	15
Hope	1	1	0	10	0	0	0	10
Houston	11	11	0	130	0	0	0	130
Huslia	1	1	0	32	0	0	0	32
Indian	8	8	2	119	0	0	0	121
Joint Base Elmendorf Richardson	5	4	0	13	0	0	0	13
Juneau	16	11	1	355	0	0	0	356
Kaktovik	2	2	0	0	0	0	0	0
Kasilof	4	3	1	83	0	0	0	84
Kenai	6	5	0	109	0	0	0	109
Kodiak (city)	5	2	3	25	0	0	0	28
Kotzebue	2	1	0	58	0	0	0	58
Koyuk	1	1	0	30	0	0	0	30
Lake Minchumina	1	1	0	15	0	0	0	15
Manley Hot Springs	2	2	0	14	0	0	0	14
McGrath	3	1	0	3	0	0	0	3
Mekoryuk	2	1	0	8	0	0	0	8
Minto	4	3	0	32	0	0	0	32
Nenana	16	16	1	374	0	0	0	375
Newtok	1	0	0	0	0	0	0	0
Nikiski	3	1	0	60	0	0	0	60
Ninilchik	1	1	0	30	0	0	0	30
Nome	4	3	1	92	0	0	0	93
Noorvik	3	1	0	48	0	0	0	48
North Pole	910	742	74	15,531	91	0	0	15,696
Northway	2	1	0	6	0	0	0	6
Nulato	2	2	0	1	0	0	0	1
Palmer	625	529	43	7,955	178	0	0	8,176
Petersburg	1	1	0	30	0	0	0	30
Point Hope	2	0	0	0	0	0	0	0
Rampart	1	0	0	0	0	0	0	0
St George Island	1	1	0	30	0	0	0	30
St Paul Island	2	1	0	0	0	0	0	0
Salcha	62	52	2	1,028	0	0	0	1,030
Selawik	1	1	0	4	0	0	0	4
Seldovia	3	1	0	120	0	0	0	120
Seward	11	10	2	199	0	0	0	201
Shishmaref	1	1	0	0	0	0	0	0
Sitka	2	2	0	4	0	0	0	4
Soldotna	10	9	1	136	0	0	0	137
Stebbins	2	1	0	20	0	0	0	20
Sterling	5	5	0	84	0	0	0	84
Sutton	60	49	1	769	15	0	0	785
Talkeetna	26	22	1	454	0	0	0	455
Tanacross	1	0	0	0	0	0	0	0

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Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Tanana	1	1	0	20	0	0	0	20
Tatitlek	1	1	0	15	0	0	0	15
Tok	23	19	5	473	0	0	0	478
Trapper Creek	4	3	1	109	0	0	0	111
Two Rivers	25	23	1	326	0	0	0	327
Unalakleet	2	1	2	58	0	0	0	60
Valdez	261	201	10	3,115	10	0	0	3,136
Wasilla	1,192	945	85	16,943	182	0	0	17,209
Willow	64	48	3	1,135	44	0	0	1,181
Wiseman	4	2	0	60	0	0	0	60
Wrangell	3	3	0	20	0	0	0	20
Other USA	1	0	0	0	0	0	0	0
Unknown Community	54	54	2	555	10	0	0	567
Subtotal, other communities	**11,573**	**9,296**	**810**	**169,431**	**1,045**	**0**	**0**	**171,287**
Total	**11,618**	**9,332**	**812**	**169,971**	**1,059**	**0**	**0**	**171,842**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 12-6.–Historical subsistence salmon harvests, federal Chitina Subdistrict permits, 2003–2014.

Year	Permits		Estimated salmon harvest					
	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
2014	113	102	15	1,709	74	0	0	1,797
5-year average (2009–2013)	87	56	19	2,669	28	0	0	2,717
Historical average (2003–2013)	88	65	22	1,955	44	0	0	2,021

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, 2014.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Barrow	1	1	0	10	0	0	0	10
Chitina	13	12	3	248	0	0	0	251
Copper Center	24	21	2	259	3	0	0	265
Glennallen	14	14	0	94	0	0	0	94
Gulkana	1	0	0	0	0	0	0	0
Kennicott	2	1	0	0	0	0	0	0
Kenny Lake	19	17	3	550	2	0	0	555
McCarthy	22	20	2	222	54	0	0	278
Nelchina	1	1	0	22	0	0	0	22
Slana	1	1	0	0	0	0	0	0
Tazlina	3	3	0	22	0	0	0	22
Tok	7	7	0	61	14	0	0	75
Tolsona	2	1	2	140	0	0	0	142
Tonsina	3	3	2	80	0	0	0	82
Total	**113**	**102**	**15**	**1,709**	**74**	**0**	**0**	**1,797**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 12-8.–Historical subsistence salmon harvests, Batzulnetas fishery, 1987–2014.

	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
2014	2	2	0	116	0	0	0	116
5-year average (2009–2013)	2	2	1	241	0	0	0	242
10-year average (2004–2013)	1	1	1	139	0	0	0	139
Historical average (1987–2013)	1	1	0	130	0	0	0	131

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 12-9.–Historical subsistence salmon harvests, Copper River District (Copper River Flats), 1965–2014.

	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.

Year	Permits		Estimated salmon harvest					
	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
2014	288	269	161	1,771	0	5	2	1,939
5-year average (2009–2013)	366	346	379	3,272	17	9	4	3,682
10-year average (2004–2013)	398	377	581	3,407	22	5	5	4,021
Historical average (1965–2013)	179	165	251	1,254	113	2	1	1,621

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 12-10.–Subsistence salmon harvests by community of residence, Copper River District (Copper River Flats), 2014.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	23	20	9	154	0	0	0	163
Chugiak	1	1	0	0	0	0	0	0
Cooper Landing	1	1	0	0	0	0	0	0
Cordova	246	234	140	1,546	0	5	2	1,694
Douglas	1	1	0	0	0	0	0	0
Eagle River	1	1	0	0	0	0	0	0
Girdwood	2	1	0	0	0	0	0	0
Homer	1	1	0	0	0	0	0	0
Indian	1	1	1	12	0	0	0	13
Juneau	1	1	0	0	0	0	0	0
Palmer	1	1	4	20	0	0	0	24
Seward	1	1	0	15	0	0	0	15
Tatitlek	2	2	7	23	0	0	0	30
Valdez	1	1	0	0	0	0	0	0
Wasilla	5	2	0	0	0	0	0	0
Total	**288**	**269**	**161**	**1,771**	**0**	**5**	**2**	**1,939**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 12-11.–Historical subsistence salmon harvests, Prince William Sound, Eastern District, 1988–2014.

	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
2014	18	5	0	46	103	0	0	149
5-year average (2009–2013)	14	6	3	565	232	34	10	844
10-year average (2003–2013)	13	5	2	371	219	26	43	662
Historical average (1988–2013)	14	5	1	250	282	44	56	633

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

NA = Data not available.

Table 12-12.–Estimated harvests of salmon for home use, Tatitlek, 2014.

Species	Estimated salmon harvest			
	Subsistence methods	Rod and reel	Removed from commercial harvests	All methods
Chinook	45	0	4	49
Sockeye	622	0	129	751
Coho	242	176	26	443
Chum	96	0	26	122
Pink	80	13	26	118
All salmon	**1,085**	**189**	**210**	**1,484**
Estimated number of households harvesting[a]	10 households	6 households	1 household	15 households (any method)

Source Fall et al. (2016).

a. Number of households in the community = 27; 21 (78%) were interviewed.

Table 12-13.–Historical subsistence salmon harvests, Prince William Sound, Southwestern District, 1988–2014.

Year	Permits		Reported salmon harvest					
	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
2014	10	5	0	0	0	0	10	10
5-year average (2009–2013)	13	7	1	196	14	74	12	297
10-year average (2004–2013)	11	6	2	258	30	83	34	407
Historical average (1988–2013)	11	6	7	249	50	108	129	544

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

NA = Data not available.

Table 12-14.–Estimated harvests of salmon for home use, Chenega Bay, 2014.

Species	Estimated salmon harvest			
	Subsistence methods	Rod and reel	Removed from commercial harvests	All methods
Chinook	4	13	0	17
Sockeye	468	27	0	494
Coho	31	62	0	94
Pink	78	102	0	180
Chum	177	17	0	194
All salmon	**758**	**221**	**0**	**979**
Estimated number of households harvesting[a]	2 households	6 households	0 households	6 households (any method)

Source Fall et al. (2016).

a. Number of households in the community = 17; 12 (71%) were interviewed.

Table 12-15.–Historical subsistence salmon harvests, Prince William Sound general, 1960–2014.

	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

-continued-

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
2014	23	21	0	6	0	0	0	6
5-year average (2009–2013)	6	5	6	24	0	13	1	44
10-year average (2003–2013)	8	7	3	22	3	7	1	35
Historical average (1960–2013)	9	7	1	15	25	10	54	105

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

NA = Data not available.

Table 12-16.–Subsistence salmon harvests by community of residence, Prince William Sound general, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	18	16	0	3	0	0	0	3
Chugiak	1	1	0	0	0	0	0	0
Eagle River	2	2	0	3	0	0	0	3
Girdwood	1	1	0	0	0	0	0	0
Seward	1	1	0	0	0	0	0	0
Total	**23**	**21**	**0**	**6**	**0**	**0**	**0**	**6**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

CHAPTER 13: THE SOUTHEAST REGION

INTRODUCTION

The Southeast region is divided by regulation 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. Annual harvest assessments did not begin in the Yakutat area until 1989. Permits are valid for one calendar 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. 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 may 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. In 2014, area

managers had 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 household may not obtain or possess more than one permit per household. The permit 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 2014

In 2014, the total estimated subsistence and personal use salmon harvest for the Southeast region, based on returned permits, was 52,507 fish (Table 13-1). This is below the total estimated harvest for 2013 (59,343 salmon) as well as the most recent 5-year (58,766 salmon), 10-year (57,788 salmon), and historical averages (56,797 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 2014, sockeye salmon contributed the greatest amount to the overall harvest at 44,786 fish (85%), followed by 3,353 coho salmon (6%), 2,368 pink salmon (5%), 1,013 Chinook salmon (2%), and 986 chum salmon (2%) (Table 13-1; Figure 13-2). While the number of each species of salmon harvested differed from the 2013 harvest, the overall contribution of each species to the total harvest did not change significantly: the 2014 harvest was weaker in pink salmon and slightly stronger in sockeye harvests. Overall harvests of all salmon species, except Chinook, decreased from 2013 estimates. For a comparison, in the commercial fisheries in 2014, coho, sockeye and Chinook salmon were above their 10-year and historical averages, while pink, and chum salmon harvests were below the ten-year average (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 2014 as well. The estimated subsistence/personal use salmon harvests by management area were as follows: Sitka 12,023 (23%), Haines 11,620 (22%), Ketchikan 8,066 (15%), Yakutat 7,862 (15%), Juneau 7,079 (14%), and Petersburg 5,857 (11%) (Table 13-3, Figure 13-3). Compared to 2013, only harvests in Yakutat increased; harvests in all other management areas were smaller in 2014, with the largest decrease seen in Juneau estimated harvests.

The number of permits issued per year, on average, for the 10-year time period of 2004–2013, has been 3,264 (Table 13-2). In 2014, a higher than average number of permits was issued, with a total of 3,438 permits issued and 3,035 returned. This corresponds to a regionwide response rate of 88%, on par with the recent 5-year average (88%) and higher than the 10-year average of 83%. The harvests 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 increased slightly from 2013 and was estimated at 634 in 2014.[1]

Regulations

There were no changes made to the subsistence permit in 2014. 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. Preseason, a news release announced the addition of two Specific Permit Conditions to the 2014 permit: when the commercial spring troll fishery is open in Yakutat Bay, the weekly subsistence fishing period for troll gear is from 12:01 am Wednesday through 11:59 pm Saturday, and power troll gear for subsistence may not exceed two lines.[2] Hand troll gear for subsistence may not be rod and reel. An emergency order was released on May 14, 2014 that closed subsistence fishing for Chinook salmon in the Situk-Ahrnklin Inlet.[3] Chinook salmon could not be retained in the sockeye salmon subsistence fishery either. The order was issued because the preseason forecast for the Situk River Chinook salmon return suggested that the return would be below desired levels and conservative action would be in order to ensure adequate levels of escapement. On June 6, 2014 two emergency orders were released that changed the weekly subsistence period for all subsistence gear in Yakutat Bay in order to maintain separation of the fish harvested by the same gear type, as the commercial spring troll fishery opening was changed and the commercial set gillnet fishery opened.[4,5] A final emergency order was issued on July 30, 2014 that reopened subsistence fishing for Chinook salmon in the Situk-Ahrnklin Inlet and allowed incidental Chinook salmon harvest in the sockeye salmon subsistence fishery[6]. The order was issued because enough Chinook salmon had passed through the Situk River weir to exceed the lower end of the goal for Chinook salmon escapement.

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm
2. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, April 29, 2014. Accessed August 9, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/399958928.pdf
3. Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, May 14, 2014. Accessed August 9, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/405986411.pdf
4 Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, June 6, 2014. Accessed August 9, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/412921726.pdf
5 Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, June 6, 2014. Accessed August 9, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/413239921.pdf
6 Alaska Department of Fish and Game Division of Commercial Fisheries, "Yakutat Subsistence Announcement," news release, June 6, 2014. Accessed August 9, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/466325093.pdf

Harvest Assessment Program

The estimated total subsistence salmon harvest for the Yakutat Management Area in 2014 was 7,862 salmon, including 6,055 sockeye salmon (77%), 988 coho salmon (13%), 643 Chinook salmon (8%), 129 pink salmon (2%), and 46 chum salmon (<1%) (Table 13-3). An estimated 117 permits were fished in the Yakutat Management Area (Table 13-3). Compared to 2013, 2 additional permits were estimated fished and overall harvests increased by slightly over 1,000 salmon. Most of the increase came from harvests of sockeye salmon, but harvests of every species increased.

Residents of Yakutat were issued 138 subsistence permits, with 108 returned (78%). The estimated total subsistence salmon harvest for the community of Yakutat in 2014 was 6,747 fish, up from 5,615 salmon in 2013. The 2014 harvest composition was 4,991 sockeye salmon (74%), 944 coho salmon (14%), 636 Chinook salmon (9%), 129 pink salmon (2%), and 46 chum 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 2014, the combined population of these communities was 3,670, an increase of approximately 67 individuals over the 2013 estimate.[7] The populations of the Haines Borough and Skagway are predominantly non-Native, while Klukwan continues to have a predominantly Alaska Native population.

Regulations

There were no changes to the permit from 2013. 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 15, 2014 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 the day before any commercial drift gillnet openings through October 15. 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

7. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

8. Alaska Department of Fish and Game Division of Commercial Fisheries, "Chilkat Inlet and Chilkat River subsistence salmon fishery," news release, September 26, 2014. Accessed August 9, 2016. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/495300234.pdf

gillnets could not exceed 50 ft in length when fishing in the Chilkat River, and drift gillnets fished in marine waters could not exceed 50 fathoms in length.

Harvest Assessment Program

The estimated subsistence salmon harvest in the Haines Management Area in 2014 was 11,620 salmon, including 10,042 sockeye salmon (86%), 674 pink salmon (6%), 528 coho salmon (5%), 220 chum salmon (2%), and 156 Chinook salmon (1%) (Table 13-3). The overall salmon harvest was approximately 500 fish less than the 2013 harvest. Harvests of sockeye salmon increased in 2014 as they did in 2013. Harvests of coho salmon also increased slightly. Harvests of the other salmon species decreased from 2013 levels, most notably for pink salmon, the harvest of which was 1,000 fish less than 2013. An estimated 442 permits were fished in the Haines Management Area in 2014, an increase from the 403 estimated permits fished in 2013.

In the Haines Borough, 442 permits were issued and 437 were returned (99%). 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, 10 permits were issued and all were returned. Thirty-three residents of Skagway were issued permits and all but one were returned. In Excursion Inlet, no permits were issued. The estimated salmon harvest by Haines, Klukwan, and Skagway residents combined (10,024 salmon total) included 8,571 sockeye salmon (86%), 637 pink salmon (6%), 490 coho salmon (5%), 200 chum salmon (2%), and 125 Chinook salmon (1%) (Table 13-4). In 2013, 434 permits were issued and 10,664 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 2014 there were an estimated 509 permits fished in the Juneau Management Area with an estimated harvest of 7,079 (Table 13-3). About 25 more permits were fished than in 2013 but over 4,000 fewer fish were harvested. Sockeye salmon harvests constituted 91% 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 2014, Angoon had a population of 417, 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.

9. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

Regulations

The 2014 permit conditions did not differ from 2013. The open season for sockeye salmon in Kanalku Bay and Basket Bay 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 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 2014 was 1,232 salmon, including 1,202 sockeye salmon (98%), 24 pink salmon (2%), 6 coho salmon (<1%), and 1 chum salmon (<1%) (Table 13-3). Fewer salmon were harvested in 2014 than in 2013, but the relative contributions of each species to the overall harvest remained much the same. An estimated 56 permits were fished in the area, compared to 47 permits fished in 2013.

The estimated salmon harvest for the community of Angoon in 2014, based on 97 permits issued and 83 returned (86%), totaled 1,602 salmon, including 1,587 sockeye salmon (99%), 8 pink salmon (1%), 6 coho salmon (<1%), and 1 chum salmon (<1%) (Table 13-4). Not all permits were necessarily fished solely in the Angoon area. The number of permits issued in Angoon in 2014 was similar to the number issued in 2013, with a harvest of approximately 500 more fish.

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 2014, Hoonah had a population of 790, essentially the same as the 2013 estimated population.[10]

Regulations

No changes were made to the 2014 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

10. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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 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 2014 was 665 salmon, including 570 sockeye salmon (84%), 74 coho salmon (11%), 20 chum salmon (3%), and 11 pink salmon (2%) (Table 13-3). The 2014 harvest was about 1,500 salmon fewer than the 2013 harvest, more similar to the 2012 harvest. The majority of this decrease came from harvests of sockeye salmon, which decreased from 1,979 fish in 2013. An estimated 46 permits were fished in the Hoonah area in 2014 in comparison to 83 permits fished in 2013.

For the community of Hoonah, in 2014, 107 permits were issued and 93 were returned (87%) with a total estimated harvest of 1,247 salmon. Not all permits were fished solely in the Hoonah area. The harvest consisted of 1,108 sockeye salmon (89%), 77 pink salmon (6%), 47 coho salmon (4%), and 15 chum salmon (1%). No Chinook salmon were harvested (Table 13-4). Slightly more permits were issued to Hoonah residents compared to 2013, and a greater percentage of those permits were returned. The overall harvest was greater than in 2013, by about 400 fish, with increased sockeye and coho salmon harvests and decreased chum and pink salmon harvests.

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 and Surge Bay 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 and Neva Creek 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, Taku River and Sweetheart Creek in District 11, 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 2014, Elfin Cove had a population of 16; Gustavus–518 residents; Pelican–76 residents; and Tenakee Springs–129 residents.[11] The populations of Elfin Cove and Pelican were essentially the same as 2013, while the population of Gustavus increased slightly and that of Tenakee Springs decreased slightly.

Regulations

Permit regulations applying to fishers in this area can be found under the Hoonah, Angoon, Haines, and Juneau subsections.

Harvest Assessment Program

In 2014, the number of salmon reported on permits issued to residents of Elfin Cove, Gustavus, Pelican, and Tenakee Springs was modest (Table 13-4). No permits were issued to residents of Elfin Cove or

11. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

Tenakee Springs. Two permits were issued and one was returned in Pelican, with no harvest recorded. In Gustavus, 24 permits were issued and all were returned. The estimated harvest for Gustavus was 355 total salmon, a small increase from 2013, when 304 fish were reported. The harvest consisted of 342 sockeye salmon (96%), 9 pink salmon (3%), 3 chum salmon (1%) and 1 coho salmon (<1%) (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 2014, the city and borough of Juneau had a population of 33,158, an increase of approximately 100 residents over 2013.[12]

Regulations

The 2014 personal use permit conditions remained the same as 2013. 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

Harvest Assessment Program

The total estimated salmon harvest for the Juneau area personal use fisheries in 2014 was 5,182 salmon, consisting of 4,685 sockeye salmon (90%), 248 coho salmon (5%), 220 pink salmon (4%), 23 Chinook salmon (<1%), and 5 chum salmon (<1%) (Table 13-3). This was a lower harvest than the 2013 harvest of 7,537 salmon. Harvests of all species declined, except Chinook salmon which was the same. An estimated 407 permits were fished in the Juneau area personal use fisheries in 2014, compared to 402 permits fished in 2013.

The estimated personal use and subsistence salmon harvest for the community of Juneau (including the communities of Douglas and Auke Bay), based on 765 permits issued and 695 returned (91%), totaled 8,219 salmon, including 7,498 sockeye salmon (91%), 346 coho salmon (4%), 295 pink salmon (3%), 55 Chinook salmon (1%), and 24 chum salmon (<1%) (Table 13-4). Not all permits were fished solely in the Juneau area. Fewer permits were issued and returned in 2014 than in 2013. Overall salmon harvests were also less in 2014: harvests of Chinook salmon increased by 5 salmon but harvests of all other species decreased, especially of sockeye salmon (10,275 sockeye salmon harvested in 2013).

12. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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. 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 2014, the city and borough of Sitka had a population of 9,093.[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 2014 subsistence/personal use salmon permit remained the same as in 2013. 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.

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; no changes were made during the 2014 season.

13. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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 2014 was 12,023 salmon, consisting of 11,197 sockeye salmon (93%), 474 pink salmon (4%), 189 coho salmon (2%), 160 chum salmon (1%), and 3 Chinook salmon (<1%). This was a decrease from the 2013 harvest estimate of 13,012 fish; contributions of each species to the overall harvest remained similar, but the harvest of most species decreased pink and chum salmon harvests increased slightly. An estimated 360 permits were fished in the Sitka Management Area in 2014, compared to 419 permits in 2012.

As reported in Table 13-4, the estimated salmon harvest for the community of Sitka in 2014, based on 608 permits issued and 531 returned (87%), was 9,706 salmon, including 8,996 sockeye salmon (93%), 631 pink salmon (4%), 185 coho salmon (2%), 160 chum salmon (2%), and 3 Chinook salmon (<1%). Not all permits were fished solely in the Sitka Management Area. The number of permits issued and returned, as well as overall harvests, decreased from 2013. At the species level, harvests of sockeye decreased the most (from 12,003 fish in 2013), with small decreases seen in the coho and Chinook salmon harvests as well. Five permits were issued to residents of Port Alexander; all 5 were returned reporting no harvest of salmon.

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 299 state subsistence permits were fished in the Petersburg Management Area in 2014. The total estimated salmon harvest was 5,857 fish, with 78% of the harvest coming from sockeye salmon (Table 13-3). Fewer permits were fished in 2014 than in 2013 and fewer salmon were also harvested (316 permits in 2013 with a harvest of 7,218 salmon).

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 2014, Kake had an estimated population of 628, an increase of 6 residents over 2013.[14] 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 2013. The 2014 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, hand operated 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. 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 2014 was 1,379 salmon, including 1,027 sockeye salmon (75%), 111 coho salmon (8%), 102 pink salmon (7%), 101 chum salmon (7%), and 38 Chinook salmon (3%). An estimated 63 permits were fished in the Kake area subsistence fisheries in 2014.This compares to an estimated 85 permits fished in 2013 with a total harvest of 2,061 salmon. Harvests of sockeye salmon decreased by nearly 900 salmon, while harvests of all other species increased slightly.

The estimated subsistence salmon harvest for the community of Kake in 2014, based on 138 permits issued and 124 returned (90%), was 1,337 salmon. The harvest consisted of 995 sockeye salmon (74%), 111 coho salmon (8%), 101 chum salmon (8%), 91 pink salmon (7%), and 38 Chinook salmon (3%) (Table 13-4). Not all permits were fished solely in the Kake area. Fewer permits were issued in 2014 than in 2013 and the total harvest decreased from an estimated 2013 harvest of 2,004 salmon. Only harvests of sockeye salmon decreased, from 1,869 salmon in 2013. Harvests of all other species increased slightly.

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 2002, the BOF made a positive C&T finding for salmon stocks in

14. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

districts 7 and 8 (5 AAC 01.716 (a)(23)). These waters include Thoms Place, Harding River, Mill Creek, and the Stikine River. Salmon stocks in this area that do not have a positive C&T finding 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 2014, the population of the Petersburg borough (including Hobart Bay CDP and Kupreanof) was 3,222 and that of Wrangell was 2,455.[15] Both estimates are similar to the 2013 estimates.

Regulations

No changes were made to the discretionary permit conditions from 2013. The 2014 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 29. In 2014, harvest limits were restricted to 3 fish daily and 9 annually. 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 15 to September 5 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 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 2014 was 1,373 salmon, including 936 sockeye salmon (68%), 316 coho salmon (23%), 83 pink salmon (6%), 21 chum salmon (2%), and 18 Chinook salmon (1%) (Table 13-3). Compared to 2013, there was a decrease in the overall estimated harvest, as well as in harvests of sockeye, coho, and chum salmon. Small increases in pink and Chinook salmon harvests occurred. As has been seen in years past, the Petersburg area subsistence/personal use fisheries show a much lower reliance on sockeye salmon than any other fishery. An estimated 80 permits were fished in 2014.

As reported in Table 13-4, the estimated subsistence/personal use salmon harvest for the community of Petersburg in 2014, based on 174 permits issued and 170 returned (98%), was 2,304 salmon, including 1,707 sockeye salmon (74%), 338 coho salmon (15%), 134 pink salmon (6%), 65 chum salmon (3%), and 60 Chinook salmon (3%). Not all permits were fished solely in the Petersburg area. Slightly fewer permits

15. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

were issued in 2014, but were returned at a higher rate. The overall salmon harvest was smaller by nearly 400 salmon. Fewer sockeye and coho salmon were harvested in 2014, but slightly more pink, chum, and Chinook salmon were harvested.

As shown in Table 13-3, the estimated salmon harvest in the Wrangell area subsistence/personal use fisheries in 2014 was 1,207 salmon, which included 1,094 sockeye salmon (91%), 47 chum salmon (4%), 46 pink salmon (4%), 13 coho salmon (1%), and 8 Chinook salmon (1%). Compared to the 2013 harvest estimate of 1,118 salmon, the estimated overall harvest, as well as that of sockeye chum, and coho salmon, increased. An estimated 74 permits were fished in 2014.

The estimated subsistence salmon harvest for the community of Wrangell in 2014, based on 189 permits issued and 179 returned (95%), was 2,068 salmon, including 1,758 sockeye salmon (85%), 125 coho salmon (6%), 71 pink salmon (3%), 63 chum salmon (3%), and 52 Chinook salmon (3%) (Table 13-4). Not all permits were fished solely in the Wrangell area. Harvests were less than the estimated 2013 harvest of 2,492 fish; harvests of each species decreased from 2013.

2014 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 2014 fishing season. The department's preseason forecast was for low abundance, resulting in a special action which closed the Chinook salmon subsistence fishery prior to the season.[16] On June 14, once the inseason return estimate provided for an allowable catch, the Chinook salmon subsistence fishery was opened for the remainder of the season.[17]

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.

16. U.S. Department of the Interior Federal Subsistence Management Program, "Federal Subsistence Board Closes Stikine River Subsistence Chinook Salmon," news release, May 1, 2014, Accessed September 9, 2016, https://doi_dev.opengov.ibmcloud.com/subsistence/news/fishing/nr_04_30_14

17. U.S. Department of the Interior Federal Subsistence Management Program, "Federal subsistence fishery for Chinook salmon opened in the Stikine River," news release, June 13, 2014, Accessed September 9, 2016, https://doi_dev.opengov.ibmcloud.com/subsistence/news/fishing/nr6-13-14-stikine-river

(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 5½ 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 numbers 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 with a random subset of permit holders is used inseason, with permits and harvest reporting used for overall harvest assessment postseason. Similar to 2013, in 2014, 125 fishing permits were issued, with approximately 58% going to Wrangell households and 42% to Petersburg households. An estimated 81 permits were fished. All 125 issued permits were returned. The Stikine River subsistence harvest totaled 1,898 salmon, below the 2013 harvest amount but above the 5-year average harvest (Table 13-6). The 2014 harvest consisted of 1,527 sockeye salmon (80%), 143 coho salmon (8%), 82 Chinook salmon (5%), 82 pink salmon (4%), and 60 chum salmon (3%) (Table 13-3). There were also 4 Dolly Varden char harvested.[18] Compared to 2013, a similar number of permit holders caught fewer salmon overall. Harvests

18. Robert Larson, USFS. Stikine River subsistence salmon fishery: 2014 season summary. United States Department of Agriculture Forest Service, unpublished report, 2014.

of all species decreased from 2013. The proportion of the catch contributed by each species changed slightly, with sockeye salmon contributing more overall.

Residents of Petersburg were issued 52 permits in 2014; all were returned. Based on the permit data, residents of Petersburg harvested 1,006 salmon in the federal fishery, approximately 53% of the entire harvest. The catch comprised 840 sockeye salmon (84%), 55 pink salmon (5%), 44 chum salmon (4%), 42 Chinook salmon (4%), and 25 coho salmon (2%) (Table 13-5). In Wrangell, based on 73 permits issued and returned, 892 salmon were harvested. The catch consisted of 687 sockeye salmon (77%), 118 coho salmon (13%), 44 Chinook salmon (5%), 27 pink salmon (3%), and 16 chum salmon (2%) (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 1997, the BOF adopted 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 2014, Point Baker had a population of 13 and Port Protection had a population of 56; both estimates are similar to 2013 estimates.[19]

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 11–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. 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 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 2014, 1 permit was issued in Port Protection and 2 were issued in Point Baker. The permit was not returned in Port Protection. In Point Baker, both permits were returned with a total harvest of 31 fish, consisting of 21 sockeye salmon (68%), 7 coho salmon (23%), and 3 pink salmon (10%) (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

19. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

Ketchikan area. All of these areas are under the management responsibilities of the Division of Commercial Fisheries' Ketchikan Area office. There were an estimated 319 permits fished in the Ketchikan Management Area in 2014, more than the 261 permits fished in 2013. The total estimated salmon harvest was 8,066 fish, less than the 2013 estimate of 9,116 salmon (Table 13-3). Sockeye salmon harvests contributed 80% of this harvest; in 2013 sockeye salmon contributed 73% 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 2014, Craig had a population of 1,203, Klawock had a population of 805, and Hydaburg had a population of 407.[20] Estimates for the three communities are slightly higher than the 2013 estimates.

Regulations

The 2014 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 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 2014 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 Bay 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.

20. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

Harvest Assessment Program

The estimated salmon harvest for the Craig–Klawock–Hydaburg area subsistence fisheries in 2014 was 2,866 salmon, including 2,390 sockeye salmon (83%), 396 coho salmon (14%), 68 pink salmon (2%), and 12 chum salmon (<1%) (Table 13-3). The 2014 harvest decreased from 4,179 fish in 2013. Sockeye salmon harvests decreased the most, down from 3,105 salmon in 2013. Coho and pink salmon harvests also decreased substantially, while harvests of chum salmon were the same. An estimated 107 permits were fished in the area in 2014.

As reported in Table 13-4, 114 permits were issued to residents of Craig and 84 (74%) were returned. The total estimated salmon harvest of Craig residents was 749, a decrease of 51 fish from 20123 estimates. By species, the estimated harvest consisted of 558 sockeye salmon (74%), 176 coho salmon (24%), and 15 pink salmon (2%). The total estimated salmon harvest for Klawock, based on 113 permits issued and 86 returned (76%), was 1,461, a decrease of about 400 fish from 2013, consisting of 1,106 sockeye salmon (76%), 214 coho salmon (15%), 127 pink salmon (9%), and 13 chum salmon (1%). The total estimated salmon harvest for Hydaburg, based on 49 permits issued and 28 returned (57%), was 732 salmon, the majority of which were sockeye salmon (718; 98%). An estimated 14 pink salmon were also harvested. Not all permits were fished solely in their respective areas. While harvests in all three communities decreased, Hydaburg harvests showed the largest decrease. In 2013, the estimated harvest of salmon by Hydaburg residents was 1,531, mainly sockeye salmon. Fewer permits were issued in Craig and Hydaburg, more were issued in Klawock.

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 2014, Coffman Cove had a population of 175, Edna Bay's population was 46, Hollis had a population of 93, Kasaan's population was 78, the population of Naukati Bay was 122, Thorne Bay's population was 532, and the population of Whale Pass was 39.[21] These estimates are similar to those of 2013, except the population of Coffman Cove and Thorne Bay increased by about 13 residents while that of Hollis decreased by 26 people.

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.

21. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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 2014 an estimated 46 permit holders fished in the Kasaan area subsistence fisheries with an estimated salmon harvest of 960 salmon. The harvest included 655 sockeye salmon (68%), 197 pink salmon (21%), 107 coho salmon (11%), and 1 chum salmon (<1%). The total harvest decreased from a 2013 estimate of 1,870. Fewer permits were fished in 2014 compared to 2013.

Based on 12 permits issued to residents of Kasaan and 10 returned (83%) in 2014, an estimated 146 salmon were harvested, the majority consisting of sockeye salmon (110; 75%) as well as 36 coho salmon (Table 13-4). Thorne Bay residents were issued 17 permits, 14 of which were returned (82%), resulting in a harvest estimate of 75 salmon, including 51 sockeye salmon and 24 pink salmon (Table 13-4). Eight permits were issued to Naukati Bay residents and 4 were returned. No salmon harvest was reported. In Hollis, 29 permits were issued and 24 were returned (83%). An estimated 521 salmon were harvested, including 353 sockeye salmon (68%), 99 pink salmon (19%), 58 coho salmon (11%), and 11 chum salmon (2%). In Coffman Cove, 8 permits were issued and 6 were returned (75%). An estimated 25 salmon were harvested, including 15 coho salmon, 9 sockeye salmon, and 1 pink salmon. Two permits were issued in Whale Pass; all were returned with no harvests reported. Not all permits were fished solely in their respective areas. Harvests in all communities except Hollis decreased from 2013.

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 2014, the population of the Ketchikan borough, excluding Saxman, was 13,427. Saxman, located within the Ketchikan Gateway Borough, had a population of 422.[22] 2014 estimates show a similar population in both communities as in 2013.

Regulations

The 2014 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 29, Thursdays through Sundays, with a limit of 3 sockeye salmon in possession and 9 annually. 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

22. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed August 9, 2016. http://live.laborstats.alaska.gov/pop/index.cfm

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 Bay 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 2014 was 4,240 fish, including 3,417 sockeye salmon (81%), 291 chum salmon (7%), 258 pink salmon (6%), 235 coho salmon (6%), and 38 Chinook salmon (1%) (Table 13-3). An estimated 166 personal use permits were fished. The 2014 harvest increased from 3,067salmon in 2013. Harvest of sockeye salmon increased the most, but increases were also seen in the harvests of Chinook and coho salmon. Harvests of pink and chum salmon decreased.

As reported in Table 13-4, the total estimated salmon harvest for the community of Ketchikan (including Neets Bay), based on 279 permits issued and 226 returned (81%), was 3,965, including 3,222 sockeye salmon (81%), 258 chum salmon (7%), 256 pink salmon (6%), 190 coho salmon (5%), and 38 Chinook salmon (1%). In Saxman, based on 26 permits issued and 18 returned (69%), a total of 404 salmon were harvested. Of the total, sockeye salmon constituted the largest proportion at 328 fish (81%) followed by coho salmon with 55 fish (14%) and 22 chum salmon (5%). Based on 8 permits issued and 7 returned (88%), in 2014 residents of Metlakatla harvested no salmon under state permit regulations. More permits were issued in each community and harvests increased slightly in Ketchikan and Saxman.

Table 13-1.–Subsistence and personal use salmon harvests by district, Southeast region, 2014.

Fishing location	Name	Permits fished		Estimated salmon harvest					
		Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
District 1	Ketchikan-Behm Canal	246	307	38	3,417	235	291	258	4,240
District 2	Clarence Strait-East Prince of Wales Island	64	79	0	655	107	1	197	960
District 3	Inside Waters-West Prince of Wales Island	158	225	0	2,390	396	12	68	2,866
District 5	Sumner Strait	2	3	0	27	1	0	14	42
District 6	East Sumner Strait-North Frederick Sound	106	114	18	1,007	297	28	84	1,434
District 7	East Etolin Island-Wrangell Island-Ernest Sound	121	132	8	985	2	33	30	1,057
District 8	Stikine River	3	3	0	0	28	7	1	36
District 9	South Chatham Strait-West Frederick Sound	71	79	38	997	111	97	90	1,333
District 10	East Frederick Sound	3	3	0	41	0	4	11	57
District 11	Juneau-Taku Inlet-Stephens Passage	444	489	23	4,685	248	5	220	5,182
District 12	Angoon-North Chatham Strait-East Chichagof	61	71	0	1,202	6	1	24	1,232
District 13	Sitka-Outer Baranof and Chichagof-Peril Strait	473	540	3	11,197	189	160	474	12,023
District 14	Icy Strait-Glacier Bay	70	75	0	560	74	20	11	665
District 15	Lynn Canal-Chilkat Inlet	1,160	1,183	156	10,042	528	220	674	11,620
Yakutat Forelands	Yakutat Forelands	157	198	57	5,211	881	5	112	6,267
Yakutat Bay-Troll	Yakutat Bay-Troll	171	218	586	843	107	41	17	1,594
Subtotal, state permit fisheries		**–**	**–**	**–**	**927**	**43,259**	**3,210**	**926**	**2,286**
Stikine River	Stikine River Federal Fishery	81	81	86	1,527	143	60	82	1,898
Total		**–**	**–**	**1,013**	**44,786**	**3,353**	**986**	**2,368**	**52,507**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

– 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, 1985–2014.

	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
2014	3,438	3,035	1,013	44,786	3,353	986	2,368	52,507
5-year average (2009–2013)	3,183	2,799	1,150	48,955	3,536	1,336	3,788	58,766
10-year average (2004–2013)	3,264	2,726	1,183	48,540	2,928	1,554	3,584	57,788
Historical average (1985–2013)	3,550	2,454	937	47,155	2,493	3,080	3,133	56,797

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

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, 2014.

Area	Permits fished		Estimated salmon harvest					
	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
Yakutat Management Area	93	117	643	6,055	988	46	129	7,862
Haines Management Area	432	442	156	10,042	528	220	674	11,620
Juneau Management Area	460	509	23	6,447	327	27	255	7,079
Juneau Personal Use Area	370	407	23	4,685	248	5	220	5,182
Angoon Subsistence Area	48	56	0	1,202	6	1	24	1,232
Hoonah Subsistence Area	42	46	0	560	74	20	11	665
Sitka Management Area	315	360	3	11,197	189	160	474	12,023
Petersburg Management Area	281	299	149	4,584	582	229	312	5,857
Petersburg Subsistence-Personal Use Area	75	80	18	936	316	21	83	1,373
Wrangell Subsistence-Personal Use Area	68	74	8	1,094	13	47	46	1,207
Kake Subsistence Area	57	63	38	1,027	111	101	102	1,379
Stikine River Federal Subsistence Fishery	81	81	86	1,527	143	60	82	1,898
Ketchikan Management Area	247	319	38	6,462	738	304	524	8,066
Ketchikan Personal Use Area	133	166	38	3,417	235	291	258	4,240
Kasaan Subsistence Area	37	46	0	655	107	1	197	960
Craig-Klawock-Hydaburg Subsistence Area	77	107	0	2,390	396	12	68	2,866
Total	**–**	**–**	**1,013**	**44,786**	**3,353**	**986**	**2,368**	**52,507**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

– 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, 2014.

	Permits		Estimated salmon harvest					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	17	16	0	157	0	1	3	162
Angoon	97	83	0	1,587	6	1	8	1,602
Auke Bay	4	4	0	8	10	10	3	31
Barrow	3	2	0	323	0	0	0	323
Coffman Cove	8	6	0	9	15	0	1	25
Craig	114	84	0	558	176	0	15	749
Douglas	55	53	2	338	83	2	24	449
Eielson AFB	1	1	0	25	0	0	0	25
Fairbanks	5	4	0	211	8	3	3	224
Gustavus	24	24	0	342	1	3	9	355
Haines	442	437	102	7,819	444	169	565	9,100
Hollis	29	24	0	353	58	11	99	521
Homer	1	1	6	2	0	0	0	8
Hoonah	107	93	0	1,108	47	15	77	1,247
Hydaburg	49	28	0	718	0	0	14	732
Juneau	706	638	53	7,152	253	12	268	7,738
Kake	138	124	38	995	111	101	91	1,337
Kasaan	12	10	0	110	36	0	0	146
Ketchikan	278	225	38	3,222	190	238	236	3,925
Klawock	113	86	0	1,106	214	13	127	1,461
Klukwan	10	10	4	364	46	25	4	443
Kodiak (city)	1	0	0	0	0	0	0	0
Metlakatla	8	7	0	0	0	0	0	0
Naukati Bay	8	4	0	0	0	0	0	0
Neets Bay	1	1	0	0	0	20	20	40
Palmer	1	1	0	2	0	0	4	6
Pelican	2	1	0	0	0	0	0	0
Petersburg	174	170	60	1,707	338	65	134	2,304
Point Baker	2	2	0	21	7	0	3	31
Port Alexander	5	5	0	0	0	0	0	0
Port Heiden	1	0	0	0	0	0	0	0
Port Protection	1	0	0	0	0	0	0	0
Rampart	1	1	0	0	0	0	0	0
Saxman	26	18	0	328	55	22	0	404
Sitka	608	531	3	8,996	185	160	361	9,706
Skagway	33	32	19	388	0	6	68	481
Soldotna	2	2	0	0	0	0	0	0
St Paul Island	1	1	0	0	0	0	0	0
Thorne Bay	17	14	0	51	0	0	24	75
Wasilla	4	3	0	35	0	0	7	41
Whale Pass	2	2	0	0	0	0	0	0
Wrangell	189	179	52	1,758	125	63	71	2,068
Yakutat	138	108	636	4,991	944	46	129	6,747
Total	**3,438**	**3,035**	**1,013**	**44,786**	**3,353**	**986**	**2,368**	**52,507**

Source ADF&G Division of Subsistence, ASFDB 2015 (ADF&G 2016).

Table 13-5.–Subsistence salmon harvests by community of residence for the federal Stikine River subsistence salmon fishery, Southeast region, 2014.

	Permits		Estimated salmon harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Petersburg	52	52	42	840	25	44	55	1,006
Wrangell	73	73	44	687	118	16	27	892
Total	**125**	**125**	**86**	**1,527**	**143**	**60**	**82**	**1,898**

Source Larson (2015).

Table 13-6.–Historical subsistence salmon harvests for the federal Stikine River subsistence salmon fishery, Southeast region, 2004–2014.

	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
2014	125	86	1,527	143	60	82	1,898
5-year average (2009–2013)	114	62	1,415	99	58	101	1,735
Historical average (2004–2013)	79	44	863	63	37	69	1,076

Source Larson (2015).

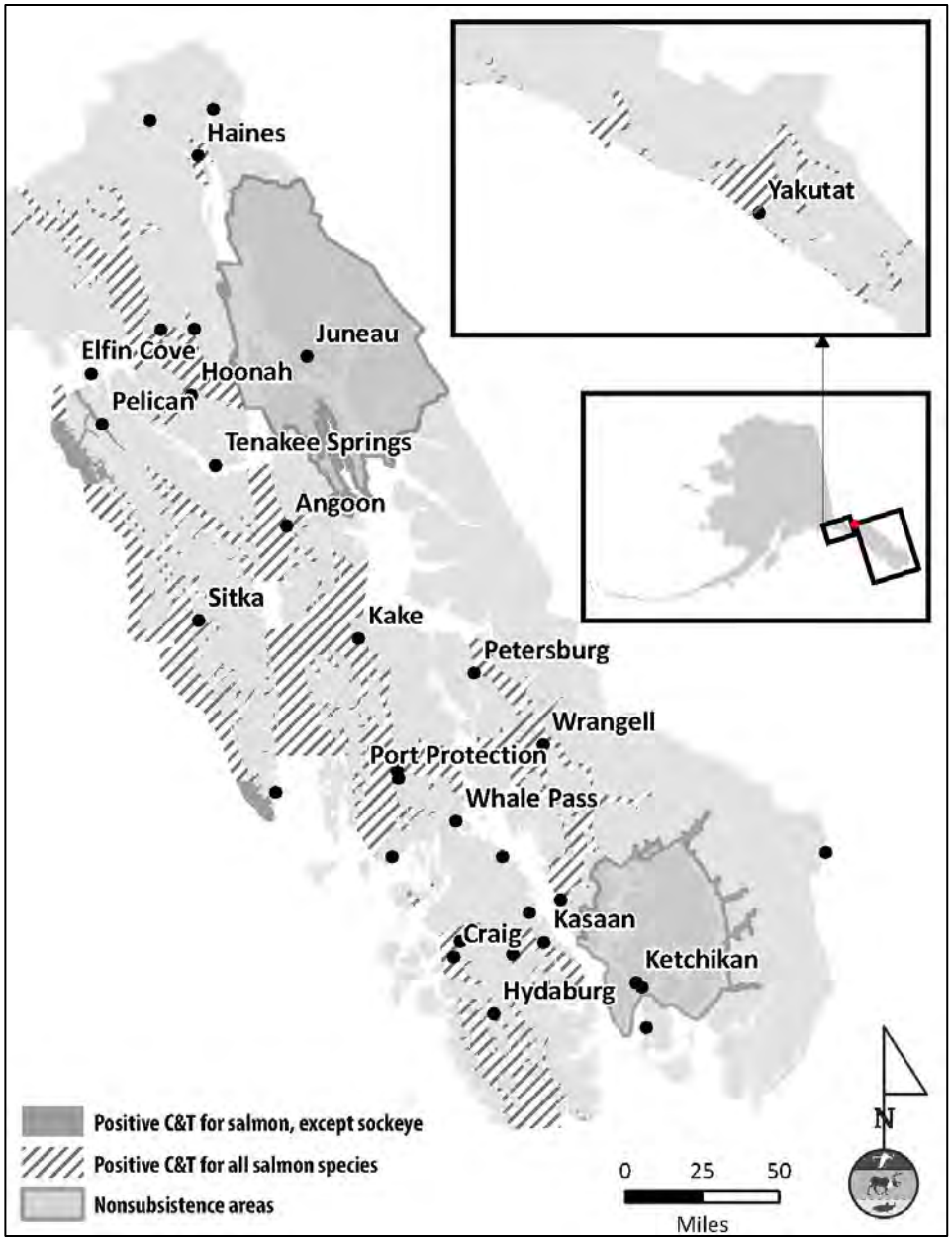

Figure 13-7.–Customary and traditional use findings for salmon, and nonsubsistence areas, Southeast region, 2013.

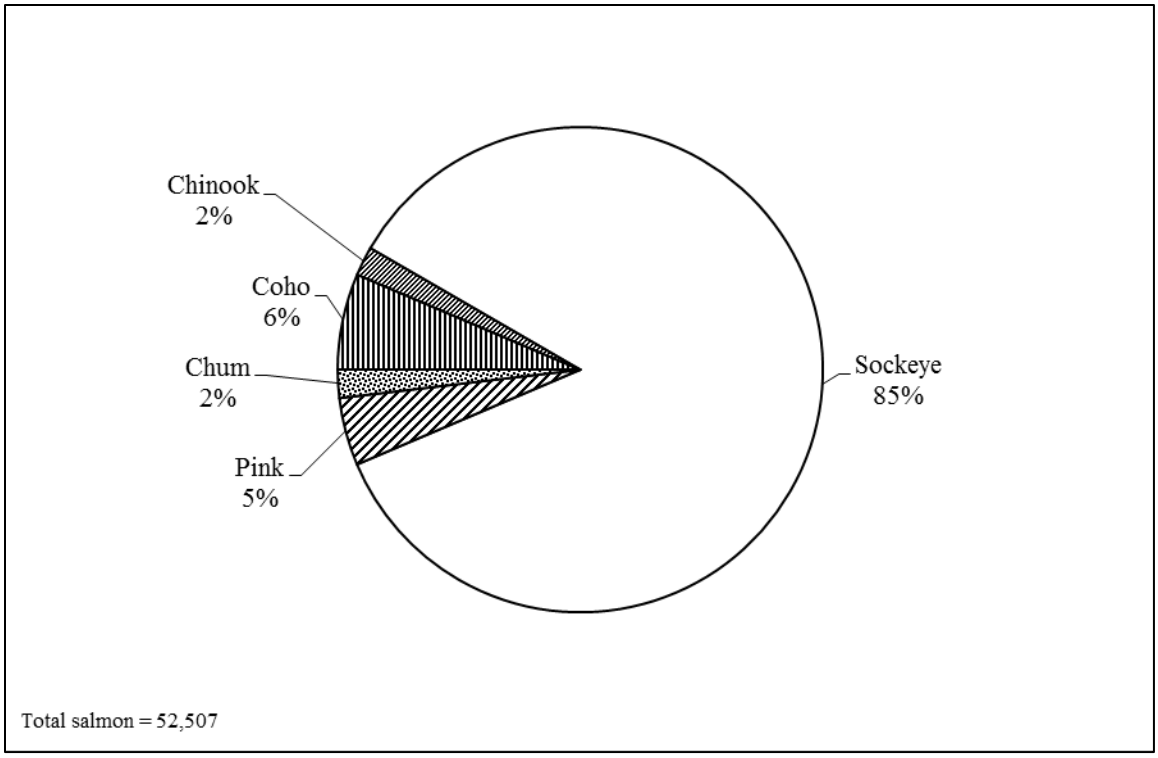

Figure 13-8.–Southeast region subsistence and personal use harvests by species, 2014.

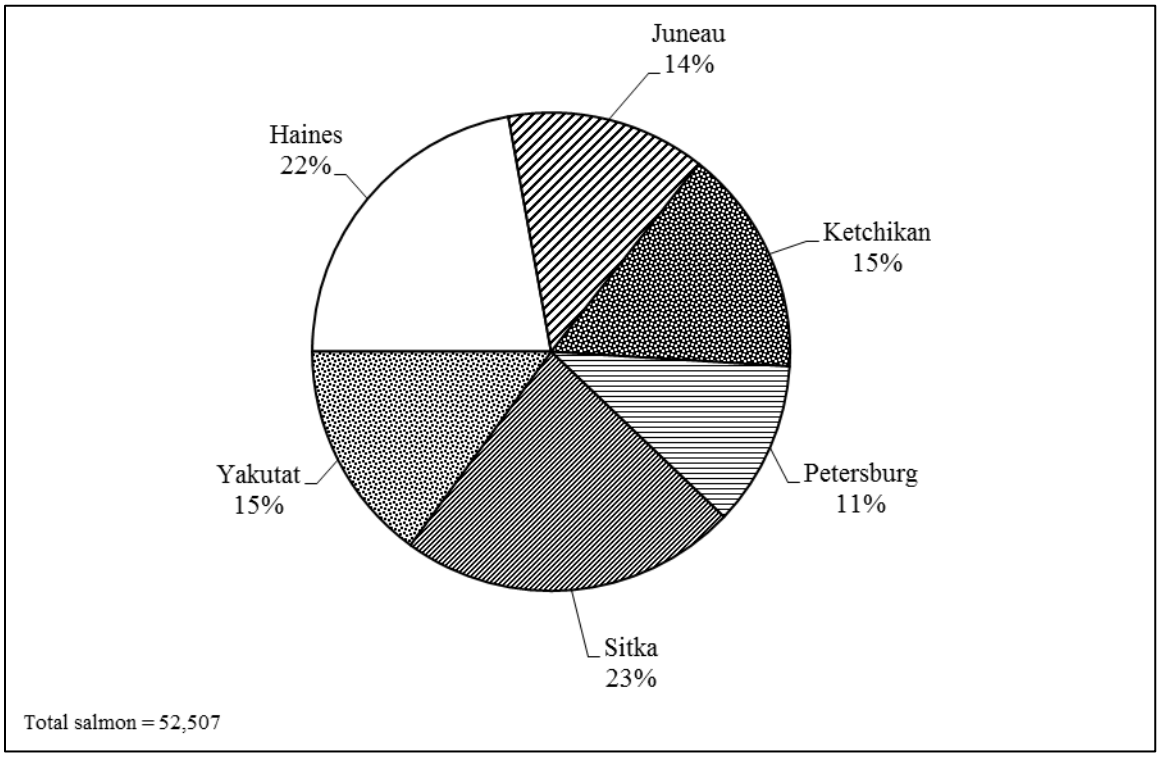

Figure 13-3.–Total salmon harvested in subsistence and personal use fisheries by management area, Southeast region, 2014.

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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 2014 is the result of the work of a number of Division of Subsistence staff. Former division employees Dave Caylor and Jeannie Heltzel, and current employee Brian Davis helped design and update the Alaska Subsistence Fisheries Database. Data for 2014 were compiled by Terri Lemons. Division personnel who authored report chapters were James A. Fall, Anna Godduhn, Lisa Hutchinson-Scarbrough, Bronwyn Jones, Malla Kukkonen, David Runfola, Lauren A. Sill, and Alida Trainor. We also acknowledge the contributions of Eunice Dyasuk, who through 2014 administered the division's subsistence salmon permit program for Bristol Bay in Dillingham, as well as Lisa Olson and Adam Knight, who reviewed and edited the report.

As noted in the report itself, this is the 16th 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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