Technical Paper No. 317

Alaska Subsistence Salmon Fisheries 2004 Annual Report

by

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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 Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Measures (fisheries)

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

Mathematics, statistics

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

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March 2007

Annual Report to the U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, to fulfill obligations for Study No. 04-751 under agreement 701812J44

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/

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

Each year, thousands of Alaska residents who participate in subsistence fisheries take the time to provide harvest information to the Alaska Department of Fish and Game. 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 Department of Fish and Game 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 department 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.

Finally, we acknowledge the generous support of the U.S. Fish and Wildlife Service, Office of Subsistence Management, for contributing $78,016 toward the cost of this project.

This annual report is the result of the work of a number of Division of Subsistence staff. Dave Caylor compiled the information from the various harvest assessment programs, administered and updated the Alaska Subsistence Fisheries Database, and prepared the methods appendix. Brian Davis and David Koster contributed to the presentation of the fisheries data. Caroline Brown, James Fall, Tracie Krauthoefer, and Michael Turek wrote specific sections of the report. Additional Division of Subsistence staff who administer subsistence fisheries harvest assessment programs are Molly Chythlook, Eunice Dyasuk, Lisa Hutchinson-Scarborough, and Ron Stanek.

As noted in the report itself, this is the sixth in a series of statewide summaries of subsistence fisheries harvest data. Though many have contributed to this report, any errors of commission or omission are our responsibility. We encourage those who use this report to offer ideas and suggestions to improve future iterations of this effort.

ABSTRACT

Every year, many thousands of Alaskans participate in subsistence salmon fishing and processing activities. These practices represent an important part of Alaska's social and cultural heritage, as well as a crucial component of the state's non-cash subsistence economy. This report summarizes Alaska's 2004 subsistence salmon fishing season based upon subsistence permit data and harvest assessment surveys from across the state. This report compares this new information to previous years' findings and discusses these results. Where appropriate, harvest information from "personal use" fisheries is included from areas designated by the Alaska Board of Fisheries (BOF) as "nonsubsistence areas." In addition, federal agencies now regulate and administer several subsistence fisheries in Alaska; where these harvest data are available, these fisheries are also included.

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I. INTRODUCTION

This is the sixth in a series of annual reports on Alaska's subsistence fisheries. It was prepared by the Division of Subsistence of the Alaska Department of Fish and Game (ADF&G). A cooperative agreement with the U.S. Fish and Wildlife Service, Office of Subsistence Management (FIS 04-751), contributed to the overall cost of this project.

"Subsistence fishing" is defined in Alaska state law as taking of fish, shellfish, or other fisheries resources by Alaska residents for subsistence uses (AS 16.05.940[30]). "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[32]).

Under Alaska's subsistence statute, the Alaska board of Fisheries must identify fish stocks that support subsistence fisheries and, if there is a harvestable surplus of these stocks, adopt regulations that provide reasonable opportunities for these subsistence uses to take place. Whenever it is necessary to restrict harvests, subsistence fisheries have a preference over other uses of the stock (AS 16.05.258).

Also, the Joint Board of Fisheries and Game 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 Board of Fisheries may not authorize subsistence fisheries in nonsubsistence areas. Personal Use fisheries (see below) provide opportunities for harvesting fish with gear other than rod and reel in nonsubsistence areas. The Joint Board has identified five nonsubsistence areas (5 AAC 99.015): Ketchikan Nonsubsistence Area, Juneau Nonsubsistence Area, Anchorage-Matsu-Kenai Nonsubsistence Area, Fairbanks Nonsubsistence Area, and Valdez nonsubsistence Area.

In addition to subsistence, Alaska state law recognizes three other 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, in commercial channels" (AS 16.05.940[5]). Sport fishing is defined by Alaska state law 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[29]). Personal Use fishing is defined by statute as the taking 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[24]). Personal use fisheries are different from subsistence fisheries because they do not meet the criteria

established by the Joint Board for identifying customary and traditional fisheries (5 AAC 99.010), or because they occur within nonsubsistence areas.

Every year, ADF&G's Division of Commercial Fisheries prepares "annual management reports" (AMRs) for most fishery management areas in the state. Figure I-1 shows the location of these management areas. Although the AMRs focus primarily on commercial fisheries, most also routinely summarize basic data for programs that collect harvest information for subsistence fisheries. In several areas, more detailed annual reports about subsistence fisheries harvest assessment programs are prepared. These are Northwest Alaska, the Yukon River, and the Kuskokwim River. However, until this annual report series was undertaken in 1999, there was no single source that compiled subsistence fisheries harvest data from all management areas. That is the purpose of this report for 2004.

First and foremost, 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 for salmon generally means fish taken with nets, seines, or fish wheels. In some parts of Alaska, substantial numbers of fish for home use are taken with rod and reel (in most areas considered sport gear by regulation) or are retained from commercial harvests. With the exceptions noted in the chapters on each area, these harvests are not included in the subsistence harvest estimates in this report because they are not covered in annual harvest assessments. Therefore, the harvest data in this report are a conservative estimate of the number of salmon being taken for subsistence use in Alaska. Underestimates 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 the 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 large underestimate of harvests.
- There are also few programs for contextualizing subsistence harvest data each year to provide information to interpret changes in harvests. In some cases, however, AMRs do contain discussions of data limitations and harvest trends.

Despite these limitations, it is nonetheless possible to present a reasonable, conservative statewide overview of subsistence harvests of salmon. Information for all areas of the state where salmon fisheries occur is covered in this report. We have included data for personal use salmon fisheries in the Yukon Management Area and Southeast Region because these fisheries have been classified as subsistence fisheries in the past, and because they are

administered in the same 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. However, it is our intention to add data from these personal use fisheries in future versions of the Alaska Subsistence Fisheries Database (see below) and to include summaries in future annual reports in order to offer a more comprehensive and detailed overview of non-recreational fish harvests for home use in the state.

The coverage for other finfish and for shellfish is 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. In other areas, 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 Alaska Board of Fisheries.

This annual report does not attempt to provide a comprehensive overview of subsistence shellfish harvests. However, once existing data have been located, reviewed, and summarized, we do anticipate providing more thorough coverage of historical as well as current shellfish harvests in future reports.

In 1988, the Division of Subsistence, ADF&G, prepared the first version of the "Historic Subsistence Salmon Harvest Database" (HSSHDB). As part of the same cooperative agreement that supported the development of this annual report series, this database was updated, upgraded, and renamed the "Alaska Subsistence Fisheries Database" (Caylor 2005). The database is written for Microsoft Access software. It is organized by 21 subsistence fisheries, mostly reflecting unique harvest assessment programs and regulatory structures. It contains harvest data by species, year, community of residence of permit holder, and gear type. The number of permits issued and returned each year is reported as well. In developing the database, the most complete data sets have been sought, which in some cases are more up to date than is the data reported in AMRs. In most fisheries, reported harvests have been expanded to account for unreturned permits. In a few cases, this results in a larger estimate than is found in those AMRs that routinely only summarize data from returned permits. Also, the database calculates harvest estimates first for all permit holders living in particular communities represented in the fishery, and then adds these community estimates for a fishery total. This contrasts with the conventional expansion method for a few fisheries (for instance, the Glennallen Subdistrict of the Prince William Sound Area), which only considers the total number of issued and returned permits in expansion, and results in slightly different estimates of total harvests than those reported in AMRs. The goal of this annual report series on Alaska's subsistence fisheries is to treat each fishery in a consistent, systematic manner, rather than to reiterate previously published data.

The Alaska Subsistence Fisheries Database is not yet available for downloading from the Internet. Currently, upon request, the Division of Subsistence distributes the database on compact disks, (CDs) along with the Community Subsistence Information System, formerly the Community Profile Database (Scott et al. 2001), which includes the results of systematic

household surveys, and is the primary source for subsistence harvest data for finfish other than salmon, and for shellfish.

The next chapter of this report is a statewide perspective on subsistence salmon harvests in Alaska in 2004. This is followed by chapters on eleven management areas, or in the case of Southeast Alaska, a region. In several cases (Northwest, Aleutians, Cook Inlet, and Prince William Sound), harvest assessment programs within areas with different regulations or histories are discussed separately.

It is important to note that the preparation of an annual report such as this, and the supporting database, were two of several objectives of the "Statewide Subsistence Fisheries Harvest Monitoring Strategy" project, funded by the U.S. Fish and Wildlife Service's Office of Subsistence Management and implemented jointly by the Division of Subsistence of ADF&G and the Alaska Inter-Tribal Council (AI-TC). 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 AI-TC 2000a), and a final report with an overview of all the project activities is also available (ADF&G and AI-TC 2000b). The final report also includes a set of comments on existing subsistence harvest assessment programs, based on interviews of ADF&G staff conducted by the Division of Subsistence as well as Working Group discussions. We have drawn on these comments for most of the evaluations of harvest data in this annual report. As background for the Working Group's efforts, Division of Subsistence staff prepared detailed overviews of current subsistence fisheries harvest assessment programs. These are the basis of the descriptions of these programs that appear in this report.

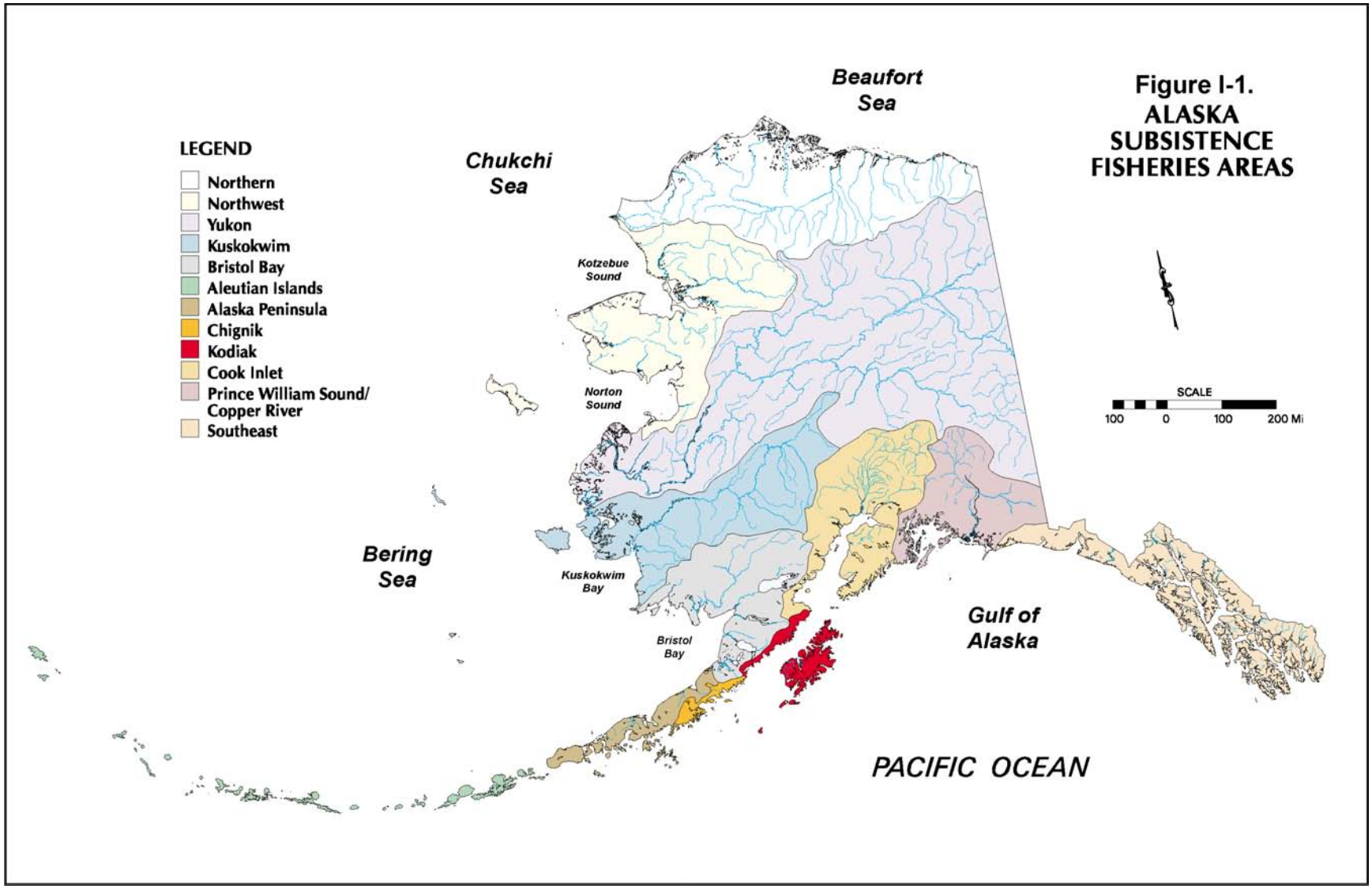


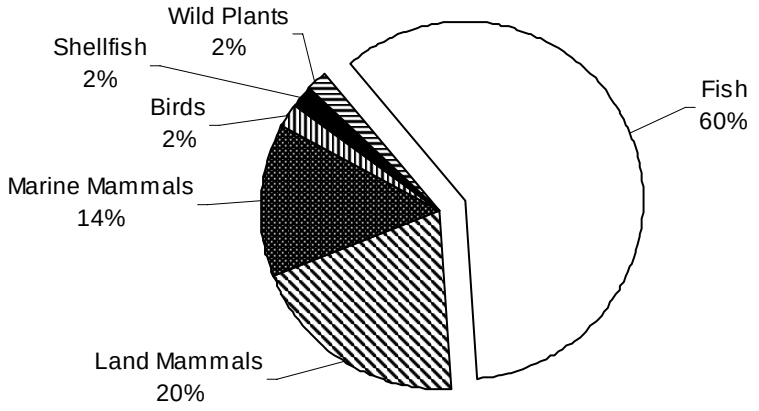
Figure I-1.
ALASKA
SUBSISTENCE
FISHERIES AREAS
LEGEND
Northern
Northwest
Yukon
Kuskokwim
Bristol Bay
Aleutian Islands
Alaska Peninsula
Chignik
Kodiak
Cook Inlet
Prince William Sound/
Copper River
Southeast
Beaufort
Sea
Chukchi
Sea
Kotzebue
Sound
Norton
Sound
Bering
Sea
Kuskokwim
Bay
Bristol
Bay
Gulf of
Alaska
PACIFIC OCEAN
SCALE
100 0 100 200 Mi

II. OVERVIEW: SUBSISTENCE FISHERIES IN ALASKA

SUBSISTENCE HARVESTS IN RURAL ALASKA

Of the estimated 43.7 million pounds of wild foods produced in rural Alaska communities annually, subsistence fisheries contribute about 60 to 62 percent from finfish and 2 percent from shellfish (Figure II-1). On average, the subsistence fisheries harvest provides about 230 pounds of food per person per year 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 percent. Commercial fisheries take 97 percent of the wild resource harvest, and sport fisheries and hunts take about 1 percent.

Figure II-1. Composition of Subsistence Harvest by Rural Alaska Residents



Total usable pounds = 44 million; Source: Wolfe 2000, based on data in the Community Profile Database (Scott et al. 2000)

SUBSISTENCE SALMON HARVESTS IN 2004

The estimated total subsistence harvest of salmon in Alaska in 2004 based on annual harvest assessment programs was 1,066,692 fish (Table II-1).[2] The statewide harvest by species was as follows: 453,201 sockeye (42.9 percent), 241,022 chum (22.8 percent), 176,416 chinook (16.7 percent), 103,772 coho (9.8 percent), and 82,660 pink salmon (7.8 percent) (Figure II-2). Table II-2 reports subsistence harvests in 2004 by species and place of residence of participants, with harvests from all subsistence fisheries combined.

In 2004, fisheries in seven management areas accounted for 92.1 percent of the total statewide subsistence salmon harvest (Table II-1; Figure II-3). These were Yukon (226,885 salmon; 21.5 percent of the state-wide total); Kuskokwim (214,959 salmon; 20.3 percent); Bristol Bay (126,865 salmon; 12.0 percent); Northwest[3] (126,506 salmon; 12.0 percent); the Chitina Subdistrict of the Prince William Sound Management Area (118,144 salmon; 11.2 percent); Southeast Alaska (71,763 salmon; 6.8 percent)[4]; and the Glennallen Subdistrict of the Prince William Sound Management Area (87,557 salmon; 8.3 percent).

The Chitina Subdistrict fishery was classified as 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.[5] The Chitina and Glennallen, the two sub districts of the Upper Copper River District, accounted for 19.5 percent of the statewide harvest in 2004 (205,701 salmon), in combination ranking third after the Kuskokwim and Yukon areas.

The largest subsistence harvests of chinook salmon in 2004 occurred in the Kuskokwim Area (85,086 salmon; 48.2 percent), followed by Yukon (57,549 salmon; 32.6 percent), Bristol Bay (18,012 salmon; 10.2 percent), the Glennallen Subdistrict of the Prince William Sound Area (4,503 salmon; 2.6 percent), Northwest (3,534 salmon; 2.0 percent), and the Chitina Subdistrict of the Prince William Sound Area (2,530 salmon; 1.4 percent) (Figure II-4). For

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[2] 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. For background, see Chapter 1.

[3] Subsistence harvest estimates for Northwest Alaska for 2003 do not include the regional center of Kotzebue, which since 1994 had been included in the harvest assessment program. Therefore, the estimated 2003 harvest total for Northwest as reported here is incomplete. See also Chapter III.

[4] As discussed further in Chapter XIII, 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 catches. The major portion of coho and chinook harvests for home use in Southeast is taken with rod and reel (sport gear). Thus the Southeast Region is particularly underrepresented in statewide overviews based on permit data.

[5] 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. Nevertheless, in future annual reports, the Chitina Subdistrict harvests will be included in the statewide subsistence salmon harvest totals. Also, beginning in 2002, the National Park Service, on behalf of the Federal Subsistence Board, 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 XII.

sockeye salmon, the largest subsistence harvests in 2004 were in the Chitina Subdistrict (112,834 salmon; 24.9 percent), followed by Bristol Bay (93,819 salmon; 20.7 percent of the statewide total), the Glennallen Subdistrict of the Prince William Sound Area (82,174 salmon; 18.1 percent), Southeast/Yakutat region (61,419 salmon; 13.6 percent); the Kuskokwim (34,892 salmon; 7.7 percent), Kodiak (30,217 salmon; 6.7 percent), the Alaska Peninsula (9,484 salmon; 2.1 percent), and Chignik (7,029 salmon; 1.6 percent) (Figure II-5).

In 2004, as in past recent years, three areas dominated the subsistence chum salmon harvest: Yukon (143,973 salmon; 59.7 percent of the statewide harvest), Kuskokwim (55,575 salmon; 23.1 percent); and Northwest (31,386 salmon; 13.0 percent) (Figure II-6). Of the statewide subsistence harvest of coho salmon in 2004, the greatest share was taken in the Kuskokwim drainage (39,406 salmon; 38.0 percent), followed by the Yukon (25,286 salmon; 24.4 percent), Northwest (11,585 salmon; 11.2 percent), Bristol Bay (6,667 salmon; 6.4 percent), Kodiak Island (5,819 salmon; 5.6 percent), Alaska Peninsula (3,787 salmon; 3.6 percent), Chitina (2,787 salmon; 2.7 percent), and Southeast (2,446 salmon; 2.4 percent) (Figure II-7). Finally, by far the largest portion of the statewide pink salmon subsistence harvest in 2004 occurred in Northwest Alaska (70,841 salmon; 85.7 percent), followed by Bristol Bay (3,225 salmon; 3.9 percent), Southeast (3,164 salmon; 3.8 percent), the Port Graham Subdistrict of the Cook Inlet Management Area (1,600 salmon; 1.9 percent), Kodiak (1,395 salmon; 1.7 percent), and Chignik (1,047 salmon; 1.3 percent) (Figure II-8).

STATEWIDE SUBSISTENCE SALMON HARVESTS, 1994-2004

Table II-3 reports historic subsistence and personal use salmon harvests for 1994 through 2004 based on annual harvest assessment programs. Harvest estimates for the Chitina Subdistrict have been included for all years, even though the fishery was classified as personal use in all of these years except 2000 through 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 eleven year period reflected in Table II-3 shows a general downward trend, but recent estimates indicate this trend may be reversing. The 2004 estimate of 1,057,071 salmon is the highest since 1999, higher than the recent 5-year average, and approaching the recent 10-year average.

Table II-1. Alaska Subsistence Salmon Harvests, 2004.

Fishery[1]	Households / Permits Total[2]	Included	Chinook	Sockeye	Coho	Chum	Pink	Total
Adak District	6	4	0	336	0	0	0	336
Alaska Peninsula Management Area	147	135	218	9,484	3,787	951	609	15,049
Batzulnetas Fishery	1	1	0	182	0	0	0	182
Bristol Bay Management Area	1,100	940	18,012	93,819	6,667	5,141	3,225	126,865
Chignik Management Area	104	57	88	7,029	1,981	202	1,047	10,347
Chitina Subdistrict: State	8,153	6,855	2,521	111,203	2,751	0	0	116,476
Chitina Subdistrict: Federal	109	83	9	1,631	28	0	0	1,668
Copper River Flats	511	487	1,163	1,910	48	5	3	3,129
Glennallen Subdistrict	1,212	1,032	4,503	82,174	880	0	0	87,557
Kodiak Management Area	2,240	2,240	379	30,217	5,819	261	1,395	38,071
Kuskokwim Management Area	4,670	2,432	85,086	34,892	39,406	55,575	0	214,959
Northwest Alaska	1,915	1,814	3,534	9,159	11,585	31,386	70,841	126,506
Port Graham & Koyuktolik Subdistricts	80	80	312	3,525	1,303	213	1,600	6,953
Prince William Sound (General)	8	7	0	12	0	5	0	17
PWS Eastern District (Tatitlek)	18	12	2	358	505	28	105	998
PWS Southwestern District (Chenega Bay)	8	5	3	535	44	84	56	722
Seldovia Fishery	14	12	102	69	5	18	65	258
Southeast / Yakutat Region	3,703	3,235	1,583	61,419	2,446	3,151	3,164	71,763
Tyonek Fishery	97	75	1,345	93	130	0	0	1,568
Unalaska District	208	170	7	4,713	955	26	437	6,139
Upper Yentna Fishery	21	19	0	441	146	3	36	625
Yukon Management Area	2,721	1,228	57,549	0	25,286	143,973	9,697	236,505
Totals	**27,046**	**20,923**	**176,416**	**453,201**	**103,772**	**241,022**	**92,281**	**1,066,692**

[1] Estimates for the Yukon and Southeast fisheries include both subsistence and personal use harvests.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table II-2. Alaska Subsistence Salmon Harvests by Species and Place of Residence of Fisher, 2004.

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Adak Station	7	5	0	340	0	0	0	340
Afognak Island	1	1	0	125	0	0	0	125
Akhiok	8	8	0	102	0	0	11	113
Akiachak	124	88	6,647	2,894	2,130	3,635	0	15,306
Akiak	72	51	3,653	1,162	1,236	3,211	0	9,262
Akutan	3	3	1	28	0	0	0	29
Alakanuk	124	58	1,328	0	209	7,569	233	9,106
Alatna	5	4	0	0	0	16	0	16
Aleknagik	26	19	885	1,051	187	68	14	2,206
Alexander Creek	1	1	0	0	0	0	0	0
Allakaket	47	18	66	5	17	3,335	0	3,423
Ambler	64	60	33	3	24	3,446	6	3,512
Anaktuvuk Pass	1	0						
Anchor Point	5	5	23	170	0	0	0	193
Anchorage	2,485	2,068	1,880	40,098	915	93	405	43,390
Anderson	5	4	0	102	0	0	0	102
Angoon	106	86	0	1,806	131	71	131	2,138
Aniak	139	117	2,606	867	1,655	2,331	0	7,459
Anvik	31	26	1,588	0	288	646	0	2,522
Atmautluak	63	45	1,701	874	561	1,793	0	4,929
Auke Bay	29	24	2	191	0	0	5	199
Barrow	21	16	34	340	0	5	0	379
Beaver	32	18	990	14	0	58	0	1,062
Bethel	1,876	982	27,504	10,606	15,068	12,162	0	65,340
Bettles	22	12	1	0	0	0	0	1
Big Lake	60	55	11	766	2	0	3	782
Birch Creek	9	4	82	0	0	0	0	82
Brevig Mission	42	41	120	2,763	682	1,132	2,860	7,557
Cantwell	3	3	1	32	0	0	0	33
Central	9	9	84	72	2	0	0	158
Chalkyitsik	29	18	60	0	45	479	0	584
Chefornak	91	3	6	26	18	13	0	63
Chenega Bay	8	5	3	535	44	84	56	722
Chickaloon	9	9	7	268	25	0	0	300
Chignik Bay	16	10	19	306	163	0	0	488
Chignik Lagoon	31	16	16	3,577	78	23	50	3,743
Chignik Lake	12	7	19	1,094	185	0	17	1,315
Chiniak	29	29	13	382	385	9	2	791
Chistochina	4	4	30	2,109	0	0	0	2,139
Chitina	54	30	118	2,897	172	0	0	3,188

[continued]

Table II-2. [continued]

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Chuathbaluk	34	21	1,041	385	249	1,815	0	3,490
Chugiak	158	146	114	2,746	176	0	0	3,036
Circle	25	10	463	0	0	788	0	1,250
Clarks Point	14	14	193	283	365	52	186	1,079
Clear AFB	4	4	1	471	0	0	0	472
Coffman Cove	12	11	0	0	0	0	0	0
Cold Bay	24	24	5	729	35	23	0	792
Coldfoot	2	1	0	0	0	0	0	0
College	1	1	0	15	0	0	0	15
Cooper Landing	4	4	5	205	10	0	0	220
Copper Center	144	115	595	10,232	89	0	0	10,916
Cordova	426	407	989	1,797	48	5	3	2,842
Craig	168	131	3	1,665	56	83	28	1,836
Crooked Creek	40	24	1,003	760	670	1,662	0	4,095
Delta Junction	362	309	145	6,055	173	0	0	6,373
Denali Park	10	9	1	51	15	0	0	66
Dillingham	308	271	8,185	8,911	2,276	1,668	1,268	22,308
Dot Lake	6	3	0	0	0	0	0	0
Douglas	52	44	2	376	38	0	5	421
Dutch Harbor	101	84	5	2,142	313	7	126	2,593
Eagle	49	43	1,457	0	13	5,381	0	6,851
Eagle River	407	357	377	8,122	181	13	2	8,694
Eek	81	61	2,636	472	764	587	0	4,459
Egegik	10	7	101	950	1,356	381	86	2,874
Eielson AFB	98	83	39	1,349	18	0	0	1,405
Ekwok	19	15	960	730	77	77	47	1,891
Elfin Cove	3	3	0	2	0	0	0	2
Elim	58	58	410	0	704	663	7,207	8,984
Elmendorf AFB	21	18	7	229	0	0	0	236
Emmonak	161	85	2,801	0	300	9,558	32	12,659
Ester	78	66	46	1,498	43	9	0	1,596
Fairbanks	2,825	2,302	4,619	42,354	3,953	3,390	92	54,408
False Pass	8	6	5	445	424	32	39	945
Fort Greely	3	2	0	74	5	0	0	78
Fort Richardson	17	12	6	167	16	0	0	188
Fort Wainwright	109	81	30	1,217	46	0	0	1,293
Fort Yukon	161	45	4,430	0	19	8,489	0	12,938
Gakona	39	34	148	3,865	0	0	0	4,013
Galena	160	45	3,296	0	1,307	2,369	0	6,972
Girdwood	50	46	31	742	5	0	1	779

[continued]

Table II-2. [continued]

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Glennallen	132	115	408	5,386	38	0	0	5,831
Golovin	43	43	143	45	98	290	7,694	8,270
Goodnews Bay	64	50	851	805	1,411	221	0	3,288
Grayling	44	22	1,869	0	233	1,396	0	3,498
Gulkana	4	1	56	988	0	0	0	1,044
Gustavus	19	15	0	327	0	0	2	329
Haines	350	335	190	6,394	473	719	1,445	9,222
Healy	38	36	12	558	2,463	1,086	0	4,119
Hollis	24	20	0	613	6	17	88	724
Holy Cross	48	29	1,993	0	27	352	0	2,372
Homer	76	73	68	1,069	30	26	22	1,216
Hoonah	162	84	0	2,921	20	51	144	3,135
Hooper Bay	193	77	1,042	0	9	3,506	5,418	4,557
Hope	3	3	4	5	0	0	0	9
Houston	6	5	4	72	0	0	0	76
Hughes	22	16	291	0	110	3,920	0	4,321
Huslia	74	19	285	0	764	4,983	0	6,032
Hydaburg	56	30	0	1,688	0	0	0	1,688
Igiugig	7	7	2	1,336	0	0	0	1,338
Iliamna	28	28	10	6,649	0	0	0	6,659
Indian	4	4	5	79	0	0	0	84
Juneau	765	688	92	7,188	123	31	136	7,570
Kake	155	131	4	3,413	85	190	41	3,733
Kaktovik	2	1	0	28	0	0	0	28
Kalskag (Upper)	65	40	2,442	603	1,288	1,559	0	5,892
Kaltag	57	19	1,685	0	138	905	10	2,728
Karluk	3	3	0	0	0	0	0	0
Kasaan	15	14	0	342	11	0	1	354
Kasigluk	129	13	1,526	336	690	906	0	3,458
Kasilof	7	7	3	29	22	0	0	54
Kenai	25	21	66	350	3	0	0	419
Kenny Lake	61	50	108	2,915	6	0	0	3,029
Ketchikan	332	288	75	3,697	11	1,159	513	5,456
Kiana	87	77	3	0	61	3,897	45	4,006
King Cove	62	54	19	4,748	2,965	448	175	8,356
King Salmon	88	67	197	4,588	135	78	126	5,124
Kipnuk	175	10	49	89	250	156	0	544
Klawock	139	103	0	3,188	43	340	97	3,667
Kobuk	28	28	3	0	6	3,087	1	3,097
Kodiak (city)	1,711	1,701	239	24,525	3,108	144	592	28,608

[continued]

Table II-2. [continued]

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Kokhanok	25	21	18	11,869	12	6	43	11,948
Koliganek	16	11	940	1,079	282	1,245	73	3,619
Kongiganak	84	37	1,478	876	551	1,587	0	4,492
Kotlik	87	42	1,148	0	593	3,029	318	4,770
Kotzebue	2	0						
Koyukuk	24	21	400	0	166	673	0	1,239
Kwethluk	164	113	6,119	2,741	2,907	3,597	0	15,364
Kwigillingok	95	2	345	70	55	160	0	630
Lake Creek	1	1	0	21	14	0	0	35
Lake Minchumina	2	1	0	0	0	0	0	0
Larsen Bay	28	28	21	958	19	0	23	1,021
Levelock	4	3	83	1,200	27	4	0	1,313
Lime Village	15	11	66	831	220	189	0	1,306
Lower Kalskag	67	51	1,918	673	295	1,225	0	4,111
Lower Tonsina	2	2	10	0	0	0	0	10
Manley Hot Springs	14	12	471	0	448	937	0	1,856
Manokotak	20	18	289	1,447	266	39	12	2,052
Marshall (Fortuna Ledge)	73	33	1,990	30	425	2,056	105	4,501
McCarthy	53	36	39	1,480	59	0	0	1,579
McGrath	133	104	500	168	1,079	254	0	2,001
Mekoryuk	79	8	3	8	126	881	0	1,018
Mentasta	5	4	24	391	27	0	0	442
Metlakatla	15	14	0	51	2	11	10	74
Meyers Chuck	1	1	0	0	0	0	0	0
Minto	40	11	64	48	23	23	0	157
Moose Pass	2	2	0	15	0	0	0	15
Mountain Village	142	59	2,362	0	521	11,594	891	14,477
Nabesna Road	4	4	1	267	0	0	0	268
Naknek	108	86	359	8,877	206	349	885	10,677
Nanwalek	25	25	52	2,968	842	95	1,277	5,234
Napakiak	85	58	2,060	1,068	1,259	1,746	0	6,133
Napaskiak	85	52	3,220	883	613	2,569	0	7,285
Naukati Bay	8	7	0	1	0	0	0	1
Nelson Lagoon	4	4	7	105	140	0	0	252
Nenana	49	32	608	648	8,906	8,280	0	18,442
New Stuyahok	49	44	3,710	1,304	709	651	340	6,714
Newhalen	32	29	105	15,565	0	0	0	15,670
Newtok	79	1	0	0	0	0	0	0
Nightmute	46	1	0	10	0	0	0	10
Nikiski	8	6	6	161	12	4	0	183

[continued]

Table II-2. [continued]

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Nikolai	40	31	510	0	156	260	0	926
Ninilchik	3	3	0	10	15	0	0	25
Noatak	105	103	10	12	518	3,997	756	5,293
Nome	877	866	168	4,081	1,909	1,141	21,272	28,571
Nondalton	41	35	0	8,789	0	0	0	8,789
Noorvik	133	125	8	3	912	6,025	443	7,391
North Pole	781	636	717	12,884	1,655	932	0	16,187
Northway	32	9	408	549	0	0	0	957
Nuiqsut	1	1	0	0	0	0	0	0
Nulato	88	28	5,199	0	203	1,444	0	6,846
Nunam Iqua (Sheldon Point)	32	21	647	0	79	2,747	32	3,473
Nunapitchuk	109	74	4,104	1,381	416	4,200	0	10,101
Old Harbor	39	39	13	574	1,001	85	531	2,204
Oscarville	13	8	998	354	306	855	0	2,513
Ouzinkie	43	43	23	1,525	514	35	168	2,265
Palmer	574	515	532	11,793	224	29	10	12,588
Paxson	6	6	10	268	0	0	0	278
Pedro Bay	22	20	0	4,803	0	0	0	4,803
Pelican	11	11	0	68	0	0	0	68
Perryville	31	22	31	1,846	1,556	179	977	4,588
Petersburg	146	144	1	1,974	366	71	24	2,437
Pilot Point	5	5	4	84	0	3	2	93
Pilot Station	95	46	2,406	0	296	6,887	5	9,591
Pitka's Point	25	20	635	0	0	747	0	1,382
Platinum	16	13	103	155	206	36	0	500
Point Baker	1	0						
Port Alexander	4	4	0	58	2	0	0	60
Port Alsworth	25	24	0	2,455	0	0	0	2,455
Port Graham	55	55	260	557	461	118	323	1,719
Port Heiden	3	3	60	80	0	0	0	140
Port Lions	49	49	43	1,519	612	3	65	2,242
Port Protection	4	4	0	86	6	9	22	123
Portage Creek	1	1	78	12	0	7	0	97
Quinhagak	147	96	3,726	1,086	1,209	1,112	0	7,133
Rampart	5	0						
Red Devil	13	11	165	97	54	103	0	419
Ruby	62	21	1,620	0	1,540	3,074	2	6,234
Russian Mission	61	25	2,337	0	151	1,056	6	3,544
Saint Marys (Andreafsky)	109	51	2,358	15	258	7,098	137	9,732
Salcha	74	65	249	1,717	38	160	0	2,164

[continued]

Table II-2. [continued]

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Sand Point	24	22	92	1,813	147	385	359	2,796
Saxman	25	14	45	400	2	50	34	530
Scammon Bay	82	31	1,008	0	54	5,139	2,508	6,272
Seldovia	17	14	97	69	16	18	65	264
Seward	16	14	4	110	0	0	0	113
Shageluk	29	19	418	0	106	1,848	0	2,372
Shaktoolik	66	55	655	8	1,385	138	5,063	7,250
Shishmaref	2	2	0	0	19	3	34	56
Shungnak	57	48	0	0	8	4,186	8	4,202
Sitka	783	748	36	18,484	28	134	273	18,955
Skagway	3	3	0	1	0	16	22	39
Skwentna	10	8	0	215	58	3	23	298
Slana	32	30	48	2,653	0	0	0	2,701
Sleetmute	30	23	618	604	325	863	0	2,410
Soldotna	34	33	6	143	0	0	0	149
Sourdough	1	1	0	93	0	0	0	93
South Naknek	34	33	337	2,320	210	10	19	2,896
Sterling	2	2	0	0	0	0	0	0
Stevens Village	30	14	2,476	0	103	1,229	0	3,808
Stony River	18	16	621	804	612	670	0	2,707
Sutton	33	25	8	743	16	0	0	766
Takotna	19	19	16	0	51	0	0	67
Talkeetna	15	14	2	248	0	0	0	250
Tanacross	3	0						
Tanana	90	45	2,689	0	1,049	24,608	0	28,346
Tatitlek	19	14	8	379	355	23	99	864
Tazlina	28	20	186	2,257	0	0	0	2,443
Telida	2	1	0	0	200	0	0	200
Teller	46	45	90	1,938	376	1,170	2,509	6,083
Tenakee Springs	7	7	0	57	1	2	1	61
Thorne Bay	79	77	3	589	26	0	9	627
Togiak	44	38	1,094	1,770	204	383	108	3,559
Tok	85	76	104	5,124	2	16	0	5,247
Toksook Bay	115	70	327	359	661	938	0	2,285
Tonsina	6	4	13	151	0	0	0	164
Trapper Creek	2	2	0	45	0	0	0	45
Tuluksak	81	58	3,117	1,397	870	2,017	0	7,401
Tuntutuliak	82	66	3,402	1,446	1,205	2,262	0	8,315
Tununak	104	5	5	10	40	0	0	55
Two Rivers	21	19	9	326	4	0	0	339

[continued]

Table II-2. [continued]

Community	Households / Permits		Estimated Salmon Harvest					
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	Total Salmon
Tyonek	75	57	1,154	75	120	0	0	1,349
Uganik Bay	1	1	3	0	0	0	0	3
Ugashik	9	8	46	495	224	5	1	771
Unalakleet	245	200	1,868	303	4,600	1,797	15,557	24,125
Unalaska	109	89	2	2,615	642	18	311	3,589
Valdez	263	228	214	6,391	179	5	6	6,795
Venetie	35	24	363	0	5	2,159	0	2,527
Wainwright	1	1	1	29	0	0	0	30
Ward Cove	2	2	0	2	0	0	0	2
Wasilla	828	708	765	17,271	464	10	7	18,517
Whale Pass	3	1	0	0	0	0	0	0
White Mountain	55	55	21	6	318	404	6,941	7,690
Whittier	3	3	0	15	0	0	0	15
Willow	41	38	28	555	1	0	4	588
Wiseman	1	0						
Wrangell	103	99	33	1,053	5	165	46	1,303
Yakutat	118	93	1,104	4,642	1,019	33	57	6,855
Other USA	25	23	5	240	3	0	0	248
Unknown Community	39	39	10	692	2	0	0	704
Totals	27,046	20,923	176,416	453,201	103,772	241,022	92,281	1,066,692

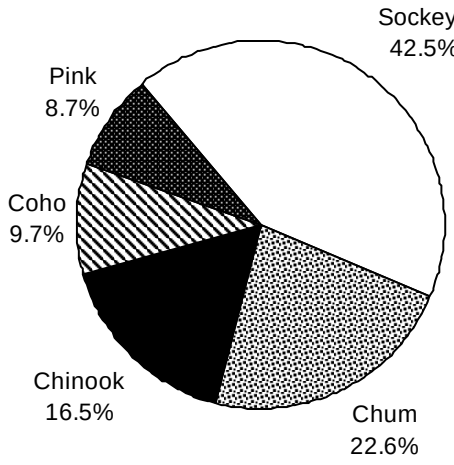
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table II-3. Historic Alaska Subsistence and Personal Use Salmon Harvests, 1994-2004.

	Households / Permits		Estimated Salmon Harvest					
Year	Total	Included	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
5-Year Average	26,113	20,420	157,419	436,297	102,362	240,245	68,835	1,005,158
10-Year Average	25,902	20,366	165,602	448,683	104,866	318,883	62,902	1,100,936
All Years Average	25,597	20,014	167,650	448,358	107,887	327,821	65,772	1,117,488

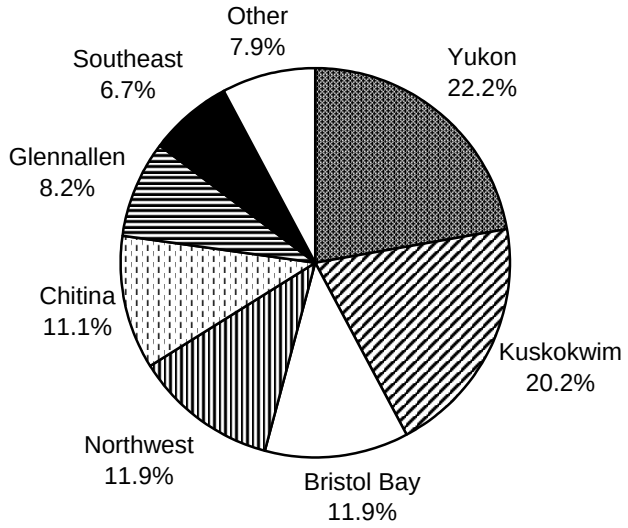
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Figure II-2. Alaska Subsistence Salmon Harvest by Species, 2004



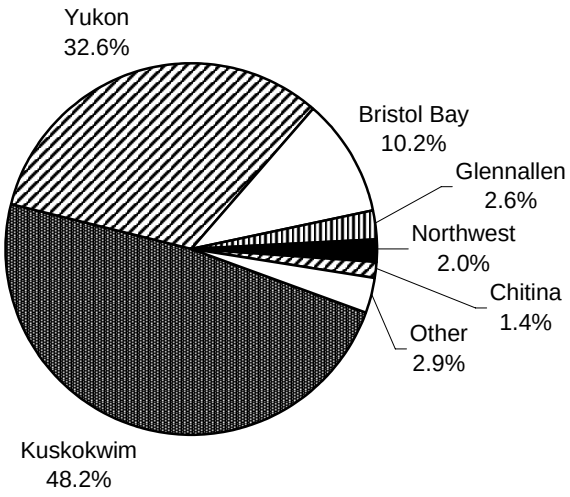
Total salmon = 1,066,692

Figure II-3. Alaska Subsistence Salmon Harvest by Area, 2004



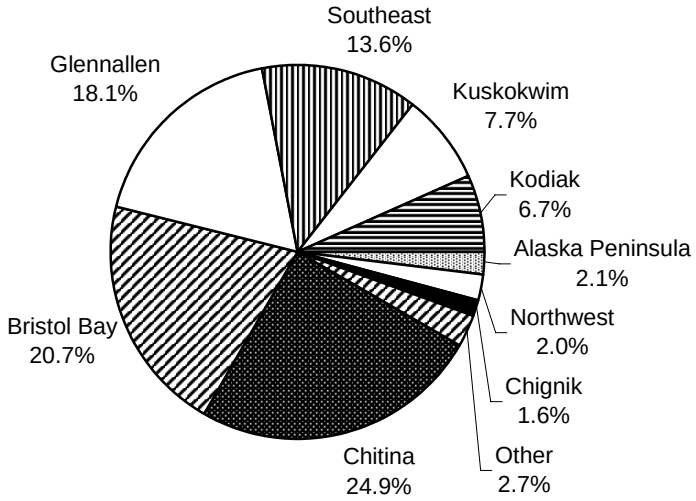
Total salmon = 1,066,692

Figure II-4. Subsistence Chinook Salmon Harvest by Area, 2004



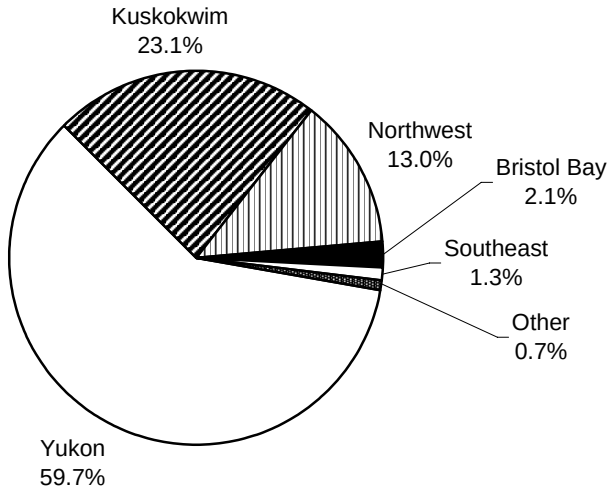
Total chinook salmon = 176,416

Figure II-5. Subsistence Sockeye Salmon Harvest by Area, 2004



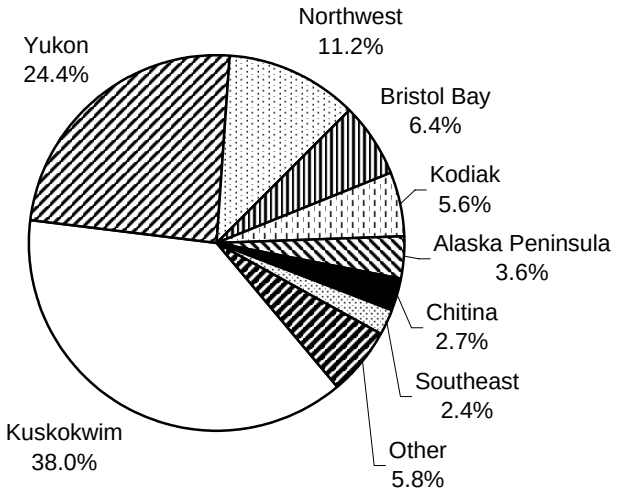
Total sockeye salmon = 453,201

Figure II-6. Subsistence Chum Salmon Harvest by Area, 2004



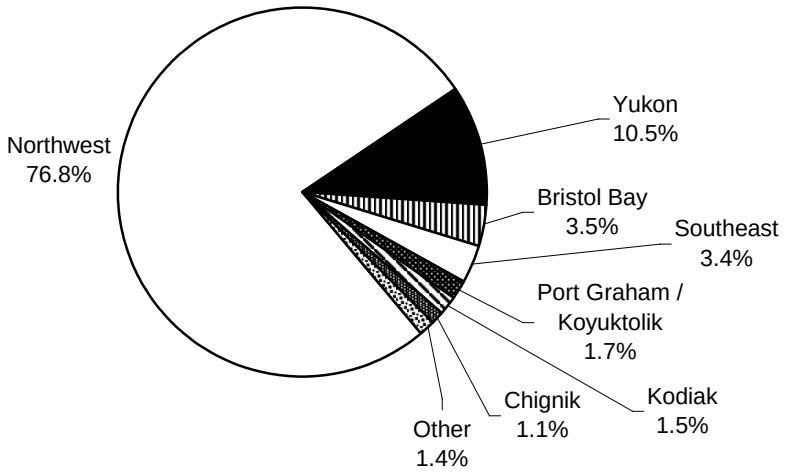
Total chum salmon = 241,022

Figure II-7. Subsistence Coho Salmon Harvest by Area, 2004



Total coho salmon = 103,772

Figure II-8. Subsistence Pink Salmon Harvest by Area, 2004



Total pink salmon = 92,281

III. NORTHWEST ALASKA

NORTON SOUND-PORT CLARENCE AREA SALMON

Background

Subsistence salmon fishing has been a major feature of life in northwest Alaska for centuries. In the early twenty-first century, most local residents in the region continue to participate in a mixed subsistence-cash economy, depending on local 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 catch schooling or spawning salmon and other species of fish. The major portion of fish taken during the summer months is air dried or smoked for later consumption by local residents. Chum, pink, and coho salmon are found throughout the Norton Sound and Port Clarence districts, with chinook salmon more common in eastern and southern Norton Sound and sockeye salmon more common in Port Clarence drainages.

Regulations

In most of the Port Clarence District, subsistence salmon fishing has few restrictions other than the general statewide provisions. Salmon may be taken in most areas at any time with no harvest limits and no required permits. The exception to this is the Pilgrim River drainage including Salmon Lake where permits are required, harvests are limited, and specified areas are closed to subsistence salmon fishing.

The Norton Sound District has considerably more complex regulations, particularly in Subdistricts 1 (Nome) and 6 (Unalakleet), where restrictions exist on gear, fishing periods, and areas opened to fishing. In Subdistrict 1, chum salmon runs have been depressed for approximately 20 years. Upstream portions of most rivers are closed to protect spawning salmon, and harvests are limited in all subdistrict rivers. In regulation, subsistence fishing in fresh water is open during two 48-hour periods each week, but during the past 15 years subsistence fishing has been regulated primarily by emergency order, and openings have been much less frequent than in regulation. Fishing periods in marine waters are also limited. Since 1999, chum salmon fishing in Subdistrict 1 has been managed on a Tier II system, the only such fishery in the state.[6] In 2004, 78 Tier II permits were issued. In Subdistrict 6, subsistence fishing is closed one day a week through July 15 to ensure adequate Chinook salmon escapement. In Subdistricts 2-5, salmon may be taken at any time with no harvest limits. However, restrictions exist on commercial fishers' participation in subsistence salmon fishing.

[6] A "Tier II" subsistence permit system 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 use of the particular resource and availability of alternative resources; those with the highest scores receive Tier II permits.

In 2001, a regulatory change by the Board of Fisheries made rod-and-reel a legal subsistence fishing gear type in the area from Cape Espenberg on the northern Seward Peninsula to Bald Head between Elim and Koyuk. This includes most of the subsistence fishing areas used by residents of Elim, Golovin, White Mountain, Nome, Teller, Brevig Mission, Wales, and Shishmaref. Sport fish 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 in the permit apply.

Subsistence Salmon Harvest Collection Methods

Two methods were used to assess subsistence salmon harvests in the Norton Sound and Port Clarence Districts in 2004: 1) fishing permits in Subdistrict 1 (Nome), the Cape Woolley area, and the Salmon Lake-Pilgrim River drainage, and 2) post-season household surveys in 2 communities, Unalakleet and Shaktoolik.

Norton Sound Subdistrict 1 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 also were 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 are more suitable for drying salmon. Tier I fishing permits were available to all other households when run strength was determined to be adequate. In 2004, 639 permits (561 Tier I and 78 Tier II permits) were issued for Subdistrict 1, 490 (76.7%) of which were returned to the department.

Subsistence fishing permits were also issued for the Cape Woolley area, a traditional fishing area for King Island households, many of whom now live in Nome. 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 2004, 15 permits were issued for the Cape Woolley area, all of which were returned to the department.

Since 1998, the Nome permit data have not been expanded to account for households whose permits were not returned. This contrasted with earlier years when permit data were expanded by drainage with expansion factors based upon the fraction of unreturned permits for that drainage. Department 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.

Salmon Lake and Pilgrim River Fishing Permits

Permits were required for subsistence salmon fishing in Salmon Lake and the Pilgrim River drainage in the Port Clarence District. In 2004, 242 households requested permits for this area, 223 (92.1 percent) of which were returned to the department. In the Port Clarence subdistrict 153 households requested permits, of which 148 (96.7 percent) were returned.

Household Surveys

In the Norton Sound and Port Clarence districts, household surveys were jointly conducted by Kawerak, Inc., and ADF&G in Shaktoolik and Unalakleet. Kawerak obtained approval for the research from tribal councils in the study communities and hired a local resident in each community to assist ADF&G staff with the surveys. Researchers attempted to contact 100 percent of the households in each of the surveyed communities. Actual sample rates ranged from 81.6 percent in Unalakleet, where 200 of the 245 households were surveyed, to 83.3 percent in Shaktoolik, where 55 of the 66 households were surveyed. The salmon survey data were expanded by community to account for the households not contacted.

The goals of the post-season household survey were to:

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

2004 Subsistence Salmon Harvests

Norton Sound District Subsistence Salmon Harvest

The estimated 2004 subsistence harvest of salmon by study communities in the Norton Sound District was 76,770 fish (Table III-1, Table III-2). This was lower than the 2003 harvest, but higher than the 1999 and 2001 harvests (Table III-3). Chinook, chum, and coho salmon returns were generally below average in 2004. Pink salmon returns were highly variable in the district (Table III-2), with some rivers having very high returns and some very low returns when compared to the historical averages (Menard 2003a). Of the total salmon harvest, 4 percent were chinook, 4 percent were chum, 81 percent were pink, and 11 percent were coho (Figure III-1). Only 363 Sockeye were harvested in the Norton Sound District in 2004. Very little of the documented subsistence salmon harvest was taken by residents from outside the district (Table III-3). Combined harvest estimates for the Norton Sound District, Port Clarence District, and Kotzebue Area for the period 1975-2004 are presented in Table III-4. However, the methodology used in determining harvests prior to 1994 is substantially different from that used since 1994, and as a consequence the data are not directly comparable.

In Nome, the 2004 Tier II subsistence salmon harvest as reported on Subdistrict 1 permits was 5,095 fish. The permits document only a portion of Nome's actual salmon harvest because some Nome residents fish in areas (e.g., Teller and Niukluk River) or with gear (i.e., rod and reel) not requiring permits. Kawerak, Inc. and the Alaska Department of Fish and Game jointly conducted a study in 2001 to estimate Nome's total subsistence salmon harvest, including the portion not documented by permits. Results indicated that Nome residents harvested an estimated total of 6,138 salmon in 2001, 47 percent of which were taken outside the Nome permit areas, primarily in the Port Clarence and White Mountain-Golovin areas.

Nets accounted for 78 percent of Nome's total estimated salmon harvest, and rod-and-reel accounted for 22 percent (Magdanz, Tahbone, Kamletz, and Ahmasuk 2003).

Port Clarence District Subsistence Salmon Harvest

The estimated 2004 subsistence harvest of salmon by the two communities in the Port Clarence District was 18,520 fish (Table III-1, Table III-2). This was the highest harvest since 1994 (Table III-2). Of the total harvest, 2 percent were chinook, 14 percent were chum, 32 percent were pink, 35 percent were sockeye, and 6 percent were coho (total does not equal 100 percent due to rounding error) (Figure III-1). The estimated mean harvest in the Port Clarence District was 50 salmon per household; the estimated breakdown of this harvest was 1 chinook, 7 chum, 16 pink, 24 sockeye, and 3 coho (these exceed the total due to rounding error). Although the harvest was greater in 2004 than in 2003, there were 129 more households participating in 2004 than there were in 2003 (Table III-2).

KOTZEBUE AREA SALMON

Background

Kotzebue Sound residents have relied on fish for cultural and nutritional sustenance for thousands of years. Most local residents in the region continue to participate in a mixed subsistence-cash economy, harvesting a wide variety of wild foods. In the Kotzebue Area, salmon's role in the wild food diet varies from community to community, affected primarily by salmon abundance. Along the Noatak and Kobuk rivers, where runs of chum salmon are strong, many households' activities in middle and late summer revolve around the catching, drying, and storing of salmon for use during the winter. Chum salmon predominate in the district, with small numbers of other salmon species present.

Regulations

In the Kotzebue Area, subsistence salmon fishing has few restrictions other than the general statewide provisions. 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.

Household Surveys

In the Kotzebue Area, household surveys were conducted in six communities Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak. The communities of Wales, Diomede, Shishmaref, Deering, Buckland, Selawik, Kivalina, and Point Hope are not routinely surveyed due to little availability of salmon, the lack of competing commercial salmon uses, or limited staff time and funding. Researchers attempted to contact 100 percent of the households in each of the surveyed communities. Actual sample rates ranged from 84 percent of households in Shungnak to 100 percent of households in Kobuk. Overall, 93 percent of the households in

the surveyed communities were interviewed. The salmon survey data were expanded by community to account for the households not contacted.

The goals of the post-season household survey were to:

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

2004 Subsistence Salmon Harvests

Kotzebue Area Subsistence Salmon Harvest

The 2004 subsistence salmon harvest in the 6 surveyed communities in the Kotzebue Area was 26,181 fish, nearly all of which were chum salmon (Table III-1, Table III-2, Figure III-1). For the same communities, this was the third lowest harvest in the past 10 years.

The estimated mean salmon harvest was about 50 salmon per household, nearly all of which were chum. Mean household harvests ranged from 110 salmon in Kobuk to 51 salmon in Noatak.

Salmon Removed from Commercial Catch

In the Kotzebue Area, 0.5 percent of the surveyed households reported removing salmon from commercial catches for subsistence use. An estimated total of 50 salmon were retained from commercial catches for subsistence use. Only two households in the Kotzebue Area are estimated to have retained commercially caught salmon.

Gear Type

Among surveyed households in the Kotzebue Area, seines and gillnets accounted for 97 percent of the subsistence salmon harvest and rod and reel for 3 percent of the harvest. In Noatak, 9 percent of the salmon harvest was taken with rod and reel, and in Ambler, 5 percent was taken with rod and reel. In the remaining study communities, 1 percent or less of the subsistence salmon harvest was taken with rod and reel.

Salmon for Dog Food

In the Kotzebue Area, an estimated 4,049 salmon were harvested specifically for dog food in the surveyed communities in 2004. Overall, 4 percent of surveyed households in the Kotzebue Area caught salmon for dog food. At 32 percent, Kobuk had the highest percentage of households harvesting salmon for dogs. In all other Kotzebue Area communities, this figure was 6 percent or lower.

Assessment of Fishing Season

In the Kotzebue Area, 9 percent of fishing households responded that their chum fishing season was "poor" in 2004, 39 percent said "average," and 53 percent said "good." This represents a considerable improvement over the previous year, about which several Kotzebue fishers informally commented that 2003 was the worst salmon season in memory in the local area.

KOTZEBUE AREA SHEEFISH, WHITEFISH, AND CHAR

Background

In addition to salmon, major subsistence fisheries take place in northwest Alaska for sheefish, whitefish, and char (Dolly Varden). 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.

Harvest Collection Methods

Household surveys were conducted in Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak. The household surveys primarily collected subsistence salmon harvest information but also asked about harvests of sheefish, whitefish, and char. Researchers attempted to contact 100 percent of the households in each of the surveyed communities. Overall, 93 percent of the households in the surveyed communities were interviewed. The survey data were expanded by community to account for the households not contacted.

2004 Sheefish, Whitefish, and Char Harvests

In 2004 an estimated 10,835 sheefish were harvested for subsistence, with the largest harvests in Ambler, Noorvik and Shungnak (Table III-5). The 2004 harvest was the largest recorded harvest in the past ten years. Mean household harvests ranged from .7 sheefish in Noatak to 43.5 in Shungnak.

In 2004, the surveyed communities in the Kotzebue Area harvested an estimated 50,501 whitefish for subsistence (Table III-5). This harvest was comparable to the 1999 harvest when the same communities were surveyed. Mean household harvests ranged from 69 whitefish in Kiana to 205 in Shungnak.

In 2004, Noatak and the Kobuk River communities (including Kobuk) harvested an estimated 11,697 char (Dolly Varden) for subsistence (Table III-5). This was the second year of this project that char harvests have been recorded for the Kobuk River communities. About 93 percent of the 2004 char harvest was taken by Noatak, one of the communities most dependent on char in the region.

Table III-1. Subsistence Salmon Harvests by District, Northwest Alaska, 2004.

	Included	Estimated Salmon Harvests [1]					
	Households	Chinook	Chum	Pink	Sockeye	Coho	Total
Norton Sound District [2]	1,003	3,169	3,200	61,813	363	8,225	76,770
Port Clarence District [3]	371	278	2,505	5,918	8,688	1,131	18,520
Kotzebue Area [4]	440	54	23,348	1,259	18	1,502	26,181
Totals	**1,814**	**3,501**	**29,053**	**68,990**	**9,069**	**10,858**	**121,471**

[1] Harvests reported during household surveys are expanded into estimates to account for uncontacted households. Harvests reported on returned permits are not expanded.

[2] Household surveys conducted in Unalakleet and Shaktoolik; permits issued for Cape Woolley, Nome Subdistrict (Tier I and Tier II), Golovin Subdistrict, and Elim Subdistrict.

[3] Permits issued for Port Clarence Subdistrict and Pilgrim River.

[4] Household surveys conducted in Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak.

Table III-2. Historic Subsistence Salmon Harvests by District, Northwest Alaska, 1994-2004.

Norton Sound District

	Number of Households	Chinook	Chum	Pink	Sockeye	Coho	Total
1994	839	7,212	24,776	70,821	1,161	22,108	126,077
1995	851	7,766	43,014	38,594	1,222	23,015	113,612
1996	858	7,255	34,585	64,724	1,182	26,304	134,050
1997[1]	1,113	8,998	26,803	27,200	1,892	16,476	81,370
1998[1]	1,184	8,295	20,032	51,933	1,214	19,007	100,480
1999	898	6,144	19,398	20,017	1,177	14,342	61,078
2000	860	4,149	17,283	38,308	682	17,062	77,485
2001	878	5,576	20,213	30,261	767	14,550	71,367
2002	935	5,469	17,817	64,354	763	15,086	103,490
2003	940	5,290	13,913	49,674	801	14,105	83,782
2004	1,003	3,169	3,200	61,813	363	8,225	76,770

Port Clarence District

	Number of Households	Chinook	Chum	Pink	Sockeye	Coho	Total
1994	151	203	2,294	4,309	2,220	1,892	10,918
1995	151	76	6,011	3,293	4,481	1,739	15,600
1996	132	194	4,707	2,236	2,634	1,258	11,029
1997	163	158	2,099	755	3,177	829	7,019
1998	157	289	2,621	7,815	1,696	1,759	14,179
1999	177	89	1,936	786	2,392	1,030	6,233
2000	163	72	1,275	1,387	2,851	935	6,521
2001	160	84	1,910	1,183	3,692	1,299	8,167
2002	176	133	2,699	3,394	3,732	2,194	12,152
2003	242	176	2,425	4,108	4,436	1,434	12,578
2004	371	278	2,505	5,918	8,688	1,131	18,520

Kotzebue Area[2]

	Number of Households	Chinook	Chum	Pink	Sockeye	Coho	Total
1994[3]	557	135	48,175	3,579	33	478	52,400
1995[4]	1,327	228	102,880	2,059	935	2,560	108,662
1996	1,187	550	99,740	951	471	317	102,029
1997	1,122	464	57,906	1,181	528	848	60,925
1998	1,279	383	48,979	2,116	392	461	52,330
1999	1,277	9	94,342	841	478	1,334	97,004
2000	1,227	211	65,975	75	75	2,557	68,893
2001[5]	1,149	11	49,014	36	14	768	49,844
2002[6]	216	3	16,880	8	9	56	16,955
2003[7]	488	40	19,201	583	53	1,042	20,918
2004[7]	440	54	23,348	1,259	18	1,502	26,181

[1] Includes Gambell and Savoonga.

[2] Normally includes Ambler, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, and Shungnak.

[3] Includes Deering and Wales; doesn't include Kotzebue.

[4] Includes Shishmaref.

[5] Does not include Ambler.

[6] Includes only Noatak and Noorvik.

[7] Does not include Kotzebue.

Table III-3. Subsistence Salmon Harvests by Community, Northwest Alaska, 2004.

COMMUNITY[2]	HOUSEHOLDS / PERMITS		ESTIMATED SALMON HARVEST[1]					
	TOTAL	INCLUDED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Ambler	63	60	33	3	24	3,446	6	3,512
Anchorage	4	4	2	0	0	10	372	384
Bethel	1	1	0	0	0	0	0	0
Brevig Mission	41	41	120	2,763	682	1,132	2,860	7,557
Delta Junction	2	0						
Elim	58	58	410	0	704	663	7,207	8,984
Fairbanks	5	5	0	0	0	0	73	73
Golovin	43	43	143	45	98	290	7,694	8,270
Haines	1	1	0	0	0	0	0	0
Kiana	87	77	3	0	61	3,897	45	4,006
Kobuk	28	28	3	0	6	3,087	1	3,097
Noatak	105	103	10	12	518	3,997	756	5,293
Nome	874	864	168	4,078	1,874	1,141	21,272	28,533
Noorvik	133	125	8	3	912	6,025	443	7,391
Shaktoolik	66	55	655	8	1,385	138	5,063	7,250
Shishmaref	2	2	0	0	19	3	34	56
Shungnak	56	47	0	0	8	4,186	8	4,202
Teller	46	45	90	1,938	376	1,170	2,509	6,083
Unalakleet	245	200	1,868	303	4,600	1,797	15,557	24,125
White Mountain	55	55	21	6	318	404	6,941	7,690
Totals	1,915	1,814	3,534	9,159	11,585	31,386	70,841	126,506

[1] Includes subsistence harvests, commercial harvests retained for home use, and fish distributed from Alaska Department of Fish and Game test fisheries.

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

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table III-4. Historic Subsistence Salmon Harvests, Northwest Alaska, 1975-2004.

	HOUSEHOLDS / PERMITS		ESTIMATED SALMON HARVEST[1]					
YEAR	TOTAL	INCLUDED	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[2]	1,547	1,169	7,713	3,414	24,494	75,489	78,954	190,063
1995[3]	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[4]	2,398	1,645	9,620	5,597	18,153	86,808	29,135	149,314
1998[4]	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[5]	2,192	1,259	5,671	4,473	16,617	71,138	31,480	129,378
2002[6]	1,327	1,204	5,624	4,504	17,838	37,396	67,756	133,119
2003[7]	1,670	1,488	5,505	5,289	16,580	35,540	54,365	117,279
2004[7]	1,915	1,814	3,534	9,159	11,585	31,386	70,841	126,506
5-Year Average	1,870	1,420	4,947	5,407	16,655	51,931	52,988	131,928
10-Year Average	2,123	1,468	6,563	5,091	19,455	82,471	48,944	162,524
All Years Average	882	626	2,502	1,868	8,025	33,378	23,394	69,168

[1] Includes selected communities in the Norton Sound District, Port Clarence District, and Kotzebue Area.

[2] Beginning in 1994, ADF&G initiated a new annual subsistence salmon harvest assessment effort in northwest Alaska that provided more extensive, complete, and reliable estimates than existed previously. Harvest estimates prior to 1994 cannot be directly compared to those after 1994. Communities routinely included in harvest estimates since 1994 are all the communities in the Norton Sound and Port Clarence districts except Gambell and Savoonga, and 7 communities (Ambler, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, and Shungnak) in the Kotzebue Area. However, the communities actually surveyed vary from year to year.

[3] Includes Shishmaref.

[4] Includes Gambell and Savoonga.

[5] Does not include Ambler.

[6] For the Kotzebue Area, includes only Noatak and Noorvik.

[7] Does not include Kotzebue.

SOURCE: Alaska Dept. of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table III-5. Sheefish, Whitefish, and Char/Trout Harvests by Community, Kotzebue Area, 2004.

	Total	Estimated Harvest[1]		
	Households	Sheefish	Whitefish	Char/Trout
Ambler	63	2,416	5,868	106
Kiana	87	1,840	6,041	117
Kobuk	28	1,218	5,302	20
Noatak	105	72	8,510	10,914
Noorvik	133	2,873	13,287	435
Shungnak	56	2,416	11,493	106
Total	**472**	**10,835**	**50,501**	**11,697**

[1] Each community's reported harvests are expanded into harvest estimates by strata prior to summing into totals. However, if fewer than 30 or less than 50 percent (whichever is lower) of the households in a community were contacted, the reported harvest is not expanded.

Table III-6. Sheefish, Whitefish, and Char/Trout Harvests, Kotzebue Area, 1995-2004.

	Sheefish[1]		Whitefish[2]		Char/Trout[3]	
	Total Households	Number of Fish	Total Households	Number of Fish	Total Households	Number of Fish
1995	385	9,465	*	*	92	5,762
1996	389	6,953	*	*	88	5,692
1997	398	9,805	482	84,851	84	4,763
1998	392	5,350	489	39,754	97	3,872
1999	445	8,256	445	56,326	*	*
2000	448	7,446	448	70,097	102	3,315
2001[4]	267	3,838	363	30,976	96	2,702
2002[5]	115	4,310	216	25,607	101	3,242
2003[6]	488	7,813	488	73,242	454	6,386
2004	472	10,835	472	50,501	472	11,697

* Data not collected.

[1] Normally includes Noorvik, Kiana, Ambler, Shungnak, and Kobuk.

[2] Normally includes Noorvik, Kiana, Ambler, Shungnak, Kobuk, and Noatak.

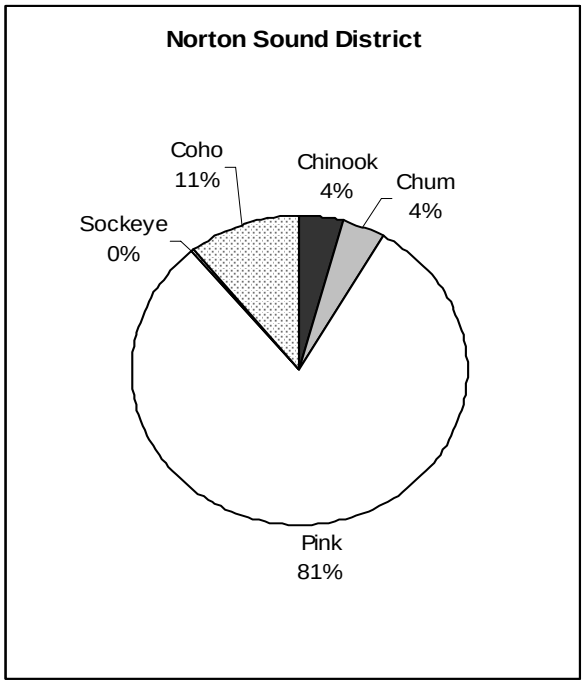
[3] Includes Noatak.

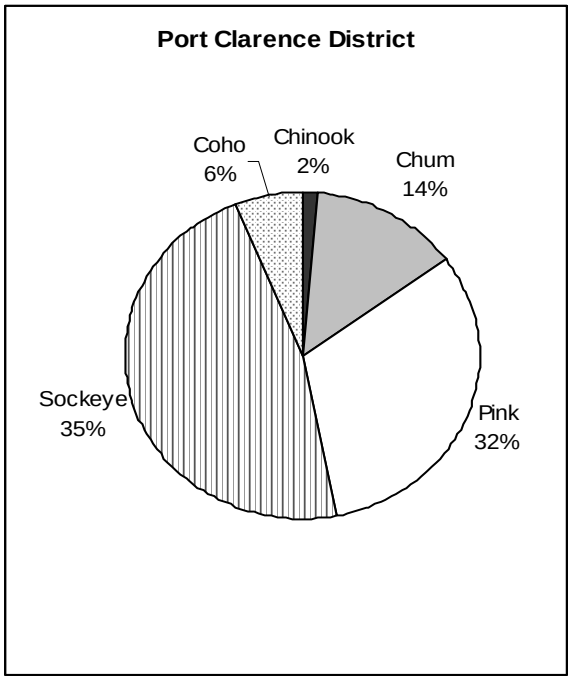
[4] Does not include Ambler.

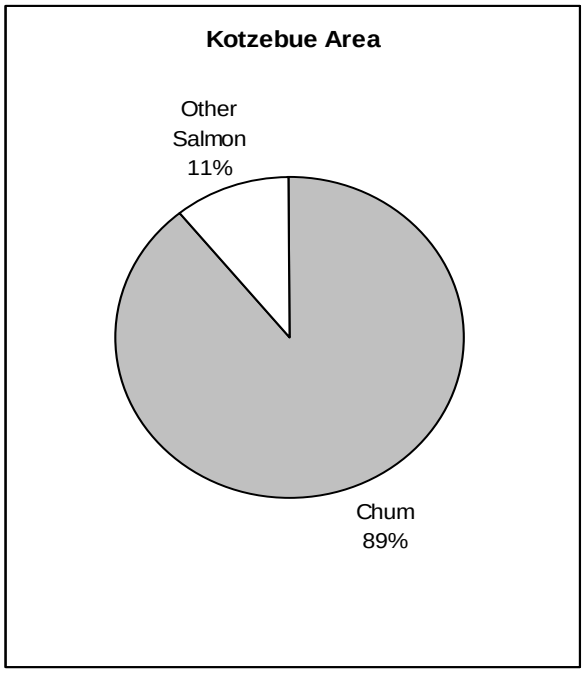
[5] Includes only Noorvik for sheefish, and Noorvik and Noatak for whitefish.

[6] Sheefish includes Noatak, Noorvik, Kiana, Ambler, Shungnak, and Kobuk. Char includes all these except Kobuk.

Figure III-1. Species composition of subsistence salmon harvests by district, Northwest Alaska, 2004.







IV: YUKON AREA

BACKGROUND

Residents of the Yukon River area have long relied upon fish for human food and other subsistence uses. While non-salmon fish species provide an important component of the overall fish harvest (Andersen et al., 2004; Brown et al., 2005), salmon comprises the bulk of the fish harvested for subsistence. Chinook, summer chum, fall chum, and coho salmon comprise the majority of the subsistence salmon harvests in the Yukon River drainage, and the number of salmon harvested for subsistence in this region is significant. Unlike many marine and coastal fisheries where commercial harvests predominate, within the Yukon drainage, subsistence salmon harvests 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, 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 18 miles below Galena). Fish wheels are a legal subsistence or non-commercial gear type throughout the Yukon drainage, although due to river conditions and the availability of wood, they are most commonly used on the upper Yukon and Tanana Rivers.

Depending on the area of the drainage and run timing of different salmon species, subsistence fishing occurs from late May through early October. Fishing activities are either based from a fish camp or from the home village: 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 use. (For more detail on subsistence uses of Yukon River salmon, see the three articles on this topic in the Division of Subsistence "Wildlife Use Notebook Series" [ADF&G n.d.a, n.d.b, n.d.c]).

The majority of the subsistence salmon harvest is preserved for later use by freezing, drying, or smoking, while the head, cutting 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 presence of the fungus *Ichthyophonous hoferi* or some other disease or disfigurement) are often 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 and coho salmon typically arrive in the upper portion of the drainage late in the season, coincident with freezing weather, allowing fish to be "cribbed" for use as dog food. This method involves the natural freezing of whole (un-cut) fish. The practice of keeping sled dogs is much more common in communities along the upper Yukon River.

REGULATIONS

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

Over the last decade, several regulatory changes have affected the subsistence salmon fishery on the Yukon River drainage. In 1993 the Alaska Board of Fisheries 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 4-A) (Figure IV-1). In these areas, subsistence salmon fishing is allowed seven 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 4-B and 4-C) and in Subdistricts 5-A, 5-B and 5-C, 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 5-D, subsistence salmon fishing is allowed 7 days per week, regardless of commercial activities. Since 1994, with the exception of 1998[7], the subsistence salmon fishing schedule in Subdistrict 5-A allows subsistence salmon fishing five days per week following the closure of the commercial salmon fishing season. Since 1988, subsistence fishing in the lower Tanana River drainage in Subdistricts 6-A and 6-B is allowed for two 42-hour periods per week unless altered by emergency order.[8] In the Upper Tanana River drainage, upstream of the Volkmar (north bank) and Johnson Rivers (south bank)[9], subsistence fishing is allowed seven days per week.

Subsistence restrictions have occurred during the fall season in 1993, 1998, 2001, and 2002, with complete closure occurring in 2000. In 2000, for the first time in history, restrictions

[7] In 1998, the Alaska Board of Fisheries relaxed restrictive elements of the Toklat River Fall Chum Salmon Rebuilding Management Plan and allowed Subdistrict 5-A to subsistence salmon fish seven 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 5-A was reduced during the 1999 season.

[8] In the lower Tanana River drainage, Subdistrict 6-C is a personal use salmon fishery. Its regulations match those of the 6-A and 6-B subsistence salmon fishery; namely, that personal use fishing is allowed for two 42-hour periods per week unless altered by emergency order.

[9] Salmon fishing is closed in that portion of the Tanana River drainage upstream of Subdistrict 6-C, from Salcha River upstream to the Volkmar River (north bank) and to the Johnson River (south bank). The area is closed to salmon fishing and is included in the Fairbanks Non Subsistence Area.

were imposed on the summer portion of the subsistence salmon fishery to protect chinook and summer chum salmon populations. Because of several years' inability to maintain expected yields and harvestable surpluses above escapement needs, the Alaska Board of Fisheries (BOF) classified Yukon River chinook salmon stock as a stock of 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 in 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 was based on past fishing schedules, is believed to provide reasonable opportunity for subsistence users to meet their needs when salmon runs are below average, and is implemented chronologically up river. The schedule directs subsistence fishing as follows:

Geographic Area/District	Opening	Schedule to begin
Coastal District	7 days/week	by regulation
District 1	two 36-hour periods	May 31, 2004
District 2	two 36-hour periods	June 2, 2004
District 3	two 36-hour periods	June 8, 2004
District 4	two 48-hour periods	June 13-14, 2004 (depending on sub-district)
Subdistrict 5-A	two 42-hour periods	June 22, 2004
Subdistricts 5-B, C	two 48-hour periods	June 22, 2004
Subdistrict 5-D	7 days/week	by regulation
District 6	two 42-hour periods	by regulation
Koyukuk River	7 days/week	by regulation

Subsistence fishing is allowed seven days per week in all areas prior to the established schedule dates. 2004 marks the fourth year of implementing the window schedule. Early run assessment projects indicated enough salmon to allow for a small commercial harvest. Once commercial fishing was opened, the subsistence schedule reverted to the pre-2001 fishing schedule—seven days a week, 24 hours a day, except for 18 hours prior to, during, and 12 hours after commercial openings. Thus, in 2004, just as in 2003, the windows schedule was relaxed for most parts of the river for at least a portion of the summer season (Lingnau and Salomone 2004).

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 out prior to fishing activities,

post-season household interviews, post-season telephone interviews, and postcards. In road-accessible portions of the Yukon Area, including the majority of the Tanana River drainage (Subdistricts 6-A, 6-B 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 5-D between the upstream mouth of Twenty-two Mile Slough and the U.S. Canada border, 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. These last two areas are new regulations fro 2004. In these areas, fishers are required to 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 out 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 contain the months of June through October. Additional calendars are mailed to those households for which fishing activity in 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 catch of salmon by species. Calendars can be mailed back to ADF&G in postage paid envelopes, or surveyors who travel through villages following the completion of salmon fishing activities pick them up. Posters sent to village post offices and announcements on local radio stations remind fishers to have their calendars available for pick up by surveyors. In 2004, the Department distributed calendars to all households identified as participating in some level of fishing; households previously identified as non-fishing households did not receive calendars. An estimated 834 calendars were sent to Lower Yukon households, and 523 calendars were sent to Upper River households. About 20 percent of these (274) were either returned to the department by mail or picked up by surveyors during their fall surveys. Calendars provide additional run timing information for most Yukon Area communities that is not obtained by any other data collection method.

In addition to the catch calendars, ADF&G's Division of Commercial Fisheries personnel conduct post-season personal 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), pike, whitefish, and sheefish. Some households that are not personally contacted by the surveyors are contacted by telephone. Those households not contacted by telephone are mailed a survey questionnaire including a postage paid return envelope.

In road-accessible portions of the Yukon River drainage (see area description above), a subsistence permit is required. Subsistence fishers record their salmon catches on a household permit and return the permit at the end of the season. Subsistence permit applications are mailed to all permittees who return the prior year's permit. Subsistence permit applications are mailed to rural communities along with a letter explaining 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. Fishers are required to keep a record of their daily fish harvest on

their permit and return it to the department within ten days of the expiration date on the permit. Permit holders who do not send in their information are sent up to two 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 6-B (the Tanana River drainage above a point three miles upstream of Totchaket Slough to the boundary with 6-C) and the personal use fishers in Subdistrict 6-C 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 462 subsistence and personal use permits were issued in 2004, and 430 (93 percent) were returned (Busher, Hamazaki and Marsh, forthcoming).

In 2004, 1055 households were interviewed concerning their subsistence salmon harvests and 362 subsistence and 68 personal use permits were returned. Based on these different methods of collecting harvest data, it was estimated that approximately 1,444 of the 2,274 Yukon Area households (64 percent) participated in subsistence and personal use fishing in 2004 (Busher, Hamazaki and Marsh, forthcoming).

SUBSISTENCE SALMON HARVESTS IN 2004

In 2004, 1,055 households (46 percent of the total households in Districts 1-5), 362 subsistence permit holders (93 percent of the 391 issued), and 68 personal use permit holders (96 percent of the 71 issued) provided harvest data for the Yukon Area subsistence/personal use salmon fishery (Busher, Hamazaki and Marsh, forthcoming). The estimated 2004 subsistence/personal use salmon harvest for the entire Yukon area broken down by species included 57,549 chinook (24 percent), 79,411 summer chum (34 percent), 64,562 fall chum (27 percent), 25,286 coho (11 percent), and 9,697 pink salmon (4 percent) for a total of 236,506 salmon (Table IV-1; Figure IV-2). (Note that this is an estimated total based on household surveys and returned permits, and it includes subsistence harvests, personal use harvests, commercial harvests retained for home use, and fish distributed from ADF&G test fisheries.) Since the disastrous harvest levels in 2000 (152,300 total salmon), subsistence salmon harvests of all species have slowly but unsteadily increased to 2004 levels, with the exception of summer chum salmon when 2004 harvest estimates fell just below 2003 estimates. The 2004 estimates registered above the recent five-year averages for all species, except summer chum and pink salmon. Nonetheless, summer chum and fall chum salmon averages still show considerable declines compared to harvests averaged for the last two decades. While low salmon abundance in 2001 closed commercial fishing in the Alaska portion of the Yukon River drainage, there was a small commercial fishery for chinook and summer chum in 2002, 2003, and 2004 and a small commercial fishery for fall chum and coho in 2003 and 2004.

As shown in Table IV-2, the estimated subsistence harvest of 57,549 chinook salmon in 2004 is above both the most recent five-year Yukon Area average of 50,350 chinook salmon and the most recent ten year average of 50,980 chinook salmon. However, the estimated 2004

subsistence harvest of 79,411 summer chum salmon, though lower than the pervious two years' harvest estimates, showed an increase over 2001 harvests, though it remains below the most recent five and ten-year averages (80,204 and 94,127 respectively). In general, however, summer chum salmon harvests continue to fall well below recent ten-year average and earlier years that included a commercial salmon roe fishery in the middle and upper river. The fall chum salmon harvest of 64,562 is a marked increase from the previous four years (2000-2003) and registers above the most recent five year average 39,660 fall chum salmon. It should be noted that the 1999-2003 average harvest includes years when regulatory restrictions were imposed on fishers to protect fall chum salmon stocks due to poor returns. Comparison with average fall chum salmon harvest for all years begins to show the true magnitude of the harvest decline in this fishery between 2000 and 2003; the average harvest of fall chum salmon between 1976 and 2004 was 120,125 fish (see also Figure IV-3).

Subsistence harvests of coho salmon in 2004 were slightly above average at 25,286 compared to the recent five year average of 21,318 coho salmon and the most recent ten year average of 22,742 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).[10] While these fish are primarily harvested exclusively by communities in the coastal district, 2002 estimates showed some harvests by communities in the middle Yukon River region. There was an estimated harvest of 9,697 pink salmon in 2004.

According to Lingnau and Salomone (2004), two environmental events affected subsistence fishing patterns in 2004. First, continuous offshore winds near Hooper Bay prohibited those fishers from harvesting their subsistence needs in the early part of the run when salmon are available to them. In order to meet their needs, Hooper Bay fishers traveled to the Black River to fish and worked with their CDQ group to get fish from the Kuskokwim River (Lingnau and Salomone 2004). The second event was unprecedented forest fires and smoke throughout interior Alaska. In 2004, approximately 6.4 million acres burned in Alaska; these fires and their smoke interfered with fishing activities and the income provided by fire-fighting drew some village residents away from fishing activities (Lingnau and Salomone 2004).

An estimated 60 percent of the total households who participated in the 2004 subsistence fishery owned dogs. Figure IV-4 provides a breakdown of number of dogs by fishing district. Of the estimated 1,624 households (drainage wide) owning dogs, about 16 percent (255 households) are estimated to have fed their dogs whole salmon in 2004. Of the 5,631 dogs owned by fishing households, about 70 percent (3,931 dogs) were owned by households in the upper Yukon River, which includes Districts 4, 5, and 6 (Busher, Hamazaki and Marsh, forthcoming). In 2004, the Division of Commercial Fisheries collected species-specific information on the number of salmon retained for dog food from subsistence harvests. In Districts 1 through 5, an estimated 17,448 summer chum, 34,731 fall chum, and 4,771 coho salmon were retained for dog food from subsistence salmon harvests. An additional 21,689

[10] 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.

whole salmon were fed to dogs by permit holders, including those users in District 6[11], Rampart, Central, Circle, Eagle. According to ADF&G, Division of Commercial Fisheries data, only summer chum salmon used as dog food was retained from commercial-related harvests, and only in Districts 1 and 2.

Primary gear types used by fishing households in surveyed villages in 2004 included set gillnet (52 percent), drift gillnet (40 percent), and fish wheel (7 percent) (Busher, Hamazaki and Marsh, forthcoming). Figure IV-5 provides a breakdown of the subsistence salmon harvest gear types.

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 percent 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 (Busher and Hamazaki, 2005). Specifically, surveyed households were asked whether 100%, 75%, 50% or 25% or less of their harvest needs were met for each species. According 2004 data, 71 percent of all households reported meeting greater than 50% of their needs for Chinook salmon, 66 percent reported meeting greater than 50% of their needs for summer chum salmon, and 61 percent and 60 percent reported meeting their needs for fall chum salmon and coho salmon respectively.[12]

In 1993, the Board of Fisheries (BOF) made a positive finding for Customary and Traditional Use for all salmon in the Yukon-Northern Area. The Amount Necessary for Subsistence Use determination (ANS) was established at 348,000-503,000 salmon for all species combined. Since 1982, the overall total subsistence salmon harvest in the Yukon Area has declined by just over 50 percent. According to these figures, 1992 marks the last year when total subsistence salmon harvests fell within the ANS range. In 2001, the BOF broke this figure down by species. A species-specific ANS range provides one index for measuring the extent to which reasonable opportunity was provided in the 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 uses 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 subsistence opportunities. See Table IV-3 for a comparison of ANS ranges and recent years' subsistence salmon harvests.

[11] Some District 6 users, specifically residents of the FNSB, may harvest salmon from the Yukon Bridge permit area rather than from the Tanana River drainage.

[12] See Busher, Hamazaki, and Marsh, forthcoming for more detailed information on this break-down by community and species.

Table IV-1. Subsistence Salmon Harvests by Community, Yukon Area, 2004.

COMMUNITY	HOUSEHOLDS / PERMITS		ESTIMATED SALMON HARVEST[1]					
	TOTAL	INCLUDED	CHINOOK	SUMMER CHUM	FALL CHUM	COHO	PINK	TOTAL SALMON
Alakanuk	124	58	1,328	6,608	961	209	233	9,339
Alatna	5	4	0	16	0	0	0	16
Allakaket	46	17	65	2,367	968	17	0	3,417
Anchorage	1	0						
Anvik	31	26	1,588	248	398	288	0	2,522
Beaver	30	17	990	3	55	0	0	1,048
Bettles	20	10	0	0	0	0	0	0
Big Lake	1	1	0	0	0	0	0	0
Birch Creek	9	4	82	0	0	0	0	82
Central	4	4	83	0	0	0	0	83
Chalkyitsik	29	18	60	0	479	45	0	584
Circle	25	10	463	0	788	0	0	1,250
Coldfoot	1	0						
Delta Junction	3	0						
Denali Park	1	1	0	0	0	0	0	0
Dot Lake	5	2	0	0	0	0	0	0
Eagle	47	41	1,457	170	5,211	13	0	6,851
Eagle River	1	1	32	13	0	0	0	45
Eielson AFB	1	0						
Emmonak	161	85	2,801	8,768	790	300	32	12,691
Ester	5	2	0	0	9	15	0	24
Fairbanks	166	85	3,522	897	2,482	2,984	0	9,886
Fort Yukon	161	45	4,430	1,187	7,302	19	0	12,938
Gakona	1	1	0	0	0	0	0	0
Galena	160	45	3,296	782	1,587	1,307	0	6,972
Grayling	44	22	1,869	1,129	267	233	0	3,498
Healy	7	6	0	0	1,086	2,417	0	3,504
Holy Cross	48	29	1,993	276	76	27	0	2,372
Hooper Bay	193	77	1,042	3,242	264	9	5,418	9,975
Hughes	22	16	291	3,823	97	110	0	4,321
Huslia	74	19	285	3,844	1,139	764	0	6,032
Kaltag	57	19	1,685	216	689	138	10	2,738
Kotlik	87	42	1,148	2,749	280	593	318	5,088
Koyukuk	24	21	400	329	344	166	0	1,239
Lake Minchumina	1	1	0	0	0	0	0	0
Manley Hot Springs	14	12	471	349	588	448	0	1,856
Marshall (Fortuna Ledge)	72	32	1,990	1,765	291	425	105	4,576
Minto	36	8	63	23	0	23	0	108
Mountain Village	142	59	2,362	10,676	918	521	891	15,368
Nenana	29	14	598	1,362	6,918	8,896	0	17,774
North Pole	52	16	358	678	255	1,469	0	2,760
Northway	25	3	400	0	0	0	0	400
Nulato	87	28	5,199	198	1,246	203	0	6,846
Nunam Iqua (Sheldon Point)	32	21	647	2,698	49	79	32	3,505
Pilot Station	95	46	2,406	5,779	1,108	296	5	9,594

[continued...]

[Table IV-1 continued...]

COMMUNITY	HOUSEHOLDS / PERMITS TOTAL	HOUSEHOLDS / PERMITS INCLUDED	ESTIMATED SALMON HARVEST[1] CHINOOK	SUMMER CHUM	FALL CHUM	COHO	PINK	TOTAL SALMON
Pitka's Point	25	20	635	747	0	0	0	1,382
Rampart	5	0						
Ruby	61	21	1,620	2,010	1,064	1,540	2	6,236
Russian Mission	61	25	2,337	884	172	151	6	3,550
Saint Marys (Andreafsky)	108	50	2,357	6,994	104	258	137	9,850
Salcha	8	7	207	85	75	6	0	374
Scammon Bay	82	31	1,008	5,082	57	54	2,508	8,709
Shageluk	29	19	418	1,798	50	106	0	2,372
Stevens Village	30	14	2,476	112	1,117	103	0	3,808
Tanacross	2	0						
Tanana	90	45	2,689	1,490	23,118	1,049	0	28,346
Tok	5	4	35	0	16	0	0	51
Venetie	35	24	363	15	2,144	5	0	2,527
Wiseman	1	0						
Totals	2,721	1,228	57,549	79,411	64,562	25,286	9,697	236,506

[1]Includes subsistence harvests, personal use harvests, commercial harvests retained for home use, and fish distributed from Alaska Department of Fish and Game test fisheries.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table IV-2. Historic Subsistence Salmon Harvests, Yukon Area, 1975-2004.

	HOUSEHOLDS / PERMITS		ESTIMATED SALMON HARVEST					
				SUMMER	FALL			
YEAR	TOTAL	INCLUDED	CHINOOK	CHUM	CHUM	COHO	PINK	TOTAL
1975			12,724			10,992		23,716
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
5-Year Average	2,925	1,311	50,350	80,204	39,660	21,318	4,457	195,988
10-Year Average	2,903	1,326	50,980	94,127	69,988	22,742	4,457	240,066
All Years Average	2,813	1,327	43,486	165,093	120,125	28,314	4,457	337,247

Table IV-3. Comparison of Amounts Necessary for Subsistence (ANS) and Estimated Subsistence Salmon Harvests, Yukon Area, 1998-2004.

	Estimated Number of Subsistence Salmon Harvested[1]			
	Chinook	Summer Chum	Fall Chum	Coho
ANS[2] / Year	45,500-66,704	83,500-142,192	89,500-167,900	20,500-51,980
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

[1] Salmon harvested under subsistence regulations only. Does not include personal use harvests, ADF&G test fishery distributions, or salmon removed from commercial harvests. Shaded cells indicate harvest amounts are below the minimum ANS.

[2] Amounts necessary for subsistence. See 5 AAC 01.236(b)(1) through 5 AAC 01.236(b)(4).

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

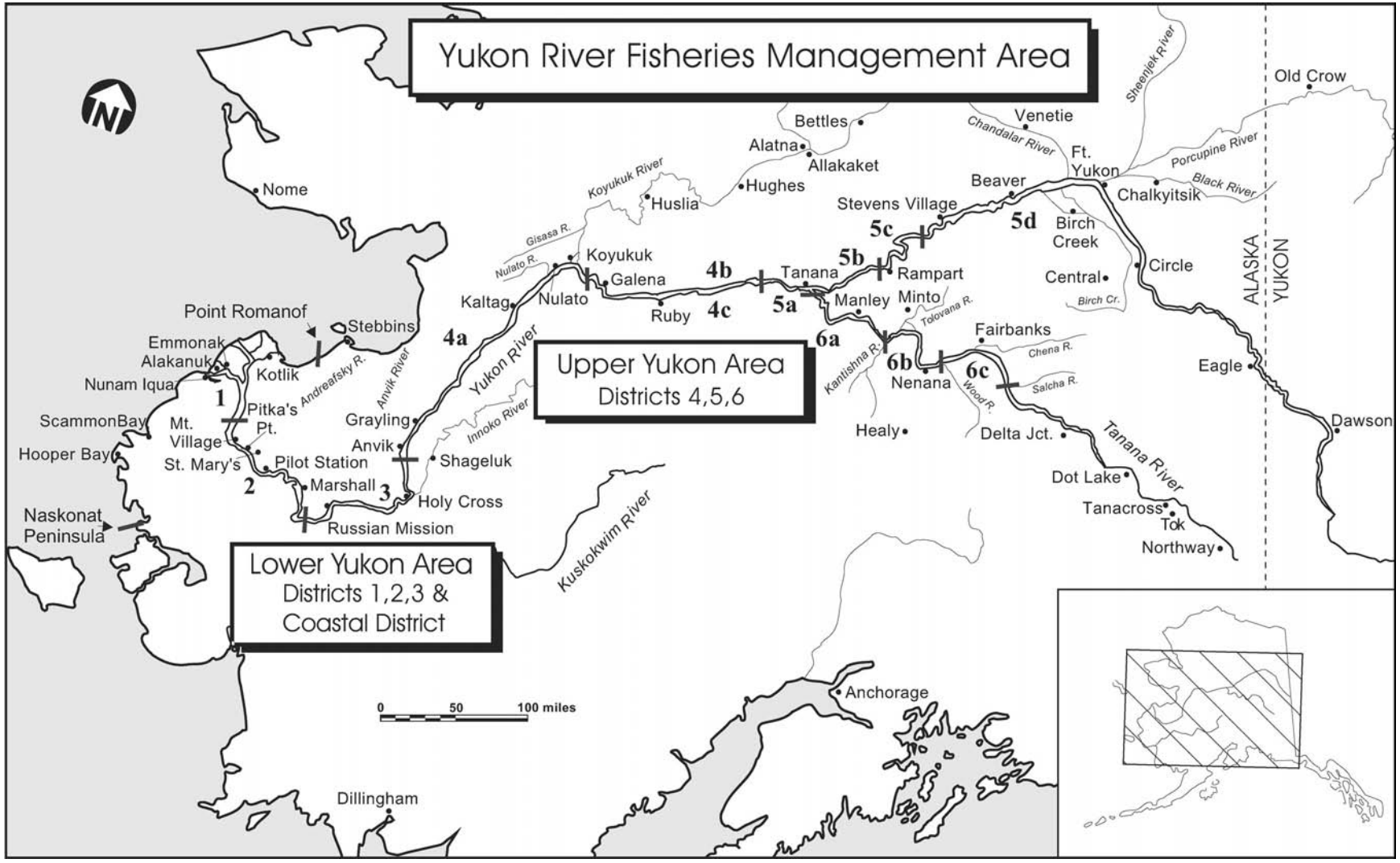


Figure IV-2. Yukon Area Subsistence Salmon Harvests, 2004

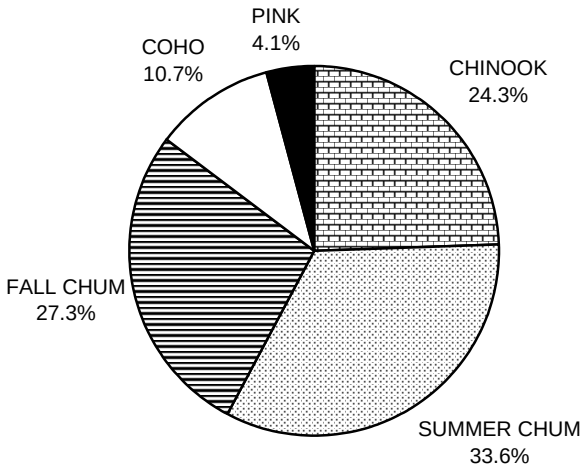
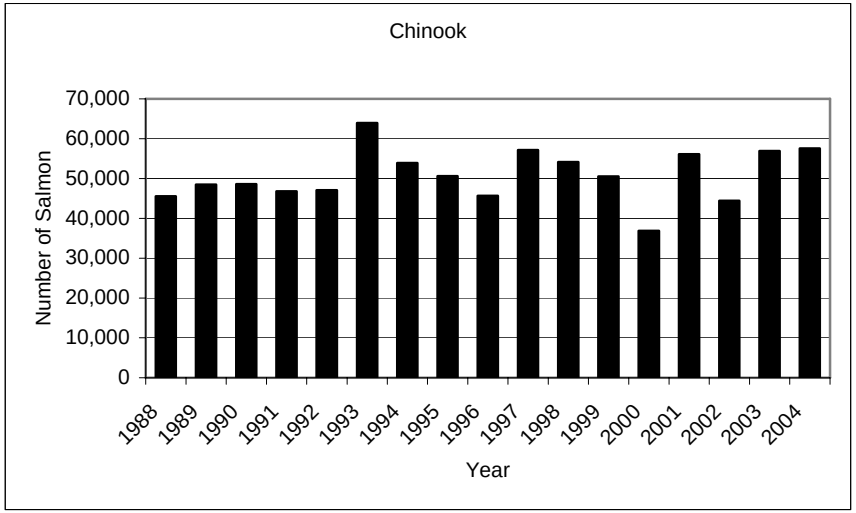
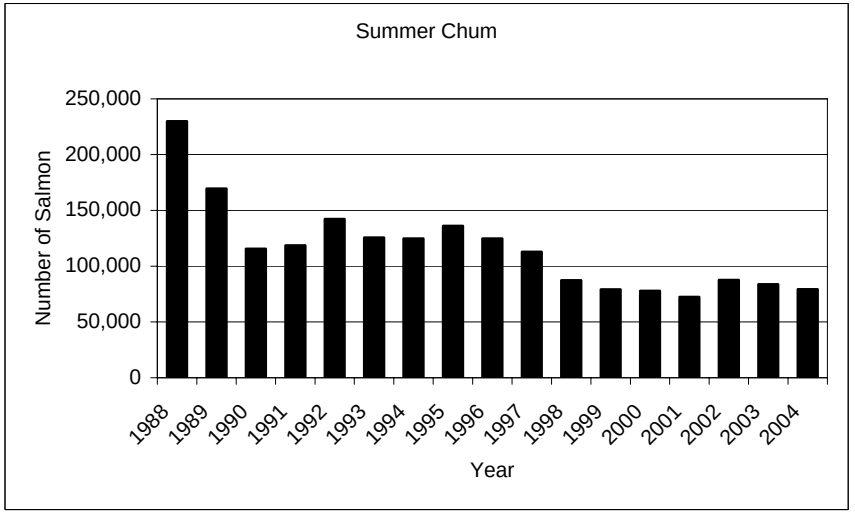
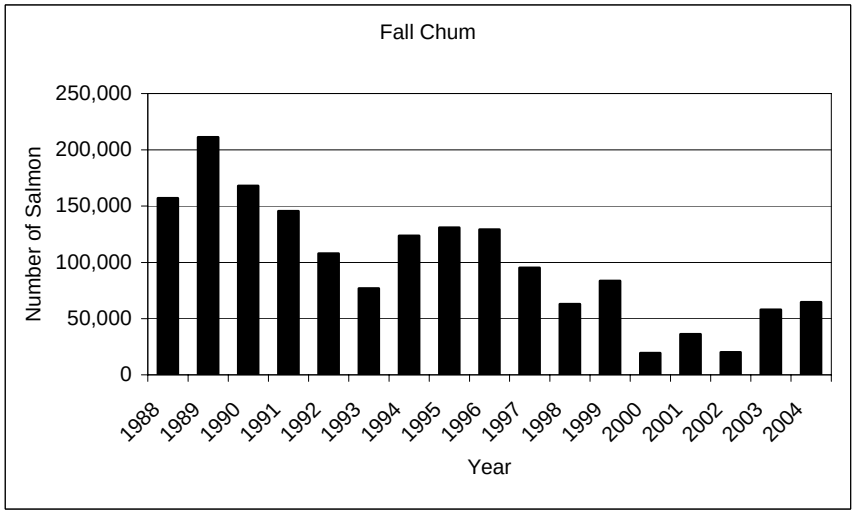


Figure IV-3. Subsistence salmon harvests by species, Yukon Area, 1988-2004.







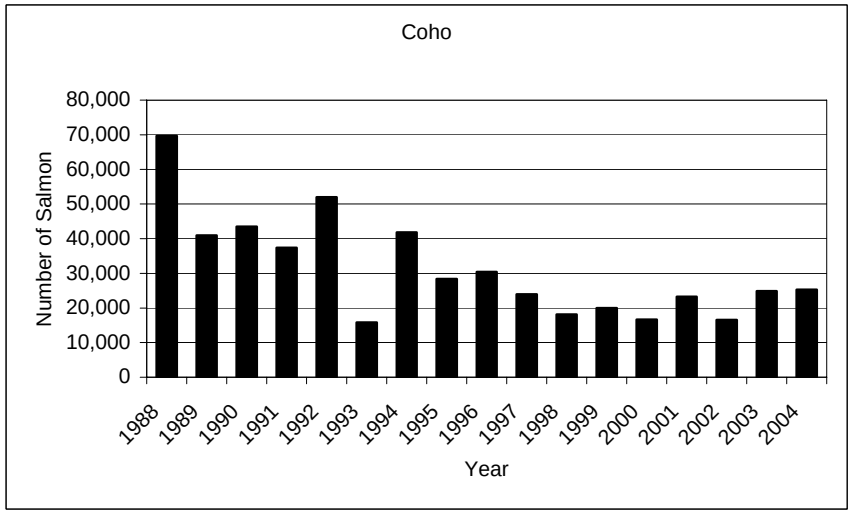


Figure IV-4. Estimated number of dogs by district, Yukon Area, 2004.

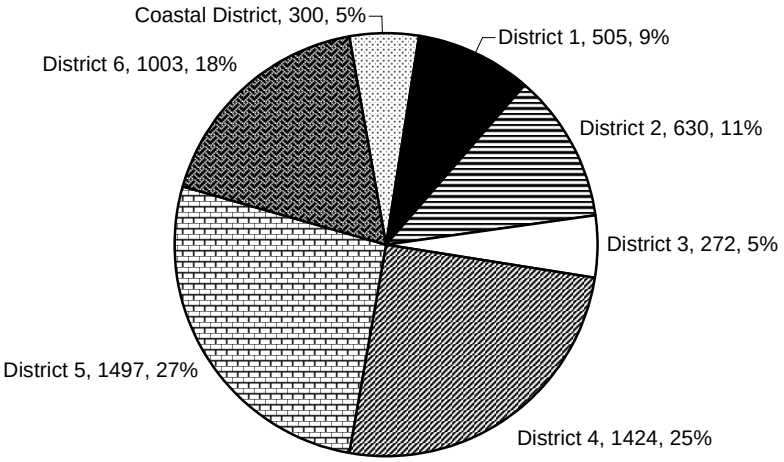
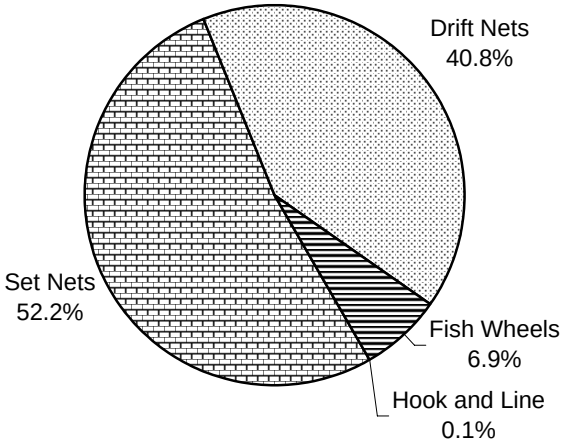


Figure IV-5. Primary Gear Type Utilized for Subsistence Salmon Fishing, Yukon Area, 2004.



V. 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 use. 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. Alaska Department of Fish and Game (ADF&G), Division of Subsistence studies in the region indicate that fish contribute as much as 85 percent of the total pounds of fish and wildlife harvested in a community, and salmon contribute as much as 53 percent of the total annual harvest (Coffing 1991). The harvest of salmon for subsistence use is as much as 650 pounds per capita in some Kuskokwim River communities.

More than 1,500 households in the Kuskokwim Area annually harvest salmon for subsistence use. Many households not directly involved in catching salmon assist family and friends with cutting, drying, smoking, and associated preservation activities (salting, canning, and freezing). Annual subsistence surveys are aimed at gathering harvest data on chinook, chum, sockeye, and coho salmon. In Bethel, additional information is collected on subsistence harvests of other fresh water and anadromous fishes.

There are 38 communities consisting of approximately 4,700 households within the Kuskokwim Area. The majority (75 percent) of the households are situated within the Kuskokwim River drainage. Bethel is the largest community in the region, consisting of approximately 1,900 households. The north Kuskokwim Bay communities of Kwigillingok, Kongiganak, and Kipnuk are comprised of roughly 350 households. North Kuskokwim Bay subsistence fishers harvest salmon in the Kuskokwim River as well as from areas closer to their communities. Residents of Quinhagak, Goodnews Bay and Platinum, located along the south shore of Kuskokwim Bay (approximately 230 households), harvest salmon primarily from the Kanektok, Arolik, and Goodnews River drainages. The Bearing Sea coast communities of Newtok, Tununak, Toksook Bay, Nightmute, and Chefornak are composed of approximately 440 households. The village of Mekoryuk (located on Nunivak Island) is composed of roughly 80 households. Subsistence users from these communities harvest salmon from coastal waters as well as local tributaries.

REGULATIONS

Statewide eligibility criteria require individuals to be Alaskan residents for the preceding 12 months before harvesting salmon for subsistence use. Prior to 1990, there were additional restrictions on participation in the subsistence fishery, described in earlier Kuskokwim Area annual management reports. Most subsistence salmon fishers in the region are Kuskokwim

area residents, but some who are domiciled in other parts of Alaska often return to assist family or friends harvest or process salmon.

Licenses and permits have never been required for subsistence salmon fishing in the Kuskokwim Area, nor were any required during 2004. Hook and line fishers upstream of the Doestock River on the Aniak River had a combined daily bag limit of six fish, no more than three of which could be salmon. Otherwise, there were no restrictions on the number of salmon harvestable by individual fishers or households for subsistence uses in the Kuskokwim Area. Salmon could be harvested for subsistence use by set and drift gill nets, beach seines, fish wheels, and rod and reel. Spears could only be used in the Holitna, Kanektok, Arolik, and Goodnews River drainages. Set or drift gill nets in use by individual fishers could not exceed a total length of 50 fathoms. Gill nets used for harvesting salmon could be of any size mesh, however nets with six-inch or smaller mesh could not be more than 45 meshes deep, and nets with mesh greater than six-inches could not be more than 35 meshes deep. Fishers were required to have their names and addresses attached to their gill nets and fish wheels.

Subsistence Salmon Fishing Schedule

Following declines in chinook and chum salmon returns to the Kuskokwim since 1997, and in anticipation of poor returns in 2001, the Alaska Board of Fisheries (Board) designated both as stocks of concern (specifically, yield concerns) under the Policy for the Management of Sustainable Salmon Fisheries (5 AAC 39.222) in September of 2000. To guide the Department in the management of these stocks of concern, the Board replaced the Kuskokwim River Salmon Management Plan in January 2001 with the Kuskokwim River Salmon Rebuilding Management Plan (Rebuilding Plan) (5 AAC 07.365). Under the Rebuilding Plan, Kuskokwim River salmon stocks were to be managed conservatively for the months of June and July.

The Rebuilding Plan provides direction for implementing a subsistence fishing schedule. The fishing schedule allows salmon net (with mesh size greater than four inches) and fish wheel fisheries to be open for four consecutive days per week in June and July as announced by Emergency Order (EO) and implemented in a method that follows salmon run-timing in a step-wise progression upstream. The subsistence fishing schedule is alterable, based on run strength, by EO in a manner to achieve escapement goals. Once escapement goals are assured for chinook and chum salmon, subsistence fishing can be allowed seven days per week.

The Department polled the communities throughout the Kuskokwim River drainage in 2001 for guidance on which three days would be the most desirable for the subsistence fishing closures. Based on community response, the recommendation of the Kuskokwim River Salmon Management Working Group (Working Group) was to have the Kuskokwim River closed to subsistence net and fish wheel fisheries Sunday, Monday, and Tuesday. Subsistence fishing with rod and reel was not included in this schedule nor were other Kuskokwim Area salmon fisheries.

In 2004, the Kuskokwim River subsistence salmon fishing schedule began June 6 in District 1 (all waters downstream of Bogus Creek). On June 13, the schedule was expanded to all waters downstream of Chuathbaluk. There were no subsistence-fishing restristions upstream of Chuathbaluk. Also some non-salmon tributaries in the lower and middle Kuskokwim River drainages were not affected by this schedule nor were waters outside of the Kuskokwim drainage. Based on a recommendation from the Working Group, the Department established a seven-day per week subsistence fishing schedule on June 20 when salmon run strength was anticipated to be large enough to meet escapement goals.

Subsistence Closures during the Commercial Fishery

In January 2004, the Board of Fisheries 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 as described in 5 AAC 01.260. Many of the fishers that participate in the Kuskokwim commercial fisheries are local residents who subsistence fish. The purpose of these closures was to discourage illegal fishing activity such as the sale of subsistence caught salmon in the commercial fishery.

On June 28, 2004, the Department issued an EO that decreased the duration of subsistence closures associated with commercial fishing in District 1 to 6 hours before, during, and 3 hours after commercial fishing periods. The purpose of this EO was to allow adequate opportunity for fishers to fulfill their subsistence needs during the commercial fishing season. The specific waters closed to subsistence fishing varied district to district. In 2004, there were 26 commercial fishing periods in District 1. Four periods occurred between June 30 to July 7, harvesting chinook, chum, and sockeye salmon. Subsistence fishing was subject to closures 6 hours before, during, and 3 hours after commercial fishing periods. Twenty-two commercial periods directed at coho salmon occurred in District 1 between July 28 and September 8. There were weekly scheduled commercial periods and associated subsistence fishing closures in both District 4 (Quinhagak) and District 5 (Goodnews Bay and Platinum) from June through September.

SUBSISTENCE SALMON HARVEST ASSESSMENT METHODS

Data on the harvest of salmon for subsistence uses is 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 took over the annual subsistence salmon harvest surveys in 1988 and has been responsible for collecting and analyzing the data since then. During the early survey years, prior to 1985, subsistence salmon catch data were grouped into two primary categories: “king salmon” and “small salmon.” The survey was further refined in 1988 to collect harvest data for each individual salmon species.

Households in the Kuskokwim area are assigned a "household identification number" (HHID) to aid in tracking of an individual family's subsistence harvest over time. To aid community harvest estimation, households are stratified into two groups: (1) those that "usually fish" and, (2) those that "usually do not fish." In 2004, three methods were used to gather subsistence salmon harvest data in the Kuskokwim Area. These include: (1) subsistence salmon catch calendars, (2) post-season community household surveys, and (3) postcard surveys.

Catch Calendars

In May 2004, subsistence salmon catch calendars were mailed to all Kuskokwim Area households that had been identified as "usually fish" and to those that fished the previous season. Three similar, but unique, catch calendars were designed to record the daily catch of each salmon species harvested for subsistence use. Communities along the Bering Sea coast, north Kuskokwim Bay, lower, middle, and upper Kuskokwim River areas (as far upstream as Stony River) all received one style of calendar. A second style of calendar was sent to the remaining households in the upper Kuskokwim River area. The third style was sent to households in Quinhagak, Goodnews Bay, and Platinum. The different calendars take into account species availability, salmon run timing, and seasonal timing of subsistence fishing activities. 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 postage paid and return addressed to the Division of Subsistence office in Bethel. Subsistence salmon catch calendars were mailed to 2,199 households.

Household Surveys

The primary method of collecting subsistence salmon harvest information is the post-season household surveys. Survey staff travel to communities in the Kuskokwim Area and perform house-to-house interviews surveying residents about their fishing efforts. Kuskokwim communities are grouped into four regional categories based on geographic location: (1) Lower Kuskokwim, (2) Middle Kuskokwim, (3) Upper Kuskokwim, and (4) Bering Sea Coast. Similar to the catch calendars, three color-coded survey forms are used to survey the majority of the communities. Except for local names used for the salmon species, the survey questions asked in each region are identical. Bethel surveys also include questions aimed at collecting subsistence harvest information for non-salmon species, as well as quantifying harvests by gear type and harvest locations for fish caught with hook and line gear.

In 2004, Division of Subsistence staff conducted house-to-house surveys in 28 communities. Budget constraints precluded attempts to conduct house-to-house surveys in Mekoryuk, Newtok, Tununak, Nightmute, and Chefornak. Kipnuk, Kwigillingok, and Kasigluk have not consented to allow surveys be conducted in their villages.

Through funding administered from the USFWS Federal Office of Subsistence Management (OSM), Orutsararmiut Native Council (ONC) hired two survey technicians to conduct house-to-house surveys in Bethel. A cooperative agreement with ADF&G Division of Subsistence allowed Kuskokwim Native Association (KNA) to hire technicians for post-season surveys

in Aniak. The Division of Subsistence trained the hired technicians for both projects and oversaw their survey efforts. Data collected by both ONC and KNA followed methods and protocols developed by the Division.

Survey efforts in Kuskokwim area communities occurred over a two-month time span beginning in early October. This is when most residents have completed salmon fishing for the season and when most subsistence users have 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 and posters placed in public buildings, and telephone calls to community officials. Prior to traveling to each community, staff identified households that had already mailed in or returned their salmon harvest calendars. Time spent by survey staff on house-to-house interviews varied from one-half to two days per community, depending community size.

Upon arrival in a community, the survey staff introduced themselves to city or village council officials and outlined their task. Staff used household checklists to identify residents they needed to contact for household surveys. Each checklist contained a listing of all known households in the community and identified those households that were reported to have subsistence fished for salmon the previous year (2003). Each checklist also indicated which households were mailed 2004 catch calendars. Knowledgeable individuals in the community helped staff update the community household list and identify which households "usually fish" and which households "usually do not fish." These individuals also helped identify households that subsistence fished for salmon in 2004. Attempts were made to contact all households identified as "usually fish" or known to have fished during 2004.

In Bethel, house-to-house surveys were conducted over an 11-week period. A map of the community originally developed by the Bethel Fire Department was used to identify household street addresses and to organize survey efforts by subdivisions. A list of all Bethel households that had been identified through previous surveys and all households that returned their subsistence salmon catch calendars was categorized by subdivision. Each of the two survey staff was then assigned specific subdivisions that they were to survey. In Bethel, an effort was made to contact every household. Unlike other communities, Bethel has no agency or organization able to provide a current household list.

Completed subsistence salmon catch calendars that had not been returned to the Department were collected during the interview if available. Other households on the community list were contacted about their subsistence fishing activities if time permitted. In 2004, 2,297 Kuskokwim Area households were surveyed.

Postcard Surveys

The third method of collecting subsistence salmon harvest information is by postcard survey. Postcard surveys ask how many salmon of each species have been caught for subsistence, the type of fishing gear used, and how the fishing quality was for each salmon species. The

return portion of the postcard is postage paid and addressed to the Division of Subsistence in Bethel. Postcard surveys were the primary method for obtaining harvest data from households in Mekoryuk, Newtok, and Nightmute, as well as from households where no one was home during house-to-house surveys. However, no postcards were distributed to Bethel residents due to budget constraints. Overall, 265 households in the region were mailed postcard surveys.

2003 SAMPLING SUMMARY

From an estimated 4,670 households located in the Kuskokwim Area, contact was made with 2,432 by household surveys, returned calendars and/or postcards (Table V-1). From this total, harvest data were obtained for 2,396 households (i.e. households that fished who also provided harvest numbers and, those that did not fish); community and area harvest estimates are expanded from this data set. From the 2,396 households that Division of Subsistence has information for, 1,503 (32 percent of the total area households) were identified as having subsistence fished for salmon in 2004 (although specific harvest numbers were not available for all fishing households).

Within the Kuskokwim River drainage (including north Kuskokwim Bay communities), 2,136 (60 percent) of the 3,575 households were contacted. This region contains 77 percent of the estimated total households in the Kuskokwim Area and 84 percent of the identified subsistence-fishing households.

In the south Kuskokwim Bay region (Quinhagak, Goodnews Bay, and Platinum), 159 (70 percent) of the 227 households were contacted. One hundred twenty-four households (55 percent) subsistence fished in 2004. Seventy-eight percent of the contacted households harvested salmon in 2004 for subsistence use.

The Bering Sea coast communities of Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak, and Chefornak have an estimated 514 households. Only Toksook Bay was surveyed house-to-house by department staff. Subsistence salmon fishing data from other coastal communities were obtained only by postcard surveys and calendar returns. Eighty-four households in this region provided information, and 68 reported harvesting salmon. Based on previous years' data, participation in salmon harvest activities by households in the Bering Sea coast communities is believed to be much greater than reported.

Thirteen percent (275) of the 2,199 subsistence salmon calendars that were mailed in 2004 were returned or picked up during household surveys. There were 81 (31 percent) responses to the 265 postcard surveys mailed to Kuskokwim Area households.

2004 SUBSISTENCE SALMON HARVEST SUMMARY

A summary of the subsistence salmon harvest estimates by community and fishing area is presented in Table V-2. In 2004 subsistence salmon harvest estimates for the Kuskokwim

Area totalled 85,086 chinook, 55,575 chum, 34,892 sockeye and 39,406 coho for a grand total of 214,959 salmon. Subsistence harvests of all salmon species fell within or surpassed amounts necessary for subsistence (ANS) ranges set under 5AAC 01.286.[13] Lower Kuskokwim area communities accounted for 74 percent of the 2004 subsistence salmon harvests in the Kuskokwim area and 78 percent of the entire chinook subsistence catch. Residents of Bethel accounted for 30 percent of the Kuskokwim Area subsistence harvests and 32 and 38 percent of all subsistence caught chinook and coho salmon respectively.

Subsistence salmon harvests in the Kuskokwim area in 2004 varied from previous years, with most harvests increasing, except for sockeye. The estimated 2004 chinook salmon subsistence harvest represents an increase of 17 percent over 2003. While the chinook harvest was only 2 percent above to the 1989-2004 average; it does represent an increase of 14 percent over the 5-year average (Table V-3). The 2004 chum salmon subsistence harvest estimate was only 1 percent below the recent 5 and 10-year averages. However, it was still 26 percent below the 1989-2004 average. The 2004 sockeye salmon harvest estimate was 11 percent below both recent 5 and 10-year averages, it was 14 percent below the all 1989-2004 average harvest. Coho salmon subsistence harvests were 9 and 16 percent higher than recent 5 and 10-year averages and nearly equal to the 1989-2004 average.

On a regional level, in 2004 chinook harvest estimates in the south Kuskokwim Bay communities increased minimally, by only 1% percent. Kuskokwim Bay and lower Kuskokwim River communities showed increased chinook harvests of 14%, middle and upper Kuskokwim communities experienced an increase of 42 and 53 percent, respectively, from 2003. The 2004 chum salmon subsistence harvests were up for north and south Kuskokwim Bay by 96 and 5 percent, while lower, middle, and upper Kuskokwim River communities saw chum subsistence harvest increases of 14, 27, and 66 percent from 2003. Combined sockeye salmon subsistence harvests declined by 5 percent from 2003. The south Kuskokwim Bay and lower Kuskokwim River communities saw sockeye harvests decrease by 15 and 10 percent, respectively, from 2003. However, the middle and upper Kuskokwim River communities saw sockeye subsistence harvest increases of 17, and 6 percent over the previous year. Coho salmon subsistence harvest estimates in the Kuskokwim Area were similar to 2003, with a net increase of only 1 percent. South Kuskokwim Bay and the upper Kuskokwim River communities saw coho subsistence harvest decrease by 16 and 11 percent, respectively from 2003. While the middle Kuskokwim River communities saw coho harvests increase 23 percent. There was no substantial change in the coho harvest for the lower Kuskokwim River communities where approximately 70 percent of the Kuskokwim's coho are harvested.

Dog Food

Historically, the use of salmon for use as dog food was a significant portion of the overall subsistence salmon harvest, specifically for chum and coho. In recent years, the number of households harvesting salmon specifically for dog food has declined, likely due to decreased

[13] ANS ranges are 64,500-83,000 chinook, 39,500-75,500 chum, 27,500-39,500 sockeye, and 24,500-35,000 coho in the Kuskokwim River drainage and 7,500-13,500 salmon (all species combined) in the remainder of the Kuskokwim Area.

use of dog teams for transportation. During 2004, 97 households reported harvesting salmon specifically for use as dog food. The majority of the reported harvest for dog food was chum salmon at 6,381 fish, while coho salmon accounted for 4,367 fish, and sockeye contributed a reported 892. Households do not target chinook salmon for dog food; however, some chinook salmon unfit for human consumption may be fed to dogs so the fish is not wasted. It is common for most households to feed scraps, backbones, entrails, and salmon unfit for human consumption to their dogs. In 2004, 271 households responded that they fed scraps, backbones, and entrails to their dogs, but they did not harvest or put up any salmon specifically for dog food.

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 V-4). Households that harvested salmon were asked to provide information on the types of gear they used. During 2004, 1004 households reported using drift gillnets for subsistence salmon harvests, 261 reported using set nets, and 366 reported using rod and reel. The most common gear type used throughout the Kuskokwim Area is the drift gillnet, which is the primary fishing gear used by households from Crooked Creek downstream to the costal communities of Kuskokwim Bay. Set gillnets are also used throughout the Kuskokwim Area; however, upper Kuskokwim River communities report a higher percentage (41 percent) of households using set gillnets than south Kuskokwim Bay (20 percent), lower Kuskokwim River (14 percent), or middle Kuskokwim River (17 percent) communities.

Many households throughout the area also use rod and reel for subsistence fishing. Rod and reel is used by families who 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. Kwethluk (34 percent), Aniak (62 percent), and McGrath (45 percent) all had a large percentage of subsistence fishing households reporting use of rod and reel in 2004. During 2004, 366 households in 28 communities reported using rod and reel to harvest salmon for subsistence use.

Only one household reported using fish wheel gear for harvesting subsistence salmon in 2004. Generally, one or two fish wheels are operated by households in Aniak and McGrath. It is likely that the 2004 survey staff missed the other households that usually operate a fish wheel.

In Napaskiak, one household reported using seine gear to harvest subsistence salmon. Aniak was the only community with a household reporting the use of spears for harvesting subsistence salmon.

Salmon Retained from Commercial Fishing for Subsistence Use

Households involved in commercial salmon fishing sometimes keep a small portion of their catch for subsistence use, however the number of salmon retained from commercial fishing activities for subsistence is usually relatively low. During 2004, 55 households reported

retaining commercially caught salmon for subsistence use. These harvests amounted to 118 chinook, 49 chum, 90 sockeye, and 325 coho salmon.

OTHER FISH

Non-salmon harvest estimates have previously been provided for communities such as Kwethluk, Nunapitchuk, and Akiachak from community-based surveys conducted in the Kuskokwim region in the 1980's and 1990's. Additionally, the Division recently completed a two year non-salmon harvest assessment project for Aniak and Chuathbaluk, which was conducted in spring of 2002 and 2003. Subsistence herring surveys were conducted in the mid 1980's through the early 1990's in the Nelson Island region. These data are in the Community Profile Database (Scott et al. 2001). The only non-salmon subsistence harvest assessment project conducted in association with the 2004 post-season salmon surveys occurred in Bethel.

STUDY FINDINGS IN BETHEL

During 2004, harvest assessment of non-salmon species by Bethel households occurred in conjunction with the post-season salmon harvest surveys. Working cooperatively with the Division of Subsistence, technicians hired by ONC conducted subsistence fish harvest surveys of households in the Bethel community during October and November 2004. The survey's purpose was to gather information about Bethel households' harvest of fish, identify households that participated in the subsistence fishery, estimate the number of fish harvested by the community, and identify subsistence fishing gear. The survey focused on salmon harvested from May through September 2004, and non-salmon species harvested October 1, 2003, through September 30, 2004.

2004 Bethel Sampling Summary

Using a list of housing units and results from the 2003 Bethel surveys, an updated list of Bethel households was created for 2004. Survey results indicated that there was an estimated 1,874 occupied household units in 2004; 980 households were contacted through calendar returns, postcard returns, or household surveys. Face-to-face surveys were conducted at 956 households, a participation rate of 52 percent.

2004 Bethel Subsistence Harvest Participation Summary

Three hundred eighty-eight households (40 percent of households contacted) reported harvesting salmon during the study period (Table V-5). Based on the Bethel household surveys, total community estimates were expanded from harvest averages of people classified as "usually fish" and "usually do not fish" (Table V-5). The expansions resulted in an estimated 508 households harvesting chinook, 383 harvesting chum, 416 harvesting sockeye, 437 harvesting coho, and 85 harvesting pinks. For non-salmon, Northern pike, smelt, burbot,

Humpback whitefish, Broad whitefish, sheefish were estimated as being harvested by the greatest number of Bethel households.

Bethel Harvest Amounts

Bethel residents harvested an estimated 65,712 salmon for subsistence use in 2004; an estimated 35,430 non-salmon fish (excluding blackfish and smelt) were harvested. Approximately 2,454 gallons of smelt were harvested, along with 693 gallons of blackfish. An estimated 42 percent of the subsistence salmon harvests were chinook, 18 percent were chum, 16 percent were sockeye, 23 percent were coho, and less than 1 percent were pink salmon. Northern pike and burbot were the primary non-salmon species harvested, representing 58 percent and 8 percent of the total non-salmon harvest (excluding blackfish and smelt).

Bethel Harvest Gear

The majority of the salmon harvested by Bethel residents (estimated 95 percent) in 2004 were caught with drift gillnets (Table V-5). Set gillnets, which are generally used when fishers are targeting chinook salmon early in the run, were used for approximately 1 percent of the salmon harvested. Rod and reel gear accounted for 4 percent of salmon harvested.

In contrast to salmon, drift gillnets were reported as being used to harvest only 3 percent of non-salmon species, while 53 percent of the non-salmon harvest resulted from hooking through ice or rod and reel in open water (mainly for northern pike and burbot). Twenty-five percent of the non-salmon harvest came from set gillnets in open water (mainly for whitefish). Ten percent of the non-salmon harvest was conducted using nets set under the ice (mainly for grayling and whitefish). Smelt were harvested exclusively with dip nets, and blackfish were harvested using small, locally made fish traps called taluuyaq.

Table V-1. Harvest Assessment Sampling Summary, Kuskokwim Area, 2004.

	Total HH'S	Calendar Mailed	Calendar Returned	Postcard Mailed	Postcard Returned	Surveyed	Total Contacts[1]	Subsistence Fished[1]	Harvest Data[2]
Kipnuk	175	1	0	10	10	0	10	7	10
Kwigillingok	95	0	0	2	2	0	2	2	2
Kongiganak	84	67	2	44	0	37	37	31	37
N. KUSKOKWIM BAY	354	68	2	56	12	37	49	40	49
Tuntutuliak	82	66	12	14	0	66	66	58	66
Eek	81	60	18	1	1	58	61	51	61
Kasigluk	129	8	2	12	12	0	13	9	13
Nunapitchuk	109	79	13	5	3	69	74	59	74
Atmautluak	63	39	3	2	2	42	45	35	44
Napakiak	85	56	6	6	1	57	58	49	58
Napaskiak	85	61	9	6	0	50	52	41	52
Oscarville	13	11	5	0	0	8	8	8	7
Bethel	1874	835	75	0	0	956	980	388	968
Kwethluk	164	124	16	13	6	105	113	90	113
Akiachak	124	100	10	1	1	87	88	78	88
Akiak	72	50	6	2	2	47	51	45	50
Tuluksak	81	64	3	2	0	57	58	49	58
LOWER KUSKOKWIM	2962	1553	178	64	28	1602	1667	960	1652
Lower Kalskag	67	42	6	2	2	48	51	36	51
Kalskag (Upper)	65	37	6	21	0	39	40	35	40
Aniak	139	108	29	0	0	108	117	90	99
Chuathbaluk	34	20	1	2	1	21	21	15	21
MIDDLE KUSKOKWIM	305	207	42	25	3	216	229	176	211
Crooked Creek	40	27	3	15	0	24	24	21	24
Red Devil	13	9	2	0	0	10	11	8	11
Sleetmute	30	21	7	2	2	21	23	17	23
Stony River	18	13	0	1	0	16	16	13	15
Lime Village	15	10	0	2	0	11	11	5	11
McGrath	131	69	7	26	7	96	104	40	104
Takotna	19	6	0	0	0	19	19	8	19
Nikolai	40	23	1	15	6	25	31	19	31
Telida	2	0	0	0	0	1	1	1	1
UPPER KUSKOKWIM	308	178	20	61	15	223	240	132	239
KUSKOKWIM RIVER	3575	1938	240	150	46	2041	2136	1268	2102
Quinhagak	147	98	13	3	2	92	96	75	96
Goodnews Bay	64	44	13	14	1	47	50	39	50
Platinum	16	12	2	2	1	12	13	10	12
S. KUSKOKWIM BAY	227	154	28	19	4	151	159	124	158
Mekoryuk	79	22	3	7	7	0	8	8	8
Newtok	79	4	0	1	1	0	1	0	1
Nightmute	46	2	0	1	1	0	1	1	1
Toksook Bay	115	5	2	23	2	68	70	56	69
Tununak	104	5	0	5	5	0	5	3	5
BERING SEA COAST	423	38	5	37	16	68	85	68	84
Chefornak	91	1	0	3	3	0	3	3	3
TOTALS	4,670	2,199	275	265	81	2,297	2,432	1,503	2,396

[1] Households directly contacted by returning a calendar or postcard or by being interviewed in a face-to-face or telephone survey.
[2] Households that did not fish and those households which did fish and provided harvest numbers.

Table V-2. Subsistence Salmon Harvests by Community, Kuskokwim Area, 2004.[1]

	Households		Estimated Salmon Harvests[2]				
	Total	Contacted	Chinook	Chum	Sockeye	Coho	Total Salmon
Kipnuk	175	10	49	89	250	156	544
Kwigillingok	95	2	345	70	55	160	630
Kongiganak	84	37	1478	876	551	1587	4492
N. KUSKOKWIM BAY	354	49	1872	1035	856	1903	5666
Tuntutuliak	82	66	3402	1446	1205	2262	8315
Eek	81	61	2636	472	764	587	4459
Kasigluk	129	13	1526	336	690	906	3458
Nunapitchuk	109	74	4104	1381	416	4200	10101
Atmautluak	63	45	1701	874	561	1793	4929
Napakiak	85	58	2060	1068	1259	1746	6133
Napaskiak	85	52	3220	883	613	2569	7285
Oscarville	13	8	998	354	306	855	2513
Bethel	1874	980	27504	10598	15068	12162	65332
Kwethluk	164	113	6119	2741	2907	3597	15364
Akiachak	124	88	6647	2894	2130	3635	15306
Akiak	72	51	3653	1162	1236	3211	9262
Tuluksak	81	58	3117	1397	870	2017	7401
LOWER KUSKOKWIM	2962	1667	66687	25606	28025	39540	159858
Lower Kalskag	67	51	1918	673	295	1225	4111
Kalskag (Upper)	65	40	2442	603	1288	1559	5892
Aniak	139	117	2606	867	1655	2331	7459
Chuathbaluk	34	21	1041	385	249	1815	3490
MIDDLE KUSKOKWIM	305	229	8007	2528	3487	6930	20952
Crooked Creek	40	24	1003	760	670	1662	4095
Red Devil	13	11	165	97	54	103	419
Sleetmute	30	23	618	604	325	863	2410
Stony River	18	16	621	804	612	670	2707
Lime Village	15	11	66	831	220	189	1306
McGrath	131	104	500	168	1079	254	2001
Takotna	19	19	16	0	51	0	67
Nikolai	40	31	510	0	156	260	926
Telida	2	1	0	0	200	0	200
UPPER KUSKOKWIM	308	240	3499	3264	3367	4001	14131
KUSKOKWIM RIVER	3575	2136	78193	31398	34879	50471	194941
Quinhagak	147	96	3726	1086	1209	1112	7133
Goodnews Bay	64	50	851	805	1411	221	3288
Platinum	16	13	103	155	206	36	500
S. KUSKOKWIM BAY	227	159	4680	2046	2826	1369	10921
Mekoryuk	79	8	3	8	126	881	1018
Newtok	79	1	0	0	0	0	0
Nightmute	46	1	0	10	0	0	10
Toksook Bay	115	70	327	359	661	938	2285
Tununak	104	5	5	10	40	0	55
BERING SEA COAST	423	85	335	387	827	1819	3368
Chefornak	91	3	6	26	18	13	63
TOTALS	4,670	2,432	85,086	34,892	39,406	55,575	214,959

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

[2] If less than 30 or 50% of households in a stratum in a community were contacted, then reported harvest is used for estimated harvest.

Table V-3. Historic Subsistence Salmon Harvests, Kuskokwim Area, 1989-2004.

	HOUSEHOLDS		ESTIMATED SALMON HARVEST				
YEAR	TOTAL	SURVEYED	CHINOOK	SOCKEYE	COHO	CHUM	TOTAL
1989	3,422	2,135	85,323	37,088	57,846	145,106	325,363
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	68,706	34,159	44,494	99,577	246,937
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
5-Year Average	4,494	2,530	74,843	39,263	35,993	56,318	206,417
10-Year Average	4,095	2,259	80,525	38,819	33,954	59,704	213,002
All Years Average	3,800	2,121	83,267	40,384	38,750	75,511	237,913

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table V-4. Gear Types Used for Subsistence Fishing, Kuskokwim Area, 2004.[1]

	Fishing Households	Gear Types[2] Setnet	Drift Net	Fish Wheel	Rod & Reel	Seine	Spear	Not Reported
Kipnuk	7	1	6	0	0	0	0	0
Kwigillingok	2	2	2	0	0	0	0	0
Kongiganak	31	1	25	0	0	0	0	6
N. KUSKOKWIM BAY	40	4	33	0	0	0	0	6
Tuntutuliak	58	1	45	0	0	0	0	13
Eek	51	11	30	0	8	0	0	6
Kasigluk	9	0	8	0	0	0	0	1
Nunapitchuk	59	1	45	0	0	0	0	14
Atmautluak	35	3	27	0	1	0	0	7
Napakiak	49	16	30	0	1	0	0	14
Napaskiak	41	14	27	0	5	1	0	11
Oscarville	8	3	6	0	0	0	0	0
Bethel	388	10	299	0	67	0	0	45
Kwethluk	90	28	67	0	31	0	0	12
Akiachak	78	13	71	0	12	0	0	3
Akiak	45	15	33	0	13	0	0	10
Tuluksak	49	17	35	0	21	0	0	6
LOWER KUSKOKWIM	960	132	723	0	159	1	0	142
Lower Kalskag	36	9	22	0	3	0	0	11
Upper Kalskag	35	8	24	0	7	0	0	8
Aniak	90	10	42	0	56	0	1	15
Chuathbaluk	15	3	11	0	7	0	0	1
MIDDLE KUSKOKWIM	176	30	99	0	73	0	1	35
Crooked Creek	21	8	17	0	7	0	0	3
Red Devil	8	3	2	0	2	0	0	3
Sleetmute	17	3	13	0	7	0	0	1
Stony River	13	6	3	0	8	0	0	0
Lime Village	5	5	1	0	3	0	0	0
McGrath	40	18	3	0	18	0	0	6
Takotna	8	0	0	0	8	0	0	0
Nikolai	19	10	1	1	7	0	0	3
Telida	1	1	0	0	1	0	0	0
UPPER KUSKOKWIM	132	54	40	1	61	0	0	16
KUSKOKWIM RIVER	1268	216	862	1	293	1	1	193
Quinhagak	75	9	38	0	31	0	0	15
Goodnews Bay	39	12	20	0	18	0	0	7
Platinum	10	4	6	0	8	0	0	0
S. KUSKOKWIM BAY	124	25	64	0	57	0	0	22
Mekoryuk	8	4	1	0	3	0	0	1
Newtok	0	0	0	0	0	0	0	0
Nightmute	1	0	1	0	1	0	0	0
Toksook Bay	56	8	41	0	11	0	0	11
Tununak	3	2	1	0	0	0	0	0
BERING SEA COAST	68	14	44	0	15	0	0	12
Chefornak	3	2	1	0	1	0	0	0
TOTALS	1,503	261	1,004	1	366	1	1	233

[1] Data from household surveys, harvest calendars, and postcard surveys.

[2] Households may use multiple gear types.

Table V-5. Estimated Subsistence Harvests of Salmon and Non-Salmon Finfish by Bethel Residents, Kuskokwim Area, 2004.[1]

Total Number of Households = 1,874

Species	Households[2] #	Households[2] %	Number of Fish Harvested for Subsistence[3] Set Net	Drift Net	Net Under Ice	Other Gear	Hooking Through Ice	Rod and Reel	TOTAL
Chinook	508	27.12%	338	26,740		0		427	27,504
Chum	383	20.45%	99	11,931		0		133	12,162
Sockeye	416	22.17%	127	10,409		0		63	10,598
Coho	437	23.31%	139	13,055		0		1,874	15,068
Pink	85	4.55%	34	267		0		79	380
TOTAL SALMON			736	62,401		0		2,575	65,712
Northern Pike	227	12.12%	1,175	243	2,547	12	16,133	521	20,631
Burbot	163	8.68%	466	2	0	8	2,082	447	3,005
Least Cisco	29	1.57%	1,587	0	0	0	20	292	1,899
Bering Cisco	8	0.42%	59	0	0	0	20	0	79
Humpback Whitefish	147	7.84%	3,015	212	881	0	300	441	4,849
Broad Whitefish	121	6.48%	2,033	339	0	0	55	170	2,597
Round Whitefish	6	0.31%	20	2	0	0	0	59	81
Unknown Whitefish	8	0.42%	0	82	0	0	0	43	125
Sheefish	110	5.85%	686	127	10	0	12	65	900
Grayling	43	2.30%	0	0	0	0	0	274	274
Dolly Varden	45	2.40%	0	0	0	0	0	731	731
Rainbow Trout	33	1.78%	2	0	0	0	0	194	196
Lake Trout	10	0.52%	0	0	0	0	0	63	63
TOTAL NON-SALMON			9,043	1,007	3,438	20	18,622	3,300	35,430
TOTAL FISH BY GEAR TYPE			9,779	63,408	3,438	20	18,622	5,875	101,142

	Households #	Households %	Rake #
Lamprey	2	0.1%	0

	Households #	Households %	Trap (Gallons)
Blackfish	59	3.1%	693

	Households #	Households %	Dipnet (Gallons)
Smelt	270	14.4%	2,454

[1] Salmon harvest data are from summer 2004. Data for other species are from 1 October 2003 to 30 September 2004.

[2] Household number and percentage estimates expanded from household surveys only.

[3] Salmon harvest estimates from all sources reallocated to gear types according to survey distribution.

SOURCE: ADF&G Division of Subsistence and Orutsaramiut Native Council, Household Surveys, 2004.

VI. 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. All five species of salmon are utilized for subsistence purposes in Bristol Bay, but the most popular are sockeye, chinook, and coho. 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. Since 1990, under state regulations, all Alaska State residents have been eligible to participate in subsistence salmon fishing in all Bristol Bay drainages (but see below). In 2004, with two exceptions, only gillnets were recognized as legal subsistence gear. In the Togiak District, spear fishing was also allowed. In 1998, the Board of Fisheries adopted new regulations for the taking of "redfish" (spawned sockeye salmon) in portions of the Naknek District. Gillnets, spears, and dipnets may be used along a 100 yard 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 2004, 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.

In Dillingham and the Naknek, Egegik, and Ugashik rivers, subsistence fishing was limited to several fishing periods per week during the peak of the sockeye 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 recent years, declining chinook and coho stocks resulted in longer commercial closures, and some residents had an increasingly difficult time obtaining fish for home use. The Nushagak commercial district, starting in 1988, has been opened for subsistence fishing by emergency order during extended commercial closures.

On May 21, 2001, the National Park Service (NPS) announced that it was prohibiting subsistence fishing with nets in Lake Clark National Park and Preserve, including all of Lake

Clark, except by federally qualified local rural residents. This prohibition was a new enforcement action of an existing NPS regulation and applied to anyone who was not a permanent resident 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.

The Alaska Department of Fish and Game has continued to issue Bristol Bay subsistence salmon permits to any Alaska resident who requests one. However, the department informs permit applicants that unless they live in one of the above-named communities or have a 13.44 permit, they need to take this NPS closure into account when they subsistence fish in waters of the park and preserve. The department also informs permittees that waters outside of national park and preserve boundaries remain open for subsistence salmon fishing to all permit holders.

IN-SEASON MANAGEMENT IN 2004

Due to extended closures to the commercial fishery in the Nushagak commercial fishing district, an emergency order opened the Nushagak commercial fishing district to subsistence salmon harvesting on 12:01 a.m. June 1, 2004. The commercial district was closed by emergency order to subsistence salmon fishing, except during commercial openings, effective 11:00 p.m. June 13. The commercial district was reopened to subsistence fishing effective 8:00 p.m. June 14. The Igushik Section was closed, except during open commercial fishing periods, by emergency order effective 11 p.m. June 15. The Nushagak Section was closed, except during commercial openings, 11 p.m. June 16, and reopened until further notice on June 17 at 8:00 p.m. The Nushagak Section was again closed to subsistence fishing, except during commercial openings, at 8:00 a.m. June 20. Commercial openings occurred everyday from June 20 until the end of September; therefore, no further emergency subsistence fishing openings were necessary.

Due to an extended closure to the commercial salmon fishery in the Togiak District, the commercial fishing district was opened to subsistence fishing by emergency order from 3:00 p.m. June 25 until 9:00 p.m. June 27, 2004. Subsistence fishing opportunities were available in correspondence with commercial fishing openings in the district for the remainder of the season.

An emergency order opened the Naknek River to subsistence fishing for three 24-hour periods per week, from 9 a.m. Saturdays until 9 a.m. Sundays, from 9 a.m. Tuesdays to 9 a.m. Wednesdays, and from 9 a.m. Thursdays until 9 a.m. Fridays, effective 9 a.m. Thursday, July 1, 2004. An additional 24-hour period was justified because the minimum escapement goal of 800,000 sockeye was nearly assured. An emergency order opened the Naknek/Kvichak commercial fishing district to subsistence fishing for a 48-hour period from 3:00 p.m. Tuesday July 6 until 3:00 Thursday July 8. This was to allow subsistence fishing opportunity when the Naknek/Kvichak District was closed to commercial fishing and commercial fishing was occurring in the Naknek River Special Harvest Area (NRSHA).

Additional emergency orders extended this opening to 6:00 p.m. Sunday, July 18. No further commercial fishing occurred in the NRSHA after that date.

In the Egegik District, an additional subsistence fishing period was opened by emergency order when the commercial fishery was closed, from 10 a.m. Friday June 11 until 7:00 a.m. Monday June 14. The department had been informed that some Egegik residents were having difficulty obtaining subsistence fishing locations within the district when the commercial fishery was open. The emergency order provided subsistence fishing time during a commercial closure. Additional subsistence openings in the Egegik District were established by emergency orders from 11:00 a.m. Wednesday, June 16 until 7:00 a.m. Thursday June 17; from 11:30 a.m. June 17 to 7:30 p.m. June 17; from 12:00 noon June 18 to 8:00 p.m. June 18; from 8:30 a.m. Saturday June 19 until 11:30 p.m. June 19; and from 9:30 a.m. to 11:30 p.m. on Thursday June 24.

There were no emergency orders issued for the Ugashik District in 2004.

SALMON HARVEST ASSESSMENT PROGRAM

A permit system was gradually introduced throughout the Bristol Bay region in the late 1960s to document the harvest of salmon for subsistence. 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 the Department in making permits available (including a local system of vendors), contacting individuals, and reminding them to return the harvest forms, and 3) a growing regional population. Most fishers are obtaining permits and reporting their catches, and overall permit returns have averaged between 85 percent and 90 percent. However, fish removed for home use from commercial catches are not included in most reported subsistence harvest totals. Also, fish caught later in the season, such as coho and spawning salmon are probably not documented as consistently as chinook and sockeye.

In 2004, a total of 1,100 permits were issued for the Bristol Bay Management Area, and of these, 940 (85.5 percent) were returned to the Department with harvest data (TableVI-1). The largest number of permits were issued for the Nushagak (511 permits) and Naknek/Kvichak (481 permits) districts. For the Nushagak District slightly more permits were issued in 2004 than the long-term 20-year average (490), due in part to permits being available to all state residents since 1990. Compared to the previous five years and the recent 10-year average, however, the number of permits issued was down for the Nushagak District (recent ten-year average of 528 permits). Fewer permits were issued in the Naknek/Kvichak district in 2002 (471), 2003 (489), and 2004 (481) than in any year since 1990, likely reflecting the National Park Service prohibition against non-drainage residents' subsistence fishing in the waters of Lake Clark National Park. About the same number of permits were issued for the Egegik District in 2004 (46) compared to the average for the past 10 years (48), while the number issued in the Ugashik District (21) was lower than the recent ten-year average (26). The number of permits issued for the Togiak District in 2004 was 46, similar

to recent averages (49 permits on average for 1994 – 2003). However, the number of permits issued in Togiak was lower in 2004 than either 2001 or 2003 (92 permits were issued in both years) when permit data for the Togiak District were supplemented by post-season household surveys conducted by the Division of Subsistence. These surveys were not conducted for 2004 due to lack of funds. Of all Bristol Bay Area subsistence permits issued in 2004, 932 (84.7 percent) were issued to residents of Bristol Bay communities, and 168 (15.3 percent) were issued to other Alaska residents.

SUBSISTENCE SALMON HARVESTS IN 2004

The estimated total Bristol Bay subsistence salmon harvest in 2004 was 126,865 fish (Table VI-1). This number was down slightly from the estimate of 131,667 salmon for 2003 but was higher than the 109,587 salmon estimated for 2002. The 2004 harvest was 6.2% below the recent 10-year average of 134,766 salmon and about 21.7% below the recent 20-year average of 154,454 salmon (Table VI-2).

The area-wide chinook harvest of 18,012 salmon in 2004 was down from the record harvest of 21,231 chinook estimated for 2003, but was higher than any other estimate since 1997 and exceeded both the recent 10-year average (16,026 chinook) and 20-year average (14,934 chinook). The area-wide harvest of 93,819 sockeye salmon was down slightly from the 2003 estimate of 95,690 but higher than the 2002 estimate of 81,088 sockeye (which was the lowest estimated harvest since 1973). The 2004 sockeye harvest was 11.6% below the recent 10-year average of 104,699 sockeyes. Compared to recent 10-year averages, subsistence harvests of pink salmon were up in 2004 (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 2004 (5,141 salmon) was above the recent 10 year average (4,832 salmon) but the coho harvest of 6,667 salmon was slightly lower than the 10-year average (7,586 salmon) (Table VI-2).

In 2004, the Bristol Bay subsistence salmon harvest was composed of 74.0% sockeye, 14.2% chinook, 4.1% chum, 2.5% pink, and 5.3% coho salmon (Fig. VI-1). Of the entire Bristol Bay Area subsistence salmon harvest in 2004, residents of Bristol Bay communities harvested 118,936 salmon (93.8%), and other Alaska residents harvested 7,929 salmon (6.2%) (Table VI-3).

In 2004 as over the last several decades, most of the Bristol Bay Area subsistence harvest was taken in the Naknek/Kvichak (58.6%) and the Nushagak (34.0%) districts (Fig. VI-2). The Naknek/Kvichak total harvest of 74,300 salmon was up from 2003, when the harvest was 63,934 salmon. However, the 2004 subsistence salmon harvest in this district was 3.9% below the recent 10-year average of 77,219 fish and 18.6% below the recent 20-year average of 88,130 salmon.

In 2004, Kvichak drainage residents, and other permit holders fishing in the Kvichak drainage portion of the Naknek/Kvichak District, harvested an estimated 53,225 sockeye salmon, compared to a recent 10-year average of 48,607 sockeyes and a 20-year average of

62,157 sockeyes. The 2004 subsistence harvest of sockeye salmon in the Kvichak drainage was up notably from 2000 through 2003 but was still below historic levels (the ten-year average harvest from 1984 through 1993 was 75,706 sockeyes). Of Kvichak drainage communities, estimated sockeye harvests were substantially lower at Levelock, Igiugig, and Nondalton compared to recent 10-year averages, and somewhat lower at Port Alsworth. The number of permits issued to households with Port Alsworth addresses was 25 in 2004 (and 22 in 2002 and 23 in 2003), down from 30 in 2001 and 37 in 2000. This may be the result of seasonal Port Alsworth residents not obtaining permits because of the NPS prohibition against subsistence fishing in Lake Clark by non-local residents (see above). Sockeye salmon harvests by Port Alsworth subsistence permit holders in 2004 totaled 2,455 fish, compared to a recent 10-year average of 2,627 sockeyes, although the 2004 harvest was the highest since 2000. The number of permits issued to households with non-Kvichak drainage addresses was 25 in 2004 (and 24 in 2003), compared to 33 in 2002, 37 in 2001, and 48 in 2000, and the sockeye salmon harvest by these permittees fell to 1,631 (and 1,591 fish in 2003) compared to a recent 10-year average of 2,758 sockeye salmon. The NPS closure is likely at least partly responsible for this change as well.

In the Nushagak District, the total estimated subsistence harvest in 2004 was 43,154 salmon, the third lowest total on record (the total salmon harvest estimate was 38,500 in 1972 and 40,600 in 1966), and the lowest over the last 20 years. It was down substantially from the 2003 estimate of 55,076 fish. The recent 10-year average is 47,968 salmon. The Nushagak chinook harvest in 2003 of 15,610 exceeded the recent 10-year average of 13,396 chinook, but was down from the 2003 estimate of 18,686 chinook, the highest estimate on record. The sockeye harvest in the Nushagak District of 17,491 in 2004 was, by far, the lowest estimate for the district since at least 1964 (the previous low was 22,777 sockeyes in 2002) (Appendix Table 30). In 2004, subsistence salmon harvests in most Nushagak District communities were lower compared to recent 20-year averages. The 2004 subsistence salmon harvests in the three Nushagak River villages of Ekwok, New Stuyahok, and Koliganek were all down substantially from 2003.

The estimated total subsistence salmon harvest for the Togiak District in 2004 of 3,584 fish was lower than both the recent 10-year average (4,400) and the 20-year average (5,260), and was the lowest estimated subsistence salmon harvest for this district since 1997. This likely reflects at least in part the absence of post-season household surveys in Togiak and Twin Hills for 2004, which had increased participation in the harvest assessment program in 2001 and 2003. The estimated subsistence harvest in the Ugashik District in 2004 was 1,116, much lower than the 10-year average of 2,032, and the lowest estimate since 1985. In the Egegik District, the estimated subsistence salmon harvest of 4,711 was the second highest since 1984 and was much higher than the recent ten-year average of 3,133 salmon. The Egegik District had a record-high subsistence harvest of coho salmon in 2004, at 1,423 fish (compared to a recent 10-year average of 590 coho).

OTHER SUBSISTENCE FISHERIES

In May 2003, new federal regulations authorizing subsistence halibut fishing came into effect. A harvest assessment program for the subsistence halibut fishery was implemented in 2004 (Fall et al. 2004; Fall et al. 2005). Beginning in 2003, subsistence fishing for rainbow trout and char in the Bristol Bay Area under federal subsistence regulations required a federal permit. No permits were issued (Edwards, 2004). These were the only other annual harvest assessment programs in the Bristol Bay Area for non-salmon subsistence fisheries in 2003. The following overview derives primarily from a report that the Division of Subsistence, ADF&G, prepared for the Alaska Board of Fisheries in November 1997 (Fall and Chythlook 1997).

Subsistence Regulations

The Alaska Board of Fisheries has determined that all finfish of the Bristol Bay Management Area support customary and traditional uses (5 AAC 01.336). The Board determined that approximately 250,000 pounds usable weight (about 41 pounds per person) is the amount 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 (Scott et al. 2001). Amounts for specific species or more specific stocks were not established.

For the most part, subsistence fishing for fish other than salmon and rainbow 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 fish other than salmon in the area.

- A permit is required for harvesting trout and char (5 AAC 01.330).[14] However, the department has no program for issuing such permits, and virtually all subsistence fishing for these resources takes place without permits.
- Rainbow trout taken incidentally in other subsistence net fisheries or 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 fish in the Bristol Bay Area appears in Fall et al. (1996). Wright and Chythlook (1985) describe uses of herring spawn on kelp in the Togiak District. Harvests of fish other than salmon contribute about 10 percent of the annual subsistence harvests of wild foods in the Bristol Bay region, about 42.5 pounds per

[14] The Alaska Board of Fisheries removed this permit requirement, beginning in 2004.

person. In the villages, the per capita harvest is 72.6 pounds per person (Fall and Chythlook 1997).

Subsistence harvests of fish other than salmon are not annually monitored by the Department of Fish and Game. Harvest and use data are available for most communities through Division of Subsistence household harvest surveys (Scott et al. 2001; BBNA and ADF&G 1996; Kenner et al. 2003; Krieg et al. 2005). As part of the "Subsistence Fisheries Assessment: Kvichak River Watershed Resident Species" project (FIS 02-034), ADF&G Division of Subsistence and the Bristol Bay Native Association collected subsistence harvest data in Kvichak River watershed communities for the period 10/1/2002 through 9/30/2003. The final report for that project (Krieg et al. 2005) includes detailed information about uses of nonsalmon in eight study communities. Some of the findings of ADF&G research regarding non-salmon fish are summarized in Table VI-4. The vast majority of households in the Bristol Bay area use fish other than salmon for subsistence purposes. Most households also participate in the harvest of these fish. Harvests as measured in pounds useable weight per person for available study years vary from community to community but are generally substantial. Fish other than salmon generally rank third behind salmon and land mammals in their contribution to the total subsistence harvests in Bristol Bay communities.

Harvests and uses of the non-salmon fish listed in Table VI-5 have been documented in Bristol Bay communities through Division of Subsistence research. Uses of other species may occur.

Harvest quantities of particular species vary between communities, subregions, and from year to year. Generally, fish taken in the largest quantities in the area as a whole include smelt, whitefish, Dolly Varden, grayling, and pike (see Fall et al. 1996 for a summary of harvest data).

In the Bristol Bay Area, harvests of non-salmon finfish 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 smelt. Substantial harvests of non-salmon fish occur through the ice in winter. Smelting is a popular activity in October and in late winter when they 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 non-salmon fish for home use in the Bristol Bay Area. Rod and reel is used for most fish and some, such as Dolly Varden/Arctic char, herring, and other marine fish, are removed from commercial catches. Various other methods are used, including (but not necessarily limited to) the following:

- Traps: blackfish, burbot
- Set hooks: burbot
- Handline jigging through the ice: grayling, Dolly Varden/Arctic char, lake trout, smelt, rainbow trout, whitefish, pike
- Set gill nets: grayling, Dolly Varden/Arctic char, lake trout, suckers, rainbow trout, herring, pike, burbot, whitefish

- Beach seining: Dolly Varden/Arctic char, lake trout, smelt, herring, whitefish
- Hand line in open water: halibut, rainbow trout
- Dip nets: smelt, herring

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

Maps of areas used by Bristol Bay communities to harvest non-salmon fish appear in the Alaska Habitat Management Guide Reference Atlas Series (ADF&G 1985), and in Wright et al. (1985). Updated maps of harvest locations for eight communities in the Kvichak watershed appear in Krieg et al. (2005). Harvest activities occur throughout the region in most rivers, lakes, and along shorelines. It is likely that most effort occurs near each community and near seasonal camps at such locations as Kulukak. See Wright and Chythlook (1985) and Schichnes and Chythlook (1988) for maps of herring camps at Kulukak Bay. For frequency of use 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 fish other than salmon. These vary by species and community. Some freezing of harvests of most species occurs. Some examples of other methods include the following:

- Grayling: dried, half-dried, fresh frozen, aged frozen and eaten with seal oil
- Dolly Varden: dried, smoked, half dried (egamaarrluk)
- Pike: dried, half-dried, fresh frozen, aged frozen and eaten with seal oil
- Rainbow trout: dried, half dried, smoked
- Whitefish: dried, fresh frozen, aged frozen and eaten with seal oil

Much dry fish is eaten with seal oil. Some use of brown bear fat with dry fish also occurs. 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). Pike heads and stomachs are boiled and eaten (Schichnes and Chythlook 1991:139). Freshwater fish that are usually eaten frozen with seal oil also form a category called kumlaneq. This includes grayling, whitefish, and pike (Fall et al. 1986:102).

Much traditional knowledge is associated with subsistence uses of nonsalmon fish in the Bristol Bay area. For example, a Yup'ik classification system for some types of freshwater fish exists that is different from that developed by Western science. Three kinds of fish separately named in Central Yup'ik all are classed by biologists as "Dolly Varden." Distinctions are made in Yup'ik 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 of ADF&G has compiled a database with traditional knowledge about the fish of Bristol Bay based on interviews with area residents called "From Neqa to Tepa." Version 2.0 of this database was completed in 2003 as part of FIS project 01-109 (Kenner 2003). Another expanded version of the database incorporating findings from eight Kvichak watershed communities was renamed "*From Neqa to Tepa, Łuq'a to Chuqilin*"

(Version 1.0) to reflect the addition of Dena'ina Athabascan TEK (Krieg et al. 2005; Kenner 2005).

Table VI-1. Subsistence Salmon Harvests by District and Location Fished, Bristol Bay Area, 2004.[1]

Area and River System	Permits Issued[2]	Estimated Number of Salmon Harvested					
		Sockeye	Chinook	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT	481	71,110	1,075	469	1,080	566	74,300
Naknek River	277	17,488	949	419	1,033	493	20,381
Kvichak River/Iliamna Lake:	206	53,225	99	10	43	39	53,416
Alagnak (Branch) River	2	91	0	3	0	0	94
Igiugig	2	773	2	0	0	0	775
Iliamna (community)	3	43	0	0	0	0	43
Iliamna Lake	41	10,060	0	0	0	0	10,060
Kijik	2	135	0	0	0	0	135
Kokhanok	24	11,533	16	6	43	12	11,610
Kvichak River	10	650	0	0	0	0	650
Lake Clark: General	26	2,917	0	0	0	0	2,917
Levelock	3	1,000	81	1	0	27	1,108
Newhalen River	37	12,062	0	0	0	0	12,062
Nondalton Village	14	2,910	0	0	0	0	2,910
Pedro Bay	23	4,712	0	0	0	0	4,712
Pile Bay	1	183	0	0	0	0	183
Port Alsworth	9	733	0	0	0	0	733
Six Mile Lake	27	5,424	0	0	0	0	5,424
Naknek-Kvichak Unspecified	6	397	27	40	4	35	503
EGEGIK DISTRICT	46	2,618	169	410	91	1,423	4,711
UGASHIK DISTRICT	21	804	64	9	4	234	1,116
NUSHAGAK DISTRICT	511	17,491	15,610	3,869	1,944	4,240	43,154
Wood River	120	4,094	2,449	562	148	648	7,901
Lower Nushagak River	32	692	1,418	213	123	291	2,738
Upper Nushagak River	87	2,938	4,423	1,793	398	865	10,416
Dillingham Beaches	236	6,875	6,413	1,173	1,087	1,815	17,363
Nushagak Bay Commercial	45	913	440	65	174	323	1,915
Igushik/Snake River	27	1,919	314	41	12	266	2,552
Nushagak, Site Unspecified	3	60	153	23	2	32	270
TOGIAK DISTRICT	46	1,795	1,094	383	108	204	3,584
TOTAL BRISTOL BAY	1,100	93,819	18,012	5,141	3,225	6,667	126,865

[1] 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 1,100 permits issued for the management area, 940 were returned (85.5%).

Table VI-2. Historic Subsistence Salmon Harvests, Bristol Bay Area, 1983-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1983	829	674	13,268	143,639	7,477	11,646	1,073	177,104
1984	882	698	11,537	168,803	16,035	13,009	8,228	217,612
1985	1,015	808	9,737	142,755	8,122	5,776	825	167,215
1986	930	723	14,893	129,487	11,005	11,268	7,458	174,112
1987	996	866	14,424	135,782	8,854	8,161	673	167,894
1988	938	835	11,848	125,556	7,333	9,575	7,341	161,652
1989	955	831	9,678	125,243	12,069	7,283	801	155,074
1990	1,042	870	13,462	128,343	8,389	9,224	4,455	163,874
1991	1,194	1,045	15,245	137,837	14,024	6,574	572	174,251
1992	1,203	1,028	16,425	133,605	10,722	10,661	5,325	176,739
1993	1,206	1,005	20,527	134,050	8,915	6,539	1,051	171,082
1994	1,193	1,019	18,873	120,782	9,279	6,144	2,708	157,787
1995	1,119	990	15,921	107,717	7,423	4,566	691	136,319
1996	1,110	928	18,072	107,737	7,519	5,813	2,434	141,575
1997	1,166	1,051	19,074	118,250	6,196	2,962	674	147,156
1998	1,234	1,155	15,621	113,289	8,126	3,869	2,424	143,330
1999	1,219	1,157	13,009	122,281	6,143	3,653	420	145,506
2000	1,219	1,109	11,547	92,050	7,991	4,637	2,599	118,824
2001	1,226	1,137	14,412	92,041	8,406	4,158	839	119,856
2002	1,093	994	12,936	81,088	6,565	6,658	2,341	109,587
2003	1,182	1,058	21,231	95,690	7,816	5,868	1,062	131,667
2004	1,100	940	18,012	93,819	6,667	5,141	3,225	126,865
5-Year Average	1,164	1,048	15,627	90,937	7,489	5,292	2,013	121,360
10-Year Average	1,167	1,052	15,983	102,396	7,285	4,732	1,671	132,068
All Years Average	1,093	951	14,989	120,447	8,867	6,963	2,601	153,867

SOURCE: Caylor and Brown 2005.

Table VI-3. Subsistence Salmon Harvests by Community, Bristol Bay Area, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Aleknagik	26	19	885	1,051	187	68	14	2,206
Clarks Point	14	14	193	283	365	52	186	1,079
Dillingham	307	271	8,185	8,911	2,276	1,668	1,268	22,308
Egegik	10	7	101	950	1,356	381	86	2,874
Ekwok	19	15	960	730	77	77	47	1,891
Igiugig	7	7	2	1,336	0	0	0	1,338
Iliamna	28	28	10	6,649	0	0	0	6,659
King Salmon	87	67	197	4,588	135	78	126	5,124
Kokhanok	25	21	18	11,869	12	6	43	11,948
Koliganek	16	11	940	1,079	282	1,245	73	3,619
Levelock	4	3	83	1,200	27	4	0	1,313
Manokotak	20	18	289	1,447	266	39	12	2,052
Naknek	108	86	359	8,877	206	349	885	10,677
New Stuyahok	49	44	3,710	1,304	709	651	340	6,714
Newhalen	32	29	105	15,565	0	0	0	15,670
Nondalton	40	34	0	8,789	0	0	0	8,789
Pedro Bay	22	20	0	4,803	0	0	0	4,803
Pilot Point	5	5	4	84	0	3	2	93
Port Alsworth	25	24	0	2,455	0	0	0	2,455
Portage Creek	1	1	78	12	0	7	0	97
South Naknek	34	33	337	2,320	210	10	19	2,896
Togiak	44	38	1,094	1,770	204	383	108	3,559
Ugashik	9	8	46	495	224	5	1	771
Bristol Bay Subtotal	932	803	17,597	86,567	6,536	5,027	3,209	118,936
Anchorage	78	61	293	3,585	19	74	6	3,977
Anderson	2	1	0	102	0	0	0	102
Barrow	1	1	10	35	0	5	0	50
Bethel	1	1	0	8	0	0	0	8
Big Lake	1	1	0	41	0	0	0	41
Chenega Bay	1	0						
Chugiak	3	3	0	182	0	0	0	182
Copper Center	1	1	0	0	0	0	0	0
Craig	1	1	3	25	0	0	0	28
Dutch Harbor	1	1	0	60	0	0	0	60
Eagle River	7	4	21	544	10	0	2	577
Fairbanks	9	9	21	361	0	5	3	390
Girdwood	4	4	5	133	5	0	1	144
Homer	10	9	19	547	0	10	0	576
Juneau	2	1	0	78	0	0	0	78

[continued]

[Table VI-3 continued]

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Kasilof	3	3	1	29	2	0	0	32
Kenai	5	5	1	102	3	0	0	106
Kodiak (city)	8	7	2	174	0	1	0	177
Nikiski	2	2	3	92	12	4	0	111
North Pole	1	1	2	131	0	0	0	133
Palmer	5	4	5	281	76	5	1	369
Seward	2	2	0	51	0	0	0	51
Sitka	2	1	0	0	0	0	0	0
Soldotna	2	2	0	0	0	0	0	0
Wasilla	16	12	29	692	3	10	3	737
Other Alaska Subtotal	168	137	415	7,252	131	114	17	7,929
Totals	1,100	940	18,012	93,819	6,667	5,141	3,225	126,865

SOURCE: Caylor and Brown 2005.

Table VI-4. Uses and Harvests of Fish Other Than Salmon, Bristol Bay Communities.

		Percentage of Households[2]					Average Pounds Harvested	
Community	Year[1]	Use	Fish for	Harvest	Receive	Give	Per Household	Per Person
Aleknagik	1989	94.7	89.5	89.5	73.7	71.1	208.3	61.4
Clark's Point	1989	94.1	82.4	82.4	82.4	70.6	113.4	34.4
Dillingham	1984	75.0	56.2	54.9	39.9	19.6	51.6	17.5
Egegik	1984	64.0	60.0	60.0	24.0	40.0	36.5	15.7
Ekwok	1987	75.9	72.4	62.1	62.1	37.9	229.4	68.6
Igiugig[3]	2002	100.0	100.0	100.0	63.6	36.4	108.4	30.6
Iliamna[3]	2002	100.0	100.0	100.0			59.4	20.4
King Salmon	1983			76.7			48.1	15.9
Kokhanok[3]	2002	100.0	96.0	92.0	48.0	40.0	115.9	29.4
Koliganek	1987	92.9	81.0	81.0	69.0	57.1	369.7	95.3
Levelock[3]	2002	100.0	100.0	92.3	46.2	84.6	80.7	26.9
Manokotak	1999	86.4	77.8	76.5	76.5	75.3	163.8	37.3
Naknek	1983			75.0			58.0	18.6
New Stuyahok	1987	100.0	85.0	82.5	82.5	62.5	171.9	36.0
Newhalen[3]	2002	100.0	100.0	100.0	39.0	12.2	161.6	47.9
Nondalton[3]	2002	94.4	97.2	83.3	33.3	27.8	38.8	11.8
Pedro Bay[3]	2002	100.0	100.0	100.0	25.0	33.3	24.4	6.3
Pilot Point	1987	94.1	94.1	94.1	35.3	58.8	55.8	15.5
Port Alsworth[3]	2002	100.0	100.0	37.5	100.0	0.0	0.6	0.2
Port Heiden	1987	91.9	62.2	62.2	70.3	45.9	32.6	11.7
South Naknek	1992	85.7	77.1	74.3	68.6	48.6	64.4	20.1
Togiak	1999	89.0	83.5	83.5	56.6	66.4	185.1	44.8
Twin Hills	1999	91.7	91.7	91.7	75.0	91.7	302.9	101.0
Ugashik	1987	100.0	100.0	100.0	0.0	40.0	72.2	36.1

[1] Most recent year for which data are available.

[2] Blank cells indicate data not collected.

SOURCE: Scott et al. 2001; BBNA and ADF&G 1996; Kenner et al. 2003; Krieg et al. 2005.

Table VI-5. Non-Salmon Finfish Used for Subsistence Purposes in the Bristol Bay Area.

Common English Name	Scientific Name	Yup'ik Name	Dena'ina Name
Arctic Grayling	*Thymallus arcticus*	*Nakrullugpak* *Culugpauk*	*Ch'dat'an*
Blackfish	*Dallia pectoralis*	*Can'giiq*	*Huzhegh*
Burbot	*Lota lota*	*Manignaq* [1] *Atgiaq* [2]	*Ch'unya*
Dolly Varden[3]	*Salvelinus malma*	*Yugyaq* [4] *Anerrluaq* *Anyuk*	*Qak'elay*
Lake Trout	*Salvelinus namaycush*	*Cikignaq*	*Zhuk'udghuzha*
Longnose Sucker	*Catosomus catostomus*	*Cungartak*	*Duch'ehdi*
Northern Pike	*Esox lucius*	*Cuukvak*	*Ghelguts'i*
Rainbow Smelt	*Osmerus mordax*	*Iqalluaq*	
Rainbow Trout	*Oncorhynchus mykiss*	*Talaariq*	*Tuni*
Broad Whitefish[5]	*Coregonus nasus*	*Akakiik*	*Telay*
Humpback Whitefish[5]	*Coregonus pidschian*	*Uraruq*	*Q'untuq'*
Round Whitefish[5]	*Prosopium cylindraceum*	*Uraruq*	*Hesten*
Least Cisco	*Coregonus sardinella*	*Cavirrutnaq*	*Ghelguts'i k'una*
Herring, Pacific	*Clupea harengus pallasi*	*Iqalluarpak*	
Herring Spawn on Kelp		*Melucuaq*	
Starry Flounder	*Platichthys stellatus*	*Naternaq*	
Halibut	*Hippoglossus stenolepis*	*Naternarpak*	
Pacific Cod	*Cadus macrocephalus*	*Ceturrnaq*	
Sculpin	Unknown	*Kayutaq*	
Capelin	*Mallotus villosus*	*Cikaaq*	
Yellowfin Sole	*Limanda aspera*	*Sagiq*	

[1] Nushagak River villages.

[2] Manokotak, Aleknagik, Twin Hills, Togiak.

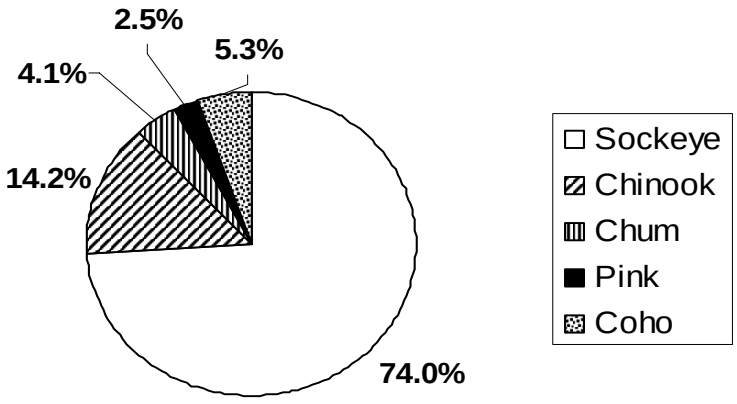
[3] Also includes the closely related Arctic char, *Salvelinus alpinus* .

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

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

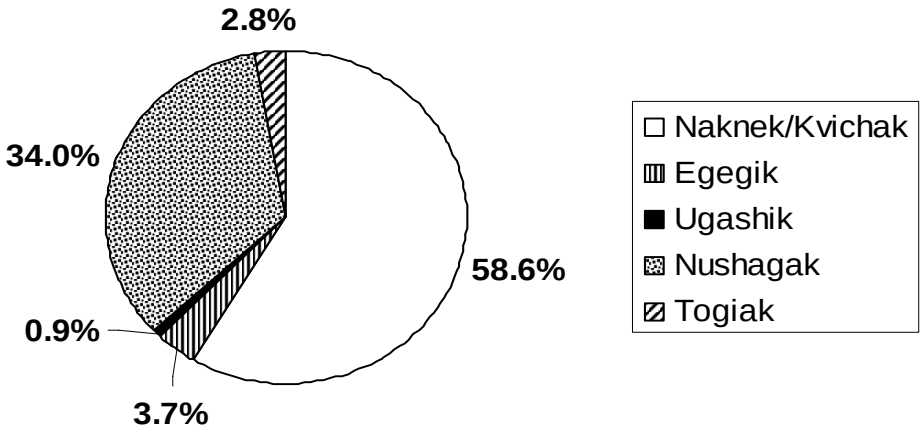
SOURCE: Fall et al. 1996

Figure VI-1. Composition of Bristol Bay Area Subsistence Salmon Harvest by Species, 2004



Total Salmon = 126,865

Figure VI-2. Subsistence Salmon Harvests by District, Bristol Bay Area, 2004



Total Salmon = 126,865

VII. 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; estimated population 79 in 2000), Chignik Lagoon (population 103), Chignik Lake (population 145), Ivanof Bay (population 22), and Perryville (population 107) (U.S. Census Bureau 2001). All of these communities are within the Lake and Peninsula Borough.

In the early 1990s, the Division of Subsistence of ADF&G conducted detailed research on patterns of subsistence use of fisheries resources in the Chignik Management Area. 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 (Hutchinson-Scarbrough and Fall 1999, ADF&G 2002a).

REGULATIONS

A subsistence permit is required for fishing within the Chignik Management Area, which must be used to record daily salmon harvests. Permits must be returned to the Department by December 31. There is a 250 salmon annual limit. Legal gear includes seine and gillnets. Purse seines may not be used in Chignik Lake. There is no closed season for subsistence salmon fishing. However, commercial fishing license holders may not subsistence fish for salmon from 48 hours before the first commercial salmon fishing opening through September 30. Salmon may not be taken in the Chignik River upstream from the Department weir site or counting tower, in Black Lake, or any tributary to Black and Chignik lakes.

Because of the development of new management strategies for the commercial salmon cooperative fishery (begun in 2002), management staff initiated subsistence permit conditions in 2003 that increased subsistence harvest opportunities for commercial fishing license holders. These 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 the Department.

In 2004, the ADF&G provided additional subsistence opportunity within the CMA. As stated by regulation (5 AAC 01.475, Waters Closed to Subsistence Fishing), the Chignik River is closed to subsistence salmon fishing. Through emergency order, the department allowed subsistence users to fish for salmon within the Chignik River excluding the area 100 yards 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.

The regulation, "Restrictions on Commercial Fishermen" (5 AAC 01.485), states that a commercial fishing license holder may not subsistence fish for salmon from 48 hours before the first commercial salmon fishing period through September 30 in the CMA. In 2004, this regulation was relaxed through the provisions of the subsistence fishing permit to allow fishermen to harvest subsistence fish during the commercial fishing season. In addition to obtaining a subsistence permit, commercial fisherman wishing to subsistence fish after the first commercial opening were required to register with the ADF&G at the weir. ADF&G established a schedule for subsistence fishing schedule for these commercial fishers depending upon whether they fished for the cooperative or independently (Bouwens 2004).

HARVEST ASSESSMENT PROGRAM

The Division of Commercial Fisheries conducted the first subsistence salmon harvest assessment in the Chignik Area in 1976. Subsistence harvest assessments for salmon have been conducted annually since then. The Division of Subsistence took over responsibility for running the harvest assessment program in 1993. Permits are issued on 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 local organizations. Permits are also issued on 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. Non-responses are followed up with reminder letters, and phone calls are made where phone numbers are known if further follow-up is required. Also, face-to-face household interviews have been conducted since 1997 to collect harvest information from households that do not obtain permits and to add late season harvest information not recorded on permits. Local survey technicians attempt to contact all households in the Chignik Area. 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 whether or not their subsistence needs were met are also asked.

In 1993, the Division of Subsistence, ADF&G, obtained copies of all available subsistence permits for the Chignik Management Area 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 AMRs differ slightly from those reported in earlier AMRs for several reasons. There are small discrepancies in some years in the number of permits issued or returned. Estimated harvests in earlier AMRs 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 local vendors to issue permits as well as post-season surveys conducted by Department staff and local research assistants.

Comparisons of household survey data and permit data collected for 1984 and 1989 suggested that permit data underestimated subsistence harvests in the Chignik Area subsistence salmon fishery (Hutchinson-Scarbrough and Fall 1996:27). With the assistance of local permit vendors, research assistants, and local 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 2004

Since 1980, the number of subsistence salmon permits issued for the Chignik Area has averaged 102 per year, with 67 permits (65.7 percent) returned. Over the last ten years, the average has been 120 permits issued and 97 permits (80.8 percent returned. The recent 5-year average (2000 through 2004) is 127 permits issued and 101 (79.5 percent) returned. In 2004, 104 permits were issued, and 57 were returned (54.8 percent) (Table VII-1). This was a substantial drop in permits issued and return rate from recent years, and probably reflects difficulties in hiring local residents to collect the permits and conduct post-season household surveys. Of all permits issued for 2004, 90 (86.5.0 percent) were issued to residents of Chignik Area communities, and 14 (13.5 percent) were issued to residents of other Alaska communities (Table VII-2).

In 2004, the estimated subsistence salmon harvest for the Chignik Area was 10,347 fish (Table VII-1). This was below the long-term average (11,260 salmon) as well as the recent ten-year average (13,016 salmon) and five-year average (12,922 salmon). Incomplete participation by subsistence fishers in the harvest assessment program for 2004 may account in part of this low estimate.

Several subsistence users informed the department that despite the adjustments to the CMA subsistence fishery, they were still having difficulty obtaining their subsistence salmon in 2004. Traditionally many families have put up most of their spring salmon just prior to the first commercial opening. Salmon caught in early June are especially important to subsistence users because these fish are traditionally smoked and it is necessary to cure these fish before the flies hatch, which typically occurs in mid- to late-June. ADF&G opened the cooperative commercial fishery in early June when many participants would have been putting up their subsistence fish. Many families had to wait until later in the summer to subsistence fish and the flies created much spoilage. Local subsistence fishers also feel that the early run fish taste better and freeze or salt better if harvested early in the season. Other local residents report both positive and negative changes occurring with their subsistence harvests and cash economy as a result of the creation of the cooperative commercial fishery.

In addition, late run sockeye salmon, which are dried, are harvested from Chignik Lake in the fall by many of the Chignik area residents including some Perryville families. Several

residents, particularly from Chignik Lake, commented to the department that that 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. 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 this late season subsistence fishery passed the Chignik weir. The results of the 2002 studies are described in Anderson (2003).

The 2004 subsistence harvest was made up of 67.9 percent sockeye, 19.1 percent coho, 10.1 percent pink, 2.0 percent chum, and 0.9 percent Chinook salmon (Figure VII-1). Of the total harvest, local residents took 10,134 salmon (97.9 percent) and other Alaska residents harvested 213 salmon (2.1 percent) (Table VII-2; Figure VII-2).

In 2004, the largest number of subsistence salmon (4,282; 41.4 percent) was harvested in Chignik Bay and Chignik Lagoon (Table VII-3). Most of this harvest was sockeyes (91.9 percent). Subsistence harvests in the Perryville and Western districts numbered 4,046 salmon (39.1 percent), with most of this coho (38.5 percent), sockeye (32.2 percent) and pink (24.1 percent), accounting for most of the management area's subsistence harvest of coho and pink salmon. Estimated subsistence harvests in Chignik Lake totaled 2,020 salmon (19.5 percent), mostly sockeye salmon. This total includes spawning sockeye salmon, locally called "redfish," which are harvested in the fall and early winter.

OTHER CHIGNIK AREA SUBSISTENCE FISHERIES

In May 2003, federal regulations authorizing subsistence fishing for halibut in Alaska came into effect. A harvest assessment program for subsistence halibut was implemented in 2003, and harvest estimates for eligible communities and tribes, including all those of the Chignik Management Area, are available for 2003 and 2004 (Fall et al. 2004, Fall et al. 2005).

Although state regulations require a subsistence permit for harvesting trout and char, there are no annual harvest assessment programs for the other subsistence fisheries of the Chignik Area. The Alaska Board of Fisheries, in an update of its customary and traditional use finding in January 2002, has identified subsistence uses of all finfish in the Chignik Area. Table VII-4 lists the finfish 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 Alaska Peninsula-Aleutian Islands Area. The Alaska Board of Fisheries has 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 VII-5 lists the shellfish for which subsistence uses have been documented through systematic household interviews.

In early 2004, the Division of Subsistence of ADF&G 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 fish and marine invertebrates. A summary of these findings appears in Fall (2005) and will appear in future versions of the Community Profile Database.

The reader should consult Morris (1987), Fall et al. (1995), Hutchinson-Scarbrough and Fall (1996), and ADF&G (2002a) for more background on these subsistence fisheries for nonsalmon finfish and for shellfish. For harvest estimates based on systematic household interviews, see the Division of Subsistence Community Profile Database (Scott et al. 2001).

Table VII-1. Historic Subsistence Salmon Harvests, Chignik Area, 1976-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1976			100	6,000	1,500	150	500	8,250
1977			50	9,700	2,400	600	1,800	14,550
1978			50	6,000	500	600	2,100	9,250
1979			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
5-Year Average	127	101	152	9,261	1,860	248	1,401	12,922
10-Year Average	120	97	127	9,346	1,836	291	1,417	13,016
All Years Average	102	67	71	8,823	1,233	257	877	11,260

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5. Quimby and Owen 1994:90 for 1976-1979 and 1987.

Table VII-2. Estimated Subsistence Salmon Harvests by Community, Chignik Area, 2004.

COMMUNITY	PERMITS ISSUED	PERMITS RETURNED	ESTIMATED SALMON HARVEST CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Chignik Bay	16	10	19	306	163	0	0	488
Chignik Lagoon	31	16	16	3,577	78	23	50	3,743
Chignik Lake	12	7	19	1,094	185	0	17	1,315
Perryville	31	22	31	1,846	1,556	179	977	4,588
Subtotal, Area Residents	90	55	85	6,822	1,981	202	1,044	10,134
Anchorage	4	0						
Dillingham	1	0						
Fairbanks	1	0						
Homer	1	0						
King Cove	1	0						
Kodiak (city)	6	2	3	207	0	0	3	213
Subtotal, Other Alaska Residents	14	2	3	207	0	0	3	213
Totals	104	57	88	7,029	1,981	202	1,047	10,347

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table VII-3. Subsistence Salmon Harvests by Species and Sub-Area of Harvest, Chignik Area, 2004.

Subarea of Harvest[1]	Estimated Number of Salmon Harvested[2] Chinook	Sockeye	Coho	Pink	Chum	All Salmon
Chignik Bay and Lagoon	31	3,937	241	50	23	4,282
Chignik Lake	26	1,789	185	20	0	2,020
Perryville	31	1,303	1,556	977	179	4,046
Grand Total	88	7,029	1,981	1,047	202	10,347

[1] 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 Ivan 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.

[2] Estimated based on extrapolating harvests recorded on returned permits. In 2004, 104 permits were issued and 57 were returned (54.8 percent).

Table VII-4. Subsistence Use of Non-Salmon Finfish by Community, Chignik Area, 1989.

Common English Name	Scientific Name	Percentage of Households Using in: Chignik Bay	Chignik Lagoon	Chignik Lake	Ivanof Bay	Perryville
Herring	*Clupea harengus pallasi*	22.9	46.7	28.6	28.6	14.8
Herring Spawn on Kelp	---	14.3	0.0	4.8	0.0	3.7
Pollock	*Theragra chalcogramma*	2.9	0.0	0.0	0.0	0.0
Rainbow Smelt[1]	*Osmerus mordax*	11.4	0.0	47.6	0.0	0.0
Halibut	*Hippoglossus stenolepis*	88.6	100.0	66.7	100.0	96.3
Rainbow Trout	*Salmo gairdneri*	2.9	0.0	23.8	57.1	7.4
Dolly Varden	*Salvelinus malma*	22.9	6.7	38.1	85.7	55.6
Eulachon (Candlefish)	*Thaleichthys pacificus*	22.9	40.0	33.3	100.0	77.8
Pacific Cod (Gray)	*Gadus macrocephalus*	28.6	60.0	47.6	85.7	63.0
Sculpin	*Hemilepidotus sp.*	11.4	0.0	4.8	0.0	29.6
Starry Flounder	*Platichthys stellatus*	5.7	0.0	19.0	14.3	0.0
Greenling	*Hexagrammos decagrammus*	11.4	0.0	9.5	0.0	29.6
Grayling	*Thymallus arcticus*	0.0	0.0	0.0	14.3	0.0
Black Cod	*Anoplopoma fimbria*	0.0	6.7	4.8	0.0	0.0
Steelhead	*Salmo gairdneri*	0.0	13.3	4.8	0.0	0.0
Black Rockfish	*Sebastes melanops*	0.0	6.7	0.0	0.0	22.2
Red Rockfish	*Sebastes ruberrimus*	2.9	0.0	0.0	0.0	3.7
Any Fish Other Than Salmon		89.0	100.0	86.0	100.0	96.0

[1] 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.

Source: Scott et al. 2001; Hutchinson-Scarbrough and Fall 1996

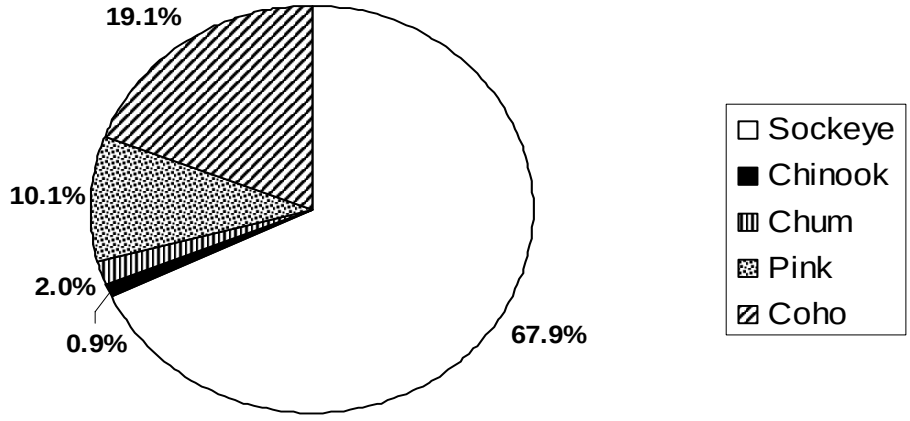
Table VII-5. Subsistence Use of Marine Invertebrates by Community, Chignik Area, 1989.

		Percentage of Households Using in:				
Common English Name	Scientific Name	Chignik Bay	Chignik Lagoon	Chignik Lake	Ivanof Bay	Perryville
Razor Clams	*Siliqua patula*	14.3	33.3	23.8	42.9	37.0
Butter Clams	*Saxidomus giganteus*	71.4	66.7	52.4	71.4	40.7
Horse Clams	*Tresus capax*	11.4	0.0	0.0	0.0	3.7
Cockles	*Clinocardium sp.*	37.1	6.7	47.6	100.0	70.4
Pinkneck Clams (redneck)	*Spicula polynuma*	0.0	0.0	0.0	71.4	3.7
Littleneck (Steamer) Clams	*Protothaca staminea*[1]	11.4	0.0	0.0	28.6	11.1
Chitons, Black	*Katharina tunicata*	48.6	26.7	57.1	100.0	92.6
Chitons, Red	*Cryptochiton stelleri*	0.0	0.0	0.0	85.7	11.1
Mussels (blue)	*Mytilus edulis*	8.6	6.7	0.0	14.3	14.8
Octopus	*Octopus dolfleini*	42.9	20.0	47.6	71.4	51.9
Sea Urchins	*Stronglyocentrotus sp.*	28.6	0.0	47.6	100.0	88.9
Sea Cucumber	Unidentified	0.0	0.0	0.0	0.0	3.7
Shrimp	*Pandalus sp.*	8.6	0.0	4.8	0.0	0.0
Scallops	*Pecten caurinus*	2.9	0.0	0.0	0.0	0.0
King Crab	*Paralithades camtschatica*	40.0	20.0	33.3	42.9	0.0
Dungeness Crab	*Cancer magister*	37.1	40.0	47.6	100.0	51.9
Tanner Crab	*Chionoecetes bairdi*	62.9	66.7	14.3	0.0	3.7
Snails	*Neptunea sp.*	2.9	0.0	0.0	0.0	3.7
Limpets	*Acmaeidae sp.*	2.9	0.0	0.0	0.0	3.7
Any Marine Invertebrate		89.0	87.0	81.0	100.0	96.0

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

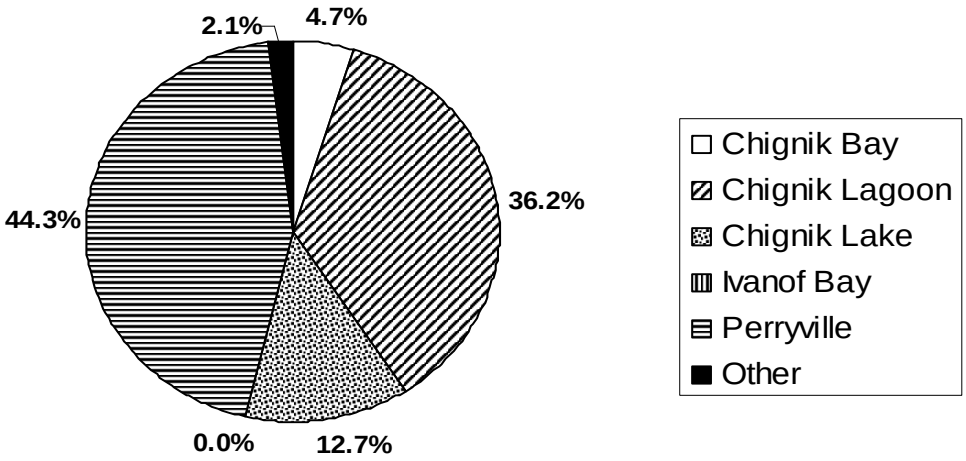
Source: Scott et al. 2001; Hutchinson-Scarbrough and Fall 1996

Figure VII-1. Composition of Chignik Area Subsistence Salmon Harvest by Species, 2004



N = 10,347 salmon, based on annual harvest assessment program with permits and household surveys.

Figure VII-2. Subsistence Salmon Harvests by Community, Chignik Area, 2004



N = 10,347 salmon, based on annual harvest assessment program with permits and household surveys.

VIII: 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 119 in 2000), Nelson Lagoon (population 83), False Pass (population 64), Cold Bay (population 88), King Cove (population 792), and Sand Point (population 952) (U.S. Census Bureau 2001). 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 a 250 salmon annual limit. Legal gear includes seine and gillnets. Set gillnets may not exceed 100 fathoms in length. Salmon may be taken at any time except within 24 hours before and within 12 hours following each open weekly commercial salmon fishing period within a 50-mile radius of the area open to commercial salmon fishing. A few small areas closed to subsistence salmon fishing are listed in 5 AAC 01.425.[15]

Federal regulations governing subsistence salmon fishing in waters under the jurisdiction of the Federal Subsistence Board were generally identical to the state regulations summarized above, except rod and reel, in addition to gill nets and seines, was legal subsistence gear under federal rules. There was no separate federal subsistence permit; a state permit was required for subsistence fishing under the federal regulations.

HARVEST ASSESSMENT PROGRAM

The Division of Commercial Fisheries of ADF&G 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 turned in their permits at the end of the previous fishing season. Sand Point and Cold Bay residents are issued permits on request at the Sand Point

[15] In October 2002, the Alaska Board of Fisheries considered a petition concerning subsistence fishing regulations in the Alaska Peninsula Area. The board asked the department to review and clarify the regulations. The department developed a proposal (Number 199) that the Board adopted at its February 2004 meeting that created a subsistence salmon management plan for the area, and adjusted rules on gear, fishing periods, open areas, and permit requirements. Some of these provisions were instituted in 2003 as permit conditions. The provisions of Proposal 199 came into effect in 2004.

and Cold Bay ADF&G offices. Permits are also issued on request at other ADF&G offices and by mail to people who call in and request them. Regulations require that permits be turned in 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, their name is dropped from the mailing list for the next year. 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 2004

Since 1985, the number of subsistence salmon permits issued for the Alaska Peninsula Area has averaged 202 per year (Table VIII-1). The recent five-year average (2000 through 2004) was 167 permits. But in 2004, only 147 subsistence salmon fishing permits were issued for the Alaska Peninsula Area, the lowest since 1986 (147) and a sharp decrease from 2001 (185 permits issued), continuing a downward trend that began in 1999. The response rate was 91.8 percent in 2004 (135 of 147 permits were returned). Of all permits issued, 122 (83.0 percent) were issued to residents of Alaska Peninsula Area communities, and 25 (17.0 percent) were issued to other Alaska communities (Table VIII-2). Most non-local residents fish at Mortensen's Lagoon on the Cold Bay road system.

In 2004, the estimated subsistence salmon harvest for the Alaska Peninsula Area was 15,049 fish. This was a notable decrease from the year before (harvest of 18,228 salmon) and lower than the long-term average (19,315 salmon) and the recent five-year average (17,285 salmon) (Table VIII-1). The 2004 subsistence harvest was made up of 63.0 percent sockeye, 25.2 percent coho, 6.3 percent chum, 4.0 percent pink, and 1.4 percent chinook salmon (Figure VIII-1). Of the total harvest, local residents took 13,281 salmon (88.3 percent), and other Alaska residents harvested 1,768 salmon (11.7 percent) (Table VIII-2; Figure VIII-2).

In interviews with Division of Subsistence staff, fishery managers stated that in their view, the subsistence permit system does completely document all subsistence salmon harvesting activities because some fishers fail to obtain permits. A comparison of permit and household interview data for 1992 for King Cove found that about 31 percent of interviewed households that reported subsistence fishing did not have permits. 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 percent of interviewed households who reported that they harvested salmon with subsistence methods did not have permits. The estimated total subsistence salmon harvest for Sand Point based on the interviews was 11,338 (+/-2,551), compared to 7,833 based on permit returns (Fall et al. 1993b:61).

Another limitation is that the subsistence permit system for the Alaska Peninsula Area does not account for salmon withheld from commercial catches for home use. Fishery managers believe that this number is substantial, especially in years when commercial salmon prices are low. For 1992, it was estimated that 51 percent of the salmon harvested for home use at

King Cove and 39 percent at Sand Point were removed from commercial harvests (Fall et al. 1993a:56, Fall et al. 1993b:58).

In 2002 and 2003, the Division of Subsistence conducted a project called "Subsistence Fisheries Harvest Assessment and Traditional Ecological Knowledge, Lower Alaska Peninsula and Aleutian Islands," funded by the US Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program as Project No. FIS-02-032. The goals of the project were to collect harvest data for salmon to supplement estimates produced through the subsistence permit program and to collect traditional ecological knowledge (TEK) about fisheries resources. Among other findings, the research documented that King Cove households removed 2,304 salmon from their commercial harvests for home use in 2003, representing 24.4 percent of the total salmon harvest for home use in the community (Davis 2005:116). Another product was a searchable TEK database called "The View from the Beach." For detailed study findings, consult the project's final report (Davis 2005).

OTHER SUBSISTENCE FISHERIES

In May 2003, federal regulations authorizing subsistence harvests of halibut in Alaska were finalized. A harvest assessment program for subsistence halibut was implemented in 2003, and subsistence harvest estimates for eligible communities and tribes, including all of those in the Alaska Peninsula Area, are available for 2003 and 2004 (Fall et al. 2004, Fall et al. 2005).

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 one round of systematic household harvest surveys in each of the Area's communities except 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 Community Profile Database (Scott et al. 2001). Table VIII-3 reports the percentage of households in the surveyed communities that used selected non-salmon finfish species in the study year. Generally, Pacific cod, halibut, and Dolly Varden/char were used by the most households. Survey data for marine invertebrates will be reported in future annual reports.

Table VIII-1. Historic Subsistence Salmon Harvests, Alaska Peninsula Area, 1985-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1985	161	95	74	4,037	7,504	1,566	574	13,755
1986	147	84	101	5,396	2,996	1,455	1,779	11,727
1987	191	144	193	5,777	4,259	1,943	1,547	13,719
1988	183	114	257	5,501	5,646	1,692	1,666	14,762
1989	188	139	88	10,404	3,505	2,104	1,213	17,314
1990	201	157	246	8,588	4,029	1,589	736	15,188
1991	249	185	458	11,345	5,551	3,551	1,878	22,783
1992	229	177	385	10,739	4,267	2,574	1,840	19,805
1993	262	215	615	12,478	5,753	1,997	1,189	22,032
1994	256	213	674	11,884	6,086	4,406	2,206	25,256
1995	260	198	492	12,716	5,021	3,369	2,653	24,251
1996	234	178	362	12,176	7,743	2,728	2,569	25,578
1997	217	172	420	15,224	4,612	2,885	2,955	26,096
1998	233	153	407	12,920	5,820	1,326	2,286	22,759
1999	185	148	391	15,119	4,961	2,235	2,136	24,843
2000	180	152	341	9,955	5,239	1,699	950	18,185
2001	185	155	570	12,259	3,940	1,963	1,181	19,912
2002	157	133	345	9,384	3,188	1,603	532	15,052
2003	166	128	312	10,103	4,266	2,353	1,194	18,228
2004	147	135	218	9,484	3,787	951	609	15,049
5-Year Average	167	141	357	10,237	4,084	1,714	893	17,285
10-Year Average	196	155	386	11,934	4,858	2,111	1,706	20,995
All Years Average	202	154	347	10,274	4,909	2,200	1,585	19,315

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table VIII-2. Subsistence Salmon Harvest Estimates by Community, Alaska Peninsula Area, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Cold Bay	24	24	5	729	35	23	0	792
False Pass	8	6	5	445	424	32	39	945
King Cove	61	54	19	4,748	2,965	448	175	8,356
Nelson Lagoon	4	4	7	105	140	0	0	252
Port Heiden	3	3	60	80	0	0	0	140
Sand Point	22	20	92	1,813	147	385	359	2,796
Subtotal, Area Residents	122	111	189	7,920	3,712	888	572	13,281
Anchorage	6	5	11	232	52	0	0	294
Fairbanks	2	2	4	10	0	0	0	14
Homer	4	4	0	252	21	16	22	311
Kenai	3	3	0	140	0	0	0	140
Kodiak (city)	5	5	7	64	0	23	6	100
Palmer	1	1	7	550	3	24	9	593
Talkeetna	1	1	0	16	0	0	0	16
Unalaska	1	1	0	0	0	0	0	0
Wasilla	1	1	0	50	0	0	0	50
Unknown Community	1	1	0	250	0	0	0	250
Subtotal, Other Alaska Residents	25	24	29	1,564	76	63	37	1,768
Totals	147	135	218	9,484	3,787	951	609	15,049

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table VIII-3. Percentage of Households Using Selected Non-Salmon Finfish, Alaska Peninsula Area Communities.

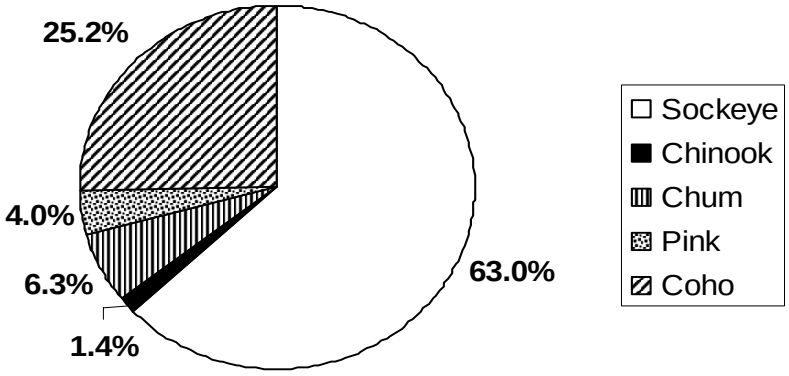
	Percentage of Households Using in Study Year[2]				
Resource[1]	False Pass	King Cove	Nelson Lagoon	Port Heiden	Sand Point
Pacific Cod	65.0%	44.0%	0.0%	2.7%	60.6%
Sablefish	15.0%	8.0%			12.5%
Greenling	10.0%	5.3%			6.7%
Flounder	20.0%	4.0%	7.7%	10.8%	3.8%
Halibut	95.0%	73.3%	0.0%	21.6%	89.4%
Herring	30.0%	22.7%		2.7%	13.5%
Herring Spawn on Kelp	0.0%	2.7%		2.7%	1.0%
Smelt	0.0%	1.3%		48.6%	4.8%
Rockfish	5.0%	36.0%			60.6%
Sculpin	35.0%	6.7%			3.8%
Pollock		2.7%			1.9%
Lake Trout				10.8%	
Dolly Varden/Char	75.0%	66.7%	53.8%	75.7%	51.0%
Rainbow Trout/Steelhead	5.0%	4.0%		2.7%	30.8%

[1] Most commonly used types in the study year; uses of other species occurred, or may occur in other years. Blank cells indicate no data for that resource.

[2] Study year = 1987/88 for False Pass; 1986/87 for Nelson Lagoon and Port Heiden; 1992 for King Cove and Sand Point.

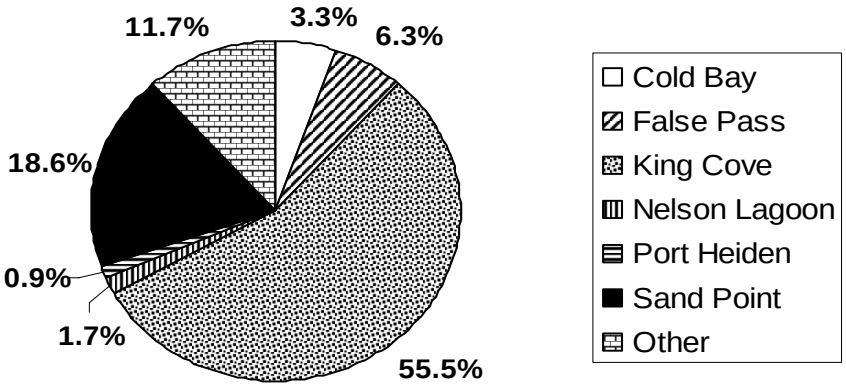
Source: Scott et al. 2001

Figure VIII-1. Composition of Alaska Peninsula Area Subsistence Salmon Harvest by Species, 2004



N = 15,049 salmon; based on annual harvest assessment program with permits.

Figure VIII-2. Subsistence Salmon Harvests by Community, Alaska Peninsula Area, 2004



N = 15,049 salmon; Nelson Lagoon includes Bear Lake; based on annual harvest assessment program with permits.

IX. ALEUTIAN ISLANDS AREA

UNALASKA DISTRICT: SUBSISTENCE SALMON FISHERY

Background

The Aleutian Islands Area includes all waters of Alaska west of the longitude of the tip of Cape Sarichef, east of 172° east longitude, and south of 58° north latitude, including the waters surrounding the Pribilof Islands (5 AAC 01.350). For subsistence purposes, the Aleutian Islands Area is divided into five 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, but 638 live in group quarters [fish processor]; population in households is 75), Unalaska/Dutch Harbor (population 4,283; 2,091 living in households, the remainder in group quarters), Nikolski (population 39), Atka (population 92), and Adak (population 316) (U.S. Census Bureau 2001). Akutan is part of the Aleutians East Borough; the other communities are not part of any organized borough.

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

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 are listed on the permit. 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 from 6 a.m. until 9 p.m. from January 1 through December 31, except 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-mile 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. Subsistence gillnets must be attended at all times while fishing. Waters with in the Unalaska District that are closed to subsistence fishing for salmon are defined in 5 AAC 01.375.

Harvest Assessment Program

The Division of Commercial Fisheries of ADF&G has issued subsistence salmon harvest permits for the Unalaska District since 1979. Permits are issued only in person at the ADF&G office in Dutch Harbor. Unalaska District permits may be dropped off or mailed back to the ADF&G office in Dutch Harbor at the end of the fishing season. They are required by regulation to be returned by October 31. Reminder letters are sent around the

first of November to all permit holders who have not turned in their permits by that time. Data from returned permits are tabulated by species and fishing area. Data from successfully fished permits are then expanded to represent fish taken by all permit holders, including those who did not return permits.

Subsistence Salmon Harvests in 2004

In 2004, 208 subsistence salmon permits were issued for the Unalaska District, slightly lower than 2003 (227 issued) and the recent five-year average of 216 permits, but notably above the long-term average of 155 permits since 1985. The return rate in 2004 was 81.7 percent (170 of 208 permits) (Table IX-1). Individuals with Unalaska/Dutch Harbor addresses obtained 204 permits (98.1 percent), and other Alaska residents obtained the balance, 4 permits (1.9 percent) (Table IX-2).

The estimated subsistence harvest of salmon in the Unalaska District in 2004 was 6,139 fish (the same estimate as in 2003). This is the third-highest annual harvest on record (after the 1986 harvest of 7,139 salmon and the 2002 harvest of 6,837 salmon), well above the long-term average of 4,702 salmon and also higher than the recent five-year average of 6,012 salmon. The 2004 subsistence harvest in the Unalaska District was composed of 76.8 percent sockeye, 15.6 percent coho, 7.1 percent pink, 0.4 percent chum, and 0.1 percent chinook (Figure IX-1). Permit holders with Unalaska/Dutch harbor addresses harvested all but 29 fish (99.5 percent) of the Unalaska District total subsistence catch in 2004 (Table IX-2).

In interviews with Division of Subsistence personnel, ADF&G fishery managers expressed the view that the permit system covers most subsistence salmon fishing occurring in the Unalaska District. In their view, most subsistence fishers obtain permits. They cite the local presence of Fish and Wildlife Protection officers and a population that is self-enforcing (likely to report violators) as reasons for this belief. Unlike in other areas, fishery managers in the Unalaska District feel that commercially caught salmon withheld for subsistence purposes is not a major factor in the Aleutian Islands Area. This is because most commercial fishing occurring in the area is for shellfish and ground fish, not for salmon. Results of a survey of randomly-selected Unalaska households conducted by the Division of Subsistence found that about 4 percent of all salmon harvested for home use were removed from commercial catches, 62 percent were harvested with noncommercial nets, and 34 percent were taken with rod and reel (Scott et al. 2001).

ADAK DISTRICT

Background

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.

Until phased out from 1993 to 1996, Adak was the site of a navy base and military community, with a population of 4,633 in 1990. With the base closure complete, the

population was estimated at 0 in 1997. Since then, a new civilian community has been established. In 2000, the Alaska Boundary Commission approved Adak's application to become a second class city. The estimated population in 2000 was 316 (U.S. Census Bureau 2001).

Regulations

Prior to 1988, the non-commercial salmon net fishery at Adak was classified as a subsistence fishery. Beginning in 1988, this fishery operated as a personal use fishery. The Alaska Board of Fisheries reclassified it again as a subsistence fishery beginning in 1998.

Subsistence regulations in place since 2001 required 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 member of the same household who are listed on the permit. 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. The following waters of and around Adak Island and Kagalaska Island were closed to subsistence fishing for salmon (5 AAC 01.375(6)):

A. All freshwater
B. All salt waters within 100 yards of a stream terminus.

Harvest Assessment Program

Subsistence salmon permits are issued by ADF&G out of the Cold Bay office and are faxed upon request to Adak residents. Permits must be returned by mail or fax to Cold Bay 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 2004

Six subsistence salmon permits were issued for the Adak District in 2004, the same as 2003, but a notable drop from the 13 and 17 permits issued in 2000 and 2001, respectively. All six permits were issued to Adak residents; four of the six (66.7 percent) were returned (Table IX-3). The estimated harvest was 336 salmon, all sockeyes (Table IX-4). This was almost the same as the 2003 harvest (338 sockeye salmon) and an increase over the 150 salmon harvested in 2002. For the period 1988 through 1993 during which the navy base operated at Adak, an average of about 49 personal use permits were issued annually. The average annual harvest during that period was 611 salmon. Since 1999, two years after the establishment of the civilian population at Adak, an average of 8 personal use/subsistence permits have been issued and the average annual harvest has been 313 salmon (Table IX-4).

OTHER SUBSISTENCE SALMON FISHERIES IN THE ALEUTIAN ISLANDS

Permits are not required for subsistence salmon fishing in the waters fished by the communities of Atka, Akutan, and Nikolski, and there are no annual harvest assessment programs in place. The Division of Subsistence of ADF&G conducted post-season household interviews in Akutan and Nikolski pertaining to 1991 subsistence harvests (all resources), and in Atka pertaining to harvests in 1992 (salmon only) and 1994 (all resources). As part of the "Subsistence Fisheries Harvest Assessment and Traditional Ecological Knowledge, Lower Alaska Peninsula and Aleutian Islands" project (FIS 02-032), salmon harvest data were collected for Akutan (2002 and 2003 harvests), Atka (2003 harvests), and Nikolski (2002 and 2003 harvests) (Davis 2005). The results of these interviews are reported in Table IX-5. Subsistence salmon harvests in Akutan in 1991 totaled 3,268 fish. This harvest consisted primarily of sockeye (1,872 fish), pink (915 fish), and coho (429). Subsequent harvest estimates for 2002 and 2003 were lower (1,070 salmon and 1,675 salmon, respectively), but were also primarily sockeye. At Nikolski in 1991, subsistence salmon harvests totaled 1,902 fish, with sockeye (957 fish), coho (547 fish), and pink (327 fish) making up most of the total. The harvest estimates for 2002 (1,137 salmon) and 2003 (1,137 salmon) were lower. At Atka in 1992, the subsistence salmon harvest totaled 1,454 fish, composed of about equal numbers of sockeye (502 fish), coho (465 fish), and pink salmon (459). Subsistence salmon harvests at Atka were higher in 1994, with a total of 2,387 fish. A substantially larger harvest of pink salmon in 1994 (1,267) accounted for most of the difference from the 1992 estimates. The harvest estimate for 2003 of 1,792 salmon was about mid-way between the previous two estimates, but with sockeye salmon predominating.

OTHER SUBSISTENCE FISHERIES IN THE ALEUTIAN ISLANDS AREA

Finfish

In May 2003, federal regulations authorizing subsistence harvests of halibut in Alaska were finalized. A harvest assessment program for subsistence halibut was implemented in 2003, and harvest estimates for all eligible communities and tribes, including all those of the Aleutian Islands Area, are available for 2003 and 2004 (Fall et a. 2004, Fall et al. 2005).

There are no other annual harvest assessment programs for the other subsistence finfish fisheries of the Aleutian Islands Area. Permits are required for the taking of trout and char, but no permit system is in place. Fish other than salmon may be taken by gear specified in 5 AAC 01.010(a), except that under state regulations, halibut may be taken only a single handheld line with no more than two hooks attached. (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 (pertaining to 1991), Atka (1994), Nikolski (1991), Saint George (1994), Saint Paul (1994), and Unalaska/Dutch Harbor (1994). Results, including harvest estimates for finfish and shellfish, can be found in the Community Profile Database (Scott et al. 2001).

Shellfish

Permits for the taking of shellfish for subsistence purposes are only required for king and Tanner crab in the portion of the Alaska Peninsula-Aleutian Islands area west of Scotch Cap Light and east of 168° west longitude. Future annual reports will summarize subsistence harvest data from this permit program. As noted above, estimates of subsistence harvests of all marine invertebrates for single study years based on systematic household surveys are available in the Community Profile Database (Scott et al. 2001).

Table IX-1. Historic Subsistence Salmon Harvests, Unalaska District, 1985-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1985	65	22	0	897	208	20	1,293	2,418
1986	121	28	0	3,449	847	375	2,468	7,139
1987	81	49	0	1,097	378	151	1,780	3,406
1988	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
5-Year Average	216	172	10	4,730	712	47	513	6,012
10-Year Average	207	159	9	3,924	791	46	617	5,387
All Years Average	155	109	6	2,937	680	73	1,075	4,772

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table IX-2. Estimated Subsistence Salmon Harvests by Community, Unalaska District, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
Akutan	2	2	0	14	0	0	0	14
Anchorage	1	1	0	15	0	0	0	15
Dutch Harbor	97	80	5	2,070	313	7	126	2,521
Kodiak (city)	1	0						
Unalaska	107	87	2	2,615	642	18	311	3,589
Totals	208	170	7	4,713	955	26	437	6,139

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table IX-3. Estimated Subsistence Salmon Harvests by Community, Adak District, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
Adak Station	6	4	0	336	0	0	0	336
Totals	6	4	0	336	0	0	0	336

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table IX-4. Historic Subsistence and Personal Use Salmon Harvests, Adak District, 1988-2004.

	PERMITS[1]		ESTIMATED SALMON HARVEST					
YEAR	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[2]	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[3]	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
5-Year Average	9	8	3	317	4	0	18	342
10-Year Average	9	8	1	262	3	0	12	278
All Years Average	23	16	1	341	8	0	29	379

[1] Personal use fishery, 1988 to 1997; subsistence fishery, 1998 to present.

[2] US Navy presence at Adak was reduced beginning in 1994; no requests for personal use permits in 1994.

[3] In 1997, a substantial number of civilians were hired by the Navy to work on a clean-up effort at Adak.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

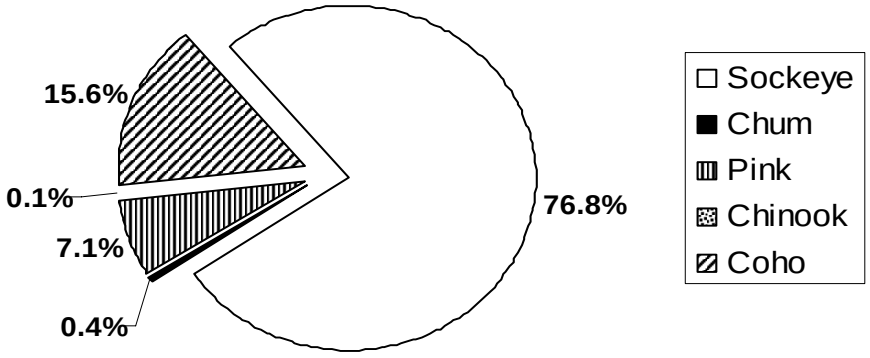
Table IX-5. Estimated Subsistence Harvests of Salmon by Residents of Akutan, Atka, and Nikolski.

Community	Year	Estimated Number of Households Harvesting	Estimated Harvests in Number of Salmon[1]						
			Chum	Coho	Chinook	Pink	Sockeye	Other/ Unknown	All Salmon
Akutan	1991	24	36	429	10	915	1,872	6	3,268
Akutan	2002	NA	44	147	0	70	809	0	1,070
Akutan	2003	NA	0	127	3	275	1,270	0	1,675
Atka	1992	18	24	465	4	459	502	0	1,454
Atka	1994	23	133	583	10	1,267	394	0	2,387
Atka	2003	NA	0	333	8	264	1,187	0	1,792
Nikolski	1991	12	54	547	0	327	957	17	1,902
Nikolski	2002	NA	0	643	0	182	312	0	1,137
Nikolski	2003	NA	0	270	12	35	287	0	604

[1] Includes harvests for home use by all methods, including subsistence nets, rod & reel, and removal from commercial harvests.

Source: ADF&G, Division of Subsistence Household Surveys; Scott et al. 2001; Davis 2004

Figure IX-1. Composition of Unalaska District Subsistence Salmon Harvest by Species, 2004



N = 6,139 salmon; based on annual harvest assessment program with permits.

X: KODIAK AREA

INTRODUCTION

The Kodiak Management Area encompasses the waters of the western Gulf of Alaska surrounding the Kodiak Archipelago and along that portion of the Alaska Peninsula that drains into Shelikof Strait between Cape Douglas and Kilokak Rocks. It also includes Chirikof Island. The major communities within the Kodiak Management Area include Akhiok, Chiniak, the Coast Guard Base, Karluk, the city of Kodiak, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions. All are within the Kodiak Island Borough, which had an estimated population in 2000 of 13,913 (U.S. Census Bureau 2001).

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 2004, legal gear for subsistence salmon fishing under state regulations included gillnets and seines, and fishers were required to be physically present while the net was being fished. Generally, fishing was open year-round from 6:00 a.m. to 9:00 p.m. 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 open commercial salmon fishing period. During the same time span, 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 are 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.

Federal regulations governing subsistence salmon fishing in waters under the jurisdiction of the Federal Subsistence Board were generally identical to the state regulations summarized above, except rod and reel, in addition to gill nets and seines, was legal subsistence gear under federal rules. There was no separate federal subsistence permit; a state permit was required for subsistence fishing under the federal regulations.

HARVEST ASSESSMENT PROGRAM

ADF&G's Division of Commercial Fisheries runs the subsistence salmon harvest assessment program for this management area out of the Kodiak office. Permits are mailed each year to people who turned in their permits at the end of the previous fishing season. Subsistence permits are also issued on request at ADF&G offices and by mail to people who call in and request one. In addition, field camp staff at Karluk and Olga Bay issue permits on request.

In June 2001, staff from the Division of Commercial Fisheries and the Division of Subsistence of ADF&G traveled to the six small Kodiak Island Borough communities (Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions) to implement a local permit vendor system. A resident in each community was trained to issue subsistence fishing permits. Outreach occurred in each community as well to encourage subsistence fishers to obtain permits, record their harvests, and return the permits at the end of the season. The vendor program has remained in place through the 2004 fishing season.

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

SUBSISTENCE SALMON HARVESTS IN 2004

In 2004, subsistence fishers returned 2,240 subsistence permits to the Department (Table X-1). Of all returned permits, 1,887 (84.2 percent) were held by residents of Kodiak Island Borough communities, and 353 (15.8 percent) were issued to other Alaska residents (Table X-2). As usual, individuals and families with Kodiak city addresses accounted for a very large number of the total permits in 2004 (1,686; 75.3 percent of all permits returned).

In the Kodiak Area, tabulated subsistence harvest data are not expanded. Results of the assessment program reflect only the reported harvests of subsistence fishers who obtained and returned permits. The reported total Kodiak Area subsistence salmon harvest in 2004 was 38,071 fish (Table X-1). This number is very similar to the recent 5-year average of 38,704 salmon and slightly higher than the recent 10-year average of 35,872 salmon. Of the entire management area harvest, 36,828 salmon (96.7 percent) were harvested by residents of Kodiak Island Borough communities, and 1,243 salmon (3.3 percent) were harvested by other Alaska residents (Table X-2).

In 2004, the Kodiak Area subsistence salmon harvest was composed of 79.4 percent sockeye, 15.3 percent coho, 3.7 percent pink, 1.0 percent chinook, and 0.7 percent chum salmon (Figure X-1).

In interviews with Division of Subsistence staff, fishery managers within Division of Commercial Fisheries expressed uncertainty about the extent to which subsistence salmon harvests in the Kodiak Management Area are documented by the permit system. They suspected that a substantial amount of subsistence harvesting occurs without permits, especially in areas off of the road system. Comparisons of subsistence harvests based on returned permits with those from household harvest surveys (as reported in the Community Profile Database; Scott et al. 2001) suggest that subsistence salmon harvests are substantially higher than permit returns indicate. Delivery of permits to subsistence fishers living in the six communities off the island road system has been problematic in the past, but as noted above, in recognition of this problem, a local permit vendor system was implemented in 2001. This outreach appeared to result in increased participation in the permit system in the six smaller communities: 189 households from these communities returned subsistence

permits in 2001, 167 in 2002, 165 in 2003, and 170 in 2004 (Table X-2), compared to 100 in 2000 (ADF&G 2002c:105). The reported subsistence salmon harvest for the six communities was 9,034 in 2001, 9,386 in 2002, 8,714 in 2003, and 7,845 in 2004, compared to 6,299 in 2000 (Table X-2, ADF&G 2002c:105). Additional research and outreach need to take place to assess these recent harvest data.

The permit system in this management area might also be improved by adding documentation of rod and reel fishing as a subsistence take method. This gear type is allowed for subsistence salmon fishing under federal subsistence rules. Accounting of fish removed from commercial harvests needs to also occur for a full picture of home use salmon harvests in the Kodiak Management Area.

In early 2004, the Division of Subsistence of ADF&G and the Kodiak Area Native Association (KANA), in a project funded by the *Exxon Valdez* Oil Spill Trustee Council, conducted comprehensive household surveys in Akhiok, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions that, among other things, collected updated harvest data for salmon, other nonsalmon fish, and marine invertebrates. Detailed study findings appear in Fall (2005).

Also, the Division of Subsistence in 2004 received funding through the Fisheries Information Services division of the Office of Subsistence Management, USFWS, to investigate subsistence fishing harvests and uses in Kodiak Island Borough communities and to conduct additional outreach activities (Project FIS 04-457). Future annual reports will incorporate findings from this study.

OTHER SUBSISTENCE FISHERIES

In May 2003, federal regulations authorizing subsistence harvests of halibut in Alaska were finalized. A harvest assessment program for subsistence halibut was implemented in 2003, and harvest data for eligible communities and tribes, including all those of the Kodiak Management Area, are available (Fall et al. 2004, Fall et al. 2005).

There are no other annual harvest assessment programs for the other subsistence finfish fisheries of the Kodiak Management Area. Harvest estimates based on systematic household surveys conducted by the Division of Subsistence are available for resident and marine species for multiple years for each Kodiak Island Borough community. These estimates can be found in the Community Profile Database (Scott et al. 2001). Fish harvested in the largest quantities and used by the most households include Pacific cod, lingcod, flounder, halibut, rockfish, and Dolly Varden.

Subsistence permits are required for the harvest of king, Tanner, and Dungeness crab in the Kodiak Area (5 AAC 02.410). Regulations also establish size, bag and possession limits for each type of crab. Only male crab may be taken. In addition to crab, other marine invertebrates used for subsistence purposes in the Kodiak Area include, but are limited to, clams, cockles, mussels, chitons, octopus, and sea urchins. Future annual reports will

summarize the subsistence harvest data for marine invertebrates based on permit programs and household surveys.

Table X-1. Historic Subsistence Salmon Harvests, Kodiak Area, 1986-2004.

	PERMITS		REPORTED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1986	1,244	1,002	90	14,391	6,998	605	2,371	24,455
1987	1,124	880	101	13,198	6,463	1,299	2,421	23,482
1988	1,098	699	108	10,081	4,291	377	1,320	16,177
1989	2,800	717	43	12,638	4,123	419	1,553	18,776
1990	2,900	1,167	131	17,959	8,627	655	1,605	28,977
1991	1,406	1,225	177	21,835	8,208	714	1,743	32,677
1992	1,561	1,195	318	20,684	8,643	643	1,646	31,934
1993	1,496	959	243	19,471	7,176	838	2,696	30,424
1994	2,550	1,464	205	17,962	7,491	440	1,758	27,856
1995	1,950	1,194	175	19,416	5,603	293	1,548	27,035
1996	1,567	1,390	253	28,287	5,117	381	1,125	35,163
1997	2,098	1,638	383	33,293	6,369	234	1,458	41,737
1998	1,841	1,126	350	20,459	5,348	214	1,412	27,783
1999		1,438	397	26,497	4,932	388	1,266	33,480
2000		1,376	273	24,873	5,399	341	742	31,628
2001		2,153	273	33,833	5,920	427	1,158	41,611
2002		2,271	593	32,977	6,057	350	1,665	41,642
2003		2,275	500	32,104	6,096	384	1,484	40,568
2004		2,240	379	30,217	5,819	261	1,395	38,071
5-Year Average		2,063	404	30,801	5,858	353	1,289	38,704
10-Year Average		1,710	358	28,196	5,666	327	1,325	35,872
All Years Average		1,390	263	22,641	6,246	488	1,598	31,236

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table X-2. Subsistence Salmon Harvests by Community, Kodiak Area, 2004.

COMMUNITY	PERMITS ISSUED	PERMITS RETURNED	REPORTED SALMON HARVEST CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Afognak Island		1	0	125	0	0	0	125
Akhiok		8	0	102	0	0	11	113
Chiniak		29	13	382	385	9	2	791
Karluk		3	0	0	0	0	0	0
Kodiak (city)		1,686	224	24,029	3,108	120	583	28,064
Larsen Bay		28	21	958	19	0	23	1,021
Old Harbor		39	13	574	1,001	85	531	2,204
Ouzinkie		43	23	1,525	514	35	168	2,265
Port Lions		49	43	1,519	612	3	65	2,242
Uganik Bay		1	3	0	0	0	0	3
Subtotal, Kodiak Island Borough		1,887	340	29,214	5,639	252	1,383	36,828
Anchor Point		2	0	25	0	0	0	25
Anchorage		138	25	600	129	7	6	767
Bettles		1	0	0	0	0	0	0
Big Lake		3	0	0	0	0	0	0
Cantwell		1	0	0	0	0	0	0
Central		2	0	0	0	0	0	0
Chickaloon		1	0	0	0	0	0	0
Chugiak		6	0	12	0	0	0	12
Cordova		2	0	0	0	0	0	0
Craig		2	0	0	0	0	0	0
Douglas		1	0	40	0	0	0	40
Dutch Harbor		2	0	0	0	0	0	0
Eagle River		14	0	12	11	0	0	23
Fairbanks		31	1	43	0	1	0	45
Girdwood		3	0	0	0	0	0	0
Gustavus		2	0	0	0	0	0	0
Homer		27	0	91	0	0	0	91
Juneau		7	11	8	9	1	6	35
Kasilof		2	0	0	20	0	0	20
Kenai		8	0	0	0	0	0	0
Ketchikan		1	0	0	0	0	0	0
Moose Pass		1	0	0	0	0	0	0
Nikiski		3	0	0	0	0	0	0
North Pole		1	0	0	0	0	0	0
Other USA		16	0	110	0	0	0	110
Palmer		22	0	0	0	0	0	0
Sand Point		2	0	0	0	0	0	0
Seldovia		1	0	0	11	0	0	11
Seward		3	2	0	0	0	0	2

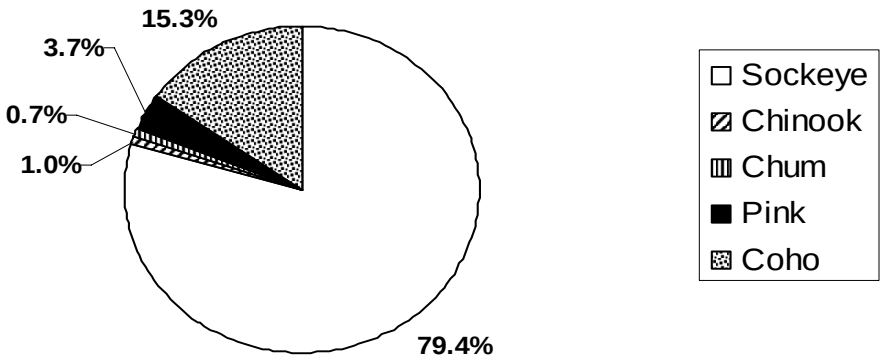
[continued]

[Table X-2 continued]

Sitka	3	0	25	0	0	0	25
Soldotna	22	0	15	0	0	0	15
Sterling	2	0	0	0	0	0	0
Sutton	1	0	0	0	0	0	0
Talkeetna	1	0	0	0	0	0	0
Unalaska	1	0	0	0	0	0	0
Valdez	2	0	0	0	0	0	0
Wasilla	15	0	22	0	0	0	22
Willow	1	0	0	0	0	0	0
Subtotal, Other Alaska	353	39	1,003	180	9	12	1,243
Totals	2,240	379	30,217	5,819	261	1,395	38,071

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Figure X-1. Composition of Kodiak Area Subsistence Salmon Harvest by Species, 2003



XI. COOK INLET AREA

INTRODUCTION

Most of the waters of the Cook Inlet Management Area are within the Anchorage-MatSu-Kenai Nonsubsistence Area as established by the Joint Boards of Fisheries and Game (5 AAC 99.015(3)). Subsistence fisheries are not authorized within these nonsubsistence areas. Non-commercial harvesting opportunities are provided under sport and personal use fishing regulations. Harvest summaries for the personal use dip net and set net 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 eastern most point of Jakolof Bay north of the westernmost point of Hesketh Island including Jakolof Bay and south of a line west of Hesketh Island and the waters south of Point Bede which are west of the easternmost point of Rocky Bay, which are in Lower Cook Inlet.

Communities within the areas outside the nonsubsistence zone include Skwentna (population 111 in 2000), Alexander (population 39 [in 1999] [ADLWD 2000]), Tyonek (population 193), Seldovia (population 430 in city and village CDP), Port Graham (population 171) and Nanwalek (English Bay) (population 177). The population of the entire Cook Inlet Area in 2000 was 369,296, including the Anchorage Municipality (population 260,283), the Kenai Peninsula Borough (49,691), and the Matanuska-Susitna Borough (59,322). This represents 58.9 percent of the state's total population in 2000 (U.S. Census Bureau 2001).

PORT GRAHAM AND KOYUKTOLIK SUBDISTRICTS

History and Regulations

A separate set of subsistence regulations for this subsistence setnet fishery was first established by the Alaska Board of Fisheries 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 opens April 1st and closes in the Port Chatham and Windy Bay subdistricts on August 1st and in the Port Graham and Koyuktolik subdistricts on September 30th. There have been frequent emergency closures and openings during July when escapements of sockeye salmon into the English Bay River are being closely monitored to achieve minimum

escapement goals. Throughout the season, two 48-hour openings occur each week. The area open to subsistence set netting includes the entire shoreline of the subdistrict to a regulatory marker near the head of Port Graham Bay. There are no season or household bag or possession limits. The three 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 six-inch stretched mesh. A lead may be used on the shoreward end of the net.

Harvest Assessment Methods

The Department of Fish and Game, Division of Subsistence, issues household permits through cooperative agreements with the Port Graham and Nanwalek village councils prior to fishing. When permits are issued, a separate monthly catch calendar is also issued for recording daily household harvests. Home use salmon harvests by the two communities occur with the use 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 two pages, one for each gear type, and is issued separately from the permit. Local assistants hired by each village council collect the calendars periodically throughout the season. Dolly Varden harvests are also recorded on the calendars. (Future annual reports will summarize the Dolly Varden data.)

The sockeye salmon run to the English Bay Lakes was severely depressed for much of the late 1980s and early 1990s, with returns failing to achieve the minimum escapement goal for nine 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 2003:62). In-season escapement monitoring has taken place since 1994, with openings and closures in the subsistence and commercial fisheries controlled by emergency order. Inconsistent returns 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 2005:41).

Harvest Estimates

A poor return of only 18,000 sockeye salmon to English Bay lakes was forecast for 2004 (Hammarstrom and Dickson 2005:41), compared to a return of 75,500 harvestable adult sockeye salmon for the English Bay lakes in 2003 (Hammarstrom and Dickson 2004:45). Although the commercial set gillnet fishery in waters of the Port Graham Subdistrict was kept closed at the start of the commercial season in early June, the subsistence fishery remained open during the sockeye return (Hammarstrom and Dickson 2005:41).

In 2004, subsistence salmon harvests in the Port Graham and Koyuktolik subdistricts totaled 6,953 salmon, including both set net and rod and reel harvests (Table XI-1). The 2004 harvest declined from the record harvest of 2002 of 14,342 salmon and the near-record total

of 9,109 in 2003. The harvest in 2004 was consequently below the recent five-year average (8,782 salmon) but above the recent 10-year average (6,381 salmon) and long-term average (5,206 salmon) for the fishery (Table XI-1). This was undoubtedly due to a low return of sockeye salmon to the English Bay River in 2004 compared to the previous years.

In 2004, residents of Nanwalek, with 25 permits returned, harvested 5,234 salmon, and residents of Port Graham, with 55 permits returned, took 1,719 salmon; there were no other participants in the fishery (Table XI-2). Of the total harvest, sockeye salmon were the most numerous species (3,525 salmon; 50.7 percent), followed by pink (1,600 salmon; 23.0 percent), coho (1,303 salmon; 18.7 percent), chinook (312 salmon; 4.5 percent), and chum (213 salmon; 3.1 percent) (Figure XI-1).

SELDOVIA SUBSISTENCE FISHERY

History and Regulations

This is a subsistence set gillnet fishery that was established in the fall of 1995 by the Alaska Board of Fisheries. The fishery is located on the south side of Kachemak Bay in the vicinity of the community of Seldovia in the Southern District of the Lower Cook Inlet Area. The fishery targets chinook salmon runs passing through lower Cook Inlet and a separate enhanced chinook run returning to Seldovia Bay. Coho salmon are targeted in a fall fishery.

The fishery operates in a split season with two parts, the first occurring from April 1 through May 30 and the second occurring during the first two weekends in August. In the early season, fishing is allowed during two 48-hour periods each week, while in the late season, fishing is open continuously during the two-day weekends. There is a guideline harvest limit of 200 chinook salmon set for the early season and an annual possession limit of 20 chinook per household. There are no seasonal limits for the other 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 proper 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 six inch stretched mesh.

Harvest Assessment Methods

Household permits are issued by the Department of Fish and Game prior to fishing, and catches are recorded on the permits. Permits are also available from the harbormaster in Seldovia. Fishers are required to call in daily to report their catches to ADF&G as well as return their permits after each of the two segments of the season. ADF&G sends reminder letters to permit holders if harvest records have not been returned in a timely manner, and phone calls are also made to enhance permit returns. ADF&G considers the harvest data for this fishery to be very reliable.

The 2004 Season

There were 14 permits issued for the Seldovia subsistence fishery in 2004. Twelve permits were returned to the Department as required by regulation (85.7 percent). The estimated harvest was 102 chinook salmon, 69 sockeyes, 5 coho, 18 chum, and 65 pink, for a total of 258 salmon. All but one (13 permits) of the permits were issued to residents of Seldovia; one permit was issued to an Anchorage resident (Table XI-3).

The 1998, 1999, 2000, 2001, 2002, 2003, and 2004 harvests increased from the first two years of the fishery, and this increase can be attributed to the longer season for the seventh straight year. Beginning with the 1998 season, the Board of Fisheries lengthened the season by ten days in May. The additional fishing time resulted in increased harvests of both chinook and sockeye salmon (Table XI-4). The total harvest in 2004 of 258 salmon was lowest since 1998 and was down from the record harvest of 496 salmon in 2003.

TYONEK SUBDISTRICT

History and Regulations

A separate set of subsistence salmon fishing regulations was first established for the Tyonek Subdistrict by court order in 1980 and subsequently established permanently by the Alaska Board of Fisheries. This setnet fishery is located in the Tyonek Subdistrict of the Northern District of upper Cook Inlet. The subdistrict includes the area from one mile south of the mouth of the Chuitna River south to the eastern-most part of Granite Point and from the mean high tide to the mean 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 permission to land their boats or set their nets on the privately owned land. For a detailed discussion of this fishery and other subsistence uses at Tyonek, see Fall et al. (1984).

The season in this subsistence fishery operates in two parts. The first part, which focuses on chinook salmon, opens May 15th and runs through June 15th with daily openings on Tuesdays, Thursdays, and Fridays. The second part opens on Saturdays from June 16th through October 15th. A 4,200 chinook salmon limit in set for the early season. If this limit is reached, the second season does not open until July 1st. In the more than 20 years of operation of this fishery, the chinook salmon limit 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 inches. When fishing, permit holders are required to be present at the net site.

Harvest Assessment Methods

Household permits are issued by the Department of Fish and Game prior to fishing, and catches are recorded on the permits. Two separate permits are required, one for the early

season and one 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 assistance from the Tyonek village government, ADF&G views the harvest estimates for this fishery as very reliable.

The 2004 Season

In 2004, 97 subsistence permits were issued for the Tyonek District, including 75 permits issued to Tyonek residents (77.3 percent) and 22 permits issued to other Alaska residents (22.7 percent), mostly residents of Anchorage (14 permits) (Table XI-5). The total reported subsistence salmon harvest was 1,568 fish, with 1,345 chinook, 93 sockeye, and 130 coho. Residents of Tyonek accounted for 86.0 percent of the harvest total (1,349 salmon), including 85.8 percent of the chinook harvest (1,154 salmon). The total 2004 salmon harvest was close to the long-term average for this fishery of 1,619 salmon, but was the highest total since 1988 and above the recent five-year (1,372 salmon) and ten-year (1,332 salmon) averages (Table XI-6).

UPPER YENTNA RIVER FISH WHEEL FISHERY

History and Regulations

This is a subsistence fish wheel fishery that began in 1996 as a personal use fishery and was reclassified as a subsistence fishery by the Board of Fisheries beginning in 1998. It is located in the main stem of the Yentna River from its confluence with Martin Creek upstream to its confluence with the Skwentna River. The fishery occurs from July 15 through July 31. Fishing periods are from 4 a.m. to 8 p.m. Monday, Wednesday, and Friday.

Legal gear includes a fish wheel with a live box. Permit holders must be present at the fish wheel while fishing. A season limit of 2,800 salmon is established for the fishery. Chinook salmon and rainbow trout must be returned alive to the water. Seasonal limits for households are 25 salmon for a head of household and 10 salmon for each dependent.

Harvest Assessment Methods

A permit issued by the ADF&G is required prior to fishing. Permits are available through the Division of Sport Fish office in Palmer. Permit holders must record their harvests on the permit and return it to the Department. In the view of ADF&G, compliance with the permit requirement is high and harvest estimates for this fishery are very reliable.

Harvests in 2004

Twenty-one subsistence permits were issued for the Yentna River subsistence fish wheel fishery in 2004. All but two were returned to ADF&G (90.5 percent). In 2004, 11 of the 21 permit holders resided in the Skwentna/Lake Creek area, with the remaining 10 permits held

by residents of Anchorage (2 permits), Chugiak (4 permits), Willow (2 permits), Wasilla (1 permit), and Big Lake (1 permit) (Table XI-7). The total harvest in 2004 was 625 salmon, including 441 sockeye (70.6 percent), 146 coho (23.4 percent), 36 pink (5.8 percent), and 3 chum (0.5 percent). (Chinook salmon may not be retained in this fishery.) The 2004 harvest was slightly higher than the five-year average (595 salmon) and also above the long-term average of 595 salmon (Table XI-8).

Table XI-1. Historic Subsistence Salmon Harvests, Port Graham and Koyuktolik Subdistricts, 1981-2004.

	PERMITS		REPORTED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1981		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
5-Year Average		65	303	5,086	1,298	483	1,613	8,782
10-Year Average		61	327	3,274	1,016	456	1,308	6,381
All Years Average		55	221	2,157	1,016	282	1,530	5,206

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-2. Subsistence Salmon Harvests by Community, Port Graham and Koyuktolik Subdistricts, 2004.

	PERMITS		REPORTED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Nanwalek		25	52	2,968	842	95	1,277	5,234
Port Graham		55	260	557	461	118	323	1,719
Totals		80	312	3,525	1,303	213	1,600	6,953

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-3. Subsistence Salmon Harvests by Community, Seldovia Fishery, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Anchorage	1	1	5	0	0	0	0	5
Seldovia	13	11	97	69	5	18	65	253
Totals	14	12	102	69	5	18	65	258

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-4. Historic Subsistence Salmon Harvests, Seldovia Fishery, 1996-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1996	43	42	51	9	0	0	0	60
1997	20	17	52	22	0	0	0	74
1998	22	20	143	65	0	8	0	216
1999	16	16	136	130	0	38	0	304
2000	22	22	179	252	0	16	0	447
2001	19	16	149	142	0	0	0	290
2002	20	20	124	234	13	11	31	413
2003	18	15	117	290	2	66	22	496
2004	14	12	102	69	5	18	65	258
5-Year Average	19	17	134	197	4	22	24	381
All Years Average	22	20	117	135	2	17	13	284

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-5. Subsistence Salmon Harvests by Community, Tyonek Subdistrict, 2004.

	PERMITS		REPORTED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Alexander Creek	1	1	0	0	0	0	0	0
Anchorage	14	10	104	11	0	0	0	115
Big Lake	1	1	0	0	0	0	0	0
Eagle River	1	1	8	0	0	0	0	8
Kenai	1	1	61	2	0	0	0	63
Palmer	3	3	18	0	0	0	0	18
Tyonek	75	57	1,154	75	120	0	0	1,349
Wasilla	1	1	0	5	10	0	0	15
Totals	97	75	1,345	93	130	0	0	1,568

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-6. Historic Subsistence Salmon Harvests, Tyonek Subdistrict, 1980-2004.

	PERMITS		REPORTED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1980	67		1,757	235	0	0	0	1,992
1981	70		2,002	269	64	32	15	2,382
1982	69		1,590	310	113	4	14	2,031
1983	75		2,665	187	59	6	0	2,917
1984	75		2,200	266	79	23	3	2,571
1985	76		1,472	164	91	10	0	1,737
1986	65		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
5-Year Average	86	67	1,148	130	85	4	5	1,372
10-Year Average	79	59	1,099	117	101	6	8	1,332
All Years Average	69	54	1,341	138	119	12	9	1,619

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-7. Subsistence Salmon Harvests by Community, Upper Yentna Fishery, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK[1]	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Anchorage	2	2	0	45	20	0	6	71
Big Lake	1	1	0	13	2	0	3	18
Chugiak	4	4	0	87	43	0	0	130
Lake Creek	1	1	0	21	14	0	0	35
Skwentna	10	8	0	215	58	3	23	298
Wasilla	1	1	0	45	8	0	0	53
Willow	2	2	0	15	1	0	4	20
Totals	21	19	0	441	146	3	36	625

[1] Regulations prohibit the retention of chinook salmon in this fishery (5 AAC 01.593).

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XI-8. Historic Subsistence and Personal Use Salmon Harvests, Upper Yentna Fishery, 1996-2004.[1]

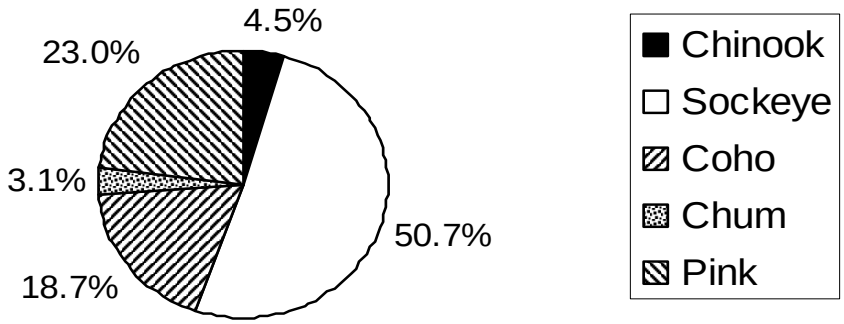
	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK[2]	SOCKEYE	COHO	CHUM	PINK	TOTAL
1996	17	17	0	242	46	51	115	454
1997	24	21	0	549	83	10	30	672
1998	21	18	0	495	113	15	30	653
1999	18	16	0	516	48	13	18	595
2000	19	19	0	379	92	7	4	482
2001	16	15	0	545	50	4	10	608
2002	25	22	0	454	133	31	14	632
2003	19	15	0	553	67	8	2	630
2004	21	19	0	441	146	3	36	625
5-Year Average	20	18	0	474	97	10	13	595
All Years Average	20	18	0	464	86	16	29	595

[1] This fishery was classified as personal use in 1996 and 1997; it has been a subsistence fishery since 1998.

[2] Regulations prohibit the retention of chinook salmon in this fishery (5 AAC 01.593).

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Figure XI-1. Composition of Subsistence Salmon Harvest, Port Graham/Koyuktolik Subdistricts, 2004



N = 6,953 salmon, based on annual harvest assessment program w ith harvest calendars.

XII: 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 2003, there were nine 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 permit system
2. Upper Copper River: Glennallen Subdistrict, federal permit system
3. Upper Copper River: Chitina Subdistrict, state permit system (personal use)
4. Upper Copper River: Chitina Subdistrict, federal permit system
5. Batzulnetas Fishery
6. Copper River Flats / Prince William Sound
7. Prince William Sound: Eastern District / Tatitlek
8. Prince William Sound: Southwestern District / Chenega Bay
9. Prince William Sound: General

Each of these fisheries will be discussed in turn. 2004 was the third year in which there were separate state and federal permit systems 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 Alaska Board of Fisheries reclassified this fishery as a subsistence fishery beginning in 2000, and again as a personal use fishery beginning 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.

UPPER COPPER RIVER SUBSISTENCE FISHERY: GLENNALLEN SUBDISTRICT

Background and History

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 two 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 Glennallen and Chitina Subdistricts were established 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).

Regulations

In the Glennallen Subdistrict, permits are required to participate in subsistence fishing for salmon and freshwater fish species. ADF&G issues state permits under the authority of 5 AAC 01.630. Permits are issued on request at ADF&G offices. Beginning in 2002, the Federal Subsistence Board created a federal permit requirement for qualified rural residents (primarily residents of Copper River Basin and Upper Tanana communities). The National Park Service administers this permit system. While state subsistence permits limit fishers to one choice of gear (either fish wheel or dip net), federal permit holders may use fish wheels, dip nets, and rod and reel. Holders of state permits for the Glennallen Subdistrict may not also obtain a permit for the Chitina Subdistrict, but federally qualified rural resident households may hold permits for both subdistricts (as well as for the Balzulnetas fishery), although seasonal limits for the subdistricts are not additive. Also, there is no prohibition against a federally-qualified rural resident household obtaining both a state and federal subsistence permit for these subdistricts, but again the seasonal limits for the two permits are not additive.

Legal subsistence gear in the Glennallen Subdistrict under state regulations includes fish wheels and dip nets. Federal subsistence permit holders may also use rod and reel. The state season runs from June 1 through September 30; the federal season opens May 15 and also closes September 30. Annual limits are the same under state and federal regulations: 30 salmon for a household with one person, of which no more than five may be chinook salmon if taken with a dip net; 60 salmon for a household of two persons, with the same chinook limit for dipnetters; and 10 salmon for each additional person in the household, again with the chinook limit for dipnetters. Upon request, permits will be issued for additional salmon, with limits of 200 salmon for one person households and 500 for households of two or more persons. Dipnetters are still limited to 5 chinook per year. An additional federal rule is that in addition to the five chinook salmon limit for dipnetting, federal permit holders may take up to five chinook 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 of ADF&G. Permits include harvest reports, and fishers are required to record the dates they fish 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 Federal Subsistence Board, compiles the data from federal permit returns in a program separate from that administered by ADF&G.

The creation of a dual permit system 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 one gear type--either dip net or fish wheel. 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 state and federal permits for the Glennallen Subdistrict. Of these "dual-permitted" households, some report only on their state permits (not returning the federal permit), some report only on their federal permits (not returning the state permit), some report identical harvests on both permits, some report fishing on one permit but not the other, and some return neither permit. Controlling for double-counting of salmon requires making two assumptions: a) permittees returning only one permit did not harvest on the other, and b) permittees reporting identical harvests on both permits reported the same 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 for ADF&G Division of Sport Fish and the National Park Service.) All households obtaining both state and federal permits were counted as receiving only one permit in the summary tables for the Glennallen Subdistrict included here.

3. State permits collect only the permit holder's mailing address city, but federal permits collect 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 do not provide adequate information to assure analysis results accurately reflect the true residence communities 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.

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 XII-1 summarizes data for the permits issued for village fish wheels by ADF&G from 1997 through 2004. Harvests for village fish wheels are also included in the subdistrict totals.

Subsistence Salmon Harvests in 2004

As shown in Table XII-2, ADF&G and NPS issued a total of 1,212 subsistence salmon permits for the Glennallen Subdistrict for 2004. This total is similar to the recent five-year average (1,247 permits) and slightly above the recent 10-year average (1,119 permits). Of all Glennallen Subdistrict permits issued, residents of Copper Basin communities held 414 (34.2 percent) and other Alaska residents held 798 (65.8 percent) (Table XII-3).

As reported in Table XII-2, the estimated total subsistence salmon harvest in the Glennallen Subdistrict in 2004 was 87,557 salmon, including 82,174 sockeye (93.9 percent), 4,503 chinook (5.7 percent), and 880 coho (1.0 percent). (There are no pink or chum salmon 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 estimated subsistence salmon harvest in 2004 was highest on record (slightly higher than the previous record of 86,601 salmon in 1997). The 2004 harvest was notably higher than the recent five-year average (75,393 salmon), 10-year average (72,314 salmon), and long-term average (60,885 salmon). Table XII-3 reports subsistence salmon harvests in the Glennallen Subdistrict by place of residence of permit holders in 2004. Copper Basin residents caught 40.9 percent of the harvest (35,839 salmon) and other Alaska residents harvested 59.1 percent (51,718 salmon).

UPPER COPPER RIVER PERSONAL USE FISHERY: CHITINA SUBDISTRICT

Background and History

As noted above, the Chitina Subdistrict is one of two (along with the Glennallen Subdistrict) within the Upper Copper River District. It 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 yards upstream of Haley Creek. The Glennallen and Chitina Subdistricts were separated in 1977. Prior to that time, the Upper Copper River was treated as one unit for management purposes. In 1984 and from 1986 through 1999, the Chitina Subdistrict was closed to subsistence fishing, and the dip net fishery there operated as a personal use fishery. At its December 1999 meeting, the Alaska Board of Fisheries reversed its earlier decision and determined that the Chitina Subdistrict supported customary and traditional uses of salmon, changing the classification of the fishery back to subsistence. In February 2003, the Alaska Board of Fisheries again reconsidered the classification of the Chitina dip net fishery, and reversed its decision of 1999, making a negative customary and traditional use finding and changing the fishery back to personal use. No other regulatory changes were made. Despite this shift back to the personal use category, this and future annual reports will continue to include harvest data for the Chitina Subdistrict. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996) and ADF&G 2002b.

Regulations

There are state and federal permit programs for the Chitina Subdistrict. Under state regulations, a household permit is required for subsistence fishing in the Chitina Subdistrict, issued by ADF&G. Households may not possess state subsistence permits for both the Glennallen and Chitina Subdistricts in the same year. Under state rules, dip nets are the only legal gear in the Chitina Subdistrict. Annual limits are 15 salmon for a one-person household and 30 salmon for households with more than one person. Only one chinook salmon may be harvested annually. Households that achieve their annuals limits may obtain supplemental permits for 10 additional sockeye salmon if ADF&G determines that a weekly surplus of 50,000 salmon or more will be present in the subdistrict.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been conducted for Upper Copper River since 1960 by ADF&G, currently by the Division of Sport Fish. Chitina Subdistrict permits include harvest reports, and fishers are required to record the dates they fish 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 Chitina Subdistrict are made based on reported harvests expanded to all permit holders.

Personal Use Salmon Harvests in 2004

As reported in Table XII-4, the estimated total salmon harvest in the state-administered Chitina Subdistrict personal use fishery in 2004 was 116,476 fish, including 111,203 sockeye (95.5 percent), 2,521 chinook (2.2 percent), and 2,751 coho (2.4 percent), by 8,153 permit holders. (There are no pink or chum salmon in the upper Copper River.) As reported in Table XII-4, the 2004 total harvest for the Chitina Subdistrict was below the recent 10-year average of 122,040, and well below the record harvests of 1997 through 1999 and 2001, which ranged at around 150,000 salmon. The 2004 harvest was higher than that of 2002 (94,782 fish) and 2003 (98,332 salmon), however, and similar to the recent five-year average(111,968 salmon)

Table XII-5 reports subsistence salmon harvests in the Chitina Subdistrict personal use fishery by place of residence of state permit holders in 2004; most participants in this fishery live in Fairbanks, Anchorage, or the Matanuska-Susitna Borough. Only 46 Copper Basin residents (0.6 percent) obtained state personal use salmon permits for the Chitina Subdistrict in 2004. Non-local residents harvested all but 395 of the salmon harvested in this fishery in 2004 (99.7 percent).

FEDERAL CHITINA SUBDISTRICT SUBSISTENCE FISHERY

Regulations

Qualified Alaska rural residents may obtain federal subsistence permits for the Chitina Subdistrict from the National Park Service. Legal gear includes fish wheels, dip nets, and/or rod and reel. Federal seasonal limits for the Chitina Subdistrict are the same as for the Glennallen Subdistrict, but are not additive.

Subsistence Harvests in 2004

As reported in Table XII-6, an estimated 1,668 salmon were harvested in the federal Chitina Subdistrict subsistence fishery in 2004, up from 1,500 salmon in 2003 and 883 salmon in 1992, the first two years of this fishery. The total harvest included 1,631 sockeye salmon (97.8 percent), 28 coho (1.7 percent), and 9 Chinook (0.5 percent). A total of 109 permits were issued, compared to 99 in 2003 and 122 in 2002. Table XII-7 reports harvests by the place of residence of holders of 2004 federal subsistence permits for the Chitina Subdistrict. Residents of McCarthy held the most permits (32) and accounted for almost half (48.4 percent; 807 salmon) the harvest in this fishery.

BATZULNETAS SUBSISTENCE FISHERY

The Batzulnetas subsistence salmon fishery includes all waters from the regulatory markers near the mouth of Tanada Creek and approximately on-half mile downstream from that mouth, and in Tanada Creek between ADF&G regulatory markers. The fishery may begin after June 1. Fishing periods during the month of June are one 48 hour period per week. Beginning in July fishing periods are 84-hours per week until September 1 when the fishery closes. This fishery was created in 1987 through an emergency regulation to settle the United States District Court case of John vs. Alaska.

Since 1987, subsistence permits have been issued in eleven years (Table XII-8). One permit has been issued and returned every year since 1998. In 2004, the one permit issued reported harvest of 182 sockeye salmon. The long-term average harvest for this fishery is 129 sockeye salmon, with the highest harvest occurring in 1994 with a take of 997 sockeyes. Participants in this fishery are largely from the community of Mentasta.

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 on request at the ADF&G office in Cordova or they may be obtained by calling and requesting them by phone. Legal gear is set or drift gillnet. Annual limits are 15 salmon for a one person household; 30 salmon for a two person household; and 10 salmon for each additional person in the household. There is a limit of five king salmon per permit.

Harvest Assessment Program

A permit system with annual subsistence salmon harvest assessments has been in place for Prince William Sound at least since 1960. Permits are either dropped off at the Cordova ADF&G office or mailed in 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 fish harvested each day. There is one version of the permit, but fishers need to declare whether they want to fish the Copper River Flats area or in Prince William Sound. An issued permit is only valid for one of these locations.

Subsistence Salmon Harvests in 2004

As reported in Table XII-9, 511 permits were issued for this fishery in 2004, and 487 (95.3 percent) were returned. This was the highest number of permits issued for this fishery since records have been kept (1965), and well above the recent five-year average (427 permits), ten-year average (324 permits), and long-term average (132 permits). The estimated harvest was 3,129 salmon, including 1,910 sockeye (61.0 percent), 1,163 chinook (a record number) (37.2 percent), 48 coho (1.5 percent), 5 chum (0.2 percent) and 3 pink (0.1 percent). Most permit holders lived in Cordova (422; 82.6 percent) (Table XII-10). Despite a record number of permits issued and returned, the estimated total harvest in this fishery of 3,129 salmon was below the recent five-year average (3,806 salmon), but exceeded the recent ten-year average (2,927 salmon) and long-term average (1,058 salmon).

EASTERN DISTRICT SUBSISTENCE SALMON FISHERY

The present set of subsistence regulations for the Eastern District of Prince William Sound has been in place since 1988. The primary participants in this fishery are residents of Tatitlek. Prior to 1992, permits were only issued in Tatitlek. Since 1992, they have also been issued at the ADF&G office in Cordova. Permits may be dropped off at the Cordova ADF&G office, the Tatitlek Village Council office, or mailed in 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 four inches, or gillnets up to 150 fathoms in length with a maximum size of six and one-quarter inches. Pink salmon may be taken in fresh water with dip nets. The season is May 15 through October 31, seven days per week before and after the commercial salmon season, and during commercial fishing openings. There are no bag or possession limits for this fishery.

In 2004, 18 permits were issued for this fishery. Twelve permits were returned (66.7 percent). Because of the historically low permit return rate for this fishery, data in Table XII-11 are reported harvests only. The reported harvest for 2004 was 998 salmon, mostly coho (505; 50.6 percent) and sockeye (358 fish; 35.9 percent). It is likely that the harvest assessment program for this fishery consistently and substantially underestimates harvests. As shown in Table XII-12, household surveys in Tatitlek provided an estimate of 1,075 salmon taken with subsistence methods in 2003, compared to just 298 based on returned permits for that year. Rod and reel and removal from commercial harvests also have provided salmon for home use in Tatitlek in most years, although all salmon reported harvested in the surveys for 2003 were taken with subsistence nets or seines (Fall 2005).

SOUTHWESTERN DISTRICT SUBSISTENCE SALMON FISHERY

The present set of subsistence regulations for the Southwestern District of Prince William Sound has been in place since 1988. For subsistence fishing purposes, the waters around Green Island are included in this area. The primary participants in this fishery are residents of Chenega Bay. Prior to 1992, permits were only issued in Chenega Bay. Since 1992, they have also been issued at the ADF&G office in Cordova. Permits may be dropped off at the Cordova ADF&G office, the Chenega Village Council office, or mailed in 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 four inches, or gillnets up to 150 fathoms in length with a maximum size of six and one-quarter inches. Pink salmon may be taken in fresh water with dip nets. The season is May 15 through October 31, seven days per week before and after the commercial salmon season, and during commercial fishing openings. There are no bag or possession limits for this fishery.

In 2004, 8 permits were issued for this fishery. Five permits were returned. Because permit return rates for this fishery have been low in the past, data in Table XII-13 are reported harvests only. The reported harvest for 2004 was 722 salmon, consisting of sockeye (535; 74.1 percent), chum (84; 11.6 percent), pink (56; 7.8 percent), coho (147; 6.1 percent), and chinook (3; 0.4 percent). These harvests are slightly above the recent five-year (583 salmon) and ten-year (538 salmon) averages. It is likely that the harvest assessment program for this fishery consistently underestimates harvests. As shown in Table XII-14, household surveys in Chenega Bay provide an estimate of 1,690 salmon taken with subsistence methods in 1998, compared to just 677 based on returned permits for that same year. Rod and reel and removal from commercial harvests also provide salmon for home use 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 office of ADF&G. Annual limits are 15 salmon for a one person household; 30 salmon for a two person household; and 10 salmon for each additional person in the household. There is a limit of five king salmon per permit.

Since the creation of separate regulations for the waters fished by Tatitlek and Chenega Bay residents in 1988, there has been very limited participation in this fishery. Since 1994, there has been only four years with any reported harvest. In 2004, 8 permits were issued and 7 were returned. The estimated harvest was 17 salmon, including sockeye (12 fish; 70.6 percent) and chum (5 fish; 29.4 percent) (Table XII-15). Permit holders were from Fairbanks (3 permits), Whittier (2 permits), Cordova (1 permit), Ester (1 permit), and Wasilla (1 permit) (Table XII-16).

OTHER SUBSISTENCE FISHERIES IN THE PRINCE WILLIAM SOUND AREA

In May 2003, federal regulations authorizing subsistence fishing for halibut in Alaska were finalized. A harvest assessment program for subsistence halibut began in 2003. Harvest estimates for all eligible communities and tribes, including the Prince William Sound area communities of Cordova, Chenega Bay, and Tatitlek, are available for 2003 and 2004 (Fall et al. 2004, Fall et al. 2005).

In 2004, there were no other harvest assessment programs for other subsistence finfish fisheries in the Prince William Sound Area. In the upper Copper River watershed, resident species such as grayling, burbot, and whitefish, among other species, are harvested for home use. Harvest estimates based on household surveys are available in the Community Profile Database (Scott et al. 2001).

The Division of Subsistence, ADF&G, 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 non-salmon fish harvest and use information in Copper Basin communities for a 12-month period from October 1, 2000 to September 30, 2001. In total, 472 households were interviewed, 42 percent of the estimated 1,193 households living in Copper Basin communities. The study produced estimated harvests by study community and gear type for burbot, Dolly Varden, lake trout, grayling, northern pike, sucker, rainbow trout, steelhead, and whitefish. Detailed summaries of study methods and findings appear in Simeone and Kari (2004).

Residents of Cordova, Chenega Bay, Tatitlek, Valdez, and Whittier take a variety of shellfish and marine finfish for subsistence use. Harvest estimates are available in the Community

Profile Database (Scott et al 2001) based upon systematic household surveys. A subsistence permit is required for the harvest of shrimp from April 15 to September 15 (5 AAC 02.210(5)). The ADF&G Division of Sport Fish administers this permit program. Future annual reports will summarize the findings of that permit program. Subsistence fishing for Dungeness, tanner, and king crab in the Prince William Sound Management Area is closed until the stocks recover enough to provide a harvestable surplus.

Table XII-1. Subsistence Harvests by Village Fish Wheel Permits, Glennallen Subdistrict, 1997-2004.

Year	Village	Sockeye	Chinook	Coho	Steelhead	Other	Total	Comments
1997	Chistochina	342	105	139	88	1	675	
1997	Gakona	1,242	8				1,250	
1997	Kluti-Kah	61	12				73	
1999	Chickaloon	5	1				6	
1999	Gakona						0	did not fish
1999	Kluti-Kah	85	46				131	
2000	Chickaloon	200	73	0	0	0	273	
2000	Chistochina	880	1	0	0	0	881	
2000	Kluti-Kah	110	20	0	0	0	130	
2001	Chickaloon	120	20	0	0	0	140	
2001	Chistochina	1,203	4	0	0	0	1,207	
2001	Kluti-Kah	259	3	114			376	
2002	Chickaloon	91					91	
2002	Chitina						0	
2003	Chickaloon	105	8				113	
2004	Chickaloon	178	5				183	
2004	Chistochina	1,563	17				1580	federal permit

Source: Tom Taube, ADF&G, Division of Sport Fish, Glennallen

Table XII-2. Historic Subsistence Salmon Harvests, Glennallen Subdistrict, 1988-2004.

	PERMITS		ESTIMATED SALMON HARVEST[1]					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1988	420	264	1,082	33,294	465	0	0	34,841
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
5-Year Average	1,247	1,134	4,142	70,466	779	5	0	75,393
10-Year Average	1,119	1,023	3,185	68,396	731	3	0	72,314
All Years Average	913	822	2,385	57,989	510	2	0	60,885

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

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-3. Subsistence Salmon Harvests by Community, Glennallen Subdistrict, 2004.

	PERMITS		ESTIMATED SALMON HARVEST[1]					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Chistochina	4	4	30	2,109	0	0	0	2,139
Chitina	30	15	112	2,528	160	0	0	2,800
Copper Center	110	85	591	10,084	87	0	0	10,762
Gakona	35	31	148	3,865	0	0	0	4,013
Glennallen	100	92	402	5,173	29	0	0	5,604
Gulkana	4	1	56	988	0	0	0	1,044
Kenny Lake	37	29	105	2,604	6	0	0	2,715
Lower Tonsina	1	1	10	0	0	0	0	10
McCarthy	21	13	34	693	45	0	0	772
Mentasta	4	3	24	209	27	0	0	260
Nabesna Road	4	4	1	267	0	0	0	268
Paxson	3	3	10	212	0	0	0	222
Slana	32	30	48	2,653	0	0	0	2,701
Tazlina	24	17	186	2,200	0	0	0	2,386
Tonsina	5	3	13	130	0	0	0	143
Copper Basin Subtotal	414	331	1,771	33,714	354	0	0	35,839
Anchor Point	2	2	23	145	0	0	0	168
Anchorage	259	214	839	13,111	173	0	0	14,123
Barrow	2	2	13	110	0	0	0	123
Big Lake	4	3	0	125	0	0	0	125
Cantwell	1	1	1	2	0	0	0	3
Chickaloon	1	1	5	178	0	0	0	183
Chugiak	20	18	72	783	54	0	0	910
Clear AFB	2	2	1	470	0	0	0	471
Cooper Landing	1	1	5	166	10	0	0	181
Cordova	1	1	14	159	0	0	0	173
Delta Junction	22	20	32	810	0	0	0	842
Dot Lake	1	1	0	0	0	0	0	0
Eagle River	54	49	213	3,778	53	0	0	4,043
Eielson AFB	1	1	0	0	0	0	0	0
Ester	3	3	15	249	0	0	0	264
Fairbanks	91	81	207	3,530	84	0	0	3,821
Fort Richardson	2	2	1	9	16	0	0	26
Girdwood	13	13	21	209	0	0	0	230
Healy	1	1	1	202	0	0	0	203
Homer	1	1	1	5	9	0	0	15
Houston	3	3	4	72	0	0	0	76
Indian	1	1	5	79	0	0	0	84
Kasilof	1	1	0	0	0	0	0	0
Nenana	2	2	4	384	0	0	0	388
North Pole	37	31	125	2,379	0	0	0	2,504
Northway	6	6	8	549	0	0	0	557

[continued]

[Table XII-3 continued]

COMMUNITY	PERMITS ISSUED	PERMITS RETURNED	ESTIMATED SALMON HARVEST[1] CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Palmer	66	61	348	4,320	79	0	0	4,748
Ruby	1	0						
Salcha	6	6	28	893	5	0	0	926
Sutton	2	1	0	396	0	0	0	396
Tanacross	1	0						
Tok	63	56	64	4,809	2	0	0	4,876
Valdez	42	38	123	3,331	23	0	0	3,477
Wasilla	83	76	536	7,048	16	0	0	7,601
Willow	2	2	23	158	0	0	0	181
Other Communities Subtotal	798	701	2,732	48,460	525	0	0	51,718
Totals	1,212	1,032	4,503	82,174	880	0	0	87,557

[1]Includes salmon harvested under federal as well as state subsistence fishing regulations and permits.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-4. Historic Subsistence and Personal Use Salmon Harvests, State Chitina Subdistrict Permits, 1988-2004.[1]

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1988	4,252	2,900	3,936	55,862	658	0	0	60,455
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
5-Year Average	7,800	6,812	2,594	106,613	2,762	0	0	111,968
10-Year Average	8,199	7,474	4,037	115,244	2,759	0	0	122,040
All Years Average	7,300	6,679	3,749	99,563	2,300	0	0	105,611

[1] Under state regulations, this fishery was classified as personal use from 1986 through 1999; in 2000, 2001, and 2002, it was classifed as a subsistence fishery; stating in 2003, it was again classified as personal use.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-5. Personal Use Salmon Harvests by Community, State Chitina Subdistrict Permits, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Chitina	7	5	1	74	0	0	0	76
Copper Center	15	14	3	114	2	0	0	119
Glennallen	24	17	6	188	7	0	0	200
Copper Basin Subtotal	46	36	10	376	9	0	0	395
Adak Station	1	1	0	4	0	0	0	4
Akutan	1	1	1	14	0	0	0	15
Allakaket	1	1	1	5	0	0	0	6
Ambler	1	0						
Anaktuvuk Pass	1	0						
Anchorage	1,934	1,596	530	22,158	520	0	0	23,208
Anderson	3	3	0	0	0	0	0	0
Barrow	18	13	11	195	0	0	0	206
Beaver	2	1	0	14	0	0	0	14
Bettles	1	1	1	0	0	0	0	1
Big Lake	49	45	11	587	0	0	0	598
Brevig Mission	1	0						
Cantwell	1	1	0	30	0	0	0	30
Central	3	3	1	72	2	0	0	75
Chickaloon	7	7	2	90	25	0	0	117
Chugiak	125	115	42	1,681	79	0	0	1,802
Clear AFB	2	2	0	1	0	0	0	1
Coldfoot	1	1	0	0	0	0	0	0
College	1	1	0	15	0	0	0	15
Cooper Landing	3	3	0	39	0	0	0	39
Delta Junction	333	287	111	5,243	173	0	0	5,527
Denali Park	9	8	1	51	15	0	0	66
Eagle	2	2	0	0	0	0	0	0
Eagle River	328	286	99	3,784	107	0	0	3,990
Eielson AFB	96	82	39	1,349	18	0	0	1,405
Elmendorf AFB	21	18	7	229	0	0	0	236
Ester	68	59	31	1,249	28	0	0	1,308
Fairbanks	2,506	2,076	851	38,302	884	0	0	40,038
Fort Greely	3	2	0	74	5	0	0	78
Fort Richardson	15	10	5	158	0	0	0	162
Fort Wainwright	109	81	30	1,217	46	0	0	1,293
Girdwood	30	26	5	400	0	0	0	405
Healy	30	29	11	356	46	0	0	412
Homer	6	5	2	77	0	0	0	79
Hope	2	2	1	4	0	0	0	5
Houston	3	2	0	0	0	0	0	0
Indian	3	3	0	0	0	0	0	0
Juneau	9	9	3	112	0	0	0	115
Kaktovik	2	1	0	28	0	0	0	28

[continued]

[Table XII-5 continued]

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Kenai	7	3	4	56	0	0	0	60
Ketchikan	2	1	2	58	0	0	0	60
King Salmon	1	0						
Kodiak (city)	3	1	3	51	0	0	0	54
Kotzebue	2	0						
Lake Minchumina	1	0						
Marshall	1	1	0	30	0	0	0	30
McGrath	2	0						
Minto	4	3	1	48	0	0	0	49
Moose Pass	1	1	0	15	0	0	0	15
Nenana	18	16	6	264	10	0	0	280
Nikiski	3	1	3	69	0	0	0	72
Ninilchik	2	2	0	10	15	0	0	25
Nome	3	2	0	3	35	0	0	38
Nondalton	1	1	0	0	0	0	0	0
North Pole	686	584	231	10,374	185	0	0	10,791
Northway	1	0						
Nuiqsut	1	1	0	0	0	0	0	0
Nulato	1	0						
Palmer	473	420	141	6,597	66	0	0	6,803
Paxson	1	1	0	0	0	0	0	0
Saint Marys	1	1	1	15	0	0	0	16
Salcha	60	52	14	824	27	0	0	865
Seldovia	3	2	0	0	0	0	0	0
Seward	9	7	2	59	0	0	0	60
Soldotna	9	8	3	125	0	0	0	128
Sutton	30	23	8	347	16	0	0	370
Talkeetna	13	12	2	232	0	0	0	234
Tatitlek	1	1	1	29	0	0	0	30
Tenakee Springs	1	1	0	23	0	0	0	23
Tok	17	16	5	315	0	0	0	320
Trapper Creek	2	2	0	45	0	0	0	45
Two Rivers	21	19	9	326	4	0	0	339
Valdez	207	179	66	3,016	6	0	0	3,087
Wainwright	1	1	1	29	0	0	0	30
Wasilla	703	595	193	9,364	427	0	0	9,984
Whittier	1	1	0	15	0	0	0	15
Willow	36	33	5	382	0	0	0	387
Community	38	38	10	442	2	0	0	454
Other USA	9	7	5	130	3	0	0	138
Other Communities Subtotal	8,107	6,819	2,511	110,828	2,742	0	0	116,081
Totals	8,153	6,855	2,521	111,203	2,751	0	0	116,476

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-6. Historic Subsistence Salmon Harvests, Federal Chitina Subdistrict Permits, 2002-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
2002	122	90	48	835	0	0	0	883
2003	99	71	33	1,316	152	0	0	1,500
2004	109	83	9	1,631	28	0	0	1,668
All Years Average	110	81	30	1,261	60	0	0	1,350

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-7. Subsistence Salmon Harvests by Community, Federal Chitina Subdistrict Permits, 2004.

			ESTIMATED SALMON HARVEST					
	PERMITS							TOTAL
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	SALMON
Chitina	16	9	0	295	12	0	0	308
Copper Center	18	15	0	35	0	0	0	35
Gakona	3	2	0	0	0	0	0	0
Glennallen	8	6	0	25	1	0	0	27
Kenny Lake	24	21	3	311	0	0	0	314
Lower Tonsina	1	1	0	0	0	0	0	0
McCarthy	32	23	6	787	14	0	0	807
Paxson	1	1	0	6	0	0	0	6
Sourdough	1	1	0	93	0	0	0	93
Tazlina	4	3	0	57	0	0	0	57
Tonsina	1	1	0	21	0	0	0	21
Totals	109	83	9	1,631	28	0	0	1,668

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-8. Historic Subsistence Salmon Harvests, Batzulnetas Fishery, 1987-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1987	8	8	0	22	0	0	0	22
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	1	1	0	160	0	0	0	160
1994	4	4	0	997	0	0	0	997
1995	4	2	0	32	0	0	0	32
1996	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0
1998	1	1	0	382	0	0	0	382
1999	1	1	0	55	0	0	0	55
2000	1	1	0	55	0	0	0	55
2001	1	1	1	61	0	0	0	62
2002	1	1	0	208	0	0	0	208
2003	1	1	0	164	0	0	0	164
2004	1	1	0	182	0	0	0	182
5-Year Average	1	1	0	134	0	0	0	134
10-Year Average	1	1	0	114	0	0	0	114
All Years Average	1	1	0	129	0	0	0	129

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-9. Historic Subsistence Salmon Harvests, Copper River District (Copper River Flats), 1965-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1965	31	20	19	711	132	0	0	862
1966	45	31	68	254	0	0	0	322
1967	61	56	90	167	0	0	0	257
1968	17	15	12	41	0	0	0	53
1969	49	33	24	94	126	0	0	244
1970	32	27	78	212	0	0	0	290
1971	29	26	11	36	4	0	0	51
1972	104	79	196	749	70	0	0	1,015
1973	94	89	162	344	190	0	0	696
1974	9	5	9	7	4	0	0	20
1975	2	2	0	5	0	0	0	5
1976	27	14	2	19	0	0	0	21
1977	23	22	10	74	0	0	0	85
1978	34	28	45	22	15	0	0	81
1979	49	41	54	31	20	0	0	105
1980	39	35	21	30	19	0	0	70
1981	72	51	68	205	147	0	0	419
1982	108	90	72	761	127	0	0	960
1983	87	73	94	128	68	0	0	290
1984	118	104	77	368	153	0	0	598
1985	94	94	88	261	83	0	0	432
1986	88	85	89	360	49	0	0	498
1987	95	89	52	383	15	0	0	450
1988	114	97	69	266	49	0	0	384
1989	75	64	66	397	60	0	0	523
1990	88	76	69	543	95	0	0	707
1991	129	115	153	931	43	0	0	1,126
1992	126	113	158	875	47	0	0	1,080
1993	111	93	143	511	35	0	0	689
1994	101	97	171	494	70	0	0	734
1995	126	112	173	779	35	0	0	987
1996	176	157	309	1,086	53	0	0	1,448
1997	269	243	223	1,144	1,967	0	0	3,333
1998	245	230	314	905	724	0	0	1,944
1999	294	275	377	1,422	729	0	0	2,528
2000	416	400	717	4,534	46	18	3	5,318
2001	468	439	881	3,275	75	2	0	4,232
2002	355	331	589	3,289	30	2	0	3,910
2003	384	367	730	1,655	37	0	16	2,439
2004	511	487	1,163	1,910	48	5	3	3,129
5-Year Average	427	405	816	2,933	47	5	5	3,806
10-Year Average	324	304	548	2,000	374	3	2	2,927
All Years Average	132	120	191	732	134	1	1	1,058

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-10. Subsistence Salmon Harvests by Community, Copper River District (Copper River Flats), 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Anchor Point	1	1	0	0	0	0	0	0
Anchorage	24	22	61	77	0	0	0	139
Chitina	1	1	5	0	0	0	0	5
Cordova	422	403	975	1,638	48	5	3	2,669
Delta Junction	2	2	2	2	0	0	0	4
Dutch Harbor	1	1	0	12	0	0	0	12
Eagle River	1	1	4	4	0	0	0	8
Fairbanks	4	4	13	16	0	0	0	29
Homer	27	27	46	98	0	0	0	144
Hope	1	1	3	1	0	0	0	4
Juneau	2	2	0	0	0	0	0	0
Kasilof	1	1	2	0	0	0	0	2
Kodiak (city)	2	0						
Ninilchik	1	1	0	0	0	0	0	0
Palmer	3	3	13	19	0	0	0	32
Seward	2	2	0	0	0	0	0	0
Soldotna	1	1	3	3	0	0	0	6
Tatitlek	3	3	5	0	0	0	0	5
Valdez	8	7	25	37	0	0	0	62
Wasilla	4	4	6	3	0	0	0	9
Totals	511	487	1,163	1,910	48	5	3	3,129

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-11. Historic Subsistence Salmon Harvests, Prince William Sound, Eastern District, 1988-2004.

	PERMITS		REPORTED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1988	17		2	210	249	297	143	901
1989	14		1	107	653	43	28	832
1990	13		0	5	241	4	10	260
1991	19		0	107	984	28	320	1,439
1992	15		2	441	369	49	30	891
1993	18		2	512	305	74	144	1,037
1994	14		0	50	143	70	50	313
1995	15	0						
1996	6		0	0	38	0	0	38
1997	6		0	107	45	54	0	206
1998	11		0	2	71	28	4	105
1999	17		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
5-Year Average	16	8	2	226	333	32	59	652
10-Year Average	13	7	1	176	262	30	37	506
All Years Average	14	7	1	188	332	52	66	639

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-12. Estimated Harvests of Salmon for Home Use, Tatitlek, 2003

	Estimated Number Harvested			
	Subsistence Methods	Rod & Reel	Removed from Commercial Harvests	All Methods
Chinook	27	0	0	27
Sockeye	306	0	0	306
Coho	651	0	0	651
Pink	77	0	0	77
Chum	13	0	0	13
All Salmon	1,075	0	0	1,075
Estimated Number of Households Harvesting[1]	13 households	0 households	0 households	13 households (any method)

[1] Number of households in the community = 27; 15 (92.6 percent) were interviewed

SOURCE: Fall et al. 2005

Table XII-13. Historic Subsistence Salmon Harvests, Prince William Sound, Southwestern District, 1988-2004.

	PERMITS		REPORTED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1988	10		1	50	8	294	251	604
1989	8		0	322	0	180	554	1,056
1990	7		1	36	5	2	20	64
1991	12		3	345	42	53	195	638
1992	14		1	526	23	99	313	962
1993	22		2	835	50	124	232	1,243
1994	16		5	192	77	161	402	837
1995	10		2	152	67	41	67	329
1996	7		0	107	7	46	105	265
1997	5		44	193	30	272	110	649
1998	4		13	114	20	119	65	331
1999	14		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
5-Year Average	12	7	9	211	129	116	119	583
10-Year Average	10	7	16	212	83	116	111	538
All Years Average	11	7	10	260	61	122	181	634

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-14. Estimated Harvests of Salmon for Home Use, Chenega Bay, 2003

	Estimated Number Harvested			
	Subsistence Methods	Rod & 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[1]	8 households	10 households	1 household	14 households (any method)

[1] Number of households in the community = 20; 16 (80.0 percent) were interviewed.

SOURCE: Fall et al. 2005

Table XII-15. Historic Subsistence Salmon Harvests, Prince William Sound General, 1960-2004.

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1960	50		1	139	505	27	1,292	1,964
1961	12		3	41	123	3	732	902
1962	9		0	0	119	142	214	475
1963	9		0	0	406	24	298	728
1964	15		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
5-Year Average	8	7	0	20	0	3	2	25
10-Year Average	6	5	0	10	0	2	1	13
All Years Average	11	7	0	17	40	11	93	161

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XII-16. Subsistence Salmon Harvests by Community, Prince William Sound General, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Cordova	1	1	0	0	0	0	0	0
Ester	1	1	0	0	0	0	0	0
Fairbanks	3	2	0	12	0	5	0	17
Wasilla	1	1	0	0	0	0	0	0
Whittier	2	2	0	0	0	0	0	0
Totals	8	7	0	12	0	5	0	17

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

XIII. SOUTHEAST/YAKUTAT REGION

INTRODUCTION

The Southeast/Yakutat Region includes all waters of Alaska between the latitude of Cape Muzon at the southern tip of Prince of Wales Island at Dixon Entrance to Cape Suckling on the Gulf of Alaska. The Alaska Joint Board of Fisheries and Game identified two nonsubsistence areas in Southeast Alaska, the Ketchikan Nonsubsistence Area and the Juneau Nonsubsistence Area (5 AAC 99.015). Subsistence fisheries may not be authorized in nonsubsistence areas. Depending upon the district and section, non-commercial, non-recreational salmon fishing in Southeast Alaska occurs under either subsistence or personal use regulations. Subsistence and personal use fisheries have annual harvest assessment programs based on a permit reporting system. 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 gear type allowed. Since 1990, any Alaska resident may harvest under the terms of a subsistence permit. In 2004, there were six management areas with annual harvest assessment programs in the Southeast/Yakutat Management Area:

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 PROGRAM

The Division of Commercial Fisheries is responsible for administering the subsistence/ personal use salmon fisheries in Southeast Alaska. 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 use their discretion in changing permit conditions, including issuing emergency closures. Area Management offices require that catch calendars on the permit be returned by mail or phone 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 those applying for subsistence/personal use permits, along with their catch record. Permits specify that a permit will not be issued to anyone who has failed to return a permit issued for the previous year. Generally, area management offices will accept a reported catch for the previous year at the time a person is applying for a current year permit.

SUBSISTENCE SALMON HARVESTS IN 2004

In 2004, the estimated subsistence/personal use salmon harvest for Southeast Alaska/Yakutat Region was 71,763 fish (Table XIII-1). This was below amounts estimated for 2003 (79,434) and above recent five-year (69,698) and ten-year averages (70,419) (Table XIII-2). By species, sockeye comprised the greatest share at 61,419 (85.6 percent), followed by 3,164 pink (4.4 percent), 3,151 chum (4.4 percent), 2,446 coho (3.4 percent), and 1,583 chinook (2.2 percent) (Figure XIII-1). Total salmon harvested by management areas were as follows: Sitka 19,498 (27.2 percent), Ketchikan 14,718 (20.5 percent), Juneau 12,327 (17.2 percent), Haines 9,524 (13.3 percent), Petersburg 8,176 (11.4 percent), and Yakutat 7,521 (10.5 percent) (Figure XIII-2).

Since 2000, the number of salmon permits issued for the Southeast Alaska/Yakutat Region has averaged 3,600 per year (Table XIII-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 2004, 3,703 permits were issued, and 3,235 were returned, a region-wide response rate of 87.4 percent.

YAKUTAT MANAGEMENT AREA

Background and History

The Yakutat Management Area stretches from Cape Fairweather to Cape Suckling. "Customary and Traditional Use" determinations for salmon identify the freshwaters 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 (5AAC 01.666 (3)). The Yakutat Area is unique among Southeast areas in that subsistence salmon fishing locations are not restricted to just specific streams, nor are there daily or annual limits on the number of fish harvested.

Regulations

A subsistence salmon permit for the Yakutat Management Area limits subsistence fishing in the hours before, during and after commercial salmon fishing openings. The 2004 permit form specifies that subsistence salmon may not be taken during the period 48 hours before a commercial opening until 48 hours after the closure of an open commercial salmon net fishing season. There is an exception in cases where the commercial salmon net fishery exceeds two days; in such cases the subsistence fishing period runs "from 6:00 am to 6:00 pm Saturday in those locations, except in the Tsiu River where the subsistence fishing period shall be from 6:00 am to 6:00 pm Sunday". This effectively limits the period when subsistence fishing can take place to 2-3 days a week during the commercial salmon fishing season. At the Situk River, subsistence fishers are required to attend their nets when they are being used to take salmon.

Other standard permit conditions include removal of dorsal fins, prohibition of fishing within 300 feet of a dam, fish ladder, weir, culvert or other artificial obstruction, completion of the catch calendar for each day fished, specifying location, species, and gear. Sport-taken and subsistence taken salmon may not be possessed on the same day. In this region the State of Alaska does not recognize rod and reel as subsistence gear, except for the Redoubt Bay sockeye fishery. Therefore, any salmon or steelhead taken with rod and reel gear cannot be possessed with fish taken with nets. The permit, however, does not specify allowed subsistence gear, but set gillnets are the preferred gear. Permits can be used for any location in the district.

Harvest Assessment Program

Annual subsistence salmon harvest assessments have been in place since 1989. As reported in Table XIII-3, the estimated total subsistence salmon harvest for the Yakutat Management Area in 2004 was 7,521 salmon, including 5,221 sockeye (69.4 percent), 1,191 chinook (15.8 percent), 1,019 coho (13.5 percent), 33 chum (less than 1 percent), and 57 pink salmon (less than 1 percent). Most of the permits were issued to Yakutat residents, 118 permits were issued and 93 returned, and Yakutat residents harvested most of the salmon reported. The estimated total subsistence salmon harvest for the community of Yakutat in 2004 was 6,855, including 1,104 chinook, 4,642 sockeye, 1,019 coho, 33 chum, and 57 pink salmon (Table XIII-4).

HAINES MANAGEMENT AREA

Background and History

The Haines Management Area stretches from Little Island in Lynn Canal north to Chilkat Inlet and the waters of the Chilkat River, and up Chilkoot Inlet to Skagway. "Customary and Traditional Use" determinations 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 (5AAC 01.716 (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 2000, the combined population of these communities was 3,393 in 1,435 households. The populations of Haines and Skagway are predominantly non-Native, while Klukwan continues to have a predominantly Alaska Native population.

Regulations

A subsistence permit for the Haines Management Area provides for an open season 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, both running from June 1 through September

30. Initially, only one permit is issued per household; an additional permit may be issued upon request if more salmon are needed. Limits for sockeye are 25 in possession or 50 annually; for coho, 20 in possession or 40 annually; and for pink and chum, 75 in possession or 100 annually. Chinook salmon, trout (such as steelhead) and char (Dolly Varden) may be taken only incidentally by gear operated under the terms of the permit.

Sport taken and subsistence taken salmon may not be possessed on the same day. In District 15, the salt waters of Lynn Canal including Chilkat, Chilkoot, and Lutak inlets, subsistence salmon may not be taken during closed periods of the commercial salmon net fishery, except salmon may 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 period the commercial salmon net fishery is open in Section 15-A.

Set and drift gillnets may not be used to take salmon except in the mainstream and side channels, but not the tributaries of the Chilkat River from four-mile Haines Highway to one-mile upstream of Wells Bridge. The permit holder is required to be physically present at the net while operating a set gill net. Drift and set gillnets may not exceed 50 feet in length when fishing in the Chilkat River, and drift gillnets fished in marine waters may not exceed 50 fathoms in length. Other standard permit conditions include removal of dorsal fins, prohibition of fishing within 300 feet of a dam, fish ladder, weir, culvert or other artificial obstruction, and completion of the catch 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 2004 was 9,524 salmon, including 6,616 sockeye (69.5 percent), 190 chinook (2 percent), 475 coho (5 percent), 742 chum (7.8 percent), and 1,500 pink (15.7 percent) (Table XIII-3).

Klukwan fishers with post office box addresses in Haines are shown as Haines residents. In this report, Haines and Klukwan permits and harvests are combined for 2004; 349 permits were issued, and 334 were returned (95.7 percent). The estimated total number of salmon harvested by Haines residents (9,222) included 190 chinook (2.1 percent), 6,394 sockeye (69.3 percent), 473 coho (5.1 percent), 719 chum (7.8 percent), and 1,445 pink salmon (15.7 percent). Three permits were issued to Skagway residents, and all were returned. Skagway residents harvested 39 salmon total, which included 1 sockeye, 16 chum and 22 pink salmon (Table XIII-4).

JUNEAU MANAGEMENT AREA

Angoon Subsistence Area

Background and History

Subsistence salmon fisheries in the waters traditionally used by the community of Angoon are under the management responsibility of the Division of Commercial Fisheries Juneau and Sitka Management Area offices. In 1989, the Alaska Board of Fisheries adopted a positive finding for the community of Angoon "customary and traditional use" of 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 13-C east of the longitude of Point Elizabeth (5AAC 01.716(5)).

The residents of Angoon are the principal subsistence users in this area. In 2000, Angoon had a population of 572 in 184 households. Angoon Tlingit have traditionally used most of the west coast of Admiralty Island, from Hawk Inlet to the south 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 offered the people of Angoon salmon and other marine resources.

Regulations

A subsistence salmon permit for the Angoon area waters of District 12 provided for an open season for sockeye salmon in Kanalku Bay from June 1 through July 31 with a limit of 25 fish; in Basket Bay (Kook Lake outlet) from June 1 through July 31 with a limit of 15 fish; in Sitkoh Bay from June 1 through August 31 with a limit of 50 fish; and in Hasselborg River/Salt Lake from July 1 through July 31with a limit of 25 fish. The open period for subsistence coho salmon fishing on Hasselborg River/Salt Lake was from August 1 through 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 August 16 through 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 through September 30 with a limit of 150 fish. The season for chum salmon in all streams of the District was from June 1 through October 31, and the limit was 50 fish.

Sport taken and subsistence taken salmon may not be possessed on the same day, and salmon taken under the subsistence/personal use regulations may not be subsequently used as bait for commercial fishing purposes. Gaffs, spears, beach seines, dip nets, drift gillnets and cast nets are the types of subsistence gear allowed for general use in the Angoon area. Drift gillnets may not exceed 50 fathoms in length; set gillnets may not be used. Snagging or fishing with a rod or reel is prohibited. Other standard permit conditions include removal of dorsal fins, prohibition of fishing within 300 feet of a dam, fish ladder, weir, culvert or other artificial obstruction, completion of the catch calendar for each day fished, specifying location, species, and gear. Only one 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 Subsistence Area fisheries in 2004 was 2,610 salmon, including 2,248 sockeye (86.1 percent), 135 coho (5.2 percent), 77 chum (3 percent), and 151 pink (5.8 percent) (Table XIII- 3).

The estimated salmon harvest for the community of Angoon, based on 106 permits issued and 86 returned (81.1 percent), totaled 2,138 salmon, including 1,806 sockeye, 131 coho, 71 chum, and 131 pink salmon (Table XIII- 4).

Hoonah Subsistence Area

Background and History

Subsistence salmon fisheries in the waters traditionally used by the community of Hoonah are under the management responsibility of the Division of Commercial Fisheries Juneau and Sitka Management Area offices. In 2000, Hoonah had a population of 860 in 300 households. In 1989, the Alaska Board of Fisheries adopted a positive finding for the village of Hoonah "customary and traditional use" of salmon in the waters of District 12 in waters of Basket Bay inside a line from 57º30.83'N. lat., 134º53.20' W. long., to 57º39.28' N. lat., 134º53.88' W. long., in District 13 in waters along the western shore of Yakobi Island east of a line from Cape Spencer Light to Surge Bay Light, and in waters of Section 14B and 14-C, (5AAC 01.716(4)).

Regulations

The 2003 subsistence salmon permit for Hoonah area waters provided open seasons and limits for sockeye salmon at the following locations: Surge Bay from June 1 through August 15 with a limit of 50 fish; Hoktaheen Cove from June 1 through July 20 with a limit of 50 fish; Hanus Bay (Lake Eva) from June 1 through August 15 with a limit of 50 fish; Berg Bay from June 1 through July 31 with limits of 25 fish; and Neva Creek from June 1 through 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 through 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 through 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 August 16 through October 31 with limits of 20 possession and 40 annually.

Sport taken and subsistence taken salmon may not be possessed on the same day, and salmon taken under subsistence regulations may not be subsequently used as bait for commercial fishing purposes. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets are the types of subsistence gear allowed for general use in the Hoonah area. Drift gillnets may not exceed 50 fathoms in length; set gillnets may not be used. Snagging or fishing with a rod or reel is prohibited. Other standard permit conditions include removal of dorsal fins,

prohibition of fishing within 300 feet of a dam, fish ladder, weir, culvert or other artificial obstruction, completion of the catch calendar for each day fished, specifying location, species, and gear. Only one permit will be 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 2004 was 3,548 salmon, including 3,315 sockeye (48.2 percent), 29 coho (2 percent), 66 chum (50 percent), and 137 pink (1 percent) (Table XIII-3).

The estimated salmon harvest for the community of Hoonah based on 162 permits issued and 84 returned totaled 3,135 salmon, 2, 921 sockeye, 20 coho, 51 chum, and 144 pink salmon (Table XIII- 4).

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

Elfin Cove, Gustavus, Pelican, and Tenakee Springs residents 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 Taku River in District 11, Berg River in District 14, and 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 2004 the amount of salmon reported on permits from Elfin Cove, Gustavus, Pelican and Tenakee Springs was once again modest. Three permits were issued and returned by residents of Elfin Cove. The estimated total subsistence salmon harvest for Elfin Cove, 2 sockeye. In Gustavus, 17 permits were issued and 13 returned. The total estimated harvest for Gustavus was 329 salmon, including 327 sockeye and 2 pinks. Eleven permits were issued to Pelican residents, and all were returned. Pelican had a total estimated harvest of 68 sockeye salmon. Six permits were issued and six returned by Tenakee Springs residents, accounting for a total estimated harvest of 38 salmon, 34 sockeye, 1 coho, 2 chum and 1 pink (Table XIII-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 use in the Juneau nonsubsistence area. Juneau fishers were the principal users of the designated personal use fisheries in District 11. Juneau fishers rely on sockeye salmon from the Taku River and Sweetheart Creek.

Regulations

The 2004 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 through July 31, the total annual limit for each personal use salmon permit is five sockeye salmon for a household of one and 10 sockeye salmon for a household of two or more people. For Sweetheart Creek, June 1 through October 31 there is 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 was June 1 through September 30 with a 150 fish limit; for chum salmon, the open season was June 1 through October 31 with a 50 fish limit.

Salmon may 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 who have been issued a permanent identification card. Both tips (lobes) of the caudal fin (tail) of personal use taken salmon must be removed immediately after harvest. Beach seines, cast nets, dip nets, gaffs and spears are the gear allowed in the Juneau area. Set gillnets may not be used except in the Taku River. Set gillnets may not be fished within 100 yards of the ADF&G Taku River fish wheels. Snagging is prohibited in the personal use fisheries. It is unlawful to buy, sell, trade, or barter fish or their parts under personal use regulations. King and coho salmon, trout, and char may only be taken incidentally under a personal use permit. Possession limits for king and coho salmon are two kings and six coho.

Harvest Assessment Program

The total estimated salmon harvest for the Juneau personal use area fisheries in 2004 was 6,169 salmon, consisting of 32 chinook (.5 percent), 5,856 sockeye (94.9 percent), 142 coho (2.3 percent), 6 chum (less than 1 percent), and 134 pink salmon (2.2 percent) (Table XIII-3).

The estimated salmon harvest for the community of Juneau based on 745 permits issued and 669 returned (89.8 percent) totaled 7,342 salmon, including 78 chinook (1.1 percent), 6,990 sockeye (95.2 percent), 114 coho (1.6 percent), 30 chum (less than one percent), and 130 pink (1.8 percent) (Table XIII-4). The estimated salmon harvest for the community of Douglas based on 51 permits issued and 43 returned totaled 381 salmon, including 2 chinook, 336 sockeye, 38 coho, and 5 pink (Table XIII-4).

SITKA MANAGEMENT AREA

Sitka Subsistence Salmon Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the Tlingit people of Sitka are under the management responsibility of the Division of Commercial Fisheries Sitka Management Area Office. In 1989, the Alaska Board of Fisheries adopted a positive finding for "customary and traditional use" of sockeye salmon in the waters of Section 13-A south of the latitude of Cape Edward, in waters of Section 13-B north of the latitude of Redfish Cape, and in waters of Section 13-C (5AAC 01.716 (8)). At the Board of Fisheries meeting in Sitka in March 1997, this was extended to include all other salmon species (5AAC 01.716 (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 Management Area 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 with the Hoonah fisheries, and Sitkoh Bay fishery is discussed with the Angoon fisheries.

The residents of Sitka are the principal subsistence users of the salmon stocks in this area. In 2000, Sitka had a population of 8,835 in 3,278 households. Twenty percent of Sitka households are estimated to use subsistence methods to harvest salmon for home use (Scott et al. 2001). Sitka Tlingits 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 extending inward up Peril Strait between Chichagof and Baranof islands into Hoonah Sound as far as Patterson Bay. Sitkans share with Hoonah people the use of Yakobi Island and the sockeye salmon fisheries at Hoktaheen Cove and Surge Bay. Sitka territory touches that of Angoon in Peril Strait and Sitkoh Bay.

Regulations

The 2004 subsistence/personal use salmon permit for the Sitka Management Area stipulates that "sport-taken and subsistence/personal use taken salmon may not be possessed on the same day." Chinook, steelhead, trout and char "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, salmon may not be taken by rod and reel gear.

The 2004 permit provided for an open season for pink salmon from July 15 through September 30, and for chums from July 15 through October 31, in streams in the Sitka Management Area. Open season for sockeye salmon for all Sitka sockeye locations started June 1 and closed on varying dates at the various locations. July 20th was the closing date for Gut Bay, and Hoktaheen Cove. July 20th was also the closing date for Takanis Bay, which is managed under personal use regulations. July 25th was the closing date for Leo's

Anchorage and July 31st for Silver Bay (Salmon Lake) and Politofski Lake. August 15th was the closing date for Hanus Bay (Lake Eva). August 31 was the closing date for Necker Bay, Redfish Bay, Redoubt Bay, and Sitkoh Bay.

Possession and annual limits for sockeye were from 10 fish at Leo's Anchorage to 100 fish at Necker Bay. Sitkoh, Takanis, Surge, and Klag Bays, Hoktaheen Cove, Ford Arm, Falls Lake, Politofski Lake, Hanus Bay (Lake Eva), and Lake Anna all 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 Alaska Board of Fisheries adopted the Redoubt Bay and Lake Sockeye Salmon Management Plan (5AAC 01.760). The plan provides a management approach for subsistence, sport, and commercial fisheries that harvests Redoubt Lake sockeye salmon based on a new optimal escapement goal of 7,000 to 25,000 fish. The management plan provides that if the projected total escapement is greater than 30,000 fish, then the subsistence/household possession limit will be 25 fish, and the annual limit will be 100 fish. The management plan also provides for the issuance of community harvest permits if the projected total escapement is greater than 40,000 fish. The limits for 2004 were 25 fish in possession and an annual limit of 100 fish.

In 2004, the Alaska Department of Fish and Game opened a directed coho salmon fishing season in the Sitka area with a season from August 16 through October 31st. The directed coho salmon fishing season at Redoubt Lake, Necker, Redfish and Sitkoh Bays was September 1 through October 31. Possession and annual limits for coho salmon were 20 and 40 respectively. Gear authorized under the coho permit included dip nets, gaffs, spears, hand purse seines, cast nets, beach seines, and drift gill nets 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 specific permit conditions for coho. The possession and annual limit for chum salmon was 50, and for pink salmon, the possession limit was 50, and the annual limit was 150.

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

Harvest Assessment Program

As reported in Table XIII-1, the estimated salmon harvest in the Sitka area (District 13) subsistence fisheries in 2004, was 23,838 salmon, including 23,202 sockeye (97.3 percent), 12 chinook (less than 1 percent), 46 coho (less than 1 percent), 221 chum (less than 1 percent), and 358 pink salmon (2 percent).

As reported in Table XIII-4, the estimated salmon harvest for the community of Sitka, based on 778 permits issued and 744 returned, was 18,930 salmon, including 36 chinook (less than 1 percent), 18,459 sockeye (97.5 percent), 28 coho (less than 1 percent), 134 chum (less than 1 percent), and 273 pink salmon (1.4 percent).

PETERSBURG/WRANGELL MANAGEMENT AREA

Kake Subsistence Salmon Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the Tlingit people of Kake are under the management responsibility of the Division of Commercial Fisheries Petersburg/Wrangell office. In 1989, the Alaska Board of Fisheries adopted a positive finding for "customary and traditional use" of salmon in the waters of Section 9-A and 9-B, in waters north of the latitude of Swain Point, in waters of District 10 west of a line from Pinta Point to False Point Pybus, and in waters of District 5 north of a line from Point Barrie to Boulder Point (5AAC 01.716(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 2000, Kake had a population of 710 in 246 households. Thirty-three percent of Kake households are estimated to use subsistence methods to harvest salmon for home use (Scott et al. 2001). Kake residents shared the use of the southern coastal waters of Admiralty Island with people 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.

Regulation

The 2004 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 from June 1 through July 31. For Falls Lake, the season ran from June 1 through July 6, was closed from July 7 through July 13, then open again from July 14 through July 20, after which it remained closed. The sockeye season for Gut Bay ran from June 1 through July 20. The open season for pink salmon in all streams in the Kake and Point Baker/Port Protection subsistence area ran from July 15 through August 31. Permitted subsistence gear included gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets. Drift and set gillnets may not exceed 50 fathoms. Set gillnets may only be used in Shipley Bay within 100 yards of the terminus of Shipley Creek, and the permit holder shall be physically present at the net while it is in operation.

Harvest limits for sockeye from Alecks Creek and Bay of Pillars were 50 in possession and 50 annually. The limit for Gut Bay and Falls Lake, 10 in possession and 20 annually, and for Shipley Bay, it was 25 in possession, 50 annual.

Harvest Assessment Program

As reported in Table XIII-3, the estimated salmon harvest in the Kake subsistence area in 2004 was 4,218 salmon, including 3,858 sockeye (91.5 percent), 217 chum (5.1 percent), 5 chinook (less than 1percent) 51 pink (1.2 percent), and 87 coho (2.1 percent).

As reported in Table XIII-4, the estimated subsistence salmon harvest for the community of Kake in 2004, based on 155 permits issued and 131 returned (84.5 percent), was 3,733 salmon including 3,413 sockeye (91.4 percent), 190 chum (5.1 percent), 4 chinook (less than 1 percent), 85 coho (2.3 percent) and 41 pink salmon (1.1 percent).

Petersburg Subsistence and Personal Use Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the Tlingit people of Wrangell are under the management responsibility of the Commercial Fisheries Petersburg/Wrangell office. In 1989, the Alaska Board of Fisheries adopted positive findings for "customary and traditional use" of salmon in the waters of southeast Alaska. The board did not act on proposals requesting a positive finding for "customary and traditional use" of salmon in the waters of District 7 and 8, the principal waters used by the people of Petersburg and Wrangell. In 2002, the Alaska Board of Fisheries did make a positive finding for District 7 and District 8 (5AAC 01.716(23)). These waters include Thoms Place, Harding River, Mill Creek, and the Stikine River.

The Petersburg/Wrangell Management Area 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, Crystal Creek, Thoms Creek, Earl West Cove, Mill Creek, and the Stikine River. In 2000, Petersburg had a population of 3,247 in 1,252 households, and Wrangell had a population of 2,308 in 907 households. Rod and reel is the preferred method used by Petersburg and Wrangell fishers to harvest salmon for home use. Just 3 percent of Petersburg households and 9 percent of Wrangell households are estimated to use subsistence methods to harvest salmon for home use (Scott et al. 2001).

Regulations

The 2004 subsistence/personal use salmon permit for the Petersburg/Wrangell Management Area provided for an open season for sockeye salmon in Shipley, Salmon, and Red Bays, along with Thoms Place and Mill Creek, from June 1 through July 31. Season limits for sockeye were 25 in possession and 50 annually from Shipley Bay and 30 in possession/annually from Salmon Bay and Red Bay. The open season for the subsistence sockeye salmon fisheries at Thoms Place and Mill Creek was June 1 through July 31 with a daily possession limit of 20 and an annual limit of 40.

Due to increasing fishing pressure and concerns for the viability of the stock, the Hatchery Creek sockeye salmon personal use permit conditions limited fishing to Thursdays through Sundays from June 1 through June 30. Harvest limits were also restricted to 6 fish daily and 24 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 from July 15 through August 31 with a daily/possession limit of 100 pinks 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 from July 1 through October 31 with a daily possession limit of 50 fish and no annual limit.

Coho season for all of the streams in the Kake, Point Baker/Port Protection, Wrangell and Petersburg subsistence areas were open from August 16 through October 31 with a limit of 20 fish in possession and 40 annually. Personal use coho fishing was open in Blind Slough and North Wrangell Narrows from August 15 through September 5 (Fridays 6 am - 8 pm) with both possession and annual limits of 25 fish. The Anita Bay and Eastern Passage personal use permit allowed the harvest of chinook, chum, and coho salmon from June 15 through October 10 with both possession and annual limits of 25 fish.

Allowed subsistence gear included gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets. Drift and set gillnets may not exceed 50 fathoms. Set gillnets may only be used in Shipley Bay within 100 yards of the terminus of Shipley Creek, and the permit holder shall be physically present at the net while it is in operation.

2004 Federal Stikine River Subsistence Sockeye Fishery

In January of 2004, the U.S. and Canada negotiated a modified treaty annex provision to allow a U.S. subsistence fishery for sockeye salmon on the Stikine River. The U.S. Federal Subsistence Board implemented the Sitkine River subsistence sockeye salmon fishery in 2004.

The 2004 Federal Stikine River subsistence sockeye fishery permit provided for an open season from July 1 –July 31. The allowable fishing gear were dip nets, spears, gaffs, rod and reel, beach seine, or gillnets not exceeding 15 fathoms in length with a mesh size no larger than 5.5 inches. In 2004, a total of 40 permits were issued but only 20 were actively fished. Of those that were fished, landings were reported on 16 of them for a total of 243 sockeye, 21 chinook, 22 pinks, and 11 chum salmon.

Harvest Assessment Program – Petersburg

As reported in Table XIII-3, the estimated salmon harvest in the Petersburg Subsistence/ Personal Use Area in 2004 was 2,904 salmon, including 2,398 sockeye (82.6 percent), 3 chinook (less than 1 percent), 372 coho (12.8 percent), 91 chum (3.1 percent), and 40 pink salmon (1.4 percent).

As reported in Table XIII-4, the estimated subsistence salmon harvest for the community of Petersburg in 2004, based on 146 permits issued and 144 returned (98.6 percent), was 2,437 salmon, including 1,974 sockeye (81 percent), 1 chinook (less than 1 percent), 366 coho (15 percent), 71 chum (2.9 percent), and 24 pink salmon (1 percent).

Wrangell Subsistence and Personal Use Fisheries

Regulations

See regulations above for Petersburg/Wrangell Management Area.

Harvest Assessment – Wrangell

As reported in Table XIII-3, the estimated salmon harvest in the Wrangell Subsistence/ Personal Use Area in 2004 was 1,054 salmon, which included 833 sockeye (79 percent), 31 chinook (2.9 percent), 3 coho (less than 1 percent), 141 chum (13.4 percent), and 46 pink (4.4 percent).

As reported in Table XIII-4, the estimated subsistence salmon harvest for the community of Wrangell in 2004, based on 103 permits issued and 99 returned (96.1 percent), was 1,303 salmon, including 33 chinook (2.9 percent), 1,053 sockeye (79 percent), 5 coho (less than 1 percent), 165 chum (12.7 percent), and 46 pink salmon (3.5 percent).

Point Baker/Port Protection Subsistence Fisheries

Background and History

The Petersburg/Wrangell Area office manages subsistence and personal use salmon fisheries in the waters used by fishers from the communities of Point Baker and Port Protection—the Salmon Bay and Red Bay sockeye salmon stocks at the north end of Prince of Wales Island. In 1989, when the Alaska Board of Fisheries adopted positive findings for "customary and traditional use" of salmon in some waters of southeast, it did not act on proposals to make a similar finding for the principal waters used by the people of Point Baker and Port Protection to obtain their fish for home use. In 1997, the Alaska Board of Fisheries acted favorably on a proposal to adopt a positive finding for "customary and traditional" use of salmon (and other fish) "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" (5AAC 01.716(20)).

In 2000, Point Baker had a population of 35 in 13 households, and Port Protection had a population of 63 in 31 households. In 1996, 50 percent of households in Point Baker and 28 percent in Port Protection relied on removal from commercial catches to meet household needs for salmon (Scott et al. 2001).

Regulations

The Point Baker drift gillnet subsistence salmon fishery is valid only for the waters of Sumner Strait within three miles of the Prince of Wales Island shoreline north of Hole-in-the-Wall and west of the western side of Buster Bay. The Point Baker drift gillnet subsistence salmon fishery was open June 15 through July 31 from Wednesday noon until Sunday noon. Only drift gillnet gear is allowed, and gillnets may not exceed 50 fathoms in length. Harvest was limited to a maximum of 25 sockeye salmon per family per year, incidental harvests of other species are allowed.

Harvest Assessment Program

In 2004 four permits were issued to Port Protection residents. Port Protection households receive mail via pouch from Ketchikan and maintain either a Ketchikan or Point Baker post office box address. Port Protection harvests can also be included in either the Point Baker or Ketchikan numbers. The estimated salmon harvest in the Port Protection was a total of 123 salmon, which included 86 sockeye (69.9 percent), 6 coho (4.9 percent), 9 chum (7.3 percent), and 22 pink salmon (17.9 percent) (Table XIII-4). One permit was issued for Point Baker in 2004 and it was not returned.

KETCHIKAN MANAGEMENT AREA

Craig, Klawock And Hydaburg Subsistence Fisheries

Background and History

The Ketchikan Management Area includes three distinct subsistence areas where the Board of Fisheries adopted positive "customary and traditional use" determinations in 1989. Two of these areas are on the west coast of Prince of Wales Island, the Hydaburg area waters and the Craig/Klawock area waters. Hydaburg area waters include Section 3-A and the waters of District 2 in Nichols Bay north of 54º42.12' N. lat. (5AAC 01.716(18)). Craig/Klawock area waters include Section 3-B east of a line from Point Ildefonso to Tranquil Point, Warm Chuck Inlet north of a line from a point on Heceta Island at 55º44' N. lat., 133º25' W long., to Bay Point, Section 3-C in Karheen Passage north of 55º48' N lat. and east of 133º20' W long., and Sarkar Cove and Sarkar Lakes (5AAC 01.716(15)).

The communities of Hydaburg, Craig, and Klawock on the west coast of Prince of Wales Island primarily use the salmon stocks of Districts 3-A and 3-B, the main harvest locations being 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 percent of Craig households used subsistence methods to harvest salmon. In Klawock, 36 percent, and in Hydaburg, 59 percent of households used subsistence methods to harvest salmon that year (ADFG Division of Subsistence, Community Profile Database 2003).

In 2000, the numbers of people and households in the three west coast Prince of Wales Island communities were as follows:

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

Source: U.S. Census of Population, 2000

[1] Alaska Native Village Statistical Area includes population on Port St. Nicholas Rd. and other residential areas outside City of Craig boundaries.

Regulations

The 2004 subsistence/personal use salmon permit for the Ketchikan Management Area stipulated that hand purse seines, beach seines, spears, gaffs, cast nets, and dip nets are the types of subsistence/personal use gear allowed for general use. Salmon may not be taken with a "line attached to a rod or pole." The standard rules prohibiting fishing near dams, fish ladders, weirs, culverts, etc., were also included, 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 removing tail fin tips immediately. The 2004 subsistence sockeye salmon openings were in Klawock area waters from June 7 through July 31 (8am Monday to 5pm Friday) with a 20 sockeye possession limit and no annual limit; in Hetta Inlet and Eek Creek from June 1 through August 31 with a possession limit of 20 sockeye and no annual limit; and in Hugh Smith Lake from June 22 through July 12 with a 12 sockeye possession limit and no annual limit. All other systems in the Ketchikan Management Area with customary and traditional use areas were open to sockeye fishing June 1 through July 31 with 20 sockeye in possession and no annual limit. All streams in the Ketchikan Management Area with customary and traditional use areas were open for pink salmon from July 1 through September 30 and allowed 150 fish in possession with no annual limit. Chum salmon fishing was open in the same waters from July 1 through October 31 with a possession limit of 25 and no annual limit, and coho fishing was open August 16 through October 31 with limits of 20 fish in possession and 40 annually.

Harvest Assessment Program

As reported in Table XIII-3, the estimated salmon harvest for the Craig/Klawock/Hydaburg subsistence area in 2004 was 7,191 salmon, including 6,578 sockeye (91.5 percent), 90 coho (1.3 percent), 132 pink (1.8 percent), and 391 chum (5.4 percent).

As reported in Table XIII-4, 165 permits were issued to residents of Craig, and 128 (77.6 percent) were returned. The total estimated salmon harvest was 1,808 salmon, consisting of 1,640 sockeye (90.7 percent), 56 coho (3.1 percent), 83 chum (4.6 percent), and 28 pink salmon (1.5 percent). The total estimated salmon harvest for Klawock, based on 139 permits issued and 103 returned, was 3,667 salmon, consisting of 3,188 sockeye (86.9 percent), 43 coho (1.2 percent), 340 chum (9.3 percent), and 97 pink salmon (2.6 percent). The total estimated salmon harvest for Hydaburg, based on 56 permits issued and 30 returned (53.6 percent), was 1,688 sockeye.

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 identified by the Board of Fisheries as having "customary and traditional use" of salmon includes the Kasaan area waters of District 2 north of the latitude of the northernmost tip of Chasina Point and 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 (5AAC 01.716 (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 east coast of Prince of Wales Island are the Kegan Lake, Thorne River, and Hatchery Creek-Sweetheart Creek.

The population and number of households of the communities of Prince of Wales Island that use these waters are:

Community	Population	Households	Community	Population	Households
Coffman Cove	199	63	Kasaan	39	17
Craig [1]	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 of Population, 2000

[1] Alaska Native Village Statistical Area, includes population on Port St. Nicholas Rd and other suburbs of City of Craig.

Regulations

All streams in the Ketchikan Management Area with customary and traditional use areas not otherwise listed on the permit had open seasons for subsistence sockeye salmon fishing from June 1 through July 31 with a 20 fish possession limit and no annual limit. Also in these

waters, pink salmon fishing was open from July 1 through September 30 with a limit of 150 fish in possession and no annual limit, and chum salmon fishing was open from July 1 through October 31 with a 25 fish possession limit and no annual limit. Coho salmon fishing was also open in these waters from August 16 through October 31 with a limit of 20 fish in possession and 40 annually.

Harvest Assessment Program

As reported in Table XIII-3, the estimated salmon harvest in the Kasaan subsistence area in 2004 was 2,039 salmon, including 1,836 sockeye (90 percent), 48 coho (2.4 percent), 49 chum (2.4 percent), and 103 pink salmon (5.1 percent).

As reported in Table XIII-4, the estimated salmon harvest for Kasaan, based on 15 permits issued and 14 returned, was 342 sockeye, 11 coho, and 1 pink, for a total of 354 salmon. For Coffman Cove, 12 permits were issued and 11 were returned with no reported salmon harvests. In Hollis, 24 permits were issued and 20 were returned, resulting in a harvest estimate of 613 sockeye, 6 coho, 17 chum, and 88 pink salmon, a total of 724 salmon. Thorne Bay residents were issued 79 permits and returned 77 of them, resulting in a harvest estimate of 627 salmon, including 589 sockeye, 26 coho, and 9 pink salmon. Whale Pass residents were issued 3 permits, and 1 was returned, with no reported salmon harvests.

Ketchikan Personal Use Fisheries

Background and History

The Ketchikan Management Area is responsible for the subsistence and personal use salmon fisheries in Districts 1, 2, 3, and 6. The Board of Fisheries recognized "customary and traditional use" of salmon stocks in the waters 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 within 500 yards of the terminus of Sockeye Creek (5AAC 01.716 (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 2000, the population of the City and Borough of Ketchikan, excluding Saxman, was 13,639 in 5,272 households. Saxman, located within the Ketchikan Borough, had a population of 431 in 127 households.

Regulations

The personal use salmon permit for the Ketchikan Management Area provided for an open season for sockeye salmon at McDonald Lake (Yes Bay) from June 1 through August 30 with a possession limit of 40 fish and no annual limit. All other streams in the Ketchikan Management Area's personal use area except the Ketchikan road system were open from

June 1 through July 31 with a limit of 12 sockeye in possession and no annual limit. Hatchery Creek was open weekly, Thursday through Sunday, June 1 through June 30 with a limit of 6 sockeye in possession and 24 annually. For pink salmon, all streams in the Ketchikan Management Area's personal use area except the Ketchikan road system were open from June 1 through September 30 with a limit of 150 fish in possession and no annual limit. The same streams/areas were open for chum salmon from June 1 through October 31 with a possession limit of 25 and no annual limit.

Harvest Assessment Program

As reported in Table XIII-3, the total estimated salmon harvest in the Ketchikan personal use area in 2004 was 5,488, including 3,598 sockeye (65.6 percent), 117 chinook (2.1 percent), 19 coho (less than 1 percent), 1,205 chum (22 percent), and 550 pink salmon (10 percent).

As reported in Table XIII-4, the total estimated salmon harvest for the community of Ketchikan, based on 329 permits issued and 286 returned (86.9 percent), was 5,396, including 73 chinook (1.4 percent), 3,639 sockeye (67.4 percent), 11 coho (less than 1 percent), 1,159 chum (21.5 percent), and 513 pink salmon (9.5 percent). The total estimated salmon harvest for the community of Saxman, based on 25 permits issued and 14 returned, was 530 salmon, including 45 chinook, 400 sockeye, 50 chum, and 34 pink salmon. The total estimated salmon harvest for the community of Metlakatla, based on 15 permits issued and 14 returned, was 74 salmon, including 51 sockeye, 11 chum, 2 coho, and 10 pink salmon.

Table XIII-1. Subsistence and Personal Use Salmon Harvests by District, Southeast Alaska/Yakutat Region, 2004.

		Permits Fished		Estimated Salmon Harvests					
Fishing Location	Name	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink	Total
District 1	Ketchikan/Behm Canal	157	183	117	3,598	19	1,205	550	5,488
District 2	Clarence Strait/East Prince of Wales Island	79	93	3	1,791	48	49	103	1,994
District 3	Inside Waters/West Prince of Wales Island	143	200	0	6,578	90	391	132	7,191
District 5	Sumner Strait	1	1	0	39	0	0	0	39
District 6	East Sumner Strait/North Frederick Sound	151	158	3	2,442	372	91	40	2,949
District 7	East Etolin Island/Wrangell Island/Ernest Sound	57	59	31	833	3	141	46	1,054
District 9	South Chatham Strait/West Frederick Sound	125	145	3	3,741	85	213	51	4,094
District 10	East Frederick Sound	2	2	1	78	2	4	0	85
District 11	Juneau.Taku Inlet.Stephens Passage	362	409	32	5,856	142	6	134	6,169
District 12	Angoon/North Chatham Strait/ East Chichagof	50	59	0	924	135	10	69	1,137
District 13	Sitka.Outer Baranof and Chichagof/Peril Strait	733	811	12	23,202	46	221	358	23,838
District 14	Icy Strait/Glacier Bay	29	45	0	500	11	46	124	681
District 15	Lynn Canal/Chilkat Inlet	349	365	190	6,616	475	742	1,500	9,524
Yakutat Forelands	Yakutat Forelands	79	101	588	4,954	893	18	56	6,509
Yakutat Bay-Troll	Yakutat Bay-Troll	34	43	603	267	126	15	1	1,012
	Totals			1,583	61,419	2,446	3,151	3,164	71,763

Source: ADF&G Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XIII-2. Historic Subsistence and Personal Use Salmon Harvests, Southeast Alaska/Yakutat Region, 1985-2004.[1]

	PERMITS		ESTIMATED SALMON HARVEST					
YEAR	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL
1985		1,271	19	20,006	360	2,951	2,136	25,472
1986		1,354	29	21,974	277	2,840	971	26,091
1987		1,322	34	25,405	117	3,878	1,474	30,908
1988		1,013	94	19,898	97	3,013	1,145	24,247
1989		1,479	580	32,860	1,381	3,113	3,664	41,598
1990		1,543	524	36,376	1,615	3,433	3,529	45,477
1991		1,554	262	37,765	766	3,271	1,741	43,805
1992		1,860	614	53,131	4,939	3,201	2,942	64,827
1993		2,121	537	56,249	3,515	2,583	2,143	65,027
1994		2,239	800	57,097	3,607	4,211	3,639	69,354
1995		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
5-Year Average	3,600	3,035	1,560	58,099	2,818	3,798	3,423	69,698
10-Year Average	3,885	3,140	1,343	58,275	2,878	4,443	3,481	70,419
All Years Average	3,885	2,358	846	47,175	2,273	3,846	2,910	57,050

[1] For years prior to 1996, only permits returned with harvest data are included, and harvests reported in these years are not expanded into estimates. Caution should be used if comparing pre-1996 data with later data.

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XIII-3. Estimated Subsistence and Personal Use Salmon Harvests by Management and Use Areas, Southeast Alaska/Yakutat Region, 2004.

	Permits Fished		Estimated Harvests				
	Reported	Estimated	Chinook	Sockeye	Coho	Chum	Pink
Yakutat Management Area	113	144	1,191	5,221	1,019	33	57
Haines Management Area	349	365	190	6,616	475	742	1,500
Juneau Management Area	542	662	33	11,419	305	148	422
Juneau Personal Use Area	362	409	32	5,856	142	6	134
Angoon Subsistence Area	82	99	0	2,248	135	77	151
Hoonah Subsistence Area	98	155	1	3,315	29	66	137
Sitka Management Area	632	662	10	19,063	28	135	262
Petersburg Management Area	317	344	39	7,089	463	448	137
Petersburg Subsistence/ Personal Use Area	132	136	3	2,398	372	91	40
Wrangell Subsistence/ Personal Use Area	57	59	31	833	3	141	46
Kake Subsistence Area	128	149	5	3,858	87	217	51
Ketchikan Management Area	398	498	120	12,012	157	1,645	785
Ketchikan Personal Use Area	157	183	117	3,598	19	1,205	550
Kasaan Subsistence Area	98	115	3	1,836	48	49	103
Craig/Klawock/Hydaburg Subsistence Area	143	200	0	6,578	90	391	132
Totals			1,583	61,419	2,446	3,151	3,164

Source: ADF&G Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Table XIII-4. Subsistence and Personal Use Salmon Harvests by Community, Southeast Alaska/Yakutat Region, 2004.

	PERMITS		ESTIMATED SALMON HARVEST					
COMMUNITY	ISSUED	RETURNED	CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Anchorage	18	14	11	264	2	2	15	293
Angoon	106	86	0	1,806	131	71	131	2,138
Auke Bay	29	24	2	191	0	0	5	199
Coffman Cove	12	11	0	0	0	0	0	0
Craig	165	128	0	1,640	56	83	28	1,808
Douglas	51	43	2	336	38	0	5	381
Eagle River	1	1	0	0	0	0	0	0
Elfin Cove	3	3	0	2	0	0	0	2
Ester	1	1	0	0	0	0	0	0
Fairbanks	7	7	0	80	0	0	16	96
Gustavus	17	13	0	327	0	0	2	329
Haines	349	334	190	6,394	473	719	1,445	9,222
Hollis	24	20	0	613	6	17	88	724
Hoonah	162	84	0	2,921	20	51	144	3,135
Hydaburg	56	30	0	1,688	0	0	0	1,688
Juneau	745	669	78	6,990	114	30	130	7,342
Kake	155	131	4	3,413	85	190	41	3,733
Kasaan	15	14	0	342	11	0	1	354
Kenai	1	1	0	50	0	0	0	50
Ketchikan	329	286	73	3,639	11	1,159	513	5,396
Klawock	139	103	0	3,188	43	340	97	3,667
Metlakatla	15	14	0	51	2	11	10	74
Meyers Chuck	1	1	0	0	0	0	0	0
Naukati Bay	8	7	0	1	0	0	0	1
North Pole	4	3	0	0	0	0	0	0
Palmer	1	1	0	25	0	0	0	25
Paxson	1	1	0	50	0	0	0	50
Pelican	11	11	0	68	0	0	0	68
Petersburg	146	144	1	1,974	366	71	24	2,437
Point Baker	1	0						
Port Alexander	4	4	0	58	2	0	0	60
Port Protection	4	4	0	86	6	9	22	123
Saxman	25	14	45	400	2	50	34	530
Shungnak	1	1	0	0	0	0	0	0
Sitka	778	744	36	18,459	28	134	273	18,930
Skagway	3	3	0	1	0	16	22	39
Tenakee Springs	6	6	0	34	1	2	1	38
Thorne Bay	79	77	3	589	26	0	9	627
Valdez	1	0						
Ward Cove	2	2	0	2	0	0	0	2
Wasilla	3	2	0	42	0	0	4	46

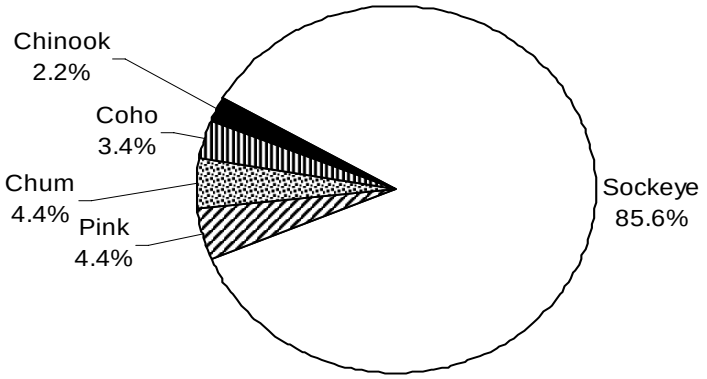
[continued...]

[Table XIII-4 continued]

COMMUNITY	PERMITS ISSUED	PERMITS RETURNED	ESTIMATED SALMON HARVEST CHINOOK	SOCKEYE	COHO	CHUM	PINK	TOTAL SALMON
Whale Pass	3	1	0	0	0	0	0	0
Wrangell	103	99	33	1,053	5	165	46	1,303
Yakutat	118	93	1,104	4,642	1,019	33	57	6,855
Totals	3,703	3,235	1,583	61,419	2,446	3,151	3,164	71,763

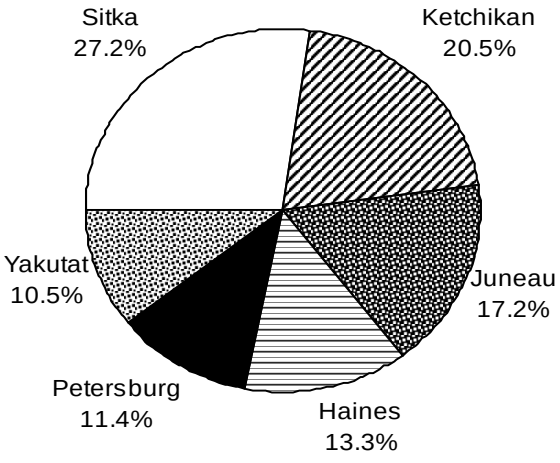
SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database, Version 3.5.

Figure XIII-1. Southeast/Yakutat Subsistence and Personal Use Harvests by Species, 2004



Total salmon = 71,763

Figure XIII-2. Total Salmon Harvested by Management Area, Southeast/Yakutat Region, 2004



Total salmon = 71,763

REFERENCES CITED

Alaska Department of Fish and Game and 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. Project No. FIS00-017. Anchorage.

Alaska Department of Fish and Game and 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. Project No. FIS00-017. Anchorage.

Alaska Department of Fish and Game. 1985. Alaska Habitat Management Guide Reference Maps, Southwest Region, Volume IV: Human Use of Fish and Wildlife. Division of Habitat. Juneau.

Alaska Department of Fish and Game. 2001. From Neqa to Tepa: A Database with Traditional Knowledge about the Fish of Bristol Bay. Version 1.0. Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Alaska Department of Fish and Game. 2002a. Customary and Traditional Use Worksheet: Salmon: Chignik Management Area. Report prepared by the Division of Subsistence for the Alaska Board of Fisheries, Anchorage, AK, January 2002.

Alaska Department of Fish and Game. 2002b. Customary and Traditional Use Worksheet: Salmon: Chitina Subdistrict, Prince William Sound Management Area. Report prepared by the Division of Subsistence for the Alaska Board of Fisheries, Cordova, January 2003.

Alaska Department of Fish and Game. 2002c. Alaska Subsistence Fisheries 2000 Annual Report. Division of Subsistence. Juneau.

Alaska Department of Fish and Game. n.d.a. The Salmon Fishing People of the Yukon River. Wildlife Use Notebook Series No. 1. Division of Subsistence, Alaska Department of Fish and Game. Juneau.

Alaska Department of Fish and Game. n.d.b. Salmon Fishing Methods of the Yukon River. Wildlife Use Notebook Series No. 2. Division of Subsistence, Alaska Department of Fish and Game. Juneau.

Alaska Department of Fish and Game. n.d.c. Family Fish Camps of the Yukon River. Wildlife Use Notebook Series No. 3. Division of Subsistence, Alaska Department of Fish and Game. Juneau.

Andersen, D., C. Brown, R. Walker, and K. Elkin. 2004. Traditional Ecological Knowledge and Contemporary Subsistence Harvest of Non-Salmon Fish in the Koyukuk River Drainage, Alaska. Alaska Dept. of Fish and Game, Division of Subsistence Technical Paper No. 282.

Anderson, J.L. 2003. Estimation of late run sockeye salmon escapement in the Clark River, a tributary to Chignik Lake, Alaska Peninsula National Wildlife Refuge. U.S. Fish and Wildlife Service, King Salmon Fish and Wildlife Field Office, Alaska Fisheries Technical Report Number 64, King Salmon, Alaska.

Bouwens, Kenneth 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, Fishery Management Report No. 04-09, Kodiak.

Brase, Audra L.J., and Helen H. Hamner. 2003. Subsistence and Personal Use Salmon Harvests in the Alaska Portion of the Yukon River Drainage, 2002. Regional Information Report 3A03-13. Alaska Department of Fish and Game, Division of Commercial Fisheries. Anchorage.

Bristol Bay Native Association and 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 Division of Subsistence, Alaska Department of Fish and Game. Dillingham.

Brown, C., J. Burr, K. Elkin, and R. Walker. 2005. Contemporary Subsistence Uses and Population Distribution of Non-Salmon Fish in Grayling, Anvik, Shageluk, and Holy Cross. Alaska Dept. of Fish and Game, Division of Subsistence Technical Paper No. 289.

Busher, W.H., and T. Hamazaki. 2005. Subsistence and personal use salmon harvests in the Alaska portion of the Yukon River drainage, 2003. Regional Information Report 3A04-33. Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage.

Caylor, David A., and Louis A. Brown. 2006. Alaska Subsistence Fisheries Database. Version 3.5 for Microsoft Access. Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Coffing, Michael W. 1991. Kwethluk Subsistence: Contemporary Land Use Patterns, Wild Resource Harvest and Use, and the Subsistence Economy of a Lower Kuskokwim River Area Community. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 157. Juneau.

Davis, Brian. 2005. Subsistence Fisheries Harvest Assessment and Traditional Ecological Knowledge, Lower Alaska Peninsula and Aleutian Islands. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 301. Juneau.

Edwards, Michael. 2004. Fisheries Biologist, US Fish and Wildlife Service, King Salmon Field Office. Personal Communication.

Fall, James A., Madel Kerlin, Bridget Easley, and Robert J. Walker. 2004. Subsistence Harvests of Pacific Halibut in Alaska, 2003. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 288. Juneau.

Fall, James A., Mykel George, and Bridget Easley. 2005. Subsistence Harvests of Pacific Halibut in Alaska, 2004. Technical Paper No. 304. Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Fall, James A., and Molly B. Chythlook. 1997. An Overview of the Subsistence Fisheries of the Bristol Bay Management Area. Report to the Alaska Board of Fisheries, King Salmon, AK, November 1997. Alaska Department of Fish and Game, Division of Subsistence, Anchorage and Dillingham.

Fall, James A., Dan J. Foster, and Ronald T. Stanek. 1984. The Use of Fish and Wildlife Resources in Tyonek, Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 105. Juneau.

Fall, James A., David B. Andersen, Louis Brown, Michael Coffing, Gretchen Jennings, Craig Mishler, Amy Paige, Charles Utermohle, and Vicki 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, James A., Janet Schichnes, Molly Chythlook, and Robert J. Walker. 1986. Patterns of Wild Resource Uses 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, James A., Lisa B. Hutchinson-Scarbrough, and Philippa A. Coiley. 1995. Fish and Wildlife Harvest and Use in Five Alaska Peninsula Communities, 1989. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 202. Juneau.

Fall, James A., Molly B. Chythlook, Janet C. Schichnes, and Judith 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, James A., Rachel Mason, Terry Haynes, Vicki Vanek, Louis Brown, Gretchen Jennings, Craig Mishler, and Charles 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.

Hammarstrom, Lee F., and Mark S. Dickson. 2003. 2002 Lower Cook Inlet Annual Finfish Management Report. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report 2A03-04. Anchorage.

Hammarstrom, Lee F., and Mark S. 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, Lee F. and Mark S. Dickson. 2005. 2004 Lower Cook Inlet Annual Finfish Management Report. Fishery Management Report No. 05-29. Alaska Department of Fish and Game, Divisions of Sport fish and Commercial Fisheries. Anchorage.

Hutchinson-Scarbrough, Lisa B., and James 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.

Hutchinson-Scarbrough, Lisa B., and James A. Fall. 1999. Interim Progress Report: Supplemental Information on Subsistence Uses of Salmon in the Chignik Management Area by the Residents of Perryville, Southwest Alaska. Report to the Alaska Board of Fisheries, Fairbanks, October 1999. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

Jones, Wesley. 2002. 2002 Kotzebue Sound Salmon Season Summary. Memo to Dan Bergstrom, Regional Management Biologist, Division of Commercial Fisheries, Alaska Department of Fish and Game, Anchorage, Alaska. October 1, 2002.

Kenner, Philippa Coiley. 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.

Kenner, Philippa Coiley. 2005. From Neqa to Tepa, Łuq'a to Chuqilin: A Database with Traditional Knowledge about the Fish of Bristol Bay and the Northern Alaska Peninsula. Version 1.0. Bristol Bay Native Association, Dillingham, and Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Kenner, Philippa Coiley, Theodore M. Krieg, Molly B. Chythlook, and Gretchen 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 Number 275. Juneau.

Krieg, Theodore, Molly Chythlook, Philippa Coiley-Kenner, Davin Holen, Kurt Kamletz, and Hans 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.

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, Information Letter, Anchorage.

Magdanz, James S., Sandra Tahbone, Kurt Kamletz, and Austin Ahmasuk. 2003. Subsistence Salmon Fishing by Residents of Nome, Alaska, 2001. Technical Paper No. 274, Division of Subsistence, Alaska Department of Fish and Game, Juneau, Alaska, and Natural Resources Department, Kawerak, Inc., Nome, Alaska.

Menard, Jim. 2002. 2002 Norton Sound Salmon Season Summary. Memo to Dan Bergstrom, Regional Management Biologist, Division of Commercial Fisheries, Alaska Department of Fish and Game, Anchorage, Alaska. October 1, 2002.

Menard, Jim. 2003a. 2003 Norton Sound Salmon Season Summary. Division of Commercial Fisheries, Alaska Department of Fish and Game. Nome, Alaska.

Menard, Jim. 2003b. 2003 Kotzebue Sound Salmon Season Summary. Division of Commercial Fisheries, Alaska Department of Fish and Game. Nome, Alaska.

Morris, Judith 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.

Quimby, Alan, and David L. Owen. 1994. Chignik Management Area Annual Finfish Report. Alaska Department of Fish and Game, Division of Commercial Fisheries. Regional Information Report No. 4K94-37. Kodiak.

Schichnes, Janet, and Molly Chythlook. 1988. Wild Resource Uses in Manokotak, Southwest Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 152. Juneau.

Schichnes, Janet, and Molly 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.

Scott, Cheryl L., Louis A. Brown, Gretchen B. Jennings, and Charles J. Utermohle. 2001. Community Profile Database for Access 2000. Version 3.12. Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Simeone, William E., and James A. Fall. 1996. Patterns and Trends in the Subsistence Salmon Fishery of the Upper Copper River, Alaska. Report to the Alaska Board of Fisheries, Cordova, Alaska, December 1996. Alaska Department of Fish and Game, Division of Subsistence. Anchorage.

Simeone, William E. and James Kari. 2004. The Contemporary Harvests and Use of Resident Fish Species in the Copper River Basin, East Central Alaska. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 292. Juneau.

Stanek, Ronald 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. Juneau.

United States Bureau of the Census. 2001. Profiles of General Demographic Characteristics 2000: Alaska. U.S. Department of Commerce.

Wolfe, Robert J. 2000. Subsistence in Alaska: A Year 2000 Update. Alaska Department of Fish and Game, Division of Subsistence. Juneau.

Wright, John M., and Molly 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.

Wright, John M., Judith Morris, and Robert Schroeder. 1985. Bristol Bay Regional Subsistence Profile. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 114. Juneau.

APPENDIX A: 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 catch 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 local government offices and businesses; and employees of numerous tribal organizations, three Alaska Department of Fish and Game (ADFG) divisions, and the National Park Service.

More than two-dozen annual harvest assessment projects are supported by the efforts of these people and organizations. Most of these projects were designed independent 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 the ADFG 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 Alaska Subsistence Fisheries 2003 Annual 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. (See table of contents.)

NORTHWEST ALASKA: NORTON SOUND – PORT CLARENCE AREA

Data Sources

- Household surveys
- Subsistence fishing permits
- 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 Excel spreadsheets
  - Distributed salmon harvested by ADFG test fisheries to local 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 use
    - 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…
      - 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
- 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.
- Test fishery records
    - Salmon harvested by ADFG test fisheries and distributed to communities are included in results tables.

Statewide Compilation – Included Data and Special Measures

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

NORTHWEST ALASKA: KOTZEBUE AREA

Data Sources

- Household surveys
- 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 annual Northwest Alaska subsistence salmon report
- Division of Commercial Fisheries
  - Distributed salmon harvested by ADFG test fisheries to local 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

- Household surveys
  - Reported harvests were analyzed separately by type.
    - Subsistence harvests (harvested under subsistence regulations)
    - Commercial harvests retained for home use
    - Rod and reel harvests (by regulation, these are sport fishing harvests)
  - 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…
      - 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 records
    - Salmon harvested by ADFG test fisheries and distributed to communities are included in results tables.

Statewide Compilation – Included Data and Special Measures

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

YUKON AREA

Data Sources

- Household surveys
- Harvest calendars
- Subsistence fishing permits
- Personal use fishing permits
- 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 ADFG test fisheries to local 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 five 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 ADFG test fisheries and distributed to communities reported at the community level.
    - Test fishery harvests sometimes included in community survey estimates

<u>Statewide Compilation – Included Data and Special Measures</u>

- Results of five 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 use
    - 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 non-survey 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 non-response.
- 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 non-response unnecessary due to 100 percent response rate.
- Commercial harvests retained for home use
  - 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 five 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
- Postcard surveys

Annual Harvest Assessment Project – Tasks

- Division of Subsistence
  - Coordinated postseason household survey process
  - Conducted postseason household surveys in all surveyed communities except Bethel
  - 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

Annual Harvest Assessment Project – Analysis

- Household surveys
  - Three types of harvests were analyzed and reported together.
    - Subsistence harvests
    - Commercial harvests retained for home use
    - Rod and reel harvests
  - Reported harvests expanded to community harvest estimates using 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…
      - 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.
- Postcard surveys
    - Postcards left at households where surveys attempted but no one was home.
    - Harvests reported on returned postcards used in place of household survey; analyzed with survey data.

Statewide Compilation – Included Data and Special Measures

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

BRISTOL BAY AREA

Data Sources

- 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 local 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[16], 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

[16] Includes number of households surveyed post-season, whether or not permits were issued.

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.

ALASKA PENINSULA AREA

Data Sources

- 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 local communities expanded to community harvest estimates.
  - Non-local communities grouped into categories, then harvests expanded together to non-local 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-local 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 Sources

- 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 local communities expanded to community harvest estimates.
  - Non-local communities grouped into categories, then harvests expanded together to non-local 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-local 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 Sources

- 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 local communities expanded to community harvest estimates.
  - Non-local communities grouped into categories, then harvests expanded together to non-local 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-local 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 Sources

- 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 & KOYUKTOLIK SUBDISTRICTS

Data Sources

- 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 local database
  - Forwarded data to Division of Subsistence for analysis
- Nanwalek Tribal Council
  - Issued subsistence fishing permits in Nanwalek
  - Entered data into local 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 two 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 Sources

- 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 Sources

- 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 Sources

- 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 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: 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 systems combined and controlled for state-federal data overlap.[17]
- Reported harvests expanded into harvest estimates.

[17] 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.

    - 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 (STATE)

Data Sources

- State personal use fishing permits

Annual Harvest Assessment Project – Tasks

- Division of Sport Fish
  - Issued state personal use fishing 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 Sources

- 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 one 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 one)
    - 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.
    - 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 Sources

- 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 Sources

- 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
- 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 residence community 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 Sources

- 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 residence community 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 Sources

- 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 Alaska Board of Fisheries
    - 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