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Alaska Subsistence Salmon Fisheries 2007 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 following 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	ft3/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 Department of Fish and Game	ADF&G
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
United States Code	U.S.C.
U.S. state use two-letter abbreviations e.g.,	AK, WA

Measures (fisheries)

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

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	HA
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)	log2, etc.
minute (angular)	‘
not significant	NS
null hypothesis	HO
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	“
standard deviation	SD
standard error	SE
variance:	
population	Var
sample	var

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The 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 State Library and on the Internet: http://www.subsistence.adfg.state.ak.us. 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. This report summarizes Alaska's 2007 subsistence fishing season based upon subsistence 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 appropriate, harvest information from "personal use" 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, sheefish, *Stenodus leucichthys*, whitefish, *Prosopium* spp., *Coregonus* spp., rainbow/steelhead trout, *Oncorhynchus mykiss* Arctic char/Dolly Varden, *Salvelinus alpinus, Salvelinus malma*, northern pike, *Esox lucius*, Chinook salmon, *Oncorhynchus tshawytscha*, coho salmon, *Oncorhynchus kisutch*, sockeye salmon, *Oncorhynchus nerka*, pink salmon, *Oncorhynchus gorbuscha*, chum salmon, *Oncorhynchus keta*, Norton Sound, Port Clarence, Kotzebue, Yukon, Kuskokwim, Bristol Bay, Chignik, Alaska Peninsula, Aleutian Islands, Kodiak, Cook Inlet, Prince William Sound, Southeast Alaska, Yakutat

CHAPTER 1: INTRODUCTION

This is the ninth report in a series of annual reports on Alaska's subsistence 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 (5 AAC 99.015): the Ketchikan Nonsubsistence Area, the Juneau Nonsubsistence Area, the Anchorage-Matsu-Kenai Nonsubsistence Area, the Fairbanks Nonsubsistence Area, and the Valdez Nonsubsistence Area. 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. Detailed annual reports about subsistence fisheries harvest assessment programs are prepared in the Northwest Alaska, Yukon River, and Kuskokwim River areas. However, until the Division of Subsistence annual subsistence fisheries report series began in 1999, there was no single source that compiled subsistence fisheries harvest data from all management areas. That is the purpose of this 2007 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 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 are mostly, but not entirely, limited to fisheries classified as subsistence by regulation, which, especially for salmon, generally means fish taken with gillnets, beach seines, 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 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 harvests of salmon. Information for all areas of the state where noncommercial salmon fisheries occur is covered in this report. We have 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 have been classified as subsistence fisheries in the past, and because they are administered in programs that collect subsistence harvest data. We have not included data from the Cook Inlet Management Area personal use salmon fisheries in this statewide overview, primarily because most of these fisheries have relatively short histories and are administered separately from the Cook Inlet subsistence fisheries.

The data quality and quantity for other finfish 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 Historic 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) (Caylor and Brown 2006). The database is written for Microsoft Access[1] software. 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, available to the public in November 2009, 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 noncommercial salmon fisheries research 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,[2] formerly the Community Profile Database.[3] 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

1. Product names are given for scientific completeness; they do not constitute product endorsement.
2. ADF&G Division of Subsistence, Community Subsistence Information System (CSIS): http://www.subsistence.adfg.state.ak.us/CSIS/.
3. ADF&G Division of Subsistence, Community Profile Database (CPDB): http://www.subsistence.adfg.state.ak.us/geninfo/publctns/cpdb.cfm.

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. However, one goal of this annual report series on Alaska's subsistence fisheries is to treat each fishery in a consistent, systematic manner, rather than reiterate previously published data.

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 recommendations. The recommendations are available as a separate document (ADF&G and AITC 2000a); a final report with an overview of all the project activities is also available (ADF&G and AITC 2000b). 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 (2007). Both date and numeric ranges are inclusive. The following list illustrates named-ranges used in this report and their meanings.

- 5-year average: 2002–2006
- 10-year average: 1997–2006
- 15-year average: 1992–2006
- Historical average: yyyy–2006, beginning of range varies depending on available data

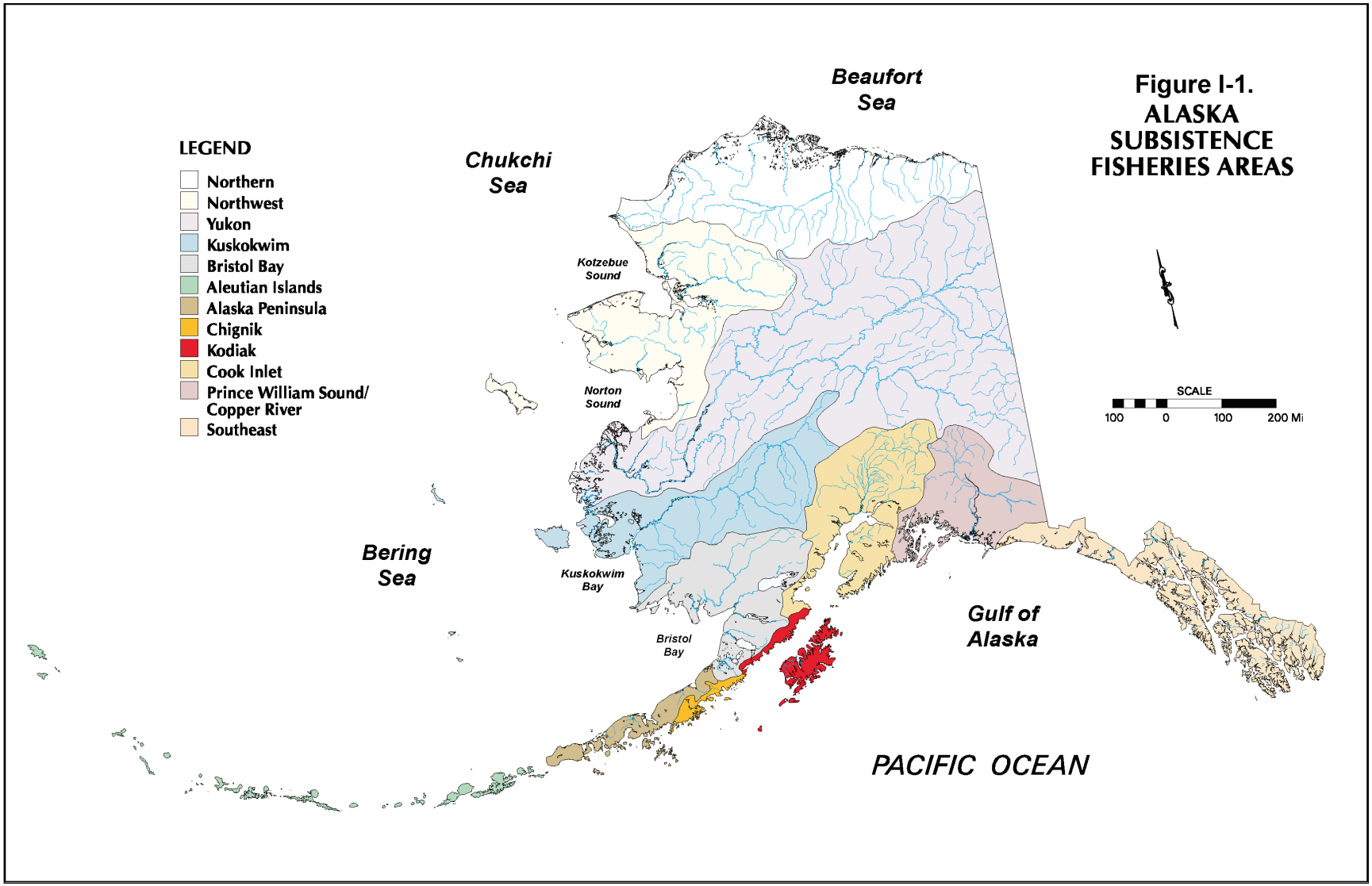

Figure 1-1.–Alaska subsistence fisheries areas.

CHAPTER 2: OVERVIEW OF SUBSISTENCE FISHERIES IN ALASKA

Subsistence Harvests in Rural Alaska

Of the estimated 43.7 million pounds of wild foods annually harvested for subsistence purposes in rural Alaska communities, subsistence fisheries contribute about 60% from finfish and 2% from shellfish (Wolfe 2000:2, 3) (Figure 2-1). On average, the subsistence fisheries harvest provides about 230 lb of food per person annually in rural Alaska (Wolfe 2000:2). Although producing a major portion of the food supply, subsistence harvests represent just a small part of the annual harvest of wild resources in Alaska: about 2%. Commercial fisheries take 97% of the wild resource harvest, and sport fisheries and hunts take about 1%.

Subsistence Salmon Harvests in 2007

The estimated total subsistence harvest of salmon in Alaska in 2007, based on annual harvest assessment programs, was 1,006,608 fish (Table 2-1).[4] The estimated statewide harvest by species was as follows: 459,372 sockeye salmon *O. nerka* (46%), 273,951 chum salmon *O. keta* (27%), 157,813 Chinook salmon *O. tshawytscha* (16%), 80,685 coho salmon *O. kisutch* (8%), and 34,787 pink salmon *O. gorbuscha* (3%) (Figure 2-2). Table 2-2 reports subsistence harvests in 2007 by species and participants' place of residence, with harvests from all subsistence fisheries combined.

In 2007, fisheries in 7 management areas accounted for 93% of the total estimated statewide subsistence salmon harvest (Table 2-1; Figure 2-3). These were the Yukon area (271,618 salmon; 28% of the statewide total); the Kuskokwim area (187,502 salmon; 19%); the Chitina Subdistrict of the Prince William Sound Management Area (combining the state personal use harvest and the federal subsistence harvest) (137,155 salmon; 13%); the Bristol Bay Management Area (124,679 salmon; 12%); the Glennallen Subdistrict of the Prince William Sound Management Area (91,110 salmon; 9%); Northwest Alaska[5] (74,312 salmon; 7%); and Southeast Alaska (49,737 salmon; 5%).[6]

The Chitina Subdistrict fishery was classified by the BOF as a subsistence fishery prior to 1984, a personal use fishery in 1984, a subsistence fishery in 1985, personal use again from 1986 through 1999, subsistence again from 2000 through 2002, and personal use once again starting in 2003. Because Chitina was a personal use fishery in 1999, the first year of this report series, it was not included in that year's annual report. Chitina was added to the statewide report in 2000 because it had been reclassified as a subsistence fishery.[7] The 2 subdistricts of the Upper Copper

4. Personal use salmon harvests from Southeast Alaska, the Yukon Area, and the Chitina Subdistrict of the Upper Copper River are included. Personal use fisheries that take place in the nonsubsistence area of the Cook Inlet Management Area are not included. For background, see Chapter 1.

5. Subsistence harvest estimates for Northwest Alaska for 2003 and 2004 do not include the regional center of Kotzebue, which had been included in the harvest assessment program since 1994. No subsistence fisheries harvest data were collected in the Kotzebue area for 2005 through 2007. Therefore, the estimated harvest totals for Northwest Alaska as reported here since 2003 are incomplete. See also Chapter 3.

6. As discussed further in Chapter 13, state subsistence regulations for the Southeast region focus on sockeye salmon. Small harvests of Chinook and coho are reported on permit returns as incidental to sockeye harvests. The major portion of coho and Chinook harvests for home uses in Southeast is taken with rod and reel (sport gear). Thus the Southeast region is particularly underrepresented in statewide overviews based on permit data.

7. In February 2003, the Alaska Board of Fisheries reversed its decision of December 1999 and reclassified the Chitina Subdistrict dip net fishery as a personal use fishery. Also, beginning in 2002, the National Park Service,

River District, Chitina and Glennallen, accounted for 22% of the statewide harvest in 2007 (228,265 salmon), in combination, ranking second after the Yukon area.

The largest estimated subsistence harvests of Chinook salmon in 2007 occurred in the Kuskokwim area (72,097 salmon; 45%), followed by the Yukon area (55,292 salmon; 35%), Bristol Bay area (15,444 salmon; 10%), the Glennallen Subdistrict (4,125 salmon; 3%), Northwest area (3,829 salmon; 2%), and the Chitina Subdistrict (2,811 salmon; 2%) (Figure 2-4). For sockeye salmon, the largest estimated subsistence harvests in 2007 were in the Chitina Subdistrict (132,555 salmon; 29%), followed by the Bristol Bay area (99,549 salmon; 22%), the Glennallen Subdistrict (86,678 salmon; 19%), the Southeast–Yakutat region (43,100 salmon; 9%), the Kuskokwim area (34,577 salmon; 8%), the Kodiak area (24,556 salmon; 5%), the Northwest area (10,407 salmon; 2%), and the Chignik area (10,191 salmon; 2%) (Figure 2-5).

In 2007, as in past recent years, 3 areas dominated the subsistence chum salmon estimated harvest: the Yukon area (192,195 salmon; 71% of the statewide harvest), Kuskokwim area (53,299 salmon; 19%), and Northwest area (22,624 salmon; 8%) (Figure 2-6). Of the statewide estimated subsistence harvest of coho salmon in 2007, the greatest share was taken in the Kuskokwim area (26,269 salmon; 33%), followed by the Yukon area (22,013 salmon; 27%), the Northwest area (14,269 salmon; 18%), Bristol Bay area (4,880 salmon; 6%), Kodiak area (4,630 salmon; 6%), and the Alaska Peninsula area (2,648 salmon; 3%). (Figure 2-7). Finally, the largest portion by far of the statewide estimated pink salmon subsistence harvest in 2007 occurred in the Northwest Alaska area (23,182 salmon; 67%), followed by the Southeast region (3,273 salmon; 9%), the Yukon area (2,118 salmon; 6%), Kodiak area (1,532 salmon; 4%), Kuskokwim area (1,259; 4%), and the Chignik area (996 salmon; 3%) (Figure 2-8).

Statewide Subsistence Salmon Harvests, 1994–2007

Table 2-3 reports historical estimated subsistence and personal use salmon harvests for 1994 through 2007 based on annual harvest assessment programs. Harvest estimates for the Chitina Subdistrict have been included for all years, even though the state fishery was classified as personal use by the BOF in all years except 2000–2002. 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 14-year period reflected in Table 2-3 shows a general downward trend, but recent estimates indicate this trend may be stabilizing. The 2007 estimate of 1,006,608 salmon was about the same as the 2003 estimate of 1,003,920 salmon, but lower than the 2004 estimate of 1,066,692 salmon, the 2005 estimate of 1,052,564 salmon, and the 2006 estimate of 1,057,451 salmon. The 2007 estimate was lower than the recent 5-year average (1,026,916 salmon) and the recent 10-year average (1,058,343 salmon).

on behalf of the FSB, began issuing federal subsistence permits for the Chitina and Glennallen subdistricts. Harvests reported from federal permit returns are included in the totals discussed in this chapter. For additional discussion, see Chapter 12.

Table 2-1.–Alaska subsistence salmon harvests, 2007.

Fishery[a]	Households or permits		Estimated salmon harvests					
	Total[b]	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak District	9	8	0	367	2	0	29	398
Alaska Peninsula Management Area	150	124	100	6,872	2,648	498	693	10,811
Batzulnetas Fishery	0	0	0	0	0	0	0	0
Bristol Bay Management Area	1,063	917	15,444	99,549	4,880	3,991	815	124,679
Chignik Management Area	128	83	84	10,191	1,936	165	996	13,372
Chitina Subdistrict: State[c]	8,378	7,187	2,782	131,460	1,747	0	0	135,990
Chitina Subdistrict: Federal	97	86	29	1,095	41	0	0	1,165
Copper River Flats	469	445	1,211	6,458	16	2	6	7,694
Glennallen Subdistrict	1,458	1,277	4,125	86,678	308	0	0	91,110
Kodiak Management Area	1,879	1,879	207	24,556	4,630	240	1,532	31,165
Kuskokwim Management Area	4,618	1,356	72,097	34,577	26,269	53,299	1,259	187,502
Northwest Alaska[d]	1,122	1,073	3,829	10,407	14,269	22,624	23,182	74,312
Port Graham and Koyuktolik Subdistricts	24	24	92	532	0	63	74	761
Prince William Sound (General)	3	3	0	30	0	0	0	30
PWS Eastern District (Tatitlek)	14	0	0	0	0	0	0	0
PWS Southwestern District (Chenega Bay)	4	3	2	293	27	55	4	381
Seldovia Fishery	19	15	24	66	12	35	103	239
Southeast Region	3,156	1,622	1,199	43,100	1,444	721	3,273	49,737
Tyonek Fishery	84	67	1,281	200	123	2	3	1,609
Unalaska District	178	126	14	2,575	254	42	683	3,569
Upper Yentna Fishery	22	22	0	367	66	18	17	468
Yukon Management Area	2,861	1,534	55,292	0	22,013	192,195	2,118	271,618
Total	25,736	17,851	157,813	459,372	80,685	273,951	34,787	1,006,608

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

a. Estimates for the Yukon and Southeast fisheries include both subsistence and personal use harvests.

b. 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.

c. Classified as a personal use fishery in 2007. Included in this table due to its historical classification as a subsistence fishery.

d. Does not include the Kotzebue Area.

Table 2-2.–Alaska subsistence salmon harvests by species and place of residence, 2007.

	Households or permits		Estimated salmon harvests					
Community	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak Station	7	6	0	292	2	0	29	323
Akhiok	7	7	0	100	0	0	12	112
Akiachak	139	86	7,021	2,896	2,167	4,407	672	17,164
Akiak	79	48	3,463	3,107	1,089	3,435	16	11,109
Alakanuk	125	54	1,257	0	857	8,959	32	11,105
Alatna	10	6	0	0	0	18	0	18
Aleknagik	21	15	284	1,021	94	8	0	1,407
Allakaket	38	36	53	0	66	4,390	0	4,509
Ambler	1	1	0	6	0	0	0	6
Anaktuvuk Pass	1	1	0	15	0	0	0	15
Anchor Point	11	11	17	197	1	0	0	215
Anchorage	2,434	2,068	1,622	46,751	554	162	97	49,186
Anderson	6	5	2	136	10	0	0	148
Angoon	84	15	6	146	134	0	95	381
Aniak	162	127	2,737	953	2,435	3,391	20	9,537
Anvik	34	29	1,321	0	807	5,679	0	7,807
Atmautluak	63	36	1,364	828	361	1,802	16	4,372
Auke Bay	33	18	0	150	0	0	0	150
Barrow	7	6	41	251	5	0	0	296
Beaver	29	19	1,244	0	354	395	0	1,993
Bethel	1,770	445	29,548	13,562	12,798	15,836	383	72,127
Bettles	25	12	0	0	0	0	0	0
Big Lake	42	36	36	586	10	0	0	632
Birch Creek	18	6	113	0	0	0	0	113
Brevig Mission	45	44	40	2,385	354	1,620	773	5,172
Cantwell	5	5	1	30	0	0	0	31
Central	12	12	334	2	0	0	0	336
Chalkyitsik	30	22	0	0	0	213	0	213
Chefornak	92	1	0	2	0	0	0	2
Chenega Bay	3	3	2	293	27	55	4	381
Chickaloon	13	10	39	842	21	0	0	901
Chignik Bay	15	9	35	1,792	542	0	0	2,368
Chignik Lagoon	30	11	16	3,327	95	3	0	3,442
Chignik Lake	27	21	6	2,638	64	0	96	2,805
Chiniak	23	23	0	279	142	6	35	462
Chitina	43	37	179	3,468	9	0	0	3,656
Chuathbaluk	36	2	147	41	47	123	0	358
Chugiak	159	137	105	2,769	35	17	0	2,926
Circle	12	11	1,057	0	0	1,486	0	2,543
Clarks Point	10	10	120	264	79	74	10	547
Clear	7	6	1	59	0	0	0	60
Clear AFB	1	0	0	0	0	0	0	0
Coffman Cove	2	1	0	0	0	0	0	0
Cold Bay	31	27	0	552	151	2	0	706
Coldfoot	2	2	1	12	0	0	0	13
Cooper Landing	4	4	4	144	0	0	0	148
Copper Center	176	163	416	11,672	35	0	0	12,123
Cordova	391	369	1,005	4,935	11	2	6	5,959
Craig	113	33	1	617	22	27	662	1,330

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Table 2-2. Page 2 of 6.

Community	Households or permits		Estimated salmon harvests					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Crooked Creek	30	1	12	0	0	0	0	12
Delta Junction	375	345	188	6,601	240	0	0	7,029
Denali National Park	14	11	6	158	1	0	0	165
Dillingham	315	265	6,988	14,552	1,736	1,272	199	24,747
Dot Lake	3	3	1	73	0	0	0	74
Douglas	45	19	19	302	33	0	241	596
Dutch Harbor	86	61	7	1,279	64	6	88	1,445
Eagle	39	37	1,999	12	4	18,691	0	20,706
Eagle River	375	344	330	7,556	37	9	2	7,934
Eek	78	2	110	16	0	130	0	256
Egegik	7	7	118	198	260	57	25	658
Eielson AFB	99	83	26	1,493	10	0	0	1,529
Ekwok	19	18	647	322	226	72	0	1,267
Elfin Cove	1	1	0	0	0	34	0	34
Elim	59	59	260	0	2,271	2,307	1,735	6,573
Elmendorf AFB	14	13	2	164	0	0	0	166
Emmonak	156	89	2,326	0	1,032	11,616	51	15,025
Ester	75	65	89	1,482	5	0	0	1,575
Fairbanks	3,244	2,779	4,299	54,001	1,572	6,567	0	66,438
False Pass	3	2	0	74	90	8	32	203
Fort Greely	16	12	7	311	0	0	0	317
Fort Richardson	10	9	5	191	0	0	0	195
Fort Wainwright	74	59	21	877	1	0	0	900
Fort Yukon	151	54	4,076	0	2,821	8,375	0	15,272
Gakona	56	52	235	5,059	30	0	0	5,324
Galena	149	44	2,511	0	425	2,042	0	4,978
Girdwood	47	39	17	536	0	2	0	555
Glennallen	240	204	523	8,552	135	0	0	9,210
Golovin	41	41	87	158	422	659	1,799	3,125
Goodnews Bay	62	3	24	66	20	7	0	117
Grayling	48	14	1,500	0	271	958	0	2,729
Gustavus	13	9	0	134	0	0	0	134
Haines	375	311	120	6,058	152	253	707	7,290
Healy	43	39	19	539	1,463	1,090	0	3,111
Herendeen Bay	1	1	0	0	0	0	0	0
Hollis	4	0	0	0	0	0	0	0
Holy Cross	60	36	2,902	0	213	568	0	3,683
Homer	60	53	138	1,434	11	108	79	1,771
Hoonah	60	8	0	0	0	0	0	0
Hooper Bay	196	63	430	0	26	12,298	113	12,867
Hope	1	1	0	0	0	0	0	0
Houston	8	8	3	81	0	0	0	84
Hughes	29	18	8	0	100	1,213	0	1,321
Huslia	69	30	146	0	592	3,515	0	4,253
Hydaburg	55	7	0	456	0	0	0	456
Hyder	1	1	0	0	0	0	0	0
Igiugig	7	6	1	1,828	0	2	0	1,831
Iliamna	35	34	1	5,388	0	0	0	5,389
Indian	3	3	2	28	0	0	0	30

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Table 2-2. Page 3 of 6.

Community	Households or permits		Estimated salmon harvests					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Juneau	725	393	72	7,415	221	4	312	8,025
Kake	146	53	50	1,600	55	55	85	1,846
Kaktovik	2	2	2	37	0	0	0	39
Kaltag	60	19	1,456	0	204	1,019	0	2,679
Karluk	1	1	0	0	0	0	0	0
Kasaan	8	3	0	0	0	0	0	0
Kasigluk	129	0	0	0	0	0	0	0
Kasilof	12	12	11	387	0	0	0	398
Kenai	19	19	59	68	11	0	0	138
Ketchikan	220	102	10	1,948	2	126	630	2,717
King Cove	53	47	1	3,179	2,217	251	164	5,812
King Salmon	93	81	131	5,182	270	91	42	5,715
Kipnuk	175	0	0	0	0	0	0	0
Klawock	96	22	4	1,893	0	0	0	1,898
Kodiak (city)	1,417	1,411	182	21,495	2,785	121	775	25,357
Kokhanok	29	20	6	15,705	26	22	1	15,760
Koliganek	14	14	1,054	1,216	194	600	16	3,080
Kongiganak	92	0	0	0	0	0	0	0
Kotlik	98	43	1,569	0	284	5,547	129	7,529
Kotzebue	1	1	0	0	0	0	0	0
Koyukuk	35	23	811	0	189	1,922	0	2,922
Kwethluk	167	97	4,924	2,630	1,186	4,517	63	13,320
Kwigillingok	95	0	0	0	0	0	0	0
Lake Minchumina	1	1	1	14	0	0	0	15
Larsen Bay	33	33	4	600	52	1	31	688
Levelock	1	1	1	102	0	6	0	109
Lime Village	15	0	0	0	0	0	0	0
Lower Kalskag	83	57	1,043	531	337	1,461	0	3,372
Manley Hot Springs	17	16	335	36	1,126	3,559	0	5,056
Manokotak	21	20	440	1,915	32	51	6	2,444
Marshall	73	31	2,557	36	922	3,859	0	7,374
McGrath	135	88	392	376	275	315	0	1,357
McKinley Park	1	0	0	0	0	0	0	0
Meadow Lakes	1	1	0	40	0	0	0	40
Mekoryuk	79	1	0	0	0	134	0	134
Metlakatla	3	3	0	0	0	0	0	0
Minto	40	37	82	0	155	237	0	474
Moose Pass	2	2	0	100	0	0	0	100
Mountain Village	146	61	2,077	0	1,027	9,177	87	12,368
Meyers Chuck	1	1	0	0	0	0	0	0
Naknek	94	86	249	10,682	408	114	82	11,535
Napakiak	100	53	2,318	1,152	906	2,537	0	6,913
Napaskiak	90	47	4,965	1,346	521	2,489	0	9,320
Naukati Bay	1	1	0	0	0	0	0	0
Nelson Lagoon	2	1	18	0	0	0	0	18
Nenana	60	57	911	1,028	4,495	23,292	0	29,725
New Stuyahok	46	35	3,098	3,597	612	781	197	8,285
Newhalen	20	20	0	6,362	0	0	0	6,362
Newtok	79	0	0	0	0	0	0	0

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Table 2-2. Page 4 of 6.

Community	Households or permits		Estimated salmon harvests					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Nightmute	46	0	0	0	0	0	0	0
Nikiski	8	8	62	399	55	15	2	533
Nikolaevsk	4	3	2	63	0	0	0	65
Nikolai	34	1	0	0	0	16	0	16
Ninilchik	14	13	89	451	0	0	0	540
Noatak	1	1	1	22	0	0	0	23
Nome	329	328	47	6,176	1,618	4,709	1,120	13,670
Nondalton	29	26	0	7,902	0	0	0	7,903
Noorvik	1	1	0	30	0	0	0	30
North Pole	841	716	422	16,182	109	0	0	16,713
Northway	4	4	2	121	0	0	0	123
Nulato	86	30	2,431	0	130	1,701	0	4,262
Nunam Iqua (Sheldon Point)	35	24	907	0	92	2,477	170	3,646
Nunapitchuk	112	65	4,664	2,124	1,765	6,588	11	15,152
Old Harbor	32	32	3	603	703	41	452	1,802
Oscarville	16	10	1,048	537	134	725	0	2,444
Ouzinkie	34	34	4	885	450	56	118	1,513
Palmer	586	525	601	14,649	82	31	0	15,362
Paxson	1	1	1	3	0	0	0	4
Pedro Bay	19	15	0	5,487	0	0	0	5,487
Pelican	9	5	0	45	0	0	0	45
Perryville	34	29	25	1,495	1,231	162	899	3,812
Petersburg	72	46	0	296	179	42	24	541
Pilot Point	7	6	13	349	76	13	4	454
Pilot Station	102	46	2,028	0	263	4,452	0	6,743
Pitka's Point	27	19	320	0	38	559	66	983
Platinum	16	0	0	0	0	0	0	0
Point Baker	3	3	0	25	1	9	15	50
Point Hope	2	2	2	0	0	0	0	2
Port Alexander	4	2	0	0	0	0	0	0
Port Alsworth	31	29	0	3,238	0	0	0	3,238
Port Graham	24	24	92	532	0	63	74	761
Port Lions	36	36	33	581	308	7	94	1,023
Port Moller	3	2	0	381	0	0	0	381
Port Protection	2	1	0	0	0	0	0	0
Portage Creek	1	1	37	4	0	6	0	47
Quinhagak	152	97	3,412	1,303	1,143	1,725	33	7,615
Rampart	4	2	250	0	50	275	0	575
Red Devil	13	10	284	299	181	160	0	924
Ruby	57	22	1,594	0	168	2,375	0	4,137
Russian Mission	57	19	1,301	0	259	1,289	3	2,852
Saint Marys	127	59	3,573	0	97	8,932	32	12,634
Saint Michaels	115	103	452	9	622	2,119	265	3,467
Saint Paul	1	0	0	0	0	0	0	0
Salcha	71	58	58	1,042	20	14	0	1,134
Sand Point	38	29	55	2,269	190	156	420	3,090
Saxman	4	0	0	0	0	0	0	0
Scammon Bay	74	31	768	0	84	4,057	1,435	6,344

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Table 2-2. Page 5 of 6.

Community	Households or permits		Estimated salmon harvests					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Seldovia	22	17	24	66	21	35	104	249
Seward	22	22	18	303	0	0	0	321
Shageluk	41	18	448	0	267	1,124	0	1,839
Shaktoolik	68	60	515	28	1,443	465	2,708	5,158
Sitka	802	431	14	15,776	34	30	332	16,186
Skagway	6	5	0	19	0	10	0	29
Skwentna	9	9	0	122	50	9	15	196
Slana	13	12	10	665	0	0	0	675
Sleetmute	32	24	903	1,350	365	860	34	3,512
Soldotna	31	28	13	250	0	0	0	263
South Naknek	26	22	171	1,967	287	117	134	2,676
Stebbins	136	117	743	0	2,006	4,980	1,881	9,609
Sterling	9	7	4	73	0	0	0	77
Stevens Village	31	25	610	0	0	453	0	1,063
Stony River	16	0	0	0	0	0	0	0
Sutton	53	48	17	1,183	20	0	0	1,220
Takotna	20	3	0	0	0	0	0	0
Talkeetna	19	18	3	253	0	0	0	256
Tanana	99	48	5,498	0	2,369	26,825	0	34,692
Tatitlek	17	7	6	1	0	0	0	7
Telida	2	0	0	0	0	0	0	0
Teller	54	54	16	1,184	93	2,307	592	4,192
Tenakee Springs	3	3	1	0	1	0	0	2
Thorne Bay	36	20	0	67	7	0	0	74
Togiak	45	33	1,227	2,521	110	420	19	4,298
Tok	86	74	49	2,502	32	0	0	2,583
Toksook Bay	106	1	16	5	0	125	4	150
Trapper Creek	9	9	2	146	3	0	0	151
Tuluksak	88	0	0	0	0	0	0	0
Tuntutuliak	88	46	3,295	1,374	443	2,421	7	7,540
Tununak	104	0	0	0	0	0	0	0
Twin Hills	1	1	6	1	0	0	0	7
Two Rivers	26	20	8	387	5	0	0	400
Tyonek	53	46	1,013	132	43	0	0	1,188
Uganik Bay	1	1	0	0	5	0	0	5
Ugashik	7	7	21	306	155	0	0	482
Unalakleet	220	213	1,570	255	4,916	1,117	10,288	18,146
Unalaska	86	61	7	1,370	190	37	595	2,199
Unknown	2	0	0	0	0	0	0	0
Upper Kalskag	30	11	407	128	107	95	0	737
Valdez	236	199	237	6,809	8	0	1	7,056
Venetie	51	21	1,002	0	0	828	0	1,830
Ward Cove	25	16	0	170	0	22	62	254
Wasilla	977	852	1,204	26,648	311	43	0	28,206
Whale Pass	2	1	0	0	0	0	0	0
White Mountain	54	53	101	214	524	2,342	2,022	5,203
Whittier	1	1	0	25	0	0	0	25
Willow	48	47	23	1,163	35	4	0	1,225
Wrangell	83	65	39	411	21	80	85	636

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Table 2-2. Page 6 of 6.

	Households or permits		Estimated salmon harvests					
Community	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Yakutat	108	28	836	5,837	594	4	16	7,287
Other USA	28	26	3	153	14	0	0	170
Unknown Community	76	68	478	237	6	166	0	886
Total	25,736	17,851	157,813	459,372	80,685	273,951	34,787	1,006,608

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 2-3.–Historical Alaska subsistence and personal use salmon harvests, 1994-2007.

	Households or permits		Estimated salmon harvests					
Year	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	22,553	16,492	188,134	445,109	138,101	417,199	94,469	1,283,012
1995	22,358	15,770	186,422	386,034	125,909	499,992	54,908	1,253,264
1996	23,708	18,751	161,976	416,467	124,786	498,525	80,928	1,282,682
1997	26,754	21,782	182,174	525,417	99,043	347,808	41,543	1,195,985
1998	27,774	22,264	177,017	466,386	95,211	302,037	74,216	1,114,867
1999	27,854	22,993	161,333	511,044	91,896	339,242	33,253	1,136,768
2000	25,365	20,983	134,270	422,002	103,212	248,598	52,710	960,791
2001	28,641	21,907	165,039	487,570	101,291	242,035	44,501	1,040,436
2002	24,497	19,189	144,777	398,134	94,365	229,922	86,754	953,952
2003	25,018	19,096	166,593	420,579	109,172	239,648	67,929	1,003,920
2004	27,046	20,923	176,416	453,201	103,772	241,022	92,281	1,066,692
2005	25,060	18,513	155,658	461,804	100,095	257,977	77,031	1,052,564
2006	25,881	18,558	142,658	452,477	96,024	291,971	74,320	1,057,451
2007	25,736	17,851	157,813	459,372	80,685	273,951	34,787	1,006,608
5-year average (2002–2006)	25,500	19,256	157,220	437,239	100,686	252,108	79,663	1,026,916
10-year average (1997–2006)	26,389	20,621	160,593	459,861	99,408	274,026	64,454	1,058,343
Historical average (1994–2006)	25,578	19,786	164,805	449,709	106,375	319,690	67,296	1,107,876

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

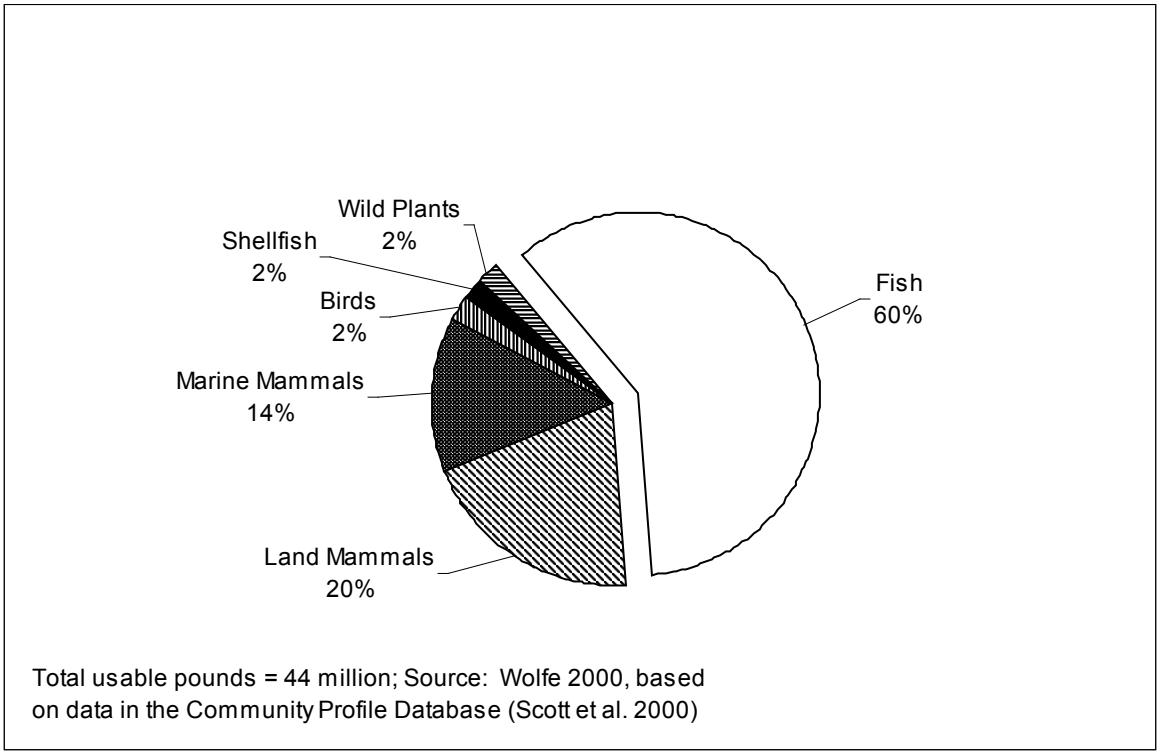

Figure 2-1.–Composition of subsistence harvest by rural Alaska residents.

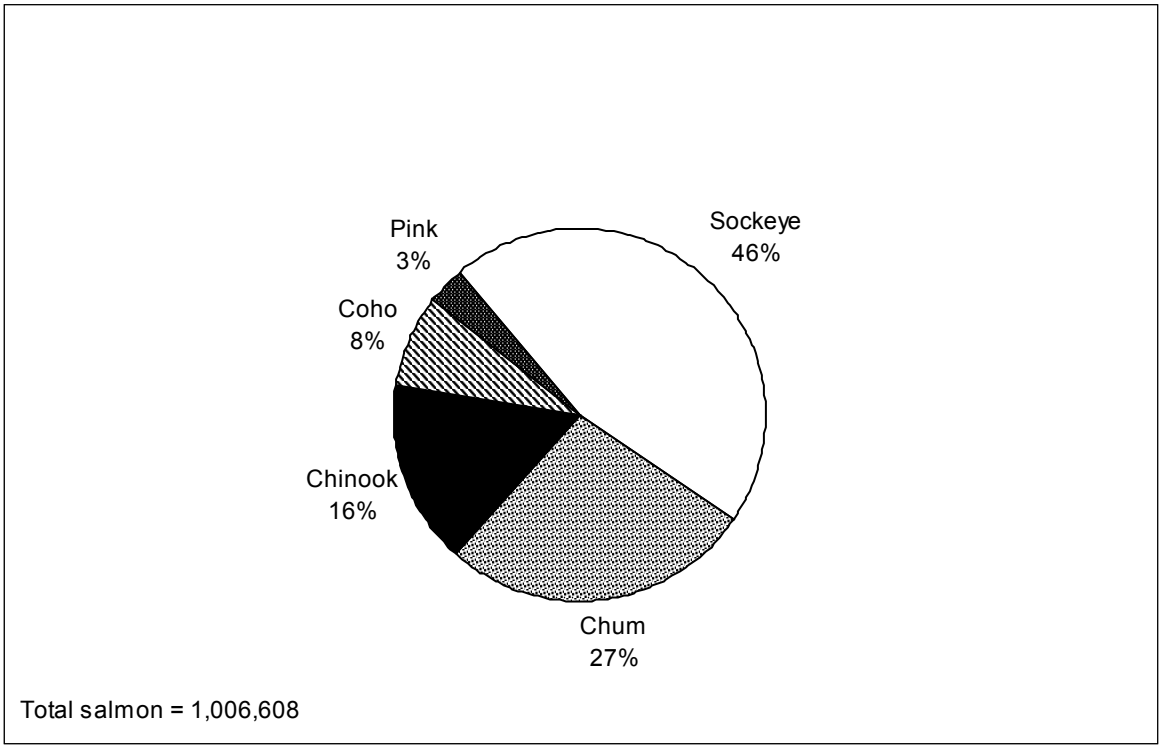

Figure 2-2.–Alaska subsistence salmon harvest by species, 2007.

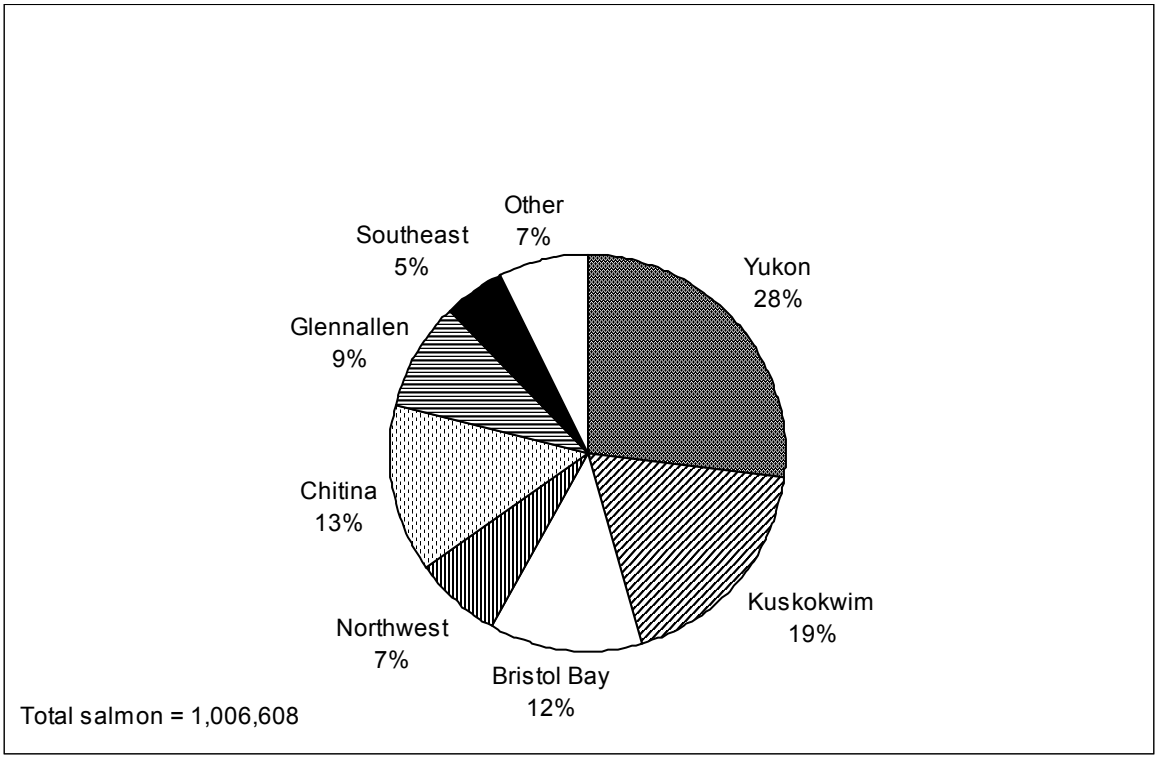

Figure 2-3.–Alaska subsistence salmon harvest by area, 2007.

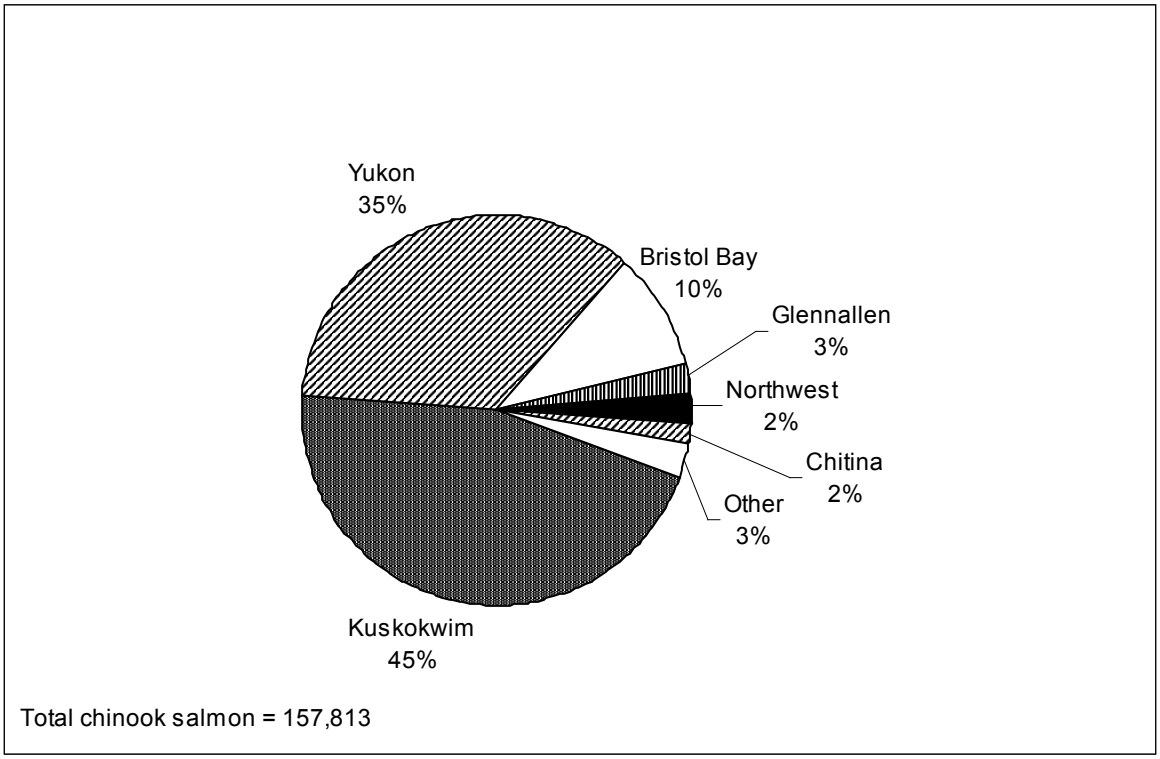

Figure 2-4.–Subsistence Chinook salmon harvest by area, 2007.

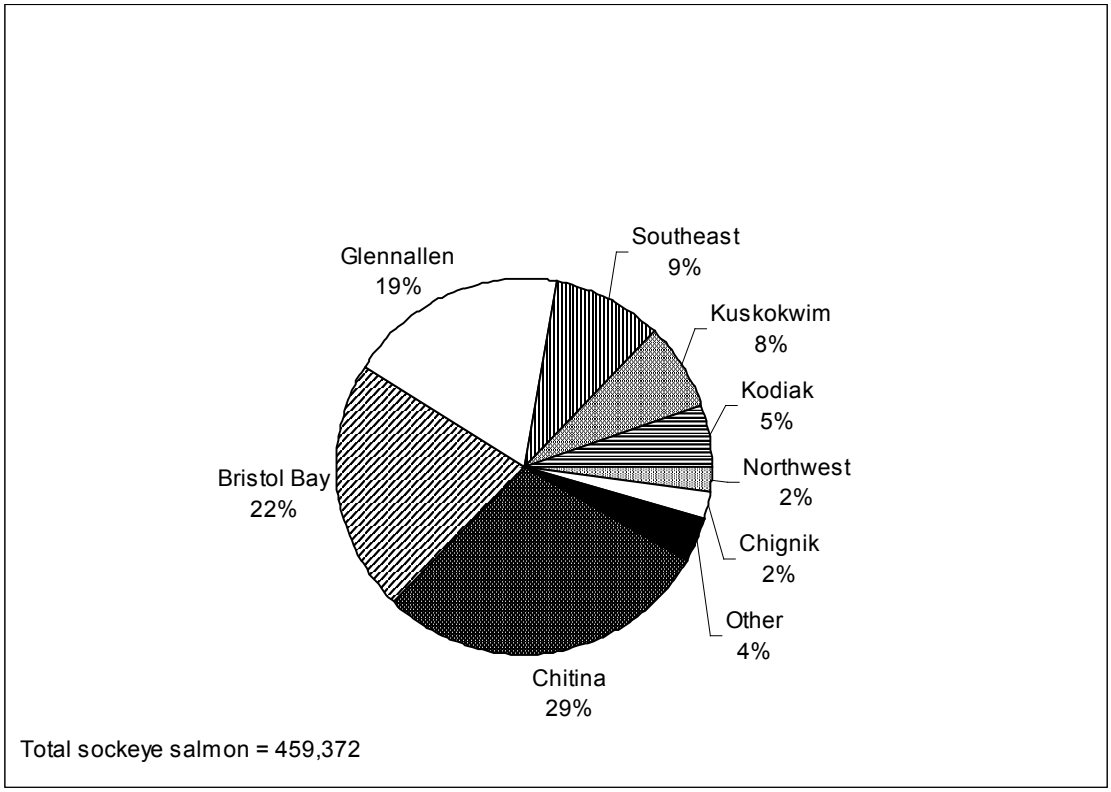

Figure 2-5.–Subsistence sockeye salmon harvest by area, 2007.

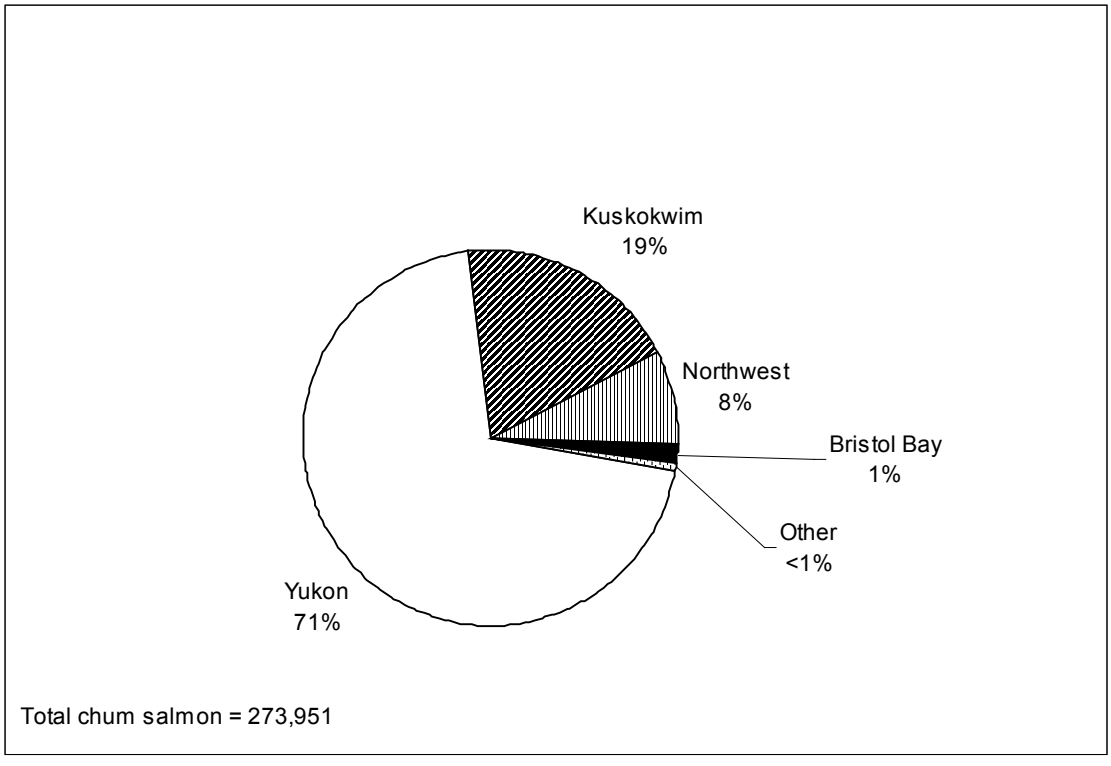

Figure 2-6.–Subsistence chum salmon harvest by area, 2007.

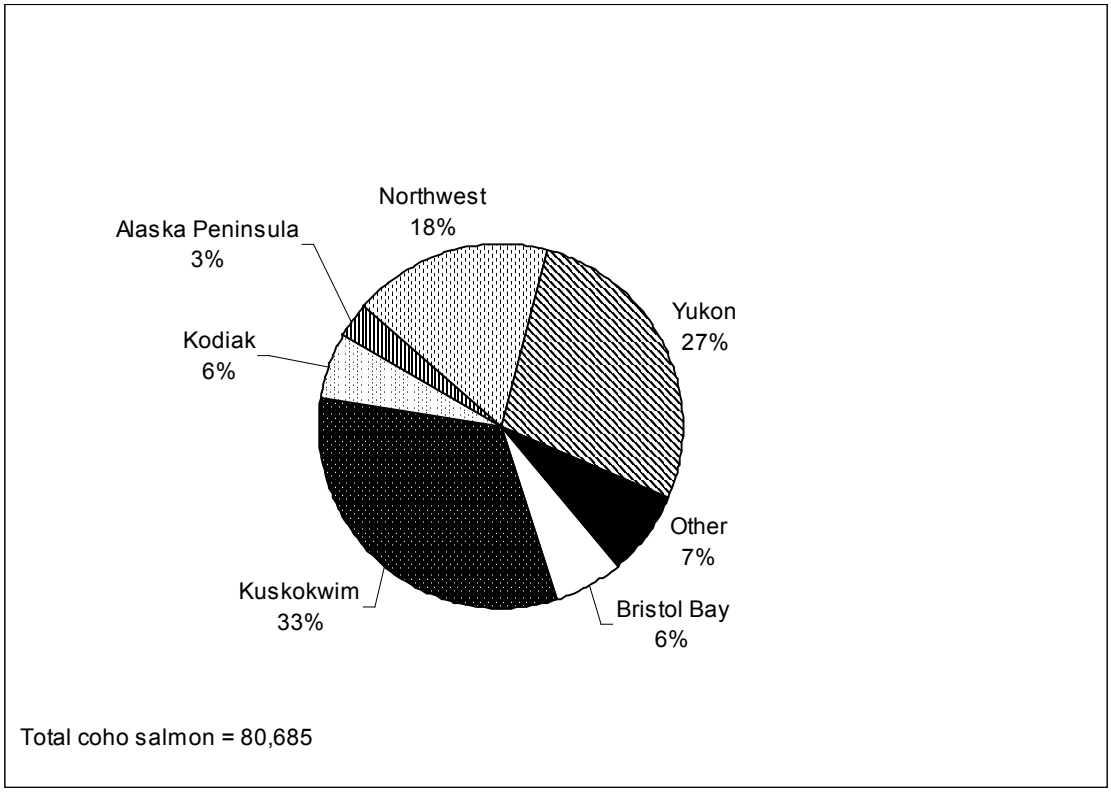

Figure 2-7.–Subsistence coho salmon harvest by area, 2007.

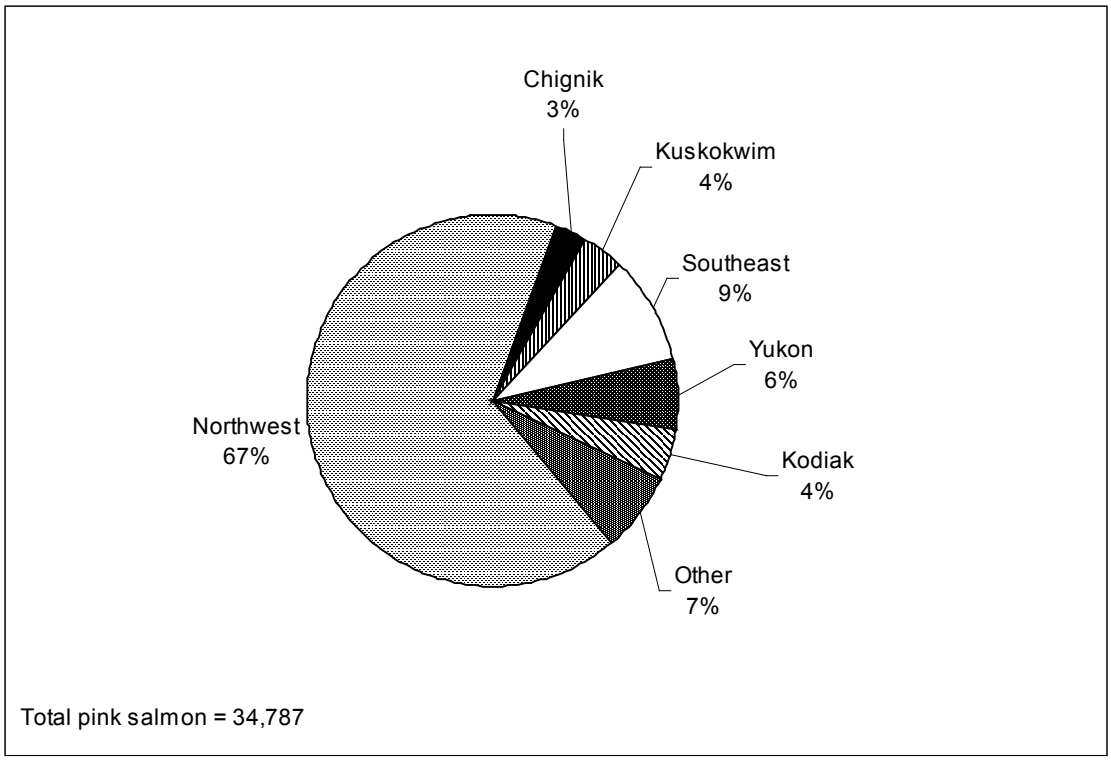

Figure 2-8.–Subsistence pink salmon harvest by area, 2007.

CHAPTER 3: NORTHWEST ALASKA

Norton Sound–Port Clarence Area Salmon

Background

Subsistence salmon fishing has been a major feature of life in this region for centuries. Even in the early 21st century, most residents in the region continue to participate in a mixed subsistence-cash economy, and to depend on wild foods for cultural and nutritional sustenance. In summer, subsistence fishers harvest salmon with gillnets or seines in the main Seward Peninsula rivers and in the coastal marine waters. Beach seines are used near the spawning grounds to harvest schooling or spawning salmon and other species of fish. A major portion of fish taken during the summer months is air dried or smoked for later consumption by residents. Chum and pink salmon are the most abundant salmon species districtwide; Chinook and coho salmon are present throughout the area, but are more common in eastern and southern Norton Sound. Sockeye salmon are found in a few Seward Peninsula streams.

Regulations

The Port Clarence District includes all waters from Cape Douglas north to Cape Prince of Wales, including Salmon Lake and the Pilgrim River drainage. In most of the district, subsistence salmon fishing has few restrictions other than the general statewide provisions. Standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Salmon may be taken in most areas at any time, with no harvest limits. This area includes fishing areas used by residents of Teller, Brevig Mission and Nome (the area is accessible via road from Nome) (Magdanz 1992:27). Since 2004, subsistence salmon permits have been required in all Port Clarence waters. In addition, in the Pilgrim River drainage, including Salmon Lake and the Kuzitrin drainage, harvests are limited, and specified areas are closed to subsistence salmon fishing. 2007 was the third year salmon fishing was opened in a portion of Salmon Lake since its closure in 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, 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 fishing through the ice or when a subsistence salmon permit is required. In the latter case, the harvest limits specified on the permit apply. 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 for over 20 years, 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 1990–2004, the Nome Subdistrict was closed to sport and subsistence fishing for chum salmon each year on June 15 until ADF&G judged escapement goals were likely to be met. This closure, even if 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 in the state.[8] 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. 2008a:10). Chum salmon returns since then have gradually improved, allowing ADF&G to manage the fishery as Tier I in 2006 and 2007, and observe the fishing schedule provided for by regulation.[9]

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 have experienced sharp declines since 1990 (Menard and Bergstrom 2006:2). In Subdistrict 2 (Golovin), both commercial and subsistence chum salmon harvests have dropped significantly since the 1990s; subsistence restrictions were in place in 2003.

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 fishery has occurred since 2001. Restrictions were placed upon the subsistence and sport fisheries in 2003, 2004, and 2006 (Menard and Kent 2007:4). Under the Chinook salmon management plan adopted by the BOF in February 2007 (5 AAC 04.395), subsistence gillnet salmon fishing in 2007 was limited to two 48-hour fishing periods per week in marine waters from mid June to mid July. On the Unalakleet River, subsistence fishing was 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.

By the first week of July 2007, it was believed that the Chinook salmon run would not meet the lower end of the SEG range. Marine waters in these subdistricts, as well as the Unalakleet drainage, were closed to subsistence gillnet fishing by emergency order on July 4. Sport fishing was closed on July 5. Later, when it became clear that escapement goals would be met, subsistence gillnet fishing reopened on the lower Unalakleet and in the marine waters, but with mesh size restrictions in place to protect larger, predominately female fish entering rivers (Soong et al. 2008a:39).

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, as well as subdistricts 5 and 6 Chinook salmon, continued as stocks of yield concern (Soong et al. 2008a:34).

New state regulations governing customary trade of fish caught in the Norton Sound and Port Clarence areas became effective July 1, 2007. The regulations allowed cash sales, up to $200, of

8. 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 amount necessary to provide for subsistence uses. Individuals are scored based on their history of uses of the particular resource and the ability to obtain food; those with the highest scores receive Tier II permits.

9. In a "Tier I" subsistence fishery, all interested Alaska residents may participate. Other fishers (commercial, sport, and personal use) are prohibited or restricted.

subsistence-caught finfish per household per year. Persons who wanted to participate had to obtain a customary trade permit 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. 2008a:34).

Subsistence Salmon Harvest Collection Methods

Two methods were used to assess subsistence salmon harvests in the Norton Sound and Port Clarence districts in 2007: 1) fishing permits in Subdistrict 1 (Nome), the Cape Woolley area, Subdistrict 2 (Golovin), Subdistrict 3 (Moses Point), and the Port Clarence District (Brevig Mission and Teller); and 2) postseason household surveys in 2 communities, Unalakleet and Shaktoolik. No subsistence harvest information was obtained for Subdistrict 4 (Norton Bay) in 2007.

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

Permits have been required for subsistence salmon fishing in Norton Sound Subdistrict 1 (Nome) since 1974. Beginning in 1999, Tier II chum salmon fishing permits were also issued to a limited number of Nome households with the intent that these households would have first priority over other subsistence fishers if only a small number of chum salmon were available for harvest. This priority would allow these households to fish earlier in the season, when weather conditions were more suitable for drying salmon. Tier I fishing permits were available to all other households when run strength was determined to be adequate. In 2007, because of an above average forecasted run of chum salmon, as in 2006, Tier II was not in effect. The Nome ADF&G office issued 329 subsistence (Tier I) salmon permits; 325 were returned.

As in 2006, Subdistrict 1 did not close on June 15 for sport and subsistence salmon fishing. The regulation fishing schedule (72 hours in marine waters and two 48-hour fishing periods in fresh waters per week) was observed from mid June to mid July. In mid July, per regulation, the schedule increased to 5 days per week in marine waters. ADF&G opened beach seining in the subdistrict by emergency order in the last week of July. After August 15, per regulation, marine waters were open continuously. In September, freshwater subsistence areas were open to subsistence salmon fishing continuously.

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 over 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 2007, 9 permits were issued for the Cape Woolley area; all were returned to ADF&G.

Subsistence permits were required for salmon fishing in Subdistrict 2 (Golovin) and Subdistrict 3 (Moses Point), for the fourth year as of 2007. In 2007, 153 permits were issued for Subdistrict 2; fewer than in 2005 (174) and 2004 (199). Of the permits issued in Subdistrict 2, 152 were returned. The number of Subdistrict 2 permits issued to Nome residents has dropped by 25 percentage points from 2004 to 2007 (Soong et al. 2008b:35). Fishery managers attribute the decline to the easing of fishing restrictions in the Nome Subdistrict. In 2007, ADF&G issued 64 permits for Subdistrict 3, which was fewer than 2005 (70) but more than in 2004 (58) and 2006 (63). All permits were returned.

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.

Port Clarence District: Salmon Lake and Pilgrim River Fishing Permits

Permits have been required to fish the Pilgrim River since 1974 (Magdanz 1992:27). This requirement was expanded to all Port Clarence waters in 2004. In 2007, 363 Port Clarence and Pilgrim River permits were issued, compared to 345 in 2006 and 330 in 2005. Of the permits issued in 2007, 201 were to fish the Pilgrim River only; 161 were for other waters in the district. The number of permits for the Pilgrim River has grown substantially, perhaps corresponding to several consecutive years of record sockeye salmon runs. All Pilgrim River permits were returned and all permits issued for Port Clarence were also returned.

2007 was the third year that salmon fishing was allowed in Salmon Lake. In 2007, the BOF adopted regulations that closed the southwestern half of the lake and allowed fishing on the northeastern half by emergency order. ADF&G issued 1 permit for Salmon Lake in 2007, with a raised harvest limit of 100 sockeye. That permit was returned with 40 sockeye salmon reported harvested. In 2005, a total of 4 permits were issued with a harvest limit of 50 sockeye salmon each; 19 sockeye salmon were reported harvested. In 2006, only 1 permit was issued and that holder reported no harvest.

Household Surveys

ADF&G conducted household surveys in Shaktoolik and Unalakleet, 2 Norton Sound communities. Researchers attempted to contact all of the households in each of the surveyed communities. Actual sample rates ranged from 97% in Unalakleet, where 212 of the 219 households were surveyed, to 88% in Shaktoolik, where 60 of the 68 households were surveyed. The salmon survey data were expanded by community to account for the households not contacted.

The goals of the postseason household survey were to:

1. Collect harvest data that would result in a total harvest estimate for subsistence salmon by species and by community;
2. Compile information on harvest by gear types, participation rates, sharing, household size, and use of salmon for dog food;
3. Compile information on salmon harvest locations by species.

2007 Subsistence Salmon Harvests

Norton Sound District Subsistence Salmon Harvest

The estimated 2007 subsistence harvest of salmon by study communities in the Norton Sound District was 58,116 fish (Table 3-1, Table 3-2). This was the lowest total harvest on record since 1994. (Table 3-2). 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.) Harvests usually reflect this difference in abundance. The 2007 study year, an odd year, followed this pattern, with a substantially lower harvest of pink salmon reported than the previous year (21,714 fish in 2007, versus 48,764 in 2006).

Chum salmon runs were again above average: subsistence harvesters took over 18,000 chum salmon in 2007, compared to just over 10,000 in 2006. Coho salmon runs ranged from slightly

above average in northern Norton Sound to record setting in parts of southern Norton Sound. The Chinook salmon run was below average again in most of the district. Of the total subsistence salmon harvest in 2007, 2% were sockeye salmon, 6% were Chinook salmon, 31% were chum salmon, 23% were coho salmon, and 38% were pink salmon (Figure 3-1).

Very little of the documented subsistence salmon harvest was taken by residents from outside the district (Table 3-3). Combined harvest estimates for the Norton Sound District, Port Clarence District, and Kotzebue area for 1975–2007 are presented in Table 3-4. However, the methods used to determine harvests prior to 1994 are substantially different from those used since 1994. As a consequence, the data are not directly comparable. Methods changed again in 2004 when permits replaced surveys in Norton Sound Subdistrict 2 (Golovin and White Mountain) and Norton Sound Subdistrict 3 (Elim).

Port Clarence District Subsistence Salmon Harvest

The estimated 2007 subsistence harvest of salmon by Teller, Brevig Mission, and Nome households in the Port Clarence District was 16,196 fish (Table 3-1, Table 3-2). This was lower than the previous 3 years, but still above harvests from 1994–2003. Of the total salmon harvest, 1% were Chinook salmon, 4% were coho salmon, 28% were chum salmon, 9% were pink salmon, and 59% were sockeye salmon (Figure 3-2).

Kotzebue Area Salmon

Background

Kotzebue Sound residents have relied on fish for cultural and nutritional sustenance for thousands of years. Most residents in the region continue to participate in a mixed subsistence-cash economy, harvesting a wide variety of wild foods. The Kotzebue area includes the subsistence fishing areas used by Point Hope, Kivalina, Noatak, Kotzebue, Kiana, Noorvik, Selawik, Ambler, Shungnak, Kobuk, Buckland, Deering, Shishmaref, and Wales. The role of salmon in the wild food diet varies from community to community, and is affected primarily by salmon abundance. Communities that harvest few salmon typically harvest large numbers of nonsalmon fish, such as sheefish *Stenodus leucichthys*, whitefishes *Prosopium* and *Coregonus* spp, and Arctic char *Salvelinus alpinus*/Dolly Varden *S. 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 uses during the winter. Chum salmon predominate in the district, comprising 90% of the subsistence salmon harvest. Small numbers of other salmon species are present in the district.

Regulations

In the Kotzebue area, subsistence salmon fishing has few restrictions, other than the general statewide provisions. 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 district at any time with no harvest limits and no required permits. Commercial fishers, however, are not allowed to subsistence fish for salmon during the commercial season.

Harvests

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. 2007b:23–38). Since funding for that effort

has not been available since 2004, no surveys have been conducted; therefore, no subsistence salmon harvest estimate is available for 2007. The average yearly subsistence harvest between 1994 and 2004 was 59,650 salmon, the majority of which were chum salmon. This average may be low due to incomplete datasets resulting in low harvest totals for several years during that period. Harvest estimates for 1994, 2002, 2003, and 2004 do not include the city of Kotzebue. Because Kotzebue is the largest community in the region, residents typically harvest as much salmon as residents from all other communities in the region combined (Menard and Kent 2007:1). No harvest information is available for Ambler, a Kobuk River village, for 2001. Data for 2002 include only harvest information from Noatak and Noorvik.

Kotzebue Area Sheefish, Whitefish, and Arctic Char/Dolly Varden

In addition to salmon, major subsistence fisheries take place in Northwest Alaska for sheefish, whitefishes, and Arctic char/Dolly Varden. Where salmon are not abundant, these nonsalmon fish often replace salmon in local diets. In the Kotzebue area, subsistence fishing for these species has few restrictions, other than the general statewide provisions. Fish may be taken at any time with no harvest limits and no required permits. Gillnets used to take sheefish have length, depth, and mesh size restrictions.

Past household surveys to collect harvest information for subsistence salmon harvests in Kotzebue Sound communities also collected harvest data for sheefish, whitefishes, and Arctic char/Dolly Varden (Fall et al. 2007b:28). Since the loss of Division of Commercial Fisheries funding in 2004, surveys have not been conducted in this area.

In 2004, the last year Kotzebue area was surveyed, nonsalmon harvest information was collected in Ambler, Kiana, Kobuk, Noatak, Noorvik and Shungnak. Those 6 communities harvested an estimated 10,835 sheefish, 50,501 whitefishes, and 11,697 char (which residents call "trout") in that year (Fall et al. 2007b:33). Kotzebue area's total harvest of those species is probably higher, but subsistence fish surveys are not usually conducted in other villages.

The Division of Subsistence collected fish harvest data for 2007 in the villages of Noatak and Kivalina as part of comprehensive community harvest surveys associated with a supplemental environmental impact statement for the Red Dog Mine. Kivalina harvested more than 54,000 fish in 2007; just over 610 were salmon species. Of the estimated 79,000 edible pounds of fish and shellfish harvested, the majority (86%) were Dolly Varden. Saffron cod, known locally as "tomcod," comprised just 2% of the total fish harvest; salmon made up only 1% of the total. No other fish species provided even 1% of the total community harvest (Magdanz et al. *in prep* [2009]:26–27). Noatak harvested nearly 23,500 fish in 2007, which provided an estimated 78,454 edible pounds of food to that community. Fish (both salmon and nonsalmon species) made up 41% of the total subsistence harvest by edible pounds. Three species were particularly important: Dolly Varden (33,771 lb), chum salmon (25,002 lb), and whitefish (14,234 lb) (Magdanz et al. *in prep* [2009]:48).

Table 3-1.–Subsistence salmon harvests by district, Northwest Alaska, 2007.

District	Households surveyed or permits returned	Estimated salmon harvests[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Norton Sound District[b]	1,041	3,744	923	13,564	18,170	21,714	58,116
Port Clarence District[c]	362	85	9,484	705	4,454	1,468	16,196
Kotzebue Area[d]	ND	ND	ND	ND	ND	ND	ND
Total[e]	1,122	3,829	10,407	14,269	22,624	23,182	74,312

Source ADF&G Division of Subsistence ASFDB 2008.

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, Shaktoolik, St. Michael, and Stebbins. Permits issued for Cape Woolley, Nome Subdistrict (Tier I), Golovin Subdistrict, and Elim Subdistrict. No harvest information gathered for Subdistrict 4 (Koyuk.)

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

d. Due to lack of funding, no collection of subsistence salmon harvest data took place in Kotzebue Sound communities for 2007. The average yearly subsistence harvest of salmon in the Kotzebue area between 1994 and 2004 was 59,650 fish. ND = No data.

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

Table 3-2.–Historical subsistence salmon harvests by district, Northwest Alaska, 1994–2007.

	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[b]	1,003	3,169	363	8,225	3,200	61,813	76,770
2005[b]	1,061	4,087	774	13,896	12,008	53,236	84,000
2006[b]	1,066	3,298	901	19,476	10,306	48,764	82,745
2007[b]	1,041	3,744	923	13,564	18,170	21,714	58,116

	Port Clarence District						
Year	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	151	203	2,220	1,892	2,294	4,309	10,918
1995	151	76	4,481	1,739	6,011	3,293	15,600
1996	132	194	2,634	1,258	4,707	2,236	11,029
1997	163	158	3,177	829	2,099	755	7,019
1998	157	289	1,696	1,759	2,621	7,815	14,179
1999	177	89	2,392	1,030	1,936	786	6,233
2000	163	72	2,851	935	1,275	1,387	6,521
2001	160	84	3,692	1,299	1,910	1,183	8,167
2002	176	133	3,732	2,194	2,699	3,394	12,152
2003	242	176	4,436	1,434	2,425	4,108	12,578
2004	371	278	8,688	1,131	2,505	5,918	18,520
2005	329	152	8,532	726	2,478	6,593	18,481
2006	345	133	9,862	1,057	3,967	4,925	19,944
2007	362	85	9,484	705	4,454	1,468	16,196

	Kotzebue Area[c]						
Year	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
1994[d]	557	135	33	478	48,175	3,579	52,400
1995[e]	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[f]	1,149	11	14	768	49,014	36	49,844
2002[g]	216	3	9	56	16,880	8	16,955
2003[h]	488	40	53	1,042	19,201	583	20,918
2004[h]	440	54	18	1,502	23,348	1,259	26,181
2005[i]	ND	ND	ND	ND	ND	ND	ND
2006[i]	ND	ND	ND	ND	ND	ND	ND
2007[i]	ND	ND	ND	ND	ND	ND	ND

-continued-

Table 3-2. Page 2 of 2.

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

a. Includes Gambell and Savoonga.

b. Does not include Koyuk (located in Subdistrict 4.)

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

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

e. Includes Shishmaref.

f. Does not include Ambler.

g. Includes only Noatak and Noorvik.

h. Does not include Kotzebue.

i. Due to lack of funding, no collection of subsistence salmon harvest data took place in Kotzebue area communities for 2007. The average yearly subsistence harvest of salmon in the Kotzebue area between 1994 and 2004 was 59,650 fish. ND = No Data.

Table 3-3.–Subsistence salmon harvests by community, Northwest Alaska, 2007.

	Households or permits		Estimated salmon harvests[a]					
Community[b]	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Shaktoolik	68	60	515	28	1,443	465	2,708	5,158
Saint Michaels	115	103	452	9	622	2,119	265	3,467
Stebbins	136	117	743	0	2,006	4,980	1,881	9,609
Unalakleet	219	212	1,569	253	4,916	1,117	10,288	18,143
Brevig Mission	45	44	40	2,385	354	1,620	773	5,172
Elim	59	59	260	0	2,271	2,307	1,735	6,573
Fairbanks	2	2	0	0	0	0	0	0
Golovin	41	41	87	158	422	659	1,799	3,125
Nome	329	328	47	6,176	1,618	4,709	1,120	13,670
Teller	54	54	16	1,184	93	2,307	592	4,192
White Mountain	54	53	101	214	524	2,342	2,022	5,203
Total	1,122	1,073	3,829	10,407	14,269	22,624	23,182	74,312

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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

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

Table 3-4.–Historical subsistence salmon harvests, Northwest Alaska, 1975–2007.

	Households or permits		Estimated salmon harvests[a]					
Year	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1975	117	79	3	225	102	3,698	7,298	11,326
1976	138	104	6	0	275	1,856	5,472	7,609
1977	195	181	35	64	623	12,222	2,839	15,783
1978	168	126	31	0	242	4,035	10,697	15,005
1979	138	119	519	0	1,007	3,419	5,842	10,787
1980	232	161	135	0	2,075	5,839	21,728	29,777
1981	236	169	47	88	1,844	9,251	6,100	17,330
1982	230	182	33	6	2,093	5,719	20,480	28,331
1983	243	189	74	40	1,950	7,013	8,499	17,576
1984	240	189	85	0	1,890	4,945	18,067	24,987
1985	215	198	56	114	1,054	5,717	2,117	9,058
1986	279	240	157	127	788	8,494	9,011	18,577
1987	235	173	97	102	812	7,265	705	8,981
1988	192	166	67	171	1,089	6,379	2,543	10,249
1989	173	130	24	131	549	3,456	924	5,084
1990	188	165	60	234	542	4,525	2,413	7,774
1991	155	128	83	166	1,279	3,715	194	5,437
1992	163	132	152	163	1,720	2,030	7,746	11,811
1993	142	104	51	74	1,780	1,578	758	4,241
1994	1,547	1,169	7,713	3,414	24,494	75,489	78,954	190,063
1995[b]	2,329	1,445	8,070	6,639	27,314	151,905	43,947	237,874
1996	2,177	1,454	7,999	4,287	27,879	139,032	67,911	247,108
1997[c]	2,398	1,645	9,620	5,597	18,153	86,808	29,135	149,314
1998[c]	2,620	1,730	8,967	3,301	21,226	71,632	61,863	166,989
1999	2,351	1,300	6,242	4,046	16,706	115,676	21,644	164,315
2000	2,247	1,336	4,399	3,612	20,654	84,196	40,499	153,360
2001[d]	2,192	1,259	5,671	4,473	16,617	71,138	31,480	129,378
2002[e]	1,327	1,204	5,624	4,504	17,838	37,396	67,756	133,119
2003[f]	1,670	1,488	5,505	5,289	16,580	35,540	54,365	117,279
2004[g]	1,915	1,814	3,534	9,159	11,585	31,386	70,841	126,506
2005[g,h]	1,129	1,104	4,239	9,306	14,622	14,486	59,829	102,481
2006[g,h]	1,125	1,099	3,431	10,763	20,533	14,273	53,689	102,689
2007[g,h]	1,122	1,073	3,829	10,407	14,269	22,624	23,182	74,312
5-year average (2002–2006)	1,433	1,342	4,467	7,804	16,232	26,616	61,296	116,415
10-year average (1997–2006)	1,897	1,398	5,723	6,005	17,451	56,253	49,110	134,543
Historical average (1975–2006)	897	656	2,585	2,378	8,622	32,191	25,480	71,256

Source ADF&G Division of Subsistence ASFDB 2008.

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, and Kotzebue Area.

b. Includes Shishmaref.

c. Includes Gambell and Savoonga.

-continued-

d. Does not include Ambler.
e. For the Kotzebue Area, includes only Noatak and Noorvik.
f. Does not include Kotzebue.
g. Does not include Koyuk.
h. Does not include Kotzebue Area.

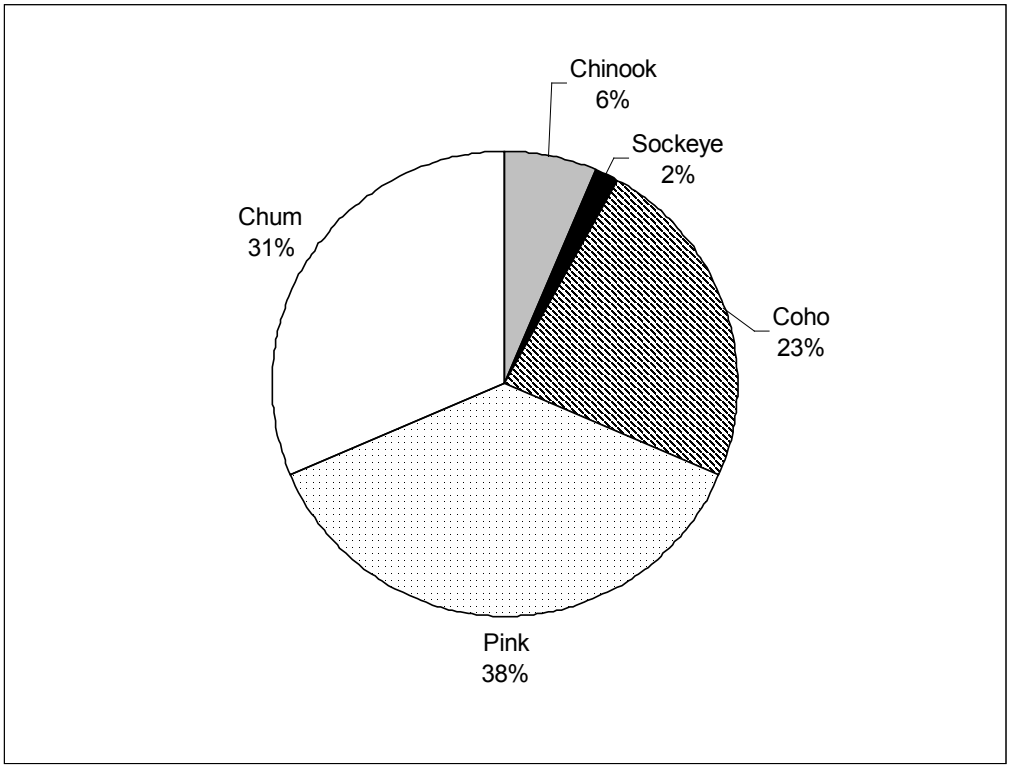

Figure 3-1.–Species composition of estimated subsistence salmon harvests, Norton Sound District, 2007.

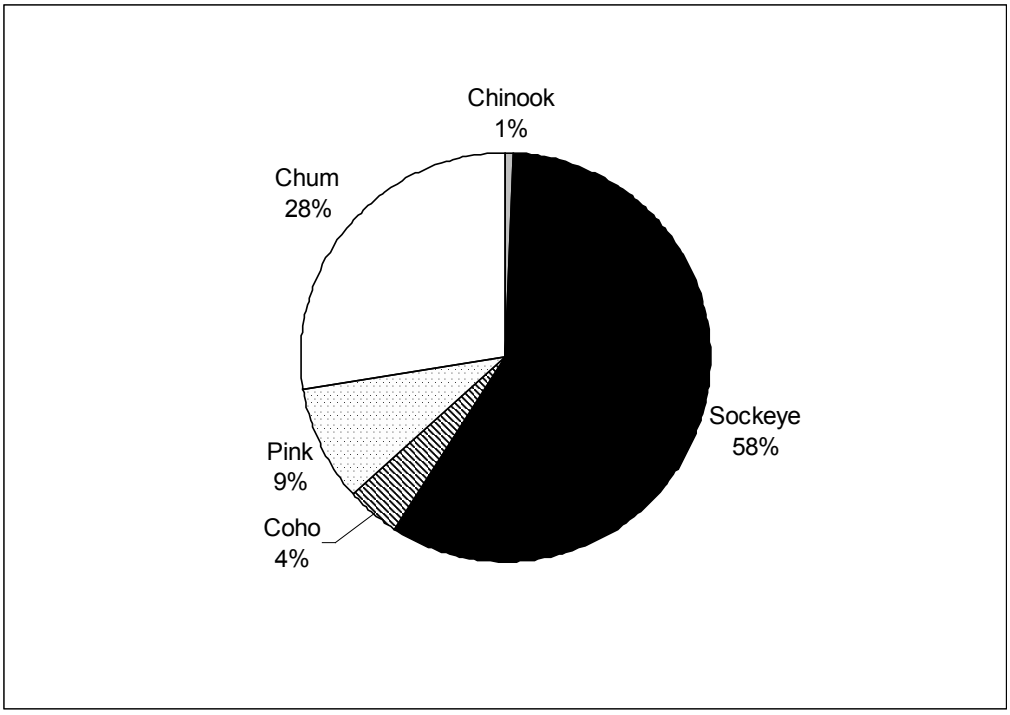

Figure 3-2.–Species composition of estimated subsistence salmon harvests, Port Clarence District, 2007.

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 provide an important component of the overall fish harvest (Andersen et al. 2004, Brown et al. 2005a), salmon comprise the bulk of the fish harvested for subsistence. Chinook salmon, summer and fall chum salmon, and coho salmon comprise the majority of the salmon harvests in the Yukon river drainage; the number of salmon harvested for subsistence in this region is significant. Unlike many marine and coastal fisheries in which commercial harvests predominate, subsistence salmon harvests within the Yukon drainage often exceed commercial, sport, and personal use harvests combined.

Drift gillnets, set gillnets, and fish wheels are used by Yukon area fishers to harvest the majority of salmon. Set gillnets are utilized throughout the Yukon area, often in the main rivers and coastal marine waters, while drift gillnets are used extensively in some parts of the river (i.e., by state regulation, that portion of the Yukon drainage from the mouth to a point 18 mi downstream of Galena). Fish wheels are a legal subsistence or noncommercial gear type throughout the Yukon drainage, although due to river conditions and the availability of wood for building materials, they are used almost exclusively only on the middle and upper Yukon and Tanana rivers.

Depending on the area of the Yukon River drainage and salmon species' run timing, subsistence fishing occurs from late May through early October. Fishing activities are based either from fish camps or from the home villages; fishing patterns and preferred sites vary from community to community. Extended family groups, typically representing several households, often undertake subsistence salmon fishing together. Households and related individuals typically cooperate to harvest, process, preserve, and store salmon for subsistence uses. (For more detail on subsistence uses of Yukon River salmon, see ADF&G (1987a), ADF&G (1987b), and ADF&G (1988)).

The majority of the subsistence salmon harvest is preserved for later uses by freezing, drying, or smoking; the head, cut scraps, and viscera 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 disfigurement are often fed to dogs. Small Chinook salmon ("jacks") or postspawn fish may also be fed to dogs. In addition, while chum and coho salmon are primarily taken for human consumption, relatively large numbers are harvested and processed to feed 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, allowing fish to be "cribbed" for use as dog food. This method involves the natural freezing of whole (uncut) fish. The practice of keeping sled dogs is much more common in communities along the upper Yukon area 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 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. Standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

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 which 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. 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 Subdistrict 4A, subsistence salmon fishing may not occur 12 hours immediately before, during, and 12 hours after each commercial salmon fishing period throughout the season. In the upper portion of District 4 (subdistricts 4B and 4C) and in subdistricts 5A, 5B, and 5C, subsistence salmon fishing is allowed 7 days per week until 24 hours prior to and immediately following the commercial salmon fishing season. In these areas, subsistence salmon fishing periods coincide with commercial salmon fishing periods. Additional subsistence-only salmon fishing periods may be allowed during the commercial salmon fishing season. In Subdistrict 5D, subsistence salmon fishing is allowed 7 days per week, regardless of commercial activities. Since 1994 (with the exception of 1998[10]) the subsistence salmon fishing schedule in Subdistrict 5A has allowed subsistence salmon fishing 5 days per week following the closure of the commercial salmon fishing season. 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.[11] In the Upper Tanana River drainage upstream of the Volkmar (north bank) and Johnson (south bank)[12] rivers, subsistence fishing is allowed 7 days per week.

10. In 1998, the BOF relaxed restrictive elements of the Toklat River Fall Chum Salmon Rebuilding Management Plan and allowed Subdistrict 5A to subsistence salmon fish 7 days per week. When the escapement objectives were not subsequently met, the restrictive elements of the salmon rebuilding plan were reinstated and subsistence fishing in Subdistrict 5A was reduced during the 1999 season.

11. In the Lower Tanana River drainage, the fishery to harvest salmon for home use 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 to 3 miles upstream of Totchaket Slough (the Old Minto area), subsistence fishing is allowed 5 days per week.

12. 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

In 2005, the FSB established a 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, 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 2007, the federal drift gillnet fishery occurred between June 10 and June 14 during the last 18 hours of the each subsistence salmon fishing opening in the federal public waters of subdistricts 4B and 4C, using drift gillnets no more than 150 ft long and 35 meshes deep a total of 12 permits were issued, with a combined reporting of 13 Chinook salmon harvested.

Restrictions on subsistence fisheries occurred during the fall season in 1993, 1998, 2001, and 2002, with a complete closure in 2000. Also in 2000, for the first time in regulatory history, restrictions were imposed on the summer portion of the subsistence salmon fishery to protect Chinook salmon and summer chum salmon populations. Because of the inability to maintain expected yields and harvestable surpluses above escapement needs for several years, the BOF classified the Yukon River Chinook salmon stock as a stock of yield concern (Lingnau and Salomone 2003).

In 2001, as a result of the declared disaster, the BOF instituted a new subsistence schedule on the Yukon River. The schedule was intended to fulfill several goals: 1) increase the quality of escapement, 2) distribute subsistence opportunity among users during years with no commercial fishing, and 3) reduce the impact of harvest on any one stock by spreading the harvest throughout the run, thereby providing windows of time that salmon may migrate upriver with reduced exploitation. The schedule, based on past fishing schedules, is initiated each year based on the historical, average run timing entry into the Yukon River for Chinook salmon. Once initiated, the schedule is implemented chronologically upriver. The schedule is believed to provide reasonable opportunity for subsistence users to achieve their harvest goals when salmon runs are below average. Table 4-1 presents the subsistence fishing schedule.

Table 4-1.–2007 subsistence fishing schedule by district.

Geographic area–district	Opening	Schedule to begin
Coastal District	7 days/week	By regulation
District 1	Two 36-hour periods	May 28, 2007
District 2	Two 36-hour periods	May 30, 2007
District 3	Two 36-hour periods	June 1, 2007
District 4; Subdistricts 4A, 4B, 4C	Two 48-hour periods	June 10, 2007
Subdistricts 5A, 5B, 5C	Two 48-hour periods	June 19, 2007
Subdistrict 5D	7 days/week	By regulation
District 6	Two 42-hour periods	By regulation
Old Minto Area	5 days/week	By regulation
Koyukuk River	7 days/week	By regulation

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 run abundance allowed commercial fishing. 2007 marked the sixth annual implementation of the window schedule. Preseason outlooks for 2007 indicated that the Chinook salmon run would be similar in abundance to the 2006 run providing for: escapements, a normal subsistence harvest,

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.

and a below average commercial harvest (Hayes and Clark 2007). Early run assessment projects indicated that the Chinook and summer chum salmon runs were adequate in strength to allow continued subsistence fishing on the window schedule and for a small commercial fishery. Once commercial fishing is opened, the subsistence schedule typically reverts to the pre-2001 fishing schedule chronologically upriver—7 days per week, 24 hours per day, except for 18 hours prior to, during, and 12 hours after commercial openings. Similar to 2006, ADF&G scheduled a short commercial opening on June 15, 2007, based on the preseason projection. Although the June 15 commercial opening in District 2 occurred early in the run, the subsistence schedule was not relaxed until June 19 in District 1. Thus, in 2007, just as in 2003–2006, the window schedule was relaxed for most parts of the river for at least a portion of the summer season (Hayes and Clark 2007).

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, postseason household interviews, postseason telephone interviews, and postseason post card reminders. 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 harvest on the household permit, and return it to ADF&G at the end of the season.

Prior to salmon fishing activities, subsistence harvest calendars are mailed to all identified fishing households within the survey communities. The Lower Yukon area calendars contain the months of May through September and the Upper Yukon area calendars contain the months of June through October. Additional calendars are mailed to those households for which fishing activities are unknown, and are also made available to households upon request from ADF&G offices in Emmonak and Fairbanks. The calendars provide space for fishers to record their daily subsistence harvest 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 to conduct 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 2007, Division of Commercial Fisheries staff distributed calendars to all households identified as participating in some level of fishing; households identified as nonfishing households did not receive calendars. An estimated 921 calendars were sent to Lower Yukon households, 589 calendars to Upper Yukon River households, for a total of 1,510 calendars. About 21% of these (316) were returned either by mail or through research staff during their fall surveys. Calendars provide additional Yukon area run timing information that is not obtained by other data collection methods (W. H. Busher, Yukon Area Fall Season Asst. Management Biologist, ADF&G, Fairbanks; personal communication).

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 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 6C) and the personal use fishers in Subdistrict 6C are required to report their harvests weekly for in-season management purposes. To maximize the return of permits, ADF&G staff also send reminder letters to these households. A total of 508 subsistence and personal use permits were issued in 2007, and 474 [408 subsistence (93%) and 66 personal use (97%)] were returned (W. H. Busher, Yukon Area Fall Season Asst. Management Biologist, ADF&G, Fairbanks; personal communication). Most unreturned permits are considered to be unfished, as subsistence fishing households are not eligible to receive a permit the following year until the previous year's permit is returned.

In 2007, Division of Commercial Fisheries staff interviewed 1,060 households along the Yukon River (out of 1,327 selected to be interviewed) concerning their subsistence salmon harvests. Also in 2007, 408 subsistence and 66 personal use permits were returned. Based on these different methods of collecting harvest data, it was estimated that approximately 1,468 Yukon area households (out of a total of approximately 2,861 area households) participated in subsistence and personal use fishing in 2007 (W. H. Busher, Yukon Area Fall Season Asst. Management Biologist, ADF&G, Fairbanks; personal communication).

Subsistence Salmon Harvests in 2007

In 2007, 1,060 households (45% of the 2,353 total estimated households in Districts 1–5), 408 subsistence permit holders (93% of the 440 issued), and 66 personal use permit holders (97%) provided harvest data for the Yukon area subsistence–personal use salmon fishery (W. H. Busher, Yukon Area Fall Season Asst. Management Biologist, ADF&G, Fairbanks; personal communication). The species composition of the estimated 2007 subsistence–personal use salmon harvest for the entire Yukon area included 55,292 Chinook salmon (20%), 93,075 summer chum salmon (34%), 99,120 fall chum salmon (37%), 22,013 coho salmon (8%), and 2,118 pink salmon (1%), for a total estimate of 271,618 salmon (Table 4-2; 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 home uses, and fish distributed from ADF&G test fisheries.) Since the disastrous harvest levels in 2000 (152,300 total salmon), subsistence Chinook and coho salmon harvests have generally increased while fall chum salmon harvests have rebounded. The 2007 harvest estimates registered above the 5-year averages for all

species except for coho salmon (approximately 800 fish below the 5-year average) and pink salmon (approximately 3,500 fish below the 5-year average). 2007 harvest estimates also exceeded recent 10-year averages for all species, except pink salmon. While low salmon abundance in 2001 closed commercial fishing in the Alaska portion of the Yukon river drainage, a small commercial fishery for Chinook and summer chum salmon has been offered in every year since, including 2007.

As shown in Table 4-3, the estimated subsistence and personal use harvest of 55,292 Chinook salmon in 2007 is above the most recent Yukon area 10-year average of 51,574 Chinook salmon, as well as the most recent 5-year average of 52,207 Chinook salmon. The estimated 2007 subsistence harvest of 93,075 summer chum salmon was above both the 5-year and 10-year averages (91,916 and 88,922, respectively). While summer chum salmon harvests have been relatively stable since 1990, they mark a significant decrease from the 1980s when harvests were higher, likely due to the then-existing commercial roe fishery in the middle Yukon River. The fall chum salmon harvest of 99,120 is also an increase in harvest since 1997 and registers above both the 5-year average of 63,744 fall chum salmon and the 10-year average of 61,575 fall chum salmon, both of which reflect multiple years of poor runs and harvests. It should be noted that regulatory restrictions were implemented so as to protect fall chum salmon stocks due to these poor runs in 1998, and 2000 through 2003. While 2007 harvests of fall chum salmon have climbed from earlier years' estimates, comparison with average fall chum salmon harvests for 1976–2006 begins to show the true magnitude of the harvest decline in this fishery between 2000 and 2003; the historical average (1976–2006) harvest of fall chum salmon was 118,052 fish (Table 4-3, Figure 4-3).

Subsistence harvests of coho salmon in 2007 were slightly below average at 22,013 compared to the 5-year average of 22,809 coho salmon but above the 10-year average of 21,598 coho salmon. Pink salmon harvest information is collected in several communities in the Lower Yukon area. Although pink salmon can be abundant in coastal and near-coastal communities of the Lower Yukon area, they are not typically targeted by fishers, and their harvest in the subsistence fishery remained low until 2002 (8,425 fish).[13] An estimated 2,118 pink salmon were harvested in 2007, primarily harvested by communities in the coastal district.

Every year, various environmental or social factors affect the subsistence fishery. Ice breakup in the lower river occurred on May 18, four days earlier than average (as opposed to May 29 in 2006); after the first pulse of the run, around mid-June, Chinook salmon began entering the river at a slow, steady rate, rather than in their typical pulse pattern. A strong first pulse followed by a weak second pulse is unusual and the Chinook salmon run eventually developed to be not as strong as anticipated (Hayes and Clark 2007). Additionally, by emergency order, ADF&G allowed subsistence fishing 7 days per week in District 4 beginning July 6 and continued the drift gillnet fishing season for Chinook salmon for 1 additional week, because of the reported difficulty in catching Chinook salmon reported by middle river fishers (Hayes and Clark 2006).

Figure 4-4 provides a breakdown of the number of dogs by fishing district. Of the estimated 1,267 households (drainage wide) owning dogs, about 11% (144 households) are estimated to have fed their dogs whole salmon in 2007. Of the 4,925 dogs owned by fishing households in 2007, about 69% (3,388 dogs) were owned by households in the Upper Yukon River, which includes districts 4, 5, and 6. In 2007, the Division of Commercial Fisheries collected species-

13. Note that pink salmon cycle in their abundance; even years generally yield higher abundance with higher harvest rates, while odd years generally yield lower abundance in the river. In some years, pink salmon do make up an important part of the subsistence harvest when other preferred salmon species are less available.

specific information on the number of salmon retained for dog food from subsistence harvests in surveyed communities, but not in permit communities. In the Coastal District and in districts 1 through 5, an estimated 16,265 summer chum salmon, 28,717 fall chum salmon, and 5,232 coho salmon were retained for dog food from subsistence salmon harvests. An additional 33,836 whole salmon were fed to dogs by permit holders, including those users in District 6, which includes the communities of Rampart, Central, Circle, and Eagle.[14] According to Division of Commercial Fisheries' data, 5,527 summer chum salmon, 80 fall chum salmon, and 39 coho salmon were retained from commercial harvests and used as dog food in Districts 1–5. Additionally, some portion of 13,595 fall chum salmon and 1,198 coho salmon retained during commercial periods likely went to feed dogs (W. H. Busher, Yukon Area Fall Season Asst. Management Biologist, ADF&G, Fairbanks; personal communication).

Primary gear types used by fishing households in surveyed villages in 2007 included set gillnet (50%), drift gillnet (41%), and fish wheel (9%), largely the same as 2006 (Figure 4-5).

Since 1992, ADF&G has inquired as to whether surveyed households were meeting their subsistence salmon needs for that 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). In 2003, ADF&G began asking this question in a species-specific manner, measuring responses by community and by species. Specifically, surveyed households were asked whether 100%, 75%, 50%, or <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. According to 2007 data, less than one-half (47%) of all households reported meeting >75% of their needs for Chinook salmon, 48% reported meeting >75% of their needs for summer chum salmon, and 29% reported meeting >75% of their needs for fall chum salmon and coho salmon. This represents a decrease in households reporting that the majority of their needs were met from 2005 and also a decrease in what residents reported in 2006. Forty-six percent of households reported meeting less than one-half (<50%) of their needs for Chinook salmon; 47%, 69%, and 68% of households reporting meeting less than one-half their needs for summer chum salmon, fall chum salmon, and coho salmon, respectively (W. H. Busher, Yukon Area Fall Season Asst. Management Biologist, ADF&G, Fairbanks; personal communication).

In 1993, the BOF made a positive customary and traditional (C&T) uses finding for all salmon in the Yukon–Northern area. The ANS determination was established at 348,000–503,000 salmon for all species combined. 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 30%. In 2001, the BOF determined species-specific amounts of salmon necessary for subsistence. A species-specific ANS range provides one index of the extent to which reasonable opportunity was 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 lower than the lower bound of the ANS are an indication to the BOF to consider whether additional management actions are necessary to provide reasonable

14. Some District 6 users, specifically residents of the Fairbanks North Star Borough, may harvest salmon from the Yukon bridge permit area rather than from the Tanana River drainage.

subsistence opportunities. All species were within ANS ranges in 2007; 2005 and 2007 mark the only times this has happened since 2001 (and 1998, if species-specific ANS estimates are projected back to 1998). See Table 4-4 for a comparison of ANS ranges and recent years' subsistence salmon harvests.

Nonsalmon Fish Harvests

While 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 fishers. While salmon are only available seasonally, most nonsalmon species are available year-round. Nonsalmon fish figure into the subsistence way of life for Yukon Area residents in biologically, historically, and culturally significant ways. In 1987 and again in 1993, the BOF made a positive C&T finding for freshwater fish species in the Yukon Area, including sheefish, whitefish species, lamprey, burbot, suckers, Arctic grayling, northern pike, and Arctic char (see 5 AAC 01.236). Nonsalmon fishing is generally open by regulation 7 days per week, 24 hours per day, year-round. These state regulations also apply to subsistence fisheries on federal lands in the project study area (unless superseded on federal public lands by federal subsistence regulations, applicable only to federally qualified subsistence users). Under ANILCA, rural Alaskan residents of the Yukon–Northern Area (except those living in ADF&G Game Management Unit 26B) and residents of the Yukon River drainage have a customary and traditional uses determination for nonsalmon fish and are therefore 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 (USFWS 2008).

ADF&G Division of Commercial Fisheries collects nonsalmon harvest data on an annual basis as part of their postseason salmon survey. However, it is important to keep in mind that collection of nonsalmon harvest data is not the primary purpose for the postseason salmon survey. Furthermore, the implementation of this postseason survey immediately following the salmon season may not be timed to produce the most reliable and accurate results for nonsalmon harvests, nor is the stratified sample of salmon fishing households necessarily the best design for collecting nonsalmon harvest information. Nonetheless, while other single-year harvest data collection efforts suggest that the postseason survey may significantly underestimate harvests (Andersen et al. 2004, Brown et al. 2005a), these data remain the only annual estimate of nonsalmon fish harvests in the Yukon Area (Table 4-5).

Table 4-2.–Estimated subsistence salmon harvests by community, Yukon Area, 2007.

Community	Households or permits		Estimated salmon harvest[a]					
	Total	Surveyed or returned	Chinook	Summer chum	Fall chum	Coho	Pink	Total
Alakanuk	125	54	1,257	7,611	1,348	857	32	11,105
Alatna	10	6	0	11	7	0	0	18
Allakaket	38	36	53	3,451	939	66	0	4,509
Anvik	34	29	1,321	5,250	429	807	0	7,807
Beaver	29	19	1,244	41	354	354	0	1,993
Bettles	24	11	0	0	0	0	0	0
Birch Creek	18	6	113	0	0	0	0	113
Central	10	10	334	0	0	0	0	334
Chalkyitsik	30	22	0	0	213	0	0	213
Circle	12	11	1,057	200	1,286	0	0	2,543
Eagle	37	36	1,999	15	18,676	0	0	20,690
Emmonak	156	89	2,326	9,256	2,360	1,032	51	15,025
Fairbanks	280	260	3,031	958	5,606	770	0	10,365
Fort Yukon	150	53	4,076	2,365	6,010	2,821	0	15,272
Galena	148	44	2,511	571	1,471	425	0	4,978
Grayling	48	14	1,500	641	317	271	0	2,729
Healy	9	8	0	0	1,090	1,463	0	2,553
Holy Cross	60	36	2,902	320	248	213	0	3,683
Hooper Bay	196	63	430	12,234	64	26	113	12,867
Hughes	29	18	8	1,213	0	100	0	1,321
Huslia	69	30	146	3,243	272	592	0	4,253
Kaltag	60	19	1,456	109	910	204	0	2,679
Kotlik	98	43	1,569	5,017	530	284	129	7,529
Koyukuk	35	23	811	995	927	189	0	2,922
Manley Hot Springs	14	14	333	140	3,419	1,126	0	5,018
Marshall	71	30	2,555	3,070	789	922	0	7,336
Minto	39	36	82	82	155	155	0	474
Mountain Village	146	61	2,077	8,104	1,073	1,027	87	12,368
Nenana	36	35	899	1,429	21,863	4,487	0	28,678
Nulato	86	30	2,431	356	1,345	130	0	4,262
Nunam Iqua (Sheldon Point)	35	24	907	2,325	152	92	170	3,646
Pilot Station	102	46	2,028	3,711	741	263	0	6,743
Pitka's Point	27	19	320	515	44	38	66	983
Rampart	4	2	250	25	250	50	0	575
Ruby	57	22	1,594	416	1,959	168	0	4,137
Russian Mission	57	19	1,301	759	530	259	3	2,852
Saint Marys	127	59	3,573	8,107	825	97	32	12,634
Scammon Bay	74	31	768	3,887	170	84	1,435	6,344
Shageluk	41	18	448	977	147	267	0	1,839
Stevens Village	31	25	610	254	199	0	0	1,063
Tanana	99	48	5,498	5,229	21,596	2,369	0	34,692
Venetie	49	19	1,002	107	721	0	0	1,830
Other Communities	61	56	472	81	85	5	0	643
Total	2,861	1,534	55,292	93,075	99,120	22,013	2,118	271,618

Source ADF&G Division of Commercial Fisheries personal communication, preliminary report. Tables 1, 3, 7, and 11. Preliminary results as of February 27, 2009.

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

Table 4-3.–Historical subsistence salmon harvests, Yukon area, 1976–2007.

	Households or permits[a]		Estimated salmon harvest[a]					
Year	Total	Surveyed or returned	Chinook	Summer chum	Fall chum	Coho	Pink	Total
1976			17,530		1,375	12,737		31,642
1977			16,007		4,099	16,333		36,439
1978			30,785	213,953	95,532	7,965		348,235
1979			31,005	202,772	233,347	9,794		476,918
1980			42,724	274,883	172,657	20,158		510,422
1981			29,690	210,785	188,525	21,228		450,228
1982			28,158	260,969	132,897	35,894		457,918
1983			49,478	240,386	192,928	23,905		506,697
1984			42,428	230,747	174,823	49,020		497,018
1985			39,771	264,828	206,472	32,264		543,335
1986			45,238	290,825	164,043	34,468		534,574
1987			55,039	300,042	226,990	46,213		628,284
1988	2,700	1,865	45,495	229,838	157,075	69,679		502,087
1989	2,211	983	48,462	169,496	211,303	40,924		470,185
1990	2,666	1,121	48,587	115,609	167,900	43,460		375,556
1991	2,521	1,261	46,773	118,540	145,524	37,388		348,225
1992	2,751	1,281	47,077	142,192	107,808	51,980		349,057
1993	3,028	1,397	63,915	125,574	76,882	15,812		282,183
1994	2,922	1,386	53,902	124,807	123,565	41,775		344,049
1995	2,832	1,391	50,620	136,083	130,860	28,377		345,940
1996	2,869	1,293	45,671	124,738	129,258	30,404		330,071
1997	2,825	1,309	57,117	112,820	95,141	23,945		289,023
1998	2,986	1,337	54,124	87,366	62,901	18,121		222,512
1999	2,888	1,377	50,515	79,250	83,420	19,984		233,169
2000	3,209	1,341	36,844	77,813	19,402	16,650	1,591	152,300
2001	3,072	1,355	56,103	72,392	36,164	23,236	403	188,298
2002	2,775	1,254	44,384	87,599	20,140	16,551	8,425	177,100
2003	2,850	1,377	56,872	83,802	58,030	24,866	2,167	225,737
2004	2,721	1,228	57,549	79,411	64,562	25,286	9,697	236,506
2005	2,662	1,406	53,547	93,411	91,667	27,357	3,132	269,114
2006	2,833	1,473	48,682	115,355	84,320	19,985	4,854	273,196
2007	2,861	1,534	55,292	93,075	99,120	22,013	2,118	271,618
5-year average (2002–2006)	2,768	1,348	52,207	91,916	63,744	22,809	5,655	236,331
10-year average (1997–2006)	2,882	1,346	51,574	88,922	61,575	21,598	4,324	226,696
Historical average (1976–2006)	2,806	1,339	44,971	160,906	118,052	28,573	4,324	343,097

Source ADF&G Division of Commercial Fisheries personal communication, preliminary report. Tables 1, 3, 7, and 11. Preliminary results as of February 27, 2009.

a. Estimates prior to 1988 are based on fish camp surveys and sampling information is unavailable.

Table 4-4.–Comparison of amounts necessary for subsistence (ANS) and estimated subsistence salmon harvests, Yukon Area, 1998–2007.

	Chinook	**Summer chum**	**Fall chum**	**Coho**
ANS range	45,500–66,704	83,500–142,192	89,500–167,900	20,500–51,980
Year	Estimated number of subsistence salmon harvested[a]			
1998	52,910	**81,858**	**59,603**	**16,606**
1999	50,711	**79,348**	**84,203**	**20,122**
2000	**33,896**	**72,807**	**15,152**	**11,853**
2001	53,462	**68,544**	**32,135**	21,977
2002	**42,117**	**79,066**	**17,908**	**15,619**
2003	55,221	**78,664**	**53,829**	22,838
2004	55,102	**74,532**	**61,895**	24,190
2005	53,409	93,259	91,534	27,250
2006	48,593	115,093	**83,987**	**19,706**
2007	55,156	92,891	98,947	21,878

Source ADF&G Division of Commercial Fisheries personal communication, preliminary report. Appendices B1–B4. Preliminary results as of February 27, 2009.

a. Estimates for 1998–2004 do not include personal use harvests, ADF&G test fishery distributions, or salmon removed from commercial harvests. Estimates for 2005–2007 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.

Table 4-5.–Estimated subsistence harvest of nonsalmon fish by community, Yukon Area, 2007.

	Households		Estimated nonsalmon harvest				
Community	Total	Surveyed	Large Whitefish[a]	Small Whitefish	Pike	Sheefish	Total
Alakanuk	125	54	1,396	4,756	2,904	1,424	10,480
Alatna	10	6	0	0	0	6	6
Allakaket	38	36	1,372	1,115	234	582	3,303
Anvik	34	29	210	124	140	110	584
Beaver	29	19	37	6	107	11	161
Bettles	24	11	0	0	26	16	42
Birch Creek	18	6	257	0	141	131	529
Chalkyitsik	30	22	12	64	122	82	280
Emmonak	156	89	543	3,113	2,315	1,287	7,258
Fort Yukon	150	53	1,000	443	426	140	2,009
Galena	148	44	518	451	157	131	1,257
Grayling	48	14	552	274	308	519	1,653
Holy Cross	60	36	1,016	438	482	53	1,989
Hooper Bay	196	63	45	4,712	764	124	5,645
Hughes	29	18	941	10,586	309	245	12,081
Huslia	69	30	399	408	2,901	102	3,810
Kaltag	60	19	15	6	42	70	133
Kotlik	98	43	504	4,309	2,788	2,327	9,928
Koyukuk	35	23	78	19	231	134	462
Marshall	71	30	676	468	1,619	267	3,030
Mountain Village	146	60	1,895	2,370	2,321	1,094	7,680
Nulato	86	30	274	826	385	448	1,933
Nunam Iqua (Sheldon Point)	35	25	179	1,385	639	1,147	3,350
Pilot Station	102	45	1,379	1,184	638	721	3,922
Pitka's Point	27	19	132	655	111	104	1,002
Ruby	57	22	287	192	64	74	617
Russian Mission	57	19	463	389	715	143	1,710
Saint Marys	127	59	1,969	1,424	2,522	447	6,362
Scammon Bay	74	31	511	1,590	1,640	105	3,846
Shageluk	41	18	278	228	577	157	1,240
Stevens Village	31	25	61	11	61	39	172
Tanana	99	48	2,442	3,084	43	963	6,532
Venetie	49	19	267	0	215	0	482
Total	2,359	1,065	19,708	44,630	25,947	13,203	103,488

Source ADF&G Division of Commercial Fisheries personal communication, preliminary report. Table 11. Preliminary results as of February 27, 2009.

a. Large whitefish are considered those 4 lb or larger and small whitefish are <4 lb.

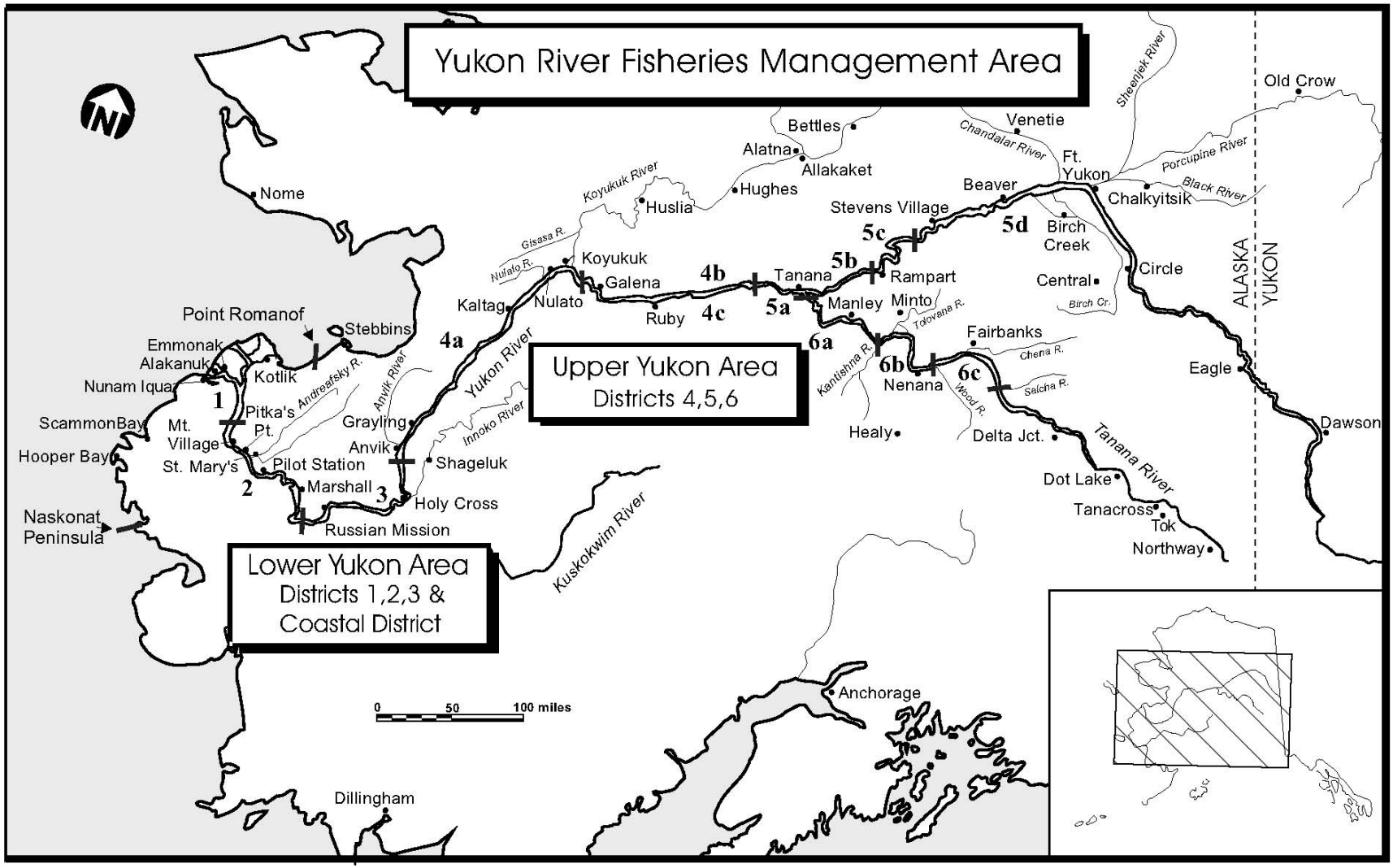

Figure 4-1.–Map of the Alaskan portion of the Yukon River drainage, showing communities and districts.

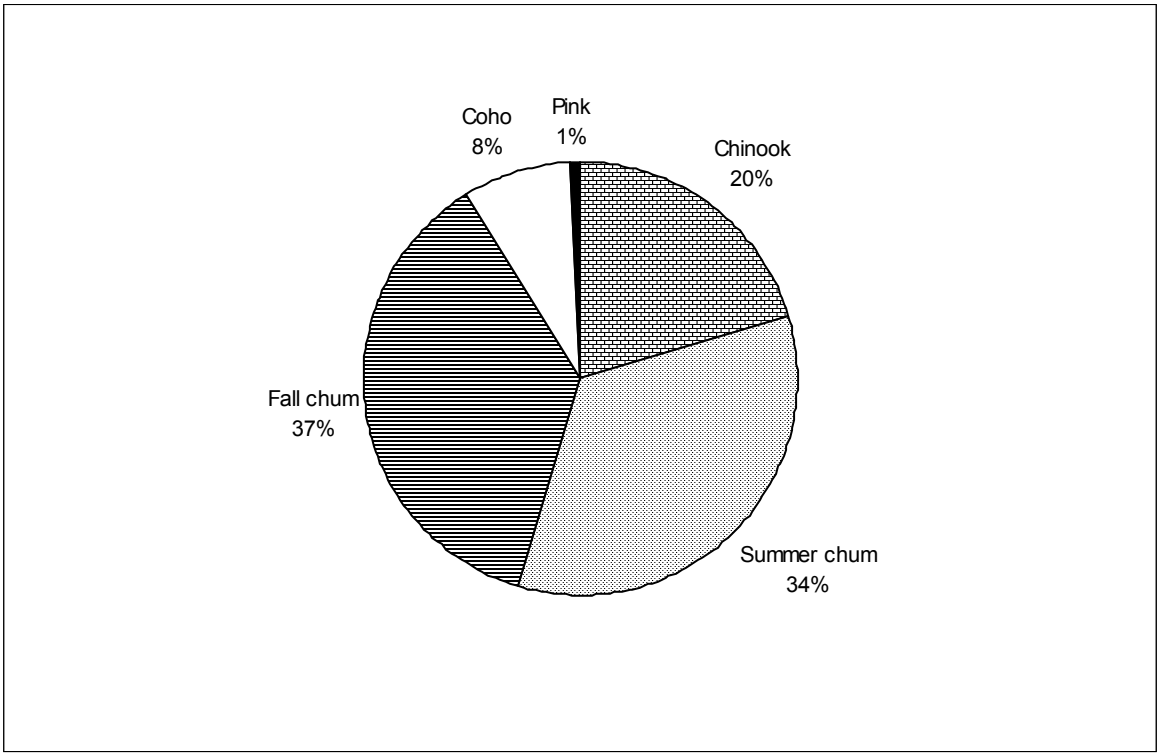

Figure 4-2.–Yukon area estimated subsistence salmon harvests, 2007.

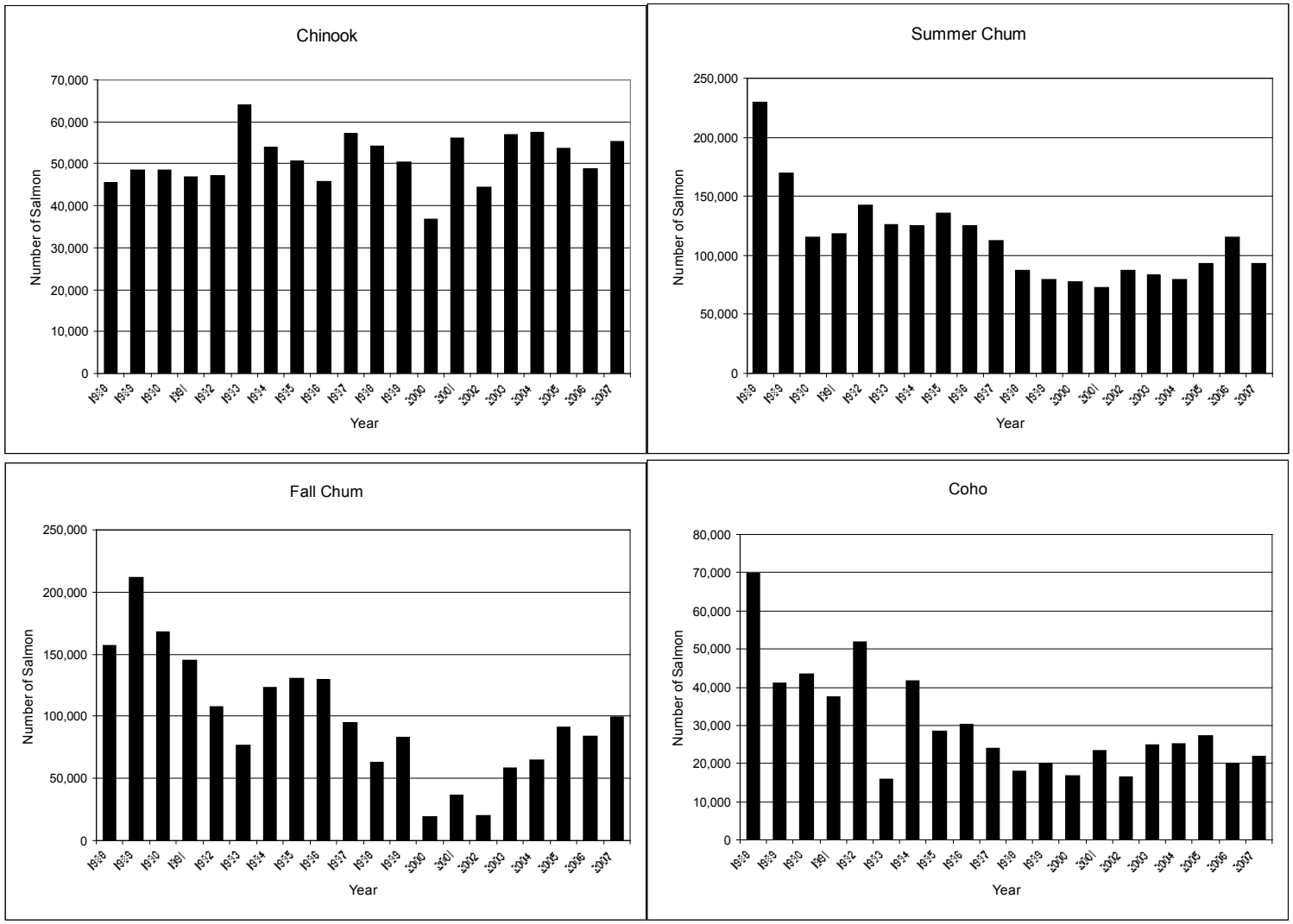

Figure 4-3.–Estimated subsistence salmon harvests by species, Yukon area, 1988–2007.

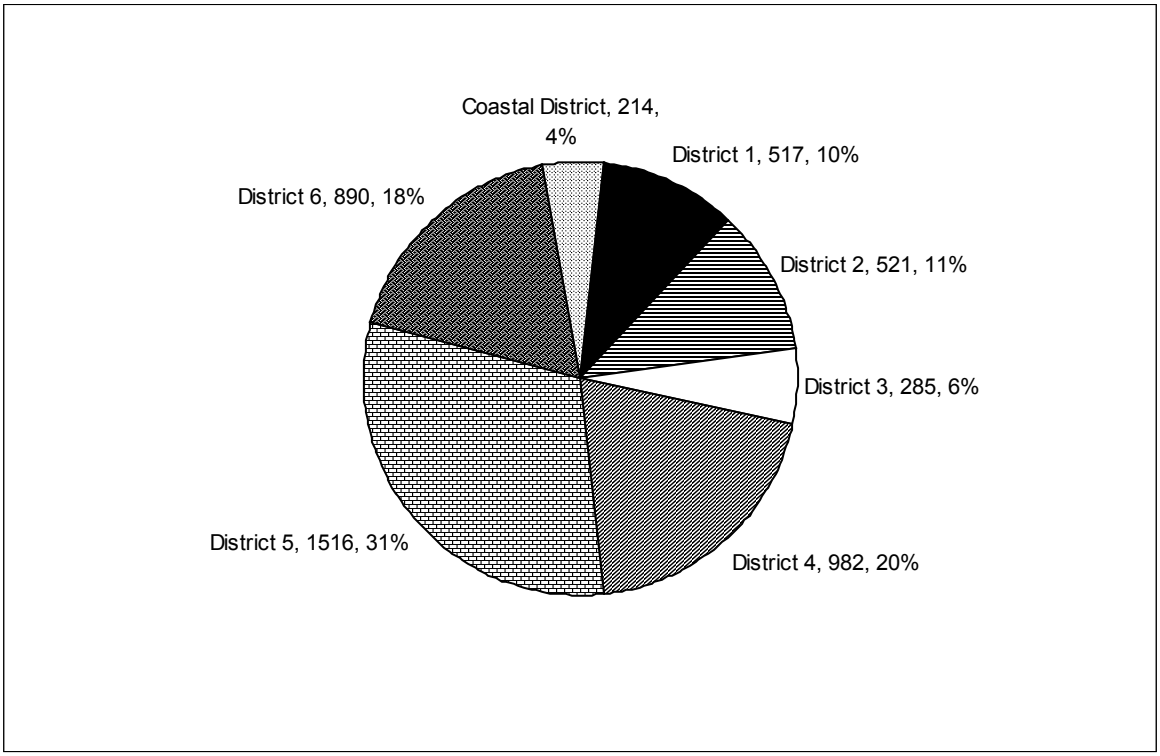

Figure 4-4.–Estimated number of dogs by district, Yukon Area, 2007.

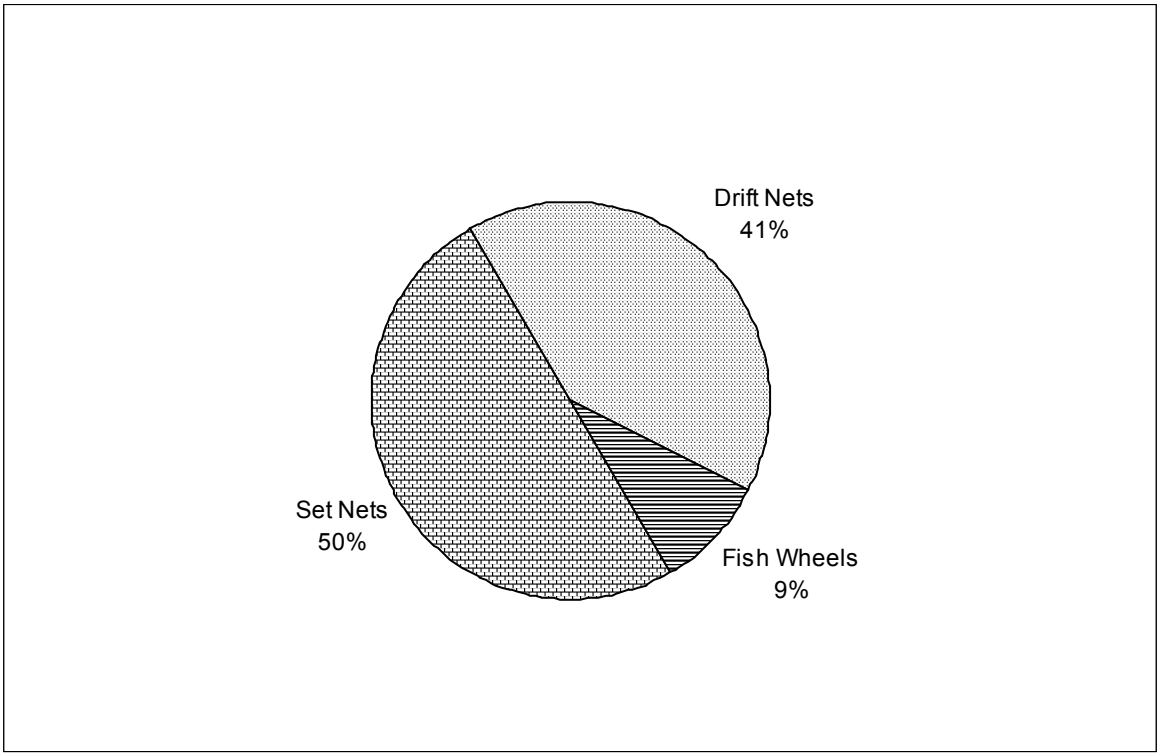

Figure 4-5.–Primary gear type utilized for subsistence salmon fishing, Yukon Area, 2007.

CHAPTER 5: KUSKOKWIM AREA

Background

The Kuskokwim area subsistence salmon fishery is one of the largest in the state. From June through August, the daily activities of many Kuskokwim area households revolve around harvesting, processing, and preserving salmon for subsistence uses. The movement of families from permanent winter residences to summer fish camps situated along rivers and sloughs continues to be a significant element of the annual subsistence harvest effort. Division of Subsistence studies in the region indicate that fish contribute as much as 85% of the total wild resource harvest (in pounds) in a community, and salmon contribute as much as 53% of the total annual fish harvest (Coffing 1991). The per capita harvest of salmon for subsistence uses is up to 650 lb in some Kuskokwim River communities (CSIS).

For the 15-year period 1989–2003, an estimated annual average of 1,443 households participated in the Kuskokwim area subsistence salmon fishery (Simon et al. 2007b). In 2007, an estimated 785 Kuskokwim area households participated in subsistence salmon fishing although the 2007 Division of Subsistence survey effort was significantly reduced from previous efforts due to funding limitations. Many households not directly involved in catching salmon assist family and friends with cutting, drying, and smoking fish, as well as with associated preservation activities (salting, canning, and freezing). Annual subsistence surveys are aimed at gathering harvest data on Chinook, chum, sockeye, and coho salmon.

There were 38 communities consisting of approximately 4,618 households within the Kuskokwim area in 2007. The majority (76%) of the households are situated within the Kuskokwim River drainage. Bethel is the largest community in the region, consisting of approximately 1,768 households in 2007. The north Kuskokwim Bay communities of Kwigillingok, Kongiganak, and Kipnuk are comprised of about 362 households, and while they are not located on the Kuskokwim River, many subsistence salmon fishing households from these 3 communities travel to the Kuskokwim River to fish, in addition to areas closer to their communities. Residents of Quinhagak, Goodnews Bay, and Platinum, located along the southern shore of Kuskokwim Bay (approximately 229 households), harvest salmon primarily from the Kanektok, Arolik, and Goodnews river drainages. The Bering Sea coastal communities of Mekoryuk (on Nunivak Island), Newtok, Tununak, Toksook Bay, Nightmute, and Chefornak are composed of approximately 505 households. Subsistence users from these communities harvest salmon from coastal waters as well as area tributaries.

Regulations

Statewide eligibility criteria require individuals to be Alaskan residents for the preceding 12 months before harvesting salmon for subsistence uses. Prior to 1990, there were additional restrictions on participation in the subsistence fishery. Most subsistence salmon fishers in the region are Kuskokwim area residents. However, some subsistence fishers are domiciled in other parts of Alaska but return to fish on their own or assist family or friends with the harvesting or processing of salmon.

Licenses and permits have never been required for subsistence salmon fishing in the Kuskokwim area, nor were any required during 2007. Standard conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Subsistence fishers using

rod and reel upstream of the Doestock River on the Aniak River had a combined daily bag limit of 3 salmon, of which no more than 2 could be Chinook salmon. Otherwise, there were no restrictions on the number of salmon allowed to be taken by individual fishers or households for subsistence uses in the Kuskokwim area. Salmon could be harvested for subsistence uses by set and drift gillnets, beach seines, fish wheels, and rod and reel. Spears could be used only in the Holitna, Kanektok, Arolik, and Goodnews river drainages. Set or drift gillnets in use by individual fishers could not exceed a total length of 50 fathoms. Gillnets used for harvesting salmon could be of any mesh size; however, nets with 6 in or smaller mesh could not be more than 45 meshes deep, and nets with mesh >6 in could not be more than 35 meshes deep. Fishers were required to have their names and addresses attached to gillnets and fish wheels.

Subsistence Salmon Fishing Schedule

In 2007, subsistence salmon fishing was open 7 days per week, with the exception of closures around commercial fishing periods.

Subsistence Closures during the Commercial Fishery

In January 2004, the BOF granted ADF&G discretionary emergency order authority to close the subsistence salmon fishery around commercial salmon fishing periods in districts 1 and 2. Prior to this action, areas within commercial salmon fishing districts were closed to subsistence salmon net and fish wheel gear 16 hours before, during, and 6 hours after commercial fishing periods (Simon et al. 2007c). Since 2004, areas within commercial salmon fishing districts were closed to subsistence salmon net and fish wheel gear 6 hours before, during, and 3 hours after commercial fishing periods as described in 5 AAC 01.260. Many of the fishers who participate in the Kuskokwim commercial fisheries are area residents who also subsistence fish. The purpose of these closures was to discourage illegal fishing activities, such as the sale of subsistence-caught salmon in the commercial fishery.

Subsistence Salmon Harvest Assessment Methods

Data on the harvest of salmon for subsistence uses are collected annually. The Division of Commercial Fisheries began conducting subsistence salmon harvest surveys in the Kuskokwim River drainage in 1960. Subsistence surveys were first performed in Quinhagak in 1967, while Goodnews Bay and Platinum surveys were initiated in 1979. The Division of Subsistence has been responsible for collecting and analyzing the annual subsistence salmon harvest surveys since 1988. More detailed descriptions of subsistence salmon harvest monitoring methods on the Kuskokwim are found elsewhere (Simon et al. 2007a, Walker and Coffing 1993). During the survey years prior to 1985, subsistence salmon harvest data were grouped into 2 primary categories: “king salmon” and “small salmon.” The survey was refined in 1988 to collect harvest data for all species of salmon except pink salmon.

Households in the Kuskokwim area are assigned a “household identification number” (HHID) to aid in tracking a household’s subsistence harvest over time. To aid community harvest estimation, households are stratified into 2 groups: 1) those that “usually fish” and, 2) those that “usually do not fish.” In 2007, 3 methods were used to gather subsistence salmon harvest data in the Kuskokwim area: subsistence salmon harvest calendars, return mail post card harvest reports, and postseason household harvest surveys.

Harvest Calendars

In May 2007, subsistence salmon harvest calendars were mailed to all Kuskokwim area households that "usually fished" and to those that fished the previous season. The harvest calendars were designed to record the daily harvest of each salmon species harvested for subsistence uses May–October 2007. All Kuskokwim area communities received the same style of calendar. The calendars were mailed to post office boxes when addresses were available; otherwise, calendars were sent via general delivery to the post office clerk for distribution. Each calendar was return-postage-paid and return-addressed to the Division of Subsistence office in Anchorage. Subsistence salmon harvest calendars were mailed to 3,870 households, of which 16 (<1%) were returned by mail or picked up during household surveys.

Household Surveys

The primary method of collecting subsistence salmon harvest information is the Division of Subsistence postseason household survey. Research staff travel to communities in the Kuskokwim area and perform house-to-house interviews, surveying residents about their subsistence fishing. The same household survey form was used for all communities in 2007.

Division of Subsistence staff and partner organizations conducted house-to-house surveys in 16 communities in 2007, with opportunistic surveying of additional fishing households from other communities when these fishers were encountered. Budget constraints precluded attempts to conduct surveys in additional Kuskokwim area communities during the 2007 survey year.

Through funding provided by the ADF&G divisions of Commercial Fisheries and Subsistence, the Orutsararmiut Native Council (ONC) hired 2 survey technicians to conduct house-to-house surveys in Bethel and the Kuskokwim Native Association (KNA) hired 2 technicians to conduct house-to-house surveys in Aniak. The Division of Subsistence trained technicians in survey methods, while ONC and KNA provided supervision during the postseason survey. Data collected by both ONC and KNA followed methods and protocols developed by the Division of Subsistence.

Survey efforts in Kuskokwim area communities occurred over a 3 month time span beginning in late September, after most residents had completed salmon fishing for the season and most subsistence users had returned from fall moose and caribou hunts. Communities where residents usually harvest salmon through October were surveyed in November. Prior to beginning community surveys, efforts were made to inform and prepare residents for the arrival of survey staff. This was done weeks or days in advance via letters to city, tribal, or traditional council offices, radio announcements, posters placed in public buildings, and telephone calls to community officials. Prior to traveling to each community, staff identified households that had already mailed or otherwise returned their salmon harvest calendars. Time spent by survey staff on house-to-house interviews varied from one-half to 2 days per community, depending on community size.

Upon arrival in a community, the survey staff introduced themselves to area council officials and outlined their task. Staff used household checklists to identify residents they needed to contact for household surveys. Each checklist contained a list of all known households in the community and identified those households that were reported to have subsistence fished for salmon the previous year (2006). Each checklist also indicated which households were mailed 2007 harvest calendars. Knowledgeable individuals in the community helped staff update the community household list and identify which households "usually fished" and which households "usually did not fish." These individuals also helped identify households that subsistence fished for salmon in 2007. Attempts were made to contact all households that "usually fished" or that were known

to have fished during 2007. If time permitted, households that were classified as "usually did not fish" were contacted about their subsistence fishing activities. This method was used in all communities surveyed except Bethel, where a 25% random sample of Bethel households was surveyed in 2007.

Completed subsistence salmon harvest calendars that had not been returned to ADF&G were collected during the interview, if available. In 2007, 1,275 Kuskokwim area households were surveyed.

Post Card Reports

Following door-to-door household surveys, 605 post card harvest reports were mailed to selected households that were not contacted directly or from which harvest calendars were not received. Of those post card surveys distributed only 76 were returned.

2007 Sampling Summary

From an estimated 4,618 households located in the Kuskokwim area, contact was made with 1,356 unique households by household surveys, returned calendars, or post card surveys (Table 5-1). From this total, harvest data were obtained for 832 households; community harvest estimates were expanded from this data set, except in communities where fewer than 30 households or <50% of all households in a sample stratum were contacted. In this case, the reported harvest was used as the harvest for the community (no expansion to noncontacted households occurred). From the 1,356 households for which the Division of Subsistence had information, 785 (58% of households contacted and approximately 17% of the total area households) were identified as having subsistence fished for salmon in 2007 (although specific harvest numbers were not available for all fishing households). The subsistence harvest estimate for the management area is the sum of totals for each community (see Appendix A for more detail on data analysis procedures). The management area total should be viewed as a minimum estimate because it is based on estimated (expanded) harvests for some communities and reported harvests (not total community estimates) for other communities with small samples or low sampling fractions, and because no harvest data are available for those communities in which no households were contacted.

Within the Kuskokwim River drainage (including North Kuskokwim Bay communities), 1,255 (32%) of the 3,884 households were contacted. Based upon 2007 data, this region represents 84% of the estimated total number of households in the Kuskokwim area and 91% of the identified subsistence fishing households. It is important to keep in mind that the 2007 postseason harvest monitoring effort focused on documenting subsistence salmon harvests from the Kuskokwim River, so these figures are understandably biased.

In the South Kuskokwim Bay region (Quinhagak, Goodnews Bay, and Platinum), 99 (43%) of the 229 households were contacted. Seventy households (31%) were estimated to have subsistence fished in 2007. Seventy-one percent of the contacted households harvested salmon in 2007 for subsistence uses.

The Bering Sea coastal communities of Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak, and Chefornak have an estimated 505 total households. The only data obtained from this region was from 2 surveys collected from members of the communities of Mekoryuk and Toksook Bay who were encountered outside of those respective communities. Because no harvest data are available for those communities in which no households were contacted or minimal

thresholds were not met, participation in salmon harvest activities by households in the Bering Sea coast communities is believed to be much greater than reported.

2007 Subsistence Salmon Harvest Summary

A summary of the subsistence salmon harvest estimates by community and fishing area is presented in Table 5-2. In 2007, subsistence salmon harvest estimates for communities contacted in the Kuskokwim area totaled 72,097 Chinook salmon (38%), 53,298 chum salmon (28%), 34,578 sockeye salmon (18%), 26,270 coho salmon (14%), and 1,259 pink salmon (1%), for a total estimate of 187,502 salmon (see Figure 5-1). These estimates fall below recent averages for all species of salmon, with the exception of pink salmon, harvests which ADF&G only recently began monitoring in the Kuskokwim area. Consequently, historical comparisons are not yet possible for pink salmon. As noted in the sampling summary section, the 2007 Kuskokwim Area subsistence salmon harvest monitoring effort was significantly reduced compared to previous years. As a result, these are minimum estimates because no households were contacted in a number of communities, and too few households in others, so as to produce expanded community estimates. Lower Kuskokwim River area communities accounted for 85% of the 2007 estimated subsistence salmon harvests in the Kuskokwim area and 87% of the entire estimated Chinook salmon subsistence harvest. Residents of Bethel accounted for 38% of the Kuskokwim area subsistence salmon harvests and 41% of all subsistence-caught Chinook salmon and 49% of the estimated total of all subsistence-caught coho salmon.

The estimated 2007 Chinook salmon subsistence harvest in the entire Kuskokwim Management Area represents an increase of 6% from 2006. However, the Chinook salmon harvest was 2% below the recent 5-year average, 6% below the 10-year average, 10% below the recent 15-year average, and 12% below the historical average (1989–2006) (Table 5-3). The 2007 chum salmon subsistence harvest estimate was 23% below the chum salmon harvest in 2006. The chum salmon harvest was 2% below the recent 5-year average, <1% below the recent 10-year average, 14% below the recent 15-year average and 27% below the historical average (1989–2006). The 2007 sockeye salmon harvest estimate was 1% below the 2006 harvest, 5% below the recent 5-year average, 15% below the recent 10-year average, 13% below the recent 15-year average, and 15% below the historical average (1989–2006) harvest. In 2007, coho salmon subsistence harvests were 20% below the 2006 harvest, 28% lower than the recent 5-year average, 22% below the recent 10-year average and 25% lower than the recent 15-year average and 31% less than the historical average (1989–2006) harvest.

Use of Salmon for Dog Food

Historically, the use of salmon for dog food was a large portion of the overall subsistence salmon harvest, specifically for chum and coho salmon. In recent years, the number of households harvesting salmon specifically for dog food has declined, likely due to decreased use of dog teams for transportation. In 2007, an estimated total of 5,561 salmon were harvested for use as dog food. The majority of the estimated harvest for dog food was chum salmon at 4,006 fish, while coho salmon accounted for 500 fish. Sockeye salmon contributed an estimated harvest for dog food of 1,053 fish, while no pink salmon were reported harvested for dog food. Households do not target Chinook salmon for dog food; however, 2 Chinook salmon unfit for human consumption were reported to be fed to dogs so as not to waste the fish. It is common for most households to feed scraps, backbones, entrails, and salmon unfit for human consumption to their dogs.

Gear Types

Subsistence fishing households often use more than one type of gear (i.e., set gillnet, drift gillnet, fish wheel, or rod and reel) when harvesting salmon (Table 5-4). Households that harvested salmon were asked to provide information on the types of gear they used. During 2007, 599 households reported using drift gillnets for subsistence salmon harvests, 91 reported using setnets, and 168 reported using subsistence rod and reel gear.

The most common gear type used in the Kuskokwim area is the drift gillnet (70% of reporting households), which is the primary fishing gear used from Crooked Creek to Kuskokwim Bay. Many households throughout the area also use rod and reel for subsistence fishing. Rod and reel is used by households that may not have access to other gear types, by fishers in areas where other gear types are not as effective or efficient, and to harvest fewer fish when less are sought.

Salmon Retained from Commercial Fishing for Subsistence Uses

Households involved in commercial salmon fishing occasionally keep a small portion of their commercial harvest for subsistence uses; however the number of salmon retained from commercial fishing activities for subsistence is usually relatively low. In 2007, few households reported retaining commercially-caught salmon for subsistence uses. An estimated total of 702 salmon were retained from commercial catches, including 189 Chinook, 197 chum, 165 sockeye, 141 coho, and 10 pink salmon.

Other Fish

Nonsalmon harvest estimates have been provided for communities such as Kwethluk, Nunapitchuk, and Akiachak from community-based surveys conducted by the Division of Subsistence in the Kuskokwim region in the 1980s and 1990s, and for Bethel from 2001–2004. Additionally, the Division of Subsistence conducted a 2-year nonsalmon harvest assessment project for Aniak and Chuathbaluk in spring 2002 and 2003 (Krauthoefer et al. 2007). Subsistence surveys about Pacific herring *Clupea pallasi* were conducted in the mid-1980s through the early 1990s in the Nelson Island region. These data are in the CSIS. There were no nonsalmon subsistence harvest monitoring projects conducted in 2007 as part of the postseason subsistence salmon harvest monitoring program.

Table 5-1.–Harvest assessment sampling summary, Kuskokwim area, 2007.

Community	Total households	Calendars		Post cards		Surveyed	Total contacts[a]	Subsistence fished[a]	Harvest data[b]
		Mailed	Returned	Mailed	Returned				
Kipnuk[c]	175	8	0	--	--	--	--	--	--
Kwigillingok[c]	95	3	0	--	--	--	--	--	--
Kongiganak[c]	92	92	0	--	--	--	--	--	--
North Kuskokwim Bay	362	103	0	0	0	0	0	--	--
Tuntutuliak	87	95	2	42	3	42	45	34	33
Eek	78	5	2	--	--	0	2	2	2
Kasigluk[c]	129	1	0	--	--	--	--	--	--
Nunapitchuk	112	112	2	54	7	57	65	39	39
Atmautluak	63	42	1	25	0	36	36	18	17
Napakiak	100	97	0	45	2	51	53	37	37
Napaskiak	90	95	0	44	5	42	47	38	35
Oscarville	16	16	0	7	1	9	10	10	10
Bethel	1,768	1,768	--	--	--	444	444	194	250
Kwethluk	167	167	0	75	12	86	97	63	63
Akiachak	139	140	0	59	10	76	86	67	67
Akiak	79	82	0	35	2	46	48	36	35
Tuluksak[c]	88	88	0	--	--	--	--	--	--
Lower Kuskokwim	2,916	2,708	7	386	42	889	933	538	588
Lower Kalskag	83	82	1	31	6	51	57	25	25
Kalskag (Upper)	30	70	0	25	3	8	11	9	9
Aniak	161	177	4	56	12	112	126	90	90
Chuathbaluk	36	43	0	--	--	2	2	2	2
Middle Kuskokwim	310	372	5	112	21	173	196	126	126
Crooked Creek	30	33	0	--	--	1	1	1	1
Red Devil	13	13	0	2	0	10	10	6	6
Sleetmute	32	40	1	9	3	20	24	14	14
Stony River[c]	16	18	0	--	--	--	--	--	--
Lime Village[c]	15	11	0	--	--	--	--	--	--
McGrath	134	147	1	34	4	85	87	27	27
Takotna	20	21	0	--	--	3	3	0	0
Nikolai	34	42	1	--	--	0	1	1	1
Telida[c]	2	3	0	--	--	--	--	--	--
Upper Kuskokwim	296	328	3	45	7	119	126	49	49
Kuskokwim River	3,884	3,511	15	543	70	1,181	1,255	713	763
Quinhagak	152	153	0	62	6	91	97	68	65
Goodnews Bay	61	68	1	--	--	1	2	2	2
Platinum[c]	16	16	0	--	--	--	--	--	--
South Kuskokwim Bay	229	237	1	62	6	92	99	70	67
Mekoryuk	79	1	0	--	--	1	1	1	1
Newtok[c]	79	--	--	--	--	--	--	--	--
Nightmute[c]	46	--	--	--	--	--	--	--	--
Toksook Bay	106	120	0	--	--	1	1	1	1
Tununak[c]	104	--	--	--	--	--	--	--	--
Chefornak[c]	91	1	0	--	--	--	--	--	--

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Table 5-1. Page 2 of 2.

Community	Total households	Calendars Mailed	Calendars Returned	Postcards Mailed	Postcards Returned	Surveyed	Total contacts[a]	Subsistence fished[a]	Harvest data[b]
Bering Sea Coast	505	122	0	0	0	2	2	2	2
Totals	4,618	3,870	16	605	76	1,275	1,356	785	832

a. "Contact" means that households were directly contacted by returning a calendar or post card or by being interviewed in a face-to-face or telephone survey.

b. Harvest data includes expanded estimates for households that did not fish as well as reported harvests from households which did fish and provided harvest numbers.

c. Community was not contacted during the 2007 study period.

-- Data not available.

Table 5-2.–Subsistence salmon harvests by community, Kuskokwim area, 2007.

Community	Households Total	Households Contacted	Estimated salmon harvests[a] Chinook	Chum	Sockeye	Coho	Pink	Total
Kipnuk[b]	175	0	--	--	--	--	--	--
Kwigillingok[b]	95	0	--	--	--	--	--	--
Kongiganak[b]	92	0	--	--	--	--	--	--
North Kuskokwim Bay	362	0	--	--	--	--	--	--
Tuntutuliak	87	45	3,295	2,421	1,374	443	7	7,540
Eek	78	2	110	130	16	0	0	256
Kasigluk[b]	129	0	--	--	--	--	--	--
Nunapitchuk	112	65	4,664	6,588	2,124	1,765	11	15,152
Atmautluak	63	36	1,364	1,802	828	361	16	4,372
Napakiak	100	53	2,318	2,537	1,152	906	0	6,913
Napaskiak	90	47	4,965	2,489	1,346	521	0	9,320
Oscarville	16	10	1,048	725	537	134	0	2,444
Bethel	1,768	444	29,548	15,836	13,556	12,787	383	72,110
Kwethluk	167	97	4,924	4,517	2,630	1,186	63	13,320
Akiachak	139	86	7,021	4,407	2,896	2,167	672	17,164
Akiak	79	48	3,463	3,435	3,107	1,089	16	11,109
Tuluksak[b]	88	0	--	--	--	--	--	--
Lower Kuskokwim	2,916	933	62,721	44,887	29,567	21,359	1,168	159,701
Lower Kalskag	83	57	1,043	1,461	531	337	0	3,372
Kalskag (Upper)	30	11	407	95	128	107	0	737
Aniak	161	126	2,737	3,391	953	2,435	20	9,537
Chuathbaluk	36	2	147	123	41	47	0	358
Middle Kuskokwim	310	196	4,334	5,070	1,653	2,927	20	14,004
Crooked Creek	30	1	12	0	0	0	0	12
Red Devil	13	10	284	160	299	181	0	924
Sleetmute	32	24	903	860	1,350	365	34	3,512
Stony River[b]	16	0	--	--	--	--	--	--
Lime Village[b]	15	0	--	--	--	--	--	--
McGrath	134	87	392	315	365	275	0	1,346
Takotna	20	3	0	0	0	0	0	0
Nikolai	34	1	0	16	0	0	0	16

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Table 5-2. Page 2 of 2.

Community	Households		Estimated salmon harvests[a]					
	Total	Contacted	Chinook	Chum	Sockeye	Coho	Pink	Total
Telida[b]	2	0	--	--	--	--	--	--
Upper Kuskokwim	296	126	1,590	1,351	2,014	821	34	5,811
Kuskokwim River	3,884	1,255	68,645	51,308	33,234	25,107	1,222	179,516
Quinhagak	152	97	3,412	1,725	1,303	1,143	33	7,615
Goodnews Bay	61	2	24	7	36	20	0	87
Platinum[b]	16	0	--	--	--	--	--	--
South Kuskokwim Bay	229	99	3,436	1,732	1,339	1,163	33	7,702
Mekoryuk	79	1	0	134	0	0	0	134
Newtok[b]	79	0	--	--	--	--	--	--
Nightmute[b]	46	0	--	--	--	--	--	--
Toksook Bay	106	1	16	125	5	0	4	150
Tununak[b]	104	0	--	--	--	--	--	--
Chefornak[b]	91	0	--	--	--	--	--	--
Bering Sea Coast	505	2	16	259	5	0	4	284
Totals	4,618	1,356	72,097	53,298	34,578	26,270	1,259	187,502

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

a. If fewer than 30 or <50% of households in a stratum in a community were contacted, then reported harvest is used for estimated harvest.

b. Community was not contacted during the 2007 study period.

-- Data not available.

Table 5-3.–Estimated historical subsistence salmon harvests, Kuskokwim area, 1989–2007.

	Households		Estimated salmon harvests				
Year	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Total
1989	3,422	2,135	85,322	37,088	57,786	145,106	325,287
1990	3,317	1,830	92,675	39,659	50,708	131,470	314,513
1991	3,347	2,024	90,226	56,401	55,620	96,314	298,561
1992	3,314	1,724	68,685	34,158	44,494	99,576	246,914
1993	3,274	1,816	91,722	51,362	35,295	61,724	240,103
1994	3,179	1,821	98,378	39,280	36,504	76,949	251,111
1995	3,652	1,894	100,157	28,622	39,165	68,941	236,885
1996	3,643	1,837	81,597	35,037	34,699	90,239	241,572
1997	3,510	1,831	85,506	41,251	30,717	40,993	198,466
1998	3,495	1,849	86,113	37,579	27,240	67,664	218,595
1999	4,180	2,523	77,660	49,388	27,753	47,612	202,413
2000	4,441	2,750	68,841	44,832	35,670	55,371	204,714
2001	4,483	2,297	77,570	51,965	31,686	51,117	212,338
2002	4,339	2,798	70,219	27,733	34,413	73,234	205,599
2003	4,535	2,375	72,498	36,894	38,791	46,291	194,474
2004	4,670	2,432	85,086	34,892	39,406	55,575	214,959
2005	3,903	1,610	72,174	47,656	36,751	28,838	186,762
2006	4,657	1,514	68,041	34,849	32,809	68,812	204,510
2007	4,618	1,356	72,097	34,578	26,270	53,298	186,243
5-year average (2002–2006)	4,421	2,146	73,603	36,405	36,434	54,550	201,261
10-year average (1997–2006)	4,221	2,198	76,371	40,704	33,524	53,551	204,283
15-year average (1992–2006)	3,952	2,071	80,283	39,700	35,026	62,196	217,294
Historical average (1989–2006)	3,853	2,059	81,804	40,480	38,306	72,546	233,210

Source ADF&G Division of Subsistence CSIS.

Table 5-4.–Gear types used for subsistence fishing, Kuskokwim area, 2007.

Community	Fishing households	Gear types[a]				
		Set net	Drift net	Rod and reel	Other gear–unspecified	Not reported
Kipnuk[b]	--	--	--	--	--	--
Kwigillingok[b]	--	--	--	--	--	--
Kongiganak[b]	--	--	--	--	--	--
North Kuskokwim Bay	--	--	--	--	--	--
Tuntutuliak	34	1	28	5	0	4
Eek	2	0	0	0	0	2
Kasigluk[b]	--	--	--	--	--	--
Nunapitchuk	39	1	31	0	0	8
Atmautluak	18	1	17	0	0	0
Napakiak	37	6	33	0	0	2
Napaskiak	38	7	33	3	0	4
Oscarville	10	1	9	1	0	1
Bethel	194	7	169	35	2	3
Kwethluk	63	12	42	15	0	11
Akiachak	67	19	54	3	0	10
Akiak	36	7	30	4	0	3
Tuluksak[b]	--	--	--	--	--	--
Lower Kuskokwim	538	62	446	66	2	48
Lower Kalskag	25	3	21	1	0	3
Kalskag (Upper)	9	0	7	0	0	2
Aniak	90	11	56	55	0	10
Chuathbaluk	2	0	2	0	0	0
Middle Kuskokwim	126	14	86	56	0	15
Crooked Creek	1	0	1	0	0	0
Red Devil	6	1	5	2	0	0
Sleetmute	14	6	3	3	0	4
Stony River[b]	--	--	--	--	--	--
Lime Village[b]	--	--	--	--	--	--
McGrath	27	5	8	11	0	6
Takotna	0	0	0	0	0	0
Nikolai	1	0	0	0	0	1
Telida[b]	--	--	--	--	--	--
Upper Kuskokwim	49	12	17	16	0	11
Kuskokwim River	713	88	549	138	2	74
Quinhagak	68	3	47	30	1	8
Goodnews Bay	2	0	1	0	0	1
Platinum[b]	--	--	--	--	--	--
South Kuskokwim River	70	3	48	30	1	9
Mekoryuk	1	0	1	0	0	0
Newtok[b]	--	--	--	--	--	--
Nightmute[b]	--	--	--	--	--	--
Toksook Bay	1	0	1	0	0	0

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Table 5-4. Page 2 of 2.

Community	Fishing households	Gear types[a]				
		Set net	Drift net	Rod and reel	Other gear–unspecified	Not reported
Tununak[b]	--	--	--	--	--	--
Chefornak[b]	--	--	--	--	--	--
Bering Sea Coast	2	0	2	0	0	0
Totals	785	91	599	168	3	83

Note Data from household surveys, harvest calendars, and/or post card surveys.

a. Households may use multiple gear types.

b. Community was not contacted during the 2007 study period.

-- Data not available.

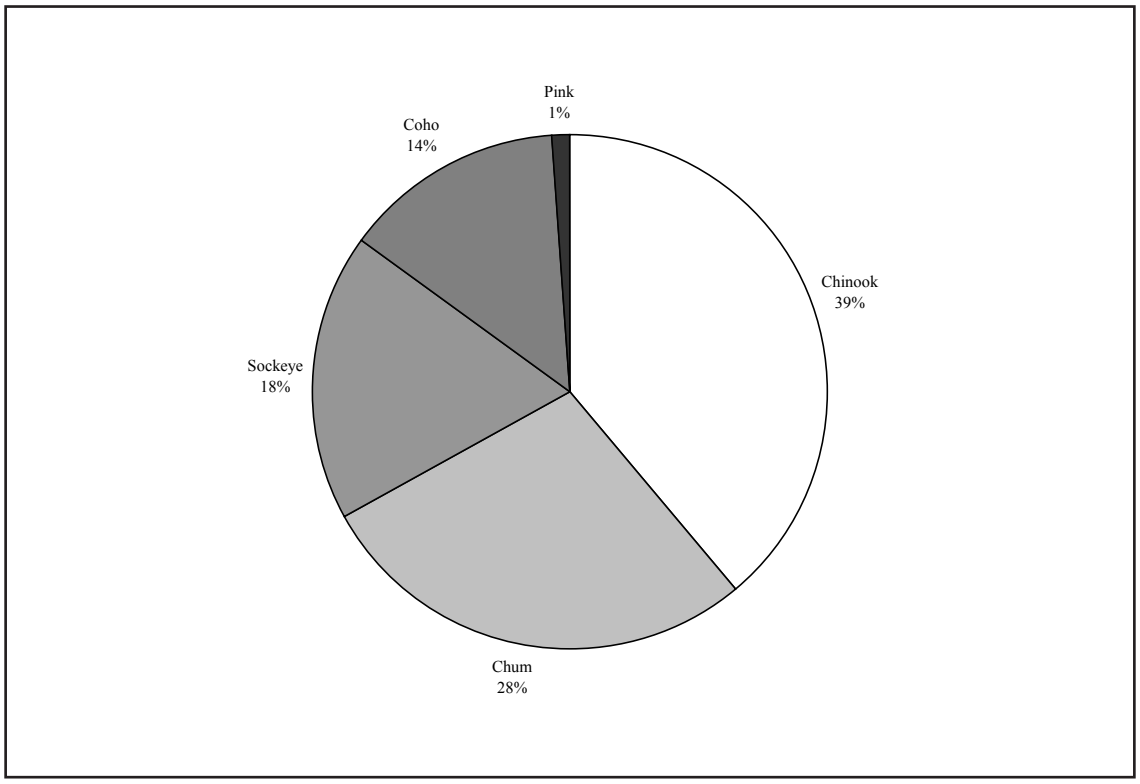

Figure 5-1.–Kuskokwim salmon harvest composition, 2007.

CHAPTER 6: BRISTOL BAY AREA

Background

In spite of numerous social, economic, and technological changes, Bristol Bay residents continue to depend on salmon and other fish species as an important source of food. Residents have relied on fish to provide nourishment and sustenance for thousands of years. Subsistence harvests still provide important nutritional, economic, social, and cultural 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 2 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. 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 2007, 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.

At its regulatory meeting in Dillingham in December 2006, the BOF adopted 3 changes to subsistence salmon fishing regulations that affected portions of the Bristol bay area. The first change allowed salmon to be taken with drift gillnets no more than 10 fathoms in length in the lower 2 miles of the Togiak River. The second change allowed spears to be used to take salmon in Lake Clark, and the third change allowed the use of beach seines and gillnets to take salmon in Iliamna Lake, Six Mile Lake, and Lake Clark.

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 September, 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 (Salomone et al. 2007:21) 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 2007

From June 1 through September 30 in all waters of a commercial salmon district within the Bristol Bay region, subsistence salmon may be taken only during commercial fishing periods. In the Nushagak District, subsistence salmon fishing was provided for by emergency order during periods of extended commercial fishing closures. For complete information on inseason management of the subsistence fishery in 2007 see Sands et al. (2008:41–49).

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 2007, a total of 1,063 permits were issued for the Bristol Bay Management Area, of those 917 or 86% were returned (Table 6-2). The largest number of permits were issued for the Nushagak (496 permits) and Naknek–Kvichak (480 permits) districts (Table 6-1). The number of permits issued in 2007 was below both the 5-year (1,100) and 10-year (1,157) averages.

Subsistence Salmon Harvests in 2007

Estimated total Bristol Bay subsistence salmon harvests in 2007 were 124,679 fish (Table 6-1). The 2007 harvest was above the 5-year average of 123,699 fish and below the 10-year average of 129,317 salmon and the historical average (1983–2006) of 151,477 salmon (Table 6-2).

Chinook salmon harvests were estimated at 15,444 in 2007, an increase from the previous years' harvest of 12,617, but still lower than the 2003 record harvest of 21,231 fish. Estimated sockeye salmon harvests for 2007 were 99,549, above the recent 5-year average of 92,862 fish and below the recent 10-year average of 100,222 fish and the historical average (1983–2006)

of 118,481 fish. Compared to the historical average (1983–2006), subsistence harvests of pink salmon were much lower in 2007 at 815 fish (returns of pink salmon to Bristol Bay are higher in even-numbered years than in odd-numbered years). The estimated harvest of chum salmon in 2007 (3,991 salmon) was lower than the 10-year average (4,837 fish), as was the estimated harvest of coho salmon (4,880 fish) (Table 6-2).

In 2007, the Bristol Bay subsistence salmon harvest was composed of 80% sockeye salmon, 12% Chinook salmon, 4% coho salmon, 3% chum salmon, and 1% pink salmon (Figure 6-1). Of the entire Bristol Bay area subsistence salmon harvest in 2007, residents of Bristol Bay communities harvested 113,727 salmon (91%), and other Alaska residents harvested 10,952 salmon (9%) (Table 6-3).

In 2007, as over the last several decades, most of the Bristol Bay area subsistence harvest was taken in the Naknek–Kvichak (58%) and the Nushagak (36%) districts (Figure 6-2). The Naknek–Kvichak total harvest of 72,280 salmon in 2007 (Table 6-1) was slightly higher than in 2006 (71,796 salmon) and slightly less than 2005 (72,302 salmon). It was substantially higher than the 2003 harvest of 63,934 salmon (Jones et al. 2009:103). Kvichak drainage residents, and other permit holders fishing in the Kvichak drainage portion of the Naknek–Kvichak District, harvested an estimated 8 Chinook salmon, and 47,473 sockeye salmon, while those fishing in the Naknek River Subdistrict harvested 664 Chinook salmon, and 22,364 sockeye salmon (Table 6-1). The 2007 subsistence harvest of 47,473 sockeye salmon in the Kvichak drainage (Table 6-1) was lower than the harvests from 2004 through 2006 and below historical levels (the 10-year average harvest from 1988 through 1997 was 67,156 sockeye salmon) (Jones et al. 2009:106).[15]

In the Nushagak District, the total estimated subsistence harvest in 2007 was 44,944 salmon. This was slightly higher than the 2006 harvest of 40,373 salmon, but lower than the 10-year (1998–2007) average of 46,172 salmon. The Nushagak Chinook salmon harvest in 2007 was 13,330 fish, higher than the 2006 harvest of 9,971 and the 2005 estimate of 12,529 but down from the 2003 estimate of 18,686 fish (the highest estimate on record), and below the 10-year (1988–1997) average of 13,598 fish. The Nushagak District sockeye salmon harvest of 25,127 fish was higher than the 2006 estimate of 20,773 fish and the 2005 estimate of 23,916 fish and also higher than the previous 10-year average of 24,157 fish (Jones et al. 2009:104).

The estimated total subsistence salmon harvest for the Togiak District in 2007, 4,332 fish, was lower than the previous years' estimate of 5,613 fish and lower than the previous 10-year average (5,060 salmon) and the 20-year average (4,749 salmon) (Jones et al. 2009:105). Estimated harvests in 2002 and from 2004 through 2007 were below those for 2001 and 2003; this likely reflects at least in part the absence of postseason household surveys in Togiak and Twin Hills for those 2 years, which had increased participation in the harvest assessment program. The estimated subsistence salmon harvest in the Ugashik District in 2007 was 1,546 fish, slightly higher than the 2006 estimate of 1,364 fish, but lower than the previous 10-year average of 1,625 fish. In the Egegik District, the estimated subsistence salmon harvest of 1,577 fish was lower than the 2006 estimate of 2,418 and slightly over one-half the 2005 harvest of 3,106 salmon. The 2007 estimate

15. Note that the total Kvichak River drainage sockeye salmon harvest number listed in the 2008 Bristol Bay Area Annual Management Report (Jones et al. 2009:106) was adjusted down to the total of 47,473 by the Division of Subsistence after the Annual Management Report was published. Additional harvest numbers compiled through household subsistence salmon harvest surveys in 4 Kvichak drainage communities increased the accuracy of the harvest numbers and reduced the expansion factor for the estimated subsistence salmon harvest in the Kvichak drainage in 2007.

was notably lower than the 4,711 fish estimated for 2004 (the second highest estimate since 1984), and was less than the previous 10-year average of 2,832 salmon (Jones et al. 2009:103–104).

Other Subsistence Fisheries

In May 2003, new federal regulations authorizing subsistence fishing for halibut came into effect. A harvest assessment program for the subsistence halibut fishery was implemented in 2004 (Fall et al. 2007b, Fall et al. 2005, Fall et al. 2006, Fall et al. 2004). 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. U. S. Fish and Wildlife Service, King Salmon Field Office. Personal communication, 2004). The permit requirement was dropped in 2005. In 2006, the only other annual harvest assessment program for nonsalmon subsistence fisheries in the Bristol Bay area was for the subsistence halibut fishery. The following overview derives primarily from Fall and Chythlook (1997).

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 (CSIS 2007). Amounts for specific species or more specific stocks were not established.

For the most part, subsistence fishing for fishes 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 fishes other than salmon in the area:[16]

- 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-fourth 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). Wright and Chythlook (1985) describe the uses of herring spawn on kelp in the Togiak District. Harvests of fishes other than salmon contribute about 10% of the annual subsistence harvests of wild foods in the Bristol Bay region, about 42.5 lb per person. In the villages, the per capita harvest is 72.6 lb per person (Fall and Chythlook 1997).

16. 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.

Subsistence harvests of fishes 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, CSIS 2007, Coiley-Kenner et al. 2003, Fall et al. 2006, Krieg et al. 2005). As part of OSM project number 02-034, the Subsistence Fisheries Assessment: Kvichak River Watershed Resident Species project, 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 fishes in 8 study communities. Some of the findings of ADF&G research regarding nonsalmon fishes are summarized in Table 6-4. The vast majority of households in the Bristol Bay area use fishes other than salmon for subsistence purposes. Most households also participate in the harvest of these fishes. 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. Fishes 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 fishes 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 *Thymallus arcticus*, and northern pike (see Fall et al. (1996) for a summary of harvest data).

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

Many gear types are used to harvest nonsalmon fishes 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: Alaska blackfish *Dallia pectoralis*, burbot *Lota lota,*
- Set hooks: burbot,
- Handline jigging through the ice: Arctic grayling, Arctic char/Dolly Varden, lake trout *S. namaycush*, rainbow smelt, rainbow/steelhead trout, whitefishes, northern pike,
- Set gillnets: Arctic grayling, Arctic char/Dolly Varden, lake trout, longnose suckers *Catostomus catostomus,* 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: 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 fishes 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 (1996).

Bristol Bay residents use a wide variety of methods to process and preserve their harvests of fishes 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.

Much of the dry fish product is eaten with seal oil; some use of the fat from brown bears *Ursus arctos* with dry fish also occurs. Rainbow smelt are fried, boiled, dried, or eaten frozen with seal oil (Fall et al. 1986:100) 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 fishes that are usually eaten frozen with seal oil also form a category called *kumlaneq*. This includes Arctic grayling, whitefishes, and northern pike (Fall et al. 1986:102).

There is much traditional knowledge of the subsistence uses of nonsalmon fishes in the Bristol Bay area. For example, a Yup'ik classification system for some freshwater fish species exists that is different from that developed by Western science. For example, Central Yup'ik provides classification for 3 forms of Dolly Varden, while Western science has only 1. 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). The Division of Subsistence has compiled a traditional ecological knowledge (TEK) database, "From *Neqa* to *Tepa*," about the fishes of Bristol Bay based on interviews with area residents in 2003 as part of OSM project number 01-109 (Coiley-Kenner 2003). 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 (Krieg et al. 2005, BBNA and ADF&G 1996).

Table 6-1.–Estimated subsistence salmon harvests by district and location fished, Bristol Bay area, 2007.

Area and River System	Number of permits issued[a]	Estimated salmon harvests					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Naknek-Kvichak District	480	672	69,837	1,104	405	262	72,280
Naknek River Subdistrict	287	664	22,364	1,078	375	260	24,742
Kvichak River/Iliamna Lake Subdistrict:	196	8	47,473	26	30	1	47,538
Chekok	1	0	310	0	0	0	310
Igiugig	4	1	1,419	0	2	0	1,422
Iliamna Lake-General	31	0	5,017	0	0	0	5,017
Kijik	4	0	769	0	0	0	769
Kokhanok	30	6	15,540	26	22	1	15,595
Kvichak River	12	0	1,203	0	0	0	1,203
Lake Clark	34	0	3,604	0	0	0	3,604
Levelock	1	1	102	0	6	0	109
Newhalen River	39	0	8,732	0	0	0	8,732
Pedro Bay	20	0	5,569	0	0	0	5,569
Six Mile Lake	26	0	5,208	0	0	0	5,208
Egegik District	28	165	980	334	72	26	1,577
Ugashik District	17	43	1,056	281	88	79	1,546
Nushagak District	496	13,330	25,127	3,050	3,006	430	44,944
Wood River	135	1,793	6,813	293	249	36	9,184
Nushagak River	117	5,479	5,879	1,127	1,572	213	14,270
Nushagak Bay Noncommercial	228	5,138	9,545	1,467	1,009	163	17,322
Nushagak Bay Commercial	33	418	887	113	119	12	1,550
Igushik/Snake River	25	500	2,000	36	57	6	2,599
Nushagak, Site Unspecified	1	1	3	15	0	0	19
Togiak District	48	1,234	2,548	110	420	19	4,332
Total	1,063	15,444	99,549	4,880	3,991	815	124,679

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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 1,063 permits issued for the management area, 917 were returned (86%).

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, 1983–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	1,100	975	16,002	92,862	6,927	5,818	2,090	123,699
10-year average (1997–2006)	1,157	1,048	15,367	100,222	7,150	4,837	1,741	129,317
Historical average (1983–2006)	1,091	950	14,899	118,481	8,694	6,859	2,543	151,477

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 6-3.–Estimated subsistence salmon harvests by community, Bristol Bay area, 2007.

Community	Permits		Estimated salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Aleknagik	21	15	284	1,021	94	8	0	1,407
Clarks Point	10	10	120	264	79	74	10	547
Dillingham	315	265	6,988	14,552	1,736	1,272	199	24,747
Egegik	7	7	118	198	260	57	25	658
Ekwok	19	18	647	322	226	72	0	1,267
Igiugig	7	6	1	1,828	0	2	0	1,831
Iliamna	35	34	1	5,388	0	0	0	5,389
King Salmon	93	81	131	5,182	270	91	42	5,715
Kokhanok	29	20	6	15,705	26	22	1	15,760
Koliganek	14	14	1,054	1,216	194	600	16	3,080
Levelock	1	1	1	102	0	6	0	109
Manokotak	21	20	440	1,915	32	51	6	2,444
Naknek	94	86	249	10,682	408	114	82	11,535
New Stuyahok	46	35	3,098	3,597	612	781	197	8,285
Newhalen	20	20	0	6,362	0	0	0	6,362
Nondalton	29	26	0	7,902	0	0	0	7,903
Pedro Bay	19	15	0	5,487	0	0	0	5,487
Pilot Point	7	6	13	349	76	13	4	454
Port Alsworth	31	29	0	3,238	0	0	0	3,238
Portage Creek	1	1	37	4	0	6	0	47
South Naknek	26	22	171	1,967	287	117	134	2,676
Togiak	45	33	1,227	2,521	110	420	19	4,298
Twins Hills	1	1	6	1	0	0	0	7
Ugashik	7	7	21	306	155	0	0	482
Subtotal, Bristol Bay	898	772	14,613	90,107	4,565	3,706	736	113,727
Anchor Point	1	1	0	15	0	0	0	15
Anchorage	65	61	175	4,632	86	140	77	5,110
Chugiak	4	4	3	359	12	11	0	385
Copper Center	1	1	0	0	0	0	0	0
Cordova	1	1	0	109	0	0	0	109
Craig	1	1	0	0	0	0	0	0
Dutch Harbor	1	1	0	0	0	0	0	0
Eagle River	6	4	5	537	0	9	0	551
Fairbanks	6	5	0	269	0	2	0	271
Girdwood	2	2	0	48	0	0	0	48
Homer	9	6	90	567	0	9	0	666
Juneau	2	2	8	316	0	0	0	324
Kasilof	5	5	5	107	0	0	0	112
Kenai	4	4	8	68	11	0	0	87
King Cove	1	0	0	0	0	0	0	0
Kodiak (city)	6	5	11	202	0	7	0	220
Kotzebue	1	1	0	0	0	0	0	0
Moose Pass	1	1	0	60	0	0	0	60
Nikiski	4	4	62	399	55	15	2	533
Nikolaevsk	2	1	0	0	0	0	0	0
North Pole	1	1	0	23	0	0	0	23
Palmer	13	11	118	463	20	31	0	632

-continued-

Table 6-3. Page 2 of 2.

Community	Permits		Estimated salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Salcha	1	1	43	32	0	14	0	89
Sand Point	1	1	0	0	0	0	0	0
Sitka	1	1	0	0	0	0	0	0
Soldotna	4	3	0	127	0	0	0	127
Sterling	1	1	0	0	0	0	0	0
Wasilla	19	15	304	1,079	131	43	0	1,557
Willow	1	1	0	30	0	4	0	34
Subtotal, other Alaska	165	145	831	9,441	315	286	79	10,952
Total	1,063	917	15,444	99,549	4,880	3,991	815	124,679

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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

Community	Year[b]	Percentage of households[a]					Average pounds harvested	
		Use	Fish for	Harvest	Receive	Give	Per household	Per person
Aleknagik	1989	95	90	90	74	71	208	61
Clark's Point	1989	94	82	82	82	71	113	34
Dillingham	1984	75	56	55	40	20	52	17
Egegik	1984	64	60	60	24	40	37	16
Ekwok	1987	76	72	62	62	38	229	69
Igiugig	2005	100	83	83	92	58	188	59
Iliamna	2004	92	77	77	39	31	113	34
King Salmon	1983			77			48	16
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	1999	86	78	77	77	75	164	37
Naknek	1983			75			58	19
New Stuyahok	2005	88	78	78	67	47	123	28
Newhalen	2004	88	88	88	56	52	128	32
Nondalton	2004	82	76	76	45	53	129	34
Pedro Bay	2004	89	61	61	83	39	50	15
Pilot Point	1987	94	94	94	35	59	56	16
Port Alsworth	2004	73	64	64	46	41	44	12
Port Heiden	1987	92	62	62	70	46	33	12
South Naknek	1992	86	77	74	69	49	64	20
Togiak	1999	89	84	84	57	66	185	45
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), Kenner et al. (2003), Krieg et al. (2005), Fall et al. (2006), and Holen et al. (2008).

a. Blank cells indicate data not collected.

b. Most recent year for which data are available.

Table 6-5.–Nonsalmon finfishes 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*
Herring, Pacific	*Clupea pallasi*	*Iqalluarpak*	
Herring spawn on kelp		*Melucuaq*	
Starry flounder	*Platichthys stellatus*	*Naternaq*	
Halibut, Pacific	*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 *S. alpinus*.

d. At Togiak, Manokotak, and Aleknagik, and perhaps elsewhere, there are 3 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 waters. Finally, *anyuk* or "sea run Dollies" are Dolly Varden or Arctic char taken in salt waters. 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 whitefishes 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.

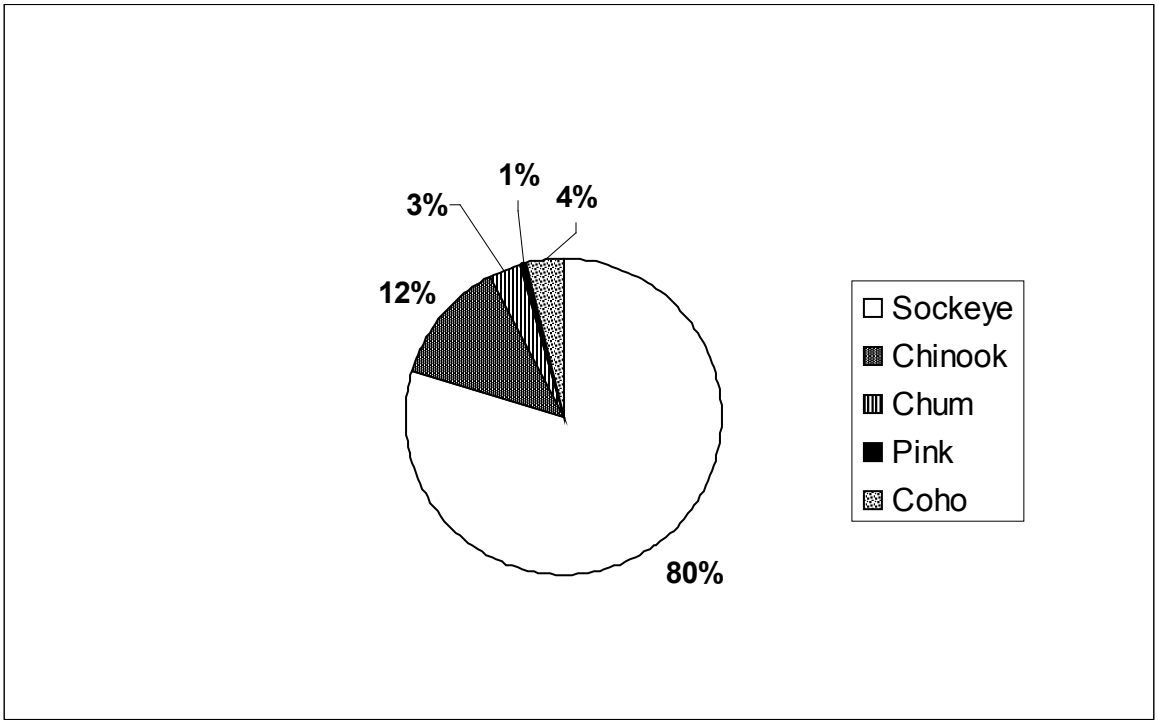

Figure 6-1.–Composition of Bristol Bay area subsistence salmon harvest by species, 2007.

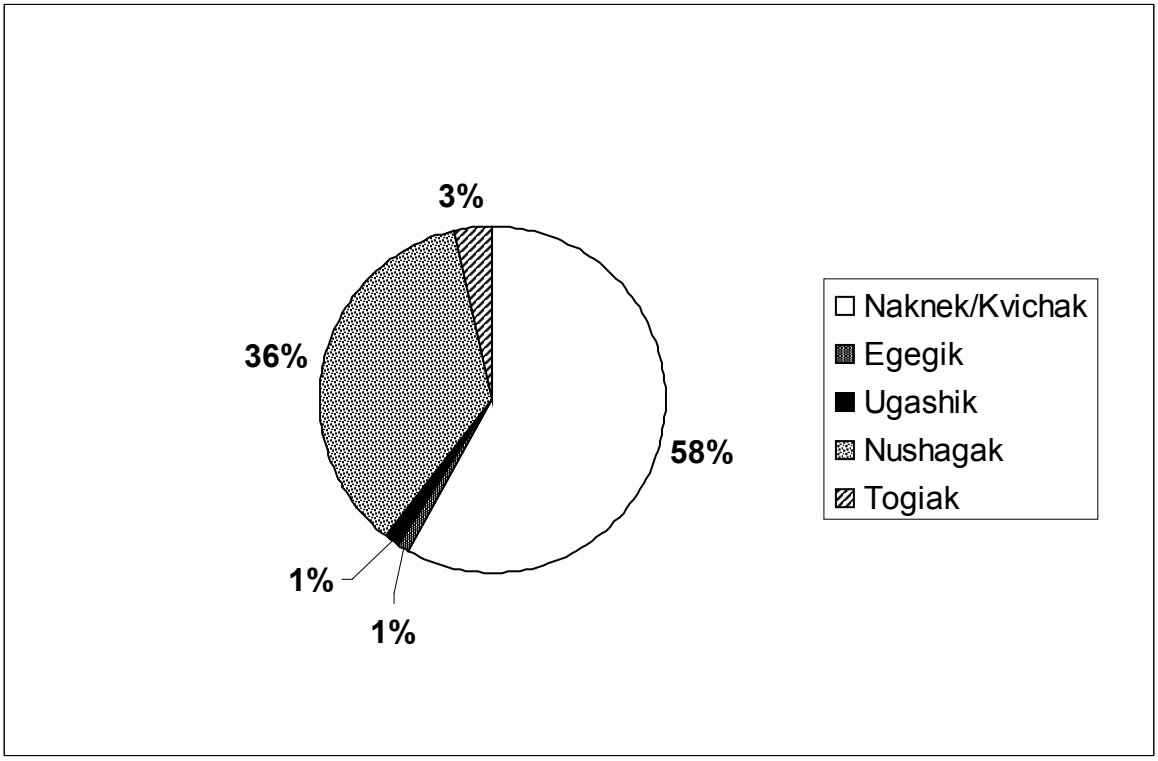

Figure 6-2.–Subsistence salmon harvests by district, Bristol Bay area, 2007.

CHAPTER 7: CHIGNIK AREA

Background

The Chignik Management Area (CMA) includes all waters of Alaska on the south side of the Alaska Peninsula enclosed by 156°20.22′ west longitude (the longitude of the southern entrance to Imuya Bay near Kilokak Rocks) and a line extending 135° southeast from the tip of Kupreanof Point. The communities of the Chignik area are Chignik (also called Chignik Bay), with a 2007 estimated population of 81, Chignik Lagoon (population 68), Chignik Lake (population 128), and Perryville (population 119). A fifth community, Ivanof Bay, did not have a year-round population in 2007; however, former residents have occupied it seasonally (ADLWD 2009). All of these communities are within the Lake and Peninsula Borough.

In the early 1990s, the Division of Subsistence conducted detailed research on the patterns of subsistence uses of fisheries resources in the CMA. The research findings are summarized in Hutchinson-Scarbrough and Fall (1996). More recent updates with more detail on subsistence uses of salmon by Perryville residents are also available (ADF&G 2002, Fall 2006, Fall et al. 1984).

Regulations

A subsistence permit is required for fishing within the CMA, which must be used to record daily salmon harvests. Permits must be returned to ADF&G by December 31. There is an annual limit of 250 salmon per permit. Legal gear includes seines and gillnets. Purse seines may not be used in Chignik Lake. There is no closed season for subsistence salmon fishing. Salmon may not be taken in Black Lake, or any tributary to Black and Chignik lakes.[17] Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Because of the 2002 development of management strategies for the commercial salmon cooperative fishery, management staff initiated subsistence permit conditions in 2003 that increased subsistence harvest opportunities for commercial fishing license holders.[18] By regulation, commercial fishing license holders could not subsistence fish for salmon from 48 hours before the first commercial salmon fishing opening through September 30. The permit conditions allowed commercial license holders who were not engaged in commercial fishing during an opening for the cooperative or competitive fleets to subsistence fish during commercial openings, after registering with ADF&G.

ADF&G provided additional subsistence opportunity within the CMA in 2004. Regulations had closed the Chignik River to subsistence salmon fishing (5 AAC 01.475) until 2006. In 2004, through emergency order, the department allowed subsistence users to fish for salmon within the Chignik River, excluding the area 100 yd upstream and downstream of the Chignik weir, through June 30. The goal was to provide additional harvest opportunity for sockeye salmon while protecting spawning Chinook salmon. Effective in the 2006 season, the BOF adopted a modification to the regulation that stated "Salmon may not be taken from July 1 through August 31 in the Chignik River from a point 300 ft upstream from the Chignik weir to Chignik Lake."

17. This regulation amendment was adopted by the BOF in 2008.

18. The regulations providing for the cooperative commercial salmon fishery in the Chignik Area were invalidated by a decision of the Alaska Supreme Court and were not operative in 2006 and 2007.

In 2004, restrictions on commercial fishers' involvement in subsistence fishing were again relaxed through the provisions of the subsistence fishing permit. In addition to obtaining a subsistence permit, commercial fishers wishing to subsistence fish after the first commercial opening were required to register with ADF&G staff working at the weir. ADF&G established a subsistence fishing schedule for these commercial fishers 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 allow for an increased 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 escapement was not achieved (Bouwens 2005). Also, the Chignik River was historically closed to subsistence fishing by regulation. In 2005, the BOF opened the Chignik River to subsistence fishing, except for the area 300 ft upstream and downstream of the ADF&G Chignik River weir, which remained closed. The remaining portions of the Chignik River could be fished for subsistence year-round, except the portion above the weir was closed from July 1 through August 31 annually to protect spawning Chinook salmon (Stichert 2007b). There were no subsistence regulation changes in effect for 2007.

Harvest Assessment Program

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. The Division of Subsistence assumed responsibility of the harvest assessment program in 1993. Permits are issued, upon request, in each community. 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.

Chignik subsistence salmon permits must be returned by mail to the Division of Subsistence office in Anchorage by December 31. 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 telephone calls are made if further follow-up is required. Also, the Division of Subsistence has conducted face-to-face household interviews since 1997 in order to collect harvest information from households that do not obtain permits and to add late season harvest information not recorded on permits. Survey technicians hired from the communities attempt to contact all households in the CMA. The surveys are generally conducted during January, February, and March. Respondents are asked questions similar to those on the permit, but additional questions regarding late season harvests and if their subsistence needs were met are also asked.

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. 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. 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. 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-Scarborough and Fall 1996:27). With the assistance of area permit vendors, 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.

Subsistence Salmon Harvests in 2007

Since 1980, the number of subsistence salmon permits issued for the Chignik area has averaged 103 per year, with 69 permits (67%) returned. Over the last 10 years, the average has been 120 permits issued and 95 permits (79%) returned. The recent 5-year average (2002–2006) is 120 permits issued and 90 (75%) returned. In 2006, 113 permits were issued, and 79 were returned (70%) (Table 7-1). This was comparable to the recent 5-year and 10-year averages. Of all permits issued for 2007, 107 (95%) were issued to residents of Chignik area communities, and 6 (5%) were issued to residents of other Alaska communities (Table 7-2).

In 2007, the estimated subsistence salmon harvest for the Chignik area was 13,372 fish (Table 7-1). This was greater than the historical average (1977–2006; 11,369 salmon) as well as above the recent 10-year average (12,913 salmon) and 5-year average (12,100 salmon).

The 2007 subsistence harvest in the CMA was made up of 76% (10,191) sockeye salmon, 14% (1,936) coho salmon, 7% (996) pink salmon, 1% (165) chum salmon, and 1% (84) Chinook salmon (Figure 7-1). Of the total harvest, Chignik/Perryville area residents took 12,427 salmon (93%) and other Alaska residents harvested 944 salmon (7%) (Table 7-2; Figure 7-2).

In 2007, the largest number of subsistence salmon (7,447; 56%) was harvested in Chignik Bay and Chignik Lagoon (Table 7-3). Most of this harvest was sockeye salmon (6,697; 90%). Subsistence harvests in the Perryville and Western districts numbered 3,225 salmon (24%), with most of this coho salmon (1,184; 37% of total harvest), and sockeye salmon (967, 30%) about equal. Perryville accounted for most of the management area's subsistence harvest of pink salmon (888, 89%). Estimated subsistence harvests in Chignik Lake totaled 2,700 (20%) salmon, most of which were sockeye (94%). This total includes spawning sockeye salmon, locally called "redfish," which are harvested in the fall and early winter.

Subsistence harvest patterns in the Chignik management area are often influenced by the Chignik commercial salmon fishery since many of those who commercial fish are also subsistence harvesters. Regulations for subsistence salmon fishing are tied to the Chignik commercial fishing operations. Prior to 2002, this fishery was managed by ADF&G as a competitive limited entry permit fishery. From 2002 to 2005, the Chignik 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).

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 and it occurred in 2005. In 2006, the Chignik commercial fishery was managed solely under the Chignik Salmon Management Plan as a competitive fishery. During the 2006 season, out of 96 total Chignik CFEC permits issued, only 48 participated (Stichert 2007b). In 2007, 55 CFEC boats fished, (Stichert et al. 2009).

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 seines. 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 fish 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-Scarborough and Fall 1996:49).

During the years of the cooperative fishery (2002–2005), some changes occurred within area subsistence fishing patterns. Since 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 less, but more steady passage of fish in the lagoon, rather than the 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 “personal use” 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 US Fish and Wildlife Service implanted radio transmitters in sockeye salmon passing the Chignik weir in August and early September to determine when sockeye salmon harvested 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. In addition, 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 less late run salmon.

By 2006, the cooperative commercial fishery was abolished. Area subsistence patterns returned to the historical patterns used prior to the cooperative fishery, but on a reduced level. In 2007, there was an increase in participation in the Chignik subsistence fisheries, with an additional 15 permits issued, and an additional 2,185 salmon harvested (Table 7-1).

Fish camps located across from Chignik Lagoon village that were abundantly utilized in the 1990s were mostly abandoned by 2006. However, in 2007 there were still a few families from Perryville and Chignik Lake, as well as 1 family from Chignik Lagoon, that used their fish camps during a portion of the summer of 2007 (Delissa Jones. Personal communication with Lisa Hutchinson-Scarbrough, Alaska Department of Fish and Game, Division of Subsistence, Anchorage, 2008). In 2007, beach seines and setnets were still used along the lagoon, but mostly at the mouth of the Chignik River by some Chignik Lake families. Late-run sockeye salmon were also utilized and harvested in Chignik Lagoon, as well as in Chignik Lake and the Clark River. Purse seines or beach seines were used to harvest these fish, which were typically dried since residents say they have less fat than early-run sockeye salmon. Chinook salmon were caught in Chignik River and often canned (Mark A. Stichert. Personal communication with Lisa Hutchinson-Scarbrough, Alaska Department of Fish and Game, Division of Subsistence, Anchorage, 2008).

Perryville subsistence patterns have not changed greatly from historical times, though fewer families are going to fish camps in Chignik Lagoon. Fresh sockeye salmon are brought over to the village by commercial fishing families. Area streams and beaches are used extensively for the harvest of the area 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 to harvest their fish, sometimes as far as Ivanof Bay. Fish are smoked, dried, canned, salted, and frozen by Perryville residents. Some Perryville families have relatives in Chignik Lake, and so will travel to Chignik Lake in the fall to harvest late run sockeye salmon for drying. The village of Ivanof Bay has been abandoned as a year-round community; however, some Ivanof Bay families residing in Perryville return to Ivanof Bay to harvest a large portion of their subsistence salmon (Karen Kalmakoff. Personal communication with Lisa Hutchinson-Scarbrough, Alaska Department of Fish and Game, Division of Subsistence, Anchorage, 2007).

The subsistence permit program for the Chignik area does not account for salmon removed from commercial catches for home uses under 5 AAC39.010 (called "home pack" by area residents). Salmon removed for home pack are reported to ADF&G on the fish ticket. In 2007, Chignik commercial fishing boats reported a removal of 285 sockeye, 56 coho, 16 Chinook, 1 chum, and 0 pink salmon from their commercial harvest for home pack (Stichert et al. 2009).

Other Chignik Area Subsistence Fisheries

Estimates of subsistence halibut harvests for eligible communities and tribes, including those of the Chignik Management Area, are available for 2003, 2004, 2005, 2006, and 2007 (Fall et al. 2004, Fall et al. 2005, Fall et al. 2006 Fall et al. 2007b).

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 subsistence uses of all finfishes in the Chignik area. Table 7-4 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 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 7-5 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 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.

Table 7-1.–Historical subsistence salmon harvests, Chignik area, 1977–2007.

Year	Permits		Estimated salmon harvests					
	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
5-year average (2002–2006)	120	90	182	8,872	1,858	228	960	12,100
10-year average (1997–2006)	120	95	161	9,279	1,870	303	1,300	12,913
Historical average (1977–2006)	103	69	81	8,871	1,263	264	890	11,369

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

NA 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.

Table 7-2.–Estimated CMA subsistence salmon harvests by community, 2007.

Community	Permits		Estimated salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chignik Bay	15	9	35	1,792	542	0	0	2,368
Chignik Lagoon	30	11	16	3,327	95	3	0	3,442
Chignik Lake	27	21	6	2,638	64	0	96	2,805
Perryville	34	29	25	1,495	1,231	162	899	3,812
Subtotal, area residents	106	70	82	9,252	1,932	165	996	12,427
Anchorage	7	5	0	260	0	0	0	260
Eagle	2	1	0	12	4	0	0	16
Homer	1	0	0	0	0	0	0	0
Ketchikan	1	0	0	0	0	0	0	0
Kodiak	7	5	1	664	0	0	0	665
Saint Paul	1	0	0	0	0	0	0	0
Sand Point	2	2	0	3	0	0	0	3
Seldovia	1	0	0	0	0	0	0	0
Subtotal, other Alaska residents	22	13	1	939	4	0	0	944
Total	128	83	84	10,191	1,936	165	996	13,372

Source ADF&G Division of Subsistence, ASFDB.

Table 7-3.–Subsistence salmon harvests by species and subarea of harvest, Chignik area, 2007.

Subarea of harvest[b]	Estimated salmon harvests[a]					
	Chinook	Sockeye	Coho	Chum	Pink	Total
Chignik Bay and Lagoon	51	6,697	684	3	12	7,447
Chignik Lake	8	2,528	68	0	96	2,700
Perryville	25	967	1,184	162	888	3,225
Total	84	10,191	1,936	165	996	13,372

Source ADF&G Division of Commercial Fisheries.

a. Estimated based on expansion of harvests recorded on returned permits.

b. The Chignik Bay-Lagoon Subarea corresponds to the portion of the Chignik Bay District downstream of the ADF&G weir in the Chignik River, and the Central District. The Chignik Lake Subarea includes subsistence harvests above the weir. 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.–Subsistence uses of nonsalmon finfish 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
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 7-5.–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	Chignik 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	Various 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*.

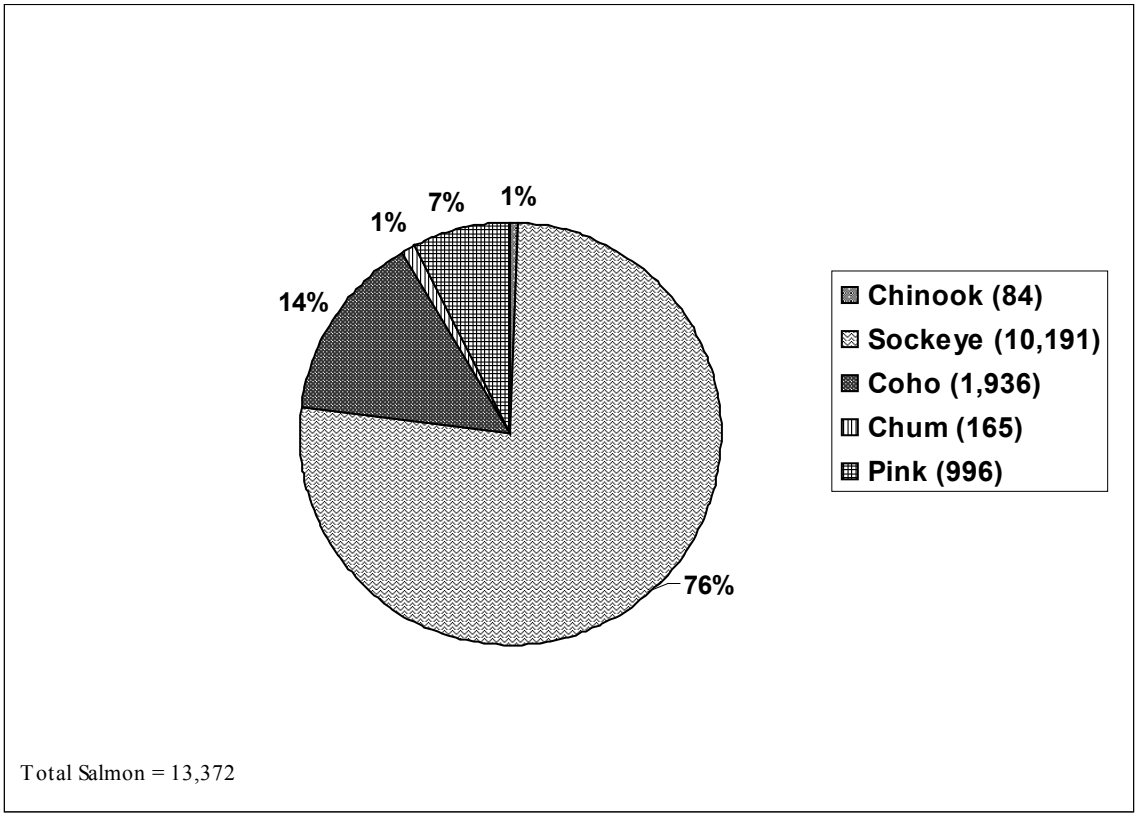

Figure 7-1.–Composition of Chignik area subsistence salmon harvest by species, 2007.

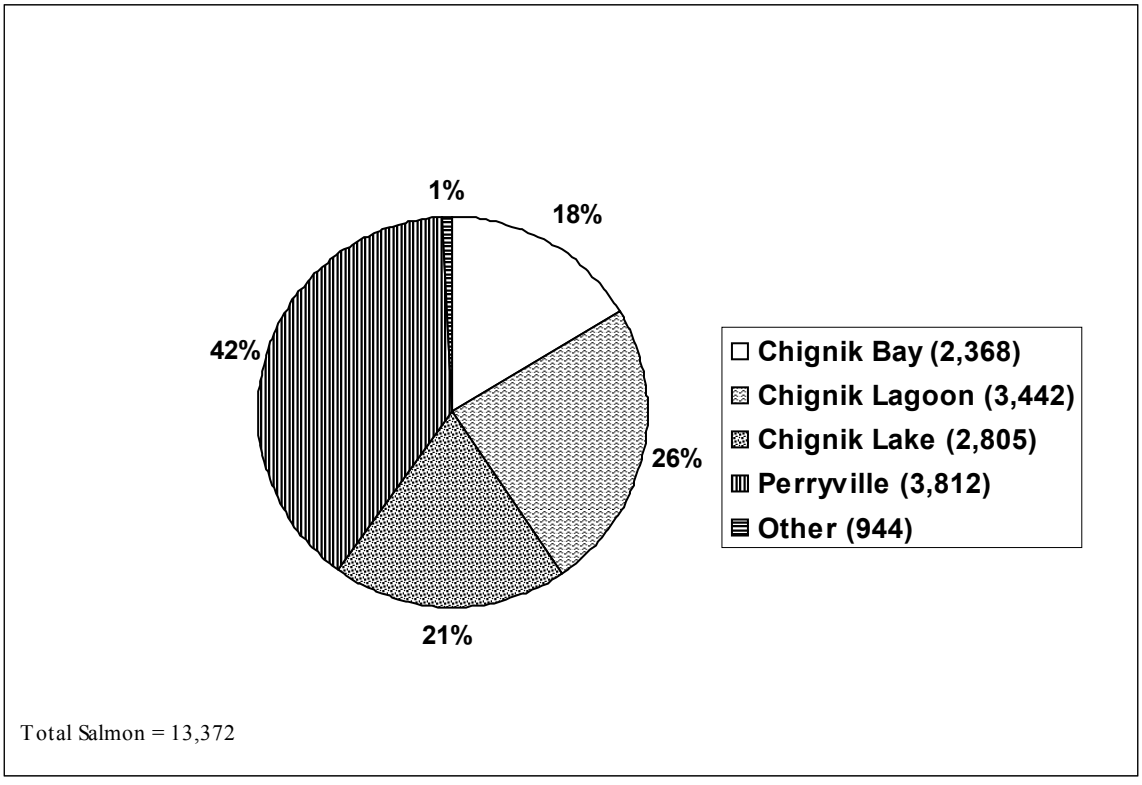

Figure 7-2.–Subsistence salmon harvests by community, Chignik area, 2007.

CHAPTER 8: ALASKA PENINSULA AREA

Background

The Alaska Peninsula area includes all Pacific Ocean waters of Alaska between a line extending southeast from the tip of Kupreanof Point and the longitude of the tip of Cape Sarichef, and all Bering Sea waters of Alaska east of the longitude of the tip of Cape Sarichef and south of the latitude of the tip of Cape Menshikof. The communities of the Alaska Peninsula area are Port Heiden (estimated population 86 in 2007), Nelson Lagoon (population 69), False Pass (population 45), Cold Bay (population 71), King Cove (population 753), and Sand Point (population 992) (ADLWD2009). Port Heiden is in the Lake and Peninsula Borough; the other communities are in the Aleutians East Borough (which also includes Akutan in the Aleutian Islands area).

Regulations

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

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

Harvest Assessment Program

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

Subsistence Salmon Harvests in 2007

From 1985 through 2006, the number of subsistence salmon permits issued for the Alaska Peninsula area has averaged 197 per year (1985–2006) (Table 8-1). The recent 5-year average (2002–2006) was 157 permits. In 2007, 150 subsistence salmon fishing permits were issued for the Alaska Peninsula area, down from 153 issued in 2006, and continuing a downward trend that began in 1999. The response rate was 83% in 2007 (124 of 150 permits were returned). Of all permits issued, 126 (84%) were issued to residents of Alaska Peninsula area communities, and 24 (16%) were issued to residents of other Alaska communities (Table 8-2). Most nonlocal residents fish at Mortensen's Lagoon on the Cold Bay road system.

The estimated subsistence salmon harvest in the Alaska Peninsula area in 2007 was 10,811 fish. This is a decrease from the year before (12,280 salmon) and much lower than both the historical average (1985–2006; 18,904 salmon) and the recent 10-year average (18,971 salmon) (Table 8-1). The 2007 subsistence harvest was made up of 64% sockeye salmon, 24% coho salmon, 6% pink salmon, 5% chum salmon, and 1% Chinook salmon (Figure 8-1). Of the total harvest, the residents of Cold Bay took a little over 3%, False Pass residents 6%, Sand Point residents 29%, Port Moller residents 4%, Nelson Lagoon residents <1%, King Cove residents 54% and False Pass residents 2%. Other Alaska residents harvested 6% (Table 8-2; Figure 8-2).

In interviews with Division of Subsistence staff, fishery managers expressed the view that the subsistence permit program did not completely document all subsistence salmon harvesting activities because some fishers did not obtain permits. 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 et al. 1993a: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 et al. 1993a: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 et al. 1993b: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 et al. 1993a), and 45% at Sand Point (Fall et al. 1993b), were removed from commercial harvests.

In 2002 and 2003, the Division of Subsistence conducted the Subsistence Fisheries Harvest Assessment and Traditional Ecological Knowledge, 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 halibut fishing harvest estimates for communities and tribes in the Alaska Peninsula area are available for 2003 through 2006 in Fall et al. (2004), Fall et al. (2005), Fall et al. (2006), and Fall and Koster (2008).

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

Table 8-1.–Historical subsistence salmon harvests, Alaska Peninsula area, 1985–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	157	133	235	9,616	3,556	1,307	870	15,584
10-year average (1997–2006)	178	145	331	11,355	4,235	1,664	1,386	18,971
Historical average (1985–2006)	197	152	330	10,209	4,760	2,073	1,532	18,904

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 8-2.–Subsistence salmon harvest estimates by community, Alaska Peninsula area, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cold Bay	30	27	0	552	151	2	0	706
False Pass	3	2	0	74	90	8	32	203
Herendeen Bay	1	1	0	0	0	0	0	0
King Cove	52	47	1	3,179	2,217	251	164	5,812
Nelson Lagoon	2	1	18	0	0	0	0	18
Port Moller	3	2	0	381	0	0	0	381
Sand Point	35	26	55	2,266	190	156	420	3,087
Subtotal, area residents	126	106	74	6,451	2,648	417	615	10,206
Anchorage	4	1	0	0	0	0	0	0
Fairbanks	2	2	17	42	0	0	0	59
Homer	4	3	4	85	0	81	77	248
Kasilof	1	1	0	229	0	0	0	229
Ketchikan	1	1	0	0	0	0	0	0
Kodiak (city)	10	9	4	64	0	0	0	69
Soldotna	1	1	0	0	0	0	0	0
Wasilla	1	0	--	--	--	--	--	0
Subtotal, other Alaska residents	24	18	25	421	0	81	77	605
Total	150	124	100	6,872	2,648	498	693	10,811

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

-- Data not available.

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
Halibut	95	73	0	22	89
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 (CPDB).

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.

Cells containing "ND" indicate no data for that resource.

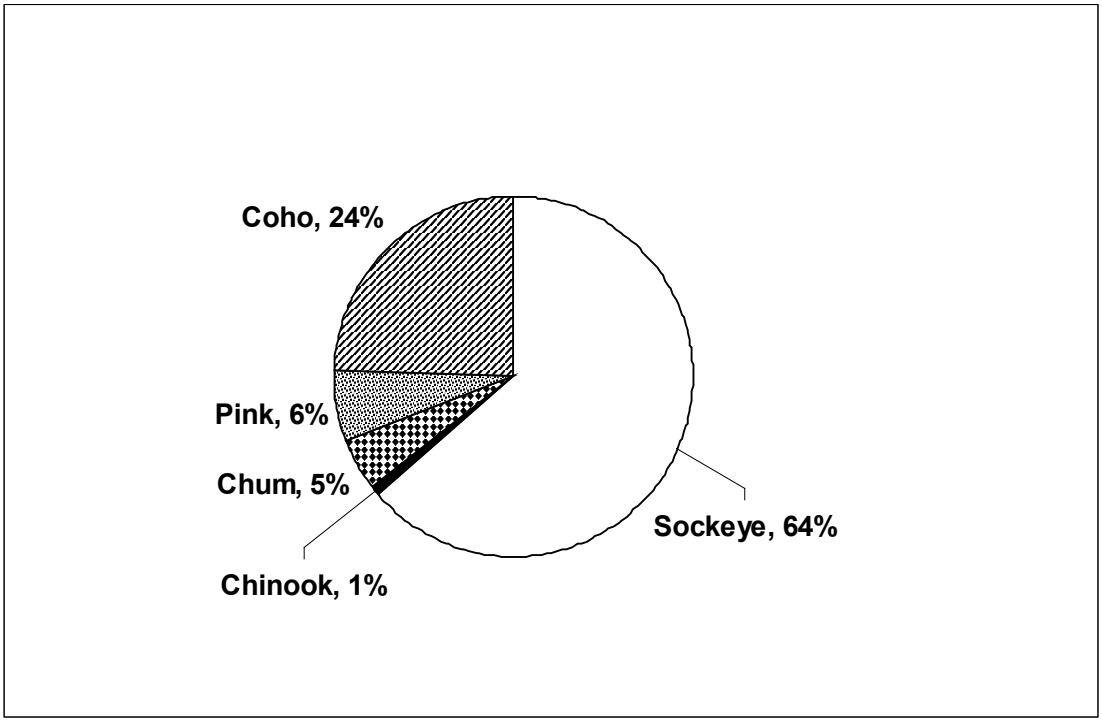

Figure 8-1.–Composition of Alaska Peninsula area subsistence salmon harvests by species, 2007.

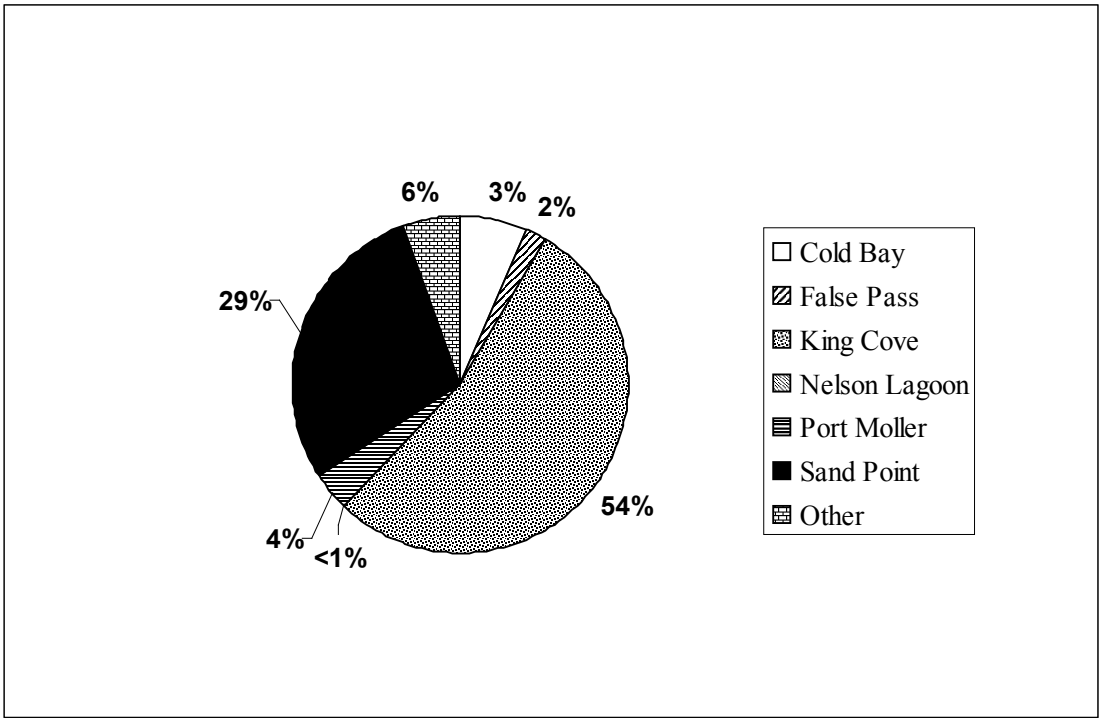

Figure 8-2.–Subsistence salmon harvests by community, Alaska Peninsula area, 2007.

CHAPTER 9: ALEUTIAN ISLANDS AREA

Introduction

The Aleutian Islands Management Area includes all waters of Alaska west of the longitude of the tip of Cape Sarichef, east of 172° E and south of 58° N, including the waters surrounding the Pribilof Islands (5 AAC 01.350). For subsistence purposes, the Aleutian Islands area is divided into 5 management districts. From east to west, they are the Akutan District, Unalaska District, Umnak District, Atka–Amlia Islands District, and the Adak District. The major communities of the Aleutian Islands area are Akutan (population 713 in 2000, of which only 75 lived in households and the remaining 638 lived in group quarters, such as fish processing plants; population 858 in 2007), Unalaska–Dutch Harbor (population 4,283 in 2000; 2,091 in households, remainder in group quarters; population 3,648 in 2007), Nikolski (population 33 in 2007), Atka (population 74 in 2007), and Adak (population 136 in 2007) (U.S. Census Bureau 2001, ADLWD2009). Akutan is part of the Aleutians East Borough; the other communities are not part of an organized borough.

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, and Nikolski. Therefore, subsistence salmon harvest is not systematically monitored in these communities. Harvest estimates for the 3 communities presented here are based upon data in Davis (2005).

Salmon Harvests in the Unalaska District

The Unalaska District includes all waters west of Akutan Pass 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 no more than 25 salmon plus an additional 25 salmon for each member of the same household who is 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 ADF&G to harvest more salmon." 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. 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.

Subsistence Salmon Harvests in 2007

In 2007, 178 subsistence salmon permits were issued for the Unalaska District. This number is lower than in 2006 (199 permits issued) and the recent 5-year (216 permits issued) and 10-year (213 permits) averages, but higher than the historical average (1985–2006) of 160 permits issued yearly since 1985. The return rate in 2007 was 71% (126 permits returned out of 178 issued) (Table 9-1). Permit holders with Unalaska–Dutch Harbor addresses accounted for 95% of all permits issued and residents of other Alaska communities accounted for the remaining 5% (Table 9-2).

The estimated subsistence harvest of salmon in the Unalaska District in 2007 was 3,569 fish, which was lower than the recent 5-year (5,469 fish) and 10-year (5,361 fish) averages for the district (Table 9-1). The composition of the 2007 subsistence salmon harvest was sockeye (72%), pink (19%), coho (7%), chum (1%), and Chinook (<1%) salmon (Figure 9-1). Permit holders with Unalaska–Dutch Harbor addresses harvested all the Unalaska District total subsistence harvest in 2007 (Table 9-2).

In interviews with Division of Subsistence personnel, ADF&G fishery managers expressed the view that the permit program captured most subsistence salmon harvests occurring in the Unalaska District. 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 subsistence purposes in the Aleutian Islands area since most commercial fishing activities in the area target shellfish and groundfish rather than salmon. A 1994 survey of randomly selected Unalaska households conducted by the Division of Subsistence supports this view, as 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 (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 navy base and military community (population of 4,633 in 1990) that was phased out 1993–1996. With the navy base closure complete, the population was estimated at 0 in 1997; however, since the navy subsequently hired a number of civilians to work on cleanup efforts, a new civilian community has been established. In 2000, the Alaska Boundary Commission approved Adak's application to become a second-class city. Adak's estimated population was 316 in 2000 (U.S. Census Bureau 2001) and 146 in 2006 (ADLWD 2009).

Salmon Harvest Regulations

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

Subsistence regulations in place since 2001 require that fishers obtain a permit from ADF&G. Fishers must record their daily harvests on the permit, and return it to ADF&G by October 31.

Permit holders may harvest no more than 25 salmon, 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 Harvests 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.

Subsistence Salmon Harvests in 2007

Nine subsistence salmon permits were issued for the Adak District in 2007. This was more than the 5-year (4) and 10-year (8) averages (Table 9-3). The total harvest in 2007 was 398 salmon (Table 9-4). This was the highest harvest since 2001, and more than the 5-year (217), 10-year (280), and historical averages (1988–2006; 353). For the period 1988–1993, during the Navy's occupation of their base at Adak, an average of 49 personal use permits were issued annually and the average estimated harvest was 611 salmon annually (Table 9-3). Since the establishment of the civilian population at Adak in 1997, an average of 8 personal use–subsistence permits have been issued and the average annual harvest has been 291 salmon (Table 9-3).

Salmon Harvests at Akutan, Nikolski, and Atka

Permits are not required for subsistence salmon harvest 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); 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). Subsistence harvest 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. 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 2003, 2004, 2005, 2006, and 2007 (Fall et al. 2007b, Fall et al. 2005, Fall et al. 2006, Fall et al. 2004, Fall and Koster 2008).

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. The Division of Subsistence has conducted systematic household surveys pertaining to a single year's harvests in Akutan (1991), 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.

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, 1985–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	216	168	11	4,318	616	44	480	5,469
10-year average (1997–2006)	213	165	9	3,972	724	47	609	5,361
Historical average (1985–2006)	160	114	7	2,946	657	70	1,032	4,712

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 9-2.–Estimated subsistence salmon harvests by community, Unalaska District, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	3	2	0	0	0	0	0	0
Dutch Harbor	84	59	7	1,204	64	6	88	1,370
Homer	1	1	0	0	0	0	0	0
Kenai	1	1	0	0	0	0	0	0
Ketchikan	2	1	0	0	0	0	0	0
Palmer	1	1	0	0	0	0	0	0
Unalaska	86	61	7	1,370	190	37	595	2,199
Total	178	126	14	2,575	254	42	683	3,569

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 9-3.–Historical subsistence and personal use salmon harvests, Adak District, 1988–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	4	3	0	217	0	0	0	217
10-year average (1997–2006)	8	7	1	264	3	0	12	280
Historical average (1988–2006)	20	15	1	319	8	0	26	353

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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 cleanup effort at Adak.

Table 9-4.–Estimated subsistence salmon harvests by community, Adak District, 2007.

Community	Permits		Estimated salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak Station	7	6	0	292	2	0	29	323
Dutch Harbor	1	1	0	75	0	0	0	75
Seward	1	1	0	0	0	0	0	0
Totals	9	8	0	367	2	0	29	398

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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

Community	Year	Estimated number of harvesting households	Estimated salmon harvests						
			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
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 2008); (Davis 2005).

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

NA The estimated number of harvesting households cannot be calculated using available data.

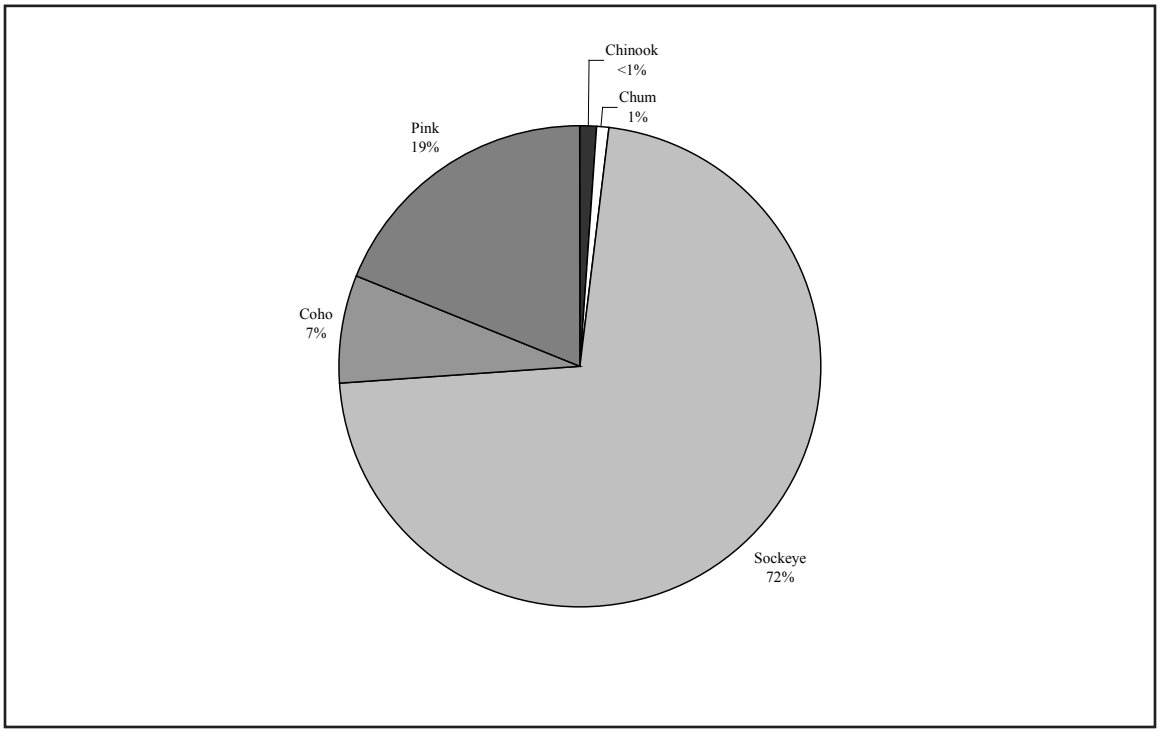

Figure 9-1.–Composition of Unalaska District estimated subsistence salmon harvest by species, 2007.

CHAPTER 10: KODIAK AREA

Introduction

The Kodiak Management 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 between Cape Douglas and Kilokak Rocks, including Chirikof Island. The major communities within the Kodiak Management Area include Akhiok, Chiniak, the U. S. Coast Guard base near the city of Kodiak, Karluk, the city of Kodiak, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions. These communities are within the Kodiak Island Borough, which had an estimated population of 13,495 in 2007 {ADLWD\, 2009 #855}.

Salmon Harvest in the Kodiak management Area

Salmon Harvest Regulations

Permits have been required to harvest salmon for subsistence purposes in the Kodiak Management Area since 1962. Since 1990, all Alaska state residents have been eligible to participate in subsistence salmon fishing in the Kodiak Management Area. In 2007, legal gear for subsistence salmon fishing under state regulations included gillnets and seines. Fishers were required to physically attend their net while fishing. Generally, fishing was open year-round from 6:00 am to 9:00 pm daily. From June 1 through September 15, salmon seine vessels could not be used for subsistence salmon fishing 24 hours before, during, and 24 hours after any period open for commercial salmon fishing and only gillnets could be operated for subsistence purposes from purse seine vessels. Permits allowed fishers to harvest 25 salmon plus 25 additional salmon for each member of the permit holder's household. An additional permit could be obtained if the fisher could demonstrate a need for more fish. Permit holders were required to keep a record of their harvest on the permit. A list of waters closed to subsistence fishing within the Kodiak Management Area appears in 5 AAC 01.525. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

In 2007, federal regulations governing subsistence salmon fishing in waters under jurisdiction of the FSB were generally identical to the state regulations summarized above, except that rod and reel (in addition to gillnets and seines) was a legal subsistence gear under federal rules. There was no separate federal subsistence permit; a state permit was required for subsistence fishing in waters under federal jurisdiction.

Salmon Harvest Assessment Program

Staff in the Division of Commercial Fisheries' Kodiak office manage the subsistence salmon harvest assessment program for the Kodiak area. Permits are mailed each year to people who turned in their permits at the end of the previous fishing season. People may request subsistence permits by mail or in person at the Kodiak ADF&G office. In addition, ADF&G field staff at Karluk and Olga Bay can issue permits upon request. 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. The area vendor program was active through the 2007 fishing season.

Subsistence fishers mail permits with their harvest record to ADF&G at the end of the season or return them in person at the Kodiak ADF&G office. ADF&G sends reminder letters in February to permit holders who have not returned their permits by then.

Subsistence Salmon Harvests in 2007

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

In 2007, 1,879 subsistence permits with harvest information were returned to ADF&G (Table 10-1). Of these, 1,556 (83%) had been issued to residents of Kodiak Island Borough communities and 311 (16%) had been issued to residents of other Alaska communities (Table 10-2). Permit holders who had addresses in the city of Kodiak accounted for 74% (1,389) of all permits returned in 2007.

The total reported subsistence salmon harvest in 2007 was 31,165 fish (Table 10-1). This number is lower than the recent 5-year average of 38,038 salmon and the 10-year average of 36,643 salmon. Of the total harvest, 30,003 salmon (96%) were harvested by residents of Kodiak Island Borough communities and 1,145 salmon (4%) were harvested by permit holders in other communities (Table 10-2).

In 2007, the Kodiak area subsistence salmon harvest was composed of 79% sockeye salmon, 15% coho salmon, 5% pink salmon, 1% chum salmon, and 1% Chinook salmon (Figure 10-1).

In 2001, interviews with Division of Subsistence staff, fishery managers within the Division of Commercial Fisheries expressed uncertainty about the extent to which subsistence salmon harvests in the Kodiak Management Area are accurately documented by the permit program. They suspected that a substantial amount of subsistence harvest occurred without permits, especially in areas off the island road system. Subsistence salmon harvest estimates for the area based on household harvest surveys and reported in the CSIS were substantially higher than harvests reported in the FMRs. Delivery of permits to subsistence fishers living in Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions had been problematic in the past. As mentioned above, an outreach effort and an area permit vendor program were implemented in 2001 to minimize this issue. These actions appeared to have resulted in increased participation in the permit program in these 6 communities. A total of 100 households returned permits in 2000 (Fall et al. 2002:105), 189 households in 2001 (Fall et al. 2003b:117), 167 in 2002 (Fall et al. 2003a:121), 165 in 2003 (Brown et al. 2005b:123), 170 in 2004 (Fall et al. 2007b:118), 147 in 2005 (Fall et al. 2007a:105), and 143 in 2006 (Fall et al. 2009). Accordingly, the yearly reported subsistence salmon harvest also increased after 2000, when 6,299 fish were reported (Fall et al. 2002:105), compared to 9,034 in 2001 (Fall et al. 2003b:117), 9,386 in 2002 (Fall et al. 2003a:121), 8,714 in 2003 (Brown et al. 2005b:123), 7,845 in 2004 (Fall et al. 2007b:118), 10,172 in 2005 (Fall et al. 2007a:105), and 7,114 in 2006 and 5,138 in 2007 (Table 10-2). Additional research and outreach are needed to assess these recent harvest data.

Household surveys (with results reported in the CSIS) have documented noncommercial salmon harvests with rod and reel gear, which is legal subsistence gear under federal subsistence

regulations but not under state regulations. Household surveys also documented the numbers of salmon removed from commercial harvests for personal use. These 2 types of harvest, not documented by the permit program, are needed for a full understanding of the household salmon harvest in the Kodiak area.

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

Other Subsistence Fisheries in the Kodiak Area

Finfishes

Federal halibut subsistence harvest data are currently available for communities and tribes in the Kodiak Management Area (Fall et al. 2007b, Fall et al. 2005, Fall et al. 2006, Fall et al. 2004).

There are no annual harvest assessment programs for other subsistence finfish fisheries in the Kodiak Management Area. Harvest estimates based on comprehensive household surveys conducted by the Division of Subsistence are available in the CSIS for freshwater and marine species for 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, 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). 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, octopus, sea urchins, and more.

Table 10-1.–Historical subsistence salmon harvests, Kodiak area, 1986–2007.

Year	Permits		Reported salmon harvests[a]					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1986	1,244	1,002	90	14,391	6,998	605	2,371	24,455
1987	1,124	880	101	13,198	6,463	1,299	2,421	23,482
1988	1,098	699	108	10,081	4,291	377	1,320	16,177
1989	2,800	717	43	12,638	4,123	419	1,553	18,776
1990	2,900	1,167	131	17,959	8,627	655	1,605	28,977
1991	1,406	1,225	177	21,835	8,208	714	1,743	32,677
1992	1,561	1,195	318	20,684	8,643	643	1,646	31,934
1993	1,496	959	243	19,471	7,176	838	2,696	30,424
1994	2,550	1,464	205	17,962	7,491	440	1,758	27,856
1995	1,950	1,194	175	19,416	5,603	293	1,548	27,035
1996	1,567	1,390	253	28,287	5,117	381	1,125	35,163
1997	2,098	1,638	383	33,293	6,369	234	1,458	41,737
1998	1,841	1,126	350	20,459	5,348	214	1,412	27,783
1999	ND	1,438	397	26,497	4,932	388	1,266	33,480
2000	ND	1,376	273	24,873	5,399	341	742	31,628
2001	ND	2,153	273	33,833	5,920	427	1,158	41,611
2002	ND	2,271	593	32,977	6,057	350	1,665	41,642
2003	ND	2,275	500	32,104	6,096	384	1,484	40,568
2004	ND	2,240	379	30,217	5,819	261	1,395	38,071
2005	ND	1,900	431	27,002	7,447	592	2,343	37,815
2006	ND	1,906	280	22,905	6,640	441	1,827	32,093
2007	ND	1,879	207	24,556	4,630	240	1,532	31,165
5-year average (2002–2006)	ND	2,118	437	29,041	6,412	406	1,743	38,038
10-year average (1997–2006)	ND	1,832	386	28,416	6,003	363	1,475	36,643
Historical average (1986–2006)	ND	1,439	272	22,861	6,322	490	1,645	31,590

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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.

Table 10-2.–Reported subsistence salmon harvests by community and species, Kodiak Management Area, 2007.

Community	Permits returned	Reported salmon harvests[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Kodiak Island Borough							
Akhiok	7	0	100	0	0	12	112
Karluk	1	0	0	0	0	0	0
Kodiak (city)	1,389	159	20,565	2,785	114	775	24,398
Larsen Bay	33	4	600	52	1	31	688
Old Harbor	32	3	603	703	41	452	1,802
Ouzinkie	34	4	885	450	56	118	1,513
Port Lions	36	33	581	308	7	94	1,023
Chiniak	23	0	279	142	6	35	462
Uganik Bay	1	0	0	5	0	0	5
Subtotal	1,556	203	23,613	4,445	225	1,517	30,003
Other Alaska							
Anchor Point	4	0	0	0	0	0	0
Anchorage	114	0	607	124	11	9	751
Bethel	1	0	6	11	0	0	17
Bettles	1	0	0	0	0	0	0
Big Lake	3	0	21	4	0	0	25
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	6	0	11	0	0	0	11
Copper Center	1	0	0	0	0	0	0
Cordova	1	0	0	0	0	0	0
Craig	1	1	2	2	0	0	5
Delta Junction	2	0	0	0	0	0	0
Douglas	1	0	25	0	0	0	25
Eagle River	15	0	11	0	0	2	13
Fairbanks	27	0	24	24	1	0	49
Girdwood	9	3	2	0	2	0	7
Glennallen	1	0	0	0	0	0	0
Gustavus	2	0	0	0	0	0	0
Homer	21	0	22	11	1	2	36
Juneau	2	0	71	0	0	0	71
Kasilof	1	0	0	0	0	0	0
Kenai	11	0	0	0	0	0	0
Nikiski	1	0	0	0	0	0	0
Ninilchik	6	0	0	0	0	0	0
North Pole	4	0	0	0	0	0	0
Palmer	17	0	33	0	0	0	33
Salcha	1	0	0	0	0	0	0
Seldovia	3	0	0	9	0	1	10
Seward	7	0	23	0	0	0	23
Sitka	2	0	0	0	0	0	0
Soldotna	19	0	47	0	0	0	47
Sterling	2	0	0	0	0	0	0
Talkeetna	1	0	0	0	0	0	0
Valdez	2	0	9	0	0	1	10

-continued-

Table 10-2. Page 2 of 2.

Community	Permits returned	Reported salmon harvests[a]					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Wasilla	20	0	12	0	0	0	12
Subtotal	311	4	926	185	15	15	1,145
Balance of USA[b]	12	0	17	0	0	0	17
Totals	1,879	207	24,556	4,630	240	1,532	31,165

Source ASFDB 2008.

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.

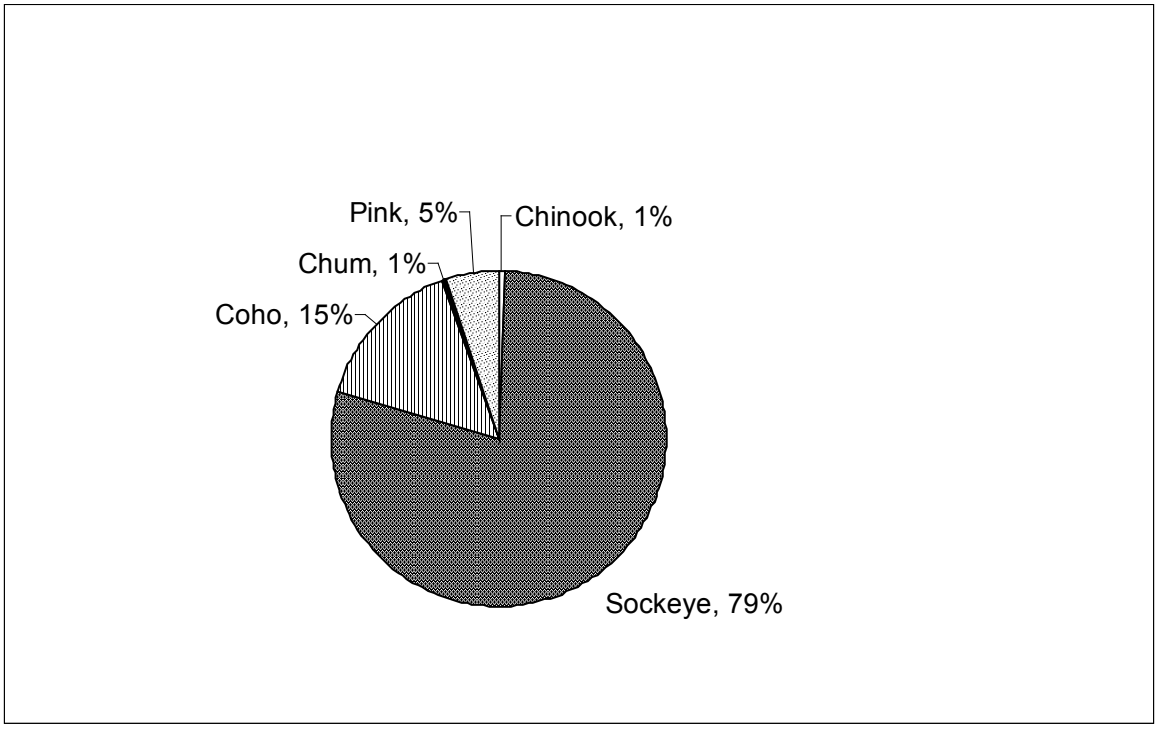

Figure 10-1.–Composition of Kodiak area subsistence salmon harvest by species, 2007.

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 authorized within nonsubsistence areas, noncommercial harvesting opportunities occur under sport and personal use fishing regulations. Harvest summaries for the personal use dip net and setnet fisheries of the Kenai Peninsula can be found in annual management reports prepared by the ADF&G divisions of Sport Fish and Commercial Fisheries.

Waters outside the nonsubsistence area include the Tyonek Subdistrict and the western portion of the Susitna River drainage in Upper Cook Inlet, plus those waters north of Point Bede which are west of a line from the easternmost point of Jakolof Bay and north of the westernmost point of Hesketh Island, but including Jakolof Bay, and south of a line west of Hesketh Island, as well as 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 84 in 2007), Tyonek (population 178), Beluga (population 19), Seldovia (population 423 in the city and village CDP), Port Graham (population 137) and Nanwalek (English Bay) (population 216). The population of the entire Cook Inlet area in 2007 was 414,195, including the Municipality of Anchorage (population 282,375), the Kenai Peninsula Borough (52,121), and the Matanuska-Susitna Borough (79,699). This represented 61% of the state's total population in 2007 (ADLWD 2009).

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 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 include 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. In 2007, the subsistence fishery was closed during the early part of the season due to a fourth consecutive year of poor sockeye salmon runs (Hammarstrom 2007:3). The subsistence fishery did reopen on June 23 once the sockeye salmon escapement goal was met for the English Bay lakes (Hammarstrom and Ford 2007:3).

Harvest Assessment Methods

The Division of Subsistence issues household permits through cooperative agreements with the Port Graham and Nanwalek village councils. 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 uses of setnet 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. 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.

The sockeye salmon run to the English Bay Lakes was 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).

Harvest Estimates for 2007

A total of 3,200 sockeye salmon were expected to return to English Bay lakes in 2007, well under the low end of the sustainable escapement goal (SEG) range of 6,000 to 13,500 fish (Hammarstrom and Dickson 2005:29). In contrast, there was a return of 75,500 harvestable adult sockeye salmon in 2003 (Hammarstrom and Dickson 2004:45). The commercial set gillnet fishery in the Port Graham Subdistrict remained closed through the usual start date of the commercial season in early June, and the subsistence fishery, which opened on April 1, was closed on May 30, but reopened the morning of June 23 (Hammarstrom and Dickson 2006).

In 2007 the retirement of the Division of Subsistence Port Graham subsistence fisheries coordinator resulted in an incomplete end-of-year harvest and effort data set in the Port Graham/ Nanwalek subsistence fishery. The estimated harvest in 2007 was consequently well below all recent averages (Table 11-1). In 2007, estimated subsistence salmon harvests in the Port Graham and Koyuktolik subdistricts totaled 761 salmon including both setnet and rod and reel harvests (Table 11-1). The 2007 harvest was considerably lower than the previous year's harvest of 6,461 salmon, and the 2002 estimate of 14,342 salmon.

In 2007, residents of Port Graham with 24 permits returned, harvested 761 salmon (Table 11-2). Of the total harvest, sockeye salmon were the most numerous species (532 fish; 70%), followed by Chinook (92 fish; 12%), pink salmon (74 fish; 10%), and chum salmon (63 fish; 8%) (Figure 11-2).

Seldovia Subsistence Fishery

History and Regulations

The BOF established this subsistence set gillnet fishery in fall 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 Chinook salmon migrating through Lower Cook Inlet and a separate enhanced Chinook salmon stock returning to Seldovia Bay. 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. 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. ADF&G considers the harvest data for this fishery to be very reliable.

The 2007 Season

There were 19 permits issued for the Seldovia subsistence fishery in 2007 (Table 11-3). Fifteen permits (79%) were returned to ADF&G as required by regulation. The estimated harvest was 103 pink salmon (42%), 24 Chinook salmon (10%), 66 sockeye salmon (28%), and 35 chum salmon (15%) for a total of 239 salmon (Table 11-3 and Figure 11-3). All but 1 of the 19 permits were issued to residents of Seldovia; 1 permit was issued to a Kasilof resident (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 over the past 2 years, with 53 harvested in 2005, 23 harvested in 2006, and 24 in 2007. Since the extension of fishing time in 1998, the 2006 season resulted in the lowest harvest estimate on record for total salmon harvested. The 5-year average for the fishery is 297 salmon (Table 11-4), and the 2006 estimate was 78% lower than the 5-year average. However, in 2007 the harvest rebounded so that the 2007 estimate is only 20% lower than the 5-year average.

Tyonek Subdistrict

History and Regulations

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

The season in this subsistence fishery also operates in 2 parts. The first part, which focuses on Chinook salmon, is open on Tuesdays, Thursdays, and Fridays from May 15–June 15. The second part is open Saturdays from June 16–October 15. The BOF has set a GHL of 4,200 Chinook salmon for the early season. If this level has been reached, the second season does not open until July 1. In the more than 29 years of operation of this fishery, the Chinook salmon GHL has never been reached.

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 permits. Two separate permits are required, 1 for the early season and 1 for the late season. Permits are 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 2007 Season

In 2007, 84 subsistence permits were issued for the Tyonek Subdistrict, including 53 permits issued to Tyonek residents (63%) and 31 permits issued to other Alaska residents (37%), mostly residents of Anchorage (20 permits) (Table 11-5). The 2007 harvest was higher than all of the previous averages and higher than any harvest since 1988 (Table 11-6). The total reported subsistence salmon harvest was 1,609 fish, with 1,281 Chinook salmon (80%), 200 sockeye salmon (12%), 123 coho salmon (8%), 2 chum salmon (<1%), and 3 pink salmon (<1%) (Figure 11-4). Residents of Tyonek accounted for 74% of the harvest total (1,188 salmon), including 85% of the Chinook salmon harvest (1,013 fish).

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 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.

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 the 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. In the view of ADF&G, compliance with the permit requirement is high and harvest estimates for this fishery are very reliable.

Harvests in 2007

Twenty-two subsistence permits were issued for the Yentna River subsistence fish wheel fishery in 2007 and all of them were returned (Table 11-7). In 2007, 9 of the 22 permit holders resided in the Skwentna area (41%), with the remaining 11 permits held by residents of other Cook Inlet area communities (Figure 11-5). This was the fourth highest number of permits issued since permit recording began in 1996. The historical average (1996–2006) number of permits issued is 20 permits per year (Table 11-8).

The total harvest in 2007 was 468 salmon, including 367 sockeye salmon (78%), 66 coho salmon (14%), 18 chum salmon (4%), and 17 pink salmon (4%); (Figure 11-6). Chinook salmon may not be retained in this fishery. The 2007 harvest of 468 salmon is below both the 5-year and 10-year averages; the 5-year average is 548 salmon and the historical average (1996–2006) is 564 salmon (Table 11-8).

Table 11-1.–Historical subsistence salmon harvests, Port Graham and Koyuktolik subdistricts, 1981–2007.

Year	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1981	ND	57	138	2,670	825	177	874	4,684
1982		61	124	2,354	1,493	220	2,932	7,123
1983		46	67	2,480	471	95	187	3,300
1984		24	45	3,262	510	6	673	4,496
1985		24	146	1,177	621	26	345	2,315
1986		44	125	647	481	14	1,062	2,329
1987		55	21	901	914	114	714	2,664
1988		48	104	1,021	844	110	1,756	3,835
1989		44	51	157	1,155	74	1,495	2,932
1990		60	265	1,162	1,417	151	2,960	5,955
1991		63	163	688	2,053	221	4,587	7,712
1992		71	200	535	1,150	236	1,421	3,542
1993		56	277	1,148	913	257	2,663	5,258
1994		70	300	830	1,370	504	1,979	4,983
1995		87	585	1,795	538	376	1,273	4,567
1996		75	310	1,744	939	276	749	4,018
1997		26	202	325	203	153	511	1,394
1998		19	169	289	243	240	459	1,400
1999		74	485	3,157	1,747	1,104	2,023	8,516
2000		67	259	4,664	1,831	953	1,606	9,313
2001		49	133	1,085	1,295	228	1,454	4,195
2002		79	346	10,620	1,057	488	1,831	14,342
2003		52	465	5,534	1,006	532	1,572	9,109
2004		80	312	3,525	1,303	213	1,600	6,953
2005		68	292	2,126	1,193	180	1,608	5,399
2006		53	275	2,559	1,200	296	2,131	6,461
2007[a]		24	92	532	0	63	74	761
5-year average (2002–2006)	–	66	338	4,873	1,152	342	1,748	8,453
10-year average (1997–2006)	–	57	294	3,388	1,108	439	1,480	6,708
Historical Average (1981–2006)	–	56	225	2,171	1,030	279	1,556	5,261

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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 for 2007 are incomplete.

Table 11-2.–Subsistence salmon harvest by community, Port Graham and Koyuktolik subdistricts, 2007.

	Permits		Reported salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Nanwalek[a]	ND	0	0	0	0	0	0	0
Port Graham	ND	24	92	532	0	63	74	761
Total	–	24	92	532	0	63	74	761

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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. No harvest numbers were available for Nanwalek in 2007.

Table 11-3.–Subsistence salmon harvest by community, Seldovia, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Kasilof	1	1	0	0	0	0	0	0
Seldovia	18	14	24	66	12	35	103	239
Total	19	15	24	66	12	35	103	239

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 11-4.–Historical subsistence salmon harvests, Seldovia, 1996–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	17	15	84	136	7	21	50	297
10-year average (1997–2006)	19	17	108	129	3	17	25	282
Historical average (1996–2006)	21	19	103	118	3	15	23	261

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 11-5.–Subsistence salmon harvests by community, Tyonek Subdistrict, 2007.

Community	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	20	14	187	68	80	2	3	340
Big Lake	1	1	14	0	0	0	0	14
Eagle River	2	1	11	0	0	0	0	11
Kenai	1	1	50	0	0	0	0	50
Palmer	2	2	6	0	0	0	0	6
Soldotna	1	0	0	0	0	0	0	0
Tyonek	53	46	1,013	132	43	0	0	1,188
Wasilla	2	2	0	0	0	0	0	0
Unknown	2	0	0	0	0	0	0	0
Total	84	67	1,281	200	123	2	3	1,609

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 11-6.–Historical subsistence salmon harvests, Tyonek Subdistrict, 1981–2007.

Year	Permits		Reported salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1980	67	67	1,757	235	0	0	0	1,992
1981	70	70	2,002	269	64	32	15	2,382
1982	69	69	1,590	310	113	4	14	2,031
1983	75	75	2,665	187	59	6	0	2,917
1984	75	75	2,200	266	79	23	3	2,571
1985	76	NA	1,472	164	91	10	0	1,737
1986	101	91	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
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
5-year average (2002–2006)	89	68	1,107	99	88	3	3	1,300
10-year average (1997–2006)	81	60	1,056	114	87	4	6	1,268
Historical average (1980–2006)	75	59	1,313	131	116	11	8	1,579

Source ADF&G Division of Subsistence, 2008.

NA Information regarding the number of permits returned in 1981 does exist; however, it was not available at the time this report was written.

Table 11-7.–Subistence salmon harvests by community, Upper Yentna River, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook[a]	Sockeye	Coho	Chum	Pink	Total
Anchorage	3	3	0	66	4	3	2	75
Big Lake	2	2	0	48	6	0	0	54
Chugiak	3	3	0	111	6	6	0	123
Palmer	1	1	0	0	0	0	0	0
Skwentna	9	9	0	122	50	9	15	196
Wasilla	1	1	0	20	0	0	0	20
Willow	3	3	0	0	0	0	0	0
Total	22	22	0	367	66	18	17	468

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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, 1996–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	21	19	0	399	112	18	18	548
10-year average (1997–2006)	20	18	0	448	95	14	18	575
Historical average (1996–2006)	20	18	0	429	90	17	27	564

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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).

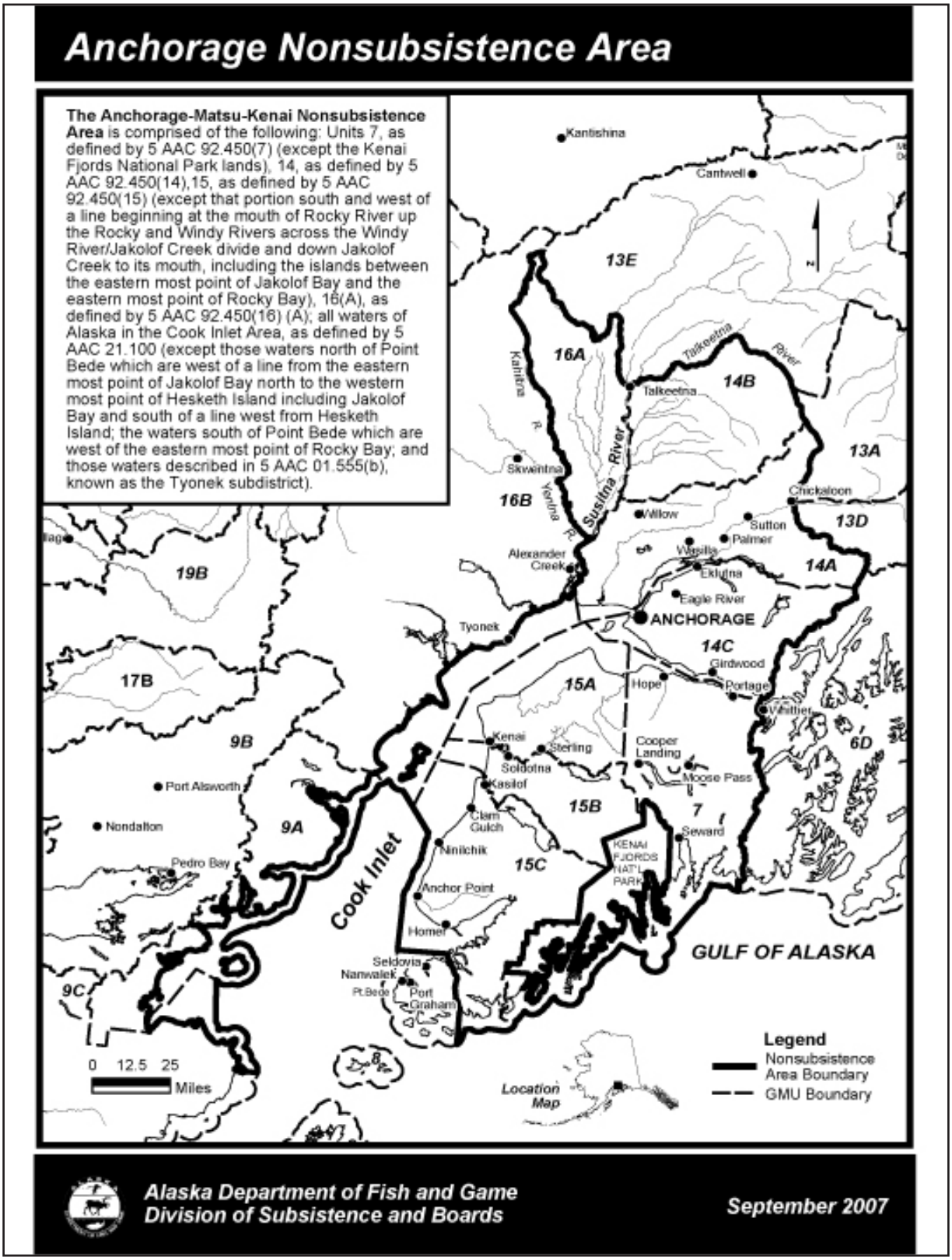

Figure 11-1.–Anchorage nonsubsistence area map.

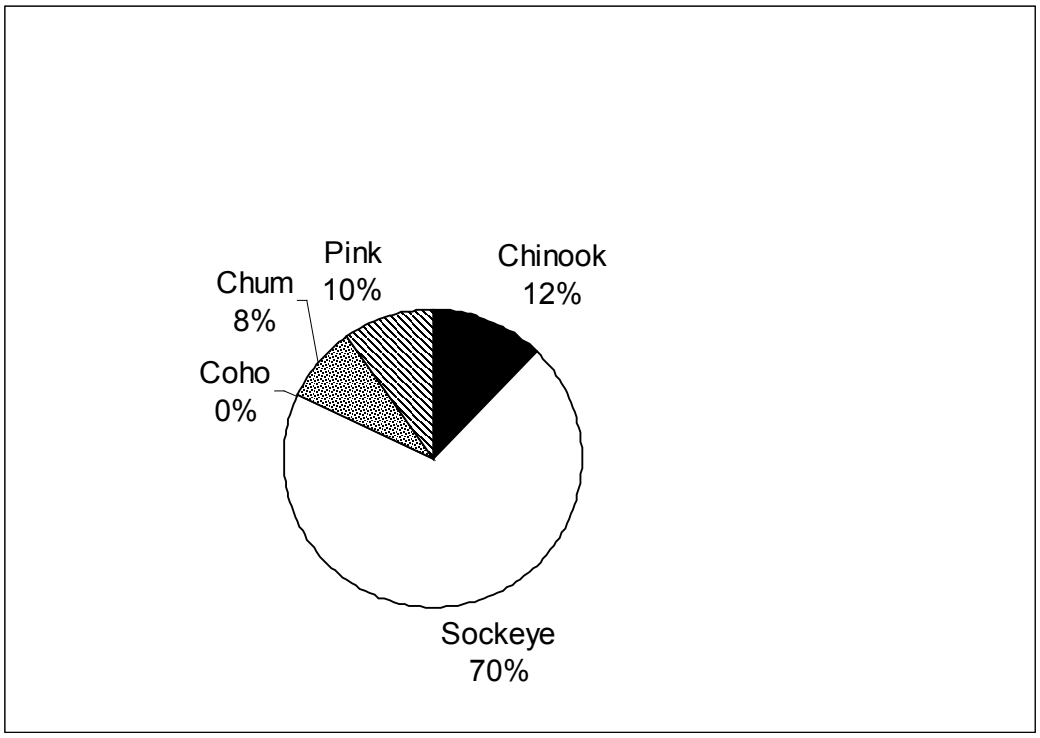

Figure 11-2.–Subsistence salmon harvests in the Port Graham and Koyuktolik subdistricts, 2007.

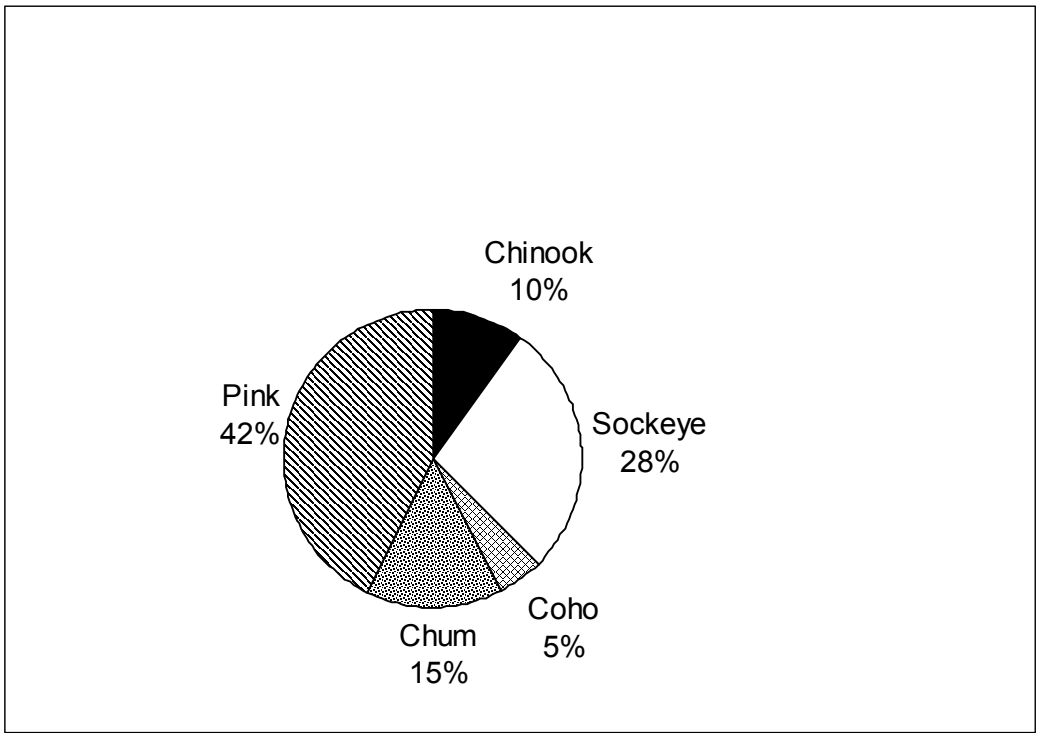

Figure 11-3.–Subsistence salmon harvests in Seldovia, 2007.

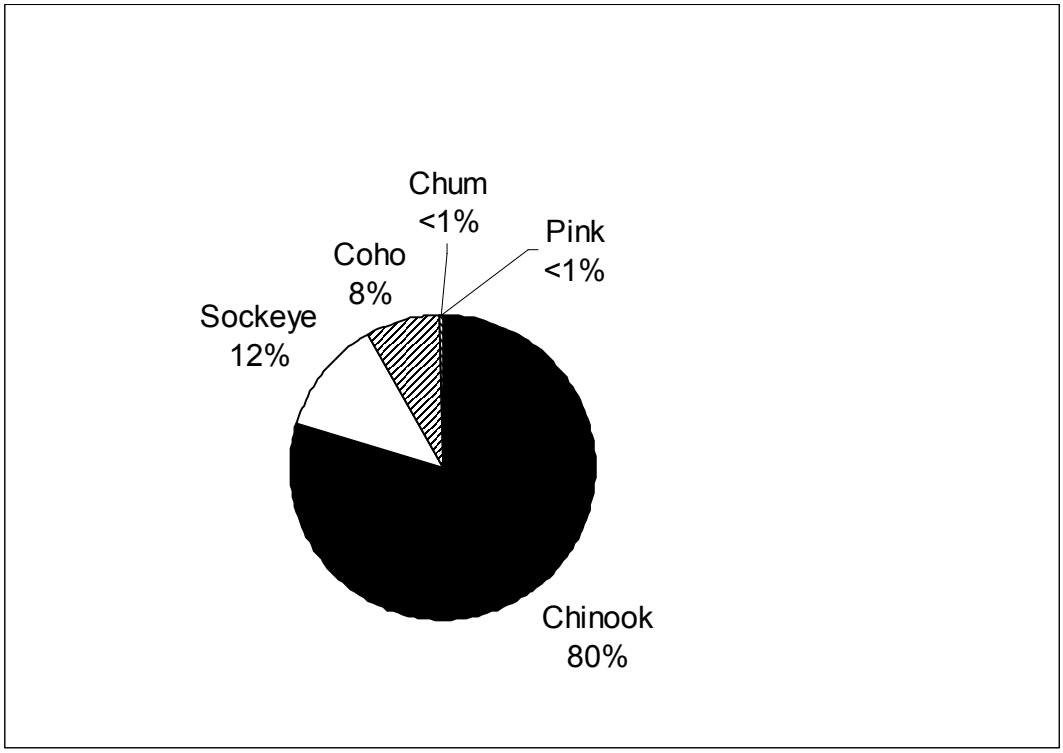

Figure 11-4.–Subsistence salmon harvests in the Tyonek Subdistrict, 2007.

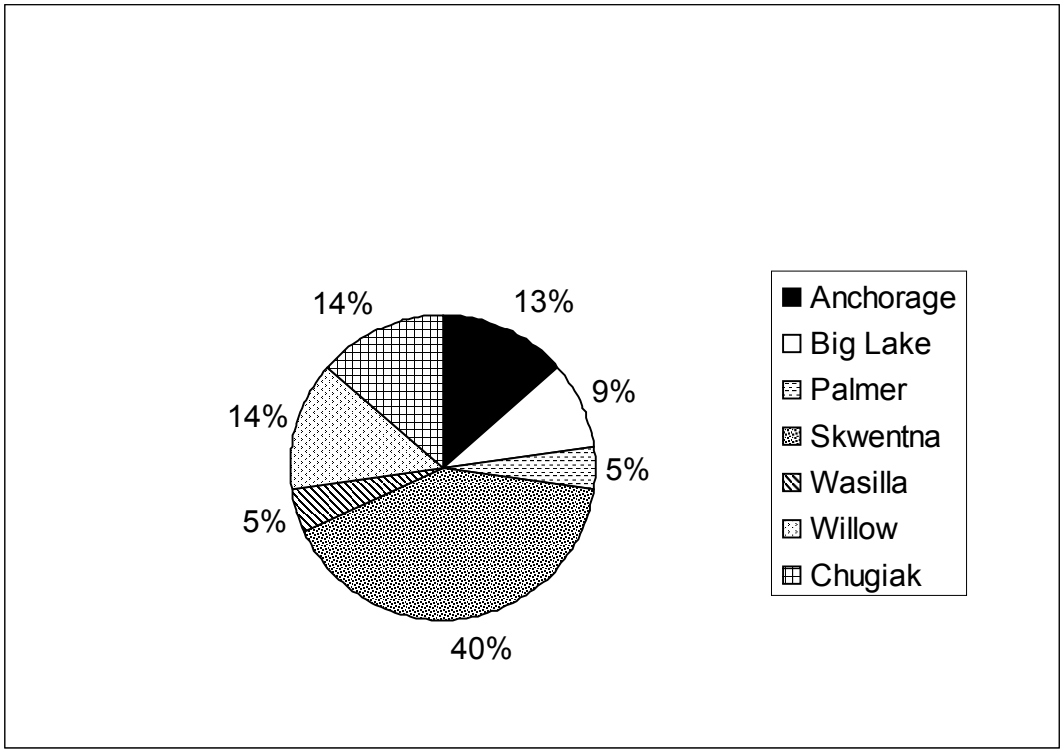

Figure 11-5.–Permits issued, by place of residence, for the Upper Yentna River fishery, 2007.

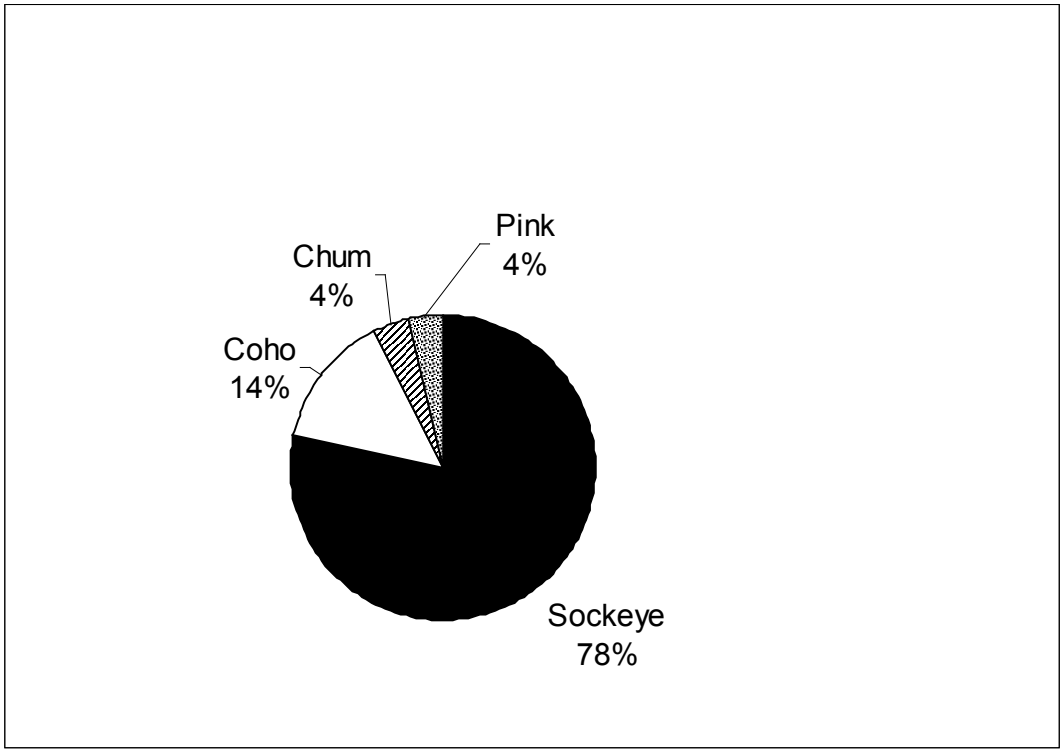

Figure 11-6.–Subsistence salmon harvests in the Upper Yentna River, 2007.

CHAPTER 12: PRINCE WILLIAM SOUND AREA

Introduction

The Prince William Sound Management Area includes all waters of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling. In 2007, there were 9 subsistence or personal use salmon fisheries with annual harvest assessment programs in the Prince William Sound Management Area:

1. Upper Copper River, Glennallen Subdistrict: state subsistence permit program
2. Upper Copper River, Glennallen Subdistrict: federal subsistence permit program
3. Upper Copper River, Chitina Subdistrict: state personal use permit program
4. Upper Copper River, Chitina Subdistrict: federal subsistence permit program
5. Batzulnetas: state and federal subsistence permit programs
6. Copper River Flats–Prince William Sound: state subsistence permit program
7. Prince William Sound, Eastern District–Tatitlek: state subsistence permit program
8. Prince William Sound, Southwestern District–Chenega Bay: state subsistence permit program
9. Prince William Sound, general area: state subsistence permit program

The year 2007 was the sixth in which there were separate state and federal permit programs for the Glennallen and Chitina subdistricts. It should also be noted that the dip net fishery that takes place in the Chitina Subdistrict of the Upper Copper River District under state regulations was classified as a personal use fishery through 1999. The BOF reclassified this fishery as subsistence in 2000, and again as personal use in 2003 (with no other regulatory changes). Therefore, the Chitina dip net fishery is discussed in this report. Historical data for this fishery, including years when it was classified as personal use, are included as well.

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:

1. The Chitina Subdistrict consists of all waters of the Upper Copper River District downstream of the downstream edge of the Chitina-McCarthy Road Bridge; and
2. The Glennallen Subdistrict consists of all remaining waters of the Upper Copper River District.

The state established the Glennallen and Chitina subdistricts in 1977. Prior to that time, the Upper Copper River was treated as one unit for management purposes. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996).

Under the provisions of 5 AAC 01.630 (h), a village council or other similarly qualified organization may obtain a permit to operate a fish wheel on behalf of its members upon approval

of a harvest assessment plan submitted to ADF&G. These organizations may also issue household permits and register fish wheels. Table 12-1 summarizes data for the permits issued for village fish wheels by ADF&G from 1997 through 2007. Harvests for village fish wheels are also included in the subdistrict totals.

Upper Copper River State and Federal Subsistence Fisheries: Glennallen Subdistrict

Regulations

In the Glennallen Subdistrict, permits are required to participate in the state and federal subsistence salmon fisheries. ADF&G issues state permits upon request at ADF&G offices under the authority of 5 AAC 01.630. In 2002, the FSB created a federal permit requirement for qualified rural residents (primarily residents of Copper River Basin and Upper Tanana communities), which is administered by the National Park Service. While the state subsistence permits limit fishers to either fish wheels or dip nets, federal permit holders may use fish wheels, dip nets, and rod and reel. In the state fishery, fishers may participate in either the Chitina Subdistrict personal use fishery or the Glennallen Subdistrict subsistence fishery in any given year, but not both. Federally-qualified rural resident households may hold permits for both the federal and state Glennallen subdistrict fisheries, or for the Glennallen federal fishery and the Chitina state personal use fishery, although state and federal harvest limits are not additive. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

In the Glennallen Subdistrict under state regulations, fishers may use either fish wheels or dip nets, but they may not use both types of gear. Federal subsistence permit holders may use rod and reel in addition to fish wheels and dip nets, and they may use all 3 types of gear, just not at the same time. The state season is June 1–September 30; the federal season is May 15–September 30. Annual limits are the same under state and federal regulations: 30 salmon for a household with 1 person or 60 salmon for a household of 2 persons, of which no more than 5 may be Chinook salmon if taken with a dip net. For a household of more than two, 10 salmon for each additional person may be added to the annual limit. Upon request, permits can be issued for additional salmon, with limits of 200 salmon for 1-person households and 500 for households of 2 or more persons. The number of Chinook salmon (5) taken by dip net does not increase under state regulations; federal permit holders may take up to 5 additional Chinook salmon with rod and reel.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been conducted for Upper Copper River since 1960, originally by the Division of Commercial Fisheries, but currently by the Division of Sport Fish. Permits include harvest reports, and fishers are required to record the dates they fished and the number of each species harvested each day. Reminder letters are mailed to those permittees who do not return permits at the end of the season. Total harvest estimates for the fishery are made based on reported harvests expanded to all permit holders. Beginning in 2002, the National Park Service, on behalf of the FSB, has compiled the data from federal permit returns in a program separate from that administered by ADF&G.

The creation of a dual permit program for subsistence fishing in the Upper Copper River creates challenges for the compilation of a single subsistence harvest estimate for this subsistence fishery, which is the goal of this annual report. Issues include the following:

1. As noted above, federal permits allow fishing with multiple gear types, including rod and reel, but state permits allow fishing with only 2 gear types—dip nets or fish wheels. Thus while past years' 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.
2. Some households obtain both the state and federal permit for the Glennallen Subdistrict. Of these "dual-permitted" households, some report harvest and effort only on their state permits (not returning the federal permit), some report harvest and effort only on their federal permits (not returning the state permit), some report identical harvests and efforts on both permits, and some return neither permit. Editing the data to compensate for double-reporting of salmon harvest and effort requires 2 assumptions: 1) permittees returning only 1 permit did not report harvest or effort on the other, and 2) permittees reporting identical harvests and efforts on both permits reported identical harvests twice rather than split their harvests between permits. These assumptions were employed in the analysis only after discussing the dual-permitted households with the program administrators in the Division of Sport Fish and the National Park Service. 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.
3. 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 issued prior to 2006 did not provide adequate information to assure analysis results accurately reflect the true community residency of harvesters. But because of the precision of the federal permit regarding place of residence, the federal permit place of residence data were used to compile the harvest tables, in combination with the mailing address data from state permits. Since there were several dual-permitted households in the Glennallen Subdistrict fishery, the federal residence community was used as the default where this information differed.

Subsistence Salmon Harvests in 2007

As shown in Table 12-2, ADF&G and NPS issued a total of 1,458 subsistence salmon permits for the Glennallen Subdistrict for 2007. This total is higher than both the recent 5-year average (1,200 permits) and 10-year average (1,174 permits). Of all Glennallen Subdistrict permits issued, both federal and state, residents of Copper Basin communities held 409 (28%) and other Alaska residents held 1,049 (71%) (Table 12-3).

As reported in Table 12-2, the estimated total subsistence salmon harvest in the Glennallen Subdistrict in 2007 was 91,110 salmon, including 86,678 sockeye salmon (95%), 4,125 Chinook salmon (4%), and 308 coho salmon (<1%). (Pink and chum salmon are not generally available in the Upper Copper River, although a few chum salmon are sometimes reported.) This total includes fish wheel and dip net harvests in the state-administered fishery, and fish wheel, dip net, and rod and reel harvests in the federally-administered fishery. The 2007 harvest was higher than the recent 5-year average (79,775 salmon), 10-year average (78,610 salmon), and the historical

average (1989–2006; 65,264 salmon). Table 12-3 reports subsistence salmon harvests in the Glennallen Subdistrict by place of residence of permit holders in 2007. Copper Basin residents caught 32% of the harvest (29,403 salmon) and other Alaska residents harvested 68% (61,707 salmon).

Upper Copper River State Personal Use Fishery: Chitina Subdistrict

Background and History

The Chitina Subdistrict consists of all waters of the Upper Copper River District downstream of the downstream edge of the Chitina–McCarthy Road bridge to an east–west line crossing the Copper River approximately 200 yd upstream of Haley Creek. In 1984, and from 1986 through 1999, the Chitina Subdistrict was closed to subsistence fishing, and the dip net fishery was operated as a personal use fishery. At its December 1999 meeting, the BOF reversed an earlier decision, determined that the Chitina Subdistrict supported customary and traditional uses of salmon, and returned the classification to subsistence. In February 2003, the BOF reconsidered the subsistence classification of the Chitina dip net fishery, reversed its decision of 1999, made a negative C&T finding, and returned the classification to personal use. No other regulatory changes were made. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996) and ADF&G (2003).

Regulations

There are state and federal permit programs for the Chitina Subdistrict. Under state regulations, a household permit and a Alaska state resident sport fishing license, both issued by ADF&G, are required for personal use fishing in the Chitina Subdistrict. Households may not possess both the Chitina state personal use permit and the Glennallen state subsistence permit in the same year. Under state regulations, dip nets are the only legal gear in the Chitina Subdistrict. Annual limits are 15 salmon for a 1-person household and 30 salmon for households of 2 or more. Only 1 Chinook salmon may be harvested annually. If ADF&G authorizes a supplemental harvest period by emergency order, permit holders who have already filled their original limit may take 10 additional sockeye salmon during each announced supplementary period. Rainbow/steelhead trout taken by dip net under the state fishery must be released immediately and returned to the water unharmed. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Program

Annual subsistence–personal use salmon harvest assessments have been conducted by ADF&G, currently by the Division of Sport Fish, in the Upper Copper River area since 1960. Chitina Subdistrict permits include harvest reports, and fishers are required to record the dates they fish, the number of each species harvested each day, whether they fished from a boat or from shore, and if they fished during a supplemental harvest period. Reminder letters are mailed to those permittees who do not return permits at the end of the season. Total harvest estimates for the state personal use fishery are made based on reported harvests expanded to all permit holders.

Personal Use Salmon Harvests in 2007

As reported in Table 12-4, the estimated total salmon harvest in the state-administered Chitina Subdistrict personal use fishery in 2007 was 135,990 fish, including 131,460 sockeye salmon (97%), 2,782 Chinook salmon (2%), and 1,747 coho salmon (1%), by 8,378 permit holders. The 2007 total estimated harvest for the Chitina Subdistrict was the highest harvest since 2001, and

above the recent 5-year (118,408 salmon) and 10-year averages (125,580 salmon), as well as the historical average (1989–2006; 111,216 salmon).

Table 12-5 reports estimated salmon harvests in the Chitina Subdistrict personal use fishery by city of mailing address of state permit holders in 2007; most participants in this fishery lived in Fairbanks, Anchorage, or the Matanuska-Susitna Borough. Only 32 Copper Basin residents (<1%) obtained state personal use salmon permits for the Chitina Subdistrict in 2007. Non-area residents harvested all but 466 of the salmon harvested in this fishery in 2007 (>99%).

Upper Copper River Federal Subsistence Fishery: Chitina Subdistrict

Regulations

In 2007, qualified Alaska rural residents could obtain federal subsistence permits for the Chitina Subdistrict from the National Park Service. Legal gear included fish wheels, dip nets, and rod and reel. Federally-qualified rural resident households may hold permits for both the federal and state Chitina Subdistrict fisheries, or for the Chitina federal fishery and the Glennallen state subsistence fishery, although state and federal harvest limits are not additive. Federal seasonal limits for the Chitina Subdistrict were the same as for the Glennallen Subdistrict, but were also not additive. Under federal regulations, rainbow/steelhead trout incidentally taken in fish wheels could be retained. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Subsistence Harvests in 2007

As reported in Table 12-6, an estimated 1,165 salmon were harvested in the federal Chitina Subdistrict subsistence fishery in 2007, down from the 1,723 estimated for 2006. The total harvest included 1,095 sockeye salmon (94%) and 29 Chinook salmon (1%). A total of 97 permits were issued, which is more than the 76 issued in 2006 but fewer compared to 109 in 2004. Table 12-7 reports harvests by permittees' community of residence in 2007 for the Chitina Subdistrict.

Native Village of Batzulnetas Subsistence Fishery

The state created the Batzulnetas fishery in 1987 through an emergency regulation to settle the federal district court case of *John vs. Alaska*. There is also a federal permit program for a federal fishery in this area. Participants in this fishery are largely from the community of Mentasta. Legal gear includes fish wheels and dip nets in the Copper River and dip net and spears in Tanada Creek. For both state and federal fisheries, the open area is all waters of the Copper River from regulatory markers near the mouth of Tanada Creek and approximately one-half mile downstream from that mouth; and all waters of Tanada Creek between regulatory markers. The state fishing season is open June 1–September 1 or until the season is closed by emergency order; fishing periods are established by emergency order and are 2 days per week during June and 3 ½ days per week for the remainder of the season. The federal fishing season is May 15–September 30 or until the season is closed by special action.

Since 1987, subsistence permits have been issued in 11 years (Table 12-8). One permit was issued and returned every year from 1998 through 2004. No state or federal permits were issued for the years 2005 through 2007. The historical average (1987–2006) harvest for this fishery is 116 sockeye salmon, with the highest harvest occurring in 1994 with a take of 997 sockeye salmon.

Copper River District Subsistence Fishery

Background and Regulations

This fishery takes place in the Copper River District at the mouth of the Copper River (Copper River Flats) near the community of Cordova. Permits are required to participate in subsistence fishing for salmon and freshwater fish species under the authority of 5 AAC 01.630. Permits are issued upon request either in person or by telephone to the Cordova ADF&G office. Fishers must declare their intent to fish in the Copper River Flats area or in Prince William Sound, since the permit is valid for only one or the other location. Legal gear is set or drift gillnet no longer than 50 fathoms; open season is May 15–September 30, with additional restrictions during times of commercial fishing activity. Annual limits for salmon are 15 salmon for a household of one; 30 salmon for a household of 2 or more; and 10 salmon for each additional person in the household. There is a limit of 5 Chinook salmon per permit. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Program

A permit program with annual subsistence salmon harvest assessments has been in place for Prince William Sound at least since 1960. Permits are returned to the Cordova ADF&G office either in person or by mail at the end of the fishing season. Permits include a harvest report, and fishers are required to record the dates fished and the number of each species of fish harvested each day.

Subsistence Salmon Harvests in 2007

As reported in Table 12-9, 469 permits were issued for this fishery in 2007, and 445 (95%) were returned. This represents a decline from the number of permits issued in 2004 (511), but an increase from the number of permits issued in 2006 (421), and 2005 (237). The number of permits issued in 2007 was higher than the recent 5-year (382 permits) or 10-year averages (360 permits). The estimated harvest in 2007 of 7,694 salmon, a substantial increase over previous years. The 2007 harvest was composed mainly of 6,458 sockeye salmon (84%), 1,211 Chinook salmon (16%), and 16 coho salmon (<1%). Most permit holders lived in Cordova (386; 82%) (Table 12-10).

Eastern District Subsistence Salmon Fishery

Although the Eastern District is defined as those waters of the eastern mainland shore from the radio tower at Whitshed Village to Point Freemantle, including Bligh Island, Goose Island, and other adjacent islands (5 AAC 24.200 (c)), under regulations in place since 1988, salmon may be taken for subsistence purposes only in those waters north of a line from Porcupine Point near Goose Island to Granite Point near Glacier Island, and south of a line from Point Lowe to Tongue Point in Valdez Arm (5 AAC 01.648 (b)). The primary participants in this fishery are residents of Tatitlek. Prior to 1992, permits were issued only in Tatitlek, but since 1992, they have been issued at the Cordova ADF&G office as well. Permits may be returned in person to the Cordova ADF&G office or the Tatitlek Village Council office, or mailed at the end of the fishing season. Permits include a harvest report, and fishers are required to fill in the dates fished and the number of each species of salmon caught each day.

Legal gear for this fishery includes seines up to 50 fathoms in length and 100 meshes deep with a maximum mesh size of 4 in, or gillnets up to 150 fathoms in length with a maximum size of

6 ¼ 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, open only during commercial openers; and 7 days per week from 2 days after the closure of the commercial season through October 31. There are no bag or possession limits for this fishery.

In 2007, 14 permits were issued for this fishery (Table 12-11). No permits were returned, thus, there were no reported harvests in 2007 and no harvest estimate for 2007 because historically low permit returns prohibit expansion. It is likely that the harvest assessment program for this fishery has consistently and substantially underestimated harvests. As shown in Table 12-12, household surveys in Tatitlek provided an estimate of 1,075 salmon taken with subsistence methods in 2003, compared to 298 based on returned permits for that year. Rod and reel and removal from commercial harvests have also provided salmon for home uses in Tatitlek in most years. However, all salmon reported harvested in the surveys for 2003 were taken with subsistence nets or seines (Fall 2006).

Southwestern District Subsistence Salmon Fishery

The Southwestern District is described as the mainland waters from the outer point of the north shore of Granite Bay to Cape Fairfield, as well as the waters surrounding Knight, Chenega, Bainbridge, Evans, Elrington, and Latouche islands and their adjacent islands (5 AAC 24.200 (i)). Under regulations in place since 1988, salmon may be taken in the Southwestern District as well as in waters along the northwestern shore of Green Island from the westernmost tip of the island to the northernmost tip (5 AAC 01.648 (a)). The primary participants in this fishery are residents of Chenega Bay. Prior to 1992, permits were issued only in Chenega Bay, but since 1992, they have also been issued at the Cordova ADF&G office. Permits may be returned in person to the Cordova ADF&G office or the Chenega Village Council office, or mailed at the end of the fishing season. Permits include a harvest report, and fishers are required to fill in the dates fished and the number of each species of salmon caught each day.

Legal gear for this fishery includes seines up to 50 fathoms in length and 100 meshes deep with a maximum mesh size of 4 in, or gillnets up to 150 fathoms in length with a maximum size of 6 ¼ 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, open only during commercial openers; and 7 days per week from 2 days after the closure of the commercial season through October 31. There are no bag or possession limits for this fishery.

In 2007, 4 permits were issued for this fishery and 3 were returned. Because permit return rates for this fishery have been low in the past, data in Table 12-13 are reported harvests only. The reported harvest for 2007 was 381 salmon, consisting of 293 sockeye salmon, 55 chum salmon, 5 pink salmon, 27 coho salmon and 2 Chinook salmon. The 2007 harvest was well below the recent 5-year average (605 salmon) and 10-year average (599 salmon). It is likely that the harvest assessment program for this fishery consistently underestimates harvests. As shown in Table 12-14, household surveys in Chenega Bay in 2003 provided an estimate of 1,690 salmon taken with subsistence methods compared to 677 (Table 12-13) based on returned permits for that same year. Rod and reel and removal from commercial harvests also provide salmon for home uses in Chenega Bay.

Prince William Sound: General Districts

Subsistence fishing for salmon in the other districts of the Prince William Sound area (other than the Upper Copper River, Copper River, Eastern, and Southwestern districts) 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 household of one; 30 salmon for a household of 2; and 10 salmon for each additional person in the household. There is a limit of 5 Chinook salmon per permit.

Since the creation of separate regulations for the waters fished by Tatitlek and Chenega Bay residents in 1988, it appears that participation in this fishery has been very limited; however, further collection and analysis of data is necessary to support this idea. Since 1994, there have been only 6 years with any reported harvest. In 2007, 3 permits were issued and 3 returned. The harvest totaled 30 sockeye salmon (Table 12-15). Permit holders were from Anchorage (2 permits), and Valdez (1 permit) (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 2003, 2004, 2005, and 2006 (Fall et al. 2007b, Fall et al. 2005, Fall et al. 2006, Fall et al. 2004).

In 2007, there were no harvest assessment programs for other subsistence finfish fisheries in the Prince William Sound area. In the Upper Copper River watershed, resident species such as Arctic grayling, burbot, and whitefishes, among other species, are harvested for home uses. 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 harvest 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 (*n.d.* [2004]).

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. 2006 was the first year in which no permit was required. Subsistence fishing for Dungeness, Tanner, and king crab 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, 1997–2007.

Year	Village	Estimated subsistence harvests					
		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-Kah	12	61	0	0	0	73
1999	Chickaloon	1	5	0	0	0	6
1999	Gakona[a]	0	0	0	0	0	0
1999	Kluti-Kah	46	85	0	0	0	131
2000	Chickaloon	73	200	0	0	0	273
2000	Chistochina	1	880	0	0	0	881
2000	Kluti-Kah	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-Kah	3	259	114	0	0	376
2002	Chickaloon	0	91	0	0	0	91
2002	Chitina[b]	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[b]	0	0	0	0	0	0
2006	Chitina	0	497	0	0	0	497
2007	Chitina[b]	0	0	0	0	0	0

Source Tom Taube, ADF&G, Division of Sport Fish, Glennallen personal communication.

a. Did not fish.

b. Did not return permit.

Table 12-2.–Historical subsistence salmon harvests, Glennallen Subdistrict, 1989–2007.

	Permits		Estimated salmon harvests[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	1,021	889	3,154	76,190	258	0	0	79,794
2007	1,458	1,277	4,125	86,678	308	0	0	91,110
5-year average (2002–2006)	1,200	1,051	3,646	75,545	545	0	0	79,775
10-year average (1997–2006)	1,174	1,068	3,434	74,526	629	3	0	78,610
Historical average (1989–2006)	964	871	2,522	62,246	484	1	0	65,264

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

a. Starting in 2002, estimates include salmon harvested under federal as well as state subsistence fishing regulations and permits.

Table 12-3.–Subistence salmon harvest by community, Glennallen Subdistrict, 2007.

Community	Permits		Estimated salmon harvests[a]					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chitina	26	22	168	3,257	7	0	0	3,432
Copper Center	141	129	409	11,387	35	0	0	11,831
Gakona	52	48	235	5,009	0	0	0	5,244
Glennallen	176	153	507	7,655	54	0	0	8,217
Paxson	1	1	1	3	0	0	0	4
Slana	13	12	10	665	0	0	0	675
Subtotal, Copper Basin	409	365	1,330	27,977	96	0	0	29,403
Anchor Point	2	2	6	114	1	0	0	121
Anchorage	317	267	638	15,645	59	0	0	16,342
Anderson	1	1	1	38	0	0	0	39
Barrow	2	2	13	51	0	0	0	64
Big Lake	3	1	9	120	0	0	0	129
Cantwell	1	1	0	0	0	0	0	0
Chickaloon	1	1	33	600	0	0	0	633
Chugiak	21	18	61	720	0	0	0	781
Clear	1	0	0	0	0	0	0	0
Cooper Landing	1	1	3	102	0	0	0	105
Delta Junction	17	16	48	687	0	0	0	735
Dot Lake	2	2	0	34	0	0	0	34
Eagle River	50	48	207	2,816	22	0	0	3,045
Eielson AFB	2	2	0	2	0	0	0	2
Ester	6	5	73	257	0	0	0	330
Fairbanks	136	118	319	6,201	14	0	0	6,534
Ft Greely	2	1	2	34	0	0	0	36
Ft Richardson	1	1	0	40	0	0	0	40
Ft Wainwright	6	5	2	188	0	0	0	191
Girdwood	5	4	4	178	0	0	0	181
Healy	2	2	5	135	0	0	0	140
Homer	2	2	13	61	0	0	0	74
Houston	1	1	0	0	0	0	0	0
Kasilof	1	1	0	0	0	0	0	0
Nenana	2	2	2	612	0	0	0	614
Ninilchik	3	3	89	337	0	0	0	426
North Pole	58	49	137	2,637	8	0	0	2,783
Northway	3	3	2	120	0	0	0	122
Balance of USA	1	1	0	0	0	0	0	0
Palmer	97	85	321	6,937	9	0	0	7,267
Salcha	5	5	0	37	0	0	0	37
Seward	1	1	0	4	0	0	0	4
Soldotna	1	1	2	11	0	0	0	13
Sterling	1	1	0	71	0	0	0	71
Sutton	3	3	6	161	0	0	0	167
Tok	63	54	44	2,171	32	0	0	2,247
Two Rivers	1	1	0	0	0	0	0	0
Unknown Communities	3	2	5	75	0	0	0	80
Valdez	68	60	180	4,597	2	0	0	4,779
Wasilla	153	136	565	12,502	64	0	0	13,131

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Community	Permits		Estimated salmon harvests[a]					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Willow	3	3	6	406	0	0	0	412
Subtotal, other communities	1,049	912	2,796	58,700	211	0	0	61,707
Total	1,458	1,277	4,125	86,678	308	0	0	91,110

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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, 1989–2007.

Year	Permits		Estimated salmon harvests					
	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
5-year average (2002–2006)	7,931	6,653	2,417	113,611	2,380	0	0	118,408
10-year average (1997–2006)	8,359	7,530	3,592	119,629	2,360	0	0	125,580
Historical average (1989–2006)	7,587	6,898	3,586	105,260	2,370	0	0	111,216

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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 reclassified as personal use.

Table 12-5.–Personal use salmon harvests by community, state Chitina Subdistrict permits, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chitina	7	6	0	60	0	0	0	60
Copper Center	7	7	0	15	0	0	0	15
Glennallen	18	11	3	316	72	0	0	391
Subtotal, Copper Basin	32	24	3	390	72	0	0	466
Ambler	1	1	0	6	0	0	0	6
Anaktuvuk Pass	1	1	0	15	0	0	0	15
Anchor Point	1	1	1	29	0	0	0	30
Anchorage	1,862	1,569	573	25,027	191	0	0	25,791
Anderson	5	4	1	98	10	0	0	109
Aniak	1	1	0	0	0	0	0	0
Auke Bay	1	1	0	0	0	0	0	0
Barrow	4	3	3	55	0	0	0	57
Big Lake	29	26	8	352	0	0	0	360
Cantwell	4	4	1	30	0	0	0	31
Central	1	1	0	2	0	0	0	2
Chefornak	1	1	0	2	0	0	0	2
Chickaloon	11	8	6	242	21	0	0	268
Chugiak	123	104	37	1,548	17	0	0	1,601
Clear	6	6	1	59	0	0	0	60
Cold Bay	1	0	0	0	0	0	0	0
Coldfoot	2	2	1	12	0	0	0	13
Cooper Landing	3	3	1	42	0	0	0	43
Cordova	2	1	2	50	0	0	0	52
Delta Junction	350	321	125	5,723	240	0	0	6,088
Denali National Park	14	11	6	158	1	0	0	165
Dot Lake	1	1	1	39	0	0	0	40
Eagle River	295	271	99	4,164	15	0	0	4,278
Eielson AFB	97	81	26	1,491	10	0	0	1,527
Elmendorf AFB	14	13	2	164	0	0	0	166
Ester	69	60	16	1,225	5	0	0	1,245
Fairbanks	2,783	2,357	923	47,382	764	0	0	49,069
Fort Greely	13	11	5	277	0	0	0	281
Fort Richardson	9	8	5	151	0	0	0	155
Fort Wainwright	68	54	19	689	1	0	0	709
Fort Yukon	1	1	0	0	0	0	0	0
Gakona	1	1	0	21	0	0	0	21
Galena	1	0	0	0	0	0	0	0
Girdwood	31	24	10	309	0	0	0	319
Goodnews Bay	1	1	0	30	0	0	0	30
Haines	12	11	5	225	1	0	0	231
Healy	32	29	14	404	0	0	0	418
Homer	10	9	2	148	0	0	0	150
Hope	1	1	0	0	0	0	0	0
Houston	7	7	3	81	0	0	0	84
Indian	3	3	2	28	0	0	0	30
Juneau	7	7	2	105	25	0	0	132
Kaktovik	2	2	2	37	0	0	0	39

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Community	Permits		Estimated salmon harvests					
	Issued	Recorded	Chinook	Sockeye	Coho	Chum	Pink	Total
Kasilof	2	2	1	26	0	0	0	27
Kenai	2	2	1	0	0	0	0	1
Ketchikan	2	2	1	37	0	0	0	38
Kodiak	3	1	0	0	0	0	0	0
Lake Minchumina	1	1	1	14	0	0	0	15
Manley Hot Springs	3	2	2	36	0	0	0	38
Marshall	2	1	2	36	0	0	0	38
McGrath	1	1	0	11	0	0	0	11
Meadow Lakes	1	1	0	40	0	0	0	40
Minto	1	1	0	0	0	0	0	0
Moose Pass	1	1	0	40	0	0	0	40
Nenana	22	20	10	416	8	0	0	433
Nikiski	3	3	0	0	0	0	0	0
Nikolaevsk	2	2	2	63	0	0	0	65
Ninilchik	5	4	0	114	0	0	0	114
Noatak	1	1	1	22	0	0	0	23
Noorvik	1	1	0	30	0	0	0	30
North Pole	778	662	284	13,522	101	0	0	13,908
Palmer	452	405	151	7,211	52	0	0	7,414
Point Hope	2	2	2	0	0	0	0	2
Salcha	64	51	15	973	20	0	0	1,008
Seward	8	8	3	202	0	0	0	205
Sitka	1	1	0	15	0	0	0	15
Skagway	1	1	0	0	0	0	0	0
Soldotna	3	3	1	45	0	0	0	46
Sterling	4	2	0	0	0	0	0	0
Sutton	50	45	11	1,022	20	0	0	1,053
Talkeetna	18	17	3	253	0	0	0	256
Tok	10	10	5	257	0	0	0	262
Trapper Creek	9	9	2	146	3	0	0	151
Tuntutuliak	1	1	0	0	0	0	0	0
Two Rivers	25	19	8	387	5	0	0	400
Unalakleet	1	1	1	2	0	0	0	3
Valdez	154	129	48	2,149	0	0	0	2,197
Venetie	2	2	0	0	0	0	0	0
Wasilla	763	666	302	12,672	116	0	0	13,090
Whittier	1	1	0	25	0	0	0	25
Willow	39	38	14	590	35	0	0	639
Balance of USA	15	13	3	136	14	0	0	153
Unknown Community	11	10	1	162	1	0	0	164
Subtotal, other communities	8,346	7,163	2,779	131,070	1,675	0	0	135,525
Total	8,378	7,187	2,782	131,460	1,747	0	0	135,990

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 12-6.–Historical subsistence salmon harvests, federal Chitina Subdistrict permits, 2003–2007.

	Permits		Estimated salmon harvests					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2003	99	71	33	1,316	152	0	0	1,500
2004	109	83	9	1,631	28	0	0	1,668
2005	77	64	27	1,498	0	0	0	1,526
2006	76	62	16	1,681	26	0	0	1,723
2007	97	86	29	1,095	41	0	0	1,165
Historical average (2003–2006)	90	70	21	1,531	51	0	0	1,604

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 12-7.–Subistence salmon harvests by community, federal Chitina Subdistrict permits, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Chitina	10	9	11	151	2	0	0	164
Copper Center	25	24	5	259	0	0	0	265
Gakona	3	3	0	29	30	0	0	59
Glennallen	45	39	13	580	9	0	0	602
Northway	1	1	0	1	0	0	0	1
Tok	13	10	0	74	0	0	0	74
Total	97	86	29	1,095	41	0	0	1,165

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 12-8.–Historical salmon harvests, Batzulnetas fishery, 1987–2007.

Year	Permits		Estimated salmon harvests					
	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
5-year average (2002–2006)	1	1	0	111	0	0	0	111
10-year average (1997–2006)	1	1	0	111	0	0	0	111
Historical average (1987–2006)	1	1	0	116	0	0	0	116

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 12-9.–Historical subsistence salmon harvests, Copper River District (Copper River Flats), 1965–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	382	362	704	2,408	26	1	4	3,144
10-year average (1997–2006)	360	340	603	2,332	367	3	2	3,308
Historical average (1965–2006)	142	129	207	821	128	1	1	1,157

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 12-10.–Subistence salmon harvests by community, Copper River District (Copper River Flats), 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchor Point	3	3	10	39	0	0	0	49
Anchorage	15	14	21	102	0	0	0	123
Big Lake	1	1	5	45	0	0	0	50
Chugiak	2	2	5	20	0	0	0	25
Copper Center	1	1	2	11	0	0	0	13
Cordova	386	366	1,003	4,776	11	2	6	5,798
Delta Junction	4	4	15	190	0	0	0	205
Eagle River	4	4	8	29	0	0	0	37
Fairbanks	3	3	8	6	0	0	0	14
Homer	10	10	29	551	0	0	0	580
Juneau	1	1	5	35	0	0	0	40
Kasilof	1	1	5	25	0	0	0	30
Kodiak	2	2	6	0	0	0	0	6
Palmer	1	1	5	5	0	0	0	10
Seward	5	5	15	74	0	0	0	89
Sitka	1	1	3	25	0	0	0	28
Soldotna	2	1	10	20	0	0	0	30
Sterling	1	1	4	2	0	0	0	6
Tatitlek	7	7	6	1	0	0	0	7
Valdez	7	6	9	55	6	0	0	70
Wasilla	10	9	33	310	0	0	0	343
Willow	2	2	3	137	0	0	0	140
Total	469	445	1,211	6,458	16	2	6	7,694

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 12-11.–Reported historical subsistence salmon harvests, Prince William Sound, Eastern District, 1988–2007.

	Permits		Reported salmon harvests					
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	0	0	0	0	0	0
5-year average (2002–2006)	16	6	2	195	254	29	86	567
10-year average (1997–2006)	14	6	1	168	263	31	57	520
Historical average (1988–2006)	14	6	1	173	312	49	72	606

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

NA Data not available.

Table 12-12.–Estimated harvests of salmon for home uses, Tatitlek, 2003.

	Estimated salmon harvests			
Species	Subsistence methods	Rod and reel	Removed from commercial harvests	All methods
Chinook	27	0	0	27
Sockeye	306	0	0	306
Coho	651	0	0	651
Chum	13	0	0	13
Pink	77	0	0	77
All Salmon	1,075	0	0	1,075
Estimated number of households harvesting[a]	13 households	0 households	0 households	13 households (any method)

Source Fall et al. (2005).

a. Number of households in the community = 27; 15 (93%) were interviewed.

Table 12-13.–Historical subsistence salmon harvests, Prince William Sound, Southwestern District, 1988–2007.

	Permits		Reported salmon harvests					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1988	10	NA	1	50	8	294	251	604
1989	8	NA	0	322	0	180	554	1,056
1990	7	NA	1	36	5	2	20	64
1991	12	NA	3	345	42	53	195	638
1992	14	NA	1	526	23	99	313	962
1993	22	NA	2	835	50	124	232	1,243
1994	16	NA	5	192	77	161	402	837
1995	10	NA	2	152	67	41	67	329
1996	7	NA	0	107	7	46	105	265
1997	5	NA	44	193	30	272	110	649
1998	4	NA	13	114	20	119	65	331
1999	14	NA	57	499	62	101	168	887
2000	12	8	24	39	229	143	211	646
2001	16	9	2	119	92	146	95	454
2002	10	5	10	142	123	60	83	418
2003	13	7	6	219	156	147	149	677
2004	8	5	3	535	44	84	56	722
2005	13	8	10	515	84	174	124	907
2006	7	6	0	159	1	111	28	299
2007	4	3	2	293	27	55	4	381
5-year average (2002–2006)	10	6	6	314	82	115	88	605
10-year average (1997–2006)	10	7	17	253	84	136	109	599
Historical average (1988–2006)	11	7	10	268	59	124	170	631

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

NA Data not available.

Table 12-14.–Estimated harvests of salmon for home uses, Chenega Bay, 2003.

	Estimated salmon harvests			
Species	Subsistence Methods	Rod and Reel	Removed from Commercial Harvests	All Methods
Chinook	79	36	19	134
Sockeye	829	100	0	929
Coho	331	263	0	594
Pink	201	131	0	333
Chum	250	81	0	331
Other/Unknown	0	56	0	56
All Salmon	1,690	668	19	2,376
Estimated number of households harvesting[a]	8 households	10 households	1 household	14 households (any method)

Source Fall et al. (2005).

a. Number of households in the community = 20; 16 (80%) were interviewed.

Table 12-15.–Historical subsistence salmon harvests, Prince William Sound General, 1960–2007.

	Permits		Estimated salmon harvests					
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
2007	3	3	0	30	0	0	0	30

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Table 12-15. Page 2 of 2.

Year	Permits		Estimated salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2002–2006)	11	10	0	24	6	3	2	36
10-year average (1997–2006)	7	7	0	13	3	2	1	18
Historical average (1960–2006)	11	7	0	16	39	11	89	155

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

NA data not available.

Table 12-16.–Subsistence salmon harvest by community, Prince William Sound General, 2007.

Community	Permits		Estimated salmon harvests					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	2	2	0	30	0	0	0	30
Valdez	1	1	0	0	0	0	0	0
Total	3	3	0	30	0	0	0	30

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

CHAPTER 13: THE SOUTHEAST REGION

Introduction

The Southeast region is composed of 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. The Joint Board identified 2 nonsubsistence areas in the Southeast region: the Ketchikan Nonsubsistence Area and the Juneau Nonsubsistence Area (5 AAC 99.015). Subsistence fisheries may not be authorized in nonsubsistence areas; therefore, depending upon the district and section, noncommercial, nonrecreational salmon fishing in the Southeast region occurs under either subsistence or personal use regulations. Southeast region subsistence and personal use fisheries have annual harvest assessment programs based on a permit reporting program. All of the areas except the Yakutat area have identified specific waters where subsistence or personal use fishing is permitted, with daily or annual limits, seasons, and allowable gear types. Since 1990, any Alaska resident may harvest under the terms of a subsistence permit. In 2007, there were 6 management areas with annual harvest assessment programs in the Southeast region:

1. Yakutat Management Area
2. Haines Management Area
3. Juneau Management Area
4. Sitka Management Area
5. Petersburg Management Area
6. Ketchikan Management Area

Harvest Assessment Programs

The Division of Commercial Fisheries is responsible for administering the subsistence and personal use salmon permit programs in the Southeast region. Area management biologists issue permits identifying open fishing locations, species, daily (and, in some cases, annual) possession limits, seasons, and gear. Area management biologists may change permit conditions at their discretion, including issuing emergency closures. Area management offices require that harvest calendars on the permit be returned by mail or telephone at the end of each season, and the information on the calendars is entered into Alexander: the Integrated Fisheries Database for Southeast Alaska and Yakutat. The database includes the names and addresses of all who applied for subsistence or personal use permits, along with their harvest record. Regulations specify that a permit 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.

Subsistence Salmon Harvests in 2007

In 2007, the estimated subsistence and personal use salmon harvests for the Southeast region was 49,737 fish (Table 13-1). This was below the estimated harvest for 2006 (63,425 salmon) and below recent 5-year (66,216) and 10-year averages (67,846) (Table 13-2). By species, sockeye

salmon comprised the greatest share at 43,100 fish (87%), followed by 3,273 pink salmon (7%), 1,444 coho salmon (3%), 721 chum salmon (1%), and 1,199 Chinook salmon (2%) (Table 13-3, Figure 13-1). The total salmon harvest by management area was Sitka 16,417 (34%), Ketchikan 6,710 (13%), Juneau 7,771 (16%), Haines 7,482 (15%), Yakutat 8,180 (16%), and Petersburg 3,177 (6%) (Table 13-3, Figure 13-2).

Since 2002, the number of salmon permits issued for the Southeast region has averaged 3,467 per year (Table 13-2). 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. In 2007, 3,156 permits were issued, and 1,622 were returned, a region-wide response rate of 51%.

Yakutat Management Area

Background and History

The Yakutat Management Area stretches from Cape Fairweather to Cape Suckling. C&T findings by the BOF for salmon identify the fresh waters upstream from the terminus of streams and rivers from the Doame River in the south to the Tsiu River, the waters of Yakutat Bay and Russell Fjord, and the waters of Icy Bay (5 AAC 01.666 (a)(3)). The Yakutat area is unique in Southeast Alaska in that subsistence salmon fishing locations are not restricted to specific streams, nor are there daily or annual limits on the number of fish harvested.

Regulations

The 2007 permit specified that subsistence salmon could not be taken during the period 48 hours before a commercial net fishery opening until 48 hours after its closure. There was an exception in cases where the commercial salmon net fishery exceeded 2 days; in such cases, the subsistence fishing period was from 6:00 am to 6:00 pm Saturday, except in the Tsiu River where the subsistence fishing period was from 6:00 am to 6:00 pm Sunday. This effectively limited the period when subsistence fishing could take place to 2 to 3 days per week during the commercial salmon fishing season. On the Situk River, subsistence fishers were required to attend their nets when they were being used to take salmon.

Other standard permit conditions included removal of dorsal fins; prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert or other artificial obstruction; and completion of the harvest calendar for each day fished, specifying location, species, and gear. Sport-taken and subsistence-taken salmon could not be possessed on the same day. In this region in 2007, state regulations did not recognize rod and reel as subsistence gear, except in the Redoubt Bay sockeye salmon fishery. Therefore, any salmon or rainbow/steelhead trout taken with rod and reel gear could not be possessed with fish taken with nets. The permit, however, did not specify allowed subsistence gear, but stated that set gillnets were the preferred gear. Permits could be used for any location in the area.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been in place since 1989. As reported, the estimated total subsistence salmon harvest for the Yakutat Management Area in 2007 was 8,180 salmon, including 6,536 sockeye salmon (80%), 920 Chinook salmon (11%), 704 coho salmon (9%), 4 chum salmon (<1%), and 16 pink salmon (<1%) (Table 13-3). Most of the permits were issued to Yakutat residents, 108 permits were issued and 28 returned (26%) (Table 13-4). The estimated total subsistence salmon harvest for the community of Yakutat in 2007 was 7,287,

including 836 Chinook salmon (11%), 5,837 sockeye salmon (80%), 594 coho salmon (8%), 4 chum salmon (<1%), and 16 pink salmon (<1%), (Table 13-4).

Haines Management Area

Background and History

The Haines Management Area, District 15, stretches from Little Island in Lynn Canal north to Chilkat Inlet and the waters of the Chilkat River, and up Chilkoot Inlet to Skagway. C&T findings by the BOF 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, and Excursion Inlet, as well as Klukwan on the Chilkat River and Skagway at the head of Chilkoot Inlet. In 2008, the combined population of these communities was 3,156.[19] The populations of Haines and Skagway are predominantly non-Native, while Klukwan continues to have a predominantly Alaska Native population.

Regulations

In 2007, a subsistence permit for the Haines Management Area provided for an open season of June 1–September 30 for sockeye salmon in the Chilkat River, Chilkat Inlet, and Lutak Inlet, and for pink and chum salmon in the Chilkat River and Chilkat Inlet. Initially, only 1 permit was issued per household; an additional permit could be issued upon request if more salmon were needed. Limits for sockeye salmon were 25 in possession and 50 annually; for coho salmon, 20 in possession and 40 annually; and for pink and chum salmon, 75 in possession and 100 annually. Chinook salmon, rainbow/steelhead trout, and Arctic char/Dolly Varden could be retained only if taken incidentally by gear operated under the terms of the permit.

Sport-taken and subsistence-taken salmon could not be possessed on the same day. In the salt waters of Lynn Canal (District 15), including Chilkat, Chilkoot, and Lutak inlets, subsistence salmon could not be taken during closed periods of the commercial salmon net fishery, except salmon could be taken in the salt waters of Chilkoot Inlet north of the latitude of Battery Point and in Chilkat Inlet north of Glacier Point on a Saturday before any open period of the Section 15A commercial salmon net fishery.

Allowable gear types in the Haines subsistence fishery are set or drift gillnets. Set and drift gillnets could be used to take salmon in the mainstem and side channels of, but not in the tributaries of, the Chilkat River from Mile 4 of the Haines Highway to 1 mile upstream of Wells Bridge. The permit holder is required to be physically present at the net while operating a set gillnet. Drift and set gillnets may not exceed 50 ft in length when fishing in the Chilkat River, and drift gillnets fished in marine waters may not exceed 50 fathoms in length. Subsistence salmon may not be harvested by the use of a line attached to a pole or rod. Other standard permit conditions included removal of dorsal fins, prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert or

19. Alaska Department of Commerce, Community, and Economic Development, Division of Community & Regional Affairs, Alaska Community Database Community Information Summaries (CIS), http://www.commerce.state.ak.us/dca/commdb/CF_CIS.htm Accessed 2009.

other artificial obstruction, and completion of the harvest calendar for each day fished, specifying location, species, and gear.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been in place since 1985. The estimated subsistence salmon harvest in the Haines Management Area in 2007 was 7,482 salmon, including 6,2039 sockeye salmon (83%), 722 pink salmon (10%), 286 chum salmon (4%), 154 coho salmon (4%), and 118 Chinook salmon (2%) (Table 13-3).

Klukwan fishers with post office box addresses in Haines are considered Haines residents for the purposes of this report. In this report, Haines and Klukwan permits and harvests are combined for 2007; 363 permits were issued, and 300 were returned (83%). The estimated total number of salmon harvested by Haines residents (7,059 salmon) included 5,833 sockeye salmon (83%), 707 pink salmon (10%), 253 chum salmon (4%), 151 coho salmon (2%), and 115 Chinook salmon (2%) (Table 13-4).

Juneau Management Area

Angoon Subsistence Area

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 2008, Angoon had a population of 430 (CIS). 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. Over the years, 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 have provided the people of Angoon with salmon and other marine resources.

Regulations

In 2007, a subsistence salmon permit for the Angoon area waters of District 12 provided for an open season for sockeye salmon in Kanalku Bay from July 20–August 15 with a limit of 15 fish; in Basket Bay (Kook Lake outlet) from June 1–July 31 with a limit of 15 fish; in Sitkoh Bay from June 1–August 31 with a limit of 50 fish; and in Hasselborg River–Salt Lake from July 1–July 31 with a limit of 25 fish. The open period for subsistence coho salmon fishing on Hasselborg River–Salt Lake was from July 1–October 31 with a limit of 20 fish. Coho salmon could be taken in other streams in the Angoon subsistence areas described under specific subsistence permit conditions from June 1–October 31, with limits of 20 in possession and 40 annually. Pink salmon could be harvested in all streams of the district from June 1–September 30 with a limit of 150 fish. The season for chum salmon in all streams of the district was from June 1–October 31, and the limit was 50 fish.

Sport-taken and subsistence-taken salmon could not be possessed on the same day, and salmon taken under the subsistence or personal use regulations could not be subsequently used as bait

for commercial fishing purposes. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets were the types of subsistence gear allowed for general uses in the Angoon area. Drift gillnets could not exceed 50 fathoms in length; set gillnets could not be used. Snagging or fishing with a rod or reel was prohibited. Other standard permit conditions included removal of dorsal fins; prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert or other artificial obstruction; and completion of the harvest calendar for each day fished, specifying location, species, and gear. Only 1 permit was allowed per household.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been in place since 1985. The estimated salmon harvest in Angoon area subsistence fisheries in 2007 was 316 salmon, including 260 sockeye salmon (96%) and 56 pink salmon (Table 13- 5). The 2007 salmon harvest was significantly lower than the 2006 harvest. The estimated total subsistence salmon harvest in 2006 was 1,710 salmon, 1,394 more than in 2007. The 2006 harvest included 1,643 sockeye salmon, 1,383 more than 2007, 21 pink salmon, 44 coho salmon, and 3 chum salmon (Fall et al. 2009).

The estimated salmon harvest for the community of Angoon, based on 84 permits issued and 15 returned (18%), totaled 381 salmon, including 146 sockeye salmon (38%), 95 pink salmon (25%), and 134 coho salmon (35%) (Table 13-4). The 2006 estimated salmon harvest for the community of Angoon was based on 96 permits issued and 44 (46%) returned, a higher return rate than in 2007. In 2006, there was an estimated total harvest of 1,499 salmon, 1,118 more than in 2007; 1,436 were sockeye salmon, 1,290 more than 2007, 20 were pink salmon, 44 were coho salmon (Fall et al. 2009).

Hoonah Subsistence Area

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 2008, Hoonah had a population of 823 (CIS). In 1989, the BOF adopted a positive C&T finding for the salmon in those waters of District 12 that were in Basket Bay inside a line from lat 57º30.83′ N, long 134º53.20′ W, to lat 57º39.28′ N, long 134º53.88′ W; 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; and in the waters of sections 14B and 14C (5 AAC 01.716 (a)(4)).

Regulations

The 2007 subsistence salmon permit for Hoonah area waters provided open seasons and limits for sockeye salmon at the following locations: Surge Bay from June 1–August 15 with a limit of 50 fish; Hoktaheen Cove from June 1–July 20 with a limit of 50 fish; Hanus Bay (Lake Eva) from June 1–August 15, with a limit of 50 fish; Berg Bay from June 1–July 31, with a limit of 25 fish; and Neva Creek from June 1–August 15, with a limit of 40 fish. Pink salmon could be harvested under a subsistence permit in all the streams in the Hoonah subsistence area from July 1–September 30, with a limit of 150 fish. Chum salmon could be harvested under a subsistence permit in all the streams in the Hoonah subsistence area from July 1–October 31, with a limit of 50 fish. Coho salmon could be taken in streams in the Hoonah subsistence area described under specific subsistence permit conditions from July 1–October 31, with limits of 20 in possession and 40 annually.

Sport-taken and subsistence-taken salmon could not be possessed on the same day, and salmon taken under subsistence regulations could not be subsequently used as bait for commercial fishing purposes. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets were the types of subsistence gear allowed for general uses in the Hoonah area. Drift gillnets could not exceed 50 fathoms in length; set gillnets could not be used. Snagging or fishing with a rod or reel was prohibited. Other standard permit conditions included removal of dorsal fins; prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert or other artificial obstruction; and completion of the harvest calendar for each day fished, specifying location, species, and gear. Only 1 permit was issued per household.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been in place since 1985. The estimated salmon harvest in the Hoonah subsistence area in 2007 was 425 salmon, including 363 sockeye salmon (85%), 34 chum salmon (8%), and 28 coho salmon (7%) (Table 13-3). The 2007 harvest was lower than the 2006 harvest. The estimated total subsistence salmon harvest in 2006 was 859 salmon, 434 more than in 2007. The 2006 harvest included 761 sockeye salmon, 398 more than in 2007; 8 coho salmon; and 11 chum salmon (Fall et al. 2009).

In 2007, 60 permits were issued in the community of Hoonah, 8 (13%) were returned and all 8 reported no harvest (Table 13-4). In 2006 79 permits were issued in the community and 29 were returned with a total reported harvest of 859 salmon (Fall et al. 2009).

Elfin Cove, Gustavus, Pelican, and Tenakee Springs Subsistence and Personal Use Fishing

Background

In 2007, the residents of Elfin Cove, Gustavus, Pelican, and Tenakee Springs subsistence fished for salmon in districts 11, 12, 13, and 14. Elfin Cove subsistence fishers harvest salmon from Hoktaheen Cove in District 13. Gustavus fishers harvest salmon primarily from Surge Bay and Hoktaheen Cove in District 13, but also from the Taku River in District 11, the Berg River in District 14, and the Chilkat River in District 15. Residents of Pelican and Tenakee Springs harvest salmon at Kook Creek and Kook Lake Outlet in Basket Bay, and Takanis Bay and Hoktaheen Cove in District 13.

Harvest Assessment Program

In 2007, the number of salmon reported on permits from Elfin Cove, Gustavus, Pelican, and Tenakee Springs was once again modest. One permit was issued and returned in Elfin Cove. The estimated total subsistence salmon harvest for Elfin Cove was 34 chum salmon. In Gustavus, 11 permits were issued and 7 returned. The total estimated harvest for Gustavus was 134 sockeye salmon. Nine permits were issued to Pelican residents and 5 were returned. Pelican had a total harvest of 45 sockeye salmon. Three permits were issued and all were returned by Tenakee Springs residents; 1 Chinook and 1 coho salmon were reported harvested (Table 13-4).

Juneau Personal Use Fishing

Waters of District 11 lie within the Juneau Nonsubsistence Area. Personal use regulations apply to salmon fishing with nets and spears for home uses in this area. Juneau residents were the principal participants in the designated personal use fisheries in District 11. Juneau fishers primarily harvest sockeye salmon from the Taku River and Sweetheart Creek.

Regulations

The 2007 personal use permit for the Juneau area waters provided open seasons and limits for sockeye salmon at the following locations: in the Taku River drainage from July 1–July 31, with a total annual limit for each personal use salmon permit of 5 sockeye salmon for a household of 1 and 10 sockeye salmon for a household of 2 or more people; 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 and limit for pink salmon is June 1–September 30 and there is a 150 fish annual limit; for chum salmon, the open season was June 1–October 31 with annual limit of 50 fish.

Salmon could be taken under a personal use fishing permit by holders of a valid Alaska sport fishing license, Alaska residents under the age of 16, or persons 60 years of age or more or Alaska resident disabled veterans who had been issued a permanent identification card. Both lobes (tips) of the caudal fin (tail) of personal-use-taken salmon had to be removed immediately after harvest. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Beach seines, cast nets, dip nets, gaffs, and spears were the gear allowed in the Juneau area. Set gillnets could not be used except in the Taku River. Set gillnets could not be fished within 100 yd of the ADF&G fish wheels in the Taku River. Snagging was prohibited in the personal use fisheries. It is unlawful to buy, sell, trade, or barter fish or their parts taken under statewide personal use regulations. Chinook and coho salmon, rainbow/steelhead trout, and Arctic char/Dolly Varden could be retained only if taken incidentally under a personal use permit. Possession limits were 2 Chinook and 6 coho salmon.

Harvest Assessment Program

The total estimated salmon harvest for the Juneau area personal use fisheries in 2007 was 7,030 salmon, consisting of 6,168 sockeye salmon (88%), 582 pink salmon (8%), 231 coho salmon (3%), and 48 Chinook salmon (<1%) (Table 13-3).

The estimated salmon harvest for the community of Juneau, based on 713 permits issued and 381 returned (52%), totaled 7,458 salmon, including 6,888 sockeye salmon (92%), 312 pink salmon (4%), 196 coho salmon (3%), 4 chum salmon (<1%), and 57 Chinook salmon (<1%) (Table 13-4). The estimated salmon harvest for the community of Douglas, based on 44 permits issued and 18 returned (41%), totaled 571 salmon, including 277 sockeye salmon (49%), 241 pink salmon (42%), 33 coho salmon (6%), and 19 Chinook salmon (7%) (Table 13-4).

Sitka Management Area

Sitka Subsistence Salmon Fisheries

Background and History

Subsistence 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 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 (5 AAC 01.716 (a)(21)). 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 Sitka ADF&G office also manages the subsistence salmon fisheries at Surge Bay and Hoktaheen Cove on the

west coast of Yakobi Island, and Sitkoh Bay on the east side of Chichagof Island. Surge Bay and Hoktaheen Cove fisheries are discussed in the section about the Hoonah fisheries, and the Sitkoh Bay fishery is discussed in the section with the Angoon fisheries.

The residents of Sitka are the principal subsistence users of the salmon stocks in this area. In 2008, Sitka had a population of 8,615 (CIS). In 2000, 20% of 3,278 Sitka households were estimated to use subsistence methods to harvest salmon for home uses (CPDB). The Sitka Tlingit have traditionally used most of the Pacific coast of Baranof and Chichagof islands from Point Urey in the north 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

The 2007 subsistence–personal use salmon permit for the Sitka Management Area stipulated that "sport-taken and subsistence–personal use taken salmon may not be possessed on the same day." Chinook salmon, rainbow/steelhead trout and Arctic char/Dolly Varden "may only be taken incidentally by gear operated under the subsistence–personal use fishing guidelines of the permit." Additionally, "salmon streams flowing across or adjacent to the Sitka road system are closed to subsistence–personal use fishing." With the exception of Redoubt Bay, subsistence salmon could not be taken by rod and reel gear. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

The 2007 permit provided an open season for pink salmon in the Indian River from July 15–August 31, and July 15–September 30 for the remainder of District 13. For chum salmon in Sitka Management Area streams, the open season was July 15–October 31. The season for sockeye salmon for all Sitka sockeye locations opened June 1 and closed on varying dates at the various locations. July 20 was the closing date for Gut Bay, Hoktaheen Cove, and Takanis Bay, the latter of which was managed under personal use regulations. July 25 was the closing date for Leo's Anchorage and July 31 for Silver Bay (Salmon Lake) and Politofski Lake. August 15 was the closing date for Hanus Bay (Lake Eva). August 31 was the closing date for Necker Bay, Redfish Bay, and Sitkoh Bay. The Sitkoh Bay subsistence sockeye salmon fishery was reopened September 6 at noon, and remained open through 5:00 pm September 15, 2007. The annual and possession limit during this extension was reduced to 20 fish per household permit.

Possession and annual limits for sockeye salmon were from 10 fish at Leo's Anchorage to 100 fish at Necker Bay. Sitkoh (June 1–August 15), Takanis, Surge, and Klag bays; Hoktaheen Cove; Ford Arm; Falls Lake; Politofski Lake; Hanus Bay (Lake Eva); and Lake Anna had limits of 50 fish. Salmon Lake and Gut Bay limits were 10 in possession and 20 annually. Redfish Bay had limits of 50 fish in possession and 100 annually.

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 (OEG) of 7,000–25,000 fish. The management plan provides that if the projected total escapement were >30,000 fish, then the subsistence–household possession limit would be 25 fish, and the annual limit would be 100 fish. The management plan also provides for the issuance of community harvest permits if the projected total escapement were to be >40,000 fish. The

Redoubt Lake weir, operated by the U.S. Forest Service, was installed and operational on June 17, 2007. ADF&G opened the Redoubt bay and lake subsistence sockeye salmon fishery on July 7, 2007, and closed it on August 31, 2007. Individual and household possession limits were 25 sockeye salmon daily with an annual limit of 100 fish.

In 2007, ADF&G opened a directed coho salmon fishing season in the Sitka area from August 16–October 31. The directed coho salmon fishing season at Redoubt Lake, as well as Necker, Redfish, and Sitkoh bays was September 1–October 31. The coho possession limit was 20 daily and the annual limit was 40. Gear authorized under the coho salmon permit included dip nets, gaffs, spears, hand purse seines, cast nets, beach seines, and drift gillnets up to 50 fathoms in length. Use of hook and line attached to a rod or pole was not authorized under this permit. Subsistence coho salmon fishing was allowed only in the customary and traditional areas as defined under the specific permit conditions. The possession and annual limit for chum salmon was 50 and the season was open July 15–October 31. For pink salmon, the season was open July 15–September 30, and the possession limit was 50 with an annual limit of 150 fish.

Allowed subsistence gear included hand purse seines, beach seines, drift gillnets, dip nets, gaffs, and spears. Drift gillnets could not exceed 50 fathoms. Set gillnets were not allowed. In Redoubt Bay, the use of rod and reel gear was allowed, and sport regulations applied to this gear.

Harvest Assessment Program

As reported in Table 13-1, the estimated salmon harvest in the Sitka area (District 13) subsistence fisheries in 2007, was 16,527 salmon, including 16,106 sockeye salmon (98%), 334 pink salmon (2%), 41 coho salmon (<1%), 34 chum salmon (<1%), and 11 Chinook salmon (<1%).

As reported in Table 13-4, the estimated salmon harvest for the community of Sitka, based on 797 permits issued and 426 returned (54%), was 16,143 salmon, including 15,736 sockeye salmon (98%), 332 pink salmon (2%), 34 coho salmon (<1%), 30 chum salmon (<1%), and 11 Chinook salmon (<1%).

Petersburg–Wrangell Management Area

Kake Subsistence Salmon 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–Wrangell 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 by Kake fishers include Gut Bay and Falls Lake Creek flowing into Chatham Strait 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.

The residents of Kake are the principal subsistence users of the salmon stocks in Gut Bay and Falls Lake Creek on Baranof Island and in Saginaw, Security, Pillar, and Tebenkof bays on Kuiu Island. In 2008, Kake had a population of 519 (CIS). In 1996 33% of 264 Kake households were estimated to use subsistence methods to harvest salmon for home uses (CPDB). 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

The 2007 subsistence salmon permit for the Kake area waters of District 9 provided for an open season for sockeye salmon in Alecks Creek, Bay of Pillars, and Shipley Bay June 1–July 31. For Falls Lake, the open seasons were June 1–July 13 and July 23–August 15. The open season for sockeye salmon season in Gut Bay was June 1–July 20. The open season for pink salmon in all streams in the Kake and Point Baker–Port Protection subsistence area was July 15–September 15. Permitted subsistence gear included gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets. Drift and set gillnets could not exceed 50 fathoms. Set gillnets could only be used 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 it was in operation. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest limits for sockeye salmon from Alecks Creek and Bay of Pillars were 50 in possession and 50 annually; for Gut Bay, 10 in possession and 20 annually; for Falls Lake, 50 in possession and 50 annually; and for Shipley Bay, 25 in possession, 50 annually.

Harvest Assessment Program

As reported in Table 13-3, the estimated salmon harvest in the Kake subsistence area in 2007 was 1,927 salmon, including 1,682 sockeye salmon (87%), 85 pink salmon (4%), 55 chum salmon (3%), 55 coho salmon (3%), and 50 Chinook salmon (3%).

As reported in Table 13-4, the estimated subsistence salmon harvest for the community of Kake in 2007, based on 146 permits issued and 53 returned (36%), was 1,846 salmon, including 1,600 sockeye salmon (87%), 85 pink salmon (5%), 55 chum salmon (3%), 55 coho salmon (3%), and 50 Chinook salmon (3%).

Petersburg Subsistence and Personal Use Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Wrangell are under the management responsibility of the Division of Commercial Fisheries' Petersburg–Wrangell area office. In 1989, the BOF adopted a positive C&T finding for salmon in the waters of Southeast Alaska. At that time, the BOF did not act on proposals requesting a positive C&T finding for salmon in the waters of districts 7 and 8, the principal waters used by Petersburg and Wrangell residents. In 2002, however, the BOF made a positive C&T finding for districts 7 and 8 (5 AAC 01.716 (a)(23)). These waters include Thoms Place, Harding River, Mill Creek, and the Stikine River.

The Petersburg–Wrangell ADF&G office also manages the subsistence sockeye salmon fisheries at Alecks Creek in Tebenkof Bay, Kutlaku Creek in Bay of Pillars on Kuiu Island, and Gut Bay and Falls Creek on Baranof Island in District 9.

Petersburg and Wrangell are the principal communities dependent on 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 2008, Petersburg had a population of 3,009, and Wrangell had a population of 2,112 (CIS).

Regulations

The 2007 subsistence–personal use salmon permit for the Petersburg–Wrangell management area provided a June 1–July 31 open season for 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 annually from Salmon Bay and Red Bay, combined. The open season for the subsistence sockeye salmon fisheries at Thoms Place and Mill Creek was June 1–July 31, and there was a daily combined possession limit of 20 and an annual limit of 40. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Personal use regulations established a weekly season at Hatchery Creek, which drains into Sweetwater Lake. Because of increasing fishing pressure and concerns for the viability of the stock, the fishery was closed Mondays, Tuesdays, and Wednesdays from June 1–June 30. In 2007, harvest limits were restricted to 5 fish daily and 15 annually.

For all streams in the Kake, Point Baker–Port Protection, Wrangell, and Petersburg subsistence areas, 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. For all streams in the Kake, Point Baker–Port Protection, Wrangell, and Petersburg subsistence areas, 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.

Coho salmon open season for all the streams in the Kake, Point Baker–Port Protection, Wrangell, and Petersburg subsistence areas was August 16–October 31, with a limit of 20 fish in possession and 40 annually. Personal use coho salmon fishing was open in Blind Slough and North Wrangell Narrows only on Fridays from 6 am to 8 am August 17–September 7, with both possession and annual limits of 25 fish combined. The Anita Bay personal use permit allowed the harvest of Chinook, chum, and coho salmon June 15–October 10 with both possession and annual limits of 25 fish in any combination.

Allowed subsistence gear included gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets. Drift and set gillnets could not exceed 50 fathoms. Set gillnets could only be used 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 it was in operation.

As reported in Table 13-3, the estimated salmon harvest in the Petersburg subsistence–personal use area in 2007 was 603 salmon, including 180 coho salmon (30%), 334 sockeye salmon (55%), 39 pink salmon (7%), and 51 chum salmon (7%).

As reported in Table 13-4, the estimated subsistence salmon harvest for the community of Petersburg in 2007, based on 72 permits issued and 46 returned (64%), was 541 salmon, including 179 coho salmon (33%), 296 sockeye salmon (55%), 24 pink salmon (4%), and 42 chum salmon (8%).

2007 Federal Stikine River Subsistence Salmon Fishery: Regulations

In January 2004, the U.S. and Canada negotiated a modified Pacific salmon treaty that allowed a U.S. subsistence fishery for sockeye salmon on the Stikine River. The FSB implemented the Stikine River subsistence sockeye salmon fishery in 2004. Regulatory changes carried over from 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. There were no changes in subsistence fishing regulations or permit conditions for the 2007 fishing season.

Current Federal Regulations

The following federal regulations implementing a subsistence fishery on the Stikine River were published March 2005 in the Federal Register (Larson 2007):

Page 1 of 2.

The Federal subsistence fisheries regulatory year begins April 1. Regulations are detailed in Subpart C of 36 CFR part 242. The sections relevant to the Stikine River are as follows:

§___.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.

§___.27 Subsistence taking of fish.

(i) Fishery management area restrictions.

(13) Southeastern Alaska Area.

(xix) 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 and will be valid for 15 days. Permits may be revalidated for additional 15-day periods. Only dip nets, spears, gaffs, rod and reel, beach seine, or gillnet not exceeding 15 fathoms in length with mesh size no larger than 5 ½ inches may be used.

(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 15 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. (CFR 13377, Vol. 70, No. 53)

The following conditions were included on the 2007 Stikine River subsistence fishing permit.

1. This permit is only valid for subsistence salmon fishing in the mainstream of the Stikine River. Clearwater tributaries of the Stikine are closed to subsistence fishing. Fishing gear must be operated in such a way that it does not interfere with the US-Canada test fishing program.

2. Only residents of Meyers Chuck, Wrangell and Petersburg (including all residents of Fishing District 6 living north of Point Alexander) may participate in the Stikine River subsistence fishery.

3. This permit must be in your possession while fishing. A daily harvest entry must be completed prior to leaving the fishing site, whether a fish is harvested or not.

4. Only one permit will be issued to a household. Any member of the household or other federally qualified person may fish the permit if included as a designated fisherman on this permit as long as the person fishing possesses the permit while fishing.

5. Incidental harvest of Chinook, sockeye or coho outside of the directed fishery seasons and the harvest of any other species of fish is allowed but harvests must be reported on the daily harvest log.

6. Completed permits must be returned (postmarked) to either the Wrangell or Petersburg Ranger District offices by October 14, 2007.

7. A summary of the Stikine River federal subsistence fishing regulations were included on the back of the permit.

8. Permits must be validated prior to fishing during any of the following eight different time periods: May 15-31, June 1-15, June 16-30, July 1-15, July 16-31, August 15-31, September 1-15 and September 16-October 1.

A total of 44 fishing permits were issued during the 2007 season. Petersburg households were issued 17 permits and Wrangell households 27. Fishing reports were obtained from all permits issued for this fishery. Any household that did not return permits by October 14 was contacted by telephone. This season, 21 households with permits did not fish and 23 households fished at least once. The Stikine River drainage experienced a much greater than normal snowfall in the winter of 2006-2007 and water levels in the lower river were above average. High water levels negatively impacted the Chinook salmon fishery and the early portion of the sockeye salmon fishery with the first harvests not reported until June 13.

The subsistence harvest totaled 37 Chinook salmon greater than 28 in, 14 Chinook less than 28 in, 245 sockeye salmon, 23 coho salmon, 59 pink salmon, and 11 chum salmon. There were steelhead and Dolly Varden harvested. Fishing patterns were similar to the previous years in that most of the fishing effort and harvest occurred in the lower and middle portions of the river. High water levels discouraged fishing in May and early June. The first harvests did not occur until June 13 when both Chinook and sockeye salmon were reported. Almost all of the Chinook salmon harvest occurred by the end of June. The midpoint of the sockeye salmon harvest occurred by the end of June as well. There were no known conflicts with the ADF&G test fishing program and no known concerns with subsistence fishing in or near the clearwater tributaries.

Wrangell Subsistence and Personal Use Fisheries

Regulations

For a summary, see the previously listed regulations for the Petersburg–Wrangell management area.

Harvest Assessment–Wrangell

As reported in Table 13-3, the estimated salmon harvest in the Wrangell subsistence–personal use area in 2007 was 647 salmon, which included 422 sockeye salmon (65%), 85 pink salmon (13%), 80 chum salmon (12%), 21 coho salmon (3%) and 39 Chinook salmon (9%).

As reported in Table 13-4, the estimated subsistence salmon harvest for the community of Wrangell in 2007, based on 83 permits issued and 65 returned (78%), was 636 salmon, including 411 sockeye salmon (65%), 85 pink salmon (13%), 80 chum salmon (13%), 39 Chinook salmon (10%) and 21coho salmon (3%).

Point Baker–Port Protection Subsistence Fisheries

Background and History

The Division of Commercial Fisheries' Petersburg–Wrangell office manages subsistence and personal use salmon fisheries in the waters used by fishers from the communities of Point Baker and Port Protection, especially the Salmon Bay and Red Bay sockeye salmon stocks at the northern end of Prince of Wales Island. In 1989, when the BOF adopted a positive C&T finding for salmon in some waters of Southeast Alaska, it did not act on proposals to make a similar finding for the principal waters used by Point Baker and Port Protection residents. In 1997, however, the BOF did adopt a positive C&T finding for salmon and other fishes "in waters of District 5 north of a line from Point St. Albans to Cape Pole, in waters of Section 6-A west of a line from Macnamara Point to Mitchell Point, and in waters of Section 6-B west of the longitude of Macnamara Point" (5 AAC 01.716 (a)(20)).

In 2008, Point Baker had a population of 27, and Port Protection had a population of 66 (CIS). In 1996, 50% of 13 households in Point Baker and 28% of 31 households in Port Protection relied on removal from commercial catches to provide salmon for their households' uses (CPDB).

Regulations

The Point Baker drift gillnet subsistence 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 from Wednesday 12:00 pm to Sunday 12:00 pm June 13–July 31. Only drift gillnet gear was allowed, and gillnets could not exceed 50 fathoms in length. Harvest was limited to a maximum of 25 sockeye salmon per family annually. Fishers could retain other species incidentally harvested during this fishery. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Program

In 2007, two permits were issued to Port Protection residents, 1 permit was returned, and no salmon harvests were reported. Port Protection households maintain either a Ketchikan or Point Baker post office box address and receive mail via a private carrier from Ketchikan. Port Protection harvests can be included in either the Point Baker or Ketchikan harvest estimates. For

Point Baker in 2007, three permits were issued and returned, with 50 salmon, including 15 pink salmon, 25 sockeye salmon, 9 chum salmon, and 1 coho salmon (Table 13-4).

Ketchikan Management Area

Craig, Klawock And Hydaburg Subsistence Fisheries

Background and History

The Ketchikan Management Area includes 3 subsistence areas where the BOF made positive C&T findings in 1989. Two of these areas are on the west coast of Prince of Wales Island: Hydaburg area waters and Craig–Klawock area waters. Hydaburg area waters include Section 3A and the waters of District 2 in Nichols Bay north of lat 54º42.12′ N (5 AAC 01.716 (a)(18)). Craig–Klawock area waters 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 55º44′ N, long 133º25′ W to Bay Point; Section 3C in Karheen Passage north of lat 55º48′ N and east of long 133º20′ W; and Sarkar Cove and the Sarkar lakes (5 AAC 01.716 (a)(15)).

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 Hetta Inlet–Sukkwan Strait (Eek Creek), Big Salt–Trocadero Bay (Klawock River), and Sea Otter Sound (Sarkar).

In 1997, a household survey conducted by the Division of Subsistence found that 27% of Craig households used subsistence methods to harvest salmon. In Klawock, 36%, and in Hydaburg, 59% of households used subsistence methods to harvest salmon in 1997 (CSIS).

The numbers of people and households in the 3 west coast Prince of Wales Island communities in the year 2000 are presented in Table 13-5.

In 2008 Craig had a population of 1,117, Klawock had a population of 785, and Hydaburg had a population of 341 (CIS).

Regulations

The 2007 subsistence–personal use salmon permit for the Ketchikan Management Area stipulated that hand purse seines, beach seines, spears, gaffs, cast nets, and dip nets were the types of subsistence–personal use gear allowed for general use. Salmon could not be taken with a "line attached to a rod or pole." The standard rules prohibiting fishing near dams, fish ladders, weirs, and culverts were also in effect, as well as the prohibition against possessing salmon taken under sport fishing regulations on the same day as subsistence–personal-use-taken salmon and the requirement of immediate removal of tail fin tips. The 2007 subsistence sockeye salmon openings in Craig–Klawock area waters were Monday 8:00 am to Friday 5:00 pm from July 7–July 29, with a 20 sockeye salmon possession limit and no annual limit; in Hetta Inlet and Eek Creek June 1–August 31, with a possession limit of 20 sockeye salmon and no annual limit; and in Hugh Smith Lake June 22–July 12 with a 12 sockeye salmon possession limit and no annual limit. All other systems in the Ketchikan Management Area with customary and traditional use areas were open to sockeye salmon fishing June 1–July 31, with a 20 sockeye salmon possession limit and no annual limit. All streams in the Ketchikan Management Area with customary and traditional use areas were open for pink salmon July 1–September 30 with a 150-fish possession limit and no annual limit. Chum salmon fishing was open in the same waters July 1–October 31 with a

possession limit of 25 fish and no annual limit, and coho salmon fishing was open July 1–October 31 with limits of 20 fish in possession and 40 annually.

Harvest Assessment Program

As reported in Table 13-3, the estimated salmon harvest for the Craig–Klawock–Hydaburg subsistence area in 2007 was 3,757 salmon, including 3,043 sockeye salmon (81%), 662 pink salmon (18%), 20 coho salmon (<1%), 4 Chinook salmon (<1%), and 27 chum salmon (<1%).

As reported in Table 13-4, 111 permits were issued to residents of Craig, and 31 (28%) were returned. The total estimated salmon harvest was 1,325 salmon, consisting of 615 sockeye salmon (46%), 662 pink salmon (50%), 20 coho salmon (2%), and 27 chum salmon (2%). The total estimated salmon harvest for Klawock, based on 96 permits issued and 22 returned (23%), was 1,898 salmon, consisting of 1,893 sockeye salmon (99%), and 4 Chinook salmon (<1%). The total estimated salmon harvest for Hydaburg, based on 55 permits issued and 7 returned (13%), was 456 sockeye salmon.

Kasaan Subsistence and Eastern Prince Of Wales Personal Use Fisheries

Background and History

The subsistence area on the east coast of Prince of Wales Island with a C&T finding for salmon includes 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 regulations. The principal waters used for salmon fishing in District 6 along the eastern coast of Prince of Wales Island are Kegan Lake, the Thorne River, and Hatchery Creek–Sweetheart Creek.

The 2000 population and number of households of the communities of Prince of Wales Island that use these waters are presented in Table 13-6.

In 2008 Coffman Cove had a population of 141, Edna Bay's population was 40, Hollis' population was 172, Kasaans' population was 54, Thorne Bay's population was 440, and the population of Whale Pass in 2008 was 48 (CIS).

Regulations

All streams in the Ketchikan Management Area with C&T findings not otherwise listed on the permit were open for subsistence sockeye salmon fishing June 1–July 31, with a 20 fish possession limit and no annual limit. Also in these waters, pink salmon fishing was open July 1–September 30, with a limit of 150 fish in possession and no annual limit, and chum salmon fishing was open from July 1–October 31, with a 25 fish possession limit and no annual limit. Coho salmon fishing was also open in these waters July 1–October 31, with a limit of 20 fish in possession and 40 annually.

Harvest Assessment Program

As reported in Table 13-3, the estimated salmon harvest in the Kasaan subsistence area in 2007 was 242 salmon, including 235 sockeye salmon (97%), and 7 coho salmon (3%).

As reported in Table 13-4, no salmon were reported harvested in 2007. Eight permits were issued to residents of Kasaan and 3 were returned (38%). For Coffman Cove residents, 2 permits were issued and 1 was returned with no reported salmon harvests. In Hollis, 4 permits were issued

and none were returned. Thorne Bay residents were issued 36 permits and returned 20, resulting in a harvest estimate of 74 salmon, including 67 sockeye and 7 coho salmon.

Ketchikan Personal Use Fisheries

Background and History

The Division of Commercial Fisheries' Ketchikan office is responsible for oversight of the subsistence and personal use salmon fisheries in districts 1, 2, 3, and 6. 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, and as well as the salt waters within 500 yards of the terminus of Sockeye Creek (5 AAC 01.716 (a)(19)). Sockeye salmon fisheries in Helm, McDonald, and Checates lakes and pink and chum salmon fisheries in all streams in the Ketchikan Management Area, except along the Ketchikan road systems and in subsistence areas described above, are managed under personal use regulations.

The communities of Ketchikan and Saxman are the principal users of these fisheries. In 2008, the population of the city and borough of Ketchikan combined, excluding Saxman, was 12,993. Saxman, located within the Ketchikan Borough, had a population of 420 (CIS).

Regulations

The personal use salmon permit for the Ketchikan Management Area provided a July 1–August 30 open season for sockeye salmon at McDonald Lake (Yes Bay), with a possession limit of 20 fish and annual limit of 20 fish. All other streams in the Ketchikan Management Area's personal use area, except the Ketchikan road system, were open June 1–July 31 with a limit of 12 sockeye salmon in possession and no annual limit. Hatchery Creek was open June 1–June 30 on Thursdays through Sundays, with a limit of 5 sockeye salmon in possession and 15 annually. For pink salmon, all streams in the Ketchikan Management Area personal use area, except the Ketchikan road system, were open June 2–September 30 with a limit of 150 fish in possession and no annual limit. The same streams and areas were open for chum salmon June 1–October 31 with a possession limit of 25 and no annual limit. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Program

As reported in Table 13-3, the total estimated salmon harvest in the Ketchikan personal use area in 2007 was 2,711, including 1,859 sockeye salmon (69%), 149 chum salmon (6%), 692 pink salmon (26%), 2 coho salmon (<1%), and 9 Chinook (<1%).

As reported in Table 13-4, the total estimated salmon harvest for the community of Ketchikan, based on 214 permits issued and 98 returned (46%), was 2,679, including 1,911 sockeye salmon (71%), 126 chum salmon (5%), 630 pink salmon (24%), 2 coho salmon (<1%), and 9 Chinook salmon (1%). Four permits were issued to residents of Saxman in 2007, no salmon were reported harvested. Three permits were issued to residents of Metlakatla in 2007, no salmon were reported harvested.

Table 13-1.–Subsistence and personal use salmon harvests by district, Southeast region, 2007.

		Permits fished		Estimated salmon harvests					
Fishing Location	Name	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
District 1	Ketchikan-Behm Canal	71	148	9	1,778	2	149	692	2,630
District 2	Clarence Strait-East Prince of Wales Island	27	68	0	256	20	27	662	965
District 3	Inside Waters-West Prince of Wales Island	49	216	4	3,043	0	0	0	3,047
District 5	Sumner Strait	1	3	0	0	44	11	3	58
District 6	East Sumner Strait-North Frederick Sound	58	98	0	405	138	50	39	632
District 7	East Etolin Island-Wrangell Island-Ernest Sound	59	74	39	410	20	76	85	630
District 8	Stikine River	4	6	0	0	50	5	0	55
District 9	South Chatham Strait-West Frederick Sound	43	120	50	1,682	123	44	83	1,981
District 11	Juneau-Taku Inlet-Stephens Passage	294	568	48	6,113	119	0	582	6,863
District 12	Angoon-North Chatham Strait-East Chichagof	8	23	0	260	0	0	56	316
District 13	Sitka-Outer Baranof and Chichagof-Peril Strait	562	1,043	11	16,106	41	34	334	16,527
District 14	Icy Strait-Glacier Bay	21	31	0	253	28	34	0	315
District 15	Lynn Canal-Chilkat Inlet	843	1,024	118	6,258	154	286	722	7,537
Yakutat Forelands	Yakutat Forelands	83	241	710	6,397	704	4	16	7,831
Yakutat Bay-Troll	Yakutat Bay-Troll	17	67	210	139	0	0	0	349
Total		–	–	1,199	43,100	1,444	721	3,273	49,737

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

– Fishers with permits may fish at more than 1 location. As a result, the total number of permits cannot be derived by adding column values.

Table 13-2.–Historical subsistence and personal use salmon harvests, Southeast region, 1985–2007.

	Permits		Estimated salmon harvests					
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
5-year average (2002–2006)	3,467	2,894	1,445	55,405	2,566	3,034	3,766	66,216
10-year average (1997–2006)	3,750	3,163	1,330	56,300	2,614	3,907	3,695	67,846
Historical average (1985–2006)	3,788	2,397	871	47,185	2,255	3,658	3,034	57,003

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

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 use areas, Southeast region, 2007.

Area	Permits fished		Estimated salmon harvests					
	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
Yakutat Management Area	35	110	920	6,536	704	4	16	8,180
Haines Management Area	258	314	118	6,203	154	286	722	7,482
Juneau Management Area	252	493	48	6,791	260	34	638	7,771
Juneau Personal Use Area	233	452	48	6,168	231	0	582	7,030
Angoon Subsistence Area	8	23	0	260	0	0	56	316
Hoonah Subsistence Area	11	19	0	363	28	34	0	425
Sitka Management Area	300	554	11	15,996	41	34	334	16,417
Petersburg Management Area	98	185	88	2,438	256	186	209	3,177
Petersburg Subsistence-Personal Use Area	31	49	0	334	180	51	39	603
Wrangell Subsistence-Personal Use Area	31	39	39	422	21	80	85	647
Kake Subsistence Area	36	98	50	1,682	55	55	85	1,927
Ketchikan Management Area	104	289	13	5,137	29	176	1,355	6,710
Ketchikan Personal Use Area	57	120	9	1,859	2	149	692	2,711
Kasaan Subsistence Area	18	38	0	235	7	0	0	242
Craig-Klawock-Hydaburg Subsistence Area	29	131	4	3,043	20	27	662	3,757
Total	–	–	1,199	43,100	1,444	721	3,273	49,737

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

– Fishers with permits may fish at more than 1 location. As a result, the total number of permits cannot be derived by adding column values.

Table 13-4.–Subsistence and personal use salmon harvests by community, Southeast region, 2007.

	Permits		Estimated salmon harvests					
Community	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchorage	22	16	28	314	10	5	6	363
Angoon	84	15	6	146	134	0	95	381
Auke Bay	32	17	0	150	0	0	0	150
Barrow	1	1	25	145	5	0	0	175
Bethel	1	0	0	0	0	0	0	0
Big Lake	3	2	0	0	0	0	0	0
Clear AFB	1	0	0	0	0	0	0	0
Coffman Cove	2	1	0	0	0	0	0	0
Cordova	1	0	0	0	0	0	0	0
Craig	111	31	0	615	20	27	662	1,325
Delta Junction	2	2	0	0	0	0	0	0
Douglas	44	18	19	277	33	0	241	571
Eagle River	3	1	0	0	0	0	0	0
Elfin Cove	1	1	0	0	0	34	0	34
Fairbanks	5	5	0	77	0	0	0	77
Fort Greely	1	0	0	0	0	0	0	0
Gustavus	11	7	0	134	0	0	0	134
Haines	363	300	115	5,833	151	253	707	7,059
Hollis	4	0	0	0	0	0	0	0
Homer	2	1	0	0	0	17	0	17
Hoonah	60	8	0	0	0	0	0	0
Hydaburg	55	7	0	456	0	0	0	456
Hyder	1	1	0	0	0	0	0	0
Juneau	713	381	57	6,888	196	4	312	7,458
Kake	146	53	50	1,600	55	55	85	1,846
Kasaan	8	3	0	0	0	0	0	0
Ketchikan	214	98	9	1,911	2	126	630	2,679
Klawock	96	22	4	1,893	0	0	0	1,898
McKinley Park	1	0	0	0	0	0	0	0
Metlakatla	3	3	0	0	0	0	0	0
Meyers Chuck	1	1	0	0	0	0	0	0
Naukati Bay	1	1	0	0	0	0	0	0
Palmer	2	2	0	0	0	0	0	0
Pelican	9	5	0	45	0	0	0	45
Petersburg	72	46	0	296	179	42	24	541
Point Baker	3	3	0	25	1	9	15	50
Port Alexander	4	2	0	0	0	0	0	0
Port Protection	2	1	0	0	0	0	0	0
Saxman	4	0	0	0	0	0	0	0
Sitka	797	426	11	15,736	34	30	332	16,143
Skagway	5	4	0	19	0	10	0	29
Tenakee Springs	3	3	1	0	1	0	0	2
Thorne Bay	36	20	0	67	7	0	0	74
Valdez	1	1	0	0	0	0	0	0
Ward Cove	25	16	0	170	0	22	62	254
Wasilla	7	3	0	53	0	0	0	53
Whale Pass	2	1	0	0	0	0	0	0
Wrangell	83	65	39	411	21	80	85	636
Yakutat	108	28	836	5,837	594	4	16	7,287
Total	3,156	1,622	1,199	43,100	1,444	721	3,273	49,737

Source ADF&G Division of Subsistence, ASFDB 2008 (ADF&G 2008).

Table 13-5.–Population of Craig, Klawock, and Hydaburg, 2000.

Community	Population	Households
Craig[a]	1,725	631
Klawock	854	313
Hydaburg	382	133

Source U.S. Census Bureau, 2000

a. Alaska Native Village Statistical Area includes population on Port St. Nicholas Road and other residential areas outside City of Craig boundaries.

Table 13-6.–Population of communities on Prince of Wales Island, 2000.

Community	Population	Households	Community	Population	Households
Coffman Cove	199	63	Kasaan	39	17
Craig [a]	1,725	631	Klawock	854	313
Edna Bay	49	19	Thorne Bay	557	219
Hollis	139	55	Whale Pass	58	22
Hydaburg	382	133			

Source U.S. Census Bureau, 2000

a. Alaska Native Village Statistical Area, includes population on Port St. Nicholas Road and other suburbs of the city of Craig.

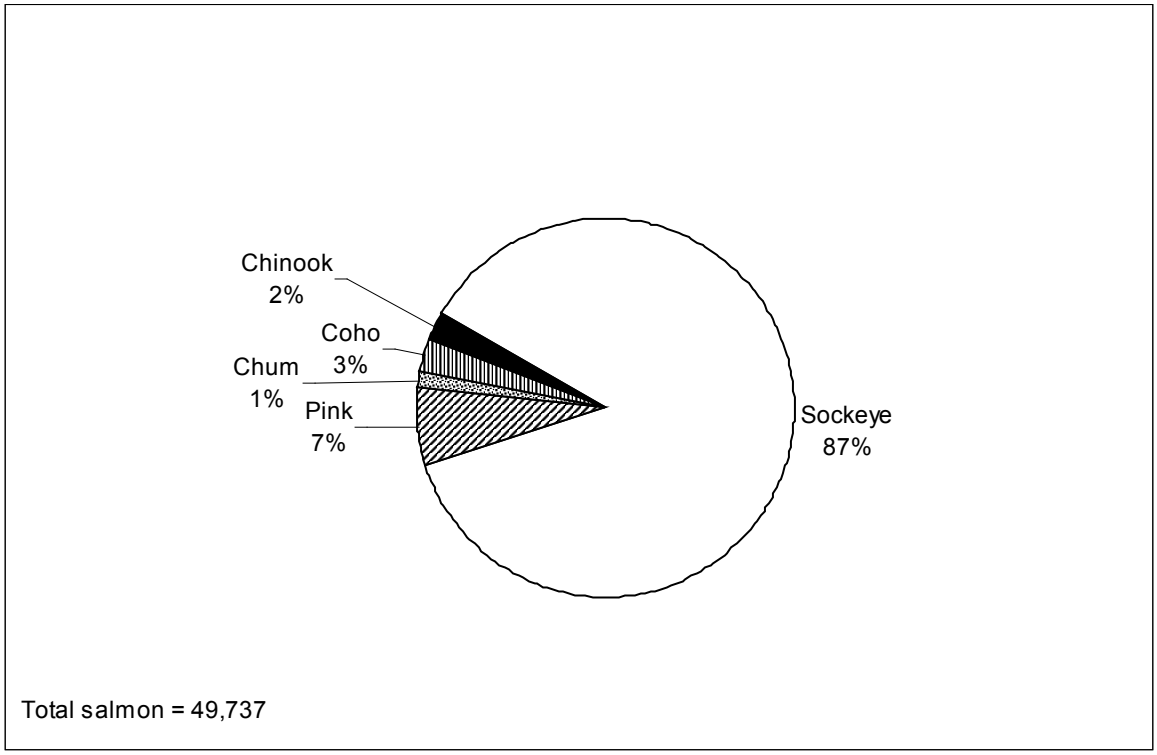

Figure 13-1.–Southeast region subsistence and personal use harvests by species, 2007.

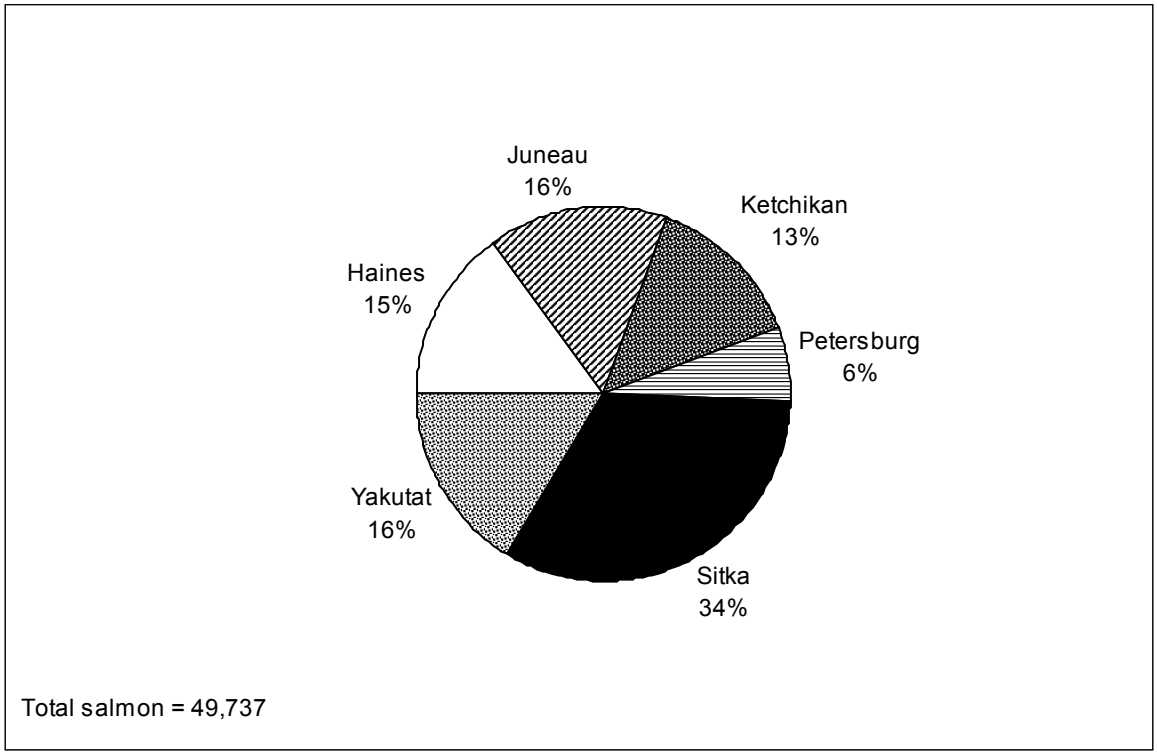

Figure 13-2.–Total salmon harvested by management area, Southeast region, 2007.

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Each year, thousands of Alaska residents who participate in subsistence fisheries take the time to provide harvest information to ADF&G. We acknowledge their support with profound gratitude, for without it, a report like this would be impossible to produce.

We also offer thanks to the numerous ADF&G staff in the divisions of Commercial Fisheries, Sport Fish, and Subsistence who conduct the programs that collect, analyze, and report the subsistence fisheries harvest data every year. They, too, made this report possible.

Many ADF&G personnel generously made time to allow Division of Subsistence staff to interview them about subsistence databases and harvest assessment programs. We have relied upon their numerous insights about these programs to develop the Alaska Subsistence Fisheries Database, as well as to evaluate the data that appear in this report. We sincerely appreciate their help.

We also thank the Subsistence Fisheries Harvest Assessment Working Group, composed of federal, state, and tribal representatives, for their guidance and constructive criticism in the preparation of this report series, including valuable commentary on existing harvest assessment efforts.

This annual report for 2007 is the result of the work of a number of Division of Subsistence staff. Former division employees Dave Caylor, Jeannie Heltzel, and Brian Davis helped design and update the Alaska Subsistence Fisheries Database. Data for 2007 were compiled by Terri Lemons and Dave Koster. Division personnel who authored report chapters were James Fall (Chapter 1: Introduction and Chapter 2: Overview); Nicole Braem (Chapter 3: Northwest); Caroline Brown (Chapter 4: Yukon); Jim Simon (Chapter 5; Kuskokwim); Theodore Krieg (Chapter 6: Bristol Bay); Lisa Hutchinson-Scarbrough (Chapter 7: Chignik); Victoria Ciccone (Chapter 8: Alaska Peninsula); Liliana Naves (Chapter 9: Aleutians and Chapter 10: Kodiak); Davin Holen (Chapter 11: Cook Inlet); William Simeone (Chapter 12: Prince William Sound); and Michael Turek (Chapter 13: Southeast). We also acknowledge the contributions of Eunice Dyasuk, who administers the division's subsistence salmon permit program for Bristol Bay in Dillingham, as well as Lisa Olson and Garrett Zimpelman, who reviewed and edited the report.

As noted in the report itself, this is the ninth in a series of statewide summaries of subsistence fisheries harvest data. We encourage those who use this report to offer ideas and suggestions to improve future volumes in this series.

REFERENCES CITED

ADF&G (Alaska Department of Fish and Game). 1985. Alaska habitat management guide reference maps, Southwest region, volume IV: human use of fish and wildlife. Alaska Department of Fish and Game Division of Habitat: Juneau.

ADF&G (Alaska Department of Fish and Game Division of Subsistence). 2002. Customary and traditional use worksheet: salmon, Chignik management area. Presented to the Alaska Board of Fisheries, January 2002, Anchorage, AK. Alaska Department of Fish and Game Division of Subsistence.

ADF&G (Alaska Department of Fish and Game). 2003. Customary and traditional use worksheet: salmon: Chitina subdistrict, Prince William Sound management area. Report to the Alaska Board of Fisheries, January 2003, Cordova, Alaska. Alaska Department of Fish and Game Division of Subsistence.

ADF&G (Alaska Department of Fish and Game). 1987a. The salmon fishing people of the Yukon River. Wildlife Use Notebook Series No. 1. Alaska Department of Fish and Game Division of Subsistence, Juneau.

ADF&G (Alaska Department of Fish and Game). 1987b. Family fish camps of the Yukon River. Wildlife Use Notebook Series No. 3. Alaska Department of Fish and Game Division of Subsistence, Juneau.

ADF&G (Alaska Department of Fish and Game). 1988. Salmon fishing methods of the Yukon River. Wildlife Use Notebook Series No. 2. Alaska Department of Fish and Game Division of Subsistence, Juneau.

ADF&G (Alaska Department of Fish and Game), and AITC (Alaska Inter-Tribal Council). 2000a. Recommendations for a unified subsistence fisheries harvest assessment program. Developed by the Subsistence Fisheries Harvest Assessment Working Group for the Office of Subsistence Management, U.S. Fish and Wildlife Service, Anchorage.

ADF&G (Alaska Department of Fish and Game), and AITC (Alaska Inter-Tribal Council). 2000b. Statewide subsistence fisheries harvest monitoring strategy: final report. Prepared by the Subsistence Fisheries Harvest Assessment Working Group for the Office of Subsistence Management, U.S. Fish and Wildlife Service, Anchorage.

ADLWD (Alaska Department of Labor and Workforce Development). 2009. Table 4.3 Alaska places 2000-2008: vintage 2008 DOLWD estimates. Alaska Department of Labor and Workforce Development Research and Analysis Section, webpage: http://laborstats.alaska.gov/?PAGEID=67&SUBID=171 link: http://www.labor.state.ak.us/research/pop/estimates/08T4.3.xls (Accessed April 2009).

Andersen, D.B., C.L. Brown, R.J. Walker, and K. Elkin. 2004. Traditional ecological knowledge and contemporary subsistence harvest of non-salmon fish in the Koyukuk River drainage, Alaska. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 282, Juneau.

Anderson, J.L. 2003. Estimation of late run sockeye and coho salmon escapement in the Clark River, a tributary to Chignik Lake, Alaska Peninsula National Wildlife Refuge, 2002. U. S. Fish and Wildlife Service, King Salmon Fish and Wildlife Field Office, King Salmon.

BBNA (Bristol Bay Native Association), and ADF&G (Alaska Department of Fish and Game). 1996. The harvest and use of freshwater fish in Togiak and Manokotak, 1994-95. Natural Resource Department Bristol Bay Native Association, and Alaska Department of Fish and Game Division of Subsistence, Dillingham.

Bouwens, K.A. 2004. An overview of the Chignik Management Area herring and salmon fisheries and stock status: report to the Alaska Board of Fisheries, November 2004. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 04-09, Anchorage.

Bouwens, K.A. 2005. Chignik management area salmon fisheries and stock status with particular reference to the cooperative fishery management plan: a report to the Alaska Board of Fisheries, November 2005. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 05-57, Anchorage.

Brown, C., J. Burr, K. Elkin, and R.J. Walker. 2005a. Contemporary subsistence uses and population distribution of non-salmon fish in Grayling, Anvik, Shageluk, and Holy Cross. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 289, Fairbanks.

Brown, C.L., D. Caylor, J. Dizard, J.A. Fall, S. Georgette, T. Krauthoefer, and M. Turek. 2005b. Alaska subsistence salmon fisheries 2003 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 316, Juneau.

Caylor, D.A., and L.A. Brown. 2006. Alaska subsistence fisheries database. Version 3.5 for Microsoft Access. Alaska Department of Fish and Game, Division of Subsistence, Juneau.

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

Coiley-Kenner, P., T.M. Krieg, M.B. Chythlook, and G. Jennings. 2003. Wild resource harvests and uses by residents of Manokotak, Togiak, and Twin Hills, 1999/2000. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 275, Juneau.

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.

CSIS. 2007. Community subsistence information system. Alaska Department of Fish and Game Division of Subsistence, Juneau.

Davis, B. 2005. Subsistence fisheries harvest assessment and traditional ecological knowledge, lower Alaska Peninsula and Aleutian Islands. U.S. Fish and Wildlife Service Office of Subsistence Management, Fisheries Resource Monitoring Program: Anchorage, Alaska.

Fall, J.A., D.J. Foster, and R.T. Stanek. 1984. The use of fish and wildlife resources in Tyonek, Alaska. Tubughna Ch'adach' Elnen Ghuhdilt'a. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 105, Anchorage.

Fall, J.A., J.C. Schichnes, M. Chythlook, and R.J. Walker. 1986. Patterns of wild resource use in Dillingham: hunting and fishing in an Alaskan regional center. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 135, Juneau.

Fall, J.A., R. Mason, T. Haynes, V. Vanek, L. Brown, G. Jennings, C. Mishler, and C. Utermohle. 1993a. Noncommercial harvests and uses of wild resources in King Cove, Alaska, 1992. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 227, Juneau.

Fall, J.A., D.B. Andersen, L. Brown, M. Coffing, G. Jennings, C. Mishler, A. Paige, C.J. Utermohle, and V. Vanek. 1993b. Noncommercial harvests and uses of wild resources in Sand Point, Alaska, 1992. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 226, Juneau.

Fall, J.A., L.B. Hutchinson-Scarborough, and P.A. Coiley. 1995. Fish and wildlife harvest and use in five Alaska Peninsula communities, 1989. Subsistence uses in Chignik Bay, Chignik Lagoon, Chignik Lake, Ivanof Bay and Perryville. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 202, Juneau.

Fall, J.A., M.B. Chythlook, J.C. Schichnes, and J.M. Morris. 1996. An overview of the harvest and use of freshwater fish by the communities of the Bristol Bay region, Southwest Alaska. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 166, Juneau.

Fall, J.A., and M.B. Chythlook. 1997. An overview of the subsistence fisheries of the Bristol Bay management area. Report to the Alaska Board of Fisheries, November 1997, King Salmon, AK. Alaska Department of Fish and Game Division of Subsistence.

Fall, J.A., D.B. Andersen, D. Caylor, M. Coffing, S. Georgette, and M. Turek. 2002. Alaska subsistence fisheries 2000 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 306, Juneau.

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

Fall, J.A., C.L. Brown, D. Caylor, M. Coffing, S. Georgette, A.W. Paige, and L. Rank. 2003b. Alaska subsistence fisheries 2001 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 314, Juneau.

Fall, J.A., M. Kerlin, B. Easley, and R.J. Walker. 2004. Subsistence harvests of Pacific halibut in Alaska, 2003. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 288, Anchorage and Juneau.

Fall, J.A., M. George, and B. Easley. 2005. Subsistence harvests of Pacific halibut in Alaska, 2004. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 304, Juneau.

Fall, J.A., D.L. Holen, B. Davis, T. Krieg, and D. Koster. 2006. Subsistence harvests and uses of wild resources in Iliamna, Newhalen, Nondalton, Pedro Bay, and Port Alsworth, Alaska, 2004. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 302, Juneau.

Fall, J.A. 2006. Update of the status of subsistence uses in Exxon Valdez oil spill area communities, 2003. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 312, Juneau.

Fall, J.A., D. Caylor, M. Turek, C. Brown, J. Magdanz, T. Krauthoefer, J. Heltzel, and D. Koster. 2007a. Alaska subsistence fisheries 2005 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 318, Juneau.

Fall, J.A., D. Caylor, M. Turek, C. Brown, T. Krauthoefer, B. Davis, and D. Koster. 2007b. Alaska subsistence fisheries 2004 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 317, Juneau.

Fall, J.A., and D. Koster. 2008. Subsistence harvests of Pacific halibut in Alaska, 2007. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 342, Anchorage.

Fall, J.A., C. Brown, M.F. Turek, N. Braem, J.J. Simon, A. Russell, W.E. Simeone, D.L. Holen, L. Naves, L. Hutchinson-Scarbrough, T. Lemons, V. Ciccone, T.M. Krieg, and D. Koster. 2009. Alaska subsistence salmon fisheries 2006 annual report. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 344, Anchorage.

Hammarstrom, L., and M. Dickson. 2006. 2006 Lower Cook Inlet salmon season summary. Alaska Department of Fish and Game Division of Commerical Fisheries, Homer.

Hammarstrom, L. 2007. 2007 Lower Cook Inlet commercial salmon fishery outlook and management strategy. Alaska Department of Fish and Game Division of Commercial Fisheries, News Release 27 April 2007, Homer.

Hammarstrom, L., and E. Ford. 2007. 2007 Lower Cook Inlet salmon fishery news release #13: update - for all districts. Alaska Department of Fish and Game Division of Commercial Fisheries, News Release 22 June 2007, Homer.

Hammarstrom, L.F., and M. Dickson. 2004. 2003 Lower Cook Inlet annual finfish management report. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A04-01, Anchorage.

Hammarstrom, L.F., and M.S. Dickson. 2005. 2004 Lower Cook Inlet annual finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 05-29, Anchorage.

Hayes, S., and K. Clark. 2006. 2006 Yukon River summer season summary. Alaska Department of Fish and Game Division of Commercial Fisheries, Informational Letter 3 October 2006, Anchorage.

Hayes, S., and K. Clark. 2007. 2007 Preliminary Yukon River summer season summary. Alaska Department of Fish and Game Division of Commercial Fisheries, Informational Letter 4 September 2007, Anchorage.

Hutchinson-Scarborough, L., and J.A. Fall. 1996. An overview of subsistence salmon and other subsistence fisheries of the Chignik management area, Alaska Peninsula, Southwest Alaska. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 230, Juneau.

Jones, M., T. Sands, S. Morstad, P. Salomone, T. Baker, G. Buck, and F. West. 2009. 2008 Bristol Bay area annual management report. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 09-30, Anchorage.

Krauthoefer, T., J. Simon, M. Coffing, M. Kerlin, and W. Morgan. 2007. The harvest of non-salmon fish by residents of Aniak and Chuathbaluk, Alaska, 2001-2003. Alaska Department of Fish and Game Division of Subsistence, Juneau.

Krieg, T., M. Chythlook, P. Coiley-Kenner, D. Holen, K. Kamletz, and H. Nicholson. 2005. Freshwater fish harvest and use in communities of the Kvichak watershed, 2003. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 297, Juneau.

Larson, R. 2007. 2007 season summary: Stikine River subsistence salmon fishery. United States Department of Agriculture Forest Service, US.

Lingnau, T., and P. Salomone. 2003. Preliminary 2003 Yukon area Chinook and summer chum salmon fishery summary. Alaska Department of Fish and Game Division of Commercial Fisheries, Informational Letter November 2003, Anchorage.

Magdanz, J. 1992. Subsistence salmon fishing by permit in the Nome subdistrict and portions of the Port Clarence district, 1975-91. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 220, Juneau.

Magdanz, J.S., N.S. Braem, B.C. Robbins, and D.S. Koster. [2009]. in prep. Subsistence harvests in Northwest Alaska, Kivalina and Noatak, 2007. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. ###, Anchorage.

Menard, J., and D.J. Bergstrom. 2006. Norton Sound Golovin and Moses Point subdistricts chum salmon stock status and action plan, 2007; a report to the Alaska Board of Fisheries. Alaska Department of Fish and Game Division of Commercial Fisheries, Special Publication No. 06-32, Anchorage.

Menard, J., and S. Kent. 2007. 2007 Norton Sound salmon season summary. Alaska Department of Fish and Game Division of Commercial Fisheries, News Release 1 October 2007, Nome.

Morris, J.M. 1987. Fish and wildlife uses in six Alaska Peninsula communities: Egegik, Chignik, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 151, Juneau.

Salomone, P., S. Morstad, T. Sands, C. Westing, T. Baker, F. West, and C. Brazil. 2007. 2006 Bristol Bay area annual management report. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 07-22, Anchorage.

Sands, T., C. Westing, P. Salomone, S. Morstad, T. Baker, F. West, and C. Brazil. 2008. 2007 Bristol Bay area annual management report. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 08-28, Anchorage.

Schichnes, J., and M. Chythlook. 1988. Use of fish and wildlife in Manokotak, Alaska. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 152, Dillingham.

Schichnes, J., and M. Chythlook. 1991. Contemporary use of fish and wildlife in Ekwok, Koliganek, and New Stuyahok, Alaska. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 185, Juneau.

Simeone, W.E., and J.A. Fall. 1996. Patterns and trends in the subsistence salmon fishery of the Upper Copper River, Alaska. Report to the Alaska Board of Fisheries, December 1996, Cordova, Alaska. Alaska Department of Fish and Game Division of Subsistence.

Simeone, W.E., and J. Kari. n.d. [2004]. The harvest and use of non-salmon fish species in the Copper River Basin, Alaska. Alaska Department of Fish and Game Division of Subsistence, in collaboration with the Mentasta Tribal Council, Cheesh'Na Tribal Council, Copper River Native Association and the Chitina Tribal Council, Technical Paper No. 292, Juneau.

Simon, J., T. Krauthoefer, D. Koster, and D. Caylor. 2007a. Subsistence salmon harvest monitoring report, Kuskokwim fisheries management area, Alaska, 2004. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 313, Juneau.

Simon, J., T. Krauthoefer, D. Koster, and D. Caylor. 2007b. Subsistence salmon harvest monitoring report, Kuskokwim fisheries management area, Alaska, 2004. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 313, Juneau.

Simon, J., T. Krauthoefer, D. Koster, and D. Caylor. 2007c. Subsistence salmon harvest monitoring report, Kuskokwim fisheries management area, Alaska, 2004. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper No. 313, Juneau.

Soong, J., A. Banducci, S. Kent, and J. Menard. 2008a. 2007 annual management report Norton Sound, Port Clarence, and Kotzebue. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 08-39, Anchorage.

Soong, J., S. Kent, and J. Menard. 2008b. 2006 annual management report Norton Sound, Port Clarence, and Kotzebue. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 08-32, Anchorage.

Stanek, R.T. 1985. Patterns of wild resource use in English Bay and Port Graham, Alaska. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 104, Anchorage.

Stichert, M.A. 2007a. 2005 Chignik management area annual management report. Alaska Department of Fish and Game Divisions of Sport Fish and Commercial Fisheries, Fishery Management Report No. 07-15, Anchorage.

Stichert, M.A. 2007b. Chignik management area salmon and herring annual management report, 2006. Alaska Department of Fish and Game Divisions of Sport Fish and Commercial Fisheries, Fishery Management Report No. 07-56, Anchorage.

Stichert, M.A., T.J. Anderson, and T.H. Dann. 2009. Chignik Management Area salmon and herring annual management report, 2007. Alaska Department of Fish and Game Division of Commercial Fisheries, Fishery Management Report No. 09-09, Anchorage.

U.S. Census Bureau. 2001. Profiles of general demographic characteristics, Alaska: 2000. U.S. Department of Commerce: Washington, D.C.

USFWS (United States Fish and Wildlife Service). 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.

Walker, R.J., and M.W. Coffing. 1993. Subsistence salmon harvests in the Kuskokwim area during 1989. Alaska Department of Fish and Game Division of Subsistence, Juneau.

Wolfe, R.J. 2000. Subsistence in Alaska: 2000. Alaska Department of Fish and Game Division of Subsistence, Juneau.

Wright, J.M., J.M. Morris, and R. Schroeder. 1985. Bristol Bay regional subsistence profile. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 114, Dillingham.

Wright, J.M., and M.B. Chythlook. 1985. Subsistence harvests of herring spawn-on-kelp in the Togiak district of Bristol Bay. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 116, Juneau.

APPENDIX A. DATA ANALYSIS METHODS

Methods

Introduction

The estimated and reported harvests presented in this report result from the efforts of many people: subsistence fishers who record their harvests on permits or harvest calendars; residents of rural communities who volunteer subsistence fishing information during annual household surveys; people who respond to mailed inquiries about their subsistence fishing activities; cooperating area government offices and businesses; and employees of numerous tribal organizations, 3 ADF&G divisions, and the National Park Service.

More than 24 annual harvest assessment projects are supported by the efforts of these people and organizations. Most of these projects were designed independently of the others, were initially quite different from one another, and have been further modified over time. Today, they produce results that are not always comparable across fisheries.

Most of these annual projects are conducted in order to satisfy specific reporting requirements, such as the inclusion of subsistence fish harvest information in Division of Commercial Fisheries and Division of Sport Fish annual management reports. To the extent that agency or regional reporting requirements vary, different report authors may summarize subsistence harvest information differently—in more or less detail, for example—making the summary results even less comparable across fisheries.

This report, along with the Alaska Subsistence Fisheries Database upon which many of its tables are based, is a statewide compilation of subsistence harvest information from all of the individual harvest assessment projects. Because Alaska's individual harvest assessment projects vary widely in the methods they use and the information they report, special measures were necessary before some of their results became compatible with this statewide approach. Results from some of the individual harvest assessment projects are reported here without modification, while the data from other projects were reanalyzed for more detail or otherwise distilled into more compatible and more combinable results.

This appendix provides brief overviews of how each subsistence salmon fishery's results in this report were arrived at and what, if any, special measures were taken to modify individual harvest assessment project findings into formats compatible with this statewide compilation.

Project descriptions appearing in this appendix appear in the same order their corresponding fisheries were discussed in the main body of the report.

Northwest Alaska: Norton Sound – Port Clarence Area

Data Sources

- Household surveys
- Subsistence fishing permits
- ADF&G test fishery records

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
  - Issued subsistence fishing permits, required in some fishing areas
  - Conducted household surveys in Unalakleet and Shaktoolik
  - Compiled reported harvest data from returned permits and household surveys into MS Excel spreadsheets
  - Distributed salmon harvested by ADF&G test fisheries to area communities and kept records of how many were distributed to each village by species
  - Provided fishing permit and test fishery data to Division of Subsistence

Annual Harvest Assessment Project – Analysis

- Household surveys
  - Reported harvests were analyzed separately by type.
    - Subsistence harvests (harvested under subsistence regulations)
    - Commercial harvests retained for home uses
    - Rod and reel harvests (by regulation, these are sport fishing harvests in most areas, but subsistence harvests in others—accurate separation not possible)
  - Reported harvests expanded to community harvest estimates within each of two harvest strata
    - Usually fish
    - Do not usually fish
  - Harvest estimates

    - For community i, species j: $E_{i,j} = \sum_{k=1}^{2} \left(\left(N_{i,k} / n_{i,k} \right) \times R_{i,j,k} \right)$, where… (1)
      - E = estimated harvest,
      - R = reported harvest,
      - N = total number of households,
      - n = number of households sampled, and
      - k = harvest stratum.

    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where… (2)
      - E = estimated harvest and
      - i = community
- Subsistence fishing permits
  - Reported harvests by permit area as compiled by Division of Commercial Fisheries are included in project tables.
  - Reported harvests are not expanded into community estimates.

- ADF&G test fishery records
    - Salmon harvested by ADF&G test fisheries and distributed to communities are included in results tables

Statewide Compilation – Included Data and Special Measures

- Results of 5 types are included in the report tables
    - Subsistence harvests from household surveys
    - Subsistence permit harvests
    - Commercial harvests retained for home uses
    - Rod and reel harvests
    - ADF&G test fishery harvests distributed to communities
- No special measures were necessary to include project results in this statewide report.

Northwest Alaska: Kotzebue Area

Note The information below describes how data have been collected and analyzed for the Kotzebue area in the past. These data appear in the Alaska Subsistence Fisheries Database and in historical tables in this annual report. However, no subsistence fisheries data collection program occurred in the Kotzebue area in 2007 due to lack of funding.

Data Sources

- Household surveys
- ADF&G test fishery records

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
    - Coordinated postseason household survey process, conducted surveys
    - Conducted analysis of data from all sources
    - Provided results to Division of Commercial Fisheries for inclusion in annual management report
    - Included more detailed results in Division of Subsistence annual Northwest Alaska subsistence salmon report
- Division of Commercial Fisheries
    - Distributed salmon harvested by ADF&G test fisheries to area communities and kept records of how many were distributed to each village by species
    - Provided test fishery data to Division of Subsistence

Annual Harvest Assessment Project – Analysis

- None, due to no data collection in 2007.

Statewide Compilation – Included Data and Special Measures

None, due to no data collection in 2007.

Yukon Area

Data Sources

- Household surveys
- Harvest calendars
- Subsistence fishing permits
- Personal use fishing permits
- ADF&G test fishery records

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Distributed preseason subsistence harvest calendars to selected households
    - Coordinated postseason household survey process, conducted surveys
    - Distributed salmon harvested by ADF&G test fisheries to area communities and kept records of how many were distributed to each village by species
    - Conducted detailed analysis of data from all sources
    - Included detailed results in annual Yukon River drainage subsistence salmon report
    - Provided selected raw data to Division of Division of Subsistence
    - Provided analysis results to Division of Division of Subsistence

Annual Harvest Assessment Project – Analysis

- Household surveys
    - Reported harvests expanded to community harvest estimates within each of 5 harvest strata
        - Unknown
        - Do not fish
        - Light harvester
        - Medium harvester
        - Heavy harvester
    - Harvest estimates

        - For community i, species j: $E_{i,j} = \sum_{k=1}^{5} \left(\left(N_{i,k} / n_{i,k} \right) \times R_{i,j,k} \right)$, where…
            - E = estimated harvest,
            - R = reported harvest,
            - N = total number of households,
            - n = number of households sampled, and
            - k = harvest stratum.

        - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
            - E = estimated harvest and
            - i = community
- Harvest calendars
    - Not normally calculated into harvest estimates
    - Data may substitute for survey if household not contacted
    - Special treatment of some cases; e.g., may include calendar in survey estimates if

calendar harvest is especially high

- Subsistence fishing permits
  - Reported harvests not expanded into community estimates—only reported harvests included in project results
  - Assumption is unreturned permits were not fished
- Personal use fishing permits
  - Reported harvests not expanded into community estimates—only reported harvests included in project results
  - Assumption is unreturned permits were not fished
- Test fishery records
  - Salmon harvested by ADF&G test fisheries and distributed to communities reported at the community level.
  - Test fishery harvests sometimes included in community survey estimates

Statewide Compilation – Included Data and Special Measures

- Results of 5 types are included in the report tables.
  - Subsistence harvests from household surveys
  - Subsistence harvests from permits
  - Personal use harvests from permits
  - Commercial harvests retained for home uses
  - Test fishery harvests distributed to communities
- Special measures necessary to include project results in this statewide report.
  - Subsistence harvests from household surveys
    - Division of Commercial Fisheries' harvest estimates were adjusted to remove nonsurvey amounts (e.g. test fishery harvests) and to accommodate several Division of Commercial Fisheries' special case adjustments.
  - Subsistence harvests from permits
    - Permit data analyzed to separate harvests by community
    - Permit-survey overlap removed; i.e., permit data from residents of surveyed communities not included.
    - Reported harvests were expanded into community estimates for nonresponse.
    - Harvest estimates
      - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
      - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community
  - Personal use harvests from permits
    - Permit data analyzed to separate harvests by community

- Expansion for nonresponse unnecessary due to 100% response rate.

- Commercial harvests retained for home uses
  - Information not available in Division of Commercial Fisheries project results
  - Household survey data analyzed according to established Division of Commercial Fisheries methods; i.e., reported harvests were expanded into community estimates using 5 harvest strata.
  - Harvest estimates

    - For community i, species j: $E_{i,j} = \sum_{k=1}^{5} \left(\left(N_{i,k} / n_{i,k} \right) \times R_{i,j,k} \right)$, where…
      - E = estimated harvest,
      - R = reported harvest,
      - N = total number of households,
      - n = number of households sampled, and
      - k = harvest stratum.

    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
      - E = estimated harvest and
      - i = community

- Test fishery harvests distributed to communities
  - Distributions reported by community
  - No special measures necessary

Kuskokwim Area

Data Sources

- Household surveys
- Harvest calendars

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
  - Coordinated postseason household survey process
  - Conducted postseason household surveys in all surveyed communities except Bethel and Aniak
  - Conducted analysis of data from all sources
  - Provided results to Division of Commercial Fisheries for inclusion in annual management report
- Orutsararmiut Native Council (ONC)
  - Conducted postseason household surveys in Bethel
- Kuskokwim Native Association
  - Conducted postseason household surveys in Aniak

Annual Harvest Assessment Project – Analysis

- Household surveys
  - Three types of harvests were analyzed and reported together.
    - Subsistence harvests
    - Commercial harvests retained for home uses
    - Rod and reel harvests
  - Reported harvests expanded to community harvest estimates using 2 harvest strata
    - Usually fish
    - Do not usually fish
  - Harvest estimates

    - For community i, species j: $E_{i,j} = \sum_{k=1}^{2} \left(\left(N_{i,k} / n_{i,k} \right) \times R_{i,j,k} \right)$, where…
      - E = estimated harvest,
      - R = reported harvest,
      - N = total number of households,
      - n = number of households sampled, and
      - k = harvest stratum.

    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
      - E = estimated harvest and
      - i = community
- Harvest calendars
  - For surveyed households, harvests reported on calendars used in place of postseason survey reports; analyzed with survey data.
  - For households not surveyed, harvests reported on calendars used instead of household survey; analyzed with survey data.

Statewide Compilation – Included Data and Special Measures

- Results of 3 types are included in the report tables.
    - Subsistence harvests from household surveys
    - Commercial harvests retained for home uses
    - Rod and reel harvests
- No special measures were necessary to include project results in this statewide report.

Bristol Bay Area

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
  - Issued subsistence salmon fishing permits
  - Conducted all data analysis
  - Provided results to Division of Commercial Fisheries for inclusion in annual management report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
  - Only subsistence harvest data analyzed.
  - Reported harvests expanded to community harvest estimates using a single harvest stratum.
  - Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
      - E = estimated harvest,
      - R = reported harvest,
      - N = number of permits issued, and
      - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
      - E = estimated harvest and
      - i = community

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests from subsistence fishing permits included in report tables.
- No special measures were necessary to include project results in this statewide report.

Chignik Area

Data Sources

- Subsistence fishing permits
- Follow-up household surveys

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
  - Coordinated issuing of subsistence salmon permits through area vendors, businesses, and public offices
  - Conducted follow-up household surveys
  - Conducted all data analysis
  - Provided results to Division of Commercial Fisheries for inclusion in annual management report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
  - Only subsistence harvest data analyzed.
  - Reported harvests expanded to community harvest estimates using a single harvest stratum.
- Follow-up household surveys
  - Used to supplement permit data for households not obtaining permits
  - Analyzed with permit data
  - Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
      - E = estimated harvest,
      - R = reported harvest,
      - N = number of permits issued,[20] and
      - n = number of permits returned.[1]
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
      - E = estimated harvest and
      - i = community

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- No special measures were necessary to include project results in this statewide report.

20. Includes number of households surveyed postseason, whether or not permits were issued.

Alaska Peninsula Area

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence salmon permits
    - Conducted all data analysis
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis and inclusion in statewide database and annual report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests from area communities expanded to community harvest estimates.
    - Non-area communities grouped into categories, then harvests expanded together to non-area estimate

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests from permits included in report tables.
- Data reanalyzed to generate community harvest estimates without grouping non-area communities.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Aleutian Islands Area: Unalaska District

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence salmon permits
    - Conducted all data analysis
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis and inclusion in statewide database and annual report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests from area communities expanded to community harvest estimates.
    - Non-area communities grouped into categories, then harvests expanded together to non-area estimate

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests from permits included in report tables.
- Data reanalyzed to generate community harvest estimates without grouping non-area communities.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Aleutian Islands Area: Adak District

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence salmon permits
    - Conducted all data analysis
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis and inclusion in statewide database and annual report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests from area communities expanded to community harvest estimates.
    - Non-area communities grouped into categories, then harvests expanded together to non-area estimate

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests from permits included in report tables.
- Data reanalyzed to generate community harvest estimates without grouping non-area communities.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Kodiak Area

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence salmon permits
    - Conducted all data analysis
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis and inclusion in statewide database and annual report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests not expanded into estimates.
    - Harvests tabulated and reported only at the fishery level.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests from permits included in report tables.
- Data reanalyzed to generate reported community harvests.

Cook Inlet Area: Port Graham and Koyuktolik Subdistricts

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
    - Issued subsistence fishing permits in Anchorage
    - Conducted all data analysis
    - Provided results to Division of Commercial Fisheries for inclusion in annual management report
- Port Graham Tribal Council
    - Issued subsistence fishing permits in Port Graham
    - Entered data into area database
    - Forwarded data to Division of Subsistence for analysis
- Nanwalek Tribal Council
    - Issued subsistence fishing permits in Nanwalek
    - Entered data into area database
    - Forwarded data to Division of Subsistence for analysis

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Reported harvests were analyzed separately by type.
        - Subsistence harvests
        - Rod and reel harvests
    - Harvests reported at the community level and not expanded into community harvest estimates.

Statewide Compilation – Included Data and Special Measures

- Results of 2 types are included in the report tables.
    - Subsistence harvests
    - Rod and reel harvests
- No special measures were necessary to include project results in this statewide report.

Cook Inlet Area: Seldovia Fishery

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
  - Issued subsistence fishing permits
  - Conducted all data analysis
  - Provided results to Division of Commercial Fisheries for inclusion in annual management report

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
  - Only subsistence harvest data analyzed.
  - Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the community level.
  - Harvest estimates
    - For community *i*, species *j*: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
      - E = estimated harvest,
      - R = reported harvest,
      - N = number of permits issued, and
      - n = number of permits returned.
    - For species *j* fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
      - E = estimated harvest and
      - i = community

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- No special measures were necessary to include project results in this statewide report.

Cook Inlet Area: Tyonek Subdistrict

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
    - Issued subsistence fishing permits in Anchorage
    - Conducted all data analysis
    - Provided results to Division of Commercial Fisheries for inclusion in annual management report
- Tyonek Tribal Council
    - Issued subsistence fishing permits in Tyonek

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests *not* expanded into harvest estimates.
    - Harvests reported at the community level.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- No special measures were necessary to include project results in this statewide report.

Cook Inlet Area: Upper Yentna Fishery

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Sport Fish
  - Issued subsistence fishing permits
  - Compiled data from returned permits into Excel spreadsheet
  - Provided data to Division of Subsistence for further analysis
- Division of Subsistence
  - Provided Division of Subsistence analysis results (see "Statewide Compilation" description below) to Division of Commercial Fisheries for inclusion in annual management report.

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
  - Only subsistence harvest data analyzed.
  - Harvests reported at the fishery level and not expanded into estimates.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Reported harvests expanded into harvest estimates.
  - Single stratum expansion at the community level.
  - Harvest estimatFor community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
    - E = estimated harvest,
    - R = reported harvest,
    - N = number of permits issued, and
    - n = number of permits returned.
  - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
    - E = estimated harvest and
    - i = community

Prince William Sound Area: Glennallen Subdistrict

Data Sources

- State subsistence fishing permits
- Federal subsistence fishing permits

Annual Harvest Assessment Project(s) – Tasks

- Division of Sport Fish
  - Issued state subsistence fishing permits
  - Conducted all data analysis
  - Provided data to Division of Subsistence for further analysis
- National Park Service
  - Issued federal subsistence fishing permits
  - Compiled data from returned permits into Excel spreadsheet
  - Provided data to Division of Subsistence for further analysis

Annual Harvest Assessment Project(s) – Analysis

- State subsistence fishing permits
  - Only subsistence harvest data analyzed.
  - Detailed analysis guided by Division of Sport Fish operational plan
  - Reported harvests expanded into fishery-level estimates.
- Federal subsistence fishing permits
  - Only subsistence harvest data analyzed.
  - Data from returned permits compiled into Excel spreadsheet.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Data from the state and federal permit programs combined and controlled for state–federal data overlap.[21]
- Reported harvests expanded into harvest estimates.
  - Single stratum expansion at the community level.
- Harvest estimates
  - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
    - E = estimated harvest,
    - R = reported harvest,
    - N = number of permits issued, and
    - n = number of permits returned.
  - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
    - E = estimated harvest and
    - i = community

21. State-federal data overlap occurs in the Glennallen fishery when a household obtains both state and federal permits and then reports the same harvests on each. When such cases were identified, only one permit's harvests were included in the combined data set.

Prince William Sound Area: Chitina Subdistrict (State)

Data Source

- State personal use fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Sport Fish
    - Issued state personal use fishing permits. Authorized vendors could also issue permits.
    - Conducted all data analysis
    - Provided data to Division of Subsistence for further analysis

Annual Harvest Assessment Project – Analysis

- State personal use fishing permits
    - Only personal use harvest data analyzed.
    - Detailed analysis guided by Division of Sport Fish operational plan
    - Reported harvests expanded to fishery-level estimates.

Statewide Compilation – Included Data and Special Measures

- Only personal use harvests included in report tables.
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the community level.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Prince William Sound Area: Chitina Subdistrict (Federal)

Data Source

- Federal subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- National Park Service
    - Issued federal subsistence fishing permits
    - Compiled data from returned permits into Excel spreadsheet
    - Provided data to Division of Subsistence for further analysis

Annual Harvest Assessment Project – Analysis

- Federal subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Data from returned permits compiled into Excel spreadsheet.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the community level.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Prince William Sound Area: Batzulnetas Fishery

Data Sources

- State subsistence fishing permits
- Federal subsistence fishing permits
    - Only 1 permit issued

Annual Harvest Assessment Project – Tasks

- Division of Sport Fish
    - Available to issue permits if requested (none were)
- National Park Service
    - Issued federal subsistence fishing permit (only 1)
    - Provided data to Division of Subsistence

Annual Harvest Assessment Project – Analysis

- State subsistence fishing permits
    - No data = no analysis
    - Similar treatment as other Copper River fisheries, if any permits issued
- Federal subsistence fishing permits
    - Only subsistence harvest data included.
    - One permit = no analysis.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Harvest reported at the community level.

Prince William Sound Area: Copper River District

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence fishing permits
    - Compiled data from returned permits into Excel spreadsheet
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests *not* expanded into harvest estimates.
    - Harvests reported at the fishery level.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the community level.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Prince William Sound Area: Eastern District

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Coordinated issuance of permits
    - Issued subsistence fishing permits in Cordova
    - Compiled data from returned permits into Excel spreadsheet
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis
- Tatitlek Tribal Council
    - Issued subsistence fishing permits in Tatitlek
    - Provided data from returned permits to Division of Commercial Fisheries

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests *not* expanded into harvest estimates.
    - Harvests reported at the fishery level.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the fishery level.
    - Community harvest estimates not possible from available data.
        - Division of Commercial Fisheries did include community of principal residence in compiled data.
- Harvest estimates
    - For fishery total, species *j*: $E_j = \left((N/n) \times R_j \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.

Prince William Sound Area: Southwestern District

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Coordinated issuing of permits
    - Issued subsistence fishing permits in Cordova
    - Compiled data from returned permits into Excel spreadsheet
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis
- Chenega Bay Tribal Council
    - Issued subsistence fishing permits in Chenega Bay
    - Provided data from returned permits to Division of Commercial Fisheries

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests *not* expanded into harvest estimates.
    - Harvests reported at the fishery level.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the fishery level.
    - Community harvest estimates not possible from available data.
        - Division of Commercial Fisheries did include community of principal residence in compiled data.
- Harvest estimates
    - For fishery total, species *j*: $E_j = \left((N / n) \times R_j \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.

Prince William Sound Area: General

Data Source

- Subsistence fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence fishing permits
    - Compiled data from returned permits into Excel spreadsheet
    - Published results in Division of Commercial Fisheries annual management report
    - Provided data to Division of Subsistence for further analysis

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed.
    - Reported harvests *not* expanded into harvest estimates.
    - Harvests reported at the fishery level.

Statewide Compilation – Included Data and Special Measures

- Only subsistence harvests included in report tables.
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the community level.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community

Southeast–Yakutat Region

Data Sources

- Yakutat Management Area subsistence fishing permits
- Haines Management Area subsistence fishing permits
- Juneau Management Area subsistence and personal use fishing permits
- Sitka Management Area subsistence and personal use fishing permits
- Petersburg–Wrangell Management Area subsistence and personal use fishing permits
- Ketchikan Management Area subsistence and personal use fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Commercial Fisheries
    - Issued subsistence fishing permits in each management area
    - Entered data from returned permits into Southeast–Yakutat region's Alexander database
    - Published results in Division of Commercial Fisheries regional report to the BOF
    - Provided data to Division of Subsistence for further analysis

Annual Harvest Assessment Project – Analysis

- Subsistence fishing permits
    - Only subsistence harvest data analyzed for Yakutat and Haines management areas
        - Permits in these management areas are for subsistence fishing only.
    - Subsistence and personal use harvest data analyzed for Juneau, Sitka, Petersburg–Wrangell, and Ketchikan management areas
        - Permits in these management areas are dual subsistence *and* personal use permits.
    - Reported harvests *not* expanded into harvest estimates.
    - Harvests reported at the fishery level.

Statewide Compilation – Included Data and Special Measures

- Results of two types are included in the report tables.
    - Subsistence harvests
    - Personal use harvests
- Reported harvests expanded into harvest estimates.
    - Single stratum expansion at the community level.
- Harvest estimates
    - For community i, species j: $E_{i,j} = \left(\left(N_i / n_i \right) \times R_{i,j} \right)$, where…
        - E = estimated harvest,
        - R = reported harvest,
        - N = number of permits issued, and
        - n = number of permits returned.
    - For species j fishery total: $E_j = \sum_{i=1}^{n} E_{i,j}$, where…
        - E = estimated harvest and
        - i = community