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Alaska Subsistence and Personal Use Salmon Fisheries 2020 Annual Report

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Division of Subsistence**



Symbols and Abbreviations

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Measures (fisheries)

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

Mathematics, statistics

<i>all standard mathematical signs, symbols and abbreviations</i>	
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 ₀
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance:	
population	Var
sample	var

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

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ABSTRACT

Each year thousands of Alaskans participate in subsistence activities including the harvest of wild resources from Alaska's fisheries. Subsistence fishing is an important element of Alaska's social and cultural heritage, as well as a crucial component of the subsistence sector of the state's economy. In addition, personal use fisheries provide opportunities for Alaska residents to harvest salmon for home use using efficient methods in areas closed to subsistence fishing. This report summarizes Alaska's 2020 subsistence and personal use salmon fisheries based upon subsistence and personal use permit data and harvest assessment surveys from across the state. New information is compared to findings from previous years and the results are discussed. Where available, information about other subsistence finfish fisheries is included. Additional information from federal agencies regulating and administering certain subsistence fisheries, beginning in 1997, is included where available.

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

CHAPTER 1: INTRODUCTION

This is the 22nd report in a series of annual reports that began with the 1999 harvest year on Alaska's subsistence and personal use fisheries. It was prepared by the Alaska Department of Fish and Game (ADF&G) Division of Subsistence.

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

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

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

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

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

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

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

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

fisheries report series began in 1999, there was no single source that compiled subsistence and personal use fisheries harvest data from all management areas. That is the purpose of this 2020 annual report.

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

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

- Annual harvest assessment programs do not take place for all subsistence fisheries. Programs are in place for most salmon fisheries, but few other finfish fisheries or shellfish fisheries have annual harvest monitoring programs.

- Annual harvest data summarized in this report are limited to fisheries classified as subsistence or personal use by regulation, which, especially for salmon, generally means fish taken with gillnets, beach seines, dip nets, or fish wheels. In some parts of Alaska, substantial numbers of fish for home uses are taken with rod and reel (considered sport gear by most state area regulations) or are retained from commercial harvests. With noted exceptions, these harvests are not included in the analysis of subsistence harvest data in this report because they are not collected by annual subsistence fisheries harvest programs. Therefore, the harvest data in this report are a conservative estimate of the number of salmon being taken for subsistence uses in Alaska. Underestimations of subsistence salmon harvests are a particular issue in the Southeast region.

- Between management areas, and sometimes between districts within management areas, there is inconsistency in how subsistence and personal use harvest data are collected, analyzed, and reported.

- In some areas there are no routine mechanisms for evaluating the quality of subsistence harvest data. For example, in some areas it is not known if all subsistence fishers are obtaining permits and providing accurate harvest reports. This can result in a significant underestimation of harvests.

- There are also few programs for contextualizing annual subsistence harvest data so as to interpret changes in harvests. In some cases, however, FMRs do contain discussions of data limitations and harvest trends.

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

The quality and quantity of subsistence harvest data for finfish other than salmon and for shellfish are very uneven. For other finfish, if annual subsistence harvest information is collected, it is included in this report if the summary data were available to the Division of Subsistence. Otherwise, we have usually noted which species are primarily used for subsistence, relying in general on baseline studies conducted by the Division

of Subsistence. In a small number of instances we have drawn from reports prepared for the BOF. This annual report does not attempt to provide a comprehensive overview of subsistence shellfish harvests.

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

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

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

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

Significant modifications to data analysis procedures were implemented for two fisheries beginning with the 2015 report. First, as discussed in Chapter 3, there has been no annual subsistence salmon harvest monitoring program for the Kotzebue District since 2004. Few harvest estimates were developed from 2005 through 2011. Through special project funding, the Division of Subsistence conducted postseason salmon harvest surveys in selected Kotzebue District communities in 2012–2014. For the 2015 and subsequent reports, based on the available data, interpolated harvest estimates are developed for a set of core communities to estimate district harvests for years without postseason harvest assessment programs (primarily 2005–2011, and 2015–2019). These estimates appear in revised historical tables in Chapter 3 and in revised statewide historical summaries in Chapter 2. Second, as noted in Chapter 11, in the past, reported harvests in the Tyonek Subdistrict of the Cook Inlet Area have not been expanded to produce a harvest estimate. Beginning with the 2015 report, past permit return rates for this fishery were evaluated, and new, expanded harvest estimates were produced. These estimates now appear in the historical table for the Tyonek fishery, and were also used to revise statewide harvest estimates that appear in Chapter 2. Further details about the procedures used to develop these revised harvest estimates appear in Chapters 3 and 11, respectively.

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

It is important to note that the preparation of this annual report and the supporting database were two objectives of the Statewide Subsistence Fisheries Harvest Monitoring Strategy project funded by the U.S. Fish and Wildlife Service (USFWS) Office of Subsistence Management (OSM) and implemented jointly by the Division of Subsistence and the Alaska Inter-Tribal Council (AITC). A central goal of the project was to develop recommendations for a unified subsistence harvest assessment program for Alaska's subsistence fisheries. A working group composed of state, federal, and tribal members developed these recommendations. The recommendations are available as a separate document (ADF&G and AITC 2000). A final report with an overview of all the project activities is also available (Fall and Shanks 2000). The final report also includes comments on existing subsistence harvest assessment programs, based on working group discussions as well as interviews of ADF&G staff conducted by the Division of Subsistence. We have drawn on these comments for most of the evaluations of harvest data in this annual report. As background for the efforts of the working group, Division of Subsistence staff prepared detailed overviews of current subsistence fisheries harvest assessment programs. These are the basis of the program descriptions that appear in this report, with updates as necessary.

A final note regarding data ranges and averages: except where otherwise noted, averages in this report do not include the current data year (2020). Both date and numeric ranges are inclusive. The following list illustrates named-ranges used in this report and their meanings.

- 5-year average: 2015–2019
- 10-year average: 2010–2019
- 15-year average: 2005–2019
- Historical average: yyyy–2019, beginning of range varies depending on available data.

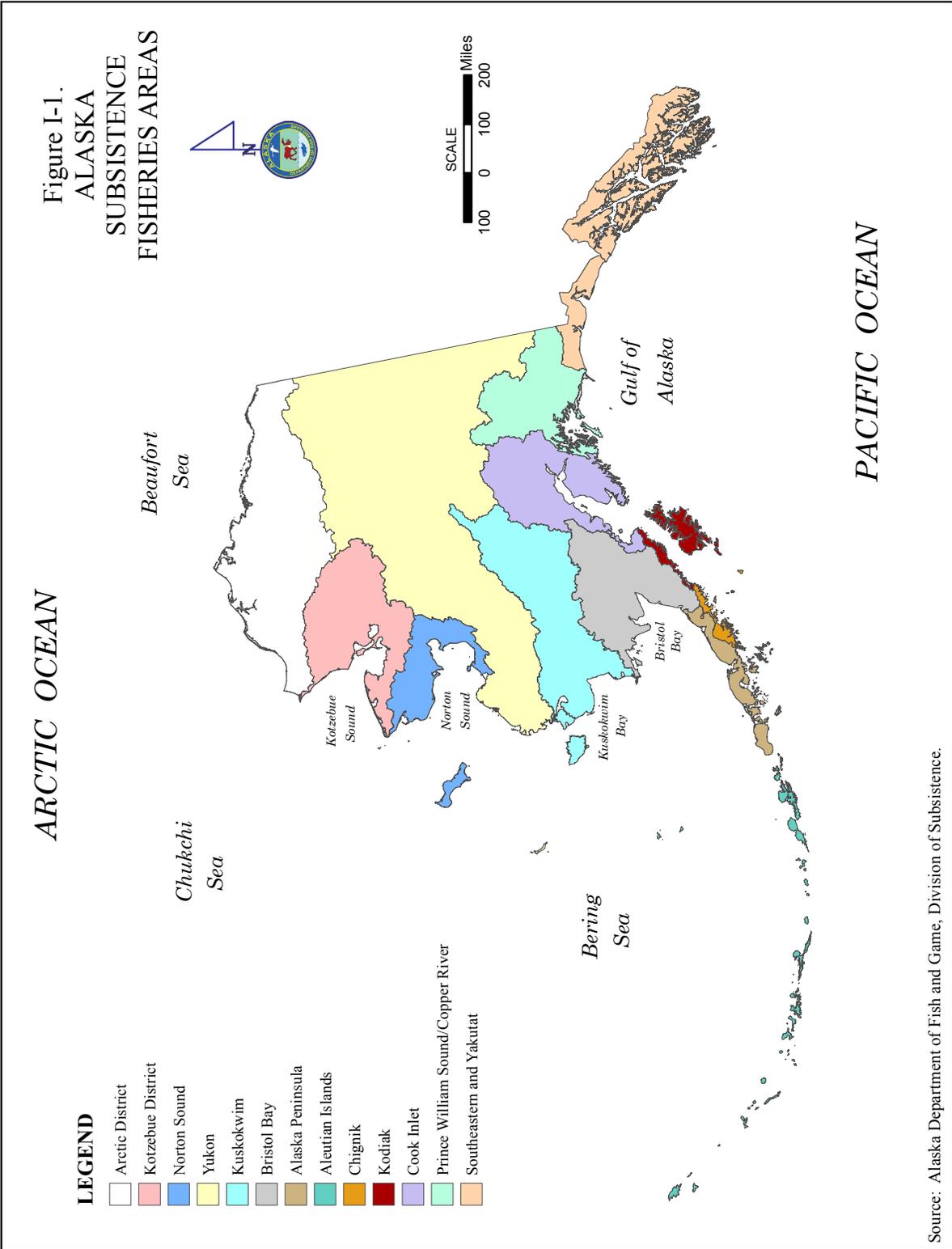


Figure 1-1.—Alaska subsistence fishery areas.

CHAPTER 2: OVERVIEW OF SUBSISTENCE FISHERIES IN ALASKA

SUBSISTENCE HARVESTS IN RURAL ALASKA

Of the estimated 34.0 million pounds of wild foods annually harvested for subsistence purposes in rural Alaska communities, subsistence fisheries contribute about 32.3% from salmon, 21.4% from other finfish and 3.1% from shellfish (Fall 2018:2; Figure 2-1). On average, the subsistence fisheries harvest provides about 155 lb of food per person annually in rural Alaska (Fall 2018:2). Although they constitute a major portion of the food supply, subsistence harvests represent just a small part of the annual harvest of wild resources in Alaska: about 0.9% (fish, game, and other resources combined), as measured in usable (edible) pounds. Commercial fisheries take 98.6% of the wild resource harvest, personal use fishing and general hunting by Alaskans take 0.2%, and sport fisheries and hunts take about 0.3% of the fish and game harvest (Fall 2018:2).

SUBSISTENCE SALMON HARVESTS IN 2020

The estimated total subsistence harvest of salmon in Alaska in 2020, based on annual harvest assessment programs, was 618,765 fish (Table 2-1), a 20% decrease from 2019.¹ The estimated statewide harvest by species was as follows: 272,335 sockeye salmon *O. nerka* (44.0%), 141,104 chum salmon *O. keta* (22.8%), 82,509 Chinook salmon *O. tshawytscha* (13.3%), 69,136 coho salmon *O. kisutch* (11.2%), and 53,581 pink salmon *O. gorbuscha* (8.7%) (Figure 2-2). These estimates represent decreases in the harvest of all species except pink salmon, which is usually higher in even years.

In 2020, fisheries in nine management areas out of 29 accounted for 92.8% of the total estimated statewide subsistence salmon harvest (Table 2-1; Figure 2-3). These were the Kuskokwim Management Area (151,793 salmon; 24.5%); the Bristol Bay Management Area (96,561 salmon; 15.6%); the Yukon Management Area (79,828 salmon; 12.9% of the statewide total); the Kotzebue District² (61,636; 10.0%); the Norton Sound-Port Clarence Area (59,461 salmon; 9.6%); the Glennallen Subdistrict of the Prince William Sound Management Area (55,220 salmon; 8.9%); Southeast Region³ (including the Stikine River federal fishery) (39,609 salmon; 6.4%); the Kodiak Management Area (20,801 salmon; 3.2%); the Alaska Peninsula Management Area (9,947 salmon; 1.6%).

The largest estimated subsistence harvests of Chinook salmon in 2020 occurred in the Kuskokwim Management Area (41,476 salmon; 50.3%), followed by the Yukon Management Area (22,663 salmon; 27.5%), Bristol Bay Management Area (9,369 salmon; 11.4%), the Glennallen Subdistrict (3,246 salmon; 3.9%); the Norton Sound-Port Clarence Area (2,174 salmon; 2.6%); the Tyonek Subdistrict (Cook Inlet) (1,180 salmon; 1.4%; and the Copper River Flats (Prince William Sound) (841 salmon; 1.0%) (Figure 2-4). For sockeye salmon, the largest estimated subsistence harvests in 2020 were in the Bristol Bay Area (78,679 salmon; 28.9%), followed by the Glennallen Subdistrict (51,897 salmon; 19.1%), the Kuskokwim Management Area (46,952 salmon; 17.2%), the Southeast Region (including the Stikine River federal

1. Annual reports prior to 2010 included personal use salmon harvests from Southeast Alaska and the Chitina Subdistrict of the Upper Copper River in the discussion of subsistence harvests. Beginning with the 2010 report, personal use salmon fisheries are discussed separately. One exception is the small personal use harvest that occurs in those portions of the Yukon Management Area that are within the Fairbanks Nonsubsistence Area. Also, as noted in Chapter 1, Cook Inlet Area personal use salmon harvest data have been added to the annual report.
2. See Chapter 3 for discussion of revised methods to estimate subsistence salmon harvests in the Arctic-Kotzebue Area.
3. As discussed further in Chapter 13, state subsistence regulations for the Southeast Region focus on sockeye salmon. Small harvests of Chinook and coho salmon are reported on permit returns as incidental to sockeye salmon harvests. The major portion of coho and Chinook salmon harvests for home uses in Southeast is taken with rod and reel (classified by regulation as sport gear). Thus, the Southeast Region is particularly underrepresented in statewide overviews based on permit data.

fishery) (33,096 salmon; 12.2%), the Kodiak Management Area (16,295 salmon; 6%), the Copper River Flats (10,742 salmon; 3.9%); the Norton Sound-Port Clarence Area (8,650 salmon; 3.2%), and the Kenai and Kasilof rivers (federal) (6,050 salmon; 2.2%; and the Alaska Peninsula Area (6,571 salmon; 2.4%) (Figure 2-5).

In 2020, three areas dominated the subsistence chum salmon estimated harvest: the Kotzebue District (51,861 salmon; 36.8%), Yukon Management Area (48,799 salmon; 34.6% of the statewide harvest), and the Kuskokwim Management Area (28,149 salmon; 19.9%). Despite this, harvests of chum salmon in the Yukon and Kuskokwim management areas were significantly lower than in previous years (Figure 2-6). Of the statewide estimated subsistence harvest of coho salmon in 2020, the greatest share was taken in the Kuskokwim Management Area (34,120 salmon; 49.4%), followed by the Norton Sound-Port Clarence Area (8,973; 13.0%), the Kotzebue District (5,527 salmon; 8.0%), the Bristol Bay Management Area (5,493 salmon; 7.9%), the Yukon Area (2,922 salmon; 4.2%), and the Southeast Region (including the Stikine River federal fishery) and Kodiak Management Area (2,768 salmon and 2,789, respectively; both 4.0%) (Figure 2-7). Finally, the largest portion by far of the statewide estimated pink salmon subsistence harvest in 2020 occurred in the Norton Sound-Port Clarence Area (35,439 salmon; 66%), followed by the Yukon Area (5,444 salmon; 10.1%), the Kotzebue District (2,975 salmon; 5.5%), the Southeast Region (including the Stikine River federal fishery) (2,752 salmon; 5.1%), the Arctic District (2,594 salmon; 4.8%), and finally the Kuskokwim Area (1,095 salmon; 2.0%). (Figure 2-8).

Table 2-2 reports historical estimated subsistence salmon harvests for 1994 through 2020 based on annual harvest assessment programs. While earlier estimates for many of the fisheries are available, 1994 marks the first year that data from all of the included fisheries were available and collected with methods comparable to those currently in use.

The 27-year period reflected in Table 2-2 shows a general downward trend in subsistence salmon harvests in Alaska. Estimates from 2000 through 2008 suggested this trend might have been stabilizing. However, all estimates since 2009 have been below the 2008 total of 958,741 salmon. The 2020 estimate of 618,765 salmon was the lowest on record since 1994 and as a result, also lower than the recent 5-year average (826,830 salmon), the recent 10-year average (858,049 salmon), and the historical average since 1994 (918,293 salmon). It should also be noted that the estimate of 82,509 Chinook salmon harvested in Alaska subsistence fisheries in 2020 have followed a general trajectory of depressed harvests since 2012. The harvest in 2020 was a little lower than the 5- and 10-year averages (85,620 and 89,078, respectively), but significantly below the historical average of 132,800 fish.

PERSONAL USE SALMON HARVESTS IN 2020

In 2020, personal use fisheries produced an estimated harvest of 524,049 salmon (Table 2-1). The Kenai River dip net fishery accounted for 52.3% of the statewide personal use salmon harvest (274,072 fish), followed by the Kasilof River dip net fishery (19.3%; 100,953 salmon), the Chitina Subdistrict dip net fishery (15.4%; 80,777 salmon), the Fish Creek (Knik Arm) dip net fishery (6.0%; 31,558 salmon), and the Kasilof River setnet fishery (2.8%; 14,901 salmon) (Figure 2-9). Sockeye salmon composed 66.7% of the Alaska personal use salmon harvest in 2020 (Figure 2-10).

The personal use harvest of 524,049 salmon in 2020 has continued a decreased trend of harvests since the early 2010s, with the exception of 2019 when harvests were reported at 659,118 fish. The estimated harvest in 2020 was lower than the recent 5- and 10-year averages but higher than the historical average (Table 2-3). The historical average is quite low as it includes very low harvests in the 1990s and early 2000s. Increased harvests in the Upper Cook Inlet personal use dip net fisheries accounted for most of the growth of personal use harvests from 1994 to 2015 (see Chapter 11).

STATEWIDE SUBSISTENCE AND PERSONAL USE SALMON HARVESTS, 1994–2020

Table 2-4 reports historical estimated subsistence and personal use salmon harvests for 1994 through 2020 based on annual harvest assessment programs. As noted above, 1994 marks the first year that comparable data from all of the included fisheries are available.

The 27-year period reflected in Table 2-4 shows generally stable statewide harvest totals: the recent (2015–2019) 5-year average harvest of 1,420,368 salmon was only slightly larger than the 27-year annual average of 1,404,062 salmon but was lower than the 10-year average harvests of 1,521,159. As noted above, however, harvests in subsistence fisheries have generally declined since 1994 while personal use harvests have remained relatively stable. In 2020, sockeye salmon made up 66.7% of the combined subsistence and personal use salmon harvests, followed by chum (12.6%), Chinook (7.3%), coho (6.7%), and pink (6.6%) (Figure 2-11).

Table 2-5 reports subsistence and personal use harvests in 2020 by species and participants' place of residence, with harvests from all subsistence and personal use fisheries combined.

Table 2-1.—Alaska subsistence and personal use salmon harvests, 2020.

Fishery	Households or permits		Estimated salmon harvest					
	Total ^a	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
<i>Subsistence</i>								
Adak District	1	1	0	250	0	0	0	250
Alaska Peninsula Management Area	117	93	105	6,571	1,909	386	976	9,947
Arctic District ^b	1,900	432	126	519	846	4,247	2,594	8,332
Batzulnetas Fishery	1	1	0	67	0	0	0	67
Bristol Bay Management Area	1,001	749	9,369	78,679	5,493	2,425	595	96,561
Chignik Management Area	67	63	64	4,188	1,000	123	436	5,811
Chignik Management Area: Federal	0	0	0	0	0	0	0	0
Chitina Subdistrict: Federal	215	185	89	3,702	27	0	0	3,818
Copper River Flats/PWS (General)	708	611	841	10,742	375	16	26	11,999
Glennallen Subdistrict	2,041	1,699	3,246	51,897	77	0	0	55,220
Kenai and Kasilof Rivers: Federal	402	271	0	6,050	66	0	0	6,116
Kodiak Management Area ^a	1,146	1,146	111	16,295	2,789	150	736	20,081
Kodiak Management Area: Federal	43	7	0	151	79	0	0	230
Kotzebue District ^b	1,567	840	560	713	5,527	51,861	2,975	61,636
Kuskokwim Management Area	4,291	1,816	41,476	46,952	34,120	28,149	1,095	151,793
Norton Sound - Port Clarence Area ^b	2,003	1,910	2,174	8,650	8,973	4,225	35,439	59,461
Port Graham & Koyuktolik Subdistricts ^a	7	7	38	284	102	52	36	512
PWS Eastern District (Tatitlek)	6	5	2	258	284	7	37	588
PWS Southwestern District (Chenega Bay)	12	11	0	5	0	11	0	16
PWS/Chugach Subdistrict: Federal	90	25	0	41	375	0	12	428
Seldovia Fishery	15	9	26	156	0	2	2	186
Southeast Region	1,674	857	273	31,911	2,738	578	2,473	37,972
Southeast Region: Federal	196	67	22	452	354	5	246	1,079

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Fishery	Households or permits		Estimated salmon harvest					
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Stikine River Federal Fishery	129	129	133	1,185	30	10	279	1,637
Tyonek Fishery	54	17	1,180	161	387	0	0	1,728
Unalaska District	208	136	6	2,044	508	40	264	2,863
Upper Yentna Fishery	24	24	5	412	155	18	16	606
Yukon Management Area ^c	3,424	1,987	22,663	0	2,922	48,799	5,444	79,828
Subtotal, Subsistence	21,342	13,098	82,509	272,335	69,136	141,104	53,681	618,765
Personal use								
Chitina Subdistrict: State ^d	6,784	6,044	763	79,296	718	0	0	80,776
Kachemak Bay set net	194	153	7	112	1,050	11	250	1,430
Kasilof River set net ^e	NA	NA	70	14,745	1	23	62	14,901
Kasilof River dip net ^e	NA	NA	12	94,064	1,318	807	4,752	100,953
Kenai River dip net ^e	NA	NA	23	257,864	1,023	1,540	13,622	274,072
Fish Creek dip net ^e	NA	NA	7	28,109	1,736	337	1,369	31,558
Susitna River Dip net ^e	NA	NA	22	2,296	538	68	747	3,671
Unknown Upper Cook Inlet ^e	NA	NA	15	1,916	55	7	62	2,056
Beluga River dip net	15	10	0	35	74	1	3	113
Southeast Region	573	573	99	11,553	1,266	257	1,344	14,519
Subtotal, Personal use ^e	36,521	28,238	1,018	489,991	7,779	3,051	22,211	524,049
Total	57,863	41,336	83,527	762,326	76,915	144,155	75,892	1,142,814

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2023).

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

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

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- b. Formerly included within Northwest Alaska. Partial coverage for Arctic and Kotzebue Districts; see Chapter 3 for details.
- c. Includes a small personal use harvest that occurs within the Fairbanks Nonsubsistence Area.
- d. Reclassified as a personal use fishery in 2003.
- e. A single permit is issued for the Kasilof setnet, Kasilof dip net, Kenai dip net, and Fish Creek dip net fisheries. In some cases, returned permits did not indicate the area fished. There were 28,955 permits issued and 21,458 permits returned for these fisheries.

NA = Data not available.

Table 2-2.—Historical Alaska subsistence salmon harvests, 1994–2020.

Year	Households or permits		Estimated salmon harvest					Total
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	
1994	15,493	10,553	183,936	338,946	135,896	417,199	94,469	1,170,446
1995	15,596	10,328	180,805	291,539	120,048	499,992	54,908	1,147,292
1996	16,512	11,789	158,369	320,821	121,381	498,525	80,928	1,180,026
1997	17,668	12,863	176,703	376,397	98,883	347,808	41,543	1,041,335
1998	17,772	12,513	170,271	328,857	93,055	302,037	74,216	968,436
1999	17,290	12,763	155,088	358,866	89,627	338,351	32,402	974,334
2000	16,678	12,765	130,822	296,875	99,338	247,337	51,714	826,087
2001	18,693	13,061	161,632	340,411	98,517	240,581	42,435	883,576
2002	17,266	13,026	142,459	299,182	92,192	229,179	85,431	848,443
2003	18,131	13,211	164,555	324,539	106,488	238,582	66,794	900,958
2004	18,374	13,549	173,746	332,543	100,860	239,811	91,597	938,557
2005	16,256	11,013	153,431	323,218	97,993	257,200	76,071	907,912
2006	16,988	11,400	139,815	314,435	93,478	291,510	73,234	912,473
2007	17,068	10,374	154,974	319,885	78,704	273,802	33,513	860,877
2008	17,226	11,248	174,115	315,040	113,242	270,502	85,842	958,741
2009	16,989	11,607	141,302	296,104	86,363	213,835	38,038	775,642
2010	16,020	11,381	133,252	326,363	80,217	235,763	59,031	834,627
2011	17,181	12,155	128,657	341,388	77,180	257,032	35,646	839,903
2012	18,598	11,970	74,381	344,071	80,275	367,692	69,051	935,470
2013	18,676	13,190	83,729	347,834	81,295	360,920	29,963	903,741
2014	21,577	14,236	42,661	348,651	115,085	357,579	68,621	932,596
2015	21,501	13,847	61,567	351,339	95,756	315,973	48,512	860,809
2016	22,223	14,771	84,760	332,421	87,439	318,241	74,408	897,269
2017	21,876	14,044	82,198	308,421	92,359	325,446	54,506	862,930
2018	22,777	13,927	84,983	265,011	69,043	268,611	49,819	737,467
2019	22,889	14,490	114,594	303,314	75,281	233,610	48,877	775,677
2020	21,342	13,098	82,509	272,335	69,136	141,104	53,681	618,765
5-year average (2015–2019)	22,253	14,216	85,620	312,101	83,976	292,376	55,224	826,830
10-year average (2010–2019)	20,332	13,401	89,078	326,881	85,393	304,087	53,843	858,049
Historical average (1994–2019)	18,358	12,541	132,800	324,864	95,385	305,658	60,060	918,293

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2023).

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

Table 2-3.—Historical Alaska personal use salmon harvests, 1994–2020.

Year	Households or permits		Estimated salmon harvest					
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	7,346	6,223	5,524	142,944	15,810	1,619	2,831	168,729
1995	6,997	5,674	7,029	139,861	18,455	1,672	1,579	168,596
1996	22,071	20,707	4,360	241,293	11,562	374	3,995	261,585
1997	24,281	22,939	6,318	298,151	2,753	100	1,101	308,424
1998	25,764	23,155	7,430	314,131	6,302	225	2,100	330,187
1999	27,907	24,587	7,630	360,885	5,485	1,062	3,097	378,159
2000	25,007	22,006	4,653	274,422	9,576	1,555	3,782	293,988
2001	27,017	23,392	4,631	365,875	6,990	1,746	4,037	383,279
2002	24,921	20,560	3,449	358,608	6,965	1,512	10,044	380,578
2003	26,101	21,707	3,766	394,928	6,004	1,446	3,387	409,532
2004	30,673	25,205	3,775	470,804	8,220	1,729	3,571	488,100
2005	30,817	26,677	3,367	508,419	6,350	1,218	3,776	523,130
2006	27,545	23,772	4,263	354,130	7,600	1,212	13,741	380,946
2007	31,855	27,922	4,773	496,317	6,139	797	4,267	512,294
2008	32,582	27,935	3,646	410,298	7,991	927	13,051	435,913
2009	38,443	32,800	1,654	558,352	6,872	873	7,705	575,456
2010	41,505	33,580	1,826	660,892	11,475	1,212	7,393	682,797
2011	44,208	35,265	2,661	773,540	9,714	1,461	6,371	793,747
2012	44,759	35,535	830	776,604	8,972	832	6,107	793,345
2013	46,287	35,900	888	649,597	8,489	1,356	4,973	665,303
2014	48,280	37,866	936	684,462	13,197	2,334	27,294	728,225
2015	48,236	38,368	1,817	761,242	13,310	2,356	8,328	787,053
2016	43,198	33,782	1,604	511,079	8,125	2,124	11,191	534,123
2017	39,983	30,553	3,483	555,071	4,961	2,462	11,755	577,732
2018	30,485	23,360	1,530	383,598	7,529	1,501	15,504	409,662
2019	35,631	27,014	3,086	637,653	6,557	2,207	9,615	659,118
2020	36,521	28,238	1,018	489,990	7,779	3,051	22,211	524,049
5-year average (2015–2019)	39,507	30,615	2,304	569,729	8,096	2,130	11,279	593,538
10-year average (2010–2019)	42,257	33,122	1,866	639,374	9,233	1,785	10,853	663,110
Historical average (1996–2019)	34,065	28,108	3,432	491,681	7,964	1,359	7,758	512,195

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2023).

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

Table 2-4.—Historical Alaska subsistence and personal use salmon harvests, 1994–2020.

Year	Households or permits		Estimated salmon harvest					
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1994	22,839	16,776	189,460	481,890	151,707	418,818	97,300	1,339,175
1995	22,593	16,002	187,834	431,401	138,503	501,664	56,487	1,315,888
1996	38,583	32,496	162,730	562,114	132,944	498,900	84,923	1,441,611
1997	41,949	35,802	183,022	674,548	101,637	347,909	42,644	1,349,759
1998	43,536	35,668	177,701	642,987	99,357	302,262	76,316	1,298,623
1999	45,197	37,350	162,717	719,752	95,112	339,413	35,499	1,352,493
2000	41,685	34,771	135,476	571,297	108,914	248,892	55,496	1,120,074
2001	45,710	36,453	166,263	706,285	105,507	242,327	46,472	1,266,854
2002	42,187	33,586	145,908	657,790	99,157	230,691	95,475	1,229,021
2003	44,232	34,918	168,321	719,467	112,493	240,028	70,181	1,310,489
2004	49,047	38,754	177,521	803,348	109,080	241,540	95,168	1,426,657
2005	47,073	37,690	156,798	831,637	104,343	258,418	79,847	1,431,042
2006	44,533	35,172	144,078	668,565	101,078	292,722	86,975	1,293,419
2007	48,923	38,296	159,747	816,202	84,843	274,599	37,780	1,373,171
2008	49,808	39,183	177,761	725,338	121,233	271,429	98,893	1,394,654
2009	55,432	44,407	142,956	854,456	93,235	214,708	45,743	1,351,098
2010	57,525	44,961	135,078	987,255	91,692	236,975	66,424	1,517,424
2011	61,389	47,420	131,318	1,114,928	86,894	258,493	42,017	1,633,650
2012	63,357	47,505	75,211	1,120,675	89,247	368,524	75,158	1,728,815
2013	64,963	49,090	84,617	997,431	89,784	362,276	34,936	1,569,044
2014	69,858	52,102	43,598	1,033,113	128,282	359,914	95,915	1,660,821
2015	69,737	52,215	51,042	1,112,581	109,066	318,329	56,840	1,647,862
2016	65,421	48,553	86,364	843,500	95,564	320,365	85,599	1,431,392
2017	61,859	44,597	85,681	863,492	97,320	327,908	66,261	1,440,662
2018	53,262	37,287	86,512	648,609	76,573	270,113	65,323	1,147,129
2019	58,520	41,504	117,680	940,967	81,838	235,816	58,492	1,434,795
2020	57,863	41,336	83,527	762,325	76,915	144,155	75,892	1,142,814
5-year average (2015–2019)	61,760	44,831	85,456	881,830	92,072	294,506	66,503	1,420,368
10-year average (2010–2019)	62,589	46,523	89,710	966,255	94,626	305,871	64,697	1,521,159
Historical average (1994–2019)	50,355	38,945	135,977	789,601	104,054	307,040	67,391	1,404,062

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2023).

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

Table 2-5.—Alaska subsistence and personal use salmon harvests by species and place of residence, 2020.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
Adak	2	2	0	250	0	0	0	250
Akhiok	7	7	0	590	15	0	10	615
Akiachak	184	111	2,516	2,236	1,230	1,318	43	7,343
Akiak	93	57	1,245	1,595	843	1,452	42	5,177
Akutan	1	1	0	0	0	0	0	0
Alakanuk	145	63	1,324	0	111	3,915	143	5,493
Alatna/Allakaket/Bettles	83	40	173	0	10	1,432	0	1,615
Aleknagik	21	14	678	1,196	162	41	0	2,076
Allakaket	1	1	0	35	0	0	0	35
Ambler	75	55	5	134	189	3,242	200	3,769
Anaktuvuk Pass	4	1	0	33	0	0	2	36
Anchor Point	182	152	4	2,309	5	4	121	2,444
Anchorage	16,121	11,971	1,607	227,041	2,140	1,685	9,815	242,288
Anderson	4	3	2	93	0	0	0	95
Angoon	42	14	0	1,176	0	45	0	1,221
Aniak	158	87	1,544	1,728	3,139	658	19	7,088
Anvik	27	19	280	0	35	544	5	864
Arctic Village	3	3	0	69	0	0	0	69
Atka	1	0	0	0	0	0	0	0
Atmautluak	73	46	692	1,055	425	957	18	3,147
Barrow	101	55	7	1,447	4	16	28	1,502
Beaver	31	16	297	0	0	0	0	297
Beaver Creek	2	2	0	27	0	0	0	27
Bethel	2,012	541	13,578	17,369	16,862	7,984	369	56,162
Big Lake	237	174	10	3,225	58	22	160	3,476
Birch Creek/Fort Yukon	214	103	735	0	0	0	0	735
Bird Creek	1	0	0	10	0	0	1	11
Brevig Mission	35	35	18	993	355	1,179	3,484	6,029
Buckland	101	83	183	196	1,684	3,880	591	6,534
Cantwell	15	12	0	207	0	0	2	210
Central/Circle	12	11	133	0	0	9	0	142
Chenega Bay	7	1	0	0	0	0	0	0
Chevak	1	0	0	10	0	0	1	11
Chickaloon	29	25	7	480	0	0	8	496
Chicken	1	1	0	0	0	0	0	0
Chignik Bay	8	8	11	439	48	5	12	515
Chignik Lagoon	17	16	30	1,127	40	2	19	1,218
Chignik Lake	11	10	10	1,217	43	2	10	1,282
Chiniak	15	15	4	22	60	0	1	87
Chistochina	7	6	32	359	0	0	0	391

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Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
Chitina	48	39	45	1,420	0	0	0	1,466
Chuathbaluk	30	25	317	280	126	291	0	1,014
Chugiak	706	599	115	11,095	158	39	374	11,782
Circle	1	1	0	27	0	0	4	31
Clam Gulch	43	35	0	441	1	1	18	461
Clarks Point	10	9	20	613	172	4	28	838
Clear	10	8	1	134	1	15	7	158
Coffman Cove	3	1	0	27	0	0	0	27
Cold Bay	13	12	4	949	79	28	4	1,065
Cooper Landing	189	93	0	1,654	29	0	5	1,688
Copper Center	177	158	271	7,407	1	1	5	7,685
Copperville	2	2	24	222	0	0	0	246
Cordova	523	405	585	5,912	522	1	14	7,034
Craig	46	24	20	517	98	36	46	717
Crooked Creek	29	14	238	678	243	179	9	1,347
Delta Junction	350	316	71	4,388	59	1	43	4,562
Denali National Park	38	30	1	484	13	3	10	511
Dillingham	317	242	3,713	20,919	2,844	1,147	404	29,027
Diomedes	6	6	0	0	0	0	0	0
Dot Lake	1	1	0	0	0	0	0	0
Douglas	62	48	7	824	125	4	33	992
Dutch Harbor	100	66	0	905	137	0	21	1,063
Eagle	27	27	280	0	0	0	0	280
Eagle River	1,841	1,554	127	24,823	184	72	950	26,156
Edna Bay	1	0	0	0	0	0	0	0
Eek	103	53	1,999	1,422	553	475	38	4,487
Egegik	7	0	0	0	0	0	0	0
Eielson AFB	73	67	20	758	0	0	5	784
Ekwok	15	14	234	751	106	155	5	1,251
Elfin Cove	1	0	0	0	0	0	0	0
Elim	37	37	115	91	344	118	2,993	3,661
Elmendorf AFB	33	32	5	530	0	0	0	535
Emmonak	194	94	1,093	0	446	7,202	123	8,864
Ester	58	55	46	774	24	0	9	853
Fairbanks	3,172	2,753	1,969	32,279	545	762	446	36,002
False Pass	1	1	4	30	120	56	40	250
Fort Greely	14	13	3	112	0	0	0	115
Fort Wainwright	100	82	6	1,010	11	11	17	1,054
Fritz Creek	16	14	0	189	0	0	3	192
Gakona	41	32	66	1,005	0	0	0	1,072

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Table 2-5.–Page 3 of 7.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
Galena	130	80	616	50	31	94	0	791
Gambell	1	1	0	0	0	0	0	0
Girdwood	224	175	18	2,561	28	9	115	2,730
Glennallen	119	106	109	1,786	9	0	20	1,925
Golovin	28	28	1	12	138	22	1,230	1,403
Goodnews Bay	82	49	766	941	155	146	19	2,027
Grayling	57	26	264	0	59	148	0	471
Gulkana	3	0	0	0	0	0	0	0
Gustavus	15	8	0	92	6	4	13	114
Haines	372	309	8	7,309	303	240	1,347	9,207
Healy	41	37	1	724	2	0	24	751
Hollis	8	7	0	23	6	17	104	150
Holy Cross	52	30	221	10	12	243	1	487
Homer	567	474	108	8,230	320	28	480	9,165
Hoonah	44	16	0	930	168	14	11	1,122
Hooper Bay	235	104	508	5	222	4,465	1,758	6,958
Hope	58	42	0	545	19	0	7	571
Houston	8	7	8	133	0	0	0	141
Hughes/Huslia	113	55	167	38	60	1,857	6	2,128
Hydaburg	11	1	0	0	0	0	0	0
Hyder	1	1	0	0	0	0	14	14
Igiugig	4	4	1	427	11	0	0	439
Iliamna	23	21	0	2,417	0	0	0	2,417
Indian	6	6	1	34	0	0	0	35
Ivanof Bay	2	2	1	70	182	27	32	312
Joint Base Elmendorf Richardson	247	185	2	2,597	35	13	186	2,833
Juneau	673	466	37	10,893	437	12	507	11,886
Kake	62	29	9	588	34	38	11	680
Kaltag	52	28	494	0	0	188	0	682
Karluk	9	9	0	1,935	0	0	0	1,935
Kasaan	3	2	0	65	47	0	23	134
Kasigluk	122	75	1,908	2,701	687	2,697	4	7,997
Kasilof	362	307	16	5,788	8	11	230	6,053
Kenai	1,392	1,082	220	19,870	355	76	975	21,497
Kennicott	6	6	0	0	0	0	0	0
Kenny Lake	74	65	138	2,587	0	0	0	2,724
Ketchikan	148	67	16	1,266	28	104	665	2,080
Kiana	99	70	5	34	159	2,753	188	3,138
King Cove	28	18	3	1,958	1,383	33	174	3,551

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Table 2-5.–Page 4 of 7.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
King Salmon	73	55	52	5,137	190	4	17	5,399
Kipnuk	1	0	0	10	0	0	1	11
Kivalina	1	1	0	3	0	0	0	3
Klawock	52	28	0	6,870	561	137	340	7,908
Klukwan	7	3	0	315	2	21	35	373
Kobuk	34	27	2	11	6	2,174	5	2,197
Kodiak (city)	1,021	974	91	10,474	2,009	91	540	13,205
Kokhanok	21	10	2	7,289	0	0	0	7,291
Koliganek	16	14	1,184	1,105	208	222	5	2,723
Kongiganakb	93	3	0	46	0	0	0	46
Kotlik	120	54	895	0	169	4,911	29	6,004
Kotzebue	614	160	15	481	45	11,386	75	12,002
Koyuk	4	4	0	25	3	0	0	28
Koyukuk	41	17	220	0	0	22	0	242
Kupreanof city	1	0	0	0	0	0	0	0
Kwethluk	171	102	1,870	2,540	1,963	1,709	89	8,171
Kwigillingok	2	1	0	19	0	0	1	20
Larsen Bay	12	12	2	380	21	1	13	417
Lime Villageb	6	0	32	0	5	2	0	40
Loring	1	0	0	0	0	0	0	0
Lost River	2	1	0	50	0	0	0	50
Lower Kalskag	86	49	685	427	319	624	0	2,055
Manley Hot Springs	21	17	33	70	330	179	1	613
Manokotak	10	8	53	802	66	0	21	942
Marshall	95	41	1,000	0	283	2,281	2	3,566
McCarthy	51	42	1	318	15	0	0	334
McGrath	128	76	439	311	1,342	864	11	2,967
Mendeltna	1	1	0	45	0	0	0	45
Mentasta Lake	1	1	0	0	0	0	0	0
Metlakatla	6	2	0	0	0	0	0	0
Minto	20	17	0	20	0	0	0	20
Moose Pass	16	12	0	208	0	1	11	221
Mountain Village	164	79	1,002	10	147	3,652	293	5,104
Nabesna	3	3	0	74	0	0	0	74
Naknek	79	65	136	8,444	348	49	36	9,013
Nanwalek	1	0	0	10	0	0	1	11
Napakiak	103	56	869	1,513	929	879	9	4,199
Napaskiak	110	64	1,036	1,708	865	1,246	79	4,934
Naukati Bay	1	0	0	0	0	0	0	0
Nelson Lagoon	2	2	5	90	65	15	3	178

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Table 2-5.–Page 5 of 7.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
Nenana/Healy	76	72	260	427	196	58	36	978
New Stuyahok	44	19	1,966	1,769	398	353	31	4,517
Newhalen	16	10	0	4,770	0	0	0	4,770
Nightmute	1	0	0	10	0	0	1	11
Nikiski	125	96	0	1,461	16	7	57	1,540
Nikolaevsk	22	20	0	423	0	0	12	435
Nikolai	34	28	367	20	31	31	1	450
Ninilchik	274	242	0	5,206	42	2	54	5,305
Noatak	128	95	15	62	1,058	6,477	81	7,692
Nome	1,456	1,447	106	6,156	3,043	1,224	12,296	22,826
Nondalton	6	4	0	1,398	0	0	0	1,398
Noorvik	132	94	23	111	674	14,267	387	15,462
North Pole	783	673	97	9,365	62	11	109	9,644
Northway	5	4	10	216	0	0	0	226
Nuiqsut	113	59	0	87	0	261	101	450
Nulato	76	36	1,103	0	0	16	0	1,119
Nunam Iqua (Sheldon Point)	42	23	368	0	21	1,025	592	2,006
Nunapitchuk	133	83	1,750	2,614	614	2,384	10	7,372
Old Harbor	13	13	13	170	150	9	58	400
Oscarville	16	12	360	497	63	502	7	1,429
Other communities	156	145	299	0	1	3	0	303
Ouzinkie	23	23	8	2,657	393	11	47	3,116
Palmer	2,154	1,763	297	32,385	509	88	1,189	34,467
Pedro Bay	11	10	0	1,340	0	0	0	1,340
Pelican	5	3	0	72	0	0	0	72
Perryville	19	18	12	1,191	644	87	364	2,297
Petersburg	122	98	27	1,159	599	17	152	1,953
Pilot Point	2	1	14	38	0	0	0	52
Pilot Station	130	58	1,059	0	180	4,289	0	5,528
Pitkas Point	24	16	272	0	13	705	11	1,001
Platinum	19	15	84	359	380	69	42	934
Point Baker	3	3	0	0	0	23	5	28
Point Hope	180	107	313	34	1,694	2,141	1,428	5,611
Point Lay	64	41	32	358	142	258	1,151	1,940
Port Alexander	3	3	6	150	10	3	11	180
Port Alsworth	44	33	0	2,974	0	0	0	2,974
Port Graham	8	7	38	294	102	52	37	523
Port Heiden	2	1	3	7	0	0	0	10
Port Lions	25	25	4	314	188	0	65	571
Portage	1	1	0	27	0	0	0	27

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Table 2-5.–Page 6 of 7.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
Prudhoe Bay	1	0	0	10	0	0	1	11
Quinhagak	187	105	4,757	2,010	1,395	829	166	9,157
Rampart /Stevens Village	24	11	409	0	12	23	0	444
Red Devil	7	6	45	118	30	25	0	218
Ruby	48	17	432	35	0	0	0	467
Russian Mission	73	26	375	0	13	528	0	916
Saint George Island	1	0	0	0	0	0	0	0
Saint Marys	127	62	1,140	15	14	3,249	136	4,554
Saint Paul Island	1	1	0	2	0	0	0	2
Salcha	49	43	8	477	1	0	2	488
Sand Point	35	26	68	1,436	216	254	588	2,562
Savoonga	7	7	0	1	0	0	0	1
Saxman	4	3	0	19	0	7	8	33
Scammon Bay	113	42	1,080	35	334	4,576	2,328	8,353
Selawik	176	123	0	69	6	560	6	642
Seldovia	24	17	26	239	6	41	10	322
Seward	172	136	14	2,162	24	13	65	2,278
Shageluk	32	16	90	0	12	157	25	284
Shishmaref	2	2	0	0	0	0	0	0
Shungnak	66	46	0	30	15	4,985	27	5,056
Silver Springs	3	3	18	164	0	0	0	182
Sitka	380	252	21	7,067	419	29	95	7,632
Skagway	39	32	0	500	10	1	157	668
Skwentna	12	12	0	149	62	8	1	220
Slana	21	21	5	195	0	0	0	200
Sleetmute	30	19	176	816	307	25	0	1,324
Soldotna	1,672	1,372	25	23,151	139	65	1,149	24,529
South Naknek	8	4	20	170	94	2	10	296
Stebbins	1	0	0	0	0	0	0	0
Sterling	362	302	10	5,196	60	28	230	5,525
Stony Riverb	14	0	95	1,272	129	261	0	1,757
Sutton	117	99	2	1,633	58	21	25	1,739
Takotna	25	15	7	0	0	0	0	7
Talkeetna	93	76	6	1,152	93	2	30	1,284
Tanacross	2	2	1	70	0	0	0	71
Tanana	95	37	4,510	0	114	2,329	0	6,953
Tatitlek	5	4	4	31	0	0	0	35
Tazlina	42	34	169	1,839	0	0	0	2,008
Telida	2	0	0	0	0	0	0	0

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Table 2-5.–Page 7 of 7.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Included	Chinook	Sockeye	Coho	Chum	Pink	
Teller	39	39	8	676	154	901	2,016	3,755
Tenakee Springs	1	1	1	8	1	0	5	15
Tetlin	1	0	0	0	0	0	0	0
Thorne Bay	10	5	0	32	106	14	16	168
Togiak	32	22	672	2,333	333	314	17	3,670
Tok	123	111	27	1,269	7	1	6	1,310
Tolsona	7	7	2	54	0	0	0	56
Tonsina	9	9	4	108	0	0	0	112
Trapper Creek	38	31	0	510	1	2	20	532
Tuluksak	99	50	919	880	673	987	52	3,511
Tuntutuliak	116	64	2,322	1,839	423	1,261	67	5,912
Two Rivers	27	26	11	329	1	0	1	342
Tyonek	43	13	890	13	202	0	0	1,105
Ugashik	2	1	36	364	76	0	0	476
Unalakleet	228	142	1,917	411	4,511	739	9,959	17,537
Unalaska	100	67	6	1,150	414	39	243	1,853
Upper Kalskag	66	34	860	661	390	295	13	2,219
Utqiagvik	1,587	262	207	386	520	3,657	1,248	6,019
Valdez	237	204	127	3,622	7	1	13	3,769
Venetie/Chalkyitsik	100	25	0	25	0	0	0	25
Wainwright	145	75	27	86	209	89	97	507
Ward Cove	1	0	0	0	0	0	0	0
Wasilla	5,102	3,929	827	81,612	1,445	412	2,997	87,292
Whale Pass	2	1	0	0	0	0	4	4
White Mountain	35	35	9	53	365	37	3,288	3,752
Whittier	5	3	0	103	0	0	1	104
Willow	230	197	29	3,577	74	13	194	3,887
Wiseman	1	1	0	0	0	0	0	0
Wrangell	176	149	147	1,797	42	86	386	2,457
Yakutat	69	41	226	2,706	1,043	0	93	4,068
Other USA	94	67	1	1,160	6	15	48	1,230
Unknown community	1,379	628	38	13,611	1,924	192	1,206	16,971
Total	57,863	41,336	83,528	762,326	76,914	144,155	75,892	1,142,814

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2023).

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

b. These communities were not contacted during the 2020 study period.

c. “Other communities” includes residents of the Upper Tanana River drainage communities of Delta Junction, Dot Lake, Northway, Tanacross, and Tok. Also includes residents from Chugiak, Lake Minchumina, Nenana, Palmer, Wasilla, and Wiseman who were issued a subsistence and/or personal use permit for the Yukon Area.

-- Data not available.

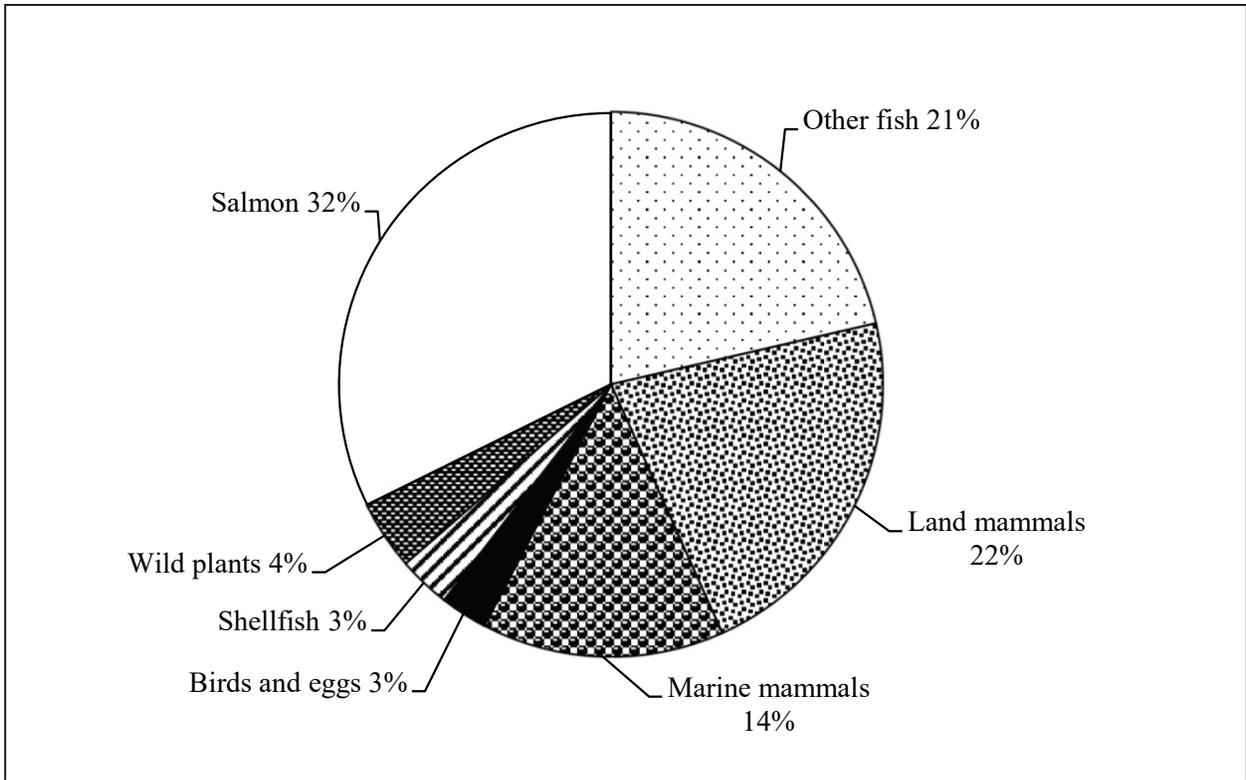


Figure 2-1.—Composition of subsistence harvest by rural Alaska residents, 2017.

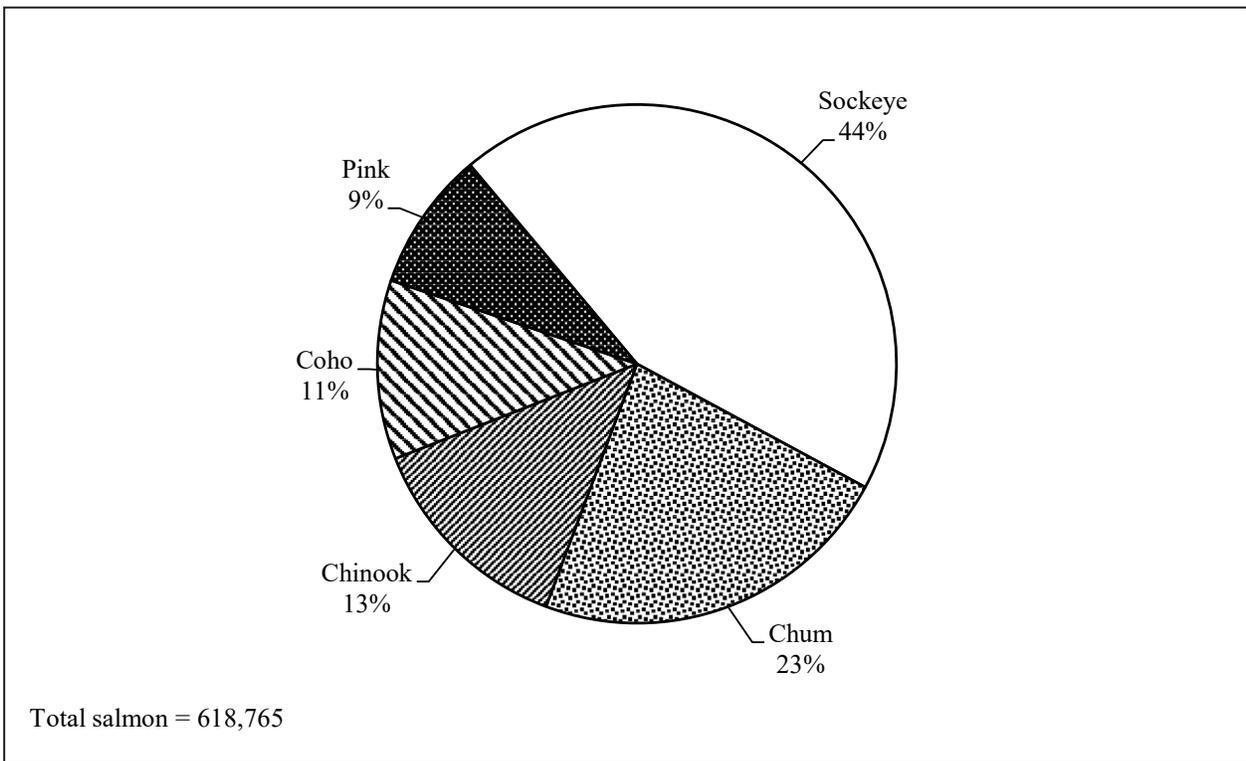


Figure 2-2.—Alaska subsistence salmon harvest by species, 2020.

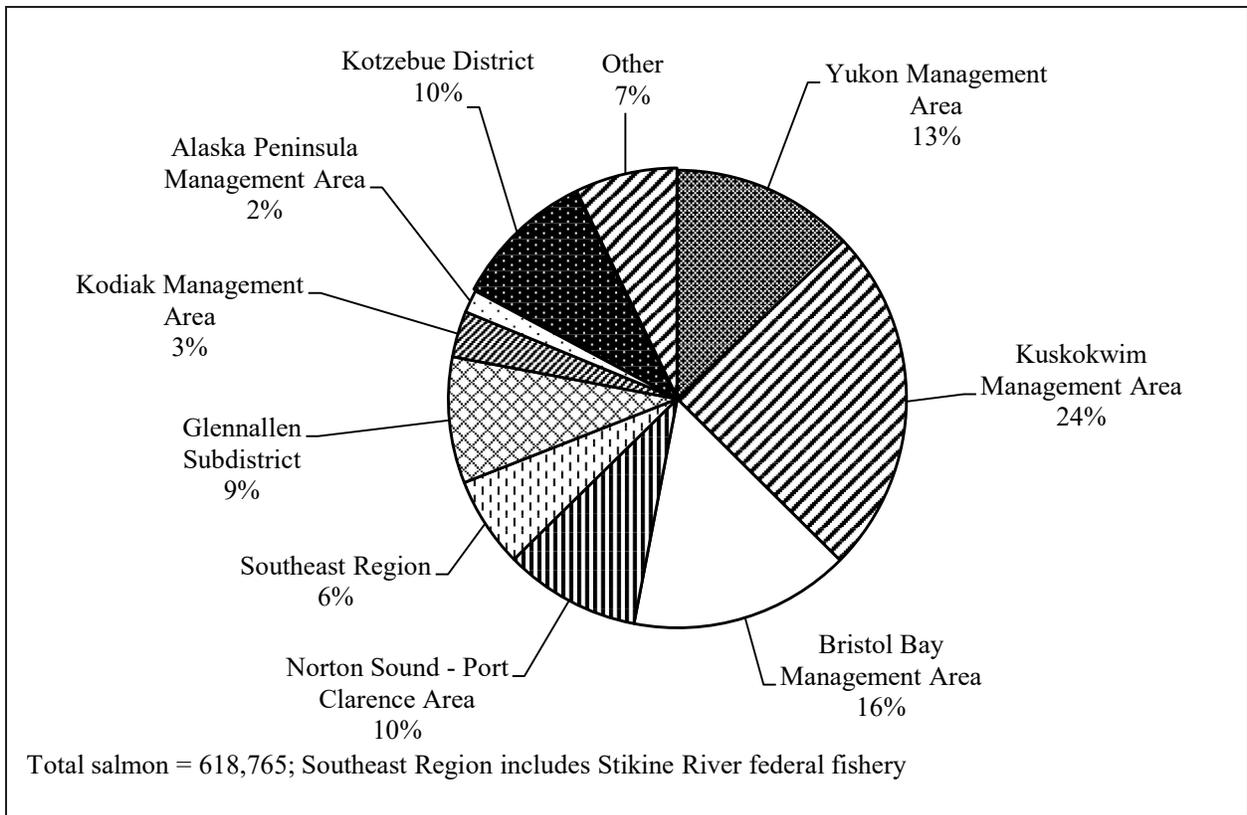


Figure 2-3.—Alaska subsistence salmon harvest by area, 2020.

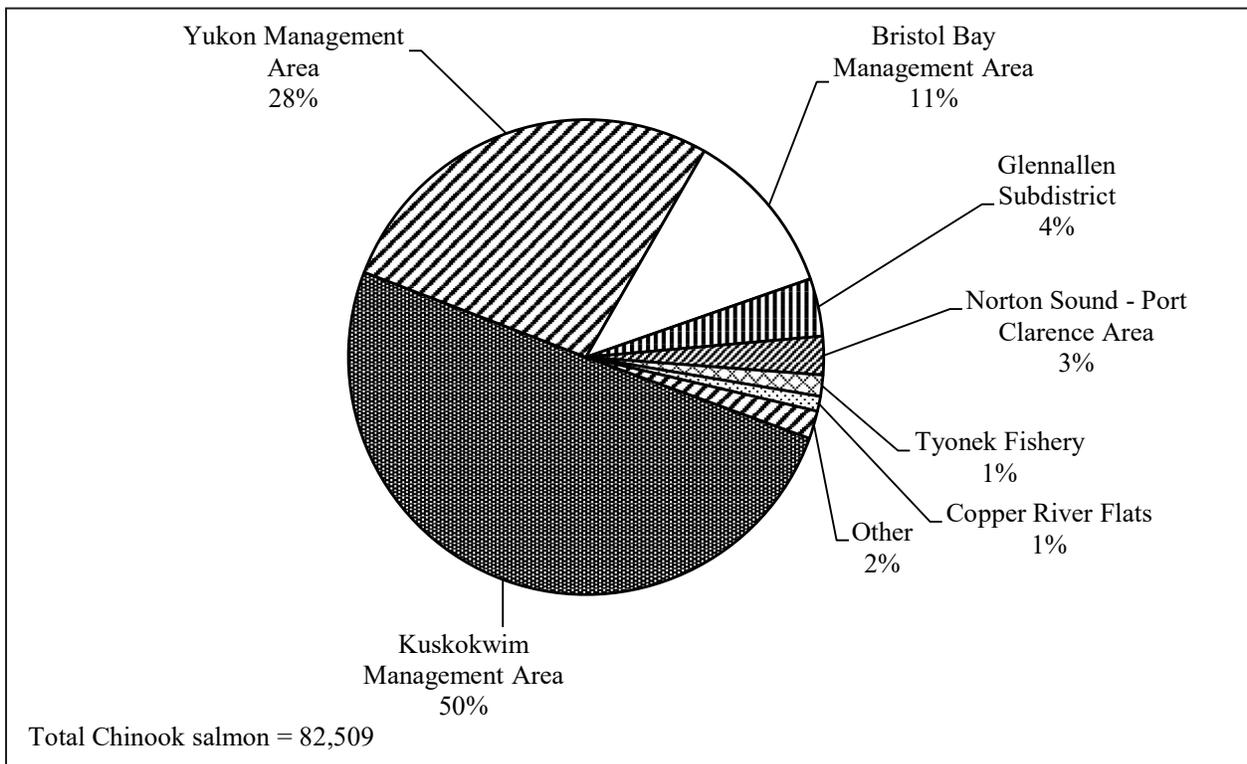


Figure 2-4.—Subsistence Chinook salmon harvest by area, 2020

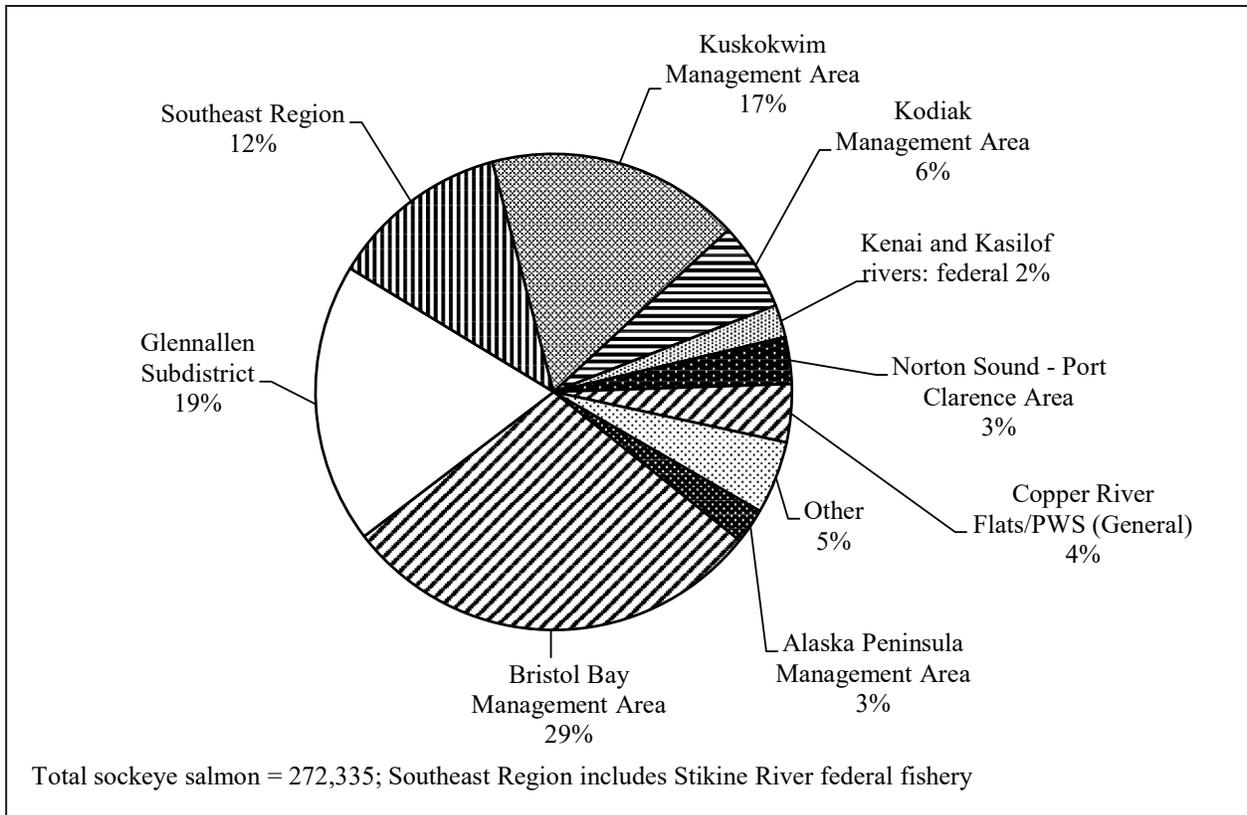


Figure 2-5.—Subsistence sockeye salmon harvest by area, 2020.

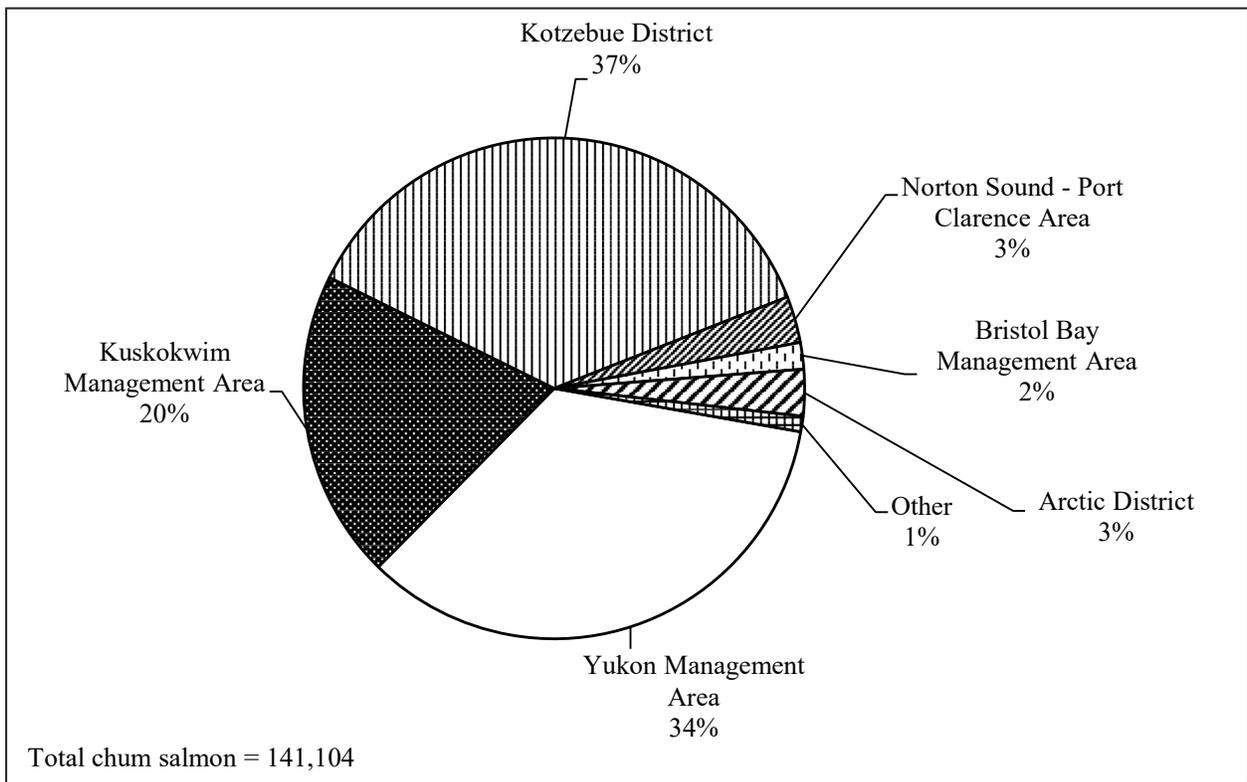


Figure 2-6.—Subsistence chum salmon harvest by area, 2020.

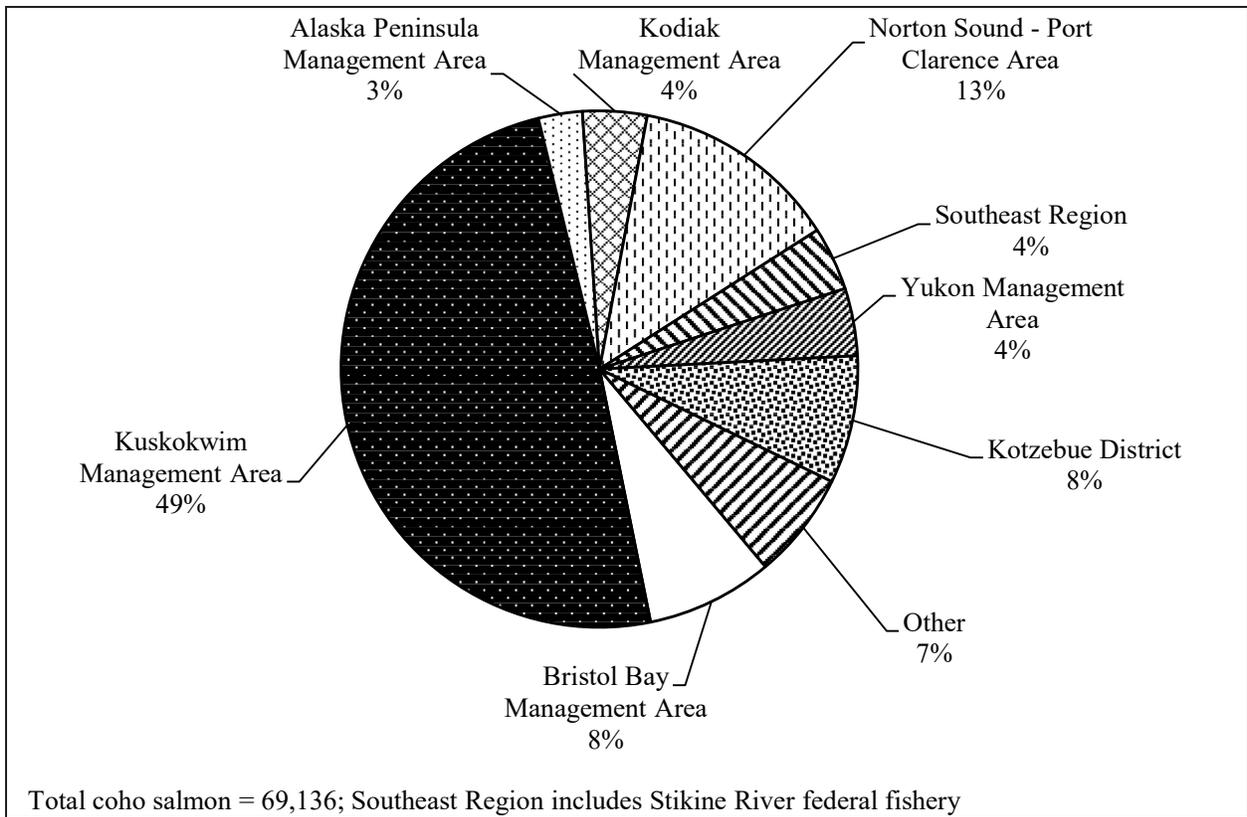


Figure 2-7.—Subsistence coho salmon harvest by area, 2020.

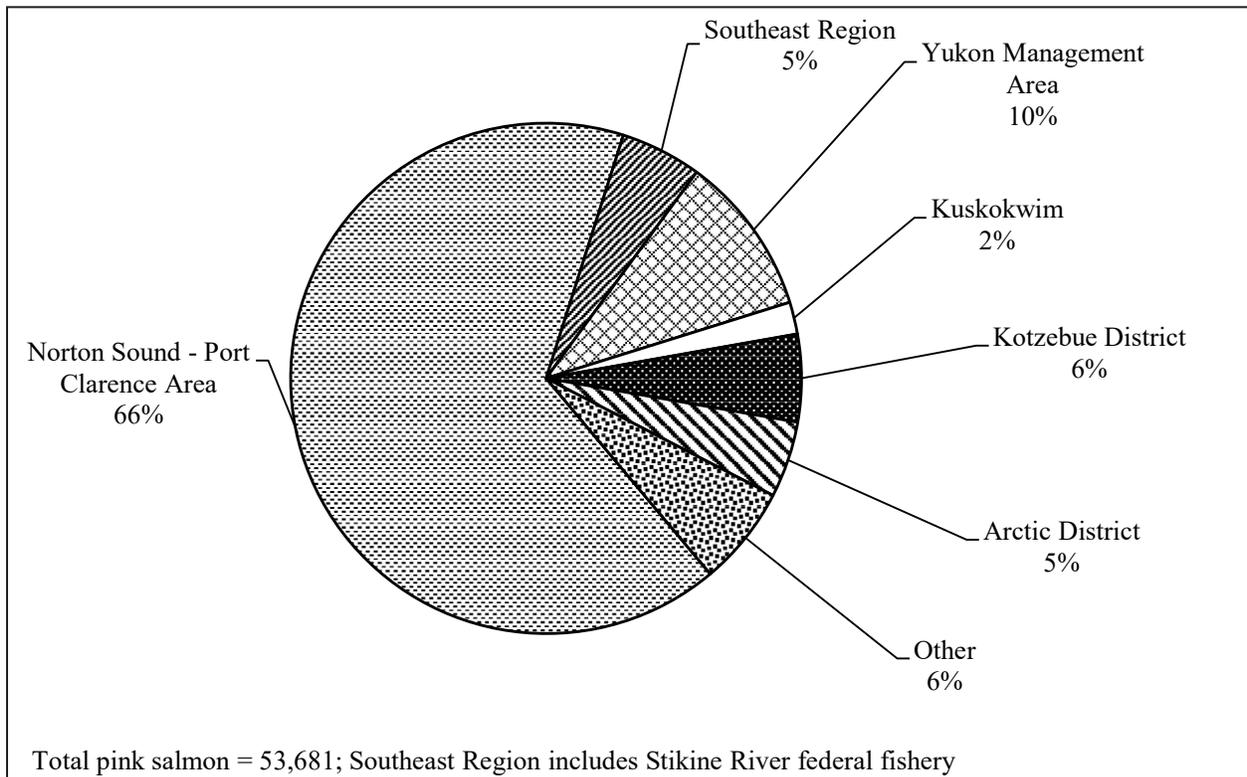


Figure 2-8.—Subsistence pink salmon harvest by area, 2020.

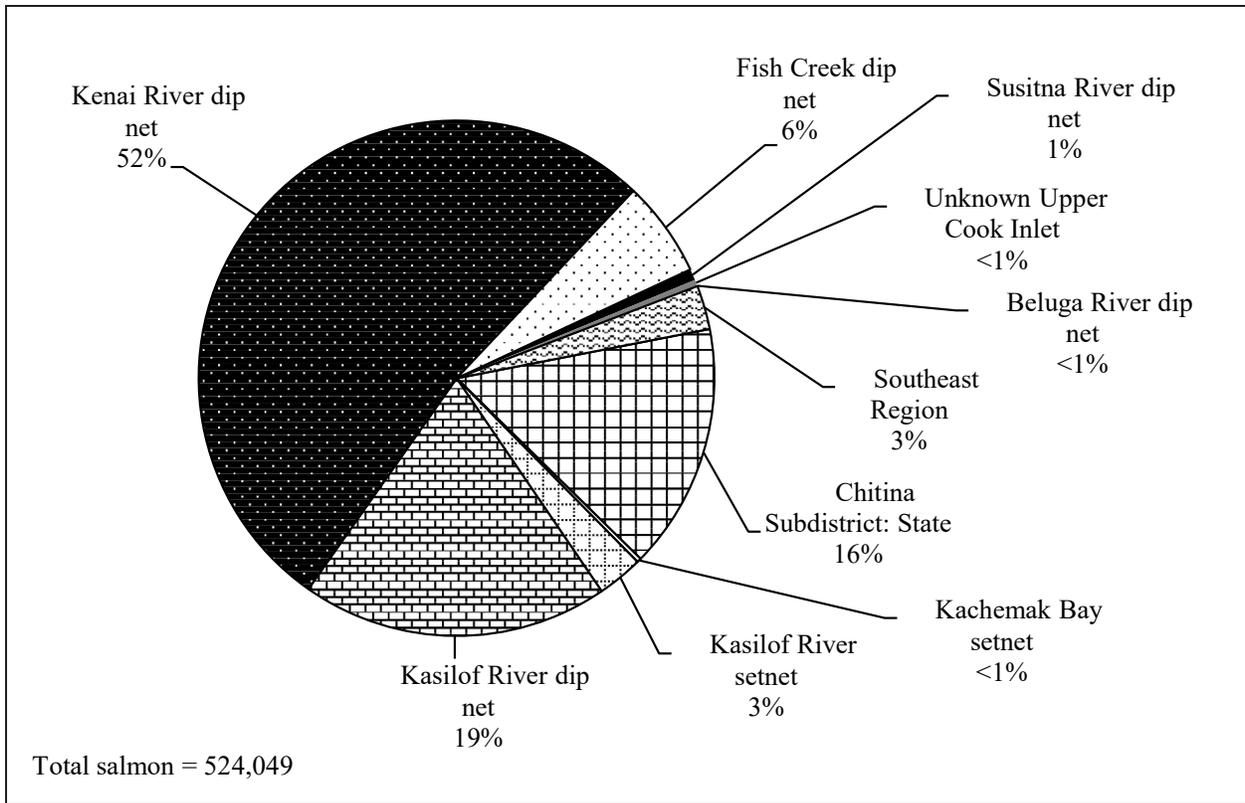


Figure 2-9.—Alaska personal use salmon harvest by fishery, 2020.

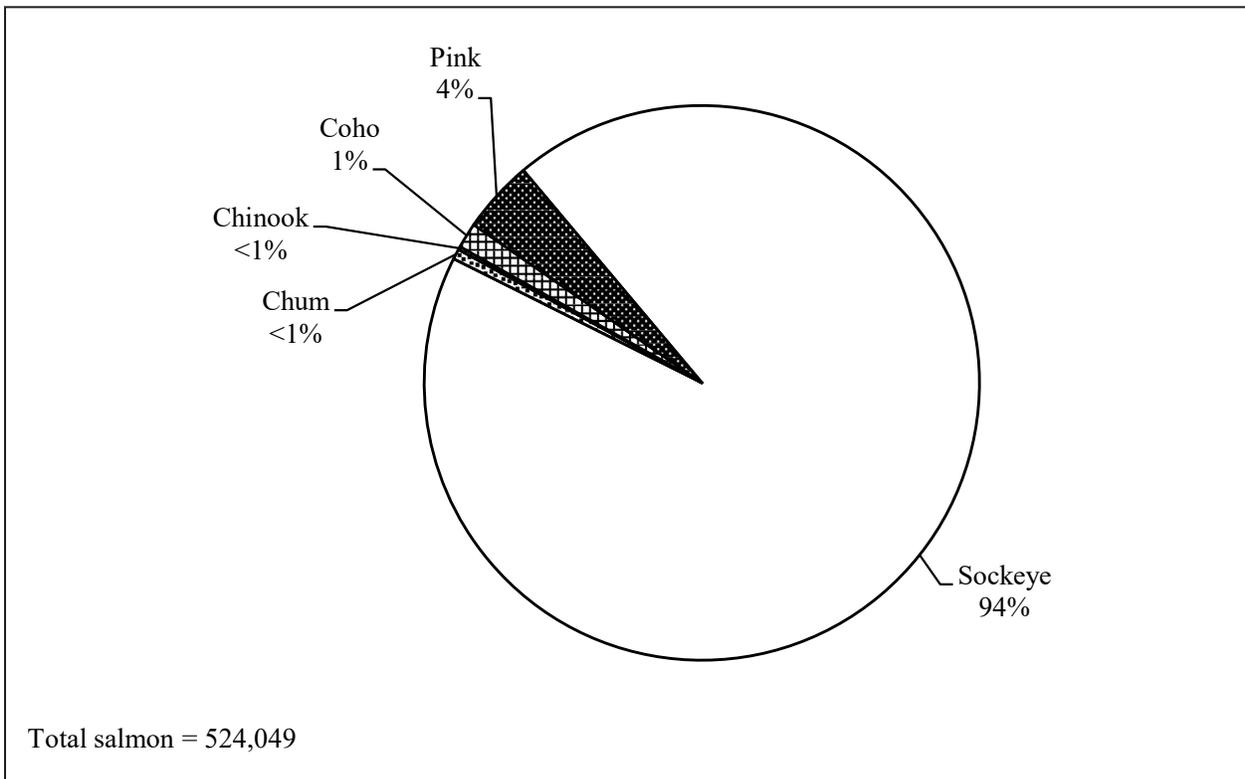


Figure 2-10.—Alaska personal use salmon harvest by species, 2020.

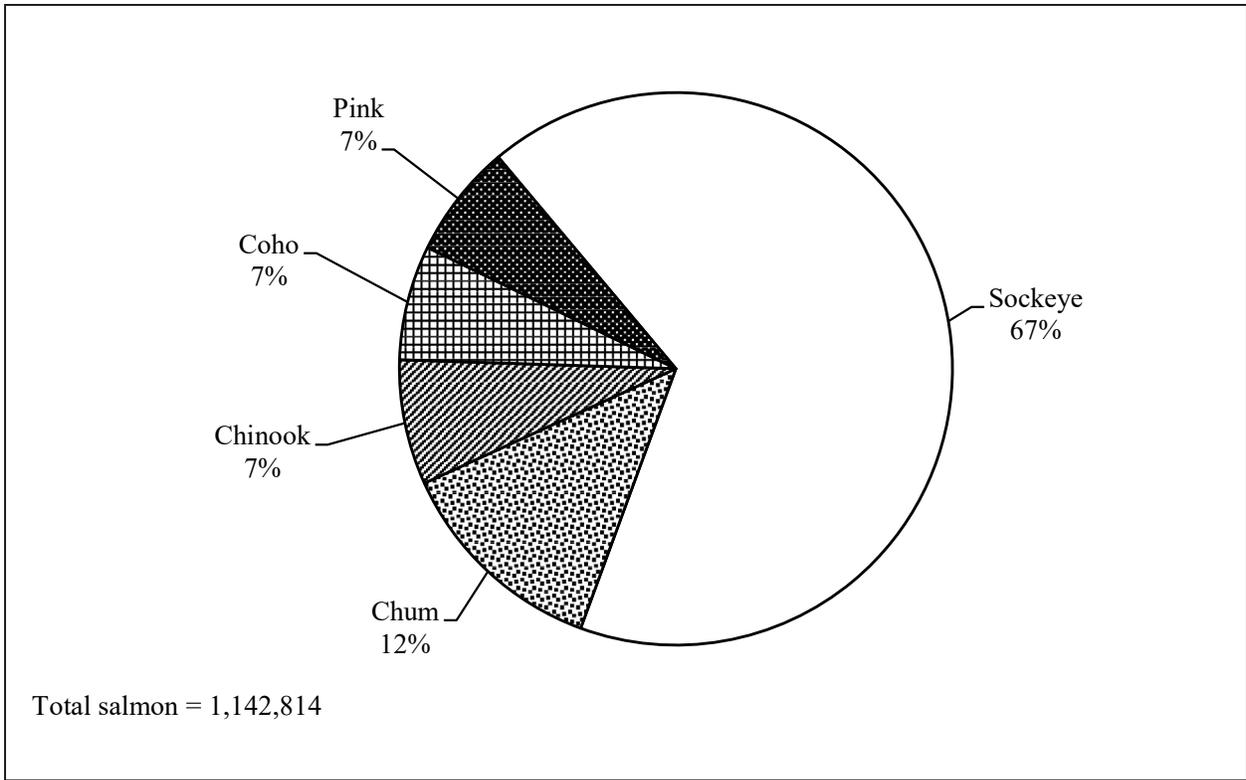


Figure 2-11.—Alaska subsistence and personal use salmon harvest by species, 2020.

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

INTRODUCTION

Fisheries management districts in Northwest and Northern Alaska are organized such that the Norton Sound-Port Clarence Management Area includes the Norton Sound District and the Port Clarence District, and the Arctic-Kotzebue Management Area includes the Arctic District and the Kotzebue District (Menard et al. 2013). Each management area is fully described below. This chapter includes harvest information from limited subsistence fisheries research in the Arctic-Kotzebue Area, which supplements data from the ongoing annual subsistence harvest monitoring program in Norton Sound and Port Clarence.

NORTON SOUND-PORT CLARENCE AREA SALMON

Background

The archaeological record of the Norton Sound-Port Clarence region provides physical evidence of subsistence fishing dating back to the Arctic Small Tool/Norton Tradition, ca. 1500–1000 B.C.E. (Harritt 2010; Smith and Vreeman 1995). Large numbers of prospectors went to the Seward Peninsula following the 1890s discovery of gold in the region, which affected salmon and salmon fishing in substantial ways (Menard et al. 2009; 2020; Thomas 1980; 1982). Dredging damaged spawning grounds while the growing immigrant population increased the demand for salmon, especially around Nome. As across Alaska, salmon supported the integration of the subsistence way of life and the emerging cash economy, first through customary trade and later through commercial fishing. Since the beginning of commercial fishing at Unalakleet in 1961, variable salmon abundance, market demand, and buyer availability have engendered a dynamic set of subsistence and commercial salmon fisheries across the districts (Menard et al. 2020:7–8).

The regional center of Nome had a 2020 population estimate of 3,699, and 13 smaller communities range in size from 83 (Diomedé) to 765 (Unalakleet).¹ Overall, approximately 70% of Nome Census Area residents are Alaska Native, with an additional 10% reporting two or more racial backgrounds. More than 90% of the region’s population outside of Nome is Alaska Native, primarily of Inupiaq, Yupik, and Siberian Yupik descent. Most residents of the region continue to participate in a mixed subsistence-cash economy and depend on wild foods for cultural and nutritional sustenance. While more opportunities for wage work exist in Nome itself, subsistence activities are still an important facet of life in many Nome households.

In summer, subsistence fishers harvest salmon with gillnets or seines in the main Seward Peninsula rivers and coastal marine waters. Beach seines are also used near the spawning grounds to harvest schooling or spawning salmon and other species of fish. A major portion of fish taken during the summer months is air dried or smoked for later consumption by residents. Chum and pink salmon are the most abundant salmon species districtwide; Chinook and coho salmon are present throughout the area but are more common in eastern and southern Norton Sound. Sockeye salmon are primarily found in two Seward Peninsula river systems: Glacier Lake and the Sinuk River in the Nome subdistrict, which is difficult to access, and Salmon Lake and the Pilgrim River in the Port Clarence District, much of which is road accessible to Nome residents.

The history of variation and change to specific salmon harvests across the region motivate fishers to travel to adjacent or nearby units for subsistence fishing opportunities, as may be feasible and necessary. For example, the concentrated population at Nome generally relies on pink salmon from Subdistrict 1 and sockeye salmon from the Port Clarence District. Multiple salmon stocks have been designated with various levels of concern, most notably chum salmon in Subdistrict 1 (Nome). However, salmon runs have improved

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed January 28, 2023. <http://live.laborstats.alaska.gov/pop/estimates/data/TotalPopulationPlace.xls>

greatly with record runs of pink and coho salmon in the mid-2000s and the best chum salmon runs in recent years since the 1980s. Other salmon stocks designated with levels of concern include sockeye salmon in the Port Clarence District, and Chinook salmon in subdistricts 5 and 6 (Shaktoolik and Unalakleet), as described in more detail below.

Regulations

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

In Subdistrict 1 (Nome), subsistence harvests historically consisted primarily of chum salmon and pink salmon. Chum salmon runs were low in the 1980s and 1990s. Since 1991, subsistence fishing has been prosecuted primarily by emergency order, and the Board of Fisheries classified Nome subdistrict chum salmon as a stock of management concern in 2000 (Menard et al. 2020:13).² From 1999 through 2005, chum salmon fishing in Subdistrict 1 was managed as Tier II, the only such fishery to exist in the state (5 AAC 01.182, 5 AAC 01.184).³ In 1999, the chum salmon return was so poor that even Tier II fishing was closed; in 2000, only 10 permits were awarded (Soong et al. 2008:10).

Tier II chum salmon fishing permits allowed a limited number of qualified Nome households with the highest dependency on salmon for food to have priority over other subsistence fishers when only a small number of

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2. The Policy for Management of Sustainable Salmon Fisheries (SSFP; 5 AAC 39.222) defines three levels of concern for salmon stocks based on status reports and recommendations from ADF&G. A stock of Yield Concern is defined as “a concern arising from a chronic inability, despite the use of specific management measures, to maintain specific yields, or harvestable surpluses, above a stock’s escapement needs; a Yield Concern is less severe than a Management Concern” (5 AAC 39.222(f)(42)). A stock of Management Concern is defined as “a concern arising from a chronic inability, despite the use of specific management measures, to maintain escapements for a salmon stock within the bounds of the SEG, BEG, OEG, or other specified management objectives for the fishery; a Management Concern is not as severe as a Conservation Concern.” (5 AAC 39.222(f)(21)). A stock of Conservation Concern is defined as “a concern arising from a chronic inability, despite the use of specific management measures, to maintain escapements for a stock above a sustained escapement threshold (SET); a Conservation Concern is more severe than a Management Concern.” (5 AAC 39.222(f)(6)).
 3. A “Tier II” subsistence permit program is necessary when the number of participants in a subsistence fishery or hunt must be limited because the harvestable surplus of the fish stock or wildlife population is less than the lower bounds of the amount necessary to provide for subsistence uses. Individual Alaskans are distinguished from one another through the submission of Tier II applications, which are scored based on their history of uses of the particular resource and the ability to obtain alternative food; those with the highest scores receive Tier II permits, the others do not. Tier II provides a process that ensures that subsistence opportunities are provided to those most dependent upon the resource. Tier II implies that there is an insufficient harvestable surplus to provide for all subsistence uses (AS 16.05.258).

chum salmon were available for harvest. Tier I fishing permits were available to all other households when ADF&G determined run strength was adequate to meet escapement goals. During this time, Nome fishers increased their use of adjacent units to fish for salmon (Menard et al. 2009), but that practice later decreased likely in response to the easing of fishing restrictions in the Nome Subdistrict and rising fuel costs (Menard et al. 2010).

Chum salmon returns gradually improved, allowing ADF&G to manage the Nome Subdistrict fishery as Tier I since 2006, generally with the fishing schedule provided for by regulation.⁴ In 2007, the BOF changed the classification of Subdistrict 1 chum salmon from a “stock of management concern” to a “stock of yield concern” and rescinded the yield concern designation in 2016, which further reduced restrictions (Menard et al. 2020:14). In 2013, the BOF allowed for subsistence gillnet fishing seven days a week in marine waters in the eastern half of Subdistrict 1, and beach seining in all subsistence areas during the chum salmon run when gillnet fishing is open. The Board also adopted regulations in 2013 allowing for a commercial chum salmon fishery in Subdistrict 1 based on conservative management guidelines. In recent years, subsistence fishing time was liberalized in the Nome Subdistrict by increasing subsistence gillnet fishing in the marine waters in the western half of the subdistrict from three days to five days a week and seven days a week in the eastern half. Freshwater subsistence gillnet fishing was also changed throughout the subdistrict from four days to five days a week. In 2019, new chum salmon escapement goals were updated for Subdistrict 1, based on improved ADF&G sustainable escapement guidelines; the chum salmon run in 2020 was lower than in recent years. No coho salmon escapement goals existed in Subdistrict 1 in 2020 (Menard et al. 2022b)

In Subdistrict 2 (communities of Golovin and White Mountain) and Subdistrict 3 (Elim), chum salmon escapement and commercial and subsistence harvests dropped significantly through the 1990s. Chum salmon stocks were designated as a “yield concern” in 2000 (Menard and Bergstrom 2006:2). Restrictions primarily affected commercial fishing, but subsistence restrictions were in place in 2003. In 2019, the BOF dropped “stock of yield concern” status for Subdistricts 2 (Golovin/White Mountain) and 3 (Elim) chum salmon stocks and repealed existing optimal escapement guidelines from 2001 (Menard et al. 2022a). Subdistrict 3 (Elim) also adopted new escapement guidelines in 2019 based on amended sustainable guidelines by ADF&G (Menard et al. 2022a).

Run assessment in remote Subdistrict 4 (Koyuk) is especially challenging but improved in 2011, when an enumeration tower project was initiated on the Inglutalik River to provide an index of salmon escapement to Norton Bay. Pink and chum salmon predominate Norton Bay and its rivers; however, in recent years Chinook salmon conservation concerns have often prompted limits to subsistence fishing. Due to high water, the escapement count period was short in 2020, with minimal estimates of chum, pink, and coho salmon. In 2020, ADF&G placed no restrictions on subsistence salmon fishing in Subdistrict 4 (Menard et al. 2022b).

Subdistrict 5 (Shaktoolik) and Subdistrict 6 (Unalakleet) are typically managed together because actions in one subdistrict are known to affect the movement of fish in the other. Poor Chinook salmon runs in these subdistricts since the early 2000s resulted in their designation as “stocks of yield concern” and restrictions on all types of fishing in 2003, 2004, and since 2006 (Menard et al. 2020). No directed Chinook salmon commercial fishery has occurred since 2005 and a conservative Chinook salmon management plan was adopted in 2007 (5 AAC 04.395; Menard et al. 2020). The management plan ensures adequate escapement by restricting subsistence fishing with a stipulated opening schedule that can be adjusted by emergency order from mid-June to mid-July. However, record runs in recent years may indicate rebounding Chinook salmon populations in the region, and in 2020, the Chinook salmon run was above average. The pink salmon run was well above average in 2020 (Menard et al. 2022b).

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

The Port Clarence District includes all waters from Cape Douglas north to Cape Prince of Wales, including Salmon Lake and the Pilgrim River drainage. Residents of the communities of Teller and Brevig Mission, both located in the Grantly Harbor Subdistrict, use these waters heavily for salmon and other subsistence needs. Fishers from Nome also have a long history of fishing in the Port Clarence District (Magdanz 1992a:27)—especially when regulations restrict fishing opportunities in the Nome Subdistrict, such as in the 1990s (Magdanz et al. 2003). Since 2004, subsistence salmon permits have been required in all Port Clarence waters. In most of the district, subsistence salmon fishing has few restrictions other than the general statewide provisions. Standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Salmon may be taken in most areas at any time, with no harvest limits. However, some areas that are accessible by road from Nome in the Pilgrim River drainage, including Salmon Lake, are closed to subsistence salmon fishing. Following a 32-year closure of fishing in Salmon Lake (1972–2004) because of a crash of the sockeye population, managers established a permit system (Menard et al. 2009). Following early season indications of good runs to the Pilgrim River, heavy fishing efforts continued. A record-breaking 592 permits were issued in 2020, compared to the average number of permits issued at Pilgrim River from 2012 to 2015, at 273 (Menard et al. 2022b).

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

Subsistence Salmon Harvest Data Collection Methods

Two methods are normally used by the Division of Commercial Fisheries (DCF) to assess subsistence salmon harvests: (1) fishing permits in the northern portion of Norton Sound (Subdistricts 1, 2, and 3) and the Port Clarence District; and (2) postseason household surveys in the eastern and southern portions of Norton Sound District (Subdistricts 4, 5, and 6).

In 2020, household subsistence salmon surveys were not conducted in the villages of Koyuk or Shaktoolik because of COVID-19 restrictions but were conducted by DCF staff in the village of Unalakleet. For communities where survey work did not occur in 2020, the 5-year average subsistence salmon harvest was used in place of household subsistence salmon surveys to estimate subsistence salmon harvest in 2020. Except for White Mountain, ADF&G staff were unable to travel to communities to issue subsistence permits due to Covid-19 restrictions, which resulted in many residents being unable to acquire the permits they needed that year.

Permits capture fishing by local and nonlocal residents and most accurately estimate harvests from a given body of water. Postseason household harvest surveys capture fishing by community households and most accurately estimate the surveyed community’s total harvests. Most permit holders reside in the place where they fish. However, some residents fish outside their home district or subdistrict, and some fishers come from outside the region to participate (usually to fish with relatives or friends still residing in the region).⁵ Unlike recent years, this was the first year that permits were available online, and as noted above, except for White Mountain there were no visits by ADF&G personnel to villages because of COVID-19 restrictions. Tables 3-1 and 3-2 show the 2020 and historical subsistence salmon harvests, respectively, by district, for the Norton Sound-Port Clarence and Arctic-Kotzebue areas. In northern Norton Sound and Port Clarence, all subsistence salmon fishers are obliged to obtain and return permits that describe their fishing by each location and species caught. Table 3-3 shows estimated subsistence salmon harvests taken from the waters of the Norton Sound-Port Clarence Area in 2020, by subdistrict, by fishers residing anywhere in Alaska.

5. Anna Godduhn, ADF&G Subsistence Resource Specialist, personal communication from Jim Menard, ADF&G Fisheries Biologist, March 31, 2020.

In comparison, Table 3-3-1n4 shows estimated subsistence salmon harvests taken from the entire Norton Sound-Port Clarence Area, by fishers residing in the listed communities.

Although based on the same data, all of which is collected by the Division of Commercial Fisheries, some numbers in this chapter diverge from those found in the 2020 annual management report for the area (Menard et al. 2022b). Minor divergences are generally attributable to late permit returns or duplicated permits, while larger scale divergences are generally due to different assumptions and methods employed by the Division of Commercial Fisheries, which produces the management reports, and the Division of Subsistence, which produces this report.

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

Permits have been required for subsistence salmon fishing in Norton Sound Subdistrict 1 (Nome) since 1974. Since 1998, the Nome permit data have not been expanded to account for households whose permits were not returned. This contrasts with earlier years when permit data were expanded by drainage, with expansion factors based upon the fraction of unreturned permits for that drainage. ADF&G staff believed that expansion of the permit data led to an overestimation of the salmon harvest because the unreturned permits were most likely from households that did not fish.

In Subdistrict 1, ADF&G staff projected that the 2020 chum salmon run would meet its escapement goal and the amount necessary for subsistence (ANS); therefore, a Tier II fishery was not implemented in 2020 (Menard et al. 2022b). Only Nome River has a pink salmon escapement goal (13,000 fish in an even-numbered year) in Subdistrict 1; in 2020, the Nome River experienced the greatest pink salmon escapement of any river in the subdistrict with over 2 million fish counted. There are no coho escapement goals in Subdistrict 1, with good escapements for Nome and Snake Rivers in recent years (Menard et al. 2022b).

The Nome ADF&G office issued 665 subsistence (Tier I) salmon permits for fishing in Subdistrict 1, of which 661 were returned and 399 reported fishing (Menard et al. 2022b; Table 3-3). Issued permits increased from 2019, when 558 permits were issued for salmon fishing in Subdistrict 1; of which all were returned and 466 reported fishing (Brown et al. 2022). This increase in permits was not seen in other locations within the Norton Sound area, likely related to COVID restrictions that reduced staff ability to travel and issue them in some communities.

Subsistence fishing permits were also issued for Cape Woolley, a traditional camp and fishing area for King Island households, who, although they settled in Nome more than 40 years ago, maintain a distinct community identity. Located in the Norton Sound District west of Nome, this portion of coast lies outside Subdistrict 1 but within the boundaries of the area for which fishing permits are required (Rocky Point to Cape Douglas). In 2020, 65 permits were issued for Cape Woolley; all were returned to ADF&G (Table 3-3). Of those, two households fished their permit (Menard et al. 2022b).

Subsistence permits have been required for salmon fishing in Subdistrict 2 (Golovin) and Subdistrict 3 (Moses Point/Elim) since 2004. In 2020, 190 permits were issued for Subdistrict 2, primarily to residents of White Mountain and Golovin (Menard et al. 2022b). All permits were returned from Subdistrict 2 (Menard et al. 2022b; Table 3-3). As noted earlier, the number of Subdistrict 2 permits issued to Nome residents has dropped since 2004. The number of permits issued in Subdistrict 3 has remained steady. In 2020, ADF&G issued 51 permits for Subdistrict 3, and all were returned. Of the permits returned, 32 reported fishing (Menard et al. 2022b; Table 3-3).

Port Clarence District: Salmon Lake and Pilgrim River Subsistence Fishing Permits

Permits have been required to fish the Pilgrim River since 1974 (Magdanz 1992b:10, 27) and all Port Clarence waters since 2004. Permits for subsistence fishing in the Port Clarence District have increased since 2000. In 2020, ADF&G issued 785 subsistence permits in the Port Clarence District; of those, all but 3 permits were returned and 377 permits reported fishing—sometimes in multiple places (Menard et al. 2022b; tables 1 and 2). Of the permits issued in 2020, 592 were to fish the Pilgrim River and Salmon Lake only, the highest on record. All the remaining 193 permits were issued for other waters in the Port Clarence District. Of the 193 returned, 55 reported fishing in marine waters. Also in 2020, 2 customary trade permits

were issued in Port Clarence District, amounting to cash sales of \$385 for Norton Sound and Port Clarence Districts combined (Menard et al. 2022b).

The number of permits for the Pilgrim River grew substantially between 2003 and 2008, likely in response to several consecutive years of record sockeye salmon runs during a time of restricted chum salmon fishing in Norton Sound Subdistrict 1 (Magdanz et al. 2003; Soong et al. 2008:13). A decline in permits issued from 2009 to 2012 was likely related to poor runs in 2008 followed by the crash in 2009, when only 953 sockeye salmon were counted passing through the Pilgrim River weir (Menard et al. 2012; 2015a). Sockeye salmon runs slowly improved, and Pilgrim River escapements in 2015 (36,052 fish) and 2017 (55,764 fish) were especially strong. In 2020, sockeye escapement was estimated at 15,298 salmon, a 48% decline from 2019 totals (Menard et al. 2022b).

In 2007, the BOF adopted regulations that closed the southwestern half of Salmon Lake and allowed for fishing on the northeastern half by emergency order. Very little salmon fishing has been allowed in recent years in Salmon Lake because of the crash of the sockeye salmon run in 2009 and poor runs in 2010–12 (Menard et al. 2013). In 2013, limited fishing in Salmon Lake occurred for the first and only time since 2008, with no such permits issued in 2014 (Menard et al. 2015a; 2015b). One permit was issued over three years (2015–2017) but was only fished in 2017 (Menard et al. 2017; 2018), and no permits were issued for Salmon Lake in 2020 (Menard et al. 2022b).

Household Surveys

Beyond the permit system introduced for Nome in 1974, tracking of subsistence fishing in the larger area was sporadic and incomplete until ADF&G began conducting annual subsistence salmon harvest surveys in other Norton Sound communities in 1994. With the expansion of the permit system in 2004, household salmon surveys are no longer conducted in northern Norton Sound but remain the primary method of estimating salmon harvests at household, community, and regional levels in eastern and southern Norton Sound. In 2020, ADF&G Division of Commercial Fisheries conducted salmon harvest surveys with households only in Unalakleet (located in subdistrict 6), forgoing subdistricts 4 (Norton Bay) and 5 (Shaktoolik) because of COVID-19 restrictions. Researchers attempted to contact all the households in Unalakleet, with 141 of 227 Unalakleet households (62%) contacted (Table 3-4).

The goals of the postseason household survey were to:

- collect harvest data that would result in a total harvest estimate for subsistence salmon by species and by community;
- compile information on gear types, participation rates, sharing, use of salmon for dog food, and household size.

Subsistence Salmon Harvests in 2020

Norton Sound District Subsistence Salmon Abundance and Harvest

In 2020, Chinook salmon runs were lower than 2019 but remained higher than most runs in the 2010s. Unlike 2019, there were no subsistence fishing restrictions in Norton Sound (Menard et al. 2022b; 2022a). For the first time in five years, the Chinook salmon passage exceeded the 250 Chinook salmon escapement goal at the Kwiniuk River weir at 417 individuals. The North River count of Chinook salmon was much lower than the record-breaking count of 2019 (1,068), falling below the escapement goal range (1,200–2,600 fish); a late start in counting likely yielded lower estimates. There was no count on the Unalakleet River because of high water and COVID-19 restrictions. Shaktoolik River had the second highest count of Chinook salmon after North River for Norton Sound in 2020 (Menard et al. 2022b).

Sockeye salmon are typically found in small numbers throughout the Norton Sound District with the largest spawning stock at Glacial Lake. Typically, 1,000 to 2,000 sockeye salmon return to spawn each year, although large runs from 5,000 to over 10,000 sockeye salmon were recorded from 2004–2006 and in 2015 at the Glacier Lake weir; the weir was discontinued in 2015. In 2020, sockeye salmon runs met the

minimum goal at Glacial Lake and Grand Central River, where aerial surveys took place (Menard et al. 2022b).

No aerial surveys were flown for chum salmon in 2020 because of lack of available aircraft and high water levels. The Fish River counting tower was operational for only two weeks before being terminated due to high water conditions during the first week of August, at the midpoint of the coho salmon run. The 2020 coho salmon run was weaker than predicted on rivers where counting projects exist, such as the Niukluk River (no 2020 escapement number available), Kwiniuk River (5,361 salmon) and Shaktoolik River (4,176 salmon), Nome River (3,667 salmon), Fish River (3,156 salmon), and Snake River (3,069 salmon). Escapement goals were reached for Niukluk River and Ophir Creek, but the count at Kwiniuk River was the lowest since 2013 (Menard et al. 2022b).

In 2020, escapement goals for chum were reached or exceeded in all but two streams in the northern Norton Sound area, but in the southern Norton Sound area returns past the North River weir were the lowest since the establishment of the project (Menard et al. 2022b:48–49). The chum salmon subsistence catch of 1,928 fish was the lowest on record, 67% lower than the 2019 harvest (5,813 salmon) and 86% lower than the 5-year average (13,259 salmon; Table 3-2).

Pink salmon abundance commonly follows an even–odd year cycle (tables 3-3, 3-2). Their abundance in Norton Sound is usually significantly higher in even-numbered years (2014, 2016, 2018, etc.) with districtwide harvests typically reflecting this difference. Since 2016, pink salmon numbers, although still high by historical standards, have been steadily declining with 2020 harvests totaling less than 2019 and harvests of the last even-year, 2018 (29,615 fish; Table 3-2). However, lower numbers in 2020 may be associated with the survey sample, as only Unalakleet in the southern Norton Sound villages was surveyed (Menard et al. 2022b).

Total subsistence catches of four out of the five salmon species from Norton Sound waters were lower in 2020 than 2019. Fishers caught fewer pink, chum, sockeye, and coho salmon, but more Chinook salmon. The estimated 2020 subsistence harvest of salmon from Norton Sound District waters was 42,770 salmon in total, about 12% less than the 2019 harvest of 48,251 salmon and 21% less than the 2018 harvest of 54,066 salmon (Table 3-2). Compared to historical averages, the estimated 2020 subsistence harvest of salmon in Norton Sound District was 33% less than the 5-year average of 63,706 fish salmon and 10-year average of 63,857 salmon, and 46% percent less than the historical average of 78,502 salmon. The total 2020 harvest consisted of 2,134 Chinook salmon, 905 sockeye salmon, 8,413 coho salmon, 1,928 chum salmon, and 19,390 pink salmon (Table 3-2).

Chinook salmon harvests were higher in 2020 compared to the 5- and 10-year averages but were 47% lower than the historical average (4,053 fish). Chum salmon harvests were 89% lower than the historical average of 17,412 fish and the lowest documented harvest since recording began in 1994. Coho salmon harvests were 48% lower than the historical average harvest of 16,117 coho salmon (Table 3-2). Sockeye salmon harvests declined from 2019 with 905 of these fish harvested in 2020; most of the sockeye salmon harvest in the region comes from the Port Clarence District (Menard et al. 2022b). Pink salmon harvests were 51% lower than the historical average of 39,994 salmon (Table 3-2).

Overall, the estimated 2020 subsistence salmon harvest was the lowest total harvest on record since data collection began in 1994 (Table 3-2). Harvest totals can be driven in part by the even-odd year cycle of pink salmon abundance, with significantly higher pink salmon runs in even years. Between 1994 and 2020, even-year harvests of all salmon ranged from a low of 42,770 in 2020, to a high of 134,050 in 1996, with a 1995–2019 average of 68,249 salmon. Even-year harvests have ranged from the low in 2018 of 54,066 to a high of 134,050 in 1996, with a 1994–2018 average of 77,868 salmon.

Subdistrict 1 Harvest

In 2020, the chum salmon run to Nome Subdistrict was lower than recent years but still strong enough to meet escapement goals at the Eldorado and Nome River weirs. The Eldorado River, east of Cape Nome, has notably higher river production than the Nome and Snake rivers, west of Cape Nome. As such, the

escapement goal range for the Eldorado River (4,400–14,200) is double the combined escapement goal of the Nome (2,000–4,200) and Snake (1,600–5,300) rivers. The Snake River did not meet its escapement goal in 2020 (Menard et al. 2022b).

Despite liberalized fishing in Subdistrict 1 and ideal water level and weather conditions, the chum salmon subsistence harvest was one of the lowest on record in 2020. Low chum salmon subsistence harvest could be because of Subdistrict 1 subsistence permit holders traveling to Pilgrim River to harvest sockeye salmon instead. Additionally, the larger, even-year pink salmon run may have overwhelmed gillnets with pink salmon, as Menard (2022b:17, 44) shows, the pink salmon subsistence harvest was over eleven times the chum salmon harvest. Although the coho salmon run to Subdistrict 1 occurs one month later and was much smaller than the chum salmon run, the subsistence harvest of coho salmon was nearly three times the chum salmon subsistence harvest (Menard et al. 2022b:17, 44).

Coho salmon were caught in lower numbers than the 2019 harvest of 3,389 salmon and 12% lower than the 5-year average (3,267 salmon), but the 2020 harvest (2,869 salmon) was still 11% larger than the 10-year average (2,554 salmon) and over double the chum salmon subsistence harvest (Menard et al. 2022b:43–44). Historically, fishers caught late-season coho salmon in much lower numbers than chum salmon unless fishing for chum had been restricted earlier in the year.

Subdistricts 2 and 3 Harvests

The 2020 subsistence salmon harvests in northern Norton Sound were below the recent 5- and 10-year averages (Menard et al. 2022b). Most salmon harvested in these subdistricts are caught by residents of the communities of White Mountain, Golovin, and Elim. Pink salmon composed the greatest percentage of the harvest (86% of fish in Subdistrict 2 and 72% in Subdistrict 3; Table 3-3). Coho (12% and 18%) and chum (1% and 6%) salmon made up most of the rest, with Chinook and sockeye salmon making up less than 1% of the total harvest in Subdistrict 2. In Subdistrict 3 sockeye salmon made up only 3% of total harvest and Chinook salmon even less (less than 1%).

In 2020, a total of 6,413 salmon were harvested in Subdistrict 2 (Golovin/White Mountain). The total number of salmon reported harvested was below both the 5- and 10-year averages and was the third lowest in 20 years. The reported chum subsistence harvest was 139 fish, almost an eighth of the 5-year average. Sockeye salmon harvest (65 fish) was higher than both the five and ten-year averages (Menard et al. 2022b:44–43).

The Fish River tower began counts on June 25th, 2020; however, multiple disruptions throughout the season due to high water, equipment failures, and COVID-19 complications resulted in only 23 days of counting. Aerial surveys on the Niukluk River and Ophir Creek did not occur because of high water conditions. The cumulative count of pink salmon (2,647,626 fish) was the second highest in project history, while the cumulative count of coho salmon (3,156 fish) was the lowest on record (Menard et al. 2022b).

Based upon subsistence fishing permits, residents of Golovin harvested an estimated 1,403 salmon in 2020, the majority of which were pink salmon (1,230 fish, 88%; Table 3-4). Coho and chum salmon harvests (138 fish, 10%, and 22 fish, 2%, respectively) made up the remainder. Chinook salmon (1 fish) and sockeye salmon harvests (12 fish) together contributed to less than 1% to the total Golovin salmon harvest. White Mountain residents harvested an estimated 3,752 salmon, 3,288 (88%) of which were pink salmon. The remainder of the harvest was composed mostly of coho salmon (365 fish; 10%), sockeye salmon (53 fish; 1%), and chum salmon (37 fish; 1%); Chinook salmon (9 fish) contributed less than 1%.

The total Subdistrict 3 (Moses Point/Elim) subsistence salmon harvest was less than two-thirds of the 5-year average. Subsistence fishers harvested an estimated 4,093 salmon, 85% of which were pink salmon, 9% coho salmon, 3% chum salmon, 3% Chinook salmon, and less than 1% sockeye salmon. The commercial harvest was greatly decreased in 2020, representing the lowest commercial harvest since 2007 (Menard et al. 2022b).

For Subdistrict 3, the total harvest in 2020 (4,093 salmon) was about one-quarter less than the 5-year average of 6,476 salmon and below the 2019 estimated harvest of 4,613 salmon (Menard et al. 2022b:89–90). The harvest of coho salmon was 57% lower in 2020 than 2019. Harvest of 125 Chinook salmon was greater than

2019 (105), exceeding both the five and ten-year averages. As mentioned previously, the Chinook salmon passage exceeded the 250 Chinook salmon escapement goal at the Kwiniuk River weir at 417 fish (Menard et al. 2022b). Pink salmon harvest for 2020 increased from 2019 (2,065 to 3,462 salmon) but was 13% lower than the 5-year average and 33% below the 10-year average.

Subdistrict 4 Harvest

Because COVID-19 restrictions prevented postseason surveys from occurring in some communities, subsistence harvest data from Koyuk in Subdistrict 4 is not available for 2020. ADF&G used the 5-year average subsistence salmon harvest in place of household subsistence salmon surveys to estimate subsistence salmon harvest. An estimated 194 Chinook, 162 sockeye, 1,155 coho, 2,560 pink, and 3,465 chum salmon were reported as subsistence harvest in Subdistrict 4 in 2020 (Menard et al. 2022b).

Division of Subsistence data show Koyuk households returned 4 permits for harvests in other subdistricts, indicating 25 sockeye salmon and 3 coho salmon were harvested in 2020, which cannot be extrapolated to accurately estimate the entire community's subsistence salmon harvest (Table 3-4).

The total small-scale commercial fishing harvest yielded the lowest harvests since commercial fishing resumed in 2008 (681 salmon). Total 2022 commercial catch by species for Subdistrict 4 included 11 Chinook, 17 sockeye, 251 coho, 24 pink, and 378 chum salmon caught by 7 permit holders. High water early and late in the season likely inhibited some harvest in addition to escapement counts (Menard et al. 2022b).

Subdistricts 5 and 6 Harvests

As mentioned previously, in 2004, BOF designated Chinook salmon as stocks of yield concern in subdistricts 5 and 6 and adopted a conservative management plan that restricts commercial fishing until Chinook salmon are observed in increasing numbers in subsistence fishing nets (5 AAC 04.395). Because the 2020 Chinook salmon run was above average, there were no additional restrictions on subsistence fishing. In previous years, subsistence fishing restrictions had remained in place until mid-July. Salmon runs to Subdistricts 5 and 6 are usually the largest in Norton Sound; however, in 2020 the salmon runs were very poor except for the Chinook salmon run which was above average and the pink salmon run which was well above average.

In 2020, Household subsistence surveys did not take place in Shaktoolik because of COVID-19 restrictions, and 5-year average data for 2020 Shaktoolik subsistence salmon harvest estimates were used instead: 225 Chinook, 141 sockeye, 2,319 coho, 3,838 pink, and 531 chum salmon (Menard et al. 2022b:93–94). In Subdistrict 6, the 1,778 Chinook salmon for subsistence was well above the 5-year average of 948 and above the 10-year average of 832, making it the highest harvest of Chinook salmon in the Subdistrict since 2009 (Menard et al. 2022b).

In the interest of Chinook conservation, there was one 24-hour commercial fishing period in June targeting chum salmon in Shaktoolik and Unalakleet. Additional commercial fishing time did not begin until early July because of initially poor commercial chum catches (Menard et al. 2022b). Subdistricts 5 and 6 experienced low commercial catches not witnessed since the early 2000s.

Total catches for commercial fisheries in Subdistrict 5 (7,404 fish) was at least ten times less than the 5- and 10-year averages and even less than 2019 (99,536 fish). Subdistrict 6 commercial catches were similar (8,919 fish), less than 5% of the 5-year average (196,613 fish) and 6% lower than the 10-year average (150,051 fish);(Menard et al. 2022b).

In Subdistrict 6 (Unalakleet), subsistence fishers caught an estimated 17,537 salmon, 57% (9,959) of which were pink salmon. Coho salmon (4,511) made up 26% of the annual harvest, followed by chum salmon (739; 4.2%), and Chinook salmon (1,917; 8%). Just over 3% of the total harvest was sockeye salmon (411; Table 3-3).

Table 3-4 presents harvests at the community level. Because residents of Shaktoolik and Unalakleet sometimes fish outside of their subdistrict, the community harvests are occasionally slightly different than the total harvest for the individual subdistricts. In 2020, the Subdistrict 6 subsistence harvest in Unalakleet

was an estimated 16,262 salmon, composed of 1,778 Chinook, 381 sockeye, 4,183 coho, 9,235 pink, and 685 chum salmon ((Menard et al. 2022b).

Norton Sound Harvest Overall

In 2020 the total Norton Sound salmon subsistence harvests of all species except Chinook salmon were lower in 2020 than 2019. Fishers caught fewer pink, chum, sockeye, and coho salmon, but more Chinook salmon (Table 3-2). Overall, the estimated 2020 subsistence salmon harvest was the lowest total harvest on record since data collection began in 1994 (Table 3-2). Between 1994 and 2020, even-year harvests of all salmon ranged from a low of 42,770 in 2020, to a high of 134,050 in 1996, with a 1994–2018 average of 88,754 salmon. Odd-year harvests from 1995–2019 averaged 68,249 salmon.

Fishers harvested 67% less chum salmon, 36% less coho salmon, 27% less pink salmon, and 18% less sockeye salmon in 2020 than in 2019, but 20% more Chinook salmon (Table 3-2). Of the estimated total 2020 subsistence salmon harvest in Norton Sound, 45% were pink salmon, 20% were coho salmon, 5% were chum salmon, 5% were Chinook salmon, and 2% were sockeye salmon (Figure 3-1). Total harvest estimates for the Norton Sound District for 1994–2020 are presented in Table 3-2. Methods changed in 2004 when permits replaced surveys in Norton Sound Subdistrict 2 (Golovin and White Mountain) and Norton Sound Subdistrict 3 (Moses Point and Elim). Very little of the documented 2020 subsistence salmon harvest was taken by residents from outside the district, although there were over three times as many permits issued in 2020 as in 2019 and almost twice the subsistence salmon harvest of 2019 in 2020. Residents of Anchorage, Barrow, Douglas, Fairbanks, Homer, Nenana, Palmer, Petersburg, Platinum, Tok, and Wasilla held 125 permits and harvested 772 salmon (Table 3-4). Many of these fishers have connections to the area and participate in local community subsistence economies by fishing with their families; others use rod and reel gear under sport regulations.⁶

Port Clarence District Subsistence Salmon Harvest

Two small communities in the Port Clarence District, Teller and Brevig Mission, have traditional salmon fisheries along the coast and in the rivers; additionally, many Nome residents travel from the Norton Sound District to participate in the largest sockeye salmon fishery on the Seward Peninsula in the upper Pilgrim River. The ADF&G operated weir project on Pilgrim River was pulled on August 13th, 2020, the earliest date on record because of lack of staff. The 2020 chum count was the second lowest in project history (5,580) while the 2020 pink escapement was second only to the 2019 record count of 387,799 pink salmon (Menard et al. 2022b).

The 2020 Port Clarence District total subsistence salmon harvest of 16,691 fish was well below the 5-year average (23,317 fish), an average which was taken from harvests that were the highest on record in the area. The district harvest was also lower than the 10-year average. However, 2020 was the ninth largest subsistence harvest on record and larger than the historical average (tables 3-2 and 3-3). Of the total salmon harvest, 47% was sockeye salmon, 36% was pink salmon, 14% was chum salmon, 3% was coho salmon less than 1% was Chinook salmon. (Table 3-2). The total 2020 subsistence harvest was 23% less than 2019, including 37% less sockeye salmon and 33% less Chinook salmon, but 7% more pink salmon.

ARCTIC-KOTZEBUE AREA SALMON

Introduction

In 2013, management districts in Northern and Northwest Alaska were reorganized such that the North Slope, formerly called the “Northern District” and combined with the Yukon River drainage was renamed the “Arctic District” and combined with the Kotzebue District to compose the Arctic-Kotzebue Area. The former Kotzebue Area became the Kotzebue District. Previous annual reports have not addressed subsistence fisheries information from the Arctic District, as there have been no annual harvest monitoring programs conducted by ADF&G. Ongoing Division of Subsistence research will continue to expand

6. Anna Godduhn, ADF&G Subsistence Resource Specialist, personal communication from Jim Menard, ADF&G Fisheries Biologist, April 6, 2020.

available information on subsistence fisheries of residents of North Slope Borough communities. Some research results from the North Slope Borough Department of Wildlife Management are also summarized below to better document the extent of subsistence fisheries on the North Slope.

In addition to salmon, major subsistence fisheries take place in the Arctic-Kotzebue Management Area for sheefish, other whitefishes, and Dolly Varden (known locally as “trout”). Where salmon are less abundant, these nonsalmon fish are more prevalent in local diets. Regarding nonsalmon fish harvests, ADF&G has conducted far more extensive research in the Kotzebue District compared with Arctic District and has a substantial data set for 2014 (discussed in Fall et al. 2017:37–38).

Background

Kotzebue District

Kotzebue Sound residents have relied on fish as a key nutritional and cultural resource for thousands of years. Most residents in the region continue to participate in a mixed subsistence-cash economy, harvesting a wide variety of wild foods. The Kotzebue District includes the subsistence fishing areas used by Point Hope, Kivalina, Noatak, Kotzebue, Kiana, Noorvik, Selawik, Ambler, Shungnak, Kobuk, Buckland, Deering, Shishmaref, and Wales. The role of salmon in the wild food diet varies from community to community and is driven primarily by salmon abundance. Communities that harvest few salmon typically harvest large numbers of nonsalmon fish, such as sheefish *Stenodus leucichthys*, other whitefishes *Prosopium* and *Coregonus* spp., and Dolly Varden *Salvelinius malma*. Along the Noatak and Kobuk rivers, where runs of chum salmon are strong, many households’ activities in mid- and late summer revolve around the harvesting, drying, and storing of salmon for use during the winter. Chum salmon predominate in the district, composing approximately 90% of the subsistence salmon harvest. Small numbers of other salmon species are present in the district. ADF&G Division of Subsistence recently completed a subsistence fisheries research project in the Kotzebue Sound region (Braem et al. 2018) which includes subsistence fish harvest estimates for 2012–2014 that have been discussed in previous annual reports and are summarized below.

Arctic District

For generations, many North Slope families have included fish as key nutritional and cultural resources, even though harvesting fish for subsistence is not the focus of all households. The only systematic subsistence fisheries harvest monitoring program has been conducted by the North Slope Borough’s (NSB) Department of Wildlife Management (Bacon et al. rev2011). The most recent report by NSB described subsistence fish harvests in the region from 1994–2003; this includes harvest amounts, harvest timing, locations, gear and other qualitative information (Bacon et al. rev2011). Most residents in the region continue to participate in a mixed subsistence-cash economy, harvesting a wide variety of wild foods. The Arctic District includes the subsistence fishing areas used by Anaktuvuk Pass, Atqasuk, Utqiagvik, Kaktovik, Nuiqsut, Point Hope,⁷ Point Lay, and Wainwright. The role of salmon and nonsalmon in the wild food diet varies from community to community and is affected primarily by resource availability. Chum and pink salmon are present in the greatest abundance, although sockeye, coho, and Chinook salmon are occasionally caught. Residents often refer to ocean bright salmon as “silvers” leading to the misidentification of chum harvests as coho salmon in some cases. Nonsalmon species important to subsistence include Arctic grayling, Dolly Varden, lake trout, burbot, rainbow smelt, various whitefishes, Arctic cod, and saffron cod. ADF&G Division of Subsistence conducted a subsistence fisheries research project along the western coast of the North Slope focusing on subsistence fishing harvest and use patterns by residents of Point Lay and Wainwright from 2012–2014 (Mikow et al. 2016). The findings were discussed in previous annual reports and are summarized below.

7. Point Hope lies within the Kotzebue District but is near the boundary of the Arctic and Kotzebue districts, and harvests fish in both districts. Available harvest data cannot be separated by district fished. Therefore, all harvest estimates for Point Hope in this report are included in the Kotzebue District.

Regulations

In the Arctic-Kotzebue Area, subsistence salmon fishing has few restrictions, other than the general statewide provisions (e.g., 5 AAC 01.010) and specifications regarding lawful subsistence gear and gear specifications (5 AAC 01.120). Conditions include restrictions on fishing within 300ft of artificial fishing obstructions—including a dam, fish ladder, weir, or culvert. No harvest or seasonal limits are in place in the Arctic-Kotzebue Area for subsistence, though commercial fishers may not fish for subsistence purposes during commercial fishing closures in the Kotzebue District (5AAC 01.110). Restrictions do apply to subsistence gear and as such, salmon may only be harvested by gillnets or beach seines. In the Kotzebue District, salmon may also be caught using hook and line attached to a rod or pole, but only in the state waters and all flowing waters that drain into the Chukchi Sea or Kotzebue Sound from Cape Espenberg to Cape Prince of Wales (5 AAC 01.120(f)).

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

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

Subsistence Salmon (and Nonsalmon) Harvest Data Collection Methods

From 1994 through 2004, with funding from the Division of Commercial Fisheries, the Division of Subsistence conducted annual household surveys in selected Kotzebue District communities to collect subsistence salmon harvest data (Fall et al. 2007:23–38). Because funding for that effort has not been available, no annual surveys have been conducted since 2004; therefore, subsistence salmon harvest estimates since then are available for only for communities participating in single-year subsistence harvest assessments that also collect data about nonsalmon fish harvests.⁸ Harvest data from these projects are presented in tables 3-5–3-6, and are discussed in the 2014 annual report (Fall et al. 2017:37–38). Kotzebue District data for 2014 were more complete than for any year since 2004, missing only three communities: Deering, Shishmaref, and Wales. Table 3-7 shows, by year for 1994–2018, which communities were included in the annual harvest assessment program, and since 2004, in which communities comprehensive or fisheries-specific harvest surveys were conducted.

Very little fisheries information has been collected by ADF&G in the Arctic District. In Point Lay, a comprehensive survey of 2012 (Braem et al. 2017) was followed by fish harvest surveys for 2013 and 2014 (Mikow et al. 2016). In Wainwright, fish harvest data were collected for 2012, 2013, and 2014 (Mikow et al. 2016). Additionally, comprehensive harvest surveys for 2014 were conducted in the Arctic District communities of Anaktuvuk Pass, Barrow, and Nuiqsut (Brown et al. 2016). Results from these projects were discussed in the 2014 annual report (Fall et al. 2017:38–39).⁹

8. Subsistence research projects since 2007 have included: Fall et al. (2007:33), Magdanz et al. (2011:49–50), Magdanz et al. (2010), Braem et al. (2013), Braem et al. (2015), Braem et al. (2017), Braem et al. (2018).

9. Note that results from surveys in Point Hope were included in the Arctic District summary in the 2014 annual report. In this current report, Point Hope is included in the Kotzebue District, and data summaries for previous years have been modified to reflect this change.

Arctic-Kotzebue Area Subsistence Salmon Harvest Estimates

Kotzebue District

As noted above, the Division of Subsistence conducted annual salmon harvest surveys in selected Kotzebue District communities from 1994 through 2004. The average yearly subsistence harvest for the regularly surveyed communities between 1994 and 2004 was 72,796 salmon, the majority of which were chum salmon (Table 3-2). This average was low because of incomplete datasets for several years during that period; no year included all Kotzebue District communities. Harvest estimates for 1994, 2002, 2003, and 2004 summarized in earlier annual reports did not include the regional center of Kotzebue, by far the largest community in the district.

Little subsistence salmon harvest data were collected for Kotzebue District communities in 2005 through 2011, creating a large gap in statewide subsistence salmon harvest estimates. Systematic collection of salmon harvest data in 2012–2014 in most Kotzebue District communities that had been part of the former annual program resulted in more complete district harvest estimates for those years and have enabled the division to design a method to interpolate harvest estimates for a core set of district communities to fill in critical gaps and produce better estimates of district subsistence salmon harvests for all years back to 1994. Table 3-2 relies on those estimate methods to fill in data gaps for the Kotzebue District.

The following protocols were followed to develop interpolated harvest estimates:

1. At least three years of data must be available upon which to interpolate an estimate for a missing year for a community;
2. Data gaps are only filled in for years after the third year of data becomes available. An exception is that an interpolated estimate for Kotzebue for 1994 was developed based on harvest data for 1995–1997;
3. The nearest three available estimates are used for each gap year;
4. In the event that two years are tied for being closest to a gap year, the most recent estimate is used;
5. Interpolated values using data available for this report have remained unchanged from the 2015 report and will remain the same in future reports even if new data become available. Only future data gaps will be addressed, using the above protocol;
6. Based on data availability, a “core” set of seven communities is part of every annual estimate. These are Ambler, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, and Shungnak. Buckland and Selawik were added to the core set of communities post-2013, when a third year of data became available;
7. Shishmaref is an exception; it has been excluded from the core communities even though three harvest estimates are available, because of the large variability in those three estimates and the very wide time gaps between them;
8. For 2015, Point Hope is also an exception. This North Slope Borough community, while within the Kotzebue District, is close to the boundary with the Arctic District and harvests salmon in both districts. Point Hope residents harvest a relatively large number of salmon compared to other North Slope Borough communities. As discussed below, no new harvest data for Arctic District communities were collected for 2015, and 2014 harvest estimates based on household surveys were used to represent 2015 harvests. The 2014 harvest estimate for Point Hope was therefore also used for 2015 and added to the interpolated values for the nine core communities within the Kotzebue District, as a step towards a more complete estimate for the entire management area;
9. If a salmon harvest estimate was, or becomes, available for a non-core community, it is included in the district total for that study year.

Table 3-7 shows, for each district community and each study year whether a salmon harvest estimate is available through fisheries specific or comprehensive harvest surveys or interpolated using the rules described above, and those for which a harvest estimate cannot be developed. The table provides an overview of which district communities are represented in each annual estimate for the district, and the source of the data.

These protocols were applied to produce a Kotzebue District subsistence salmon harvest estimate for 2015, which was also used for 2016–2020 (Table 3-8). Because no salmon harvest surveys were conducted for any district community for 2015–2020, all the values in Table 3-8 for ten core communities are interpolated, of which the 2014 harvest estimate for Point Hope was used to represent the 2020 harvests. The harvest estimate for the district was 61,636 salmon, including 51,861 chum (84%), 5,527 coho (9%), 2,975 pink (5%), 713 Sockeye (1%), and 560 Chinook (less than 1%) (Figure 3-3). Historical harvest estimates for the Kotzebue District, 2006–2018 in Table 3-5 have been revised to include interpolated estimates, and therefore differ from estimates appearing in earlier annual reports. These revised annual estimates have also been used to revise the statewide estimates that are discussed in Chapter 2.

Since 2015, no subsistence salmon surveys have been conducted in Kotzebue Sound District. In 2020, fishers reported difficulty harvesting salmon because of high water conditions and that fishing for chum salmon on the Kobuk River was poor in July but improved in August. Subsistence harvesters on the Noatak River reported good fishing (Menard et al. 2022b: 53).

Arctic District

The Division of Subsistence conducted multiple harvest surveys in Arctic District communities (North Slope Borough) in 2012–2014, such that data reported in tables 3-9 and 3-10 are drawn from three separate projects identified above. Data for 2014 documented the fisheries in six of the eight communities in the Arctic District (including Point Hope, results for which are included in the Kotzebue District totals) (tables 3-9 and 3-10). These findings, for salmon and nonsalmon fish were discussed in the 2014 annual report (Fall et al. 2017:38–39). Also, Table 3-11 summarizes all salmon harvest estimates for North Slope Borough communities (Arctic District and Point Hope), including those before 2012. Note that these earlier (pre-2012) estimates are not included in statewide totals or used to develop district estimates because community coverage is very incomplete.

Information from recent harvest surveys and associated ethnographic interviews conducted in Arctic District communities suggest salmon abundance and ranges are shifting (Mikow et al. 2016). Changes in the Arctic climate have the potential to extend the range of Pacific salmon species, and fishers in some Arctic communities have reported increased salmon abundance in their local waters. Additionally, some fishers in Wainwright specifically noted that they were catching historically rare species (specifically Chinook salmon) in greater numbers, and their households had more recently invested in nets with larger mesh to target salmon.

Fish harvest estimates for Point Lay are highly variable for the three most recent years (2012, 2013, 2014) for which information was collected. In 2014, residents of five Arctic District communities harvested about 8,332 (Table 3-2) salmon and 179,085 nonsalmon fish (Table 3-12). The composition of harvests varied dramatically between communities, both in the ratio of nonsalmon to salmon and within the categories of salmon and nonsalmon fishes.

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

Based on survey results for 2012–2014, subsistence salmon harvests in the Arctic District vary by community and vary within the salmon category, with a general east to west trend of increasing diversity in the composition of the harvests. Chum salmon were the majority of fish reported in Nuiqsut (72%) and Barrow (66%), augmented primarily by pink salmon (27% and 23% respectively). The salmon supply

in Barrow is augmented by catches from farther south, such as the Kenai Peninsula (Brown et al. 2016), probably more heavily than in the other communities because of statewide travel by many residents. In Wainwright, 41% of the salmon were reported as coho salmon, followed by 19% pink, 18% chum salmon, and 17% sockeye salmon. In Point Lay, 60% of salmon were reported as pink salmon, followed by 18% sockeye, and just 13% chum (Table 3-11).

No salmon harvest survey data are available for Arctic District communities for 2015–2020. To fill this gap, harvest estimates for four communities (Barrow, Nuiqsut, Point Lay, and Wainwright) for 2014 were used as estimates for 2015–2020. The total estimated harvest is 8,332 salmon, with most identified as chum (4,247 salmon; 51%), pink (2,594 salmon; 31%), and 846 coho (10%) (Table 3-12, Figure 3-4).

As described by Mikow et al. (2016), fisheries in Alaska’s Arctic are overshadowed by the volume of marine mammal and large land mammal harvests and the intensity of hunting for those resources, but salmon are an increasingly important feature of the seasonal round. Even without consideration of the actual edible pounds provided, 8,332 salmon clearly represent a substantial amount of food. Additional research is needed to monitor and document changes to salmon abundance and availability near these communities, as well as the efforts made to catch them.

Northwest Alaska Subsistence Salmon Harvests

Table 3-13 combines harvest estimates for the Norton Sound-Port Clarence Area and the Arctic-Kotzebue Area to provide estimates to compare with previous annual reports, where a “Northwest Alaska” harvest summary was prepared. Harvest estimates in this table for 1994–2014 were revised to include the interpolated values developed for the Kotzebue District. The Northwest Alaska subsistence salmon harvest in 2020 (129,429 salmon) was composed primarily of chum salmon (60,333 fish; 47%) and pink salmon (41,088 fish; 32%). The total salmon harvest for the combined areas in 2020 was less than all historical averages since 1994 (162,474), the 5-year average (157,307 fish) and the 10-year average (151,262 fish) (Table 3-13).

Table 3-1.–Subsistence salmon harvests by district, Norton Sound-Port Clarence, and Arctic-Kotzebue areas, 2020.

District	Households surveyed or permits returned	Estimated salmon harvest ^a				
		Chinook	Sockeye	Coho	Chum	Pink
Norton Sound District ^b	1,117	905	8,413	1,928	29,390	42,770
Port Clarence District ^c	793	7,745	560	2,297	6,049	16,691
Kotzebue District ^d	840	713	5,527	51,861	2,975	61,636
Arctic District ^e	432	519	846	4,247	2,594	8,332
Total	3,182	9,882	15,346	60,333	41,008	129,429

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

- a. Harvests reported during household surveys are expanded into estimates to account for uncontacted households. Harvests reported on permits are not expanded.
- b. Household surveys conducted in Unalakleet. Permits issued for Cape Woolley, Nome Subdistrict (Tier I), Golovin Subdistrict, and Elim Subdistrict.
- c. Permits issued for Port Clarence District, Pilgrim River, and Salmon Lake.
- d. No new harvest data were collected for 2020. Harvest estimates are imputed based on the most recent three years of data for nine core communities in the district, plus 2014 values for Point Hope. See Table 3-7.
- e. No new harvest data were collected. Estimates for 2014 used to represent 2020 harvests.

Table 3-2.—Historic subsistence salmon harvests by district, Norton Sound-Port Clarence, and Arctic-Kotzebue Areas, 1994–2020.

Year	Norton Sound District						Total
	Number of households	Chinook	Sockeye	Coho	Chum	Pink	
1994	839	7,212	1,161	22,108	24,776	70,821	126,077
1995	851	7,766	1,222	23,015	43,014	38,594	113,612
1996	858	7,255	1,182	26,304	34,585	64,724	134,050
1997 ^a	1,113	8,998	1,892	16,476	26,803	27,200	81,370
1998 ^a	1,184	8,295	1,214	19,007	20,032	51,933	100,480
1999	898	6,144	1,177	14,342	19,398	20,017	61,078
2000	860	4,149	682	17,062	17,283	38,308	77,485
2001	878	5,576	767	14,550	20,213	30,261	71,367
2002	935	5,469	763	15,086	17,817	64,354	103,490
2003	940	5,290	801	14,105	13,913	49,674	83,782
2004	1,003	3,169	363	8,225	3,200	61,813	76,770
2005	1,061	4,087	774	13,896	12,008	53,236	84,000
2006	1,066	3,298	901	19,476	10,306	48,764	82,745
2007	1,041	3,744	923	13,564	18,170	21,714	58,116
2008	1,151	3,087	399	18,889	11,505	56,096	89,976
2009	1,200	5,131	388	15,852	10,599	26,110	58,080
2010	1,030	2,074	554	11,517	14,295	38,710	67,149
2011	925	1,645	562	10,155	12,946	18,576	43,883
2012	1,245	1,290	437	11,500	16,247	47,050	76,524
2013	1,062	859	571	13,343	15,491	18,007	48,271
2014	1,239	1,713	766	18,257	23,802	39,673	84,210
2015	1,329	2,524	1,855	15,628	21,538	24,167	65,712
2016	1,435	2,649	1,423	16,514	18,144	42,051	80,781
2017	1,124	1,076	1,354	21,083	14,230	31,977	69,720
2018	1,226	1,162	850	15,868	6,571	29,615	54,066
2019	1,077	1,710	1,104	13,234	5,813	26,389	48,251
2020	1,117	2,134	905	8,413	1,928	19,390	42,770
5-year average (2014–2019)	1,238	1,824	1,317	16,465	13,259	30,840	63,706
10-year average (2010–2019)	1,169	1,670	948	14,710	14,908	31,622	63,857
Historical average (1994–2019)	1,060	4,053	926	16,117	17,412	39,994	78,502

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Table 3-2.–Page 2 of 4.

Year	Port Clarence District						Total
	Number of households	Chinook	Sockeye	Coho	Chum	Pink	
1994	151	203	2,220	1,892	2,294	4,309	10,918
1995	151	76	4,481	1,739	6,011	3,293	15,600
1996	132	194	2,634	1,258	4,707	2,236	11,029
1997	163	158	3,177	829	2,099	755	7,019
1998	157	289	1,696	1,759	2,621	7,815	14,179
1999	177	89	2,392	1,030	1,936	786	6,233
2000	163	72	2,851	935	1,275	1,387	6,521
2001	160	84	3,692	1,299	1,910	1,183	8,167
2002	176	133	3,732	2,194	2,699	3,394	12,152
2003	242	176	4,436	1,434	2,425	4,108	12,578
2004	371	278	8,688	1,131	2,505	5,918	18,520
2005	329	152	8,532	726	2,478	6,593	18,481
2006	345	133	9,862	1,057	3,967	4,925	19,944
2007	362	85	9,484	705	4,454	1,468	16,196
2008	399	125	5,144	562	2,499	7,627	15,957
2009	328	40	1,643	799	3,060	1,887	7,429
2010	295	57	824	596	5,232	5,202	11,911
2011	271	56	1,611	393	4,338	2,610	9,008
2012	335	44	1,422	703	7,802	5,201	15,172
2013	431	38	5,243	651	6,588	1,788	14,308
2014	429	21	3,969	564	5,085	4,940	14,579
2015	549	64	13,872	550	4,231	2,982	21,699
2016	659	40	12,140	627	4,303	4,322	21,432
2017	664	39	15,424	697	6,886	5,365	28,411
2018	683	55	12,381	764	5,625	4,556	23,381
2019	668	60	12,309	733	2,906	5,654	21,662
2020	793	40	7,745	560	2,297	6,049	16,691
5-year average (2014–2019)	645	52	13,225	674	4,790	4,576	23,317
10-year average (2010–2019)	498	47	7,920	628	5,300	4,262	18,156
Historical average (1994–2019)	338	106	5,918	986	3,844	3,858	14,711

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Table 3-2.–Page 3 of 4.

Year	Kotzebue District ^{b,c}						Total
	Number of households	Chinook	Sockeye	Coho	Chum	Pink	
1994 ^d	377	137	461	963	50,075	3,386	55,022
1995	537	149	489	1,820	95,901	564	98,924
1996	596	550	471	317	99,137	951	101,426
1997	529	468	531	848	57,149	1,190	60,186
1998	592	378	392	461	48,974	2,116	52,321
1999	353	9	478	1,334	94,260	841	96,922
2000	423	210	74	2,546	62,582	75	65,486
2001 ^e	447	26	15	776	49,481	59	50,356
2002 ^f	555	94	16	304	51,092	123	51,628
2003 ^{gh}	650	467	223	1,790	27,444	964	30,888
2004 ^g	548	124	21	1,647	31,770	1,123	34,686
2005 ⁱ	520	729	739	1,327	38,082	721	41,598
2006 ^j	664	951	2,469	4,203	39,906	3,334	50,863
2007 ^j	583	872	1,131	1,286	36,359	832	40,480
2008 ⁱ	527	929	1,271	1,671	43,605	948	48,425
2009 ⁱ	530	766	1,237	1,928	45,264	983	50,177
2010 ⁱ	528	752	1,148	1,783	44,678	964	49,325
2011 ^j	594	761	1,303	2,151	46,160	951	51,326
2012 ^k	507	31	668	1,274	37,915	757	40,645
2013 ^l	822	301	560	4,042	58,075	1,773	64,751
2014 ^m	1,061	814	3,070	6,288	64,580	5,111	79,864
2015 ⁿ	737	364	748	3,068	48,911	1,454	54,545
2016 ⁿ	737	364	748	3,068	48,911	1,454	54,545
2017 ⁿ	737	364	748	3,068	48,911	1,454	54,545
2018 ⁿ	829	633	552	6,912	56,209	3,079	67,385
2019 ⁿ	840	560	713	5,527	51,861	2,975	61,636
2020 ⁿ	840	560	713	5,527	51,861	2,975	61,636
5-year average (2014–2019)	776	457	702	4,329	50,960	2,083	58,531
10-year average (2010–2019)	739	494	1,026	3,718	50,621	1,997	57,857
Historical average (1994–2019)	609	454	780	2,323	52,973	1,469	57,998

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Table 3-2.–Page 4 of 4.

Year	Arctic District ^o						
	Number of households	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	120	34	79	477	710	1,256	2,556
2013	122	62	151	147	337	238	935
2014	485	126	519	846	4,247	2,594	8,332
2015	432	126	519	846	4,247	2,594	8,332
2016	432	126	519	846	4,247	2,594	8,332
2017	432	126	519	846	4,247	2,594	8,332
2018	432	126	519	846	4,247	2,594	8,332
2019	432	126	519	846	4,247	2,594	8,332
2020	432	126	519	846	4,247	2,594	8,332
Historical average (2012–2019)	361	106	418	712	3,316	2,132	6,685

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

a. Includes Gambell and Savoonga.

b. Formerly Kotzebue Area

c. For 1994–2001, normally included Ambler, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, and Shungnak. See Table 3-7 for details.

d. Also includes Deering, Wales, Shishmaref, and Point Hope; includes imputed values for Kotzebue.

e. Includes imputed estimates for Ambler.

f. Includes Kotzebue, Noatak, Noorvik, and imputed values for Kobuk, Kiana, Ambler, and Shungnak.

g. Kotzebue values for species other than chum are imputed.

h. Also includes Buckland.

i. Core communities for Kotzebue Sound have been imputed based on data collected in other years, see Table 3-7.

j. Harvest survey data exist in 2006, 2007 and 2011 for Kiana (2006), Shishmaref (2006), Wales (2006), Kivalina (2007), Noatak (2007), and Selawik (2011). These are available online through the Community Subsistence Information System (CSIS) at <http://www.adfg.alaska.gov/sb/CSIS/>, other core values have been imputed, see Table 3-7

k. Includes Ambler, Kiana, Kobuk, Noatak, Noorvik, Shungnak, and imputed values for Kotzebue.

l. Includes Ambler, Buckland, Deering, Diomedea, Kiana, Kobuk, Noatak, Noorvik, Selawik, and Shungnak, and imputed values for Kotzebue.

m. Includes Ambler, Buckland, Kiana, Kobuk, Kotzebue, Noatak, Noorvik, Point Hope, Selawik, Shishmaref, and Shungnak.

n. No harvest data collected. Imputed values for nine core communities and Point Hope; see Table 3-7.

o. Includes Point Lay and Wainwright for 2012 and 2013. Includes Anaktuvuk Pass, Barrow, Nuiqsut, Point Lay, and Wainwright for 2014. No new harvest data collected for 2015–2019; values for 2014 used to represent 2015–2020 harvests.

Table 3-3.–Subsistence salmon harvests by Norton Sound subdistricts, Norton Sound-Port Clarence Area, 2020.

Subdistrict ^b	Households surveyed or permits returned	Estimated salmon harvest ^a					Total
		Chinook	Sockeye	Coho	Chum	Pink	
Cape Woolley	65	0	0	0	0	6	6
Elim	56	125	17	365	124	3,462	4,093
Golovin	194	26	15	668	63	4,779	5,551
Nome	661	66	462	2,869	1,002	11,184	15,583
Unalakleet	141	1,917	411	4,511	739	9,959	17,537
Total	1,117	2,134	905	8,413	1,928	29,390	42,770

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Note Caution should be used when comparing data from other ADF&G divisions as different analytical methods may be used.

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

b. Koyuk, Shaktoolik, Saint Michael, Stebbins subdistricts were not surveyed in 2020.

Table 3-4.–Subsistence salmon harvests by community, Norton Sound-Port Clarence Area, 2020.

Community ^b	Households or permits		Estimated salmon harvest ^a					Total
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	
Anchorage	63	63	0	242	27	1	53	323
Barrow	1	1	0	0	0	0	0	0
Brevig Mission	35	35	18	993	355	1,179	3,484	6,029
Diomedes	6	6	0	0	0	0	0	0
Douglas	1	1	0	0	1	0	0	1
Eagle River	3	3	0	8	0	0	0	8
Elim	36	36	115	16	344	118	2,993	3,586
Fairbanks	25	25	0	82	5	0	0	87
Gambell	1	1	0	0	0	0	0	0
Golovin	28	28	1	12	138	22	1,230	1,403
Homer	1	1	0	0	13	0	0	13
Juneau	2	2	0	0	0	0	0	0
Kodiak	1	1	0	0	0	0	0	0
Kotzebue	1	1	0	0	0	0	0	0
Koyuk	4	4	0	25	3	0	0	28
Nenana	3	3	0	33	13	3	20	69
Nome	1,445	1,439	106	5,934	3,041	1,224	12,294	22,599
Palmer	7	7	0	66	0	1	99	166
Petersburg	2	2	0	24	1	0	0	25
Platinum	2	2	0	1	0	0	0	1
Port Lions	1	1	0	0	0	0	0	0
Savoonga	5	5	0	0	0	0	0	0
Shishmaref	2	2	0	0	0	0	0	0
Skagway	6	6	0	0	0	0	0	0
Stebbins	1	0	0	0	0	0	0	0
Sutton	1	1	0	0	0	0	0	0
Teller	39	39	8	676	154	901	2,016	3,755
Tok	2	2	0	24	0	0	0	24
Unalakleet	227	141	1,917	411	4,511	739	9,959	17,537
Wasilla	15	15	0	50	2	0	3	55
White Mountain	35	35	9	53	365	37	3,288	3,752
Willow	2	2	0	0	0	0	0	0
Total	2,003	1,910	2,174	8,650	8,973	4,225	35,439	59,461

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

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

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

Table 3-5.–Subsistence salmon harvests by Kotzebue District^a communities.

Year	Community	Households		Estimated salmon harvest					
		Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
2006	Kiana	95	77	43	270	510	4,604	89	5,516
	Shishmaref	133	75	155	1,056	2,091	938	1,765	6,005
	Wales	41	39	43	452	475	407	829	2,206
Total, 2006		269	191	241	1,778	3,076	5,949	2,684	13,727
2007	Kivalina	81	42	40	0	33	401	120	593
	Noatak	119	90	11	42	247	4,167	163	4,630
Total, 2007		200	132	51	42	280	4,568	283	5,224
2011	Selawik	169	61	0	167	7	879	0	1,053
Total, 2011		169	61	0	167	287	879	0	1,053
2012	Ambler	76	53	1	126	11	1,621	9	1,769
	Kiana	103	65	3	63	240	2,442	320	3,068
	Kobuk	36	30	4	0	14	2,637	4	2,659
	Noatak	126	83	2	94	612	7,814	80	8,601
	Noorvik	135	83	7	81	338	9,584	275	10,285
	Shungnak	69	46	0	90	15	2,595	9	2,709
Total, 2012		545	360	16	455	1,230	26,694	697	29,092
2013	Ambler	69	52	8	9	187	4,320	260	4,784
	Buckland	105	87	226	236	838	3,104	129	4,533
	Deering	44	32	1	34	327	1,309	849	2,521
	Diomedede	39	25	0	16	0	109	27	151
	Kiana	93	68	5	37	161	2,969	212	3,384
	Kobuk	31	24	3	1	0	2,043	9	2,056
	Noatak	125	94	5	0	1,233	5,655	32	6,925

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Year	Community	Households		Estimated salmon harvest					
		Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
	Noorvik	132	99	37	15	1,207	19,972	173	21,404
	Selawik	171	145	1	0	0	362	15	378
	Shungnak	65	49	0	0	0	7,257	0	7,257
Total, 2013		874	675	286	348	3,953	47,100	1706	53,394
2014	Ambler	74	55	5	40	369	4,182	336	4,933
	Buckland	98	90	250	318	1,144	4,188	957	6,857
	Kiana	98	73	3	3	75	2,849	31	2,960
	Kobuk	33	28	0	0	4	1,840	0	1,843
	Noatak	125	106	38	6	1,859	6,577	126	8,605
	Noorvik	124	96	32	133	619	16,668	920	18,371
	Point Hope	176	105	142	13	1,123	1,723	1,170	4,172
	Selawik	183	161	23	10	11	1,151	122	1,317
	Shishmaref	140	86	142	1,924	1,027	7,129	1,281	11,503
	Shungnak	62	43	0	0	29	5,101	72	5,202
	Kotzebue	826	214	46	625	324	21,144	367	22,507
Total, 2014		1,939	1,057	681	3,073	6,583	72,551	5,382	88,270
2018	Buckland	101	71	257	34	3,069	8,228	694	12,283
Total, 2018		101	71	257	34	3,069	8,228	694	12,283

Source ADF&G Division of Subsistence, household surveys, 2007, 2008, 2012, 2013, 2014, 2015, 2019.

a. Formerly Kotzebue Area.

Table 3-6.–Subsistence nonsalmon harvests by Kotzebue District^a communities.

Year	Community	Households		Estimated number of fish									
		Total	Surveyed	Dolly Varden	Arctic grayling	Burbot	Broad whitefish	Humpback whitefish	Unknown whitefishes	Northern pike	Saffron cod	Sheefish	Total
2006	Kiana ^b	95	77	413	113	909	ND	ND	0	1,043	4	1,298	3,780
	Shishmaref ^b	132	75	1,331	1,533	176	ND	ND	0	0	20,131	42	23,212
	Wales ^b	41	39	220	11	0	ND	ND	0	0	6	0	237
Total, 2006		268	191	1,963	1,656	1,085	0	0	0	1,043	20,141	1,340	27,229
2007	Kivalina ^b	81	42	20,527	786	15	ND	ND	0	0	25,824	0	47,152
	Noatak ^b	119	90	10,234	1,222	42	ND	ND	0	144	192	99	11,933
Total, 2007		200	132	30,761	2,008	58	0	0	0	144	26,015	99	59,086
2011	Selawik	169	61	19	815	1,081	47,394	12,647	0	15,956	0	6,190	84,102
Total, 2007		169	61	19	815	1,081	47,394	12,647	0	15,956	0	6,190	84,102
2012	Ambler	76	53	85	948	146	9,150	1,544	0	568	0	1,156	13,597
	Kiana	103	65	249	ND	464	3,596	2,307	0	278	ND	1,787	8,682
	Kobuk	36	30	40	256	23	286	157	0	96	0	1,062	1,919
	Noatak	126	83	6,437	352	ND	1,826	1,205	0	26	ND	100	9,946
	Noorvik	135	83	99	28	876	10,087	6,406	0	5,134	0	6,032	28,662
	Shungnak	69	46	99	399	50	888	660	0	38	0	1,556	3,689
Total, 2012		545	360	7,008	1,983	1,559	25,833	12,280	0	6,139	0	11,694	66,496
2013	Ambler	69	52	175	646	40	3,496	2,301	0	673	11	2,649	9,991
	Buckland	105	87	341	10	120	333	1,118	0	246	ND	1,013	3,180
	Deering	44	32	489	135	92	21	94	0	150	296	176	1,452
	Diomedea	39	25	0	0	0	0	0	0	0	0	0	0
	Kiana	93	68	54	ND	316	2,832	3,251	0	242	ND	1,787	8,482
	Kobuk	31	24	22	140	0	1,337	1,382	12,211	61	ND	865	16,018
	Noatak	125	94	6,223	ND	78	2,219	358	0	63	0	247	9,188

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Year	Community	Households		Estimated number of fish									
		Total	Surveyed	Dolly Varden	Arctic grayling	Burbot	Broad whitefish	Humpback whitefish	Unknown whitefishes	Northern pike	Saffron cod	Sheefish	Total
	Noorvik	132	99	207	ND	815	14,380	15,945	0	7,932	27	3,167	42,473
	Selawik	171	145	0	33	795	23,159	7,648	0	10,593	0	8,829	51,057
	Shungnak	65	49	44	110	42	578	8,400	0	127	ND	3,559	12,860
Total, 2013		874	675	7,555	1,074	2,298	48,355	40,496	12,211	20,087	334	22,292	154,701
2014	Ambler	74	55	67	908	417	9,492	3,352	0	358	ND	1,806	16,400
	Buckland	98	90	747	1	312	1,150	105	0	99	11,807	1,067	15,288
	Kiana	98	73	351	ND	320	4,113	4,570	0	419	0	1,073	10,846
	Kobuk	33	28	11	231	41	7	2,251	0	55	ND	781	3,377
	Noatak	125	106	9,289	84	21	879	1,165	0	44	47	206	11,735
	Noorvik	124	96	260	ND	306	11,728	11,660	568	5,975	0	2,964	33,462
	Point Hope	176	105	5,692	7,006	ND	240	39	ND	ND	ND	0	12,977
	Selawik	183	161	2	126	298	17,202	5,250	0	8,855	0	4,164	35,897
	Shishmaref	140	86	1,205	969	34	230	1,037	8	0	34,209	11	37,702
	Shungnak	62	43	216	1,116	19	7,776	1,067	0	29	ND	3,123	13,346
	Kotzebue	826	214	2,116	182	50	201	367	0	436	17,118	17,322	37,792
Total, 2014		1,939	1,057	19,955	10,623	1,819	53,017	30,862	576	16,270	63,181	32,517	228,821
2018	Buckland	101	71	604	48	424	477	405	44	842	19,017	2,444	24,306
Total, 2018		101	71	604	48	424	477	405	44	842	19017	2444	24306

Source ADF&G Division of Subsistence, household surveys, 2007, 2008, 2012, 2013, 2014, 2015, 2019.

a. Formerly Kotzebue Area.

b. Harvest information is available for whitefishes as a species category only. Kiana harvested 10,834 whitefishes, Shishmaref harvested 4,616, and Wales harvested 262 in 2006. Kivalina harvested 338 whitefishes and Noatak harvested 6,778 in 2007.

ND = no data

Table 3-7.—Communities of the Kotzebue District for which salmon harvest estimates are available through postseason harvest surveys, 1994–2015.

	Ambler ^a	Buckland ^b	Deering	Diomedede	Kiana ^a	Kivalina	Kobuk ^a	Kotzebue ^a	Noatak ^a	Noorvik ^a	Pt. Hope	Selawik ^b	Shishmaref	Shungnak ^a	Wales
1994	X		X		X		X		X	X	XX		X	X	X
1995	X				X		X	X	X	X				X	
1996	X				X		X	X	X	X				X	
1997	X				X		X	X	X	X				X	
1998	X				X		X	X	X	X				X	
1999	X				X		X	X	X	X				X	
2000	X				X		X	X	X	X				X	
2001					X		X	X	X	X				X	
2002								XX	X	X					
2003	X	XX			X		X	XX	X	X				X	
2004	X				X		X	XX	X	X				X	
2005															
2006					XX								XX		XX
2007						XX			XX						
2008															
2009															
2010															
2011												XX			
2012	X				X		X		X	X				X	
2013	X	X	XX	XX	X		X		X	X		X		X	
2014	X	X			X		X	X	X	X	X	X	XX	X	
2015															
2016															
2017															
2018		X													

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X = harvest data are the product of annual salmon harvest monitoring programs (1994–2004) or salmon-specific harvest surveys (2012+2018).

XX = harvest data are product of comprehensive household harvest survey project.

Harvest estimates interpolated based on available survey data and used to estimate district harvests.

Harvest estimates cannot be interpolated based on available data; no community estimate included in district total.

Estimated harvest for 2014 used to represent Point Hope harvest in 2015.

a. Communities included in all Kotzebue District salmon estimates (“core communities”), 1994–present.

b. Communities included in all Kotzebue District salmon estimates post-2012.

Sources For communities not part of annual subsistence salmon harvest surveys: Whiting (2007) for Kotzebue 2002–2004; Bacon et al. (2009) for Point Hope 1994; CSIS for all others.

Table 3-8.—Imputed subsistence salmon harvests for Kotzebue Districta communities, 2020.

Community	Households		Estimated salmon harvest ^b					
	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
Ambler	73	53	5	59	189	3,242	200	3,694
Buckland	101	83	183	196	1,684	3,880	591	6,534
Kiana	98	69	4	34	159	2,753	188	3,137
Kobuk	33	27	2	0	6	2,174	4	2,186
Kotzebue	589	148	15	213	44	11,385	66	11,722
Noatak	125	94	15	33	1,057	6,477	80	7,662
Noorvik	130	93	23	75	674	14,267	387	15,425
Point Hope ^c	176	105	313	13	1,694	2,141	1,427	5,588
Selawik	174	122	0	59	6	559	5	631
Shungnak	66	46	0	30	15	4,985	27	5,056
Total	1,567	840	560	713	5,527	51,861	2,975	61,636

Source Estimates based on ADF&G Division of Subsistence, household surveys, 2007, 2008, 2012, 2013, 2014, 2015, 2019.

a. Formerly Kotzebue Area.

b. No new data collection occurred for 2020, estimates provided are based on 2015 estimates.

c. For Point Hope, value for 2014 used to represent 2020.

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

Year	Community	Households		Estimated salmon harvest					
		Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	Point Lay	67	42	14	13	372	659	1,120	2,178
	Wainwright	152	78	20	66	105	51	136	378
Total, 2012		219	120	34	79	477	710	1,256	2,556
2013	Point Lay	64	42	0	30	3	157	84	274
	Wainwright	150	80	62	121	144	180	154	661
Total, 2013		214	122	62	151	147	337	238	935
2014	Anaktuvuk Pass	99	53	0	0 ^a	0	0	0	0
	Nuiqsut	108	58	0	2	0	261	99	361
	Point Lay	63	40	32	358	142	258	1,151	1,940
	Utqiagvik	1,584	259	67	73	495	3,639	1,248	5,523
	Wainwright	145	75	27	86	209	89	97	507
Total, 2014		1,999	485	126	519	846	4,247	2,594	8,332

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

a. An estimated 56 sockeye salmon were harvested with dip nets in the Chitina personal use fishery (Brown et al. 2016:421).

Table 3-10.—Subsistence nonsalmon harvests by Arctic District communities.

Year	Community	Households		Estimated number of fish										
		Total	Surveyed	Arctic char / Dolly Varden	Arctic cisco	Arctic grayling	Bering cisco	Broad whitefish	Humpback whitefish	Least cisco	Round whitefish	Sheefish	Smelt ^a	Total
2012	Point Lay	67	42	493	279	1,945	479	0	5	0	479	37	55	3,770
	Wainwright	152	78	0	0	7,513	648	1,562	1,606	624	0	0	3,489	15,442
Total, 2012		219	120	493	279	9,458	1,127	1,562	1,611	624	479	37	3,545	19,212
2013	Point Lay	64	42	20	0	2,670	0	0	8	0	0	0	73	2,771
	Wainwright	150	80	62	934	3,056	4,104	508	253	1,554	19	38	1,480	12,008
Total, 2013		214	122	82	934	5,726	4,104	508	261	1,554	19	38	1,553	14,780
2014	Anaktuvuk Pass	99	53	1,200	0	2,519	0	0	47	19	4	0	0	3,787
	Nuiqsut	108	58	648	46,277	1,626	19	11,439	119	13,332	19	0	152	73,632
	Point Lay	63	40	69	9	4,078	11	25	3	2	0	0	97	4,294
	Utqiagvik	1,584	259	398	17,510	11,173	0	43,962	1,500	13,375	654	0	225	88,797
	Wainwright	145	75	213	696	2,714	58	3,180	44	97	0	10	1,563	8,575
Total, 2014		1,999	485	2,527	64,492	22,110	88	58,607	1,713	26,825	677	10	2,037	179,085

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

a. Smelt are counted in gallons.

Table 3-11.—Subsistence salmon harvest estimates, North Slope Borough communities.

Community	Year	Estimated number of salmon harvested						Total
		Chinook	Sockeye	Coho	Chum	Pink	Unknown	
Anaktuvuk Pass ^a	1992							0
Anaktuvuk Pass ^a	1994							0
Anaktuvuk Pass ^a	1996					68		68
Anaktuvuk Pass ^a	1998			3				3
Anaktuvuk Pass ^a	1999							0
Anaktuvuk Pass ^a	2000							0
Anaktuvuk Pass ^a	2001							0
Anaktuvuk Pass ^a	2002							0
Anaktuvuk Pass ^b	2011	37		47	1		3	88
Anaktuvuk Pass ^b	2014		56 ^f					56
Atkasuk ^b	1994	0	0	14	0	0	0	14
Atkasuk ^b	1996	4	0	0	6	0	0	9
Atkasuk ^b	1997	0	0	0	0	40	0	40
Kaktovik ^c	1985	0	0	0	0	0	0	0
Kaktovik ^c	1986	0	0	0	0	0	0	0
Kaktovik ^c	1992	0	0	0	0	8	42	50
Kaktovik ^b	1994	0	0	0	1	0	0	1
Kaktovik ^b	2002	0	0	0	0	0	0	0
Nuiqsut ^c	1985	0	0	0	0	441	0	441
Nuiqsut ^b	1992	3	0	5	0	0	0	8
Nuiqsut ^c	1993	10	0	12	70	160	19	272
Nuiqsut ^b	1994	0	0	0	0	10	0	10
Nuiqsut ^b	1995	0	0	0	0	0	42	42
Nuiqsut ^b	2000	3	0	5	0	0	2	10
Nuiqsut ^b	2014	0	2	0	261	99	0	361
Point Hope ^{be}	1992	266	0	554	0	801	0	1,621
Point Hope ^{be}	1994	0	0	214	641	0	6,197	7,052
Point Hope ^{de}	2014	142	13	1,123	1,723	1,170	0	4,172
Point Lay ^c	1987	0	0	0	40	107	0	147
Point Lay ^b	1994	4	0	182	3	200	86	476
Point Lay ^b	2002	2	70	99	2	0	0	173
Point Lay ^d	2012	14	13	372	659	1,120	0	2,178
Point Lay ^d	2013	0	30	3	157	84	0	274
Point Lay ^d	2014	32	358	142	258	1,151	0	1,940

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Table 3-11.–Page 2 of 2.

Community	Year	Estimated number of salmon harvested						Total
		Chinook	Sockeye	Coho	Chum	Pink	Unknown	
Utqiagvik ^e	1987	4	0	103	11	12	66	196
Utqiagvik ^e	1988	1	0	70	5	1	3	80
Utqiagvik ^e	1989	31	0	828	529	262	439	2,088
Utqiagvik ^e	1992	287	0	777	0	573	0	1,637
Utqiagvik ^e	1995	6	0	27	0	51	204	288
Utqiagvik ^e	1996	9	0	78	203	0	55	345
Utqiagvik ^e	2000	165	0	463	374	1,085	12	2,100
Utqiagvik ^e	2001	34	0	93	63	107	36	332
Utqiagvik ^e	2003	439	0	845	1,617	1,050	44	3,995
Utqiagvik ^e	2014	67	73	495	3,639	1,248	0	5,523
Wainwright ^c	1988	0	0	0	3	6	2	11
Wainwright ^c	1989	9	0	0	68	52	0	129
Wainwright ^b	1992	50	0	214	0	99	0	363
Wainwright ^b	2002	0	0	120	28	129	44	321
Wainwright ^d	2012	20	66	105	51	136	0	378
Wainwright ^d	2013	62	121	144	180	154	0	661
Wainwright ^d	2014	27	86	209	89	97	0	507

a. Known estimates of salmon harvests in Arctic District communities based on household surveys since 1985. Only estimates since 2012 are included in area and statewide totals.

b. *Source* Bacon et al. 2009.

c. *Source* CSIS.

d. *Source* Fall et al. 2017. 2014 Annual Salmon Report

e. The North Slope Borough community of Point Hope is within the Kotzebue District, but near the boundary with the Arctic District, and harvests salmon and other fish in both districts.

Table 3-12.—Estimated subsistence salmon harvests for Arctic District communities, 2020.

Community	Households		Estimated salmon harvest ^a					Total
	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	
Nuiqsut	108	58	0	2	0	261	99	361
Point Lay	63	40	32	358	142	258	1,151	1,940
Utqiagvik	1,584	259	67	73	495	3,639	1,248	5,523
Wainwright	145	75	27	86	209	89	97	507
Total	1,900	432	126	519	846	4,247	2,594	8,332

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

a. Values for 2014 used to represent 2020 harvests.

Table 3-13.—Historical subsistence salmon harvests, Norton Sound, Port Clarence, Arctic, and Kotzebue districts, 1975–2020.

Year	Households or permits		Estimated salmon harvest ^a					
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1975	117	79	3	225	102	3,698	7,298	11,326
1976	138	104	6	0	275	1,856	5,472	7,609
1977	195	181	35	64	623	12,222	2,839	15,783
1978	168	126	31	0	242	4,035	10,697	15,005
1979	138	119	519	0	1,007	3,419	5,842	10,787
1980	232	161	135	0	2,075	5,839	21,728	29,777
1981	236	169	47	88	1,844	9,251	6,100	17,330
1982	230	182	33	6	2,093	5,719	20,480	28,331
1983	243	189	74	40	1,950	7,013	8,499	17,576
1984	240	189	85	0	1,890	4,945	18,067	24,987
1985	215	198	56	114	1,054	5,717	2,117	9,058
1986	279	240	157	127	788	8,494	9,011	18,577
1987	235	173	97	102	812	7,265	705	8,981
1988	192	166	67	171	1,089	6,379	2,543	10,249
1989	173	130	24	131	549	3,456	924	5,084
1990	188	165	60	234	542	4,525	2,413	7,774
1991	155	128	83	166	1,279	3,715	194	5,437
1992	163	132	152	163	1,720	2,030	7,746	11,811
1993	142	104	51	74	1,780	1,578	758	4,241
1994	2,390	1,386	8,079	3,880	25,284	118,696	79,588	235,527
1995	2,329	1,445	8,070	6,639	27,314	151,905	43,947	237,875
1996	2,177	1,454	7,999	4,287	27,879	139,032	67,911	247,108
1997	2,398	1,645	9,620	5,597	18,153	86,808	29,135	149,313
1998	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	2,261	1,298	5,686	4,474	16,641	74,517	31,503	132,820
2002	2,047	1,568	5,715	4,669	18,511	82,404	68,108	179,407
2003	2,141	1,609	5,576	5,453	17,192	55,257	54,646	138,122
2004	2,386	1,922	3,604	9,322	12,198	58,834	71,122	155,080
2005	2,084	1,626	4,359	9,600	16,350	67,360	60,822	158,491
2006	2,257	1,765	3,774	12,788	25,136	68,971	57,297	167,966
2007	2,185	1,658	3,996	10,841	16,123	73,829	24,231	129,020
2008	2,237	1,701	3,340	6,023	21,691	72,599	64,887	168,540
2009	2,404	1,741	5,322	2,830	18,910	71,598	29,121	127,781
2010	2,238	1,566	2,269	2,108	14,227	76,881	45,017	140,502
2011	2,348	1,532	1,848	3,064	13,207	76,320	22,278	116,718

-continued-

Table 3-11.–Page 2 of 2.

Year	Households or permits		Estimated salmon harvest ^a					
	Total	Surveyed or returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2012	2,633	1,867	1,479	2,747	14,237	74,224	54,339	147,027
2013	2,735	1,972	1,339	6,617	18,094	90,902	20,998	137,950
2014	5,137	2,690	2,399	6,403	25,222	98,557	51,307	183,888
2015	5,450	3,164	3,391	17,075	21,785	81,067	32,641	155,960
2016	5,619	3,380	3,492	14,912	22,749	77,745	51,865	170,763
2017	5,379	3,074	1,918	18,126	27,388	76,414	42,834	166,681
2018	5,480	3,108	1,976	14,369	24,390	72,652	39,860	153,248
2019	5,325	3,017	2,456	14,646	20,340	64,828	37,612	139,881
2020	5,470	3,182	2,860	9,882	15,346	60,333	41,008	129,429
5-year average (2014–2019)	5,451	3,149	2,647	15,826	23,330	74,541	40,963	157,307
10-year average (2010–2019)	4,234	2,537	2,257	10,007	20,164	78,959	39,875	151,262
Historical average (1994–2019)	3,033	1,944	4,512	7,593	20,062	83,958	46,349	162,474

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Note Since 1994 ADF&G has conducted annual subsistence salmon harvest assessment efforts in Northwest Alaska that provide more extensive and reliable estimates than those for earlier years. Harvest estimates prior to 1994 cannot be directly compared with those of previous years.

a. After 1994, includes selected communities in the Norton Sound District, Port Clarence District, Arctic District, and Kotzebue District (formerly Kotzebue Area) that were part of annual harvest assessment programs or a post-season survey. Also includes imputed values for a core set of Kotzebue District communities beginning in 1994. See Table 3-3 and Table 3-7 for details on which communities were included for study years since 1994. Harvest estimates are only available since 2012 for selected Arctic District communities. See Table 3-7 and Table 3-9 for details.

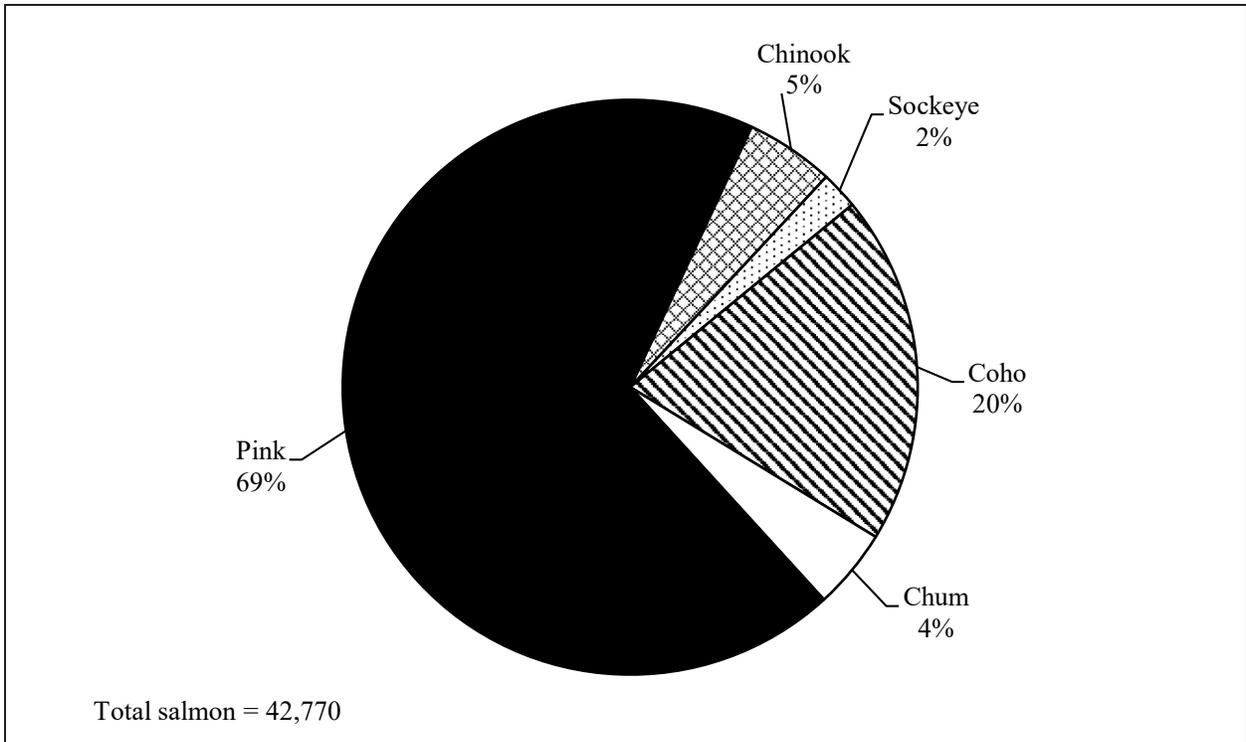


Figure 3-1.—Species composition of estimated subsistence salmon harvests, Norton Sound District, 2020.

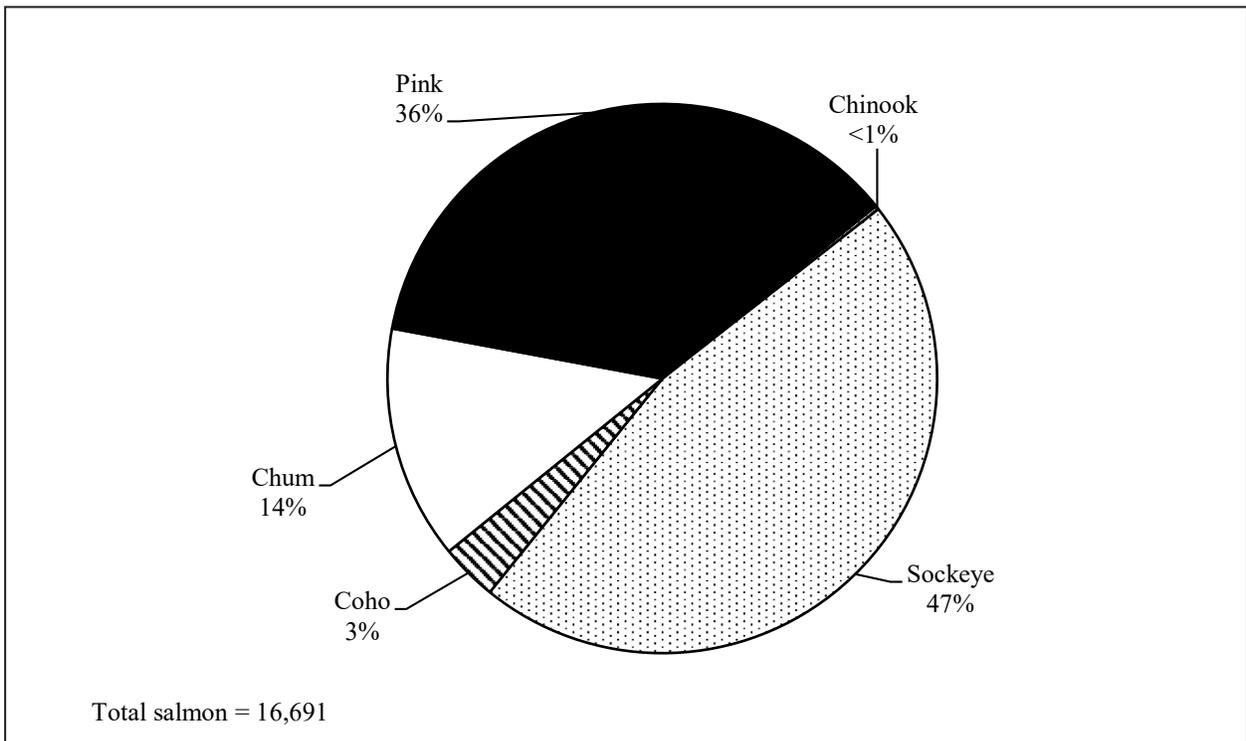


Figure 3-2.—Species composition of estimated subsistence salmon harvests, Port Clarence District, 2020

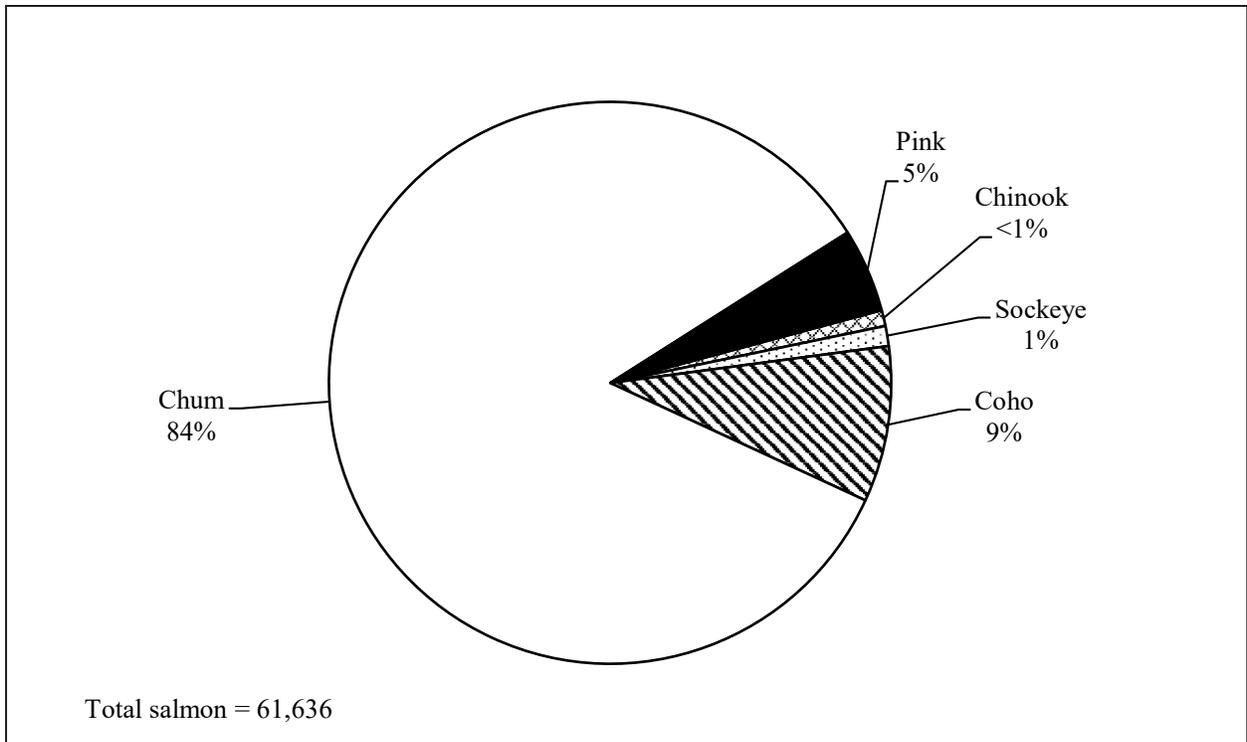


Figure 3-3.—Species composition of estimated subsistence salmon harvests, Kotzebue District, 2020.

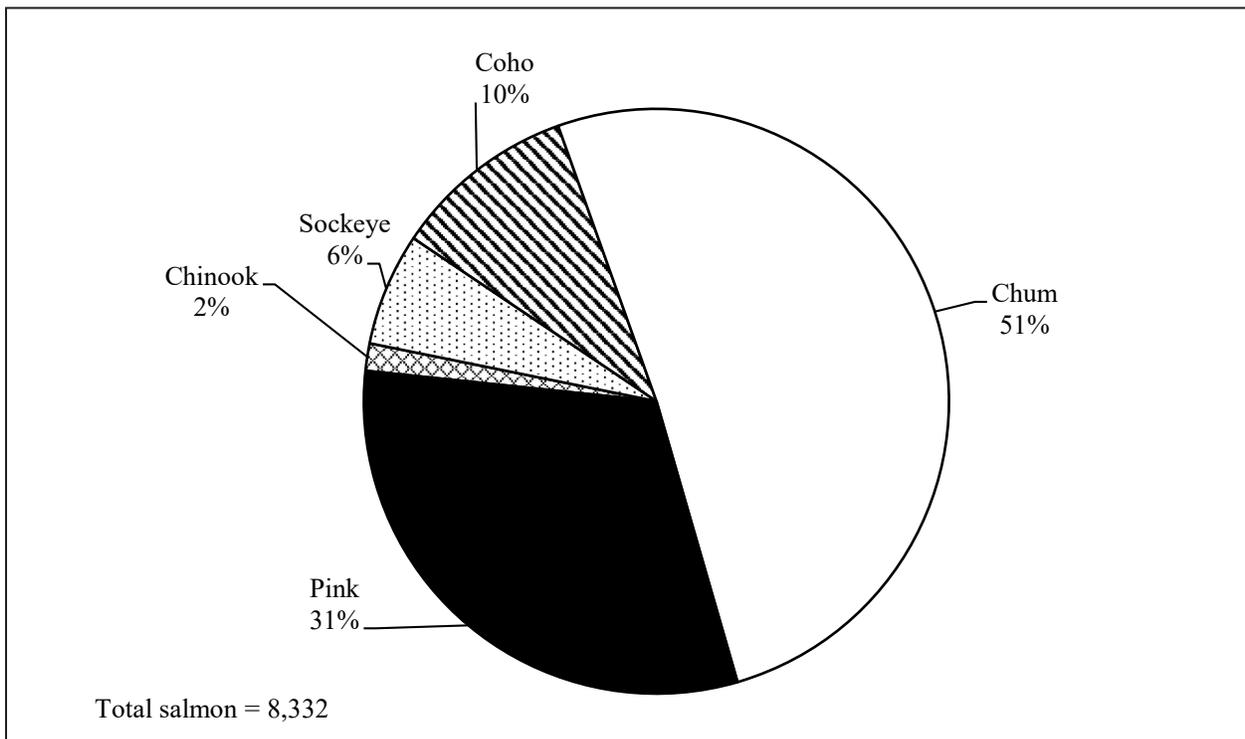


Figure 3-4.—Species composition of estimated subsistence salmon harvests, Arctic District, 2020.

CHAPTER 4: YUKON AREA

BACKGROUND

Residents of the Yukon River drainage have long relied on salmon and other nonsalmon fish for subsistence. These fish are an important source of food for both people and for dogs. Large quantities of salmon are harvested each summer and preserved for consumption throughout the rest of the year. In recent years, low abundance of Chinook salmon has had a major impact on area residents' abilities to meet their subsistence needs (Brown et al. 2015b). Each region of the Yukon River has a unique fishing profile based on species availability, river conditions, demographics, and the use of dog teams.¹ The river is divided into six fishing districts, and further into subdistricts, which allow fisheries managers to tailor regulations to the unique characteristics of each area (Figure 4-1).

Salmon fishing begins in late May at the mouth of the Yukon River and sequentially in other communities as fish migrate upstream. Chinook salmon are the first to enter the river, followed by summer chum, fall chum, and coho salmon. Summer chum salmon do not typically migrate further upriver than the Tanana River drainage. Some pink and sockeye salmon are present in the lower portions of the river. Salmon fishing can continue late into the fall when the river begins to freeze, especially in the upper river where salmon arrive much later and where the runs are not as concentrated. Many nonsalmon fish are incidentally caught while fishing for salmon and are harvested throughout the year.

Subsistence harvesters usually base their fishing activities either from fish camps or from their home communities. Extended family groups, typically representing several households, often cooperate to harvest, process, preserve, and store salmon for subsistence uses (Brown et al. 2015b).² In some regions of the river, commercial salmon fishing is a vital component of the local economy, and fishers may retain salmon from their commercial harvest for subsistence purposes.

Yukon Area fishers primarily use drift gillnets, set gillnets, and fish wheels to harvest salmon. Set gillnets are used throughout the Yukon Area, while drift gillnets are used extensively in the lower half of the river.³ Due to river conditions and the availability of wood for building materials, fish wheels are used almost exclusively on the middle and upper Yukon River and Tanana River. In recent years, the use of beach seines and dip nets ("selective gear") has been a common management tool to allow the release of Chinook salmon alive while allowing fishers to harvest other species.

Subsistence salmon are preserved for later uses by freezing, drying, smoking, and jarring. Chinook salmon are prized for human consumption, while other species are commonly used for both people and dogs.⁴ The heads, viscera, backbones, and other scraps of all species are often fed to dogs, as well as any fish unfit for human consumption due to poor quality or disease. While the use of subsistence caught fish to feed sled dogs is a longstanding practice that continues in present day, the number of dogs and fish used to feed them has greatly decreased since snowmachines replaced sled dogs as the primary winter transportation.

REGULATORY HISTORY

Within the Alaska portion of the Yukon River drainage, regulatory authority for Yukon River salmon management is shared by the State of Alaska Board of Fisheries (BOF) and the Federal Subsistence Board

1. C. L. Brown, A. Trainor, B. McDavid, J. S. Magdanz, and G. Rakhmetov. *In prep.* Patterns and Trends of Salmon Harvest and Use in the Yukon River Drainage, Alaska, 1990–2014. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. NNN, Fairbanks. Hereafter cited as Brown et al. *In prep.*
2. C.L. Brown, and A. Godduhn. Socioeconomic Effects of Declining Salmon Runs on the Yukon River. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 398, Fairbanks.
3. Under state regulations, drift gillnets are allowed from the mouth of the Yukon River through subdistricts 4B and 4C, both of which end at Illinois Creek (5 AAC 01.220).
4. See Andersen (1992) and Andersen and Scott (2010) for a more detailed history of the use of subsistence caught fish for sled dogs on the Yukon River.

(FSB). ADF&G and its federal counterparts co-manage Yukon River salmon fisheries with input from public stakeholders through such groups as ADF&G Advisory Committees, federal Regional Advisory Councils, and the Yukon River Drainage Fisheries Association (YRDFA), among others. The transboundary Yukon River is also managed in accordance with the Pacific Salmon Treaty.⁵ The Yukon River Panel (YRP), a board of appointed members from both Alaska and Canada, meets twice a year to discuss various aspects of the treaty, such as escapement goals and border passage goals, and to approve funding of scientific research addressing salmon biology and use patterns.

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

In 1993, the BOF made a positive customary & traditional use finding for all salmon in the Yukon Area and determined that the Amounts Necessary for Subsistence (ANS) ranged between 348,000–503,000 salmon for all species combined (5 AAC 01.236). In 2001, the BOF made species-specific ANS determinations for Chinook, summer chum, fall chum, and coho salmon. These ANS ranges can be found at the top of Table 4-1. In 2013, the BOF added an ANS for pink salmon. An ANS range provides one measure of the extent to which reasonable opportunity is provided in each subsistence fishery. Harvests below the lower bound of the ANS range may indicate, with other evidence, that there was not reasonable opportunity for subsistence harvests during the season and that subsistence needs may not have been met.

Proposals submitted to and adopted by the BOF or FSB periodically result in regulatory changes that affect subsistence salmon fishing on the Yukon River. Proposals may be submitted by fisheries managers, local fishers, or any member of the public for a variety of reasons. This allows regulations to adapt as salmon stocks, environmental conditions, or the needs of users change. Prior versions of this report detail some of the major regulatory changes that have occurred over the past few decades (Fall et al. 2019). These changes have included such actions as establishing and adjusting subsistence fishing schedules and restricting the types of gear allowed for salmon fishing. At various times, significant declines in Yukon River salmon stocks have also prompted regulatory action. Most notably in 2000, the BOF classified the Yukon River Chinook salmon stock as a “stock of yield concern” because of the inability to maintain expected yields and harvestable surpluses above escapement goals for several years (Lingnau and Salomone 2003). This designation has remained in place to the present date, being most recently renewed at the 2016 BOF meetings.⁶ Fall chum salmon returns have also failed to achieve escapement goals at times. Restrictions on subsistence fall season salmon fishing occurred intermittently throughout the 1990s. In 2000, there was a complete closure of fall season salmon fishing, severely affecting the subsistence harvest of fall chum and coho salmon. In 2001, the BOF declared Yukon River fall chum salmon a stock of concern, but this designation was lifted in 2007 after run sizes showed improvement.

Chinook salmon run sizes increased slightly between 2004 and 2007 but continued declines in 2008 required additional fishing. Restrictions have continued to be implemented through both fishing period closures and limitations on the types of fishing gear allowed. In 2010, the maximum allowable mesh size for salmon fishing in the Yukon Area was decreased to seven-and-a-half inches. However, because of the need for additional conservation measures, mesh sizes have frequently been limited to six inches through ADF&G’s inseason Emergency Order authority. Limiting mesh size is intended to allow more Chinook salmon to escape to spawning grounds while continuing to allow other species of salmon, and smaller, less fecund Chinook salmon, to be harvested. Additional conservation measures were taken during the 2012 summer

5. Pacific Salmon Commission. 2016. The Pacific Salmon Treaty. <https://www.psc.org/about-us/history-purpose/pacific-salmon-treaty/> (Accessed August 16, 2019).

6. Alaska Department of Fish and Game Division of Commercial Fisheries. “2016 Yukon River Summer Salmon Fishery News Release #1, Board of Fisheries Actions: Yukon Area Regulatory Changes,” news release, January 27, 2016. Accessed July 2019. <http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/638855337.pdf>

chum commercial fishery when fishers in districts 4 and 6 were required to release all Chinook salmon alive. In 2013, the BOF adopted first pulse protection, or the prohibition of fishing on the first Chinook salmon pulse as it enters the river and migrates upstream, in order to account for the uncertainty in the preseason Chinook salmon run projection and to protect the continued low runs (5AAC 05.360(j)). This prohibition may be relaxed in districts 3–6 if run assessment information suggests sufficient abundance. During the 2013 meeting, the BOF also prohibited the sale of Chinook salmon incidentally caught during directed summer chum commercial openings when subsistence salmon fishing is restricted (5AAC 05.360(i)). Beginning in 2014, allowable subsistence gear for summer chum salmon has been limited to dip nets, beach seines and manned fish wheels, during years when concerns about the conservation of Chinook salmon have prevented the use of gillnets. Use of beach seines and dipnets allows fishers to harvest chum salmon selectively and return all Chinook salmon to the water unharmed. In 2018 the BOF reversed their decision regarding the sale of incidentally-caught Chinook salmon, determining that if escapement goals are projected to be met, and there have been reasonable opportunities for subsistence Chinook salmon fishing, the sale of incidentally caught Chinook salmon during commercial chum salmon fishing may be authorized by emergency order.⁷ Also in 2018, mandatory first pulse protection was removed for Districts 1 and 2; instead requiring first pulse protection only if preseason run size projections indicate that Chinook salmon may not meet escapement goals. Otherwise, the run is to be managed conservatively to account for uncertainty, but some subsistence fishing may be allowed at the discretion of management.

In 2019, the BOF adopted regulation that allows dip nets to be used for subsistence salmon fishing.⁸ Dip nets allow the selective harvest of each salmon species and enables fishers to harvest chum and sockeye salmon and return Chinook salmon to the water unharmed during times of conservation. In 2019 the board also took action to eliminate live boxes during Chinook salmon conservation and instead required fish wheels to be closely attended at all times of operation to immediately release any Chinook salmon caught. Hook and line was also adopted as legal subsistence gear in District 4.⁹

OVERVIEW OF 2020 MANAGEMENT STRATEGIES

By regulation, salmon management on the Yukon River is divided into two seasons: 1) summer—which encompasses the Chinook and summer chum salmon runs beginning in late May or early June and 2) fall—which includes fall chum and coho salmon runs and begins on July 16th in District 1 (5 AAC 01.249). Prior to the start of the summer season, run size projections provided by the YRP Joint Technical Committee (JTC) and input from Yukon River fishers at the annual YR DFA preseason meeting, helped to shape initial management strategies that were then adjusted throughout the season as in-season run monitoring took place (JTC 2021). The preseason outlook for 2020 predicted a below-average return of Chinook salmon, and average returns of summer chum, fall chum, and coho salmon.¹⁰ Similar to recent years, because the Chinook salmon run was projected to be below average, conservative management strategies remained in place. These included restrictions on subsistence fishing and a closure of the commercial Chinook salmon fishery.

7. Alaska Department of Fish and Game Division of Commercial Fisheries. “2018 Yukon River Salmon Fishery News Release #2 Board of Fisheries Actions: Yukon Area Regulatory Changes,” news release, March 16, 2018. Accessed April 2020. www.adfg.alaska.gov/static/applications/dcfnewsrelease/895138453.pdf

8. Alaska Department of Fish and Game Division of Commercial Fisheries. “2019 Yukon River Salmon Fishery News Release #1 Board of Fisheries Actions: Yukon Area Regulatory Changes,” news release, January 29, 2019. Accessed October 2021. www.adfg.alaska.gov/static/applications/dcfnewsrelease/1010781355.pdf

9. Alaska Department of Fish and Game Boards Support Section. Arctic, Yukon, Kuskokwim Finfish Meeting 2019 Summary of Actions. Accessed January 31, 2023. <http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2018-2019/ayk/soa.pdf>

10. Alaska Department of Fish and Game Division of Commercial Fisheries. “2020 Yukon River Salmon Fisheries Outlook,” news release, May 5, 2020. Accessed November 17, 2022. <https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1151691665.pdf>

In 2020, ice breakup at the mouth of the Yukon River occurred on May 14, which was 5 days earlier than the 1999–2019 average.¹¹ The first Chinook salmon caught in the Lower Yukon Test Fishery (LYTF) occurred on May 30. From early June to early July, the North Coastal District and District 1 were placed on a reduced regulatory fishing schedule of one-half their regular periods with six-inch mesh, and this restriction was subsequently applied in other districts as Chinook salmon migrated upriver (Table 4-2). Districts 1 and 2 remained on this reduced fishing schedule throughout the summer season to allow closures around summer chum commercial fishing periods. One period, each, on the reduced schedule with seven-and-half-inch mesh gillnets occurred in early July in the North Coastal District, and Districts 1 and 3, and in District 4.¹² Additionally, several subdistricts had one or more subsistence fishing periods cancelled. No fishing periods were cancelled in the Koyukuk and Innoko rivers. In District 5, six-inch mesh size restrictions remained in place throughout the majority of the season until fall season management began.

The estimated drainagewide run size of Chinook salmon in 2020 was 178,000 fish, which was inside the preseason projection range of 144,000 to 220,000 fish (JTC 2021). The spawning escapement of Canadian-origin Chinook salmon was 31,967 fish, as estimated using data gathered at Eagle Sonar and subtracting harvests that occurred upriver of the sonar. Escapement fell just below the lower end of the goal range set in the Pacific Salmon Treaty (42,500–55,000). U.S. fishers harvested an estimated 12,171 Canadian-origin Chinook salmon. This exceeded U.S. maximum harvest share of the Total Allowable Catch (TAC) of 2,401 Chinook salmon (JTC 2021).

The total commercial harvest of summer chum salmon of 13,955 fish in 2020 was the lowest since 2003. Beginning on June 27, three commercial periods were opened allowing selective gear in Districts 1 and 2. Two additional periods allowing 6-inch mesh gillnets were opened in District 1 during the first week of July, with a third cancelled because of low abundance of summer chum, high water with poor fishing conditions, and low harvest in the previous openings.¹³ In 2020, there were no commercial openings targeting Chinook salmon. During commercial chum openings, 362 Chinook salmon were recorded as incidentally harvested on fish tickets. Of these incidentally caught Chinook salmon, none were sold, and all were retained for subsistence use.

Inseason assessments at Pilot Station sonar estimated the passage of summer chum salmon at 692,602 (+36,325; 90% CI) fish in 2020 (Ransbury et al. *In prep*). The summer chum run size was below preseason predictions, and below the 10-year average (2010–2019) of 2 million fish. Drainagewide, an estimated escapement of 719,073 summer chum salmon exceeded the lower end of the goal range (500,000–1,200,000). In response to the COVID-19 pandemic, the Emmonak field office was not opened. The LYTF test fishery was conducted by local crews and with modified operations. Several other projects were affected by reducing or eliminating travel to protect communities and project crews. Because several enumeration projects did not operate in 2020, assessment of whether escapement goals were met in the Andreafsky and Anvik rivers was not possible.

In 2020, the sonar near Pilot Station began counting chum salmon as fall chum salmon on July 19 (Ransbury et al. *In prep*). The preseason forecast run of fall chum salmon was revised based on the relationship to historical summer and fall chum run size estimates, resulting in a revised projection of fewer than 450,000 fish. During the fall season, districts 1-4 and were placed on their regulatory subsistence fishing schedules (Ransbury et al. *In prep*). Due to the declining run projections near the end of July, districts 1-4 and

11. Alaska Department of Fish and Game Division of Commercial Fisheries. “2020 Preliminary Yukon River Summer Season Summary,” news release, September 30, 2020. Accessed November 17, 2022. <https://www.adfg.alaska.gov/static/applications/defnewsrelease/1225837847.pdf>

12. Alaska Department of Fish and Game Division of Commercial Fisheries. “2020 Yukon Area Fall Season Summary,” news release, December 28, 2020. Accessed January 31, 2023. <https://www.adfg.alaska.gov/static/applications/defnewsrelease/1237562868.pdf>

13. S. R. Ransbury., S. K. S. Decker, D. M. Jallen, C. M. Gleason, B. M. Borba, F. W. West, J. N. Clark, A. J. Padilla, H. J. Heniff and L. N. Forsythe, *In prep*. Yukon Management Area Annual Report, 2020. Alaska Department of Fish and Game, Fishery Management Report No. YY-XX, Anchorage. Hereafter cited as Ransbury et al. *In prep*.

Subdistricts 5-A, 5-B, and 5-C subsistence fishing schedules were reduced or cancelled (Ransbury et al. *In prep*). All subsistence fishing for fall chum salmon was closed on August 12, as the run projection fell below 300,000 fish (Ransbury et al. *In prep*). Based on genetics, the estimated fall chum salmon passage at Pilot Station sonar project was 190,000 fall chum salmon with a drainagewide escapement of 187,000 fish (Ransbury et al. *In prep*).

Spawning escapement of mainstem Canadian-origin fall chum salmon was 23,512 fish which was below the lower end of the IMEG of 70,000–104,000 (Ransbury et al. *In prep*). The estimated escapement of fall chum salmon on the Fishing Branch River was 4,795 fish. This is far less than the IMEG of 22,000–49,000 fish. Management of fall chum salmon stocks on the Porcupine and Fishing Branch rivers is difficult for two reasons. First, these fish make up a very small proportion (approximately 4%) of the total fall chum salmon run that enters the Yukon River. Second, Fishing Branch River fall chum are dispersed throughout the entire fall chum salmon run, making it difficult for managers to apply targeted fishing closures to allow this stock to pass.¹⁴ Additionally, ongoing research is assessing possible changes to habitat on the Fishing Branch River and the effect those changes may be having to fall chum salmon spawning (EDI 2018).

The total 2020 coho salmon run size was estimated to be 121,000 fish, which is below average (Ransbury et al. *In prep*). There were no coho salmon directed commercial fishing openings in 2020, but 2,922 coho salmon were taken in personal use and subsistence fisheries (Ransbury et al. *In prep*).

SUBSISTENCE HARVEST ASSESSMENT METHODS

Subsistence salmon harvest information in the Yukon Area is collected in three ways: voluntary daily harvest calendars, voluntary postseason household harvest surveys, and through mandatory permits in select areas. In 2020, a total of 2,001 calendars were sent to Yukon River households, and additional calendars were also made available upon request from ADF&G offices in Emmonak and Fairbanks.¹⁵ The calendars provide space for fishers to record their daily subsistence harvests of salmon by species and can be returned via mail free of charge. Approximately 6% of calendar recipients (118) returned harvest calendars either by mail or through research staff during their fall surveys. Calendars provide additional Yukon Area run and harvest timing information that is not obtained by other data collection methods.

Because harvest calendar return rates are so low, ADF&G Division of Commercial Fisheries primarily relies on data collected through the postseason harvest surveys and returned fishing permits in order to estimate total subsistence harvests.

Due to the COVID-19 pandemic, survey methods were modified to avoid the transmission of the virus. Instead of in person surveys, households were contacted by telephone, mail and online. Phone and mail surveys typically do not yield the same response rate as in person interviews. Where without COVID-19, surveys are conducted with a stratified random sample (Jallen et al. 2017), the sampling protocol was adjusted to boost response rates by contacting all households. Survey questions focus on Chinook, summer chum, fall chum, and coho salmon harvests, but households are also asked about other species as well, such as pink salmon (primarily taken by coastal communities), northern pike, whitefishes, and sheefish. Department staff surveyed 1,203 of 2,617 households (46%) in 33 communities the Yukon Area concerning their subsistence salmon harvests in 2020 (Table 4-3). An estimated 1,104 households participated in the fishery.

A subsistence permit is required in the road-accessible portions of the Yukon River drainage and other limited areas as described in state regulations (5 AAC 01.230). Subsistence fishers record their daily salmon harvests on a household permit and return the permit within 10 days of the expiration date on the permit.

14. J. Harding, J. and Estensen, J. 2017, “Porcupine-Fishing Branch Fall Chum 2017 Outlook and Management,” presentation to the Yukon River Panel. Accessed April 27, 2020. <https://www.yukonriverpanel.com/download/151/presentations/2650/porcupine-fishing-branch-fall-chum-2017-outlook-and-management.pdf>.

15. A. J. Padilla and T. Hamazaki. *In prep*. Subsistence and personal use salmon harvests in the Alaska portion of the Yukon River drainage, 2020. Alaska Department of Fish and Game, Fishery Data Series No. YY-XX, Anchorage. Hereinafter cited as Padilla et al. *In prep*.

Subsistence salmon permit holders in the upper portion of Subdistrict 6B and the personal use fishers in Subdistrict 6C are required to report their harvests weekly for inseason management purposes (5AAC 01.234). In 2020, a total of 807 salmon fishing permits were issued, including 698 subsistence and 109 personal use permits (Table 4-4). Ninety-seven percent of subsistence permits and 99% of personal use permits were returned to ADF&G. Of the returned permits, approximately 47% indicated that they fished. Unreturned permits were considered to be unfished, and subsistence fishing households were not eligible to receive a permit the following year until the previous year's permit was returned.

SUBSISTENCE SALMON HARVESTS IN 2020

The total estimated Yukon Area subsistence-personal use salmon harvest in 2020 was 79,828 fish (Table 4-5). This is approximately 59% lower than the average harvest over the previous five years, and 63% below the 10-year average harvest (Table 4-6). Compared to historical harvest data available since 1976, the 2020 total salmon harvest was 27% of the historical average of 308,282 salmon (1976–2019). As evident in Figure 4-2, harvests have declined over time for all species, but the patterns of decline have been different for each. Declining harvests have not necessarily been gradual or linear. Two periods of disastrously low harvests are apparent for fall chum salmon from 2000–2002 and Chinook salmon from 2013–2016. After each of these severely low harvest periods, harvests subsequently increased but not to historically higher harvest levels.

In 2020, the estimated subsistence-personal use salmon harvest composition for the Yukon Area included 22,663 Chinook salmon (28% of the total salmon harvest), 42,592 summer chum salmon (53%), 6,207 fall chum salmon (8%), 2,922 coho salmon (4%), and 5,444 pink salmon (7%) (Table 4-6; Figure 4-3). This is an estimated total based on household surveys and returned permits and calendars; it includes subsistence harvests, personal use harvests, commercial harvests retained for subsistence, and fish distributed from ADF&G test fisheries. In 2020, a total of 5,520 salmon were distributed to households from test fishing projects (Ransbury et al. *In prep*).

Table 4-6 shows salmon harvests over time, by species. The 2020 Chinook salmon harvest estimate was 24% smaller than the most recent Yukon Area 5-year average Chinook harvest (2015–2019) and 19% smaller than the 10-year average. Severe fishing restrictions were in place in 2015 and 2016 to conserve Chinook salmon, resulting in extremely small subsistence harvests. The true scope of the decline comes into focus when compared to historical harvests; the 2020 harvest was 55% of the historical average (1976–2019). The 2020 Chinook salmon subsistence harvest did not meet ANS, which fits the pattern of reduced Chinook harvests over the long term, but contrasts with the relatively high harvests of Chinook salmon in 2017–2019 (Table 4-1). The overall decline in Chinook salmon harvests does not indicate a reduced need by fishing households; declines in harvest have occurred in response to conservative management actions based on low abundance. Additionally, some Yukon River communities and individual households have voluntarily reduced their Chinook salmon harvests to aid in rebuilding the run (Brown et al. *In prep*).

The 2020 summer chum salmon harvest was 53% below the last 5-year average and 47% below the 10-year average (Table 4-6). In addition to a smaller than predicted run size in 2020, reductions in fishing periods to protect Chinook salmon likely had an effect on the harvest of summer chum salmon because the two species co-migrate. The 2020 summer chum salmon harvest was approximately 31% of the historical average harvest of 139,111. Prior to 1996, fishers commercially harvested summer chum salmon for roe and kept most of the carcasses primarily for dog food; these fish were counted in the subsistence harvest. Since the roe fishery ended in 1996, summer chum salmon harvests have averaged 87,841 fish (Figure 4-2). In 2020, summer chum salmon harvests fell below the ANS range for the third year in a row (Table 4-1). This is the third time the summer chum salmon harvest failed to meet the ANS since 2009. The Board of Fisheries decided against revising the ANS for Yukon salmon at its 2013 meeting in response to changing harvests of summer chum salmon for roe and dog food since the 1990s. At that time, it was unclear whether Chinook salmon would continue to decline, and the Board received testimony from subsistence users that given the reduction in Chinook salmon harvest opportunities, they would need to harvest more of other salmon species to meet their subsistence needs. The Board did not change ANS for salmon in 2013, suggesting that

the reductions in harvest due to the lack of a commercial roe fishery and decrease in dog teams would be offset by the need to supplant poor Chinook salmon harvests with additional summer chum salmon.

In 2020, the fall chum salmon harvest was approximately 92% less than the 5-year average harvest and 93% less than the 10-year average (Table 4-6). Fall chum salmon harvests were approximately 94% less than the average historical harvest (since 1976). The 2020 fall chum subsistence harvest was the lowest since 1977. Like summer chum salmon, historic declines in fall chum salmon harvests were also seen after the closure of the roe fishery in the 1990s but are also likely tied to a decline in the number of dog teams along the Yukon River (Figure 4-2). Fall chum salmon are used as both human food and dog food, especially in the upper river districts where they are the only other abundant salmon species besides Chinook salmon. In years of Chinook salmon fishing restrictions, additional fall chum salmon harvests may supplement decreased Chinook harvests (Brown et al. *In Prep*). The 2020 fall chum salmon harvest fell below the lower bound of the ANS range for the sixth year in a row (Table 4-1). Since 1998, fall chum salmon harvests have only been within the ANS range 5 out of 22 years.

Subsistence coho salmon harvests continued to be at record lows for the fourth consecutive year in 2019 (Table 4-6). The coho salmon harvest of 2,922 fish was the lowest subsistence coho harvest ever documented. Harvests amounted to 32% of the 5-year and 23% of the 10-year average harvests, and only 12% of the historical average (since 1976). Due to run timing, the management of coho salmon is tied to the management of fall chum salmon. As such, it is difficult to assess reasons for trends in coho salmon harvests over time, especially considering they are not specifically targeted by a large number of fishing households for subsistence because of their lower abundance compared to fall chum salmon and late run timing. Coho salmon harvests were well below the minimum bound of the ANS in 2020 and have only fallen within the range 6 out of the 22 years for which ANS has been in place (Table 4-1).

Pink salmon harvests are typically only reported in lower river communities, although the species is included on harvest surveys and catch calendars in all regions of the drainage (Table 4-5).¹⁶ Pink salmon abundance typically follows a two-year cycle, with larger returns in even years and greatly fluctuating harvests. In 2020, 5,444 pink salmon were harvested. This harvest was greater than the recent 5- and 10-year averages, as well as the historical average (Table 4-6). An ANS range for pink salmon on the Yukon River was first established in 2013. Harvests have fallen within the range since 2014 (Table 4-1).

Although sockeye salmon are occasionally found in the lower portion of the Yukon River, their numbers are so low that they are not actively managed in the Yukon Area. Although no sockeye salmon harvest data were collected in 2020, the previous five-year average subsistence harvest was 301 sockeye salmon (2010–2014; Ransbury et al. *In prep*).

Figure 4-4 shows the number of dogs reported by surveyed households in each fishing district, as well as the percentage of total dogs in the Yukon Area reported in each district. Of the 4,512 dogs owned by Yukon Area households in 2020, upper Yukon River households in districts 4 and 5 owned 2,053 dogs (46% of the total number of dogs owned in Yukon River districts). Of the estimated 1,548 households in the Yukon Area that owned dogs, 175 households (11%) fed whole salmon to their dogs in 2020 (Padilla et al. *In prep*). In 2020, the Division of Commercial Fisheries collected information in surveyed communities on the number of salmon that fishers retained for dog food from subsistence harvests. An estimated 3,972 summer chum salmon, 1,181 fall chum salmon, and 353 coho salmon were used for dog food from subsistence salmon harvests. In permit communities, only the total number of whole salmon and not the number of each species was documented. Permit holders in districts 5 and 6 fed 1,214 whole salmon to dogs. In total, approximately 6,720 salmon were harvested for dogs in 2020, which represented an 87% decrease in harvests for dogs compared to 2019. (Padilla et al. *In prep*).

Figure 4-5 shows the primary gear types used by Yukon Area fishing households in 2020. Set gillnets were used by 51% of households, while 40% used drift gillnets, 3% used fish wheels, and 6% used other gear types. Other gear types may include such methods as dipnets and beach seines. The gear types used

16. Pink salmon harvests on the Yukon River have been estimated only since 2000, compared to 1976 for other salmon species.

for salmon fishing vary by region, in part due to differing regulations and river conditions throughout the drainage.

From 1992 through 2013, ADF&G asked surveyed households whether they were able to meet their subsistence salmon needs for each survey year. The disastrous fishing year in 2000 resulted in restrictions and closures in subsistence salmon fishing schedules and made it extremely difficult for fishing families to meet their needs; 64% of surveyed households reported not meeting their needs in 2000 (Borba and Hamner 2001). Since 2014, the Division of Commercial Fisheries has no longer reported data on whether households met their subsistence needs, but survey comments regarding this topic are coded as “needs met”. Historical needs-met data can be found in prior issues of this report. Drainagewide salmon harvests of Chinook, summer chum, fall chum, and coho salmon that were well below ANS in the past several years likely indicate that subsistence needs are still not being met. See Table 4-1 for a comparison of ANS ranges and subsistence salmon harvests by species from 1998–2019.

NONSALMON FISH HARVESTS

Although salmon are the focus of most management actions in the Yukon Area, nonsalmon fish harvests are also significant components of the annual subsistence round for Yukon Area fishers. Some nonsalmon species are available year-round, while salmon are only available seasonally. Nonsalmon fishes not only provide additional sources of nutrition for residents of the Yukon Area, they also represent a significant cultural resource for subsistence fishers in the region. In 1987, and again in 1993, the BOF made a positive C&T use determination for freshwater fish species in the Yukon Area, including sheefish, whitefish species, Arctic lamprey, burbot, longnose sucker, Arctic grayling, northern pike, and Arctic char (5 AAC 01.236). While not in regulation, in 1997, the board found that 133,000 to 2,850,000 pounds of all nonsalmon freshwater fishes was the amount reasonably necessary for subsistence uses in the Yukon Area.

Subsistence fishing for nonsalmon species is generally open by regulation seven days per week, 24 hours per day, year-round. These state regulations also apply to subsistence fisheries in waters adjacent to federal lands (unless superseded on federal public lands by federal subsistence regulations, applicable only to federally qualified subsistence users). Under federal regulations established by the FSB, rural qualified Alaskan residents of the Yukon-Northern Area have a positive C&T use determination for nonsalmon fishes and in most waters may harvest them without limit.¹⁷

ADF&G Division of Commercial Fisheries collects nonsalmon harvest data on an annual basis as part of the postseason subsistence salmon harvest survey. Although these data have value as the only annual estimate of nonsalmon fish harvests in the Yukon Area, the stratified sample of salmon fishing households to which the survey is administered may not be the most appropriate methodology for collecting nonsalmon harvest information. Other single-year nonsalmon harvest data collection efforts suggest that the postseason survey may significantly underestimate harvests (Andersen et al. 2004; Brown et al. 2005).

Table 4-7 shows harvest estimates of whitefish, sheefish, and northern pike by surveyed community.¹⁸ In 2020, there were an estimated 26,013 whitefish, 25,719 northern pike, and 9,174 sheefish harvested for a total of 60,906 nonsalmon fish (Table 4-7). This is less than the most recent 5-year average harvest of 105,442 and less than the 10-year average harvest of 100,118 (Brown et al. 2021; Fall et al. 2011rev.; 2009; 2012; 2013a; 2013b; 2014; 2015; 2017; 2018; 2019; 2019; 2020).

Harvest data for other species of nonsalmon fish are also recorded on the postseason harvest survey but are not reported in Table 4-7. Some of these other species, such as blackfish, Pacific herring, or tomcod, are harvested in large numbers, particularly in the lower river (Padilla et al. *In prep*). Variations in nonsalmon

17. U.S. Fish and Wildlife Service. “Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska, April 1, 2017–March 31, 2019.” Federal Subsistence Board, Office of Subsistence Management, n.d. https://www.fws.gov/uploadedFiles/Region_7/NWRS/Zone_1/Tetlin/PDF/2017-2019_fisheries_regulations-web_reduced.pdf (Accessed August 16, 2019).

18. Nonsalmon fish harvest data is not reported using the same categories on permits and is therefore not included here.

fish harvests among communities are likely attributed to local species abundance and migration patterns, availability of other resources, and the demographic and fishing profiles of each community and fishing district.

Information on historical and contemporary harvest and use of nonsalmon in communities along the Yukon River, where data are available, can be accessed through the Community Subsistence Information System (CSIS) on the ADF&G website. The CSIS includes data on nonsalmon fish harvests collected as part of Division of Subsistence comprehensive subsistence surveys as well as through nonsalmon specific research. For example, a 2005 study explored the contemporary use of nonsalmon in the lower middle Yukon River communities of Grayling, Anvik, Shageluk, and Holy Cross (Brown et al. 2005), and another study documented the harvest and use of nonsalmon in six lower Yukon River communities for study years 2014 and 2015 (Runfola et al. 2018). Although the Division of Subsistence does not gather annual nonsalmon harvest data from every community, these studies document much higher community-based harvests than the post season salmon effort, likely because of the sampling approach mentioned above. Additionally, these reports describe the nonsalmon fishing patterns and practices for communities in every region of the river.

THE ROLE OF SALMON WITHIN ANNUAL SUBSISTENCE HARVESTS

Yukon Area residents harvest a wide variety of subsistence resources on an annual basis. The composition of a community's subsistence harvests varies by location due to the geographic distribution of different resources. However, salmon are a staple resource throughout most communities in the drainage, even though their abundance declines with distance from the river mouth and the mainstem river.

Considering salmon within the context of total subsistence harvests provides insight into the relative importance of this resource to Yukon Area residents. ADF&G Division of Subsistence staff have conducted comprehensive subsistence surveys in 36 Yukon Area communities since 2010 (e.g., Brown et al. 2015a; 2016; Holen et al. 2012; Ikuta et al. 2014; 2016; McDavid and Cunningham 2020; Park et al. 2020; Trainor et al. 2020a; 2020b; Wilson and Kostick 2016). Results from these studies showed that salmon accounted for approximately 49% of the total subsistence harvest by weight across all study communities. Some variation exists in the degree to which communities on the Yukon River rely on salmon, largely due to the proximity of the community to a harvestable salmon run. However, salmon is one of the most important subsistence resources for nearly every community in the Yukon drainage.

Overall, salmon harvested in the Yukon Area provides hundreds of thousands of pounds of wild foods to local residents each year (Brown et al. *In prep*; CSIS). Not only is this salmon important for its nutritional value, the harvest of salmon is an important customary and traditional practice. Despite restrictions on the harvest of Chinook salmon, harvest of all salmon remains a vital component of subsistence harvests in the Yukon Area.

Table 4-1.—Comparison of amounts necessary for subsistence (ANS) and estimated subsistence salmon harvests, Yukon Area, 1998–2020.

ANS range	Chinook 45,500–66,704	Coho 20,500–51,980	Summer chum 83,500–142,192	Fall chum 89,500–167,900	Pink ^b 2,100–9,700
Year	Estimated number of subsistence salmon harvested ^a				
1998 ^c	52,910	<u>16,606</u>	<u>81,858</u>	<u>59,603</u>	
1999 ^c	50,711	<u>20,122</u>	<u>79,348</u>	<u>84,203</u>	
2000 ^c	<u>33,896</u>	<u>11,853</u>	<u>72,807</u>	<u>15,152</u>	
2001	53,462	21,977	<u>68,544</u>	<u>32,135</u>	
2002	<u>42,117</u>	<u>15,619</u>	<u>79,066</u>	<u>17,908</u>	
2003	55,221	22,838	<u>78,664</u>	<u>53,829</u>	
2004	55,102	24,190	<u>74,532</u>	<u>61,895</u>	
2005	53,409	27,250	93,259	91,534	
2006	48,593	<u>19,706</u>	115,093	<u>83,987</u>	
2007	55,156	21,878	92,891	98,947	
2008	<u>45,186</u>	<u>16,855</u>	86,514	<u>89,357</u>	
2009	<u>33,805</u>	<u>16,006</u>	<u>80,539</u>	<u>66,119</u>	
2010	<u>44,559</u>	<u>13,045</u>	88,373	<u>68,645</u>	
2011	<u>40,980</u>	<u>12,344</u>	96,020	<u>80,202</u>	
2012	<u>30,415</u>	21,533	126,992	99,309	
2013	<u>12,533</u>	<u>14,457</u>	115,114	113,384	<u>1,076</u>
2014	<u>3,286</u>	<u>16,898</u>	86,900	92,229	6,932
2015	<u>7,577</u>	<u>18,107</u>	83,567	<u>86,600</u>	2,645
2016	<u>21,627</u>	<u>8,822</u>	88,082	<u>84,650</u>	8,719
2017	<u>38,100</u>	<u>7,313</u>	87,437	<u>85,093</u>	2,449
2018	<u>31,812</u>	<u>5,527</u>	<u>76,926</u>	<u>64,494</u>	3,712
2019	48,379	<u>5,819</u>	<u>63,303</u>	<u>63,862</u>	5,029
2020	21,531	<u>2,339</u>	<u>41,595</u>	<u>5,696</u>	5,443

Source Padilla et al. (2022)

a. Estimates for 1998–2004 do not include personal use harvests, ADF&G test fishery distributions, or salmon removed from commercial harvests. Estimates for 2005–2020 include test fishery distributions because the amounts necessary for subsistence (ANS) are based on harvests from 1990–1999 and include test fishery distribution. Bold underlined cells indicate harvest amounts are below the minimum ANS.

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

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

Table 4-2.–Yukon Area fishing schedule, 2020.

Area	Regulatory subsistence fishing periods	Open fishing times
Coastal District	7 days per week	M/T/W/TH/F/SA/SU - 24 hours/day
District 1	Two 36-hour periods per week	Mon 8 pm to Wed 8 am / Thu 8 pm to Sat 8 am
District 2	Two 36-hour periods per week	Wed 8 pm to Fri 8 am / Sun 8 pm to Tue 8 am
District 3	Two 36-hour periods per week	Wed 8 pm to Fri 8 am / Sun 8 pm to Tue 8 am
District 4	Two 48-hour periods per week	Sun 6 pm to Tue 6 pm / Wed 6 pm to Fri 6 pm
Koyukuk and Innoko rivers	7 days per week	M/T/W/TH/F/SA/SU - 24 hours/day
Subdistricts 5-A, -B, -C	Two 48-hour periods per week	Tue 6 pm to Thu 6 pm / Fri 6 pm to Sun 6 pm
Subdistrict 5D	7 days per week	M/T/W/TH/F/SA/SU - 24 hours/day
Subdistrict 6	Two 42-hour periods per week	Mon 6 pm to Wed Noon / Fri 6 pm to Sun Noon
Old Minto Area	5 days per week	Friday 6 pm to Wednesday 6 pm

Source JTC (2020)

Note In the Upper Yukon, fishing times are longer by regulation to help account for longer travel times and lower numbers of fish available as fish leave the mainstem Yukon River to spawn in U.S. tributaries. This schedule was altered during the 2019 season based on Chinook salmon run strength

Table 4-3.—Estimated number of subsistence fishing households in surveyed communities, with community and district totals, Yukon Area, 2020.

Community	Households		Estimated number of fishing households
	Total	Surveyed	
Hooper Bay	234	103	115
Scammon Bay	112	41	68
Coastal District subtotal	346	144	183
Alakanuk	145	63	91
Emmonak	194	94	91
Kotlik	120	54	79
Nunam Iqua	42	23	19
District 1 subtotal	501	234	280
Marshall	95	41	51
Mountain Village	163	79	71
Pilot Station	130	58	56
Pitkas Point	24	16	13
St Marys	126	61	68
District 2 subtotal	538	255	259
Holy Cross	51	30	15
Russian Mission	73	26	33
Shageluk	31	16	6
District 3 subtotal	155	72	54
Alatna/Allakaket/Bettles	83	40	15
Anvik	27	19	9
Galena	128	78	50
Grayling	56	25	18
Hughes/Huslia	111	53	19
Kaltag	52	28	28
Koyukuk	41	17	18
Nulato	76	36	43
Ruby	47	16	13
District 4 subtotal	621	312	213
Beaver	31	16	11
Birch Creek/Fort Yukon	213	103	45
Rampart/Stevens Village	19	6	10
Tanana	94	37	41
Venetie/Chalkyitsik	99	24	8
District 5 subtotal	456	186	115
Total	2,617	1,203	1,104

Source Padilla et al. (2022)

Table 4-4.–Household subsistence and personal use permits, listed by fishery and community of residence, Yukon Area, 2020.

Community	Permits		Percent returned	Number of permits returned that fished
	Issued	Returned		
Subsistence permits				
Central/Circle	12	11	92%	7
Eagle	26	26	100%	11
Rampart/Stevens Village	5	5	100%	4
Fairbanks (FNSB) ^a	434	428	99%	248
Manley	17	15	88%	6
Minto	18	16	89%	4
Nenana/Healy	42	42	100%	17
Other Subsistence ^b	144	133	92%	38
Subsistence permit subtotal	698	676	97%	335
Personal use permits				
Fairbanks (FNSB) ^a	97	96	99%	32
Other personal use ^c	12	12	100%	3
Personal use permit subtotal	109	108	99%	35
Total	807	784	97%	370

Source Padilla et al. (2022)

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

b. Other Subsistence represents residents from Anchorage, Auke Bay, Chalkyitsik, Delta Junction, Eagle River, Manley, Minto, Palmer, Tanana, Tok, Venetie, Wasilla, and Wiseman who were issued a subsistence fishing permit for Yukon, Tanana, Tolovana, Kantishna, and upper Koyukuk rivers.

c. Other personal use includes residents from Anchorage, Homer, Sutton, Northway, and Tok who were issued a subsistence fishing permit and fished in the Tanana River.

Table 4-5.—Estimated subsistence salmon harvests by community, Yukon Area, 2020.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	
Hooper Bay	234	103	508	222	3,829	636	1,758	6,953
Scammon Bay	112	41	1,080	334	4,159	417	2,328	8,318
Coastal District subtotal	346	144	1,588	556	7,988	1,053	4,086	15,271
Alakanuk	145	63	1,324	111	3,749	166	143	5,493
Emmonak	194	94	1,093	446	5,609	1,593	123	8,864
Kotlik	120	54	895	169	4,762	149	29	6,004
Nunam Iqua (Sheldon Point)	42	23	368	21	995	30	592	2,006
District 1 subtotal	501	234	3,680	747	15,115	1,938	887	22,367
Marshall	95	41	1,000	283	2,253	28	2	3,566
Mountain Village	163	79	1,002	147	3,382	270	292	5,093
Pilot Station	130	58	1,059	180	3,781	508	0	5,528
Pitka's Point	24	16	272	13	564	141	11	1,001
St Marys	126	61	1,140	14	3,025	224	136	4,539
District 2 subtotal	538	255	4,473	637	13,005	1,171	441	19,727
Holy Cross	51	30	221	12	202	41	0	476
Russian Mission	73	26	375	13	528	0	0	916
Shageluk	31	16	90	12	157	0	25	284
District 3 subtotal	155	72	686	37	887	41	25	1,676
Alatna/Allakaket/Bettles	83	40	173	10	1,432	0	0	1,615
Anvik	27	19	280	35	188	356	5	864
Galena	128	78	616	31	52	42	0	741
Grayling	56	25	264	59	75	73	0	471
Hughes/Huslia	111	53	167	60	1,819	38	0	2,084
Kaltag	52	28	494	0	188	0	0	682
Koyukuk	41	17	220	0	22	0	0	242
Nulato	76	36	1,103	0	16	0	0	1,119
Ruby	47	16	432	0	0	0	0	432
District 4 subtotal	621	312	3,749	195	3,792	509	5	8,250
Beaver	31	16	297	0	0	0	0	297
Birch Creek/Fort Yukon	213	103	735	0	0	0	0	735
Central/Circle	12	11	133	0	0	9	0	142
Eagle	26	26	280	0	0	0	0	280
Fairbanks (FNSB)	531	524	1,533	113	137	578	0	2,361
Rampart /Stevens Village	24	11	409	12	3	20	0	444
Tanana	94	37	4,510	114	1,633	696	0	6,953

-continued-

Table 4-5.–Page 2 of 2.

Community	Households or permits		Estimated salmon harvest					Total
	Total	Surveyed or returned	Chinook	Coho	Summer chum	Fall chum	Pink	
Venetie/Chalkyitsik	99	24	0	0	0	0	0	0
District 5 subtotal	1,030	752	7,897	239	1,773	1,303	0	11,212
Manley	17	15	33	330	7	172	0	542
Minto	18	16	0	0	0	0	0	0
Nenana/Healy	42	42	258	180	23	19	0	480
District 6 subtotal	77	73	291	510	30	191	0	1,022
Other communities	156	145	299	1	2	1	0	303
Total	3,424	1,987	22,663	2,922	42,592	6,207	5,444	79,828

Source Padilla et al. (2022)

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

Table 4-6.—Historical subsistence salmon harvests, Yukon Area, 1976–2020.

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

-continued-

Table 4-6.–Page 2 of 2.

Year	Households or permits		Estimated salmon harvest					Total
	Total	Surveyed or returned	Chinook	Summer			Pink	
				Coho	chum	Fall chum		
2013	3,228	1,607	12,575	14,566	115,252	113,767	1,079	257,239
2014	3,195	1,704	3,287	17,072	87,135	92,507	6,932	206,933
2015	3,141	1,567	7,582	18,252	83,787	86,680	2,645	198,946
2016	3,589	1,965	21,684	9,088	88,258	84,933	8,719	212,682
2017	3,119	1,619	38,225	7,513	87,875	85,719	2,449	221,781
2018	3,320	1,912	32,013	5,527	77,435	65,008	3,712	183,695
2019	3,441	1,958	48,623	5,887	63,597	64,270	5,029	187,406
2020	3,424	1,987	22,663	2,922	42,592	6,207	5,444	79,828
5-year average (2014–2019)	3,322	1,804	29,625	9,253	80,190	77,322	4,511	200,902
10-year average (2010–2019)	3,229	1,714	28,027	12,622	91,580	84,501	4,221	220,950
Historical average (1976–2019)	2,947	1,476	41,111	24,249	139,111	108,170	4,321	308,282

Source Padilla et al. (2022)

Note Cells that do not contain data have no data available.

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

Table 4-7.—Estimated subsistence harvest of whitefish, northern pike, and sheefish by community, Yukon Area, 2020.

Community	Households		Northern			Total
	Total	Surveyed	Whitefish	pike	Sheefish	
Hooper Bay	234	100	2,658	1,173	32	3,863
Scammon Bay	112	41	567	3,573	68	4,208
Coastal District subtotal	346	141	3,225	4,746	100	8,071
Nunam Iqua (Sheldon Point)	42	21	397	10	441	848
Alakanuk	145	64	211	363	547	1,121
Emmonak	194	94	718	1,709	811	3,238
Kotlik	120	54	642	705	1,146	2,493
District 1 subtotal	501	233	1,968	2,787	2,945	7,700
Mountain Village	163	78	1,641	1,545	582	3,768
Pitkas Point	24	16	1,282	263	190	1,735
St Mary's	126	57	3,940	941	649	5,530
Pilot Station	130	58	1,518	213	252	1,983
Marshall	95	41	1,542	2,468	2,590	6,600
District 2 subtotal	538	250	9,923	5,430	4,263	19,616
Russian Mission	73	26	192	437	23	652
Holy Cross	51	30	251	146	38	435
Shageluk	31	16	289	16	0	305
District 3 subtotal	155	72	732	599	61	1,392
Anvik	27	19	215	208	46	469
Grayling	56	25	296	44	165	505
Kaltag	52	28	460	5	137	602
Nulato	76	36	212	0	18	230
Koyukuk	41	17	182	220	0	402
Galena	128	71	178	7	91	276
Ruby	47	16	0	9	0	9
Huslia/Hughes	111	52	3,517	10,743	398	14,658
Allakaket/Alatna/Bettles	83	37	844	113	277	1,234
District 4 subtotal	621	301	5,904	11,349	1,132	18,385
Tanana	94	35	3,829	114	426	4,369
Stevens Village/Rampart	19	6	32	117	0	149
Beaver	31	14	32	28	13	73
Birch Creek/Fort Yukon	213	94	368	530	234	1,132
Venetie/Chalkyitsik	99	24	0	19	0	19
District 5 subtotal	456	173	4,261	808	673	5,742
Total	2,617	1,170	26,013	25,719	9,174	60,906

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Source Padilla et al. (2022)

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

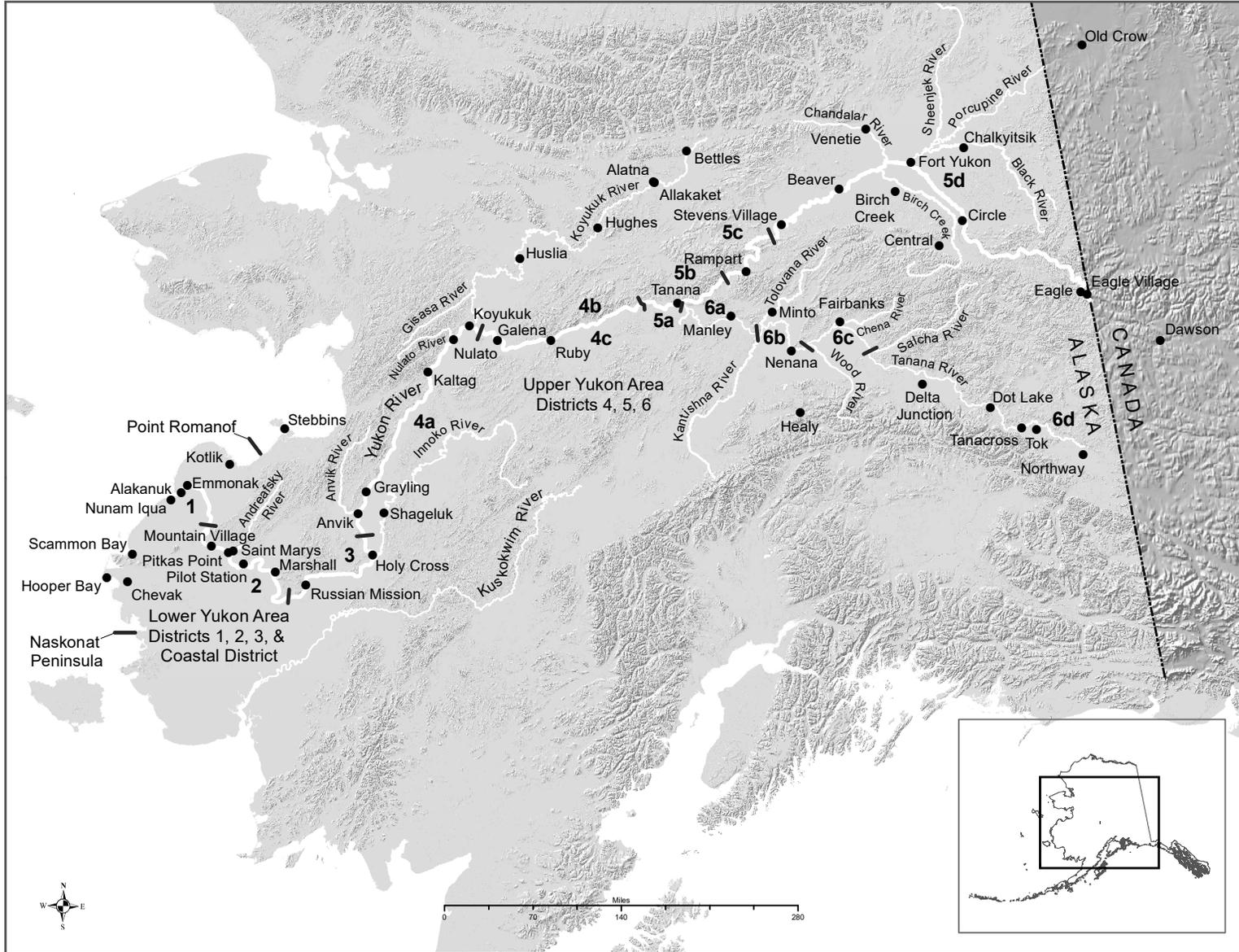


Figure 4-1.—Map of the Alaska portion of the Yukon River drainage, showing communities and districts.

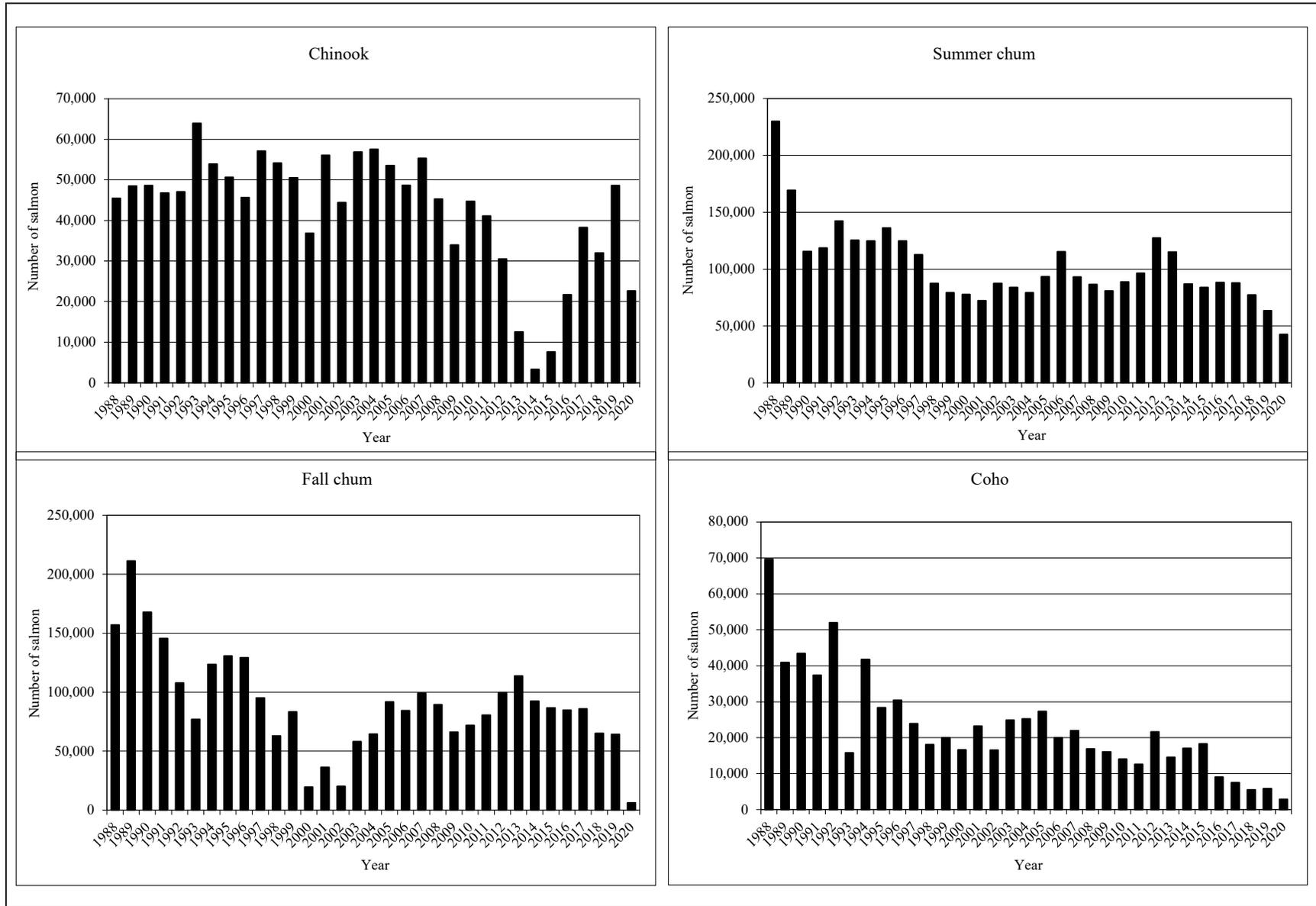


Figure 4-2.—Estimated subsistence salmon harvests by species, Yukon Area, 1988–2020.

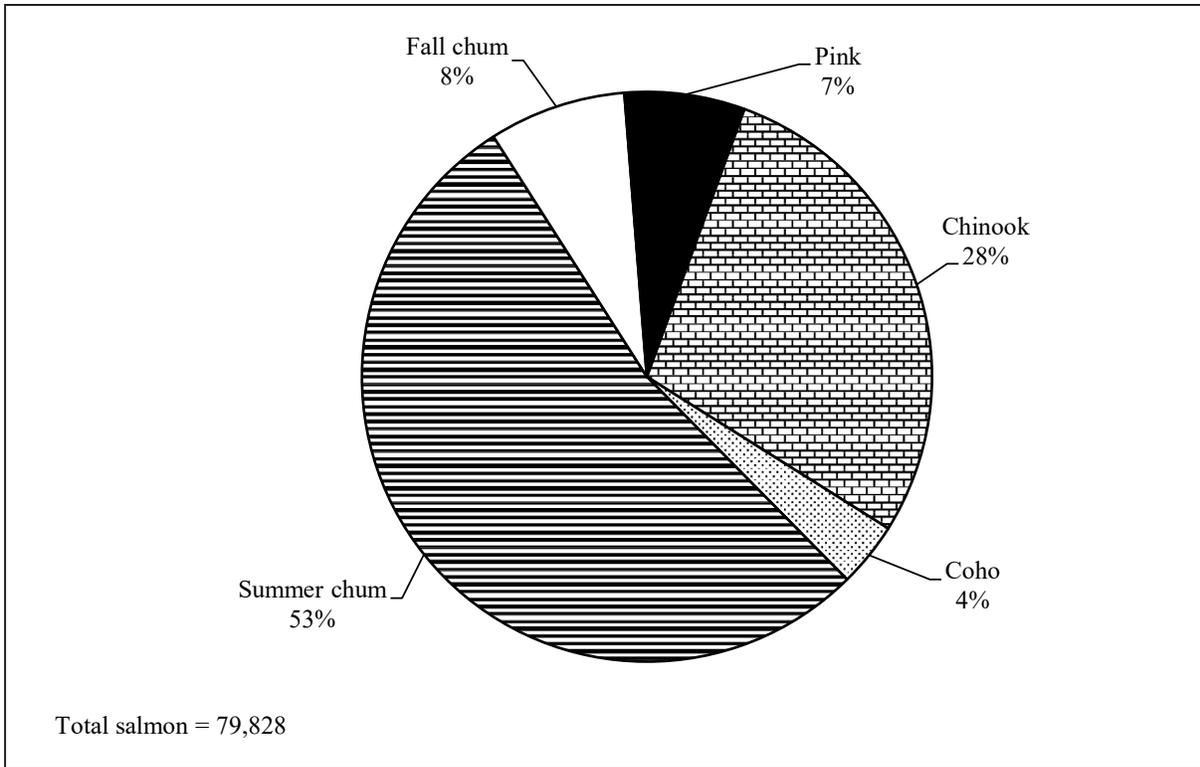


Figure 4-3.—Yukon Area estimated subsistence salmon harvests, 2020.

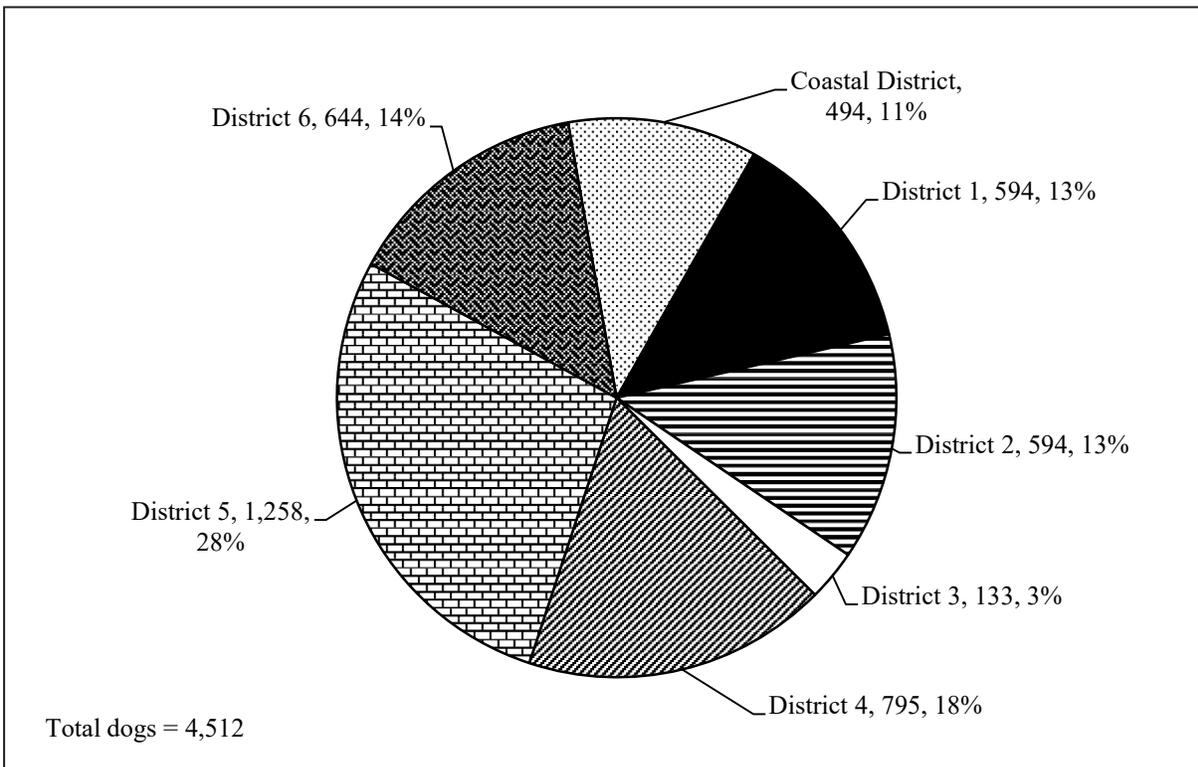


Figure 4-4.—Estimated number of dogs by district, Yukon Area, 2020.

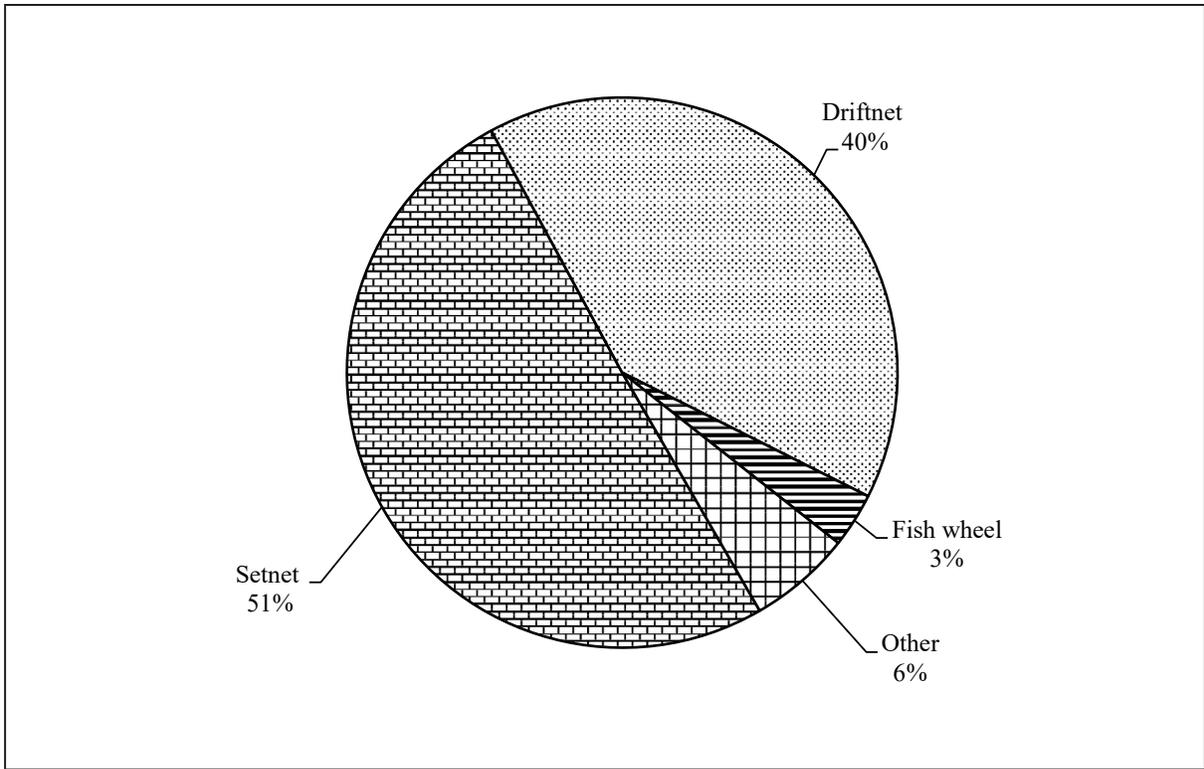


Figure 4-5.—Primary gear type utilized for subsistence salmon fishing, Yukon Area, 2020.

CHAPTER 5: KUSKOKWIM AREA

BACKGROUND

The subsistence salmon fisheries in the Kuskokwim Area¹ (Figure 5-1) are some of the largest in the state of Alaska, in terms of the number of residents who participate, and the number of salmon harvested (Fall et al. 2014). From 1994, when the Alaska Department of Fish and Game (ADF&G) began acquiring reasonably complete statewide coverage of subsistence salmon harvest data, through 2013, over 50% of Chinook salmon harvested under subsistence regulations were taken in the Kuskokwim Area. However, declining salmon runs have resulted in conservative management over the last several years and in 2020, an estimated 41,476 Chinook salmon from the Kuskokwim Area represented 50% of the Chinook salmon subsistence harvest statewide (about 82,225 fish; Table 2-1). The 2020 Kuskokwim Area Chinook salmon harvest was lower than in 2019, when an estimated 44,542 Chinook salmon were taken from the Kuskokwim Area, which although higher than the recent 5- and 10- year averages was still much lower than the 15-year and historical averages (Table 5-3).

In addition to the annual salmon harvest surveys conducted by the Division of Commercial Fisheries, the Division of Subsistence conducted comprehensive subsistence harvest and use surveys in 23 Kuskokwim Area communities between 2010 and 2014 (study years 2009–2013). The results of these studies indicate that, on average, salmon contributed 42% of the total wild resource harvest (in edible pounds) in the Lower Kuskokwim communities, 65% in the Central Kuskokwim communities, and 25% in the Upper Kuskokwim communities (Brown et al. 2012; 2013; Ikuta et al. 2014; Runfola et al. 2017). Residents of the Kuskokwim Area harvest five species of Pacific salmon for subsistence purposes: Chinook salmon *Oncorhynchus tshawytscha*, chum salmon *O. keta*, coho salmon *O. kisutch*, pink salmon *O. gorbuscha*, and sockeye salmon *O. nerka*. Many Kuskokwim Area residents consider Chinook salmon to be their preferred fish for eating (Andrews and Coffing 1986). This sentiment is reflected in salmon harvest estimates from ADF&G subsistence research conducted since 1983.² Drift gillnetting, set gillnetting, and hook and line fishing are the primary methods used when harvesting salmon, although additional gear types are allowed as specified in 5 AAC 01.270. Kuskokwim Area communities are heavily reliant upon the annual returns of salmon not only for basic nutrition, but also for maintenance of cultural identity and cultural values (Andrews and Coffing 1986; Andrews 1989:154; Barker 1993; Brown et al. 2012; 2013; Coffing 1991; Fienup-Riordan 1990:184; 1995:120, 123; Himmelheber 1987:32; Ikuta et al. 2013; 2014; Oswald 1963a; 1963b; 1990; Pete 1993; Poetter and Tiernan 2017:3; Senecal-Albrecht 1998; 1990; Walker and Coffing 1993; Wolfe et al. 1984). However, subsistence salmon harvests have fallen dramatically over decades, and have been especially low in recent years.

There are 38 communities in the Kuskokwim, 37 of which are permanently occupied year-round.³ Twenty-eight Kuskokwim Area communities are typically surveyed each year for this project on a voluntary basis. A majority of Kuskokwim Area households lie within the lower river area. Bethel, in the lower river, is the largest community in the region, consisting of approximately 1,993 households (or approximately 46% of the total number of households in the Kuskokwim Area) in 2020 (McDevitt et al. 2021). Middle river communities account for 8% of the number of households and upper river communities account for 6%. The south Kuskokwim Bay communities of Quinhagak, Goodnews Bay, and Platinum compose about 6% of the

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1. The Kuskokwim Area includes the Kuskokwim River drainage, all waters of Alaska that flow into the Bering Sea between Cape Newenham and the Naskonat Peninsula, and Nunivak and St. Matthew islands (5 AAC 07.200). The Kuskokwim Area is also commonly referred to as the Kuskokwim Management Area or KMA.
 2. CSIS accessed January 31, 2023
 3. Telida is an occasionally occupied location that has not had year-round residents since 2016. Headquarters for the Native Village of Telida are located in McGrath, where many members reside (J. Nikolai, Telida Tribal Administrator. Personal communication with A. Godduhn, February 21, 2019). Household number estimates are not available for any of six Bering Sea coastal communities or two of three communities on the north side of Kuskokwim Bay.

total Kuskokwim Area households (McDevitt et al. 2021) and harvest salmon primarily from the drainages of the Kanektok, Arolik, and Goodnews rivers (Walker and Coffing 1993:1; Wolfe et al. 1984:321–322). The north Kuskokwim Bay communities of Kwigillingok, Kongiganak, and Kipnuk are also not located on the Kuskokwim River, but some residents travel to the Kuskokwim River to fish the historically massive salmon runs. Such travel was prevalent following the introduction of small motorboats in the 1950s but has declined as fewer salmon return to the Kuskokwim River (for example, Kipnuk residents described fishing for salmon closer to home, and targeting more halibut in recent years; Godduhn et al. 2020a). Residents fish in many small salmon bearing coastal rivers as well as in marine waters. (Andrew 2008; Himmelheber 1987:7; Ikuta et al. 2016a; Stickney 1984:60–61; Walker and Coffing 1993:1).

The north Kuskokwim Bay communities of Kongiganak, Kwigillingok, and Kipnuk have declined invitations to participate in the voluntary ADF&G harvest survey in recent years. The communities on the Bering Sea coast (Mekoryuk [on Nunivak Island], Newtok, Tununak, Toksook Bay, Nightmute, and Chefornak) are not included in the survey effort. While little quantitative information is available, residents of these communities harvest salmon from local rivers and coastal waters, which likely include coastal stocks as well as mixed stocks that were not bound for the Kuskokwim River (Fienup-Riordan 1983:112; Godduhn et al. 2020b; Walker and Coffing 1993:1). In 2011, the Association of Village Council Presidents (AVCP) collected subsistence salmon harvest data in these six coastal communities as well as Kipnuk with funds provided by the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (Wolfe et al. 2012). That project provided the most recent subsistence salmon harvest data for this portion of the Kuskokwim Area (Table 5-2), and in 2013, the Alaska Board of Fisheries (BOF) considered the data as they revised the amount reasonably necessary (ANS) for subsistence uses of salmon in the remainder of the Kuskokwim Area.

REGULATIONS

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

Prior to 1990, there were additional restrictions on participation in the subsistence fishery related to the state’s rural priority for subsistence, which subsequently was determined by the Alaska Supreme Court in 1989 to be unconstitutional. In 1988, the BOF formed the Kuskokwim River Salmon Management Working Group (Working Group) in response to requests from stakeholders in the Kuskokwim Area who sought a more active role in the management of salmon fishery resources (Bailey and Shelden 2014:1; Smith and Linderman Jr. 2008:1). The Working Group is composed of knowledgeable stakeholders, processors, and sport fishery representatives, as well as ADF&G biologists and social scientists. It acts in a representative fashion for communities throughout the Kuskokwim River drainage and met 9 times in 2020, prior to and during the salmon fishing season.⁴

In May of 2016, USFWS and the Kuskokwim River Intertribal Fish Commission (KRITFC) established a formal partnership for fisheries management with the U.S. Department of the Interior (DOI) and USFWS, Kuskokwim River Partnership Memorandum of Understanding.⁵ The KRITFC is made up of fish commissioners representing all 33 federally recognized tribes on the Kuskokwim River.⁶ The commission was created with the intention of enabling Kuskokwim River residents to move beyond an advisory role

4. ADF&G Division of Commercial Fisheries, Kuskokwim River Working Group, “Meeting Documentation,” Accessed January 31, 2023. <https://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareakuskokwim.kswg#2020>.

5. Charles Enoch, 2016, “KRITFC Signs an MOU with USFWS.” Accessed January 31, 2023. <http://www.kyuk.org/post/kritfc-signs-mou-usfws>

6. Kuskokwim River Inter-Tribal Fish Commission. History & Mission. Accessed January 31, 2023. <https://www.kuskosalmon.org/mission-history>.

and establish a system in which stakeholders participate in a co-management of Kuskokwim River fisheries resources.

As a result of the passage of Alaska National Interest Lands Conservation Act (ANILCA) and in light of a 1989 Alaska Supreme Court decision in the *McDowell* case, the federal government established the federal subsistence program, which provides subsistence opportunity for qualified rural residents on applicable federal public lands and in applicable federal public waters. Federal subsistence schedules, openings, closings, and fishing methods in the Kuskokwim Area are generally the same as those for state subsistence salmon fisheries, unless superseded by federal special action (50 CFR § 100.27). Regulatory authority for Kuskokwim River salmon management is shared by the Federal Subsistence Board (FSB) and the BOF. On the Kuskokwim, ADF&G is responsible for implementing the Kuskokwim River Salmon Management Plan (5 AAC 07.365) and also has inseason discretionary management authority for salmon in Alaska navigable waters. The portion of the Kuskokwim River drainage from the Aniak River downstream to Kuskokwim Bay is within the boundaries of the Yukon Delta National Wildlife Refuge (YDNWR). As such, the U.S. Fish and Wildlife Service (USFWS) shares inseason subsistence fishing management decision-making with ADF&G in this part of the Kuskokwim River. The USFWS holds final decision-making authority over management of salmon in these waters in the event that the federal subsistence program determines that subsistence uses by non-federally qualified users must be eliminated in order to meet the federal subsistence priority. The Working Group and KRITFC advise state and federal managers through an established process and is currently the primary forum through which management decisions are made regarding Kuskokwim River subsistence, commercial, and sport salmon fisheries (Smith and Linderman Jr. 2008:1). The highest priority in state and federal management of the Kuskokwim River’s salmon populations is biological sustainability of the resources based on principles of sustained yield. If returning salmon numbers are not sufficient to meet established escapement goals that will allow for the maintenance of future generations of salmon populations, consumptive uses of salmon may be restricted. Under conditions when there is a harvestable surplus beyond these minimum escapement levels, consumptive uses of salmon are prioritized for different user groups. Individuals must be Kuskokwim Area residents to participate in the Kuskokwim federal subsistence salmon fishery (50 CFR § 100.5).

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

In January 2013, the BOF again modified ANS ranges by species for the Kuskokwim River drainage and other portions of the Kuskokwim Area. The current ANS ranges for salmon in the Kuskokwim Management Area are as follows (5 AAC 01.286(b)):

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

The BOF in 2013 also updated and clarified the Kuskokwim River Salmon Management Plan (5 AAC 07.365). The plan provides guidelines for managing the Kuskokwim River salmon fisheries to meet escapement goals and the subsistence priority; goals for Kuskokwim Area and other Arctic–Yukon–Kuskokwim (AYK) salmon stocks were reevaluated in 2015 (Conitz et al. 2015).⁷

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

Therefore, until the recent sharp decline in Chinook salmon, the subsistence salmon fishing season in the Kuskokwim Area was generally open unless a subsistence fishing schedule closure was implemented by emergency order prior to, during, and after commercial fishing periods, or closures to the fishery were implemented by emergency order for conservation purposes (see 5 AAC 01.260, and 5 AAC 07.365). On the Kuskokwim River, a subsistence fishing schedule with periodic fishing closures (openings between these closures were often referred to as “windows” or “openers”) was implemented from 2001–2006 and has since been discontinued. Since 2007, a gillnet fishing closure has occurred by emergency order early in the season with timed openings announced during the Chinook salmon run; this limits fishing for these highly desired fish as well as other species.

Subsistence fishing within the Kuskokwim River drainage is managed in five sections (McDevitt et al. 2020). During times of Chinook salmon conservation, subsistence fishing opportunities are typically scheduled on the lowest section of the river first. Fishing opportunities then progress upriver to additional sections as the salmon run develops. Section 1 extends from the mouth of the Kuskokwim River to the mouth of the Johnson River; section 2 continues from the mouth of the Johnson River to approximately one half of a mile above the mouth of the Tuluksak River and includes the community of Bethel. Section 3 extends from the upper boundary of section two to a point near the mouth of the Aniak River. Sections one through three are within the boundaries of the Yukon Delta National Wildlife Refuge. Section 4 continues from the Yukon Delta National Wildlife Refuge border to markers just downstream from the Holitna River Mouth; section 5 includes the remainder of the drainage, from the Holitna River to the headwaters of the Kuskokwim River.

Several regulations adopted by the BOF since 2014 are intended to reduce overall Chinook salmon harvests while allowing for subsistence salmon fishing opportunities during times of Chinook salmon conservation; the regulations focus on gear that is nonlethal or selective and stipulate the live release of Chinook salmon to the water. These regulations enable the department to allow and adjust the use of rod and reel, dip nets, fish wheels, four-inch mesh set gillnets, and three-and-a-half-inch mesh beach seines for catching salmon. In January of 2016, the BOF adopted language that annually suspends directed subsistence fishing for Chinook salmon in the Kuskokwim River until after June 11 in order to ensure that Chinook salmon reach the middle and upper Kuskokwim River for escapement and subsistence uses (5 AAC 07.365(a)).

In March of 2017, the BOF established a household subsistence Chinook salmon fishing permit for implementation during the 2018 fishing season (McDevitt et al. 2020; Runfola et al. 2018). The system was designed to provide fishers with opportunities to harvest a small number of Chinook and other salmon within

7. “Kuskokwim Area revisions were recommended for Kanektok River Chinook, Kanektok River sockeye *O. nerka*, and North Fork Goodnews River sockeye salmon goals. Discontinuation of the Aniak River chum salmon goal was recommended because the sonar assessment project was discontinued. No other changes to the region’s escapement goals were recommended” (Conitz et al. 2015:1)

state waters of the Kuskokwim River drainage during times of Chinook salmon conservation. Permit data do not record a household's total salmon harvest. Therefore, all eligible households within the Kuskokwim Area are invited to participate in the annual postseason household surveys that estimate all salmon harvests within the Kuskokwim Area—including catches made while fishing under the permit system.

In 2019, the BOF established dipnets as legal gear for subsistence salmon fishing. Kuskokwim Area subsistence fishers may use dipnets to harvest salmon at any time, however, during times of Chinook salmon conservation, the department may require that all Chinook salmon caught in dipnets are released.⁸

2020 Subsistence Fishery

Very low Chinook salmon returns challenge managers to provide both adequate subsistence harvest opportunities and adequate escapement for long term productivity. As expected, for the seventh year in a row, gillnet fishing was closed early in 2020 to protect Chinook salmon.⁹ The department's preliminary management strategy was to institute restrictive management actions at the onset of the fishery with the potential to relax restrictions based on inseason information if warranted. As recommended by the Working Group, managers executed the 2020 closure to coincide with salmon arrivals: the early season closure began on June 1, 2020 from the Kuskokwim River mouth to the confluence of the Tuluksak and Kuskokwim rivers near the community of Tuluksak. Beginning June 3, the early season closure extended from the mouth of the Tuluksak River to the Yukon Delta National Wildlife Refuge boundary at Aniak, and on June 9, the closure extended from the refuge boundary at Aniak to the mouth of the Holitna River. Finally, on June 11, the closure was implemented from the Holitna River mouth to the Kuskokwim River headwaters. Additional restrictions during this time included tributary closures as well as live release requirements for Chinook salmon. The early season closure also included three 24-hour, 6-inch set gillnet opportunities on June 3, 6, and 9 for the purpose of allowing harvest opportunities for nonsalmon species. From June 1 to July 1, the Federal Subsistence Board adopted a Special Action to close the Kuskokwim River Chinook salmon fishery to non-federally qualified users within the boundary of the Yukon Delta National Wildlife Refuge (YDNWR). During this time, USFWS provided 6-inch set gillnet opportunities that ran concurrent to the June 3, 6, and 9 opportunities issued by ADF&G. In addition, USFWS provided a total of four 12-hour, 6-inch mesh gillnet opportunities on June 12, 15, 18, and 24. These opportunities allowed for the use of set or drift gillnets no greater than 25 fathoms (150 feet) in length from above the mouth of the Johnson River to the refuge boundary at Aniak and no more than 50 fathoms (300 feet) in length from below the mouth of the Johnson River to the refuge boundary at the Kuskokwim River mouth. On June 18, USFWS opened the section of the Kuskokwim River mainstem beginning at the Kalskag bluff to the refuge boundary at Aniak, indefinitely, to the use of 25 fathom, 6-inch or less mesh gillnets.

On June 12, ADF&G opened subsistence fishing in state waters in sections 4 and 5 to 6-inch mesh, 25 fathom gillnets from the YDNWR boundary at Aniak to the Kuskokwim River headwaters. On July 7, by emergency order, the department lifted restrictions that had been in place for sections 1–3, which reach from the Kuskokwim River mouth to the YDNWR boundary at Aniak.⁹ Restrictions during this time allowed for the use of 6-inch mesh drift gillnets 25 fathoms in length above the Johnson River mouth to the refuge boundary at Aniak and 50 fathoms in length below the Johnson River mouth to Kuskokwim Bay. As a result of the July 7 emergency order, the entire river was open to subsistence fishing. On August 1, ADF&G rescinded all mainstem Kuskokwim River gear restrictions, and on August 31 all tributary restrictions were lifted.

8. Alaska Department of Fish and Game Division of Commercial Fisheries. "2019 Kuskokwim River Salmon Fishery News Release #1 Board of Fisheries Actions: Kuskokwim Area" news release, January 23, 2019. Accessed January 31, 2023. www.adfg.alaska.gov/static/applications/dcfnewsrelease/1009356676.pdf

9. Alaska Department of Fish and Game Division of Commercial Fisheries "Kuskokwim River Salmon Fishery Announcement #15: 2020 Preliminary Kuskokwim Area Salmon Season Summary" news release, October 15, 2020. Accessed January 31, 2023. <https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1229575804.pdf>

There were no commercial fish buyers operating in the Kuskokwim River in 2020. Therefore, commercial fishing opportunities were limited to individuals registered with the department as catchers/sellers who had secured their own markets. Commercial fishing was opened (directed at sockeye, chum, and coho salmon) for 14 periods in District 1 of the Kuskokwim River between July 19 and August 21. The year 2020 marked the first commercial salmon fishery in District 4 and District 5 since 2015. The District 4 commercial fishing season began on June 29 and ended on September 2. There were 28 commercial fishing periods. The commercial fishing season was delayed from the normal start of June 15 and subsistence mesh size was restricted to 6-inch or less between June 1 and July 15 to allow for Chinook salmon escapement. This year also marked the first commercial salmon fishery in District 5 since 2015. The District 5 commercial fishing season began on June 29 and ended on September 2. There were 38 commercial fishing periods. The commercial fishing season was delayed from the normal start of June 15 to allow for Chinook salmon escapement.

Based upon analysis of the department's Chinook Salmon Run Reconstruction Model, the total run of Kuskokwim River Chinook salmon in 2020 was estimated to be 124,486 fish (Larson 2021). This run was above the most recent 10-year average (2009–2018) run size of 118,987 Chinook salmon, but below the 1976–2019 average of 215,870 fish. Also, the estimated 2020 Chinook salmon escapement of 88,285 fish met the drainagewide sustainable escapement goal of 65,000–120,000. Chinook salmon abundance in the Kuskokwim River drainage has decreased since 2007, with some improvement since the record low year of 2013.

The 2020 estimated total Kuskokwim Area Chinook salmon subsistence harvest of 41,476 fish (Table 5-1) was the second largest since 2013. This harvest was slightly more than the 10-year average (2010–2019) of 37,680 fish, but 44% less than the historical average (1989–2019) harvest of 73,601 fish (Table 5-3).

SUBSISTENCE SALMON HARVEST ASSESSMENT METHODS

The 2020 survey season was characterized by numerous challenges as a result of the COVID-19 pandemic and associated community health and safety guidelines and travel restrictions (McDevitt et al. 2021). These challenges prompted project management staff, regional fisheries management staff, and Orutsarmiut Native Council (ONC) staff to cooperatively develop a variety of methodological enhancements prior to implementation in order to fulfill the project objectives. As described in more detail below, salmon harvest estimates reported in this chapter's tables are based on postseason surveys with Kuskokwim Area households in fall 2020. In addition, management goals of maximizing the allowed harvest while ensuring adequate escapement for threatened stocks of Chinook salmon benefit from reliable real-time harvest estimates; such estimates are best informed by data collected from fishers as they return from fishing with their catch or shortly thereafter. Due to pandemic-related travel restrictions and to remain in compliance with local community health and safety mandates, researchers made significant enhancements to data collection tools for the 2020 survey season. In addition to the standard survey administered by ADF&G and ONC technicians in 2019, an online survey was created to provide households with an additional opportunity to participate without direct contact with a surveyor. Further, an abbreviated, self-administered, mail-in survey form was made available to interested households that preferred to complete the survey either on their own or telephonically with project staff. Project and regional management staff reviewed all new forms. The following is a description of the different survey formats used and made available for the 2020 season.

Inseason Fisher Harvest and Effort Surveys

In May of 2016, the United States Fish and Wildlife Service (USFWS) and the Kuskokwim River Intertribal Fish Commission (KRITFC) established a formal partnership for fisheries management with the U.S. Department of the Interior (DOI) and USFWS, Kuskokwim River Partnership Memorandum of Understanding.¹⁰ In cooperation with ONC of Bethel these entities implemented a harvest and fishing effort assessment project to produce inseason subsistence salmon catch estimates. During each fishing

10. Charles Enoch, 2016, "KRITFC Signs an MOU with USFWS." Accessed February 21, 2023. <http://www.kyuk.org/post/kritfc-signs-mou-usfws>

opening, USFWS staff who supervised the project estimated harvest based upon dockside creel surveys that documented individual fisher catch and effort, coupled with aerial boat-counting surveys to estimate fishing fleet size in the YDNWR of the Kuskokwim River (Runfola et al. 2019; Staton 2018). The ongoing project is focused on real-time estimates of salmon taken from the lower portion of the mainstem Kuskokwim River, from the mouth to Aniak. The project expanded to include more communities in 2017 and again in 2018; thereby increasing creel and aerial survey sample sizes and reducing uncertainty in the daily catch and effort estimates (Staton 2018). The resulting total estimate of 35,500 salmon harvested within refuge boundaries during the four openings was composed of approximately 23,210 Chinook, 6,710 sockeye and 5,590 chum salmon (Decossas 2020). Unlike the postseason survey (described in more detail below), the purpose of the inseason project is not to give a total harvest estimate for the season but to provide an estimated running total of the harvest in a portion of the Kuskokwim River as each opening occurs from approximately June 12 through June 30. Estimates assist managers and advisory stakeholder groups in their efforts to schedule subsequent fishing openings.

Postseason Household Harvest Surveys

ADF&G has been estimating Kuskokwim Area subsistence salmon harvests annually by postseason subsistence survey since 1960; methods were improved and standardized in 1988 and data are comparable since 1989 (Hamazaki 2011; McDevitt et al. 2020). The purpose of the survey is to estimate the total annual subsistence salmon harvest from Kuskokwim Area waters by area residents. The ADF&G, USFWS, BOF, and FSB rely on postseason subsistence salmon harvest data and resulting estimates to manage salmon fisheries and to provide reasonable opportunities for continued customary and traditional uses of salmon throughout the area. The Orutsararmiut Native Council has been involved with subsistence salmon harvest monitoring in Bethel since 1999. The ADF&G responsibilities have shifted occasionally between the Division of Subsistence and the Division of Commercial Fisheries (McDevitt et al. 2020). In 2020, under a cooperative program between ADF&G, the USFWS Office of Subsistence Management, and the ONC, postseason subsistence salmon harvest data collection in Bethel was conducted by ONC staff. Postseason subsistence harvest data collection in all other communities was conducted by ADF&G staff.

In 2020, household surveys were attempted in 28 of the 38 communities within the Kuskokwim Management Area, including most communities along the Kuskokwim River and all communities within South Kuskokwim Bay (McDevitt et al. 2021). The community of Kongiganak in the north Kuskokwim Bay declined a request by ADF&G staff to conduct surveys in 2012–2020. Researchers were unable to gain approval to conduct surveys in the communities of Stony River and Lime Village. The village of Telida is a seasonally occupied location with no year-round residents and was therefore not surveyed.

Full-length Survey

In 2020, ADF&G technicians administered full-length surveys via telephone to participating households in all surveyed communities outside of Bethel. After a minimum of three unsuccessful attempts were made to contact a household, an abbreviated form was sent to the mailing address on file for that household. Considering the challenges of administering a survey during the COVID-19 pandemic, this final effort—the abbreviated mail-out survey—was specifically implemented for the purpose of improving household participation with the survey (McDevitt et al. 2021).

Abbreviated Survey

The abbreviated survey form was sent to households that ADF&G was unable to contact via telephone. In addition, ONC Fisheries technicians administered this form in Bethel instead of the full-length form used in previous years (McDevitt et al. 2021).

Online Survey

As part of the 2020 outreach efforts, notices of remotely administered survey options, including an online form, were posted on social media, described on the radio, and posted as ads in the local newspapers. Further, links to the online form printed on door-hanging placards were made available through these

additional outreach efforts. The online survey form asked the same questions as the full-length survey form (McDevitt et al. 2021).

Harvest Calendars

In addition to systematic household harvest surveys, subsistence salmon harvest calendars were mailed in late April or early May so that they were available to fishers prior to the start of the salmon fishing season. ADF&G staff sent 1,786 subsistence harvest calendars to Kuskokwim River drainage and South Kuskokwim Bay area households. In 2020, ONC distributed calendars to Bethel area fish camps. The calendar data continue to be instrumental for examination of subsistence salmon harvest timing. Many area fishers reference information they recorded on the calendars during postseason household harvest surveys.

Calendar mailings were based on the most up-to-date household lists used in the harvest monitoring program. Because surveyors did not conduct surveys in-person in communities outside of Bethel, harvest calendars could not be collected. A total of 82 calendars (5%) were returned to ADF&G offices. Returned calendars were used to corroborate household survey data when possible at the time of the survey (McDevitt et al. 2021).

2020 SAMPLING SUMMARY

In 2020, there was an estimated total of 4,291 households in the 28 study communities (Table 5-1). This estimate of households does not include the north Kuskokwim Bay communities of Kwigillingok, Kongiganak, or Kipnuk or the Bering Sea coast communities of Nightmute, Mekoryuk, Newtok, Toksook Bay, Tununak, and Chefornak. Of the 4,291 estimated households, 77% were located in the Lower Kuskokwim region, including 1,993 households (46% of the total estimated households) in Bethel and 1,313 households (31%) in the remainder of Lower Kuskokwim communities, followed by 339 households in the Middle Kuskokwim, and 271 households in the Upper Kuskokwim (Table 5-1). House hold number estimates increased in the Lower Kuskokwim, including increased estimates in Bethel, but decreased in the Middle Kuskokwim and Upper Kuskokwim communities from 2019.

Out of the 4,291 estimated 2020 households, surveys were conducted with 1,649 households (38%) in 26 Kuskokwim Area communities (Table 5-1). As noted above, subsistence salmon harvests in communities in which no household surveys took place may be estimated using a Bayesian hierarchical multiple imputation method if adequate harvest data for previous years existed; however, there were only two Kuskokwim Area communities (Stony River and Lime Village) for which sufficient historical data enabled annual harvest estimates using this method in 2020. As a result, the Kuskokwim Area total should be viewed as an incomplete estimate because data for some communities are not available.

For lower Kuskokwim River communities, 1,298 (39%) of the 3,306 households were contacted. In the south Kuskokwim Bay region (Quinhagak, Goodnews Bay, and Platinum), 167 (59%) of the 285 households were contacted. None of the Bering Sea coastal communities participated in postseason salmon surveys in 2020 (Table 5-1), and data for previous years are incomplete. Currently, subsistence salmon harvest information collected by AVCP for 2011 remains the only available and reliable salmon harvest data source for the region (Table 5-2; Wolfe et al. 2012).

Communities of the middle and upper Kuskokwim River regions are generally smaller than lower river communities, and together account for about 14% (610 households) of the total households (4,291) in the Kuskokwim Area. In the middle Kuskokwim River region, defined here as communities located on the Kuskokwim River from Lower Kalskag upriver to Chuathbaluk, 194 (57%) of 339 households were contacted in 2020. For upper Kuskokwim communities, defined here as communities located on the Kuskokwim River from Crooked Creek upriver to Telida (in addition to Lime Village located on the Stony River and Takotna located on the Takotna River), 157 (57%) of 271 households were contacted. The historic communities of Georgetown, Napaimute, and Telida were not surveyed due to an absence of permanent populations; households who fish in these places are surveyed during their residence in other Kuskokwim River communities, and their catches are considered part of the residential community's total harvest.

2020 SUBSISTENCE SALMON HARVEST SUMMARY

A summary of the subsistence salmon harvest estimates by community and fishing area is presented in Table 5-1. In 2020, fishers harvested an estimated total of 151,793 salmon for subsistence use from the Kuskokwim Area; about 139,687 (92%) of the salmon were harvested from the Kuskokwim River. People in the Lower Kuskokwim communities harvested about 119,240 salmon, 79% of the estimated total subsistence salmon harvest, including 55,698 salmon (37%) in Bethel and 63,542 salmon (42%) in the remaining Lower Kuskokwim communities (Table 5-1). Fishers in the Middle Kuskokwim communities harvested 12,369 fish (8%), followed by 12,106 fish (8%) in South Kuskokwim Bay, and 8,078 fish (5%) in the Upper Kuskokwim.

Sockeye salmon contributed 31% of the estimated subsistence salmon harvest (46,952 fish), followed by Chinook salmon (27%, 41,476 fish), chum salmon (19%, 28,149), coho salmon (22%, 34,120 fish), and pink salmon (1%, 1,095 fish) (Table 5-1 and Figure 5-2).

The total subsistence salmon harvest was approximately 9% lower than the 2019 harvest and 5% less than the most recent 5-year average (2015–2019; Table 5-3). Chinook salmon harvests have declined steeply since 2007, however, the 2020 Chinook salmon harvest of 41,476 fish was the second largest since 2013. The 2020 subsistence harvest of Chinook salmon was 39% greater than the most recent 5-year average harvest of 29,775 fish, and 10% above the 10-year average (37,680 fish). However, despite comparing favorably to recent years, the 2020 harvest of Chinook salmon was the seventh lowest year on record and amounted to only 57% of the historical average (72,535 fish).

Chum salmon harvests also show decline over decades. The estimated 2020 chum salmon harvest of 28,149 fish was the lowest on record and was approximately 60% lower than the historical average. The 2020 subsistence sockeye salmon harvest of 46,952 fish was approximately 3% higher than the historical average. The 2020 subsistence coho salmon harvest of 34,120 fish was comparable to the most recent 5-year average of 34,300 fish, but 13% lower than the historical average.

Lower Kuskokwim River Area communities (77% of Kuskokwim Area households), accounted for 75% of the total estimated Chinook salmon subsistence harvest in the Kuskokwim Area, 85% of the total chum salmon harvest, 80% of the total sockeye salmon harvest, and 77% of the total coho salmon harvest. In 2020, residents of Bethel (46% of Kuskokwim Area households) accounted for approximately 33% of estimated total Kuskokwim Area subsistence-caught Chinook salmon, 49% of the coho salmon harvest, 36% of the sockeye salmon harvest, and 28% of the chum salmon harvest (Table 5-1).

Use of Salmon for Dog Food

Historically, a large portion of the overall subsistence salmon harvest was taken for use as dog food—especially chum and coho salmon. Over decades, the number of households harvesting salmon specifically for dog food has declined due to decreased use of dog teams for transportation. In 2020, respondents in 1,427 households reported owning dogs, and 56 households (1% of Kuskokwim Area households) reported feeding salmon to dogs (Table 5-4). An estimated total of 4,712 salmon were fed to dogs in 2020, a 47% decrease from the 2019 estimate of 10,020. About 69% of the salmon reported as fed to dogs were coho salmon (3,261 fish); 20% were chum salmon (922 fish); 8% were sockeye salmon (379 fish); and 2% were pink salmon (93 fish). Households do not target Chinook salmon for dog food; however, about 57 Chinook salmon (1%), likely unfit for human consumption, were reported to have been fed to dogs in an effort to avoid wasting the fish. Many households also routinely feed scraps—backbones, entrails, and salmon unfit for human consumption—to their pet dogs.

Gear Types

Kuskokwim Area subsistence fishers deploy a variety of gear types to harvest salmon (e.g., set gillnet, drift gillnet, rod and reel, or fish wheel; Table 5-5). Households that harvested salmon were asked to provide information on the primary gear type used by their household for harvesting salmon. In 2020, 2,186 contacted fishing households responded to gear type questions. Of those, 907 (71%) reported salmon fishing predominantly with drift gillnets, 163 (13%) reported set gillnets, 113 (9%) reported subsistence

rod and reel gear, and 23 (2%) reported a fish wheel as the gear type they used most for subsistence salmon fishing in 2020. Preferred gear types vary between regions of the Kuskokwim Area, and fishers often select which gear type to use based on local environmental factors such as river morphology and water level as well as salmon species to be targeted. In recent decades, drift gillnets have been the most common gear type deployed by fishers in the lower and middle Kuskokwim River communities where river depth and width permit the efficient use of this type of net. In communities of the upper Kuskokwim River, a narrower and generally shallower river channel typically restricts fishers to the use of set gillnets and occasionally fish wheels. Also, subsistence fishers who reside near clearwater streams often harvest salmon by rod and reel (e.g., Kwethluk, Takotna, and Nikolai). Local community or family customs and traditions associated with subsistence salmon fishing are also important when fishers determine the best subsistence salmon fishing gear to use, such as rod and reel gear for Chinook salmon in the Pitka Fork Salmon River by Nikolai fishers and for coho salmon along the Kuskokwim riverfront in Aniak in July and August.

Salmon Retained from Commercial Fishing for Subsistence Uses

Households involved in commercial salmon fishing occasionally keep a portion of their commercial harvest for subsistence use. Because there were no commercial fish buyers operating in the region in 2020, commercial fishing opportunities were very limited. The number of salmon retained from commercial catches for subsistence use was not recorded on the subsistence salmon harvest survey in 2020 (McDevitt et al. 2021).

OTHER FISH

Harvest data for nonsalmon fish species were also collected as part of the postseason salmon survey (Table 5-7). Estimated 2020 harvests of nonsalmon species by residents of surveyed communities in the Kuskokwim Area included 17,198 humpback whitefish; 17,228 broad whitefish; 2,894 cisco (including Bering and least ciscoes); 2,142 sheefish; 8,323 burbot; 63,184 northern pike; 147,249 Alaska blackfish; 101,673 smelt (predominantly rainbow smelt); 6,347 Pacific herring; 1,239 Arctic grayling; 4,478 char/Dolly Varden; and 343 rainbow trout.

The Division of Subsistence conducted a study in 2017 of nonsalmon fisheries in Quinhagak as well as three coastal Kuskokwim Area communities that do not generally participate in the postseason salmon surveys: Kipnuk, Mekoryuk, and Nightmute (Godduhn et al. 2020a). The 2017 nonsalmon fish survey conducted in Quinhagak estimated significantly greater harvests for all nonsalmon species compared to the 2020 postseason salmon survey harvest estimates for the community. However, these estimates are not easily compared due to differences in the survey methods of the two separate data collection efforts (Godduhn et al. 2020a). Postseason salmon surveys occur in the fall, which may cause harvests from the previous winter to be underestimated. The 2017 nonsalmon surveys occurred midwinter, which may have resulted in a more accurate recollection of the harvest. Also, the postseason salmon survey uses a stratified sampling method that targets known salmon fishers, such that some heavy nonsalmon fishing families may be missed.

Studies focusing on the local and traditional knowledge of nonsalmon fishes and nonsalmon fish harvest amounts were conducted in Aniak and Chuathbaluk for 2001–2003 (Krauthoefer et al. 2007), Bethel for 2001–2003 (Simon et al. 2007b), Eek, Tuntutuliak, and Nunapitchuk for 2005–2009 (Ray et al. 2010), as well as Nikolai and Lime Village for 2012–2013 (Godduhn et al. 2020b; Mikow et al. 2019; Van Lanen and Runfola 2015). Information on historical and contemporary harvest and use of salmon and nonsalmon in Kuskokwim Area communities, where data are available, can be accessed through the Community Subsistence Information System (CSIS) on the ADF&G website.

THE ROLE OF SALMON WITHIN ANNUAL SUBSISTENCE HARVESTS

The Division of Subsistence conducted comprehensive subsistence harvest and use surveys in the following 20 Kuskokwim River drainage communities: in 2010 (study year 2009), Aniak, Chuathbaluk, Crooked Creek, Lower Kalskag, Red Devil, Sleetmute, Stony River, and Upper Kalskag (Brown et al. 2012); in 2011 (study year 2010), Akiak, Kwethluk, Oscarville, Tuluksak, Georgetown, and Napaimute (Brown et al. 2013); in 2012 (study year 2011), Napakiak, Napaskiak, McGrath, Nikolai, and Takotna (Ikuta et al.

2014); in 2013 (study year 2012), Bethel (Runfola et al. 2017); and in 2014 (study year 2013), Tuntutuliak and Eek (Ikuta et al. 2016b). These comprehensive surveys included questions about the harvest and use of all wildlife and plants. In addition, the division conducted an ethnographic project to understand harvest patterns and trends of subsistence Chinook salmon fishing across the drainage in Tuntutuliak, Kwethluk, Kalskag, Sleetmute, and Nikolai in 2009 and in the Bethel area in 2012 (Ikuta et al. 2013). The results of these studies demonstrate that salmon provide a large portion of the total subsistence food supply in Kuskokwim River communities. In 2012, the top five resources harvested by edible weight were moose at 20%, chum salmon at 12%, coho salmon at 11%, sockeye salmon at 10%, and Chinook salmon at 8% of the estimated total subsistence harvest by Bethel residents (Runfola et al. 2017). However, declines in Chinook salmon abundance have prompted subsistence fishing restrictions during the Chinook salmon fishing seasons over the last decade. The 2011 harvest estimate of 65,850 Chinook salmon was the record low at that time, but greater than any harvest since then (Table 5-3). In 2012, the total estimated Chinook salmon harvest in the Kuskokwim Area (25,353 fish) was more than 70% below the (2002–2011) 10-year average Chinook salmon harvest for the region (85,877 fish).

In other lower Kuskokwim River communities in 2010 (Oscarville, Kwethluk, Akiak, and Tuluksak) and 2011 (Napakiak and Napaskiak), the five most heavily harvested resources were Chinook salmon at 20%, chum salmon at 12%, and northern pike, sockeye salmon, and humpback whitefish in relatively similar proportions, each from 8 to 9% of the total subsistence harvest (Brown et al. 2013; Ikuta et al. 2014). However, continued declines in the Chinook salmon harvest since that time have likely altered the percentages that these resources contribute to the total subsistence the harvest in the region. Like people in Bethel, people living in other lower Kuskokwim River communities rely on salmon and moose, yet they tend to harvest more nonsalmon fish species, such as northern pike and humpback whitefish, than people living in Bethel (Runfola et al. 2017).

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

In the three upper Kuskokwim River communities (McGrath, Nikolai, and Takotna), the top five resources in 2012 were moose at 45%, Chinook salmon at 14%, coho salmon at 6%, and sheefish and northern pike both at 4% of the total subsistence harvest (Ikuta et al. 2014). People in upper Kuskokwim River communities are more dependent on moose than those in communities downstream in the drainage. However, Chinook salmon was ranked as the second most harvested resource, demonstrating its importance to the overall subsistence economy of the upper Kuskokwim River region even following reductions to those harvests.

In 2011, AVCP conducted a study to estimate subsistence salmon harvests of 7 Kuskokwim Area coastal communities that are not included in the annual postseason salmon survey (Wolfe et al. 2012) (Table 5-2). The total estimated subsistence harvest of salmon for these seven communities in 2011 was 16,593 fish, including 7,226 chum (44%), 4,439 sockeye (27%), 2,864 coho (17%), 1,298 Chinook (8%), 746 pink (4%), and 20 salmon of unknown species (<1%).

Steep declines in the harvest of Chinook salmon have increased efforts to catch other species of salmon as well as nonsalmon fishes. However, Kuskokwim Area residents continue to express a strong preference for Chinook salmon, the largest and most oil-rich of all area fishes—such that cooperative efforts to conserve and rebuild Chinook salmon runs are critical. Research into the patterns and trends of fishing along the Kuskokwim demonstrates determined adaptation, both by fishers and managers, to negotiate this period of Chinook conservation with long term sustainability in mind (Godduhn et al. 2020b).

Table 5-1.—Subsistence salmon harvests by community, Kuskokwim Area, 2020.

Community	Households		Estimated salmon harvest					Total
	Total	Contacted	Chinook	Sockeye	Coho	Chum	Pink	
Kipnuk ^a	—	—	—	—	—	—	—	—
Kwigillingok ^a	—	—	—	—	—	—	—	—
Kongiganak ^a	90	—	—	—	—	—	—	—
North Kuskokwim Bay	90	0	0	0	0	0	0	0
Tuntutuliak	116	64	2,322	1,839	423	1,261	67	5,912
Eek	103	53	1,999	1,422	553	475	38	4,487
Kasigluk	122	75	1,908	2,701	687	2,697	4	7,997
Nunapitchuk	131	81	1,750	2,609	614	2,384	10	7,367
Atmautluak	73	46	692	1,055	425	957	18	3,147
Napakiak	101	55	869	1,503	929	879	8	4,188
Napaskiak	109	63	1,036	1,708	865	1,246	79	4,934
Oscarville	16	12	360	497	63	502	7	1,429
Bethel ^b	1,993	531	13,578	16,912	16,861	7,983	364	55,698
Kwethluk	171	102	1,870	2,540	1,963	1,709	89	8,171
Akiachak	180	109	2,516	2,126	1,230	1,318	43	7,233
Akiak	93	57	1,245	1,595	843	1,452	42	5,177
Tuluksak	98	50	919	870	673	987	51	3,500
Lower Kuskokwim	3,306	1,298	31,064	37,377	26,129	23,850	820	119,240
Lower Kalskag	86	49	685	427	319	624	0	2,055
Kalskag (Upper)	66	34	860	661	390	295	13	2,219
Aniak	157	86	1,544	1,723	3,139	658	17	7,081
Chuathbaluk	30	25	317	280	126	291	0	1,014
Middle Kuskokwim	339	194	3,406	3,091	3,974	1,868	30	12,369
Crooked Creek	29	14	238	678	243	179	9	1,347
Red Devil	7	6	45	118	30	25	0	218
Sleetmute	30	19	176	816	307	25	0	1,324
Stony River ^c	14	0	95	1,272	129	261	—	1,757
Lime Village	6	0	32	0	5	2	—	40
McGrath	125	75	439	291	1,342	864	10	2,946
Takotna ^c	25	15	7	0	0	0	0	7
Nikolai	33	28	367	10	31	31	0	439
Telida ^a	2	0	—	—	—	—	—	—
Upper Kuskokwim	271	157	1,399	3,185	2,087	1,387	19	8,078
Kuskokwim River^c	4,006	1,649	35,869	43,653	32,190	27,105	869	139,687
Quinhagak	186	105	4,757	2,000	1,395	829	165	9,146
Goodnews Bay	82	49	766	941	155	146	19	2,027
Platinum	17	13	84	358	380	69	42	933

-continued-

Table 5-1.–Page 2 of 2.

Community	Households		Estimated salmon harvest					
	Total	Contacted	Chinook	Sockeye	Coho	Chum	Pink	Total
South Kuskokwim Bay	285	167	5,607	3,299	1,930	1,044	226	12,106
Total	4,291	1,816	41,476	46,952	34,120	28,149	1,095	151,793

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

- a. These communities were not contacted during the 2020 study period. Harvest was not estimated due to lack of recent data.
 - b. The Bethel estimate contains permit numbers from Bethel and the seasonal village of Napaimute.
 - c. These communities were not contacted during the 2020 study period. Estimates were developed using Bayesian Imputation. Pink salmon are not estimated using this method.
 - d. Kuskokwim River Total includes the Lower, Middle, Upper Kuskokwim areas and North Kuskokwim Bay.
- Data not available.

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

Community	Households		Percent surveyed	Estimated salmon harvest						
	Total	Surveyed		Chinook	Sockeye	Coho	Chum	Pink	Other	Total
Chefornak	83	69	83%	161	261	61	338	13	5	839
Kipnuk	131	49	37%	479	1,160	781	716	11	0	3,147
Mekoryuk	59	54	92%	0	2	201	3670	47	0	3,920
Newtok	63	58	92%	144	394	262	103	46	0	949
Nightmute	50	40	80%	98	289	64	475	13	3	942
Toksook Bay	104	94	90%	365	1834	1040	1637	433	4	5,313
Tununak	68	36	53%	51	499	455	287	183	8	1,483
Total	558	400	72%	1,298	4,439	2,864	7,226	746	20	16,593

Source Wolfe et al. (2012:17–18).

- a. Unidentified species of salmon.

Table 5-3.—Historical subsistence salmon harvests, Kuskokwim Area, 1989–2020.

Year	Households		Estimated salmon harvest					Total
	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	
1989	3,422	2,135	85,322	37,088	57,786	145,106	–	325,302
1990	3,317	1,448	114,219	48,752	63,084	157,335	–	383,390
1991	3,340	2,033	79,445	50,383	44,222	89,008	–	263,058
1992	3,308	1,308	88,106	45,994	56,907	119,794	–	310,801
1993	3,269	1,786	92,305	53,442	32,207	64,966	–	242,920
1994	3,169	1,801	111,027	46,172	40,706	89,508	–	287,413
1995	3,638	1,907	105,805	32,019	39,492	72,054	–	249,370
1996	3,630	1,524	100,437	41,644	45,101	102,033	–	289,215
1997	3,501	1,919	83,000	39,868	31,293	38,419	–	192,580
1998	3,497	1,940	85,928	38,296	27,408	73,145	–	224,777
1999	4,165	2,512	80,545	51,321	27,757	52,414	–	212,037
2000	3,317	1,448	75,201	53,498	49,158	72,896	–	250,753
2001	4,469	2,215	81,927	55,163	33,031	57,410	–	227,531
2002	4,804	2,687	84,701	34,890	43,433	94,759	–	257,783
2003	4,513	2,292	70,375	34,772	37,242	47,949	–	190,338
2004	4,638	2,398	102,336	41,558	48,693	65,805	–	258,392
2005	4,603	1,593	90,311	44,933	35,170	59,762	1,343	231,519
2006	4,671	1,439	96,733	47,763	43,211	93,091	2,710	283,508
2007	4,620	1,279	100,297	49,613	35,890	76,281	1,259	263,340
2008	4,735	949	92,977	56,205	47,476	66,275	1,341	264,274
2009	4,808	1,702	83,838	38,795	31,933	46,047	561	201,174
2010	4,215	1,739	70,576	41,722	35,695	46,797	751	195,541
2011	4,241	1,790	65,850	46,290	33,943	55,990	739	202,812
2012	4,294	1,527	25,353	50,781	30,086	82,030	2,160	190,410
2013	4,314	1,755	50,708	42,834	27,841	55,828	741	177,952
2014	4,229	1,862	15,434	53,030	52,587	70,687	2,620	194,358
2015	4,349	1,615	19,437	39,429	36,816	43,516	1,233	140,431
2016	4,163	1,820	36,268	54,627	39,388	46,026	4,527	180,836
2017	4,087	1,655	22,150	53,522	40,082	54,459	2,292	172,505
2018	4,302	1,741	26,478	39,057	21,922	47,843	1,776	137,076
2019	4,229	1,631	44,542	52,535	33,291	35,521	932	166,821
2020	4,291	1,816	41,476	46,952	34,120	28,149	1,095	151,793

-continued-

Table 5-3.–Page 2 of 2.

Year	Households		Estimated salmon harvest					
	Total	Surveyed	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	4,226	1,692	29,775	47,834	34,300	45,473	2,152	159,534
10-year average (2010–2019)	4,242	1,714	37,680	47,383	35,165	53,870	1,777	175,874
15-year average (2005–2019)	4,391	1,606	56,063	47,409	36,355	58,677	1,666	200,170
Historical average (1989–2019)	4,060	1,789	73,601	45,677	39,447	71,702	1,666	231,233

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

– Data not available.

Table 5-4.—Number of households that own dogs, fed salmon to dogs, and total number of salmon fed to dogs, Kuskokwim Area, 2020.

Community	Households		Households		Total number of dogs	Reported salmon fed to dogs					
	Total	Contacted	Own dogs	Fed salmon		Chinook	Sockeye	Coho	Chum	Pink	Total
Kipnuk ^a	—	—	—	—	—	—	—	—	—	—	—
Kwigillingok ^a	—	—	—	—	—	—	—	—	—	—	—
Kongiganak ^a	90	—	—	—	—	—	—	—	—	—	—
North Kuskokwim Bay	90	0	0	0	0	0	0	0	0	0	0
Tuntutuliak	116	64	73	0	127	0	0	0	0	0	0
Eek	103	53	80	0	147	0	0	0	0	0	0
Kasigluk	122	75	89	3	180	0	4	0	4	3	11
Nunapitchuk	131	81	86	1	132	0	6	0	0	0	6
Atmautluak	73	46	60	0	164	0	0	0	0	0	0
Napakiak	101	55	59	3	108	0	0	0	36	2	38
Napaskiak	109	63	61	4	161	0	0	0	0	47	47
Oscarville	16	12	6	1	20	0	0	0	25	0	25
Bethel	1,993	0	—	—	—	—	—	—	—	—	—
Kwethluk	171	102	129	10	357	0	0	159	10	23	192
Akiachak	180	109	101	1	212	0	0	244	61	0	305
Akiak	93	57	73	11	287	0	309	228	415	12	964
Tuluksak	98	50	58	2	140	0	0	82	0	0	82
Lower Kuskokwim	3,306	767	875	36	2,035	0	319	713	551	87	1,670
Lower Kalskag	86	49	62	3	102	0	0	94	200	0	294
Kalskag (Upper)	66	34	43	0	109	0	0	0	0	0	0
Aniak	157	86	97	6	198	0	0	2,250	91	0	2,341
Chuathbaluk	30	25	22	1	34	0	0	0	12	0	12
Middle Kuskokwim	339	194	224	10	443	0	0	2,344	303	0	2,647
Crooked Creek	29	14	21	0	37	0	0	0	0	0	0
Red Devil	7	6	4	0	8	0	0	0	0	0	0

-continued-

Table 5-4.–Page 2 of 2.

Community	Households		Households		Total number of dogs	Reported salmon fed to dogs					
	Total	Contacted	Own dogs	Fed salmon		Chinook	Sockeye	Coho	Chum	Pink	Total
Sleetmute	30	19	19	3	34	5	26	84	15	0	130
Stony River ^a	14	0	–	–	–	–	–	–	–	–	–
Lime Village	6	0	–	–	–	–	–	–	–	–	–
McGrath	125	75	74	3	158	0	24	120	15	6	165
Takotna ^a	25	15	18	0	31	0	0	0	0	0	–
Nikolai	33	28	22	2	62	52	10	0	0	0	62
Telida ^a	2	0	–	–	–	–	–	–	–	–	–
Upper Kuskokwim	271	157	158	8	330	57	60	204	30	6	357
Kuskokwim River	4,006	1,118	1,257	54	2,808	57	379	3,261	884	93	4,674
Quinhagak	193	94	108	2	211	0	0	0	38	0	38
Goodnews Bay	86	34	46	0	81	0	0	0	0	0	0
Platinum	18	16	16	0	26	0	0	0	0	0	0
South Kuskokwim Bay	297	144	170	2	318	0	0	0	38	0	38
Mekoryuk ^a	–	–	–	–	–	–	–	–	–	–	–
Newtok ^a	–	–	–	–	–	–	–	–	–	–	–
Nightmute ^a	–	–	–	–	–	–	–	–	–	–	–
Toksook Bay ^a	–	–	–	–	–	–	–	–	–	–	–
Tununak ^a	–	–	–	–	–	–	–	–	–	–	–
Chefornak ^a	–	–	–	–	–	–	–	–	–	–	–
Bering Sea Coast	–	–	–	–	–	–	–	–	–	–	–
Total	4,303	1,262	1,427	56	3,126	57	379	3,261	922	93	4,712

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

a. These communities were not contacted during the 2020 study period.

– Data not available.

Table 5-5.—Gear types used for subsistence fishing, Kuskokwim Area, 2020.

Community	Total households ^b	Estimated households using gear ^a					
		Set gillnet	Drift gillnet	Fish wheel	Rod and reel	Dip net	Other
Kipnuk ^c	—	—	—	—	—	—	—
Kwigillingok ^c	—	—	—	—	—	—	—
Kongiganak ^c	—	—	—	—	—	—	—
North Kuskokwim Bay	0	0	0	0	0	0	0
Tuntutuliak	120	9	53	0	0	0	0
Eek	109	11	41	0	7	0	0
Kasigluk	130	0	72	0	0	0	0
Nunapitchuk	130	1	77	0	0	0	0
Atmautluak	77	8	32	0	0	0	0
Napakiak	109	6	60	0	0	0	0
Napaskiak	110	6	72	0	0	0	0
Oscarville	17	1	8	0	1	0	0
Bethel ^a	1,809	35	634	0	42	0	3
Kwethluk	175	4	84	0	9	0	0
Akiachak	196	0	146	0	0	0	0
Akiak	96	5	50	0	0	0	0
Tuluksak	110	6	49	0	4	0	0
Lower Kuskokwim	3,188	92	1,378	0	63	0	3
Lower Kalskag	92	1	38	0	0	0	0
Kalskag (Upper)	68	1	31	0	0	0	0
Aniak	178	3	57	1	60	0	0
Chuathbaluk	32	0	19	0	6	0	0
Middle Kuskokwim	370	5	145	1	66	0	0
Crooked Creek	31	2	9	6	1	0	0
Red Devil	8	5	2	0	0	0	0
Sleetmute	33	4	2	7	4	0	0
Stony River ^c	14	—	—	—	—	—	—
Lime Village ^c	6	2	0	1	0	0	0
McGrath	132	26	2	0	7	0	0
Takotna	25	—	—	—	—	—	—
Nikolai	33	1	0	0	17	0	0
Telida ^c	2	—	—	—	—	—	—
Upper Kuskokwim	284	40	15	14	29	0	0
Kuskokwim River	3,842	137	1,538	15	158	0	3
Quinhagak	193	94	74	0	61	0	0
Goodnews Bay	86	34	19	0	11	0	0
Platinum	18	16	3	0	4	0	2

-continued-

Table 5-5.–Page 2 of 2.

Community	Total households ^b	Estimated households using gear ^a					
		Set gillnet	Drift gillnet	Fish wheel	Rod and reel	Dip net	Other
South Kuskokwim Bay	285	31	117	0	53	24	0
Mekoryuk ^c	–	–	–	–	–	–	–
Newtok ^c	–	–	–	–	–	–	–
Nightmute ^c	–	–	–	–	–	–	–
Toksook Bay ^c	–	–	–	–	–	–	–
Tununak ^c	–	–	–	–	–	–	–
Chefornak ^c	–	–	–	–	–	–	–
Bering Sea Coast	–	–	–	–	–	–	–
Total	2,186	163	907	23	113	60	3

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

- a. Only data regarding the primary gear type from each household was collected.
 - b. Number of households in the community.
 - c. These communities were not contacted during the 2020 study period.
- Data not available.

Table 5-6.—Estimated number of salmon retained from commercial harvest for subsistence use, Kuskokwim Area, 2020.

Community	Households		Estimated salmon					Total
	Total	Responding	Chinook	Sockeye	Coho	Chum	Pink	
Kipnuk ^a	—	—	—	—	—	—	—	—
Kwigillingok ^a	—	—	—	—	—	—	—	—
Kongiganak ^a	90	—	—	—	—	—	—	—
North Kuskokwim Bay	90	0	0	0	0	0	0	0
Tuntutuliak	116	39	0	0	0	0	0	0
Eek	103	32	0	7	0	0	0	7
Kasigluk	122	51	0	0	0	0	0	0
Nunapitchuk	131	47	0	0	0	0	0	0
Atmautluak	73	26	0	0	0	0	0	0
Napakiak	101	30	0	0	0	0	0	0
Napaskiak	109	36	0	0	0	0	0	0
Oscarville	16	9	0	0	0	0	0	0
Bethel ^a	1,993	—	—	—	—	—	—	—
Kwethluk	171	61	0	0	0	0	0	0
Akiachak	180	69	0	0	0	0	0	0
Akiak	93	39	0	0	0	0	0	0
Tuluksak	98	22	0	0	0	0	0	0
Lower Kuskokwim	3,306	461	0	7	0	0	0	7
Lower Kalskag	86	21	0	0	0	0	0	0
Kalskag (Upper)	66	15	0	0	0	0	0	0
Aniak	157	42	0	0	0	0	0	0
Chuathbaluk	30	17	0	0	0	0	0	0
Middle Kuskokwim	339	95	0	0	0	0	0	0
Crooked Creek	29	6	0	0	0	0	0	0
Red Devil	7	4	0	0	0	0	0	0
Sleetmute	30	13	0	0	0	0	0	0
Stony River ^a	14	—	—	—	—	—	—	—
Lime Village ^a	6	—	—	—	—	—	—	—
McGrath	125	16	0	0	0	0	0	0
Takotna	25	1	0	0	0	0	0	0
Nikolai	33	11	0	0	0	0	0	0
Telida ^a	2	—	—	—	—	—	—	—
Upper Kuskokwim	271	51	0	0	0	0	0	0
Kuskokwim River	4,006	607	0	7	0	0	0	7
Quinhagak	186	84	14	4	34	7	36	95
Goodnews Bay	82	23	0	0	0	0	0	0
Platinum	17	11	12	13	10	7	4	46

-continued-

Table 5-6.–Page 2 of 2.

Community	Households		Estimated salmon					Total
	Total	Responding	Chinook	Sockeye	Coho	Chum	Pink	
South Kuskokwim Bay	285	118	26	17	44	14	40	141
Mekoryuk ^a	–	–	–	–	–	–	–	–
Newtok ^a	–	–	–	–	–	–	–	–
Nightmute ^a	–	–	–	–	–	–	–	–
Toksook Bay ^a	–	–	–	–	–	–	–	–
Tununak ^a	–	–	–	–	–	–	–	–
Chefornak ^a	–	–	–	–	–	–	–	–
Bering Sea Coast	–	–	–	–	–	–	–	–
Total	4,291	725	26	24	44	14	40	148

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Note There were no commercial openers in the Kuskokwim River in the 2020 study period.

a. There were no commercial openers in the Kuskokwim River in the 2020 study period.

– Data not available.

Table 5-7.—Subsistence nonsalmon fish harvests by community, Kuskokwim Area, 2020.

Community	Households		Reported salmon harvest												
	Total	Contacted	Humpback whitefish	Broad whitefish	Cisco	Sheefish	Burbot	Northern pike	Blackfish	Grayling	Char/Dolly Varden	Herring	Smelt	Rainbow trout	Total
Kipnuk ^a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kwigillingok ^a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kongiganak ^a	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—
North Kuskokwim Bay	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tuntutuliak	116	64	710	716	60	83	199	4,146	12,617	8	17	0	680	17	19,253
Eek	103	53	139	98	346	10	346	4,293	15,664	33	108	583	2,581	0	24,201
Kasigluk	122	75	3,640	5,741	2	36	73	11,585	28,642	0	0	56	11,893	0	61,668
Nunapitchuk	131	81	2,629	3,941	18	3	268	11,455	27,033	0	0	0	3,877	3	49,227
Atmautluak	73	46	1,308	1,667	0	4	160	3,713	5,609	0	0	0	6,467	0	18,928
Napakiak	101	55	509	512	0	54	317	6,560	4,873	0	0	0	3,602	3	16,430
Napaskiak	109	63	3,220	310	828	142	472	3,353	292	0	8	0	5,089	5	13,719
Oscarville	16	12	52	17	0	13	30	1,387	2,862	6	0	0	1,627	10	6,004
Bethel ^a	1,993	0	—	—	—	—	—	—	—	—	—	—	—	—	—
Kwethluk	171	102	645	613	18	150	421	4,909	4,727	29	12	0	12,579	60	24,163
Akiachak	180	109	1,602	1,088	70	145	624	4,889	37,394	52	41	0	14,079	47	60,031
Akiak	93	57	558	699	66	381	4,074	2,489	1,384	23	6	0	11,112	32	20,824
Tuluksak	98	50	827	507	118	163	959	2,171	4,892	13	0	0	6,933	1	16,584
Lower Kuskokwim	3,306	767	15,839	15,909	1,526	1,184	7,943	60,950	145,989	164	192	639	80,519	178	331,032
Lower Kalskag	86	49	227	242	3	21	164	148	657	0	0	0	3,023	0	4,485
Kalskag (Upper)	66	34	300	314	76	41	13	134	420	0	0	0	3,450	0	4,748
Aniak	157	86	263	336	63	214	18	178	0	58	38	0	1,281	3	2,452
Chuathbaluk	30	25	70	78	0	61	96	15	0	0	3	0	0	0	323
Middle Kuskokwim	339	194	860	970	142	337	291	475	1,077	58	41	0	7,754	3	12,008

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Table 5-7.–Page 2 of 2.

Community	Households		Reported salmon harvest												
	Total	Contacted	Humpback whitefish	Broad whitefish	Cisco	Sheefish	Burbot	Northern pike	Blackfish	Grayling	Char/Dolly Varden	Herring	Smelt	Rainbow trout	Total
Crooked Creek	29	14	57	102	0	97	0	0	0	18	0	0	0	0	274
Red Devil	7	6	9	4	56	25	2	0	175	316	0	0	156	0	743
Sleetmute	30	19	155	100	245	21	0	24	0	117	0	0	0	0	662
Stony River ^a	14	0	–	–	–	–	–	–	–	–	–	–	–	–	–
Lime Village ^a	6	0	–	–	–	–	–	–	–	–	–	–	–	–	–
McGrath	125	75	55	76	10	222	6	449	8	188	11	0	0	0	1,025
Takotna	25	15	0	0	0	7	0	4	0	71	0	0	0	0	–
Nikolai	33	28	77	22	230	241	1	349	0	30	27	0	0	0	977
Telida ^a	2	0	–	–	–	–	–	–	–	–	–	–	–	–	–
Upper Kuskokwim	271	157	353	304	541	613	9	826	183	740	38	0	156	0	3,681
Kuskokwim River	4,006	1,118	17,052	17,183	2,209	2,134	8,243	62,251	147,249	962	271	639	88,429	181	346,721
Quinhagak	193	94	125	0	472	2	76	910	0	151	3,135	2,216	11,791	155	19,033
Goodnews Bay	86	34	19	45	152	6	4	23	0	31	551	388	36	0	1,255
Platinum	18	16	2	0	61	0	0	0	0	95	521	3,104	1,417	7	5,207
South Kuskokwim Bay	297	144	146	45	685	8	80	933	0	277	4,207	5,708	13,244	162	25,495
Mekoryuk ^a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Newtok ^a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nightmute ^a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Toksook Bay ^a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tununak ^a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chefornak ^a	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bering Sea Coast	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	4,303	1,262	17,198	17,228	2,894	2,142	8,323	63,184	147,249	1,239	4,478	6,347	101,673	343	372,216

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

a. These communities were not contacted during the 2020 study period.

– Data not available.

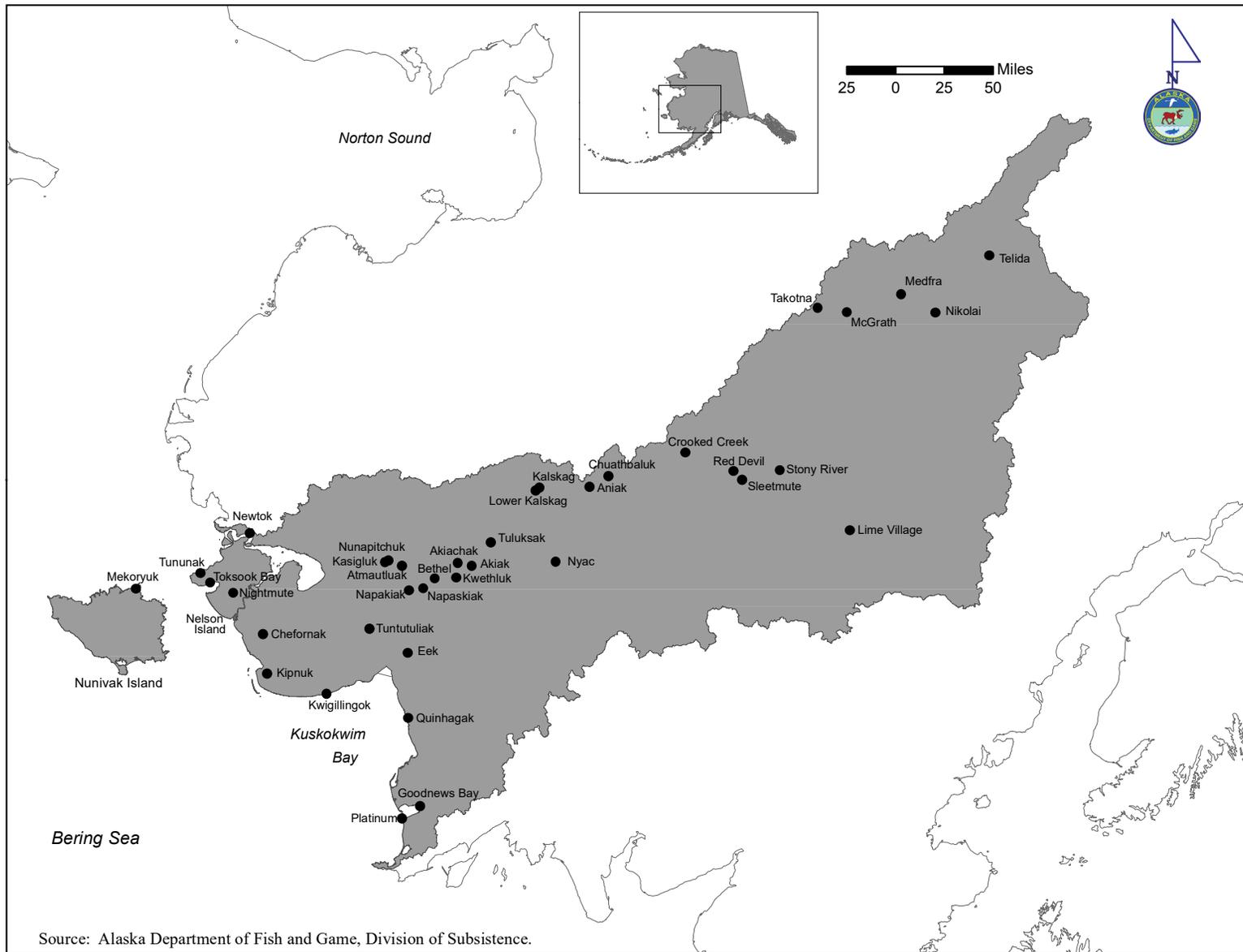


Figure 5-1.—Map of Kuskokwim Area.

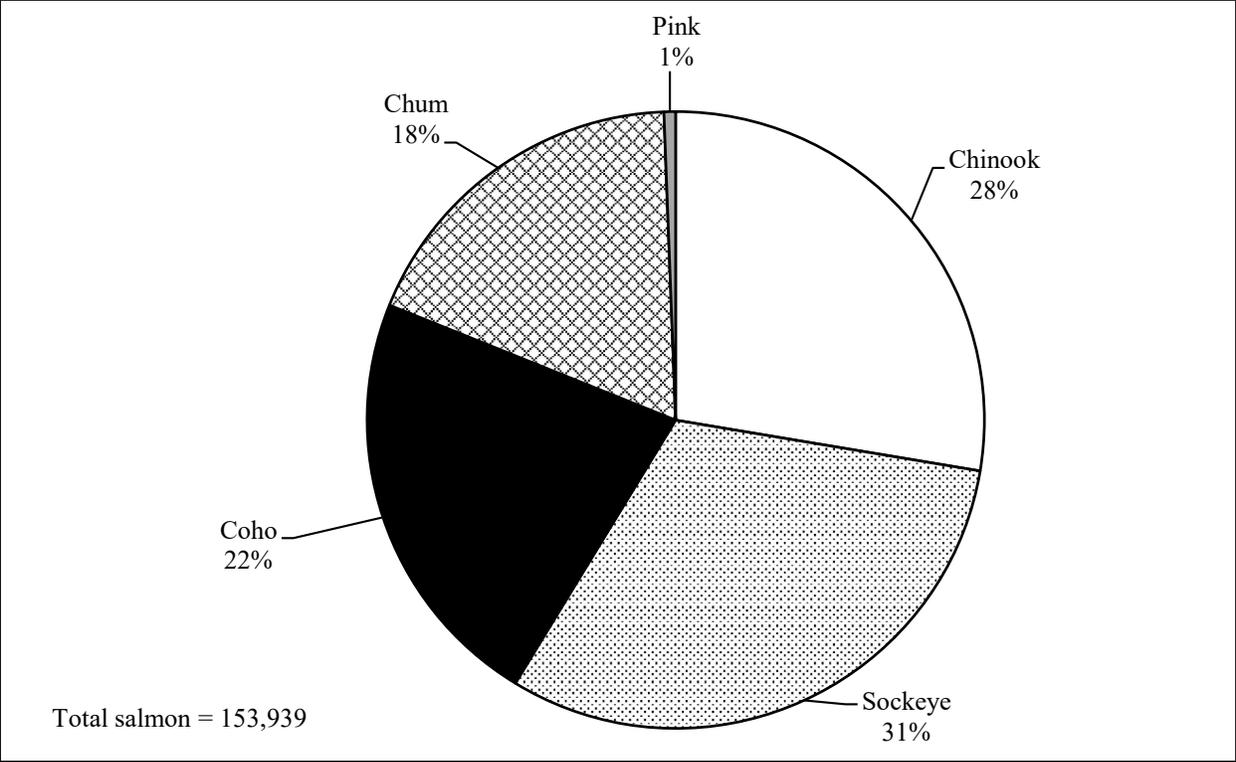


Figure 5-2.—Kuskokwim Area subsistence salmon harvest composition, 2020.

CHAPTER 6: BRISTOL BAY AREA

BACKGROUND

Subsistence harvests by Bristol Bay residents continue to provide important nutritional, economic, and sociocultural benefits to most Bristol Bay households. The five species of salmon found in Alaska are utilized for subsistence purposes in Bristol Bay, but the most heavily harvested are sockeye, Chinook, and coho salmon. Many residents continue to preserve large quantities of fish through traditional methods, such as dried and smoked, and frozen, canned, salted, pickled, fermented, and eaten fresh.

Each year, ADF&G produces the Bristol Bay Area Annual Management Report. To provide context for the subsistence harvest data present below, the following is a summary of salmon run and commercial harvest performance by species which is also described in the 2020 Bristol Bay Area Annual Management Report. For more detailed run and harvest performance by species information see (Tiernan et al. 2022:5–6).

The 2020 sockeye salmon run was approximately 58.3 million fish, which was above the preseason forecast of 46.6 million. A total of 39.6 million sockeye salmon were commercially harvested, which was the fifth largest sockeye salmon harvest recorded in Bristol Bay since 1893. However, the commercial harvest of 10,000 Chinook salmon in Bristol Bay was the lowest since 1955. Similarly, to Chinook salmon, the 2020 commercial harvest of 293,000 chum salmon was the lowest on record. Bristol Bay has a dominant even-year pink salmon cycle. In 2020, the commercial pink salmon harvest was 72,000 fish, which was well below the 2000–2018 even-year average of 510,000 fish. The 2020 commercial harvest of coho salmon was 114,000 fish, which was above the most recent 10-year average (2000–2019) of 96,000 fish.

REGULATIONS

Under State of Alaska regulations, the Alaska Board of Fisheries (BOF) found that salmon of the Bristol Bay Area (Figure 6-1) support customary and traditional (subsistence) uses (5 AAC 01.336). In 1993, the board established a range of 157,000–172,171 salmon as the amount reasonably necessary for subsistence uses (ANS¹). Under state regulations, all residents are eligible to participate in subsistence salmon fishing. Permits are required to harvest salmon for subsistence purposes and there is no seasonal or annual limit in Bristol Bay. Allowable subsistence gear types to harvest salmon vary between fishing areas; see 5 AAC 01.320 for Bristol Bay lawful gear and gear specifications.

Several subsistence regulatory changes have occurred in recent years. In 2015, the BOF adopted new regulations for the taking of “redfish” (postspawn sockeye salmon) in portions of the Naknek River drainage. Beginning in the 2016 season, five-fathom gillnets, spears, beach seine, and dip nets may be used along a 100 yd length of the west shore of Naknek Lake near the outlet to the Naknek River, and at Johnny’s Lake from August 30 through December 31, and at the mouth of the Brooks River at Naknek Lake from September 18 through December 31. In 2018, the BOF repealed limits to subsistence fishing periods in the Nushagak Drainage and allowed salmon to be taken at any time. Additionally in 2018, the BOF adopted new regulations to allow subsistence fishing for salmon from the shore by dip net in parts of the Wood River and the Igushik, Weary, and Snake rivers upstream of the commercial fishing district.

Throughout Alaska and within the Bristol Bay region, federal regulations apply to salmon harvested within federal public waters. The original 1999 federal fisheries regulations duplicated state subsistence fishing regulations with the rural priority in Title VIII of ANILCA applied to federal public lands and waters. The initial goal was to keep the regulations on federal public waters consistent with state regulations, as much

1. Under AS 16.05.258(a), the board is charged with identifying fish stocks, or portions of stocks, that “are customarily and traditionally taken or used for subsistence” (known as a C&T use finding). If a portion of these stocks having a positive C&T use finding can be harvested consistent with sustained yield principles, the board “shall determine the amount of the harvestable portion that is reasonably necessary for subsistence uses,” which is known as the ANS (AS 16.05.258(b)).

as possible, with the understanding that through the Federal Subsistence Board, federal regulations could be changed (Norris 2002).

Federal fishing regulations apply to qualified rural residents of communities having a positive customary and traditional use determination. In federal public waters, the allowable maximum length of gillnets to catch salmon is 50 fathoms, a subsistence net cannot block more than one-half the width of a stream, and harvesters may not fish for subsistence within 300 feet of any dam, fish ladder, weir, culvert, or other artificial obstruction. There is no harvest limit, and a state Bristol Bay subsistence salmon fishery permit is required for harvesting salmon in federal waters.

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

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

SALMON HARVEST ASSESSMENT PROGRAM

A permit program was gradually introduced throughout the Bristol Bay region in the late 1960s to document the harvest of salmon for subsistence uses. Initially compliance was low until people learned more about the permit process. The Division of Subsistence assumed responsibility for subsistence permitting in 1983, resulting in a substantial increase in the number of people who obtained and reported on subsistence salmon permits in the region. Much of the increase in the number of permits issued during these years reflected: 1) a greater compliance with the permitting and reporting requirements, 2) an increased level of effort expended by ADF&G in making permits available (including issuance by area vendors), 3) sustained efforts to contact individuals to remind them to return the harvest forms, and 4) a growing regional population. Since 1983, overall permit returns have averaged between 75% and 95% (Table 6-2). However, most reported subsistence harvest totals do not include fish removed for personal use from commercial catches. Also, fish caught later in the season, such as coho salmon and spawning sockeye salmon, may not be documented as consistently as Chinook and prespawn sockeye salmon.

In 2020, a total of 1,018 permits were issued for the Bristol Bay Management Area; of those, 765 (75%) were returned (Table 6-1; Table 6-2). The largest number of permits were issued for the Nushagak (585 permits) and Naknek–Kvichak (380 permits) river drainages (Table 6-1). The number of permits issued in 2020 was lower than the recent 5-year (1,132 permits) and 10-year averages (1,129 permits), but about the same as the historical average (1,102 permits) (Table 6-2).

SUBSISTENCE SALMON HARVESTS IN 2020

Estimated total Bristol Bay subsistence salmon harvest in 2020 was 96,561 fish. The 2020 salmon harvest was similar to the 2019 salmon harvest of 96,876 salmon, but lower than the most recent 5-year average of 112,785 salmon, the 10-year average of 118,703 salmon, and the historical average (1983–2019) of 140,771 salmon (Table 6-2). The decline in the number of permits being issued and returned in recent years may account for the decrease of harvest estimates.

Chinook salmon harvests were estimated at 9,369 in 2020, a decrease from the previous year's harvest of 11,488. The 2020 Chinook salmon harvest was also lower than the recent 5-year average of 14,163 fish, the 10-year average of 13,819 fish, and the historical average (1983–2019) of 14,605 fish. Estimated sockeye salmon harvests for 2020 were 78,679 fish, which was an increase from the previous year's harvest of 75,320 fish. However, the 2020 sockeye salmon harvest was still lower than the recent 5-year average of

85,843 fish, the 10-year average of 91,918 fish, and the historical average (1983–2019) of 109,860 fish. The 2020 coho salmon harvest of 5,493 fish was lower than the previous year’s harvest of 6,219 fish, the 5-year average of 7,040 fish, the 10-year average of 6,877 fish, and the historical average (1983–2019) of 8,052 fish (Table 6-2).

The return of pink salmon to Bristol Bay is higher in even-numbered years than odd-numbered years; as such, the harvest of pink salmon was higher in 2020 (595 fish) than in 2019 (398 fish). However, the difference between odd and even number year harvests in 2019 and 2020 was much smaller than typically seen between even and odd number years. ADF&G does not produce preseason forecasts or postseason abundance estimates for pink salmon. As a result, managers do not have additional information that explains the extremely low 2020 harvest of pink salmon. The estimated harvest of chum salmon in 2020 was 2,425 fish and was lower than the previous year’s harvest of 3,451 fish. The 2020 chum salmon harvest was also lower than the recent 5-year average of 4,241 fish), the 10-year average of 4,555 fish, and the historical average (1983–2019) of 6,079 fish.

In 2020, the Bristol Bay subsistence salmon harvest was composed of 81% sockeye salmon, 10% Chinook salmon, 6% coho salmon, 2% chum salmon, and 1% pink salmon (Figure 6-2). Of the entire Bristol Bay Area subsistence salmon harvest in 2020, 84% was harvested by residents of Bristol Bay communities (80,851 salmon) while 16% (15,711 salmon) was harvested by other Alaska residents (Table 6-3).

In 2020, as over the last several decades, most of the Bristol Bay Area subsistence harvest was taken in the Nushagak (52%) and the Naknek–Kvichak (43%) river drainages (Figure 6-3). The remaining portion was taken in the Togiak River drainage (4%), the Egegik River drainage (1%), and the Ugashik River drainage (<1%) (Figure 6-3).

The Nushagak River drainage total harvest of 50,597 salmon in 2020 (Table 6-1) was an increase from the previous year’s estimate of 47,262 fish (Brown et al. 2022). The Naknek-Kvichak drainage total harvest of 21,843 salmon in 2020 (Table 6-1) was similar to the 2019 estimate of 21,890 fish. The estimated total subsistence salmon harvest for the Togiak River drainage in 2020, 3,670 fish (Table 6-1), was higher than the previous year’s estimate of 2,645. The estimated subsistence salmon harvest in the Ugashik River drainage in 2020 was 291 fish, which was significantly lower than the previous year at 980, which is likely attributed to travel restrictions related to COVID (Table 6-1). In the Egegik River drainage, the 2020 estimated subsistence salmon harvest of 732 fish (Table 6-1) was less than the 2019 estimate of 1,100 fish.

OTHER SUBSISTENCE FISHERIES

The vast majority of households in the Bristol Bay Area use fish other than salmon for subsistence purposes. The harvest and use of nonsalmon fish for home use occurs throughout the entire year. Spring fishing begins when river and lake ice break up. During this transition, Bristol Bay residents shift from fishing through the ice for rainbow smelt, northern pike, and Dolly Varden to harvesting these freshwater fish with nets in river sloughs and lake outlets. Spring is important for harvesting Pacific herring and herring spawn on kelp. Also, as early summer approaches, Pacific halibut are targeted in marine waters. In June, preparations begin for commercial and subsistence salmon fishing, and these activities dominate until August or September. The overall effort to harvest nonsalmon fish is generally lower in the summer compared to the rest of the year since residents tend to focus on salmon fishing activities instead. In the fall, fishing for freshwater fish using nets resumes. In years with safe ice conditions, harvests of nonsalmon fish occur through the ice in winter. After freeze-up, “smelting” is a popular fishing activity in early November when smelt can be caught by jigging through the ice. Ice fishing for Dolly Varden and northern pike is a favored winter activity by many Bristol Bay residents (Jones et al. 2021; Wright et al. 1985:34).

Nonsalmon Fish Subsistence Regulations

In addition to the ANS for salmon, the BOF determined that approximately 250,000 usable pounds of finfish other than salmon are reasonably necessary for subsistence uses in the Bristol Bay Area; including 4,100 - 12,700 usable pounds of herring spawn on kelp are reasonably necessary for subsistence uses in the Togiak District as described in 5 AAC 27.805(a). This amount was based on estimates of fish harvests derived from

systematic household surveys conducted by the Division of Subsistence. Amounts for specific species or more specific stocks were not established.

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

Rainbow/steelhead trout taken incidentally in other subsistence net fisheries and through the ice are lawfully taken and may be retained for subsistence uses (5 AAC 01.310(g)).

Subsistence fishing with a line attached to a rod or pole is prohibited except when fishing through the ice (5 AAC 01.320 (l)).

In May 2003, federal regulations authorizing subsistence fishing for Pacific halibut came into effect. A harvest assessment program for the subsistence halibut fishery was implemented in 2004. Subsistence halibut harvest estimates are collected every other year. Results for 2020 can be found in Sill and Koster (2022).

Subsistence Harvests and Uses

Subsistence harvests of fish other than salmon are not annually monitored by ADF&G. A detailed description of subsistence uses of freshwater fishes in the Bristol Bay Area appears in Fall et al. (1996) and Holen and Lemons (2012). Holen et al. (2012a) and Wright and Chythlook (1985) describe the uses of herring spawn on kelp in the Togiak River drainage. Harvests of fish other than salmon contribute about 10% of the annual subsistence harvests of wild foods in the Bristol Bay region, about 41 lb per person (Fall et al. 2009; Holen and Lemons 2012). Harvest and use data are available for most communities through Division of Subsistence household harvest surveys (BBNA and ADF&G 1996; Coiley-Kenner et al. 2003; Evans et al. 2013; Fall et al. 2006; Holen et al. 2011; Holen, Stariwat, et al. 2012; Krieg et al. 2005, 2009). As part of an OSM project (02-034, Subsistence Fisheries Assessment: Kvichak River Watershed Resident Species), the Division of Subsistence and the Bristol Bay Native Association collected subsistence harvest data in Kvichak River watershed communities from October 2002 to September 2003. The final report for that project (Krieg et al. 2005) includes detailed information about uses of nonsalmon fish in eight study communities. Some of the findings of ADF&G research regarding nonsalmon fish are summarized in Table 6-4. Harvests, as measured in pounds usable weight per person for available study years, vary from community to community and from year to year, but generally make important contributions to annual subsistence harvests. Fish other than salmon generally rank third behind salmon and land mammals in their contribution to the total subsistence harvests in Bristol Bay communities.

Harvests and uses of the nonsalmon fish listed in Table 6-5 have been documented in Bristol Bay communities through Division of Subsistence research. Uses of other species may occur: fish taken in the largest quantities in the area as a whole include smelt, whitefishes, Dolly Varden, Arctic grayling, and northern pike (see CSIS for harvest data) (Schichnes and Chythlook 1988:127).

Maps of the areas used by Bristol Bay communities to harvest nonsalmon fish appear in the *Alaska Habitat Management Guide Reference Atlas* series (ADF&G 1985), and in Wright et al. (1985). Updated maps of harvest locations for eight communities in the Kvichak watershed appear in Krieg et al. (2005) and Hazell et al. (2015). Harvest activities occur throughout the region in most rivers and lakes as well as along shorelines. It is likely that most effort occurs near each community and near seasonal camps such as Kulukak. See Wright and Chythlook (1985) and Schichnes and Chythlook (1988) for maps of herring camps at Kulukak Bay. For frequency of uses of various areas for freshwater fishing by Nushagak River communities, see Schichnes and Chythlook (1991) and by Togiak and Manokotak, see BBNA and ADF&G (BBNA and ADF&G 1996).

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

The Division of Subsistence has compiled a traditional ecological knowledge (TEK) database, “From *Neqa* to *Tepa*,” about the fish of Bristol Bay based on interviews with area residents in 2003 as part of OSM project 01-109.³ An expanded version of the database incorporating findings from eight Kvichak watershed communities was renamed “From *Neqa* to *Tepa*, *Luq’a* to *Chuqilin*” to reflect the addition of Dena’ina Athabascan TEK (BBNA and ADF&G 1996; Krieg et al. 2005). Additional research documenting traditional knowledge of the subsistence uses of nonsalmon fish in the Bristol Bay Area describe the Yup’ik taxonomic classification system for freshwater fish species (Fall et al. 1996; 2009).

Finally, a recent report conducted in collaboration between the Division of Subsistence and BBNA outlines harvest patterns of whitefish and other freshwater nonsalmon fish by the communities around Lake Clark and Iliamna Lake for 2012 and 2013 (Hazell et al. 2015). The report presents the results of a study on whitefish and other freshwater nonsalmon fish harvest patterns and trends by communities around Lake Clark and Iliamna Lake, Alaska. The study focuses on climate change in context with harvest patterns and trends. The results of this study indicate the continued significance of whitefish and other nonsalmon freshwater fish subsistence harvests to inhabitants of the study communities. Freshwater nonsalmon fish resources are particularly vital to residents in the spring and fall when salmon and other resources are not available in abundance. Additionally, local residents consistently reported a climate characterized by a warming trend in recent decades (i.e., at least 20–25 years), which has affected their ability to obtain nonsalmon fish resources.

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

Table 6-1.—Estimated subsistence salmon harvests by district and location fished, Bristol Bay Area, 2020.

Area and river system	Number of permits issued ^a	Estimated salmon harvest					Total
		Chinook	Sockeye	Coho	Chum	Pink	
Naknek-Kvichak Drainages	380	306	40,181	645	68	70	41,271
Naknek River Drainage	229	289	18,355	645	68	70	19,428
Kvichak River/Iliamna Lake Drainages	152	17	21,826	0	0	0	21,843
Igiugig	1	0	30	0	0	0	30
Iliamna Lake-General	35	0	2,953	0	0	0	2,953
Kokhanok	21	17	6,340	0	0	0	6,357
Kvichak River	12	0	1,714	0	0	0	1,714
Lake Clark	47	0	3,003	0	0	0	3,003
Newhalen River	22	0	5,273	0	0	0	5,273
Pedro Bay	10	0	1,334	0	0	0	1,334
Pile Bay	1	0	161	0	0	0	161
Six Mile Lake	5	0	1,019	0	0	0	1,019
Egegik Drainage	17	13	560	157	2	0	732
Ugashik Drainage	4	28	225	38	0	0	291
Nushagak Drainage	585	8,350	35,379	4,320	2,040	508	50,597
Igushik/Snake River	10	69	1,158	32	0	4	1,263
Nushagak Bay-commercial	53	1,112	2,670	544	85	36	4,448
Nushagak Bay-noncommercial	360	2,607	18,121	2,514	957	354	24,552
Nushagak River	77	3,001	3,792	496	679	38	8,007
Site unknown	26	142	1,326	185	27	46	1,726
Wood River	107	1,418	8,313	549	292	29	10,601
Togiak Drainage	32	672	2,333	333	314	17	3,670
Total	1,018	9,369	78,679	5,493	2,425	595	96,561

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Note Harvests are extrapolated for all permits issued, based on those returned and on the area fished as recorded on the permit. Due to rounding, the sum of columns and rows may not equal the estimated total. Of 1,001 permits issued for the management area, 749 were returned (74.8%).

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

Table 6-2.—Estimated historical subsistence salmon harvests, Bristol Bay Area, 1983–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1983	829	674	13,268	143,639	7,477	11,646	1,073	177,104
1984	882	698	11,537	168,803	16,035	13,009	8,228	217,612
1985	1,015	808	9,737	142,755	8,122	5,776	825	167,215
1986	930	723	14,893	129,487	11,005	11,268	7,458	174,112
1987	996	866	14,424	135,782	8,854	8,161	673	167,894
1988	938	835	11,848	125,556	7,333	9,575	7,341	161,652
1989	955	831	9,678	125,243	12,069	7,283	801	155,074
1990	1,042	870	13,462	128,343	8,389	9,224	4,455	163,874
1991	1,194	1,045	15,245	137,837	14,024	6,574	572	174,251
1992	1,203	1,028	16,425	133,605	10,722	10,661	5,325	176,739
1993	1,206	1,005	20,527	134,050	8,915	6,539	1,051	171,082
1994	1,193	1,019	18,873	120,782	9,279	6,144	2,708	157,787
1995	1,119	990	15,921	107,717	7,423	4,566	691	136,319
1996	1,110	928	18,072	107,737	7,519	5,813	2,434	141,575
1997	1,166	1,051	19,074	118,250	6,196	2,962	674	147,156
1998	1,234	1,155	15,621	113,289	8,126	3,869	2,424	143,330
1999	1,219	1,157	13,009	122,281	6,143	3,653	420	145,506
2000	1,219	1,109	11,547	92,050	7,991	4,637	2,599	118,824
2001	1,226	1,137	14,412	92,041	8,406	4,158	839	119,856
2002	1,093	994	12,936	81,088	6,565	6,658	2,341	109,587
2003	1,182	1,058	21,231	95,690	7,816	5,868	1,062	131,667
2004	1,100	940	18,012	93,819	6,667	5,141	3,225	126,865
2005	1,076	979	15,212	98,511	7,889	6,102	1,098	128,812
2006	1,050	904	12,617	95,201	5,697	5,321	2,726	121,564
2007	1,063	917	15,444	99,549	4,880	3,991	815	124,679
2008	1,178	1,083	15,153	103,583	7,627	5,710	2,851	134,924
2009	1,063	950	14,020	98,951	7,982	5,052	442	126,447
2010	1,082	979	10,852	90,444	4,623	4,692	2,627	113,238
2011	1,122	1,039	14,106	101,017	7,493	3,794	333	126,744
2012	1,107	932	12,136	100,728	3,837	4,007	1,874	122,582
2013	1,162	986	12,858	98,765	8,635	5,173	333	125,764
2014	1,158	1,031	17,417	99,008	8,984	6,677	2,689	134,775
2015	1,169	1,072	13,874	99,535	7,659	3,573	458	125,100
2016	1,172	1,057	18,712	85,989	6,255	5,243	4,945	121,144
2017	1,110	1,000	12,985	89,704	8,154	4,907	553	116,303
2018	1,105	925	13,758	78,666	6,913	4,030	1,135	104,502
2019	1,106	860	11,488	75,320	6,219	3,451	398	96,876
2020	1,018	765	9,369	78,679	5,493	2,425	595	96,561

-continued-

Table 6-2.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
5-year average (2015–2019)	1,132	983	14,163	85,843	7,040	4,241	1,498	112,785
10-year average (2010–2019)	1,129	988	13,819	91,918	6,877	4,555	1,534	118,703
Historical average (1983–2019)	1,102	963	14,605	109,860	8,052	6,079	2,176	140,771

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Table 6-3.–Estimated subsistence salmon harvests by community, Bristol Bay Area, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Aleknagik	21	14	678	1,196	162	41	0	2,076
Clarks Point	10	9	20	613	172	4	28	838
Dillingham	313	238	3,713	20,888	2,842	1,147	401	28,991
Egegik	7	0	0	0	0	0	0	0
Ekwok	15	14	234	751	106	155	5	1,251
Igiugig	4	4	1	427	11	0	0	439
Iliamna	23	21	0	2,417	0	0	0	2,417
King Salmon	73	55	52	5,137	190	4	17	5,399
Kokhanok	21	10	2	7,289	0	0	0	7,291
Koliganek	16	14	1,184	1,105	208	222	5	2,723
Manokotak	8	8	53	781	66	0	20	920
Naknek	79	65	136	8,444	348	49	36	9,013
New Stuyahok	44	19	1,966	1,769	398	353	31	4,517
Newhalen	16	10	0	4,770	0	0	0	4,770
Nondalton	6	4	0	1,398	0	0	0	1,398
Pedro Bay	11	10	0	1,340	0	0	0	1,340
Petersburg	1	1	0	0	0	0	0	0
Pilot Point	2	1	14	38	0	0	0	52
Port Alsworth	44	33	0	2,974	0	0	0	2,974
Port Heiden	1	0	0	0	0	0	0	0
South Naknek	8	4	20	170	94	2	10	296
Togiak	32	22	672	2,333	333	314	17	3,670
Ugashik	2	1	36	364	76	0	0	476
Subtotal, Bristol Bay	757	557	8,780	64,204	5,006	2,290	571	80,851
Akiachak	1	0	0	0	0	0	0	0
Anchor Point	1	1	0	24	0	0	0	24
Anchorage	121	100	313	8,594	184	86	10	9,186
Utqiagvik	2	2	140	166	25	18	0	349
Big Lake	2	2	0	18	0	0	0	18
Chugiak	10	9	3	340	44	0	0	388
Copper Center	1	1	0	0	0	0	0	0
Delta Junction	1	1	0	0	0	0	0	0
Eagle River	2	2	2	62	0	1	0	65
Fairbanks	16	12	0	453	0	9	0	463
Galena	1	1	0	20	0	0	0	20
Girdwood	3	1	0	60	0	0	0	60
Homer	15	12	51	1,010	151	10	6	1,229
Juneau	3	2	0	0	0	0	0	0

-continued-

Table 6-3.–Page 2 of 2.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Kasilof	1	1	0	182	0	0	0	182
Kenai	4	3	13	117	80	1	4	216
Ketchikan	2	1	0	172	0	0	0	172
Kodiak (city)	5	3	3	95	0	0	0	98
Kotzebue	2	0	0	0	0	0	0	0
Metlakatla	1	0	0	0	0	0	0	0
Nikiski	1	1	0	50	2	0	0	52
Nome	1	1	0	0	0	0	0	0
Palmer	14	13	16	877	0	0	0	893
Seward	2	2	0	0	0	0	0	0
Sitka	1	1	0	14	0	2	0	16
Soldotna	2	0	0	0	0	0	0	0
Wasilla	25	17	47	1,994	0	4	5	2,050
Willow	1	0	0	0	0	0	0	0
Wrangell	3	3	0	227	0	3	0	230
Subtotal, other Alaska	244	192	589	14,475	487	134	25	15,711
Total	1,001	749	9,369	78,679	5,493	2,425	595	96,561

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

Community	Year ^a	Percentage of households ^a					Average pounds harvested	
		Use	Fish for	Harvest	Receive	Give	Per household	Per person
Aleknagik	2008	78	69	66	50	44	95	26
Clark's Point	2008	100	100	100	73	73	71	34
Dillingham	2010	69	42	42	53	29	23	7
Egegik	2014	40	30	25	20	15	4	1
Ekwok	1987	76	72	62	62	38	229	69
Igiugig	2013	94	78	61	83	61	14	5
Iliamna	2013	79	69	69	59	31	79	30
King Salmon	2007	57	55	49	16	12	15	5
Kokhanok	2005	74	66	66	51	57	137	36
Koliganek	2005	96	93	93	75	68	323	90
Levelock	2005	86	86	86	50	57	71	40
Manokotak	2008	93	80	80	84	56	173	44
Naknek	2007	76	68	65	48	32	47	18
New Stuyahok	2005	88	78	78	67	47	123	28
Newhalen	2013	88	70	67	73	33	38	12
Nondalton	2013	84	73	73	62	60	147	45
Pedro Bay	2013	73	64	46	55	36	41	17
Pilot Point	2014	65	29	29	41	0	4	2
Port Alsworth	2013	41	37	37	14	8	14	4
Port Heiden	2018	41	26	26	26	26	9	3
South Naknek	2007	86	52	52	67	43	16	8
Togiak	2008	94	85	84	81	73	264	62
Togiak	2019	97	82	81	91	80	169	38
Twin Hills	1999	92	92	92	75	92	303	101
Twin Hills	2019	95	70	70	70	55	232	75
Ugashik	2014	100	100	100	25	50	18	14

Sources CSIS; BBNA and ADF&G 1996; Coiley-Kenner (2003); Krieg et al. (2005); Fall et al. (2006); Krieg et al. (2009); Holen et al. (2011); Holen et al. (2012); Fall et al. (2013), Evans et al. (2013), and Hazell et al. (2015); Jones et al (forthcoming).

a. Most recent year for which data are available.

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

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

Source Fall et al. (1996).

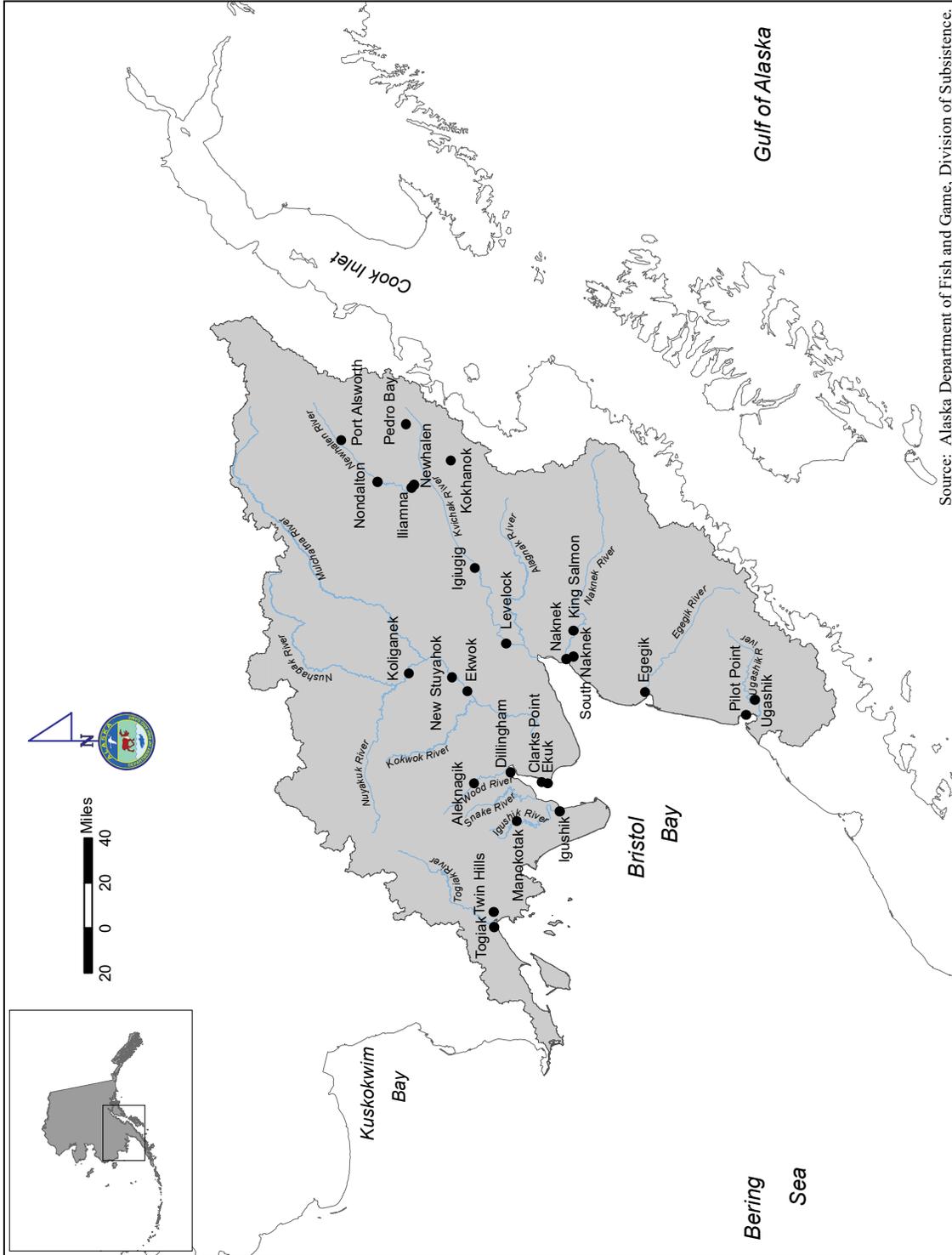
a. Nushagak River villages.

b. Manokotak, Aleknagik, Twin Hills, Togiak.

c. Also includes the closely related Arctic char *Salvelinus alpinus*.

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

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



Source: Alaska Department of Fish and Game, Division of Subsistence.

Figure 6-1.—Map of the Bristol Bay Area.

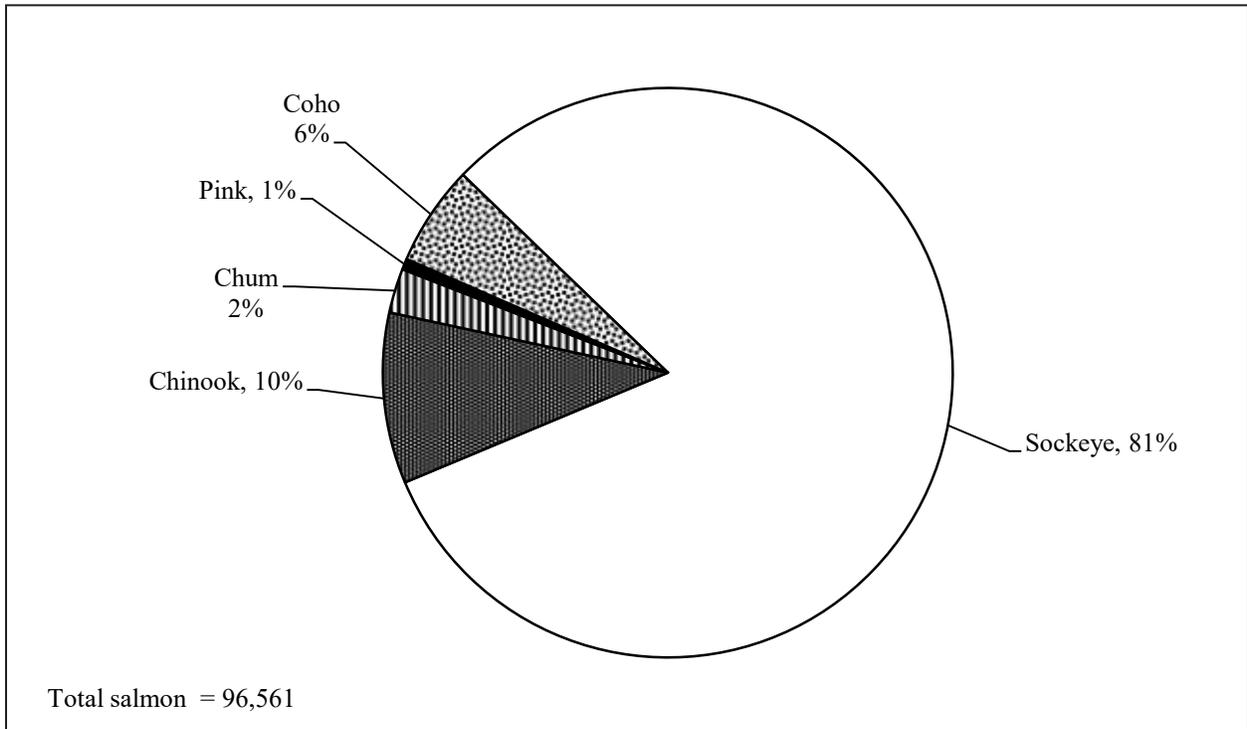


Figure 6-2.—Composition of Bristol Bay area subsistence salmon harvest by species, 2020.

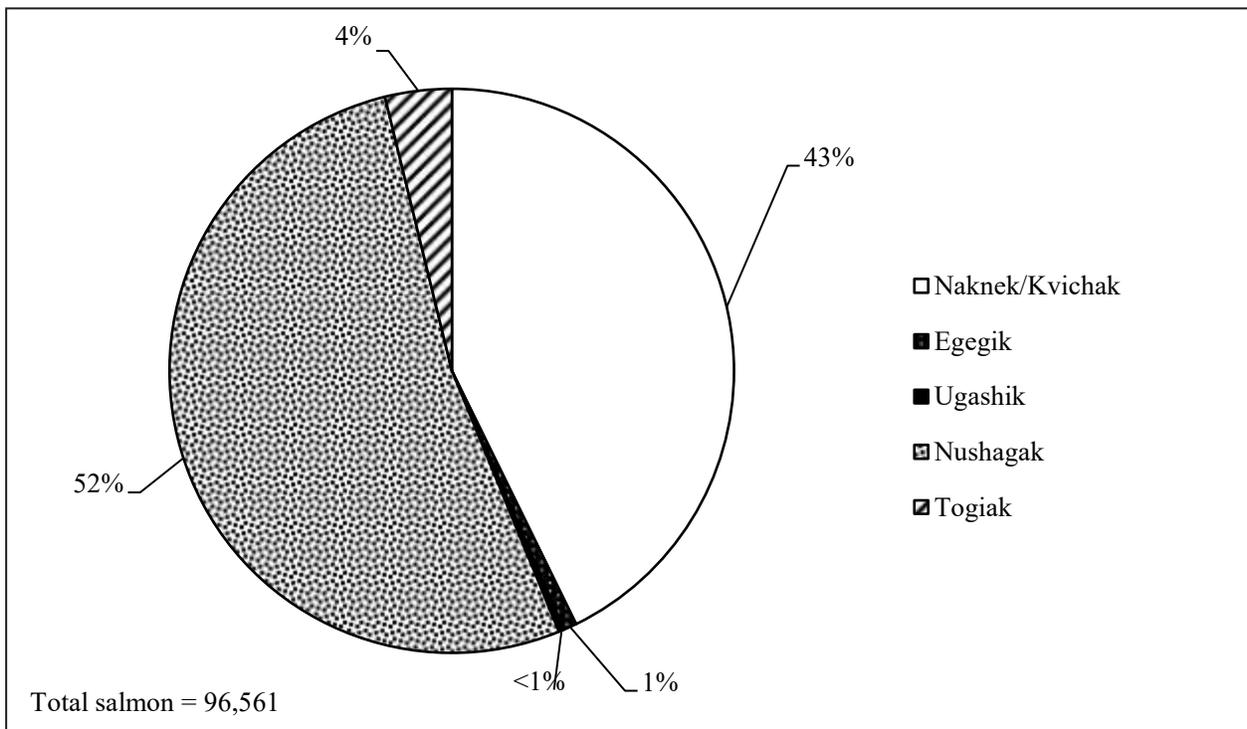


Figure 6-3.—Subsistence salmon harvests by district, Bristol Bay Area, 2020.

CHAPTER 7: CHIGNIK MANAGEMENT AREA

BACKGROUND

The Chignik Management Area (CMA) is also referred to as Area L as defined for the state-managed fisheries. It encompasses all coastal waters and inland drainages on the south side of the Alaska Peninsula from Kilokak Rocks at the southern entrance to Imuya Bay at 57 degrees 10.34' N. lat., 156 degrees 20.22' W. long., then due south to Kupreanof Point at 55 degrees 33.98' N. lat. 159 degrees 35.88' W. long. (5 AAC 15.100).¹ There are five communities in Alaska Department of Fish and Game's (ADF&G) salmon Chignik Management Area: Chignik (commonly referred to as Chignik Bay) with a 2020 estimated population of 97 people, Chignik Lagoon (population 72), Chignik Lake (population 61), Perryville (population 88) and Ivanof Bay (population 1).² All of these communities are within the Lake and Peninsula Borough, and virtually all area residents participate in harvesting salmon in the CMA.

Many residents of the CMA identify as descendants of the Alutiiq people and the immigrants who moved to the Chignik watershed to work in the canneries and the commercial fishing industry throughout the 20th century (Hutchinson-Scarborough and Koster 2021). Chignik Bay continues to be the center of the commercial fishing and processing operations for the region, and all these communities participate in the commercial harvest of salmon. The region maintains an Alutiiq culture and subsistence way of life in addition to the cash income provided by the commercial fishing industry. Residents rely heavily on sockeye salmon and, to a lesser extent, Chinook salmon, caught with seine, set gillnets, and drift gillnets, as well as the removal of salmon from commercial catch, or "home pack."

Comprehensive subsistence harvest surveys conducted by the Division of Subsistence show that salmon compose approximately 40% of all resources harvested in Chignik Bay, 50.2% of all resources harvested in Chignik Lagoon, 54.2% of all resources harvested in Chignik Lake, and 44.2% of all resources harvested in Perryville (Fall 2006). Chignik subsistence salmon permits are issued annually by CMA vendors, with harvest reports due to the department by December 31. The 2020 estimated total subsistence salmon harvest was 5,811 salmon, (Table 7-1; Figure 7-2). which was much lower than the historical average (1977–2019) of 10,834 salmon.

REGULATIONS

State of Alaska regulations governing subsistence salmon fishing in the Chignik Management Area require that to fish, an individual must obtain an annual subsistence salmon permit and must be an Alaska resident (5 AAC 01.480). Annually, permits are available locally at the ADF&G Chignik weir facility, from local CMA community vendors, or from the ADF&G Kodiak office. The permit holder must carry the permit while subsistence fishing, record daily salmon harvests directly on the permit and return it to the Alaska Department of Fish and Game by December 31 of that harvest year. Catch information obtained from subsistence permits is compiled annually and used to assess regional subsistence salmon fisheries.

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

- Only Alaska residents are eligible to obtain a CMA subsistence salmon permit and may fish in the areas open to subsistence at any time;
- There is an annual limit of 250 salmon per permit, per individual fisher. An additional permit may be obtained if more fish are needed (5 AAC 01.480(b)(c));

1. Alaska Department of Fish and Game. 2011–2014 Chignik and Kodiak Areas, commercial salmon fishing regulations, 89. Alaska Department of Fish and Game, Juneau. <http://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/ChigKod-2011-14.pdf>

2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau, n.d., "Research and Analysis Homepage," Alaska Population Estimates by borough, Census Area, City, and Census Designated Place (CDP), 2010 to 2020. Accessed October 27, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

- Legal gear includes seines and gillnets. Purse seines may not be used in Chignik Lake (5 AAC 01.470(a)). Additionally, any gillnet that is fixed, anchored, or otherwise held in place may not obstruct more than one half of the width of any stream open to subsistence fishing;
- All subsistence salmon fishing gear must be marked with a buoy listing the first initial, last name, and address of the person operating the gear (5 AAC 01.010(h));
- Subsistence salmon fishing is permitted in the Chignik River; however, salmon may not be taken from a point 300 feet upstream from the ADF&G weir to the outlet of Chignik Lake from July 1–August 31 (5 AAC 01.475(1)) to protect spawning Chinook salmon. The Chignik River, beginning 300 feet below the weir, is open to subsistence salmon fishing year round, unless closed by emergency order;
- Subsistence fishing is closed in the Chignik River within 300 feet above or below the Chignik weir when it is operational (5 AAC 01.470);
- Subsistence fishing is closed year-round in Black Lake or any tributary to Black Lake or Chignik Lake, except the waters of Clark River and Home Creek from each of their confluences with Chignik Lake to a point one mile upstream (5 AAC 01.475(2));
- An Alaska resident and Chignik Area commercial salmon fishing license holder (includes CFEC permit and crewmember license holder) may subsistence fish at any time during a commercial salmon fishing period, except for 12 hours preceding and 12 hours following the end of a commercial salmon fishing period (5 AAC 01.485). Commercial fishers may also retain fish from lawfully taken commercial catches for personal use, including for the use as bait in a commercial fishery, which is known as “home pack” (5 AAC 39.010(a)). Salmon retained for home pack are required to be reported on the commercial fish ticket at the time of landing (5 AAC 39.010(b));
- Subsistence fishing may be closed by emergency order by the commissioner, or an authorized designee of ADF&G based on local stock abundance and escapement objectives (AS 16.05.060).

Federal subsistence fisheries are authorized in portions of the CMA for federally qualified residents, who must reside in one of the CMA communities as their permanent place of residence. Federal regulations in the CMA apply to waters within or adjacent to the Alaska Peninsula National Wildlife Refuge, Aniakchak National Monument and Preserve, and the Alaska Maritime National Wildlife Refuge.

Federal and state subsistence regulations in the CMA generally parallel each other; however, in portions of the CMA, federal regulations authorize additional gear, harvest locations, and harvest seasons not authorized by the state. The 2019–2021 federal subsistence regulations for the harvest of salmon within the Chignik Area specified:

- You may take salmon by seines, gillnets, rod and reel, or with gear specified on a subsistence fishing permit, except that in Chignik Lake, you may not use purse seines. You may also take salmon without a permit by snagging (by handline or rod and reel), using a spear, bow and arrow, or capturing by bare hand;
- You may take fish other than salmon by gear listed in this part unless restricted under the terms of a subsistence fishing permit;
- Within the Chignik watershed, depending upon the area that you may fish, in addition to a State subsistence fishing permit, you may be required to also have a Federal subsistence permit;
- You may take salmon in the Chignik River, with rod and reel, from a point 300 feet upstream of the ADF&G weir to Chignik Lake from January 1 through August 9, with

- no daily harvest or possession limit under the authority of the Federal subsistence fishing permit;
- You may take salmon by gillnet in Black Lake or any tributary to Black or Chignik lakes with a federal subsistence fishing permit;
 - You may take salmon by gillnet in the waters of Clark River and Home Creek from their confluence with Chignik Lake upstream one mile;
 - You may take salmon without a permit in the open waters of Clark River and Home Creek by snagging (handline or rod and reel), spear, bow and arrow, or capture by hand. The daily harvest and session limits using these methods are five per day and five in possession.³

HARVEST ASSESSMENT PROGRAM

Estimates of annual CMA subsistence salmon harvests are based on annual permit returns combined with periodic postseason household surveys in the CMA communities. During 1993–2008, 2011, 2014, 2015, and 2016, the Division of Commercial Fisheries conducted postseason household surveys to supplement harvest data. Limited budgets prevented administering the surveys for 2009–2010, 2012–2013, and 2017–2020, probably resulting in an underestimate of subsistence harvests because not all subsistence fishing households obtained a permit. To compensate for this underestimate, the average annual harvest for postseason surveys was added to harvests to estimate the total subsistence harvest for 2009–2010, 2012–2013, and 2017–2020 (Burnside and Fuerst 2023). In 1980, ADF&G began requiring permits for subsistence fishing; the Division of Subsistence assumed responsibility of the harvest assessment program from 1993–2011. ADF&G used local vendors to issue permits and in addition conducted postseason surveys. During postseason surveys, researchers gathered unreported permit data as well as harvest data from individuals who may have fished without a permit. The addition of area permit vendors, ADF&G Chignik weir staff, local research assistants, and outreach by local government entities resulted in increased participation by subsistence fishers in the reporting process thus improving the accuracy of harvest estimates (Hutchinson-Scarborough et al. 2016; Hutchinson-Scarborough and Fall 1996). 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 were and continue to be tabulated by species and fishing area. In 2012, the Division of Commercial Fisheries resumed the responsibility of the permit program for distribution of permits to vendors and individuals, and tabulation of permit data which is then sent to the Division of Subsistence for analysis and distribution to the CMA commercial fishery manager. Final estimates of harvests are stored in the ASFDB, maintained by the Division of Subsistence.

The method of permit issuance in the communities varies by community and year, depending on the availability of vendors or by other arrangements with area organizations. Permits are also issued upon request at the Chignik River fish weir by Division of Commercial Fisheries' seasonal staff. Chignik subsistence salmon permits must be returned by mail to the Alaska Department of Fish and Game by December 31 of the year issued, even if unused. The permit includes a harvest report requiring the fisher to document dates fished, specific locations fished, and the number of each species of salmon caught on each day. Permit holders who do not respond are sent reminder letters, and those that return their permit are automatically issued a new permit the following year. In addition, in years when funding was available, 1993–2008, 2011, and 2014–2016, Division of Subsistence staff trained local research assistants from each community to administer face-to-face household subsistence salmon harvest surveys in each of the CMA communities. These surveys augmented the permit system, collecting harvest information from households that subsistence fished but did not obtain a permit, or did obtain a permit, but had not returned their permit

3. For additional information on federal boundaries and regulations for the CMA, see U.S. Fish and Wildlife Service, Office of Subsistence Management. 2019. Federal Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska: Effective 1 April 2019–31 March 2021. Anchorage: Federal Subsistence Board, Office of Subsistence Management, 2019. Accessed November 22, 2022.

to the department by the end of the year. Researchers generally conducted surveys after the fishing season, between January and March of the following year. Questions included those on the permit as well as additional questions regarding late season harvests and whether their subsistence needs were met.

CMA 2020 SUBSISTENCE SALMON HARVESTS

Since the 2018 Chignik sockeye fishery disaster, salmon returns in the Chignik areas have continued to fall well below escapement goals. In 2020, no commercial fishing was allowed in the Chignik Management Area because of the low salmon returns (Renick and Stratton 2021:3). Some Chignik commercial salmon permit holders and crew members left the communities to commercial fish in other areas during the 2020 season. Some of the remaining households chose not to subsistence fish in order to improve future returns of salmon to the area even though fishing for subsistence remained open in 2020. ADF&G did not issue any emergency orders closing subsistence fishing in 2020. The Federal Subsistence Board, however, issued two emergency special actions in response to low returns of early-run sockeye salmon and Chinook salmon to the Chignik River drainage. Emergency Special Action 8-SS-01-20 closed federal public waters of the Chignik River drainage to the harvest of sockeye salmon except by federally qualified residents of Chignik Bay, Chignik Lagoon, Chignik Lake, or Perryville, effective June 18, 2020 to July 31, 2020.⁴ This action also closed federal public waters of the Chignik River drainage, upstream of Mensis Point at the head of the Chignik Lagoon, to subsistence harvest of Chinook Salmon for all users.⁵

In 2020, the number of subsistence permits issued by ADF&G for the Chignik Management Area totaled 67 permits, and 63 (94%) were returned to ADF&G with harvest information or collected during postseason household surveys (Table 7-1). This was fewer permits issued than the previous year, 2019, when 84 permits were issued and 73 were returned, a return rate of 87%. Since 1977, the number of subsistence salmon permits issued for the Chignik Area has averaged 104 per year, with 75 permits (72%) returned. The permits issued over the last 10 years (2010–2019) averaged 106 permits with 88 permits (83%) returned, and the recent 5–year average (2015–2019) shows 101 permits issued with 85 permits (84%) returned (Table 7-1).

The 2020 harvest estimate shows a continuing trend of declining harvests; the total estimated CMA salmon harvest was 5,811 fish, 9% less than the previous year’s harvest of 6,412 fish and the lowest estimated subsistence harvest on record. The 2020 harvest was 31% lower than the recent 5-year (2015–2019) average of 8,467 fish; 38% less than the 10-year (2010–2019) average of 9,372 fish; and 46% less than the historical (1977–2019) average of 10,834 fish (Table 7-1).

Sockeye salmon harvests in 2020 totaled 4,188 fish, which was the lowest harvest since 1983 and less than the previous year of 4,514 fish. The 2020 harvests were 37% less than the 5-year (2015–2019) average of 6,680 fish; 42% less than the 10-year (2010–2019) average of 7,218 fish; half (50%) of the historical (1977–2019) average of 8,429 fish; and as much as 72% less than in the mid-1990s when, for example in 1993, 14,710 sockeye salmon were estimated harvested (Table 7-1).

In 2020, sockeye salmon accounted for 72% of the total salmon harvest—still the majority of the total salmon harvest, but at a lower percentage from previous years: 79% from 2015–2019, 77% from 2010–2019, and 78% from 1977–2019 (figures 7-2–7-5). Over time, by numbers of fish harvested, sockeye salmon has remained the primary salmon species harvested in the CMA, with coho salmon harvested second most, followed by pink salmon, chum salmon, and Chinook salmon. In 2020, the subsistence salmon harvest was composed of 72% sockeye salmon (4,188 fish), 17% coho salmon (1,000 fish), 8% pink salmon (436 fish), 2% chum salmon (123 fish), and 1% Chinook salmon (64 fish) (Table 7-1; Figure 7-2).

As noted above, coho salmon represented the second-largest component of the 2020 salmon harvest with 1,000 fish, which was 9% less than the previous year of 1,094 fish, 9% less than the 5-year (2015–2019) average of 1,095 fish, 20% lower than the 10-year (2010–2019) average of 1,256 fish, and 21% lower than

4 Federal Subsistence Board, Emergency Special Action No. 8-SS-01-20. Accessed November 22, 2022. <https://www.doi.gov/sites/doi.gov/files/uploads/esa-8-ks-01-20.pdf>

5. Federal Subsistence Board, Emergency Special Action No. 8-SS-01-20. Accessed November 22, 2022. <https://www.doi.gov/sites/doi.gov/files/uploads/emergency-special-action-chignik-sockeye-2020.pdf>

the historical average (1977–2019) of 1,266 fish. Pink salmon harvests in 2020 totaled 436 fish which was less (26% less) than the previous year’s harvest of 586. The pink salmon harvest was also similar (2% less) to the 5-year average (2015–2019) of 445 fish; 27% less than the 10-year average (2010–2019) of 601 fish, and 46% less than the historical (1977–2019) average of 813 fish. Chum salmon harvests in 2020 totaled 123 fish, 22% less than the previous year of 158 fish. Chum salmon harvests were also 20% less than the 5-year (2015–2019) average harvest of 154 fish, 37% less than the 10-year (2010–2019) average harvest of 194 fish, and 49% less than the historical (1977–2019) average of 239 fish. Chinook salmon harvests totaled 64 fish, 7% more than the previous year of 60 fish, but 30% less than the 5-year (2015–2019) average harvest of 92 fish, 38% less than the 10-year (2010–2019) average harvest of 104 fish, and 26% less than the historical (1977–2019) average of 86 fish (Table 7-1). In sum, sockeye salmon still make up the largest component of the overall harvest but the relative composition of the other species may be shifting.

Participation in the federal fishery in the Chignik area is small with an average of three permits issued annually (2013–2019). In 2020, no permits were issued or reported (tables 7-5 and 7-6).

CMA Subsistence Salmon Harvests by Community

In 2020, out of a total of 67 permits issued in the CMA, 56 (84%) were issued to residents of the Chignik Area communities of Chignik Bay, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay, who returned 53 (95%) of the permits issued in these communities. The remaining 11 permits issued (16% of the total permits issued for the area) were issued to residents of 4 other Alaska communities and 10 (91%) were returned (Table 7-2). In 2020, the CMA experienced an overall return rate of 94% of permits issued. Permit vendors are established in all of the CMA communities except for Ivanof Bay; and in 2019, the ADF&G Kodiak office began automatically renewing permits in the spring of each year for those that returned their permit the prior year.

In 2020, the three Chignik communities and Perryville each had estimated populations of fewer than 100 residents, and Ivanof Bay was home to only 1 resident. Residents of the three Chignik communities, particularly Chignik Lagoon and Chignik Lake, have relatively easy access to the terminal sockeye runs in the Chignik River watershed, but Perryville and Ivanof Bay do not. They primarily depend on coho, chum and pink salmon that are available in local area streams and along the beachfront. Perryville residents who commercial salmon fish harvest most of Perryville residents’ sockeye salmon from Chignik during commercial salmon closures (Hutchinson-Scarborough et al. 2016).

The data in Table 7-2; and Figure 7-7 reflect a number of permits issued and salmon harvested among these five communities. Of the local communities, Perryville residents acquired the most permits and harvested most of the salmon; with a total of 18 (27% of all permits issued), followed by Chignik Lagoon, 16 permits (24%); Chignik Lake, 11 permits (16%), Chignik Bay, 8 permits (12%); and Ivanof Bay 2 permits (Table 7-2). In 2020, CMA residents received 84% of permits for the area and accounted for 97% of the total salmon harvest. Residents harvested a combined total of 5,624 fish; 8% less than the harvest of 6,116 fish harvested in the year prior. In 2020, most salmon harvested by residents of the CMA communities consisted of 4,044 sockeye salmon, 97% of all sockeye salmon harvested. Coho salmon (957 fish) was second most harvested species with 96% harvested by residents of these local communities, followed by 436 pink salmon (100%); 123 chum salmon (100%); and 64 Chinook salmon (100%) (Table 7-2; Figure 7-7).

Perryville residents in 2020 harvested 2,297 fish, 40% of the CMA total. Chignik Lake residents harvested 1,282 fish (22%), Chignik Lagoon residents harvested 1,218 fish (21%), Chignik Bay residents harvested 515 fish (9%), Ivanof Bay residents harvested 312 fish (5%), and residents of 9 other Alaska communities harvested 187 fish (3%) (Figure 7-6). Chignik Lake residents harvested the most sockeye salmon in 2020, with a total of 1,217 fish, 29% of total CMA sockeye salmon harvest, followed closely by Perryville, 1,191 fish (28%), and Chignik Lagoon, 1,127 fish (27%). Perryville residents harvested the most coho salmon with 644 fish (64%), followed by Ivanof Bay residents with a harvest of 182 fish (18%). Perryville residents also harvested more pink and chum salmon than all of the other communities combined. Of all Chinook salmon harvested, Chignik Lagoon residents harvested the most of any community at 30 fish (47%). (Table 7-2;

Figure 7-7). Residents of the four communities outside the CMA that subsistence fished in 2020 harvested mostly sockeye salmon (144 fish, or 3% of all sockeye salmon harvested). (Table 7-2; Figure 7-7).

The estimated populations of all the CMA communities have declined since the 2000 census, which could account for some of the reduction in harvests, along with declines of the salmon runs to the Chignik watershed. Area residents and scientists have observed notable changes in climate related effects on fish and spawning habitat, and warming of oceans, lakes, and streams (Hutchinson-Scarborough and Marchioni 2016; Hutchinson-Scarborough et al 2021).

Additionally, many households only fish using one permit. If additional fish are needed, an additional permit can be issued, but many residents assume the permit is a household permit rather than issued to a single individual. Therefore, the number of permits per household, and per community, can vary each year and may not necessarily represent a change in population or household size. A regulatory change request could amend the CMA permit from an individual permit to a household permit, thus eliminating confusion and protecting subsistence users from being in violation of area regulations for fishing with a household member who has a permit but without an individual permit of their own.

Location of Harvests

Table 7-3 shows 2020 estimated subsistence salmon harvests by species and general locations within the CMA categorized by the Division of Subsistence where most subsistence fishing takes place—Chignik Bay and Lagoon subarea, Chignik Lake subarea, and Perryville subarea. The Chignik Bay and Lagoon subarea includes the Central, Eastern, and Chignik Bay commercial management districts (CMD), excluding areas above Mensis Point, at the mouth of Chignik River, at high tide in Chignik Lagoon. The Chignik Lake subarea includes all waters of the Chignik River drainage above Mensis Point in Chignik Lagoon, including the Chignik River, Chignik Lake, and Chignik Lake tributaries. The Perryville subarea corresponds to the Perryville and Western CMA commercial fishing districts. There were no reports of subsistence harvests that occurred in 2020 from the Central or Eastern districts of the CMA.

In 2020, out of 5,811 fish harvested in CMA, more were harvested from the Perryville subarea than other areas (40% or 2,320 fish). By species, most coho (76% or 756 fish), chum (93% or 114 fish), and pink (91% or 396 fish) salmon were harvested in this subarea. The Chignik Lake subarea accounted for 30% of the total salmon harvest within CMA, with 1,759 fish. This subarea also accounted for the most sockeye salmon harvested in CMA (39% or 1,643 fish). Chignik Bay and Lagoon subarea also accounted for 30% of the total salmon harvest within CMA, with a harvest of 1,733 fish. Most Chinook salmon harvested in CMA were harvested in this subarea (64% or 41 fish) (Table 7-3).

Harvest Timing by Location

In 2020, according to genetic sampling at the Chignik River weir, early-run sockeye transitioned to late-run on approximately July 12. This is the recent average when the proportion of early and late run sockeye salmon passing through the weir is generally about 50/50 (Renick 2020). Table 7-4 shows the estimated subsistence salmon harvests by species, fishing location, and date in 2020. Harvest dates shown in this table are divided into two periods of time, harvests before July 12 and harvests on or after July 12.

In the CMA in 2020, 20% (1,173) of all salmon and 27% (1,136) of sockeye salmon were harvested before July 12. On or after July 12, 80% (4,638) all salmon and 73% (3,052) sockeye salmon were harvested.

Considered by subarea, out of 1,136 sockeye salmon harvested before July 12, most (62%, 709 fish) were harvested in Chignik Lagoon, 22% (253 fish) in Chignik River, 13% (153 fish) from Ivanof Bay to Humpback Bay, and 2% (22 fish) in Perryville. On or after July 12, 3,052 sockeye salmon were harvested, of which Chignik Lagoon accounted for 25% (772 fish), Perryville accounted for 23% (711 fish), Ivanof Bay to Humpback Bay accounted for 23% (702 fish), Chignik Lake accounted for 19% (577 fish), Chignik River accounted for 8% (236 fish), and Clarks River accounted for 2% (56 fish) (Table 7-4).

Of the total 1,000 coho harvested, 100% occurred during the late season, with 33% harvested from Ivanof Bay to Humpback Bay (329 fish), 30% in Chignik Lagoon (302 fish), 23% in Perryville (227 fish), 11% in Clarks River (115 fish), and 3% in Chignik River (27 fish). Of the 64 total Chinook salmon harvested, only

22% (14 fish) were harvested in the early season before July 12 from Chignik Lagoon (4 fish) and Perryville (11 fish); 78% (50 fish) were harvested on or after July 12, with 86 % (43 fish) harvested from Chignik Lagoon (Table 7-4).

GEAR TYPE

Purse seines, hand seines, and gillnets are all allowable gear types for the harvesting of salmon for subsistence in the CMA under state regulations. CMA subsistence salmon permits do not require fishers to record their gear type (5 AAC 01.470). Rod and reel or hook and line are sometimes used to harvest subsistence salmon under federal subsistence regulations (Hutchinson-Scarborough et al. 2010; Hutchinson-Scarborough and Fall 1996).⁶

SALMON REMOVAL FROM COMMERCIAL HARVESTS FOR HOME USE

Commercial fishers may retain finfish from lawfully taken commercial catches for their home use (5 AAC 39.010). These fish, often referred by CMA fishermen as “homepack” must be reported on their commercial fish ticket and not on a subsistence salmon permit. Reported harvests are included in the ADF&G Division of Commercial Fisheries CMA annual finfish management reports. Although the early sockeye run was below the escapement goal range in 2019, the late run was within the escapement goal range, allowing limited commercial salmon fishing openings in all districts (Renick 2020). In 2020, the unavailability of commercial openings left no opportunity for fishers to obtain homepack, and no salmon were reported on fish tickets as removed from commercial catch for home use (Table 7-7).

PERSONAL USE FISHERY

There is no personal use fishery for salmon, nonsalmon fish or shellfish in the CMA. (5 AAC 77 400–5 AAC 77 416). Sport fishing by Alaska residents and nonresidents who have a sport fishing license is allowed for the Alaska Peninsula and Aleutian Islands area according to regulations in 5 AAC 65 001–5 AAC 65 051.

OTHER CHIGNIK AREA SUBSISTENCE FISHERIES

Residents of the Alaska Peninsula communities in the CMA harvest a large variety of marine resources besides salmon. Comprehensive household surveys were conducted in Chignik Bay and Chignik Lake in 1984, 1989, 1991 and 2003; in Chignik Lagoon in 1984, 1989 and 2003; and in Ivanof Bay in 1984 and 1989. The last, most comprehensive effort to gather harvest and use information for all resources including fish other than salmon and shellfish in the CMA occurred in early 2004. Most recently, the Division of Subsistence cooperated with the Bristol Bay Native Association to conduct household surveys addressing all resources used in Chignik Bay, Chignik Lagoon, Chignik Lake, and Perryville in 2016 (Hutchinson-Scarborough et al. 2020). This effort did not include Ivanof Bay because it had no permanent year-round population at the time. There was also a comprehensive survey conducted for study year 2003 researching nonsalmon finfish harvested and used by residents in the five CMA communities (Fall 2006). Nonsalmon fish such as Pacific halibut, grey cod, eulachon (candlefish), and Dolly Varden are important subsistence resources for most households in the CMA communities. The reader should consult Morris (1987), Fall et al. (1995), Hutchinson-Scarborough and Fall (1996), and Fall et al: (2006) for more background on these subsistence fisheries for nonsalmon finfishes and for shellfish. Limited nonsalmon subsistence resource use and harvest information was observed and documented during the division’s 2010–2013 Chignik Management Area Subsistence Salmon Ethnography study (Hutchinson-Scarborough et al. 2016). Harvest estimates based on systematic household interviews are available in the CSIS.

6. U.S. Fish and Wildlife Service, Office of Subsistence Management. 2019. Federal Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska: Effective 1 April 2019–31 March 2021. Anchorage: Federal Subsistence Board, Office of Subsistence Management, 2019.

Finfish

Although state regulations require a subsistence permit for the harvest of rainbow/steelhead trout and Arctic char/Dolly Varden, there are no annual harvest assessment programs for the other subsistence fisheries of the Chignik Area. The BOF, in an update of its C&T finding in January 2002, identified positive subsistence uses of all finfishes in the Chignik Area. Table 7-8 lists the finfishes other than salmon for which subsistence uses have been documented through systematic household interviews conducted by the Division of Subsistence. Table 7-9 updates this information for 2003 from the 2004 study.

Other than salmon, Pacific halibut is the only other species with a subsistence harvest monitoring program in the CMA. Subsistence fishing for halibut is managed by the National Marine Fisheries Service. Halibut may also be taken for subsistence by qualified residents by obtaining a federal subsistence halibut registration certificate. Subsistence Pacific halibut fishing harvest estimates for communities and tribes in the Chignik Management Area are available for 2003–2012, 2014, 2016, 2018, and 2020 (Sill and Koster 2022).

Shellfish

For purposes of subsistence shellfish management, the Chignik Finfish Management Area is within the ADF&G Alaska Peninsula–Aleutian Islands Area. The BOF identified positive subsistence uses of all shellfish stocks in the Alaska Peninsula–Aleutian Islands Area (5 AAC 02 566). There are no subsistence harvest assessment programs for these shellfish stocks in the Chignik Area. Table 7-10 lists the shellfish for which subsistence uses have been documented through systematic household interviews. Table 7-11 updates this information for 2003 from the 2004 study. Shellfish species are jointly regulated by the National Marine Fisheries Service and State of Alaska. In the CMA permits are not required for taking Dungeness Crab, King Crab or Tanner Crab in state or federal waters however size, possession and harvest limits are required. All other shellfish can be taken without a permit, with no harvest limits. Regulations concerning subsistence shellfish fisheries can be found at 5 AAC 02.500–5 AAC 02.566.

Table 7-1.—Historical state subsistence salmon harvests, Chignik Area, 1977–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1977	NA	NA	50	9,700	2,400	600	1,800	14,550
1978	NA	NA	50	6,000	500	600	2,100	9,250
1979	NA	NA	14	7,750	34	0	262	8,060
1980	82	37	6	12,475	32	169	478	13,160
1981	29	7	0	2,049	0	0	0	2,049
1982	59	15	3	8,532	12	0	2	8,548
1983	32	21	0	3,078	1,319	850	1,250	6,497
1984	77	64	23	8,747	464	204	330	9,768
1985	59	48	1	7,177	50	25	26	7,279
1986	74	38	4	10,347	205	77	98	10,730
1987	NA	NA	10	7,021	278	261	204	7,774
1988	80	34	9	9,073	1,455	142	54	10,733
1989	68	23	24	7,551	384	147	81	8,187
1990	72	23	103	8,099	210	115	470	8,996
1991	95	58	42	11,483	13	81	275	11,893
1992	98	19	55	8,648	709	145	305	9,862
1993	201	141	122	14,710	3,765	642	1,265	20,503
1994	219	122	165	13,978	4,055	382	1,720	20,300
1995	111	95	98	9,563	1,191	150	723	11,726
1996	119	104	48	7,357	2,126	355	2,204	12,089
1997	126	103	28	13,442	2,678	840	2,035	19,024
1998	104	72	91	7,750	1,390	186	1,007	10,424
1999	106	88	243	9,040	1,679	136	1,191	12,290
2000	130	112	163	9,561	1,802	517	1,185	13,227
2001	135	122	171	8,633	1,859	213	2,787	13,663
2002	120	86	74	10,092	1,401	23	390	11,980
2003	146	127	267	10,989	2,256	286	1,597	15,394
2004	104	57	88	7,029	1,981	202	1,047	10,347
2005	119	100	224	8,171	2,112	353	730	11,590
2006	113	79	259	8,079	1,539	275	1,035	11,187
2007	128	83	84	10,191	1,936	165	996	13,372
2008	89	69	41	7,189	877	57	619	8,783
2009 ^a	95	82	104	6,785	1,174	137	707	8,907
2010 ^a	124	90	188	8,148	1,820	222	656	11,034
2011	95	76	52	10,578	1,458	355	1,289	13,732
2012 ^a	106	87	116	5,607	1,488	220	810	8,242
2013 ^a	112	96	79	6,588	916	164	686	8,433
2014	113	101	148	7,855	1,401	207	339	9,950
2015	123	119	160	9,854	1,393	233	481	12,121

-continued-

Table 7-1.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2016	118	93	97	8,150	552	118	251	9,168
2017 ^a	97	73	73	6,346	1,470	106	510	8,504
2018 ^a	84	69	68	4,538	966	157	399	6,128
2019 ^a	84	73	60	4,514	1,094	158	586	6,412
2020 ^a	67	63	64	4,188	1,000	123	436	5,811
5-year average (2015–2019)	101	85	92	6,680	1,095	154	445	8,467
10-year average (2010–2019)	106	88	104	7,218	1,256	194	601	9,372
Historical average (1977–2019)	104	75	86	8,429	1,266	239	813	10,834

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021); Quimby and Owen (1994) for 1976–1979 and 1987.

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

a. From 1993–2008, 2011, 2014, 2015, and 2016 postseason household surveys were conducted to supplement harvest data collected through returned permits. Limited budgets prevented administering the surveys for 2009–2010, 2012–2013, and 2017–2020 likely resulting in an underestimate of subsistence harvests since not all subsistence fishing households obtained a permit. To compensate for this underestimate, the average annual harvest for postseason surveys was added to harvests to estimate the total subsistence harvest for 2009–2010, 2012–2013, and 2017–2020.

Table 7-2.—Estimated state subsistence salmon harvests by community, Chignik Area, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Chignik Bay	8	8	11	439	48	5	12	515
Chignik Lagoon	16	15	30	1,127	40	2	19	1,218
Chignik Lake	11	10	10	1,217	43	2	10	1,282
Ivanof Bay	2	2	1	70	182	27	32	312
Perryville	18	17	12	1,191	644	87	364	2,297
Subtotal, Chignik Area residents	56	53	64	4,044	957	123	436	5,624
Anchorage	2	1	0	0	0	0	0	0
Kodiak (city)	5	5	0	112	0	0	0	112
Unalaska	1	1	0	12	43	0	0	55
Wasilla	2	2	0	20	0	0	0	20
Subtotal, other Alaska residents	11	10	0	144	43	0	0	187
Total	67	63	64	4,188	1,000	123	436	5,811

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Table 7-3.—State subsistence salmon harvests by species and subarea of harvest, Chignik Area, 2020.

Subarea of harvest	Estimated salmon harvest					
	Chinook	Sockeye	Coho	Chum	Pink	Total
<i>Chignik Bay and Lagoon</i>	<i>41</i>	<i>1,505</i>	<i>155</i>	<i>7</i>	<i>24</i>	<i>1,733</i>
Chignik Bay	11	436	145	3	12	607
Chignik Lagoon	30	1,070	10	4	12	1,126
<i>Chignik Lake</i>	<i>10</i>	<i>1,643</i>	<i>89</i>	<i>2</i>	<i>16</i>	<i>1,759</i>
Chignik Lake	10	1,437	43	2	10	1,501
Chignik River	0	186	9	0	6	200
Clarks River	0	21	37	0	0	58
<i>Perryville</i>	<i>13</i>	<i>1,041</i>	<i>756</i>	<i>114</i>	<i>396</i>	<i>2,320</i>
Perryville	12	645	469	70	345	1,540
Ivanof Bay to Humpback Bay	1	396	287	44	52	779
Total	64	4,188	1,000	123	436	5,811

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

Table 7-4.—Chignik Area state subsistence salmon harvests by species, fishing location, and date, 2020.

Subarea of harvest	Estimated salmon harvest ^a					Total
	Chinook	Sockeye	Coho	Chum	Pink	
<i>Harvest before 7/12</i>						
Chignik Bay	0	0	0	0	0	0
Chignik Lagoon	4	709	0	7	12	732
Chignik Lake	0	0	0	0	0	0
Chignik River	0	253	0	0	0	253
Perryville	11	22	0	4	0	36
Ivanof Bay to Humpback Bay	0	153	0	0	0	153
Subtotal, early harvest	14	1,136	0	11	12	1,173
<i>Harvest on or after 7/12</i>						
Chignik Bay	0	0	0	0	0	0
Chignik Lagoon	43	772	302	10	37	1,163
Chignik Lake	0	577	0	0	0	577
Chignik River	0	236	27	0	73	335
Clarks River	0	56	115	0	0	171
Perryville	7	711	227	44	85	1,073
Ivanof Bay to Humpback Bay	0	702	329	58	230	1,319
Subtotal, late harvest	50	3,052	1,000	112	424	4,638
Total	64	4,188	1,000	123	436	5,811

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Table 7-5.—Federal subsistence salmon harvests by community, Chignik Management Area, 2020.

Community	Permits		Reported salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Chignik Lagoon	0	0	0	0	0	0	0	0
Chignik Lake	0	0	0	0	0	0	0	0
Perryville	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Table 7-6.—Historical federal subsistence salmon harvests, Chignik Area, 2013–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2013	0	0	0	0	0	0	0	0
2014	10	10	2	138	10	0	6	156
2015	2	2	14	6	0	0	0	20
2016	0	0	0	0	0	0	0	0
2017	3	3	2	0	0	0	0	2
2018 ^a	3	3	0	0	0	0	0	0
2019	4	3	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0
Historical average (2013–2019)	3	3	3	21	1	0	1	25

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

a. In 2018, only community social and cultural permits were issued. No individual permits were issued.

Table 7-7.—Chignik area salmon removed from commercial catch for home use, 1994–2020.

Year	Salmon harvest					Total
	Chinook	Sockeye	Coho	Chum	Pink	
1994	0	0	0	0	0	0
1995	64	0	913	5	0	982
1996	40	40	20	21090	5262	26,452
1997	88	664	0	0	0	752
1998	108	267	27	155	0	557
1999	211	26	200	3	0	440
2000	20	0	0	0	0	20
2001	90	217	7	129	7	450
2002	77	1,371	164	0	0	1,612
2003	309	2,411	74	0	407	3,201
2004	158	1,690	0	0	0	1,848
2005	271	1,364	5	115	234	1,989
2006	68	267	175	0	0	510
2007	16	205	56	1	0	278
2008	15	0	0	0	0	15
2009	75	93	0	1	0	169
2010	118	973	0	0	7	1,098
2011	142	323	16	0	0	481
2012	51	513	0	240	22	826
2013	85	587	28	0	0	700
2014	35	6	0	0	0	41
2015 ^a	236	887	48	10	12	1,193
2016 ^a	312	5	485	40	2,137	2,978
2017	38	108	287	65	322	820
2018	0	0	0	0	0	0
2019	26	12	1	0	0	39
2020	0	0	0	0	0	0
5-year average (2015–2019)	122	202	164	23	494	1,006
10-year average (2010–2019)	104	341	86	35	250	818
Historical average (1977–2019)	102	463	96	841	323	1,825

a. The harvest includes reported salmon from both commercial fish tickets as well as household surveys.

Table 7-8.—Subsistence uses of nonsalmon finfishes by community, Chignik Area, 1989.

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

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

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

Table 7-9.–Subsistence uses of nonsalmon finfishes by community, Chignik Area, 2003.

Common English name	Scientific name	Percentage of households using in			
		Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville
Pacific herring	<i>Clupea pallasii</i>	0	6	0	0
Eulachon (candlefish)	<i>Thaleichthys pacificus</i>	0	13	0	81
Pacific cod (gray cod)	<i>Gadus macrocephalus</i>	36	44	48	44
Walleye pollock	<i>Theragra chalcogramma</i>	5	0	0	0
Lingcod	<i>Ophiodon elongatus</i>	27	38	0	4
Unknown greenling	<i>Various species</i>	0	0	0	11
Pacific halibut	<i>Hippoglossus stenolepis</i>	95	94	90	81
Unknown sculpin	<i>Various species</i>	0	0	0	7
Unknown Irish lord	<i>Hemilepidotus spp.</i>	0	0	0	11
Starry flounder	<i>Platichthys stellatus</i>	0	0	5	4
Unknown flounder	<i>Various species</i>	0	0	5	4
Sablefish (black cod)	<i>Anoplopoma fimbria</i>	18	19	0	19
Black rockfish	<i>Sebastes melanops</i>	27	25	19	19
Red (yelloweye) rockfish	<i>Sebastes ruberrimus</i>	23	25	0	4
Skates	<i>Various species</i>	0	6	0	4
Unknown Sole	<i>Various species</i>	0	6	0	0
Dolly Varden	<i>Salvelinus malma</i>	36	6	19	26
Rainbow trout	<i>Oncorhynchus mykiss</i>	36	13	10	0
Steelhead trout	<i>Oncorhynchus mykiss</i>	5	6	10	0
Any nonsalmon fish		95	94	90	93

Source CSIS

Note Ivanof Bay was not surveyed in 2003.

Table 7-10.—Subsistence uses of marine invertebrates by community, Chignik Area, 1989.

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

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

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

Table 7-11.—Subsistence uses of marine invertebrates by community, Chignik Area, 2003.

Common English name	Scientific name	Percentage of households using in			
		Chignik Bay	Chignik Lagoon	Chignik Lake	Perryville
Alaska razor clam	<i>Siliqua patula</i>	32	63	29	22
Butter clam	<i>Saxidomus giganteus</i>	77	88	90	85
Gaper clam	<i>Tresus capax</i>	0	0	0	7
Pinkneck clam (redneck)	<i>Spicula polynuma</i>	5	6	0	19
Pacific littleneck (steamer) clam	<i>Protothaca staminea^a</i>	27	44	19	37
Chiton, black (leather)	<i>Katharina tunicata</i>	55	19	81	85
Chiton, red (gumboot)	<i>Cryptochiton stelleri</i>	18	0	10	41
Mussel (blue)	<i>Mytilus trossulus</i>	0	7	0	0
Unknown clams	<i>Various species</i>	5	0	0	0
Unknown cockles	<i>Various species</i>	27	0	33	67
Unknown mussels	<i>Various species</i>	0	0	0	26
Octopus	<i>Octopus spp.</i>	64	25	76	63
Sea urchin	<i>Strongyocentrotus spp.</i>	45	13	52	74
Giant Pacific scallop	<i>Pecten caurinus</i>	0	0	0	7
Red king crab	<i>Paralithades camtschatica</i>	0	13	0	7
Unknown king crab	<i>Various species</i>	0	6	0	0
Dungeness crab	<i>Cancer magister</i>	59	25	0	59
Tanner crab	<i>Chionoecetes bairdi</i>	77	75	57	67
Unknown Tanner crab	<i>Chionoecetes spp.</i>	5	6	0	0
Snail	<i>Neptunea spp.</i>	0	0	0	11
Limpet	<i>Acmaeidae spp.</i>	5	0	0	7
Any marine invertebrates		91	100	90	96

Source CSIS

Note Ivanof Bay was not surveyed in 2003.

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

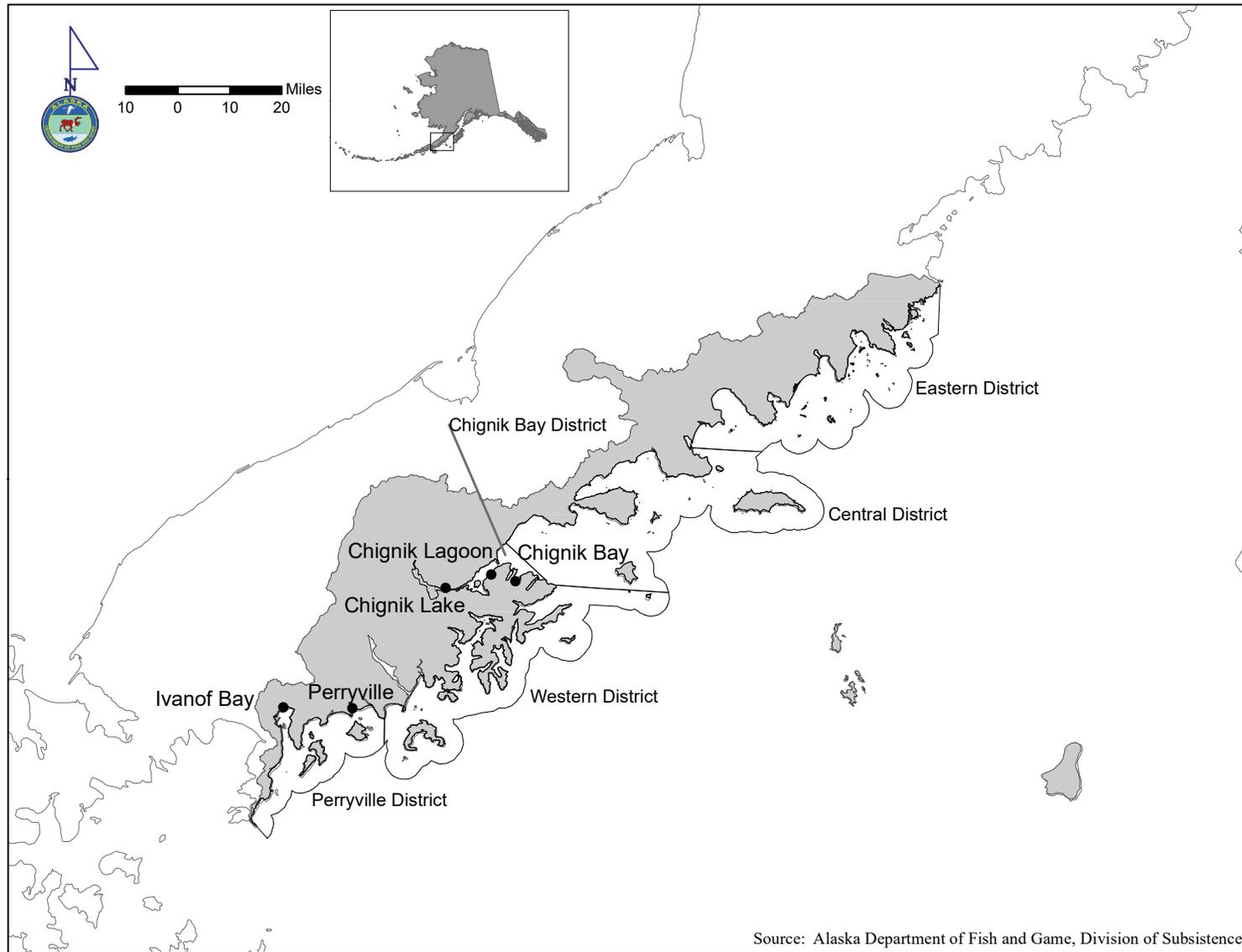


Figure 7-1.—Location of Chignik Management Area (CMA) and communities within the CMA on the Alaska Peninsula.

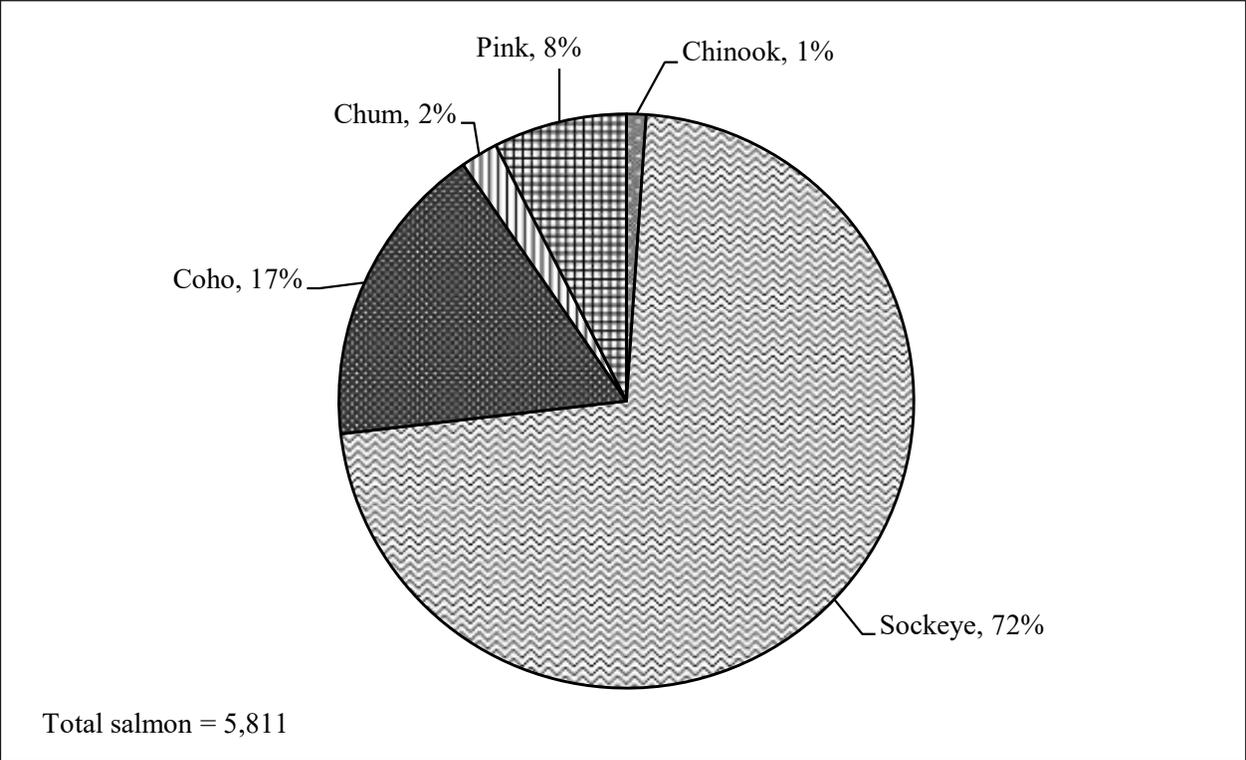


Figure 7-2.—Composition of Chignik Area subsistence salmon harvest by species, 2020.

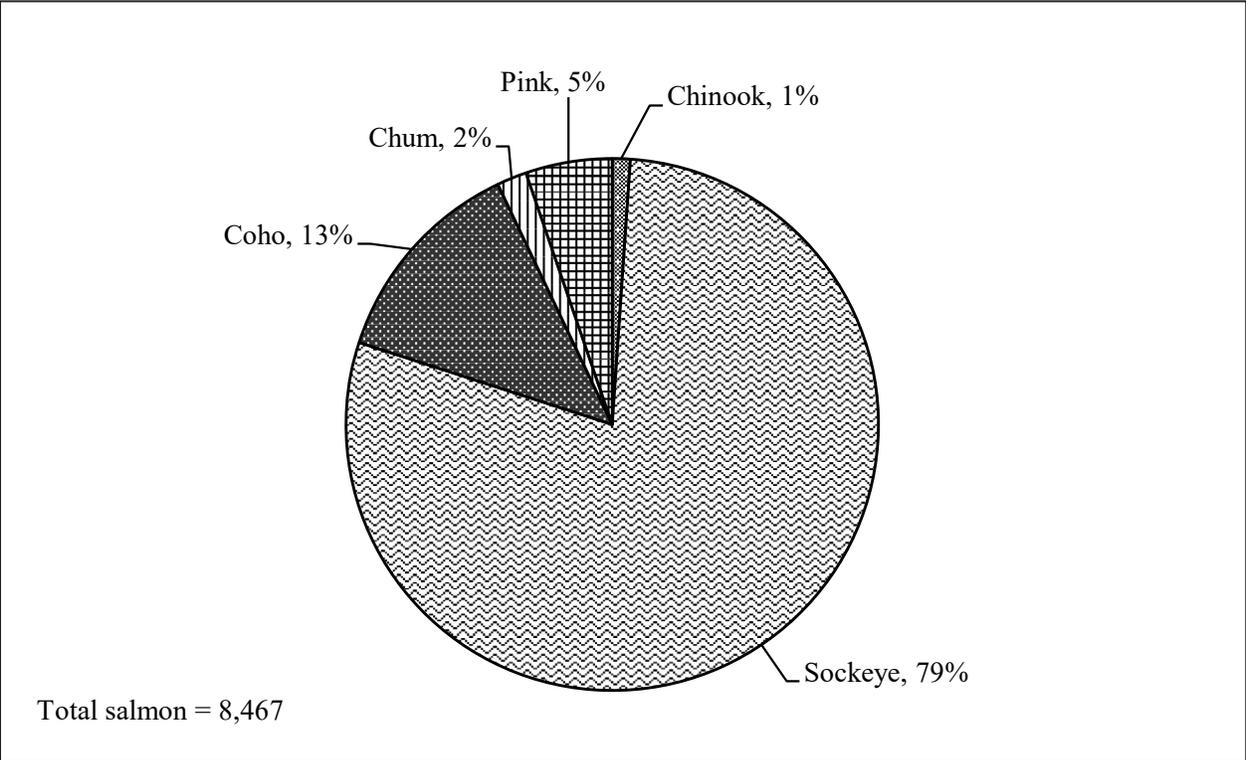


Figure 7-3.—Species composition of Chignik Area subsistence salmon harvests, 2011–2020.

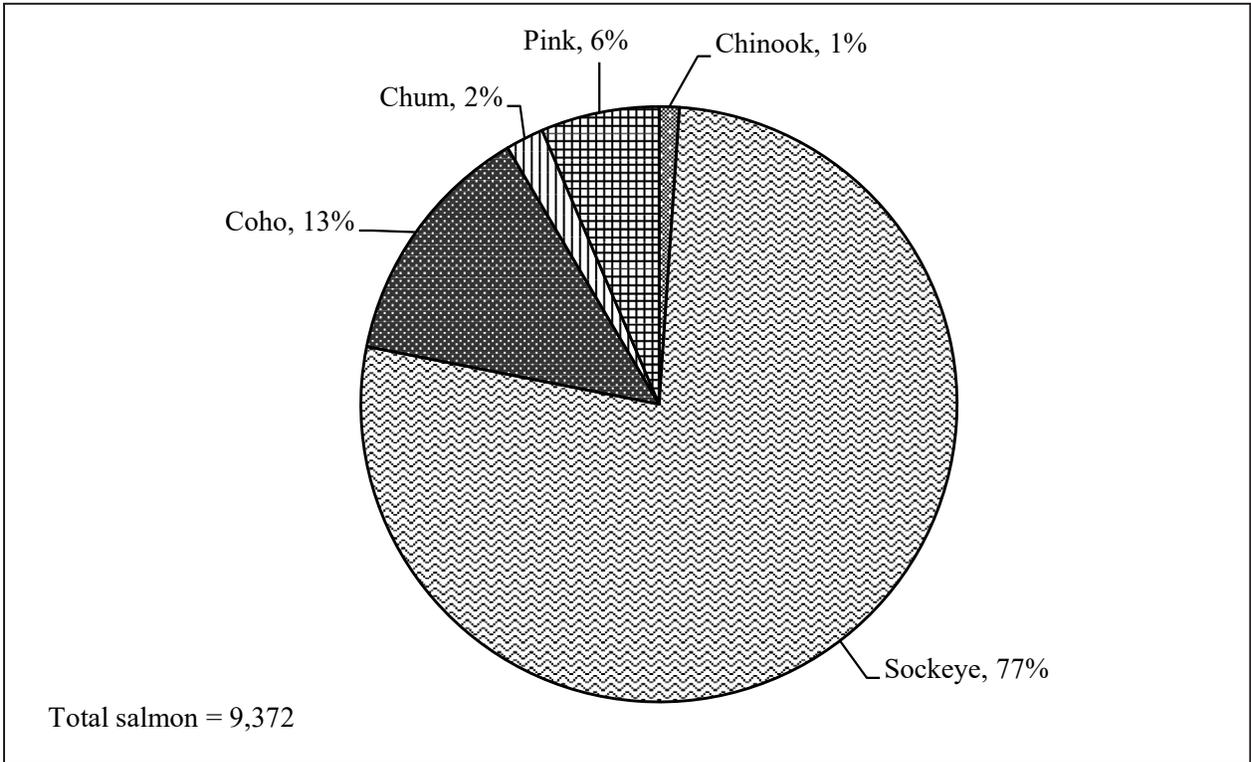


Figure 7-4.—Species composition of Chignik Area subsistence salmon harvests, 2006–2020.

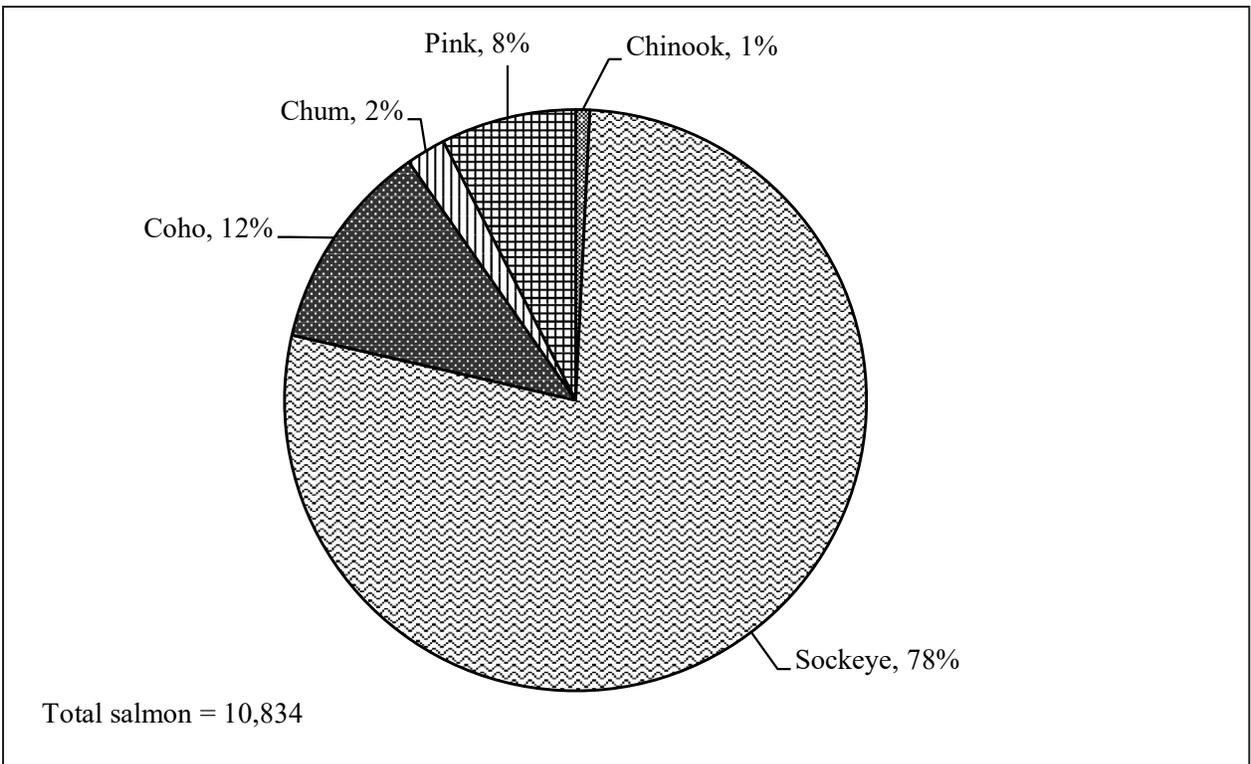


Figure 7-5.—Species composition of Chignik Area subsistence salmon harvests, 1977–2020.

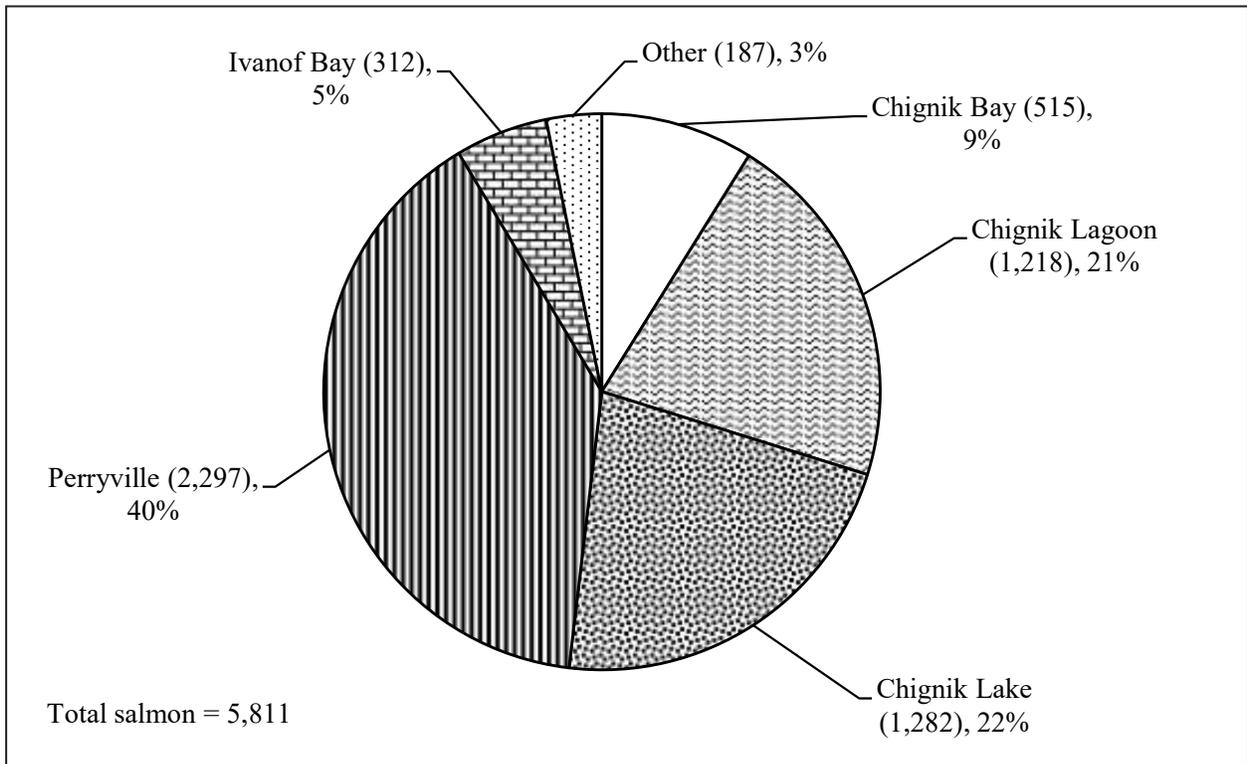


Figure 7-6.—Subsistence salmon harvests by community, Chignik Area, 2020.

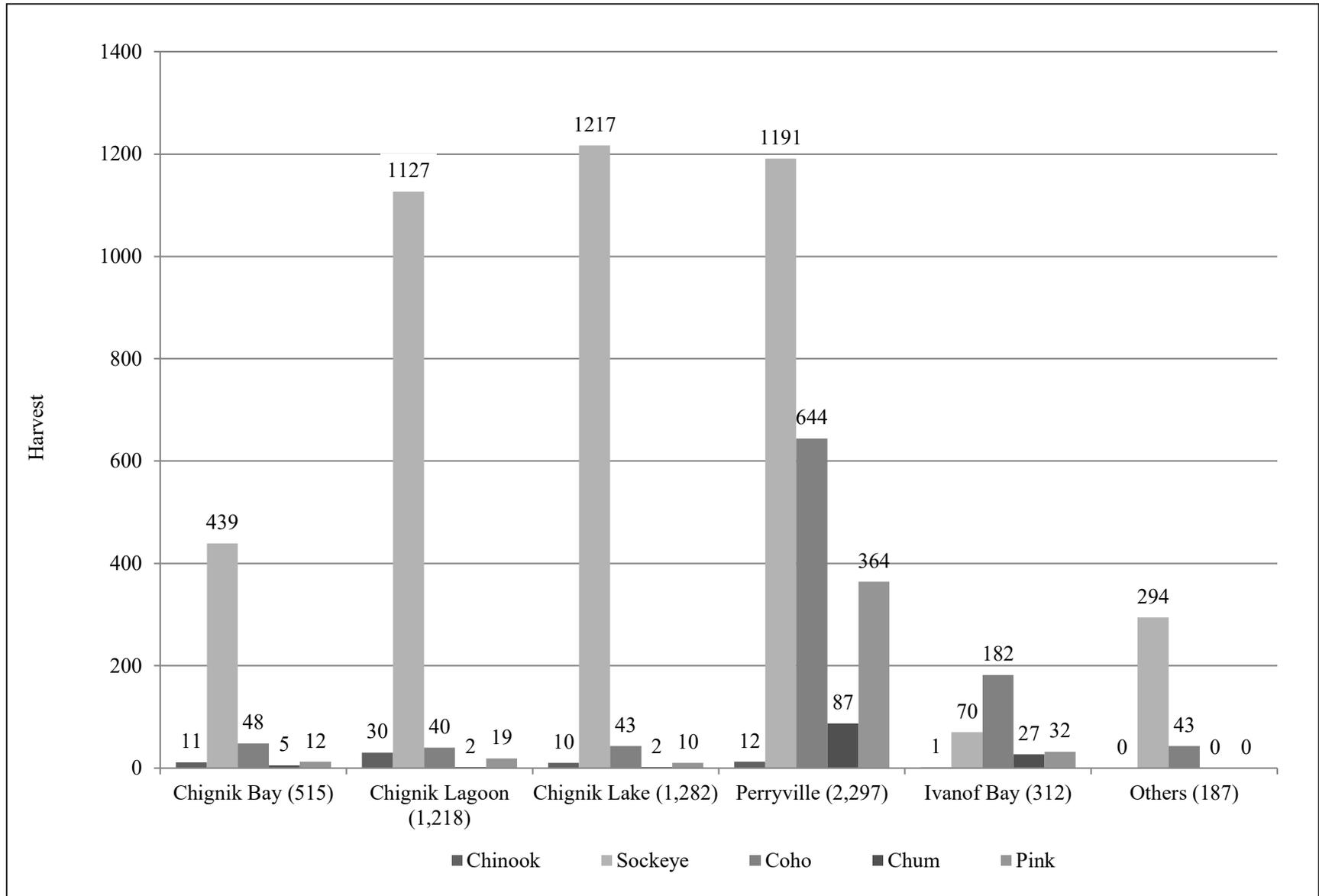


Figure 7-7.—Subsistence salmon harvests by community and species, Chignik Area, 2020.

CHAPTER 8: ALASKA PENINSULA AREA

BACKGROUND

The Alaska Peninsula Salmon Management Area (Area M; Figure 8-1) includes all the waters of Alaska on the north side of the Alaska Peninsula southwest of a line from Cape Menshikof to Cape Newenham and east of the longitude of Cape Sarichef Light and on the south side of the Alaska Peninsula from a line extending from Scotch Cap through the easternmost tip of Ugamak Island to a line extending 135 degrees southeast from Kupreanof Point (5 AAC 01.400). For salmon management purposes, the area is divided into two portions: the North Alaska Peninsula portion includes the waters from Cape Menshikof west to Cape Sarichef, and the South Alaska Peninsula includes the waters from Kupreanof Point west to Scotch Cap on Unimak Island (Keyse and Fox 2015). The communities of the Alaska Peninsula Area and their respective estimated populations in April 2020 are Port Heiden (population 106), Nelson Lagoon (population 34), False Pass (population 40), Cold Bay (population 76), King Cove (population 900, with 462 residing in households and 438 in group quarters), and Sand Point (population 880, with 530 residing in households and 350 in group quarters).¹ Port Moller has no year-round population and is only seasonally occupied from May–September. Port Heiden is in the Lake and Peninsula Borough; the other communities are in the Aleutians East Borough (which also includes Akutan in the Aleutian Islands Area, covered in Chapter 9 of this report).

Salmon is an important resource for all Alaska Peninsula communities as a central resource in their subsistence economies, as well as an economic input resulting from the substantial commercial salmon fisheries in the area. In a 2016 Division of Subsistence study, all five salmon species made up 64% of all subsistence resources harvested in the community of King Cove and 68% of resources used in Sand Point.² In another study, Jones and Cunningham (2020) found that salmon comprised 48% of all resources used in the community of Port Heiden. The commercial salmon fishery in the south Alaska Peninsula continues to play a crucial role in economies throughout the region. Residents of many communities participate in the fishery and processing facilities are located throughout the Alaska Peninsula. During the 2020 south Alaska Peninsula commercial salmon season, the commercial harvest comprised 7,241,210 salmon (Fox et al. 2021). As a subsistence resource or as a commercial resource, salmon continues to be crucial for residents of the region, and the harvest of salmon has an important role in the way of life for all Alaska Peninsula communities.

REGULATIONS

In 1993, The Board of Fisheries (BOF) found that salmon in the Alaska Peninsula Area support customary and traditional (subsistence) uses (5 AAC 01.416). The BOF established a range of 34,000–56,000 salmon reasonably necessary for subsistence uses (ANS). A subsistence permit to record daily harvests is required for fishing in the Alaska Peninsula Area. There is an annual limit of 250 salmon per household, but a permit holder may obtain an additional permit from the department (5AAC 01.430). Legal gear includes seines and gillnets or as otherwise specified on the permit. In waters open to subsistence fishing, no set gillnet may exceed 100 fathoms in length, and no drift gillnet may exceed 200 fathoms in length. In areas open to commercial salmon fishing, salmon can only be taken with gillnets of not more than 50 fathoms in length (5AAC 01.420). Seines may not be longer than 250 fathoms or deeper than 375 meshes. Seine mesh size, other than mesh above the headline, may not be greater than three and one-half inches stretched measure. The first 25 meshes above the headline must be seven inches or less stretched measure. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. The Alaska Administrative Code (5 AAC 01.423) includes special provisions

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau, n.d., “Research and Analysis Homepage.” Accessed November 4, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>
2. B, E, Jones, C. Wilcox, and D. S. Koster. *In prep*. Harvest and Uses of Wild Resources in Cold Bay, King Cove, and Sand Point. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. NNN, Anchorage. Hereinafter cited as Jones et al. *In prep*.

regarding subsistence gear for other areas, including Mortensens Lagoon, the False Pass vicinity, and Bear and Sandy rivers. Salmon may be taken at any time, except in those districts and sections that are open to commercial salmon fishing, salmon may not be taken during the 24 hours before and 12 hours following a commercial salmon fishing period. A few small areas closed to subsistence salmon fishing are listed in 5 AAC 01.425.

Federal regulations governing subsistence salmon fishing in waters under the jurisdiction of the Federal Subsistence Board are generally identical to the state regulations summarized above with the following exception; rod and reel, handline, spear, bow and arrow, and bare hand capture are all legal subsistence gear under federal rules for federally qualified rural residents, in addition to gillnet and seine. There is no separate federal subsistence permit; a state permit is required for subsistence fishing under the federal regulations. Additional information about the federal subsistence fishery is available by contacting the United States Fish and Wildlife Service, Office of Subsistence Management in Anchorage, Alaska.

HARVEST ASSESSMENT PROGRAM

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

SUBSISTENCE SALMON HARVESTS IN 2020

The number of issued permits for subsistence fishing in this area has more recently experienced a steep decline. From 1985 through 2019, the number of subsistence salmon permits issued for the Alaska Peninsula Area averaged 183 per year (Table 8-1). The recent 5-year average (2015–2019) was 140 permits. In 2020, 117 subsistence salmon fishing permits were issued for the Alaska Peninsula Area, which was an increase compared to the previous year when 96 permits were issued. This compares to the 244 Commercial Fishery Entry Commission (CFEC) permits that were actively fished in the commercial salmon fishery for the South Alaska Peninsula Area in 2020 (Fox et al. 2021). The response rate for subsistence permits was 79% in 2020 (93 of 117 permits were returned). Of all subsistence permits issued, 78 (67%) were issued to residents of Alaska Peninsula Area communities, and 39 (33%) were issued to residents of other Alaska communities (Table 8-2). Most nonlocal residents fish at Mortensens Lagoon, which is located approximately nine road miles southeast of Cold Bay, primarily because of easy road access from the Cold Bay airport which provides economically feasible transportation options (Tschersich and Russ 2008). In addition to Mortensens Lagoon, Thin Point Lagoon located 12 miles west of King Cove and Leonard Harbor near the King Cove road system are some of the primary areas utilized for obtaining subsistence sockeye and coho salmon particularly for King Cove and Cold Bay residents (Johnson and Fox 2015).

The estimated total subsistence salmon harvest in the Alaska Peninsula Area in 2020 was 9,947 fish. This is a 67% increase from the prior year (5,952 salmon in 2019) but less than the recent 5-year average (2015–2019; 12,507 salmon), less than the 10-year average (2010–2019; 13,047 salmon), and less than the historical average (1985–2019) of 16,626 fish (Table 8-1). The 2020 subsistence harvest consisted of 66% sockeye salmon (6,571), 19% coho salmon (1,909), 10% pink salmon (976), 4% chum salmon (386), and 1% Chinook salmon (105), (Table 8-1; Figure 8-2). The estimated sockeye salmon harvest was 6,571 fish in 2020, which was a considerable increase from the 2019 estimate of 3,517 fish, the lowest historical sockeye salmon harvest and year with the lowest number of permits issued since the Alaska Peninsula Area subsistence fishery record keeping began in 1985. Nonetheless, the estimated harvests of sockeye salmon in 2020 were less than the 5-year (2015–2019) average of 7,792 fish, the 10-year (2010–2019) average of 8,332 fish, and the historical (1985–2019) average of 9,373 fish (Table 8-1) suggesting an overall

decrease in sockeye harvests over time. The estimated harvest of coho salmon in 2020 was 1,909 fish, which is an increase from the 2019 estimate of 1,271 fish. The 2020 harvest estimate is more than the 5-year (2015–2019) average of 1,877 fish, less than the 10-year (2010–2019) average of 2,032 fish, and less than the historical (1985–2019) average of 3,845 fish (Table 8-1). The chum salmon harvest (386 salmon) in 2020 was a 3% decrease from the 2019 harvest (398 salmon), and significantly less than the 5-year average (994 salmon), the 10-year average (1,053 salmon), and the historical average (1985–2019) of 1,662 chum salmon (Table 8-1). The 2020 pink salmon harvest (976 salmon) was a 62% increase from the prior year (603 salmon) and was less than the recent 5-year average (1,552 salmon), the 10-year average (1,359 salmon), and the historical average (1985–2019) of 1,441 salmon (Table 8-1). Finally, the 2020 Chinook salmon harvest (105 salmon) was a 35% decrease from the prior year (162 salmon) and was less than the recent 5-year average (292 salmon), the 10-year average (271 salmon), and the historical average (1985–2019) of 305 fish (Table 8-1).

Of the total salmon harvested in 2020, the residents of King Cove harvested 36% (3,551 fish); Sand Point residents 26% (2,555 fish); Cold Bay residents 11% (1,051 fish); False Pass residents 3% (250 fish); Nelson Lagoon residents 2% (178 fish); and Port Heiden residents <1% (10 fish). Other Alaska residents not residing year-round in any of the Alaska Peninsula Management Area communities harvested 2,352 fish, which represented 24% of the total harvest for the area in 2020 (Table 8-2; Figure 8-3).

Fish removed from commercial salmon harvests for personal use, referred to locally as “home pack,” can also be an important source of salmon for area households. For 2020, in the Alaska Peninsula Area commercial salmon fishermen reported removing a total of 3,643 salmon from their commercial salmon harvest for home use, of which 27% (974) were Chinook salmon, 23% (822) coho salmon; 19% (698) pink salmon; 17% (619) chum salmon; and 15% (530) sockeye salmon were removed.³

Although home pack reporting is required on commercial harvest tickets (5AAC39.130(c)12), the harvest ticket data may not be accurate due to inconsistent reporting with some home pack salmon recorded on commercial fishers’ subsistence permits rather than commercial harvest tickets.⁴ The subsistence permit program for the Alaska Peninsula Area is not designed to account for salmon withheld from commercial catches for home uses. This number may be substantial, especially in years when commercial salmon prices are low. This is supported historically, with 1992 data from household harvest surveys estimating that 51% of the salmon harvested for home use in King Cove (Fall et al. 1993b), and in 2016, 27% were removed from commercial harvests. In 1992, 45% of the salmon harvested for home use in Sand Point were removed from commercial harvests (Fall et al. 1993a), and in 2016, 59% were removed from commercial harvests (Jones et al. *In prep*).

In 2000, fishery managers for the Alaska Peninsula Area noted that the subsistence permit program likely did not completely document all subsistence salmon harvesting activities because some fishers did not obtain permits (Fall and Shanks 2000:30). A comparison of permit and household interview data for 1992 for King Cove and Sand Point found that not all fishers obtained permits. As a result, estimated harvests from household surveys were measurably higher than estimates derived from permit reporting (Fall et al. 1993a:61; Fall et al. 1993b:58–62). In 2019, the Division of Subsistence conducted a research project funded by the Alaska Sustainable Salmon Fund (AKSSF) to estimate wild resource harvests in 2018, by location and by gear type (using subsistence methods, removal from commercial harvests, and rod and reel) by the residents of Port Heiden. Key respondent interviews revealed that many Port Heiden households share the opinion that public information about subsistence permits and options for obtaining a subsistence salmon permit were insufficient and expressed concerns that low participation in the subsistence permit program resulted in unrepresentative salmon harvest estimates for Port Heiden; indeed, harvest estimates resulting from the permit system and this study differed by 2,277 salmon. According to permit returns for

3. Tyler Lawson, ADF&G Assistant Area Management Biologist, Alaska Peninsula and Aleutian Islands, Personal Communication, November 25, 2022

4. Elizabeth Fox, ADF&G Area Management Biologist, Alaska Peninsula and Aleutian Islands, Personal Communication, October 17, 2018.

2018, Port Heiden residents harvested a total of 180 salmon with subsistence nets, compared to the 2018 harvest survey data which found 2,457 salmon harvested with subsistence nets (Jones and Cunningham 2020).

OTHER SUBSISTENCE FISHERIES

Subsistence harvests of fish other than salmon are not annually monitored by ADF&G. Since 2003, the National Marine Fisheries Service (NMFS) has provided regulations implementing a subsistence halibut fishery for qualified individuals in the waters in and off Alaska (68 FR 18145, April 15, 2003; see <http://www.fakr.noaa.gov/frules/fr18145.pdf>). Current regulations state that persons eligible to subsistence fish for halibut include: 1) residents of rural communities with customary and traditional uses of halibut (rural); and 2) members of federally recognized Alaska Native tribes with customary and traditional uses of halibut (tribal). Subsistence Pacific halibut fishing harvest estimates for communities and tribes in the Alaska Peninsula Area are available for 2003–2012, 2014, 2016, 2018, and 2020 (Sill and Koster 2022). Due to a lapse in funding, subsistence Pacific halibut fishing harvest estimates were not collected for 2013, 2015, and 2017. The primary method used for obtaining subsistence halibut harvest estimates statewide is through the use of mail-out surveys. In addition, in 2014 a special objective also included in person interviews with active subsistence halibut permit holders in the communities of King Cove and Sand Point (Fall and Lemons 2016).

There are no other annual or regular harvest monitoring programs for the other finfish and shellfish subsistence fisheries of the Alaska Peninsula Area. To date, the Division of Subsistence has conducted one systematic household harvest survey in each of the area's communities and two in Port Heiden, Sand Point, and King Cove. The findings of these surveys, including species used, percentage of households harvesting each species in the study year, and estimated harvest quantities for the study year, appear in the CSIS. Table 8-3 reports the percentage of households in the surveyed communities that used selected nonsalmon finfish species in the available study year. Though harvested in significantly smaller quantities than salmon, generally, Pacific cod, halibut, and Arctic char/Dolly Varden were the most frequently used by households in these communities. As part of the two AKSSF studies mentioned above, the division conducted systematic surveys that include harvest data for a comprehensive list of resources as well as salmon sharing practices for study year 2016 in Cold Bay, Sand Point, and King Cove and in Port Heiden

Nonsalmon and marine invertebrate subsistence harvest data for 2016 for Cold Bay, King Cove, and Sand Point were estimated in pounds harvested per capita as follows: nonsalmon fish: Cold Bay, 20 pounds; most of which was halibut (56%) and cod (28%); King Cove, 36 pounds per capita, of which 37% were Dolly Varden trout (freshwater) and 36% halibut; and Sand Point, 30 pounds per capita of which 45% were halibut and 26 % cod. Marine invertebrate harvests in Cold Bay were estimated to be 2 pounds per capita, of which butter clams contributed the most (62%). In King Cove, 21 pounds were estimated to have been harvested per person, and butter clams represented 63% of marine invertebrate harvests. In Sand Point, respondents harvested an estimate of 21 pounds per person with sea urchin making up 35% of total marine invertebrate harvests by weight (CSIS).

Nonsalmon subsistence harvest data are also available for Port Heiden for 2018. A total of approximately 313 lb of nonsalmon fish were harvested in Port Heiden in 2018, equating to a per capita harvest of 3 lb. The nonsalmon fish harvest included a variety of species: rainbow trout composed 29% of the nonsalmon fish harvest, followed by Dolly Varden (freshwater, 20%), unknown or unspecified species of trout (18%), Pacific halibut (15%), Dolly Varden (saltwater, 6%), Pacific (gray) cod (5%), smelt (5%), rockfish (2%), and a nominal harvest of round whitefish. For more information, refer to Jones and Cunningham (2020).

Table 8-1.—Historical subsistence salmon harvests, Alaska Peninsula Area, 1985–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1985	161	95	74	4,037	7,504	1,566	574	13,755
1986	147	84	101	5,396	2,996	1,455	1,779	11,727
1987	191	144	193	5,777	4,259	1,943	1,547	13,719
1988	183	114	257	5,501	5,646	1,692	1,666	14,762
1989	188	139	88	10,404	3,505	2,104	1,213	17,314
1990	201	157	246	8,588	4,029	1,589	736	15,188
1991	249	185	458	11,345	5,551	3,551	1,878	22,783
1992	229	177	385	10,739	4,267	2,574	1,840	19,805
1993	262	215	615	12,478	5,753	1,997	1,189	22,032
1994	256	213	674	11,884	6,086	4,406	2,206	25,256
1995	260	198	492	12,716	5,021	3,369	2,653	24,251
1996	234	178	362	12,176	7,743	2,728	2,569	25,578
1997	217	172	420	15,224	4,612	2,885	2,955	26,096
1998	233	153	407	12,920	5,820	1,326	2,286	22,759
1999	185	148	391	15,119	4,961	2,235	2,136	24,843
2000	180	152	341	9,955	5,239	1,699	950	18,185
2001	185	155	570	12,259	3,940	1,963	1,181	19,912
2002	157	133	345	9,384	3,188	1,603	532	15,052
2003	166	128	312	10,103	4,266	2,353	1,194	18,228
2004	147	135	218	9,484	3,787	951	609	15,049
2005	160	139	192	11,260	4,089	716	1,054	17,310
2006	153	131	110	7,847	2,452	910	961	12,280
2007	150	124	100	6,872	2,648	498	693	10,811
2008	199	164	280	7,623	4,355	1,078	1,687	15,022
2009	134	118	350	5,629	2,545	434	749	9,707
2010	183	138	338	9,464	2,898	1,274	985	14,959
2011	163	117	337	9,871	2,353	835	1,070	14,466
2012	172	138	287	9,429	1,936	1,637	941	14,231
2013	172	157	235	6,683	2,222	1,080	1,133	11,353
2014	177	156	53	8,910	1,523	737	1,704	12,927
2015	158	112	117	12,107	2,131	1,419	4,919	20,693
2016	166	126	255	10,287	2,122	772	703	14,139
2017	127	98	656	7,548	1,865	905	503	11,476
2018	155	111	271	5,503	1,996	1,474	1,033	10,277
2019	96	72	162	3,517	1,271	398	603	5,952
2020	117	93	105	6,571	1,909	386	976	9,947

-continued-

Table 8-1.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	140	104	292	7,792	1,877	994	1,552	12,507
10-year average (2010–2019)	157	123	271	8,332	2,032	1,053	1,359	13,047
Historical average (1985–2019)	183	142	305	9,373	3,845	1,662	1,441	16,626

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 8-2.–Subsistence salmon harvest estimates by community, Alaska Peninsula Area, 2020.

Community	Permits		Estimated salmon harvest						
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total	
Cold Bay		12	11	4	935	79	28	4	1,051
False Pass		1	1	4	30	120	56	40	250
King Cove		28	18	3	1,958	1,383	33	174	3,551
Nelson Lagoon		2	2	5	90	65	15	3	178
Port Heiden		1	1	3	7	0	0	0	10
Sand Point		34	25	68	1,431	216	254	586	2,555
Subtotal, area residents		78	58	87	4,451	1,863	386	808	7,595
Subtotal, area residents		57	49	141	2,663	1,040	392	422	4,658
Anchorage		8	5	6	421	42	0	162	630
Bethel		1	1	0	220	0	0	0	220
Dillingham		1	1	0	16	2	0	3	21
Douglas		1	1	0	15	0	0	0	15
Fairbanks		1	1	0	0	0	0	0	0
Homer		6	5	0	264	1	0	2	268
Kenai		1	1	0	0	0	0	0	0
Kodiak		6	6	11	104	0	0	0	115
Kotzebue		1	1	0	0	0	0	0	0
Nome		1	1	0	179	0	0	0	179
North Pole		1	1	0	55	0	0	0	55
Palmer		2	2	0	208	0	0	0	208
Seward		1	1	0	145	0	0	0	145
Talkeetna		1	1	0	23	0	0	0	23
Trapper Creek		1	1	0	39	0	0	0	39
Wasilla		6	6	0	431	2	0	1	434
Subtotal, other Alaska residents		39	35	17	2,120	47	0	168	2,352
Total		117	93	105	6,571	1,909	386	976	9,947

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

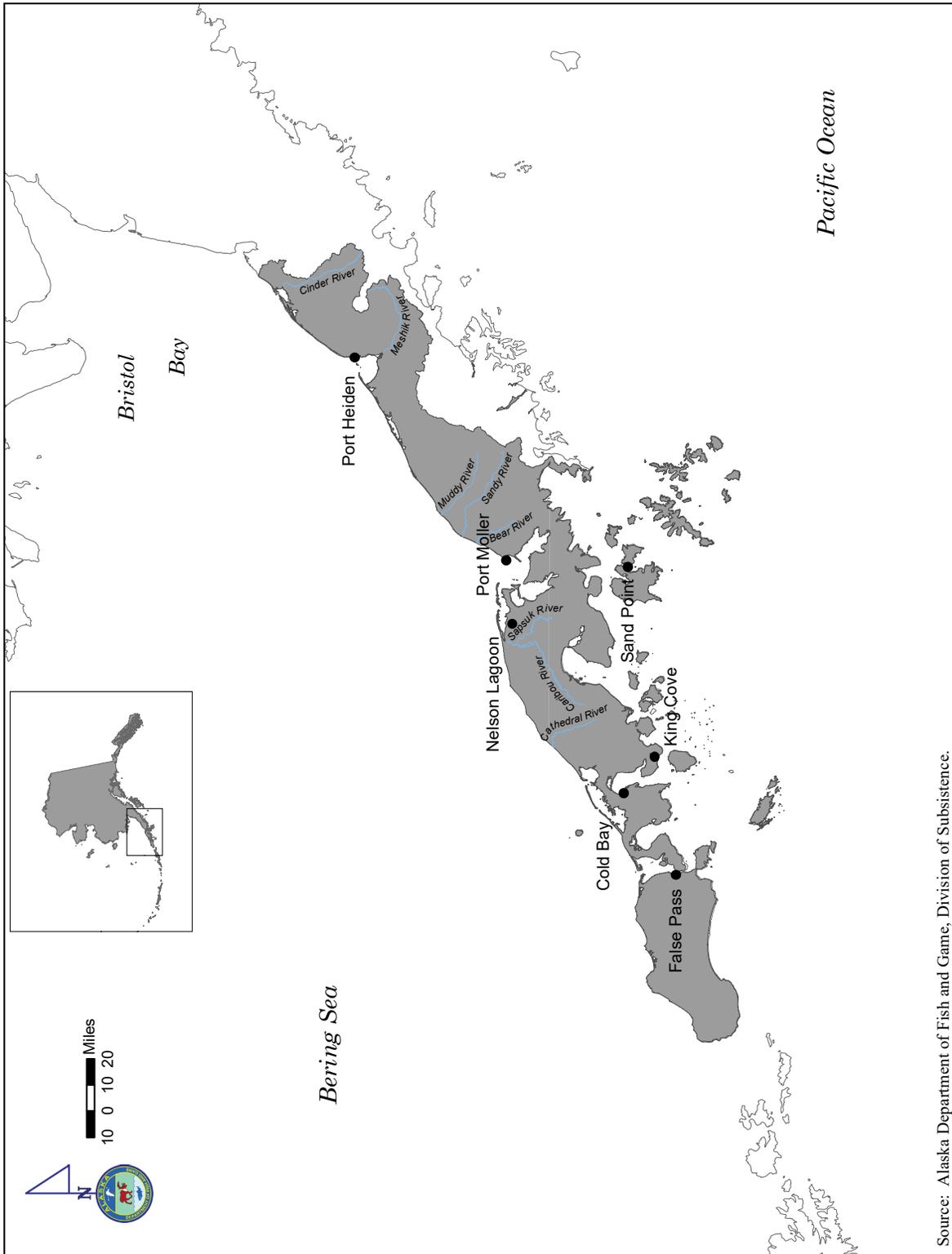
Table 8-3.—Percentage of households using selected nonsalmon finfishes, Alaska Peninsula Area.

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

Source CSIS.

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

b. Most commonly used types in the study year; uses of other species occurred, or may occur in other years. ND No data for that resource.



Source: Alaska Department of Fish and Game, Division of Subsistence.

Figure 8-1.-Map of the Alaska Peninsula Area.

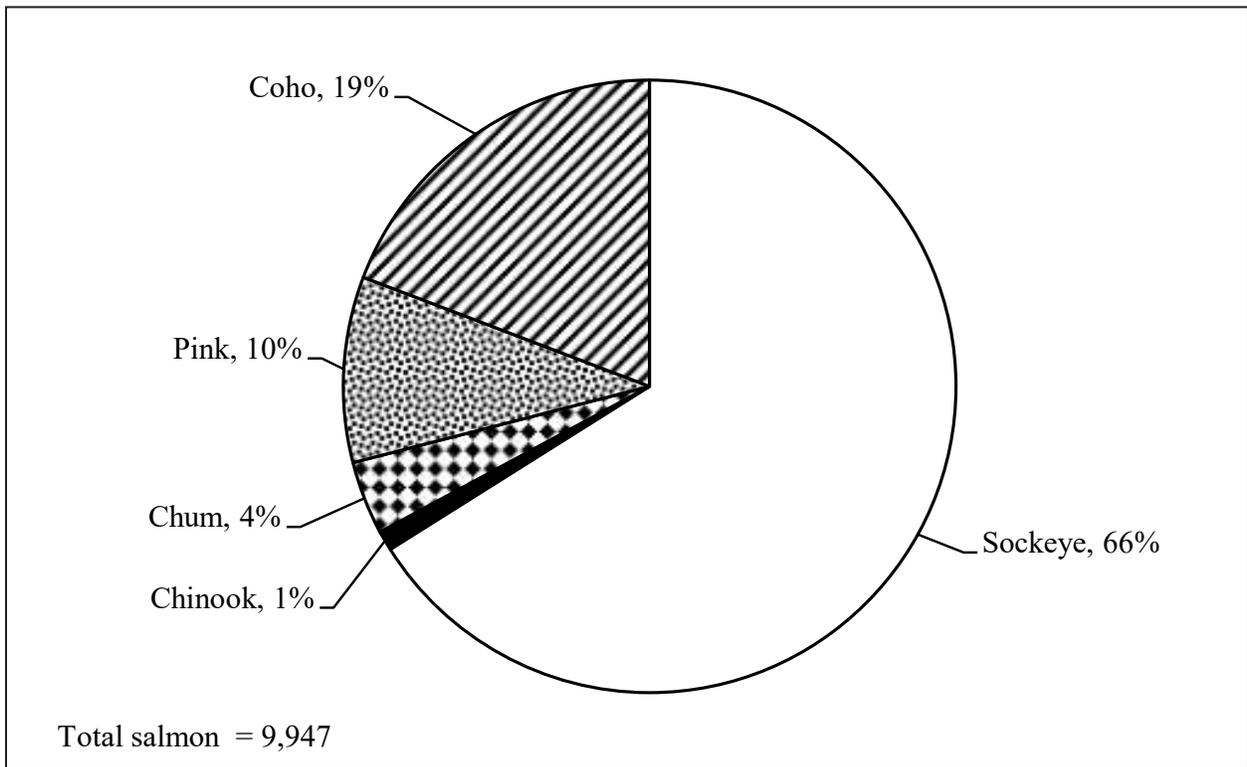


Figure 8-2.—Composition of Alaska Peninsula Area subsistence salmon harvest by species, 2020.

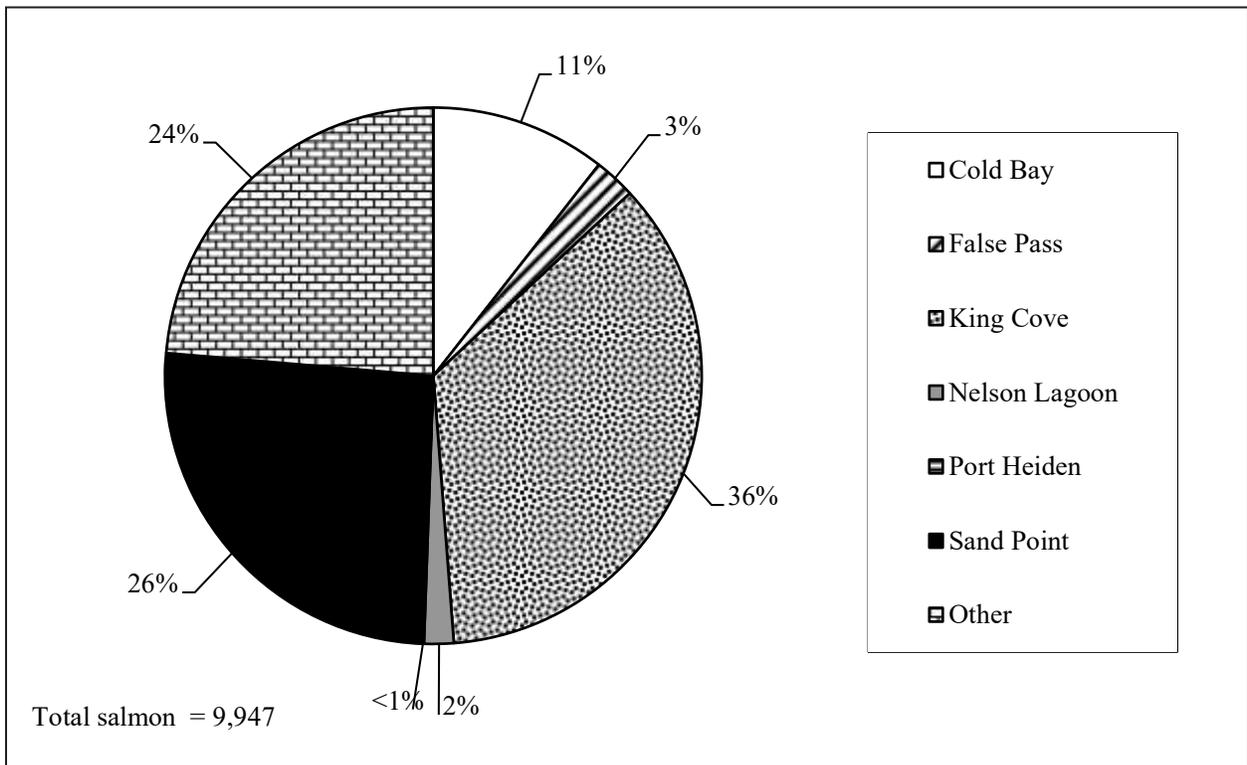


Figure 8-3.—Subsistence salmon harvests by community, Alaska Peninsula Area, 2020.

CHAPTER 9: ALEUTIAN ISLANDS AREA

INTRODUCTION

The Aleutian Islands Management Area (Figure 9-1) includes all waters of Alaska in, and surrounding, the Aleutian Islands west of Cape Sarichef Light and west of a line extending from Scotch Cap through the easternmost tip of Ugamak Island, including the waters in and surrounding the Pribilof Islands (5 AAC 01.350). For subsistence purposes, the Aleutian Islands Area is divided into six management districts named for the communities and islands that they include. From east to west, they are the Akutan District, Unalaska District, Umnak District, including the community of Nikolski; Pribilof Islands District, including the communities of St. Paul and St. George; Atka–Amlia Islands District, and the Adak District (5 AAC 01.355). The major communities of the Aleutian Islands Area are Akutan, Unalaska–Dutch Harbor, Atka, Nikolski, St. Paul, St. George, and Adak. Akutan is part of the Aleutians East Borough; the other communities are part of the Aleutians West Census Area, but they are not within an organized borough.

Communities of year-round Aleutian residents are small, and a large majority of each community's population is composed of temporary residents who are involved in the commercial fishery. Many of these transient residents live in group housing or company housing provided by the many companies that process commercial catch, as well as a variety of nonsalmon fish and shellfish. Year-round residents make up a smaller portion of the overall population and many residents are Native Unangan, descendants of peoples who have called the region home for approximately 10,000 years (Reedy and Maschner 2014). Salmon remains an important customary and traditional subsistence resource for all residents of the Aleutian Islands Management Area. In 2020, the total Akutan population was estimated at 995; most of the people (937) were reported as residing in group housing, and 58 resided in households. The 2020 population of Unalaska–Dutch Harbor was 4,561 with 2,464 residing in households and 2,097 in group quarters. In Nikolski, the estimated population was 20. The population for Atka in 2020 totaled 47. Adak's 2020 estimated population was 290 total people, 217 of which were estimated to be in group quarters.¹ Two communities are within the Pribilof Islands District. St. Paul had a population of 387 with 375 residing in households and 12 people residing in group quarters in 2020. St. George's 2020 population was 61 people, 4 of which resided in group quarters.²

REGULATIONS

In March 1988, the Alaska Board of Fisheries (BOF) made a positive customary and traditional use (C&T) finding for halibut only, for the Aleutian Islands the Alaska Peninsula areas. It did not act at that time on salmon or finfish other than halibut. Not until 10 years later in January 1998 did the BOF make a positive C&T finding for salmon and all other finfish in the Aleutian Islands and Alaska Peninsula Area. At the same meeting, the BOF made an administrative finding for the amount necessary for subsistence (ANS) for Aleutian Islands and Alaska Peninsula salmon and other finfish including halibut but did not adopt the ANS findings into regulation until their February 2004 meeting. The board determined that 13,500–23,000 salmon (5 AAC 01.366(b)(1) and 200,000–330,000 usable pounds of finfish other than salmon 5 AAC 01.366(b)(2) are reasonably necessary for subsistence uses in the Aleutian Islands and Alaska Peninsula Areas 5AAC01.366.³

In the Aleutian Islands region, the Division of Commercial Fisheries annually monitors subsistence salmon harvests only in the Unalaska and the Adak districts, where a permit is required for harvest. A state permit is required for subsistence salmon fishing in the Unalaska District. Fishers must record their daily harvests

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1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed October 27, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>
 2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed October 27, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>
 3. Alaska Department of Fish and Game. 2018–2019 Subsistence and personal use statewide fisheries regulations. Alaska Department of Fish and Game, Juneau.

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

Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Salmon may be taken from 6:00 AM until 9:00 PM beginning January 1 through December 31, except that from June 1 through September 15, a salmon seine vessel may not be used to take salmon for subsistence purposes during the 24 hours before and 12 hours after an open commercial salmon fishing period within an area open to commercial salmon fishing. Salmon may be taken by seine or gillnet, but from June 1 through September 15, a purse seine vessel may be used to take subsistence salmon only with a gillnet. In the Unalaska District, subsistence gillnets must be attended at all times while fishing (5 AAC 01.360–5 AAC 01.370). Waters within the Unalaska District that are closed to subsistence fishing for salmon are defined in 5 AAC 01.375.

There are no permitting or reporting requirements for subsistence salmon fishing in the waters fished by the communities of the Akutan, Atka-Amlia Islands, or Umnak Districts (Akutan, Atka, or Nikolski); therefore, subsistence salmon harvests are not systematically monitored in these communities. The Pribilof Islands District (St. Paul and St. George) requires a permit for subsistence salmon fishing, but no permits have been issued up to 2020. Limited harvest data exist, with the most recent harvest estimates for Akutan in 2008 and 2009 (Fall et al. 2012:13–92; Reedy-Maschner and Maschner 2012), Atka and Nikolski in 2005 (Davis 2005), and for St. Paul and St. George for 1994 (Mishler et al. 1996a; 1996b). As a result, this chapter has a limited review of subsistence harvests of salmon in these districts and primarily reviews the Unalaska and Adak Districts where harvest estimates are created with permit participation data. Active commercial salmon fisheries in the Aleutian Islands Area are limited to a small commercial pink salmon fishery open July 10 through September 30 (5 AAC 12.310). The commercial harvest in the Aleutians has been inconsistent over the last few years with minimal participation. When participation is low, the department does not share harvest data publicly to ensure the fisher’s privacy.⁴

Federal subsistence fisheries are authorized for permanent residents in the Aleutian Islands Area; however, they are managed consistently with the state fisheries in the region.⁵ Federal fisheries in the Aleutian Islands Area apply on waters within and inland waters adjacent to the Alaska Maritime National Wildlife Refuge. Federal permits are not required for subsistence salmon or non-salmon fishing in any of the Aleutian Island region, though a state permit is required for taking of salmon, trout and char in the Adak, Unalaska District. Federal regulations generally mirror the state regulations with subtle differences i.e.: allowable gear and residency requirements. Federal subsistence salmon regulations for the Aleutian Islands Area are published in 36 CFR 242.27(e)(8). Additional information about the Federal subsistence fishery is available by contacting the U.S. Fish and Wildlife Service, Office of Subsistence Management in Anchorage, Alaska.

There are currently no personal use salmon fisheries in the Aleutian Islands Area. (5AAC 77.300–318).

SALMON HARVESTS IN THE UNALASKA DISTRICT

Salmon Abundance

Salmon harvesting is often contextualized by salmon abundance; escapement information provides managers with information to provide abundance levels. The limited escapement monitoring occurring in the Aleutian Island area is focused on Unalaska. In years when the commercial pink salmon industry is active in the Unalaska District, ADF&G conducts aerial surveys to assess pink salmon abundance around Unalaska

4. Elizabeth Fox, Division of Commercial Fisheries, Kodiak, personal communication via email, with Lisa Hutchinson-Scarborough, Division of Subsistence, October 8, 2021.

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

Island concentrating on the area from Unalaska Bay to Makushin Bay. Sockeye salmon escapements in systems utilized for subsistence are also included if weather and time allow. Coho salmon arrive after these aerial surveys are conducted and are therefore unmonitored.⁶

The McLees Lake system, located on the northwest side of Unalaska Island supports most of the sockeye salmon harvested for subsistence in the Unalaska District (Lipka and Fox 2017). Beginning in 1985, an ADF&G fish counting weir at the outlet to McLees Lake has monitored sockeye salmon escapement, providing timely escapement information vital for managing the subsistence harvest. (Lipka and Fox 2017). McLees Lake has a sustainable escapement goal (SEG) of 10,000 sockeye salmon.⁷ Sockeye salmon escapements at McLees Lake in 2020, estimated by the fish counting weir, were 5,037 fish. In 2018 and 2019, the system was not equipped with the weir and escapements were estimated by aerial drone surveys in 2019. Escapements of sockeye salmon that year were 34,000 fish (Fox et al. 2022).

Sockeye salmon returning from the Bering Sea enter Reese Bay on their way to McLees Lake. Salmon are only harvested for subsistence in Reese Bay; fishing for salmon is not allowed in McLees Lake. This area and fishery are referred to locally and by ADF&G as “Wislow” or the “Reese Bay sockeye salmon fishery” (Lipka and Fox 2017).

Other sockeye and coho salmon systems that are fished for subsistence in the Unalaska District include Broad Bay, Wide Bay, Nateeken Bay, Captains Bay, Unalaska Lake vicinity, Unalaska Front Beach, Unalaska Bay, Summer Bay, and Volcano Bay. As mentioned earlier, these systems are only periodically monitored for escapement. Indexed escapements from drone surveys are conducted for several fisheries close to the town of Unalaska. Escapements for salmon at Unalaska Lake in 2020 were 815 sockeye and 1,550 pink salmon. Escapements for salmon at Summer Bay Lake in 2020 were 4,507 sockeye, 33 coho, and 7,454 pink salmon. Escapements for salmon at Morris Cove Lake in 2020 were 106 sockeye and 354 pink salmon (Fox et al. 2022).

Both Unalaska residents and ADF&G managers have voiced concerns about the lack of escapement data for sockeye, coho, and pink salmon in other areas where subsistence fisheries occur; particularly in Iliuliuk Bay, Summer Bay, Morris Cove, and Unalaska Lakes especially where there is easy access from the road system. In 2018 and 2019, ADF&G funded an experimental project to estimate salmon escapement along the Unalaska roadside systems using a drone equipped with a video camera to fly the roadside streams. Video files were used to calculate indices of escapement by comparing prior escapement data with periodic aerial surveys. ADF&G determined the drone was successful at capturing reliable escapements in these small river and lake systems assessable by road. The project was also cost effective. In 2020 ADF&G secured grant funding through the Alaska Sustainable Salmon Fund (AKSSF) to conduct drone surveys for 2022 including McLees Lake.

State Salmon Harvest Assessment Program

The Division of Commercial Fisheries has issued subsistence salmon harvest permits for the Unalaska District since 1979. Permits are only issued in person at the ADF&G Dutch Harbor office and may be returned in person to the Unalaska office or mailed back to the ADF&G Kodiak office by October 31 of the year issued. Reminder letters are sent in early November to all permit holders who have not returned their permits. Reported data, including species, harvest amounts, and location of harvest from returned subsistence permits, are used to extrapolate catches for all permits issued, including those that did not return their permit. (Fox et al. 2018).

An earlier study established that managers were confident that the permit program captured most subsistence salmon harvests occurring in the Unalaska District, perhaps due to a self-regulation ethos and the presence of Alaska Wildlife Troopers (Fall and Shanks 2000). However, by 2019, ADF&G Aleutian Island fisheries

6. Tyler Lawson, Division of Commercial Fisheries, Kodiak, personal communication via email, with Lisa Hutchinson-Scarborough, Division of Subsistence, October 13, 2021.

7. Tyler Lawson, Division of Commercial Fisheries, Kodiak, personal communication via email, with Chance Wilcox, Division of Subsistence, November 25, 2022.

managers expressed concerns that the permit program did not accurately capture subsistence harvests. Fisheries managers also shared concerns with residents that the limited enforcement presence on the island and lack of Alaska Wildlife Troopers during the salmon run is a problem for community fisheries.⁸

Subsistence Salmon Harvests in 2020

In 2020, 208 subsistence salmon permits were issued for the Unalaska District, most (196) of which were to Unalaska/Dutch Harbor residents, and 12 to other state area residents. This was higher than in 2019, when 186 permits were issued, higher than the recent 5-year (2015–2019) average of 206 permits, lower than the 10-year (2010–2019) average of 219 permits, yet higher than the historical (1985–2019) average of 180 permits (Table 9-1). Fishers are required to record their harvest on the permit and return it at the end of the harvest season to ADF&G. In 2020, the return rate for the Unalaska District was 65%, with 136 permits returned. Dutch Harbor and Unalaska residents accounted for 196 permits, or 94%, of all permits issued in the Unalaska District, and returned 129 permits out of 136 permits returned (95%) (Table 9-2).

The estimated 2020 subsistence harvest of salmon in the Unalaska District was 2,863 fish, which was 9% less than the previous year (3,152), 26% less than the recent 5-year (2015–2019) average (3,874 fish), and 37% less than the 10-year (2010–2019) average of 4,520 fish for the district. (Table 9-1). The composition of the 2020 subsistence salmon harvest was 71% sockeye (2,044 salmon), 18% coho (508 salmon), 9% pink (264 salmon), 1% chum (40 salmon), and <1% Chinook (6 salmon) (Figure 9-2). This composition of salmon harvests has remained consistent. Sockeye salmon have typically made up the largest portion of the Unalaska District’s salmon harvest since 1990. Pink and coho salmon have made up the majority of the remaining harvest over time, with consistently small harvests of chum and Chinook salmon in low percentages of the total harvest. As described above, the primary subsistence salmon fishing location used in the Unalaska District in recent years is Reese Bay where sockeye salmon are targeted as they are migrating to McLees Lake (Fox et al. 2021:15).

“Home pack”, the retention of commercially caught fish for home use, is permitted in the Unalaska District, although records show that the number of salmon recorded on fish tickets that were removed from the commercial salmon fishery are small, as most Aleutian Islands Area commercial fishing activities target shellfish and groundfish rather than salmon.⁹ Commercial salmon fishing in the Aleutian Islands occurs only in the Unalaska District. A survey conducted in 1994 found that only 4% of salmon harvested for home use were removed from commercial catches (CSIS; Fall and Shanks 2000).

SALMON HARVESTS IN THE ADAK DISTRICT

The Adak District of the Aleutian Islands Area consists of waters west of Atka Pass at 175°23.00' W. to the terminus of the Aleutian Islands. Adak Island hosted a U.S. Navy base and military community (population of 4,633 in 1990) that was phased out between 1993 and 1996. With the Navy base closure complete, the population was estimated at zero in 1997. However, for several years following the base closure, the Aleut Corporation worked with the Department of Interior and Department of the Navy to lease the base facilities and ultimately secure a land transfer to the corporation in 2004, with the intention of repurposing and privatizing the facility’s infrastructure to support the local fishery with processing, refueling, and housing services. During the lease period, the Aleut Corporation processed its first commercially caught fish in 1998 and has continued working with the Alaska seafood industry to further develop and maintain Adak as a commercially viable fish processing location. In 2000, the Alaska Boundary Commission approved Adak’s application to become a second-class city. In 2013, Aleut Enterprises and the Aleut Corporation owned

8. Tyler Lawson, Division of Commercial Fisheries, Unalaska, personal communication, in person with Chance Wilcox, Division of Subsistence, February 13, 2023.

9. Elizabeth Fox, Division of Commercial Fisheries, Kodiak, personal communication via telephone, with Lisa Hutchinson-Scarborough, Division of Subsistence, October 12, 2021

and operated a seafood processing facility, and a few Adak residents held commercial fishing permits. In addition, Adak provides a fueling port and crew transfer facility for foreign fishing fleets.^{10,11}

At their March 1988 meeting the Board of Fisheries made a negative C&T finding for salmon in the Adak District. This was in response to a proposal from the Adak naval air station to close some of the waters to subsistence fishing. The board made the negative finding based mostly on the characteristics of Adak, at the time, as a military community and base and on additional information provided in a C&T worksheet prepared by the Division of Subsistence. In that same year, the BOF created a personal use fishery to replace the subsistence fishery. After the military based closed in 1997, it transitioned into a fish processing community. Some Aleut families relocated to Adak, and the Aleut Corporation requested the BOF reverse their finding and allow for a subsistence fishery.¹² In 1998, the Board of Fisheries reversed the negative finding for Adak, making a positive C&T finding for salmon and nonsalmon fish for the entire Aleutian Island Region (5 AAC 01.366).

Salmon Harvest Regulations

Prior to 1988, the noncommercial salmon net fishery at Adak was classified as a subsistence fishery, then a personal use fishery in 1988, followed by a return to a subsistence classification in 1998, with permits required. Since 2001 permits were required and issued by mail through the ADF&G offices in Dutch Harbor and Cold Bay (Shaul and Dinnocenzo 2004:7) Fishers must record their daily harvests on the permit and return it to ADF&G by October 31. Permit holders may harvest up to 25 salmon per permit, plus an additional 25 salmon for each household member listed on the permit. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Also, as specified in 5 AAC 01.380 (b)(2), “a permit holder may obtain an additional permit from the department to harvest more salmon.” Salmon may be taken at any time. All salt waters within 100 yards of a stream terminus, as well as all fresh waters of and around Adak Island and Kagalaska Island, are closed to subsistence fishing for salmon (5 AAC 01.375 (6)).

Salmon Harvest Assessment Program

ADF&G does not monitor salmon abundance in the Adak District as there are no commercial salmon fisheries here. While the department does issue subsistence fishing permits, harvest assessment data is limited due to limited participation. In 2020, subsistence salmon permits were issued out of the ADF&G Cold Bay office and faxed or mailed upon request to Adak residents. Permits must be returned by mail or fax to the ADF&G Cold Bay office by October 31; reminder letters are sent to those who do not report their harvests by the deadline.

Subsistence Salmon Harvests in 2020

Participation in the Adak District subsistence fisheries has waned over time. Since 2008, fewer than 10 permits have been issued each year. In 2020, one subsistence salmon permit was issued for the Adak District and it was returned. The estimated subsistence harvest of salmon in 2020 was 250 fish, all of which were sockeye salmon, which was less than the recent 5-year (2015–2019) average (109 fish), less than the 10-year (2010–2019) average (74 fish), and also less than the historical (1988–2019) average (259 fish). The 2020 total harvest of 250 sockeye salmon was significantly more than the 2019 harvest of 25 sockeye salmon, and more than the 5-year (2015–2019) average of 99 sockeye salmon, 10-year (2010–2019) average of 60

10. Gen. Hansford T. Johnson, USAF. 2002. Statement of H.T. Johnson Assistant Secretary of the Navy (Installations and Environment) Before the Subcommittee on Public Lands and Forests of the Senate Committee on Energy and Natural Resources To Ratify an Agreement Between the Aleut Corporation And the United States of America. Washington, D.C. Accessed September 2014. http://www.navy.mil/navydata/people/assistsecnav/asn_ie/htjohnson020509.txt.

11. Adak Update: Adak Land Transfer Fact Sheet. 2004. Engineering Field Activity (EFA) Northwest, Naval Facilities Engineering Command. Accessed September 2014. <http://www.navfac.navy.mil/content/dam/navfac/PDFs/factsheets/adak-alaska.pdf>.

12 ADF&G Division of Subsistence, Anchorage office, C&T and ANS BOF findings records on file.

sockeye salmon, and historical (1988–2019) average of 232 sockeye salmon (Tables 9-3 and 9-4). In recent years few permits have been obtained or returned.

SALMON HARVESTS AT AKUTAN, NIKOLSKI, AND ATKA

As stated above, permits are not required for subsistence salmon harvests in the Akutan, Umnak, and Atka–Amlia islands districts. There are no annual harvest assessment programs in place, and ADF&G does not monitor the salmon runs for abundance as there are no commercial salmon fisheries in these districts. In these districts, fish may be taken at any time with no more than 250 salmon per household to be taken annually for subsistence purposes (5 AAC 01.360 (1)(b); 5 AAC 01.380 (b)).

In the absence of regular harvest monitoring in these communities, existing harvest estimates are derived from subsistence household surveys documenting subsistence harvests by residents. However, many of these surveys are very old with the most recent surveys conducted over 13 years ago. The Division of Subsistence conducted postseason household surveys in Akutan (Akutan District) and Nikolski (Umnak District) for the 1990 subsistence harvests (all resources) (CSIS); in Akutan for the 2008 subsistence harvests (all resources) (Fall et al. 2012: 33-41); and in Atka (Atka–Amlia Islands District) for 1992 (salmon harvests only) (CSIS); and 1994 (all resources) (CSIS). Salmon harvest data were also collected for Akutan and Nikolski (2002 and 2003 harvests) and Atka (2003 harvests) (Davis 2005). As no additional harvest updates have occurred in these communities since the 1990s, with the exception of Akutan, this data is considered out of date.

Based on these surveys, subsistence harvests of salmon in Akutan, Nikolski, and Atka, all five species of salmon are harvested in this area. Though primarily composed of sockeye salmon, coho and pink salmon also account for a relatively large proportion of annual harvests in these communities (Table 9-5). (Fall et al. 2012:30-33). For example, Akutan residents reported that salmon (all species combined) made up the largest component of their annual subsistence harvest in 2008; they harvested approximately 3,363 salmon, 146 lb of salmon per person, which accounted for 45% of the total subsistence harvest that year (Fall et al. 2012:30–33,42, 69–71). The salmon harvests in Nikolski totaled 7819 lb in 1991, 161 lb per person. In Atka, the annual salmon harvest varied between 1,454 and 2,387 lb in the three years for which information is available, with an estimated 95 lb harvested per person in 1994 (Table 9-5). (CSIS).

Salmon Harvests in Pribilof Islands, Saint George, and Saint Paul

Permits are required for subsistence salmon fishing in the Pribilof Islands, but permit participation has been nonexistent and ADF&G does not have a salmon harvest monitoring program in these communities. Saint Paul and Saint George Islands do not have streams large enough to support anadromous fish (Veltre and Veltre 1981); though salmon can be obtained from both islands off beaches and estuaries. The Division of Subsistence conducted a comprehensive survey in Saint Paul and Saint George for 1994, and 372 salmon comprising all five species were reported harvested in Saint Paul, and 243 pink salmon only in Saint George (Mishler et al. 1996a; 1996b). In 2016, Saint Paul Island residents reported that occasionally a small number of salmon of all five species wash onshore or enter a saltwater lagoon on Saint Paul Island and are harvested for subsistence. In 2016, the Saint Paul Tribal Council was investigating enhancement opportunities to increase the amount of salmon available for residents.¹³ No update on Saint Paul Tribal Council’s efforts to date are available as of this reporting.

OTHER SUBSISTENCE FISHERIES IN THE ALEUTIAN ISLANDS AREA

Comprehensive subsistence harvest data for Aleutian Islands communities is out of date. The Division of Subsistence conducted comprehensive subsistence harvest surveys for all resources in all of the Aleutian Islands communities except Adak in the 1990s. Since then, no additional updates have been conducted with the exception of Akutan where a comprehensive survey was conducted for the 2008 study year (Fall et al.

13. Alaska Public Media website article, “Subsistence fishing in St. Paul: Building a new subsistence resource, by Zoe Sobel, Alaska Energy Desk, Unalaska, November 1, 2016. <https://www.alaskapublic.org/2016/11/01/salmon-fishing-in-st-paul-building-a-new-subsistence-resource/>. Accessed online October 8, 2021.

2012:13–92). All harvest data for these communities listed by year of study are available on Community Subsistence Information System (CSIS).

Nonsalmon Fish Harvests

The communities in the Aleutian Islands Area rely on a variety of nonsalmon harvested from the Pacific Ocean and Bering Sea, for commercial and subsistence purposes. Division of Subsistence baseline resource harvest surveys conducted in the 1990s note that residents harvested many types of finfishes including halibut, cod, rockfish, sablefish, Dolly Varden and greenling (Fall et al. 2012; CSIS). In a 2008 study in Akutan, nonsalmon fish accounted for 25% of the total subsistence harvest by weight, the second highest resource category after salmon (45%) (Fall et al. 2012: 42). Most of the nonsalmon fish harvested by weight was halibut, cod, and char. (Fall et al. 2012:33–34). In 2009, Akutan residents harvested 132 lb per person of nonsalmon fish and 74 lb per person of salmon (Reedy-Maschner and Maschner 2012:138–139). In 1990, Nikolski residents harvested 383 lb per person of nonsalmon fish, most of which was halibut (183 lb per person) (CSIS). In 1994, Saint Paul residents harvested 117 lb per person of nonsalmon fish which was mostly halibut (Mishler et al. 1996b).

A subsistence salmon permit is required for the harvest of rainbow/steelhead trout and Arctic char/Dolly Varden in Unalaska and Adak Districts only, although only salmon harvests must be reported on the permit.¹⁴ Fish other than salmon may be taken by gear specified in 5 AAC 01.010, except that under state regulations, halibut may be taken only by a single handheld line with no more than two hooks attached, while federal rules allow up to 30 hooks using a longline (skate), as well as rod and reel or handline.

The only regular harvest assessment program in the Aleutian region for fish other than salmon is for halibut. Since 2000, Halibut are harvested predominantly by longline and rod and reel in the subsistence fishery. Federal regulations (68 FR 18145) allow for qualified residents of the Aleutian Island communities to participate in the federal subsistence halibut fishery. A Subsistence Halibut Registration Certificate (SHARC) issued by the National Marine Fisheries Service (NMFS) must be obtained to participate. Through annual grants provided by NMFS, the Division of Subsistence conducted an annual mail-out survey to SHARC holders to estimate the subsistence halibut harvests in Alaska. Due to reduced funding, the division now gathers these data only in alternating years. Recent harvest estimates of subsistence halibut for the Aleutian Islands Area are available for 2020 (Sill and Koster 2022).

Marine Invertebrate Harvests

The use of marine invertebrates for subsistence is important for communities in the Aleutian Islands. Based on systematic household surveys conducted by the Division of Subsistence in Akutan in 2008, marine invertebrate harvests, mostly octopus (89%), accounted for 10% of the top ten resources harvested as measured in pounds usable weight per household harvested (Fall et al. 2012:13, 42, 45). In earlier studies conducted in the Aleutian Island communities the 1990s and in 2008, marine invertebrate harvests included a wide variety of shellfish such as Dungeness crab, king crab, Tanner crab, and variety of clams including butter and razor clams, and chitons (bidarkis) (CSIS; Fall et al. 2012:19, 39, 40, 45).

ADF&G, Division of Commercial Fisheries, manages all commercial and subsistence invertebrate and shellfish fisheries occurring in the state waters of the Bering Sea including the Aleutian Islands. In 1999 the BOF found that king crab, Tanner crabs are customarily and traditionally used for subsistence in the Alaska Peninsula- Aleutian Islands Area. In 2000 the BOF amended that finding to include Dungeness crab and miscellaneous shellfish, and also made an ANS determination for king crab, Tanner crab, Dungeness crab, and miscellaneous shellfish (5 AAC 02.566 (a)(b)(c)(d)). The board also determined that all shellfish are customarily and traditionally taken or used for subsistence in the Bering Sea Area, including those waters draining into the Bering Sea (5 AAC 02.608).¹⁵

14 Miranda Westphal, Division of Commercial Fisheries, Unalaska personal communication via email, with Lisa Hutchinson-Scarborough, Division of Subsistence, October 27, 2021.

15. ADF&G Division of Subsistence, Anchorage office, C&T and ANS BOF findings records on file.

In the Aleutian Islands, permits for the taking of shellfish for subsistence purposes are required for Akutan, Akun, and Unalaska Islands (between 168° W long and 164° 44.72' W long) for king and Tanner crabs (5 AAC02.506). Subsistence harvests of king and Tanner crabs in 2018 are documented in Nichols et al. (2019). In 2020, king and Tanner crab were harvested with subsistence effort primarily focused in Unalaska Bay. Crab were taken with pot gear, though some users reported taking crab using SCUBA gear. ADF&G issued 156 subsistence permits, of which 56, or 36%, were returned. The returned permits account for a reported harvest of 119 Tanner crab and 9 red king crab. Harvest of Tanner crab ranged from 0 to 31 crab per permit holder, and harvest of red king crab ranged from 0 to 7 crab per permit holder (Nichols et al. 2021). Most of the permits issued annually are for use on Unalaska Island. Although permits are required for Akutan, ADF&G rarely receives a request for a permit for this island. ADF&G presumes that shellfish harvests occur there but have no record of current shellfish harvests.¹⁶

16. Miranda Westphal, Division of Commercial Fisheries, Unalaska, personal communication via email, with Lisa Hutchinson-Scarborough, Division of Subsistence, October 25, 2021.

Table 9-1.—Historical subsistence salmon harvests, Unalaska District, 1985–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
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
2005	217	152	8	4,066	424	14	527	5,038
2006	199	159	15	2,007	422	74	675	3,193
2007	178	126	14	2,575	254	42	683	3,569
2008	204	161	2	1,676	828	90	660	3,257
2009	210	130	5	3,171	616	182	443	4,416
2010	216	170	1	3,883	319	71	336	4,611
2011	230	156	8	5,525	303	65	343	6,244
2012	211	169	20	4,960	429	43	338	5,790
2013	254	197	3	4,281	199	67	290	4,840
2014	249	173	3	3,473	486	14	363	4,339
2015	222	172	6	3,524	442	26	460	4,459
2016	255	177	40	5,538	320	35	298	6,231
2017	187	145	0	2,293	282	46	373	2,994
2018	181	154	27	1,811	484	74	141	2,536
2019	186	125	1	2,371	496	68	215	3,152
2020	208	136	6	2,044	508	40	264	2,863

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Table 9-1.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
5-year average (2015–2019)	206	155	15	3,107	405	50	297	3,874
10-year average (2010–2019)	219	164	11	3,766	376	51	316	4,520
Historical average (1985–2019)	180	130	8	3,140	569	68	790	4,574

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 9-2.–Estimated subsistence salmon harvests by community, Unalaska District, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Anchor Point	1	1	0	0	0	0	0	0
Anchorage	3	2	0	0	0	0	0	0
Atka	1	0	0	0	0	0	0	0
Dutch Harbor	99	65	0	905	137	0	21	1,063
Metlakatla	1	1	0	0	0	0	0	0
Palmer	1	1	0	4	0	1	0	5
Sitka	1	1	0	0	0	0	0	0
St George Island	1	0	0	0	0	0	0	0
Unalaska	97	64	6	1,135	371	39	243	1,795
Wasilla	3	1	0	0	0	0	0	0
Total	208	136	6	2,044	508	40	264	2,863

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 9-3.–Historical subsistence and personal use salmon harvests, Adak District, 1988–2020.

Year ^a	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1988	43	29	0	503	23	0	150	676
1989	64	47	0	382	0	0	117	499
1990	61	29	0	800	47	0	41	888
1991	37	31	0	281	6	0	34	321
1992	52	41	0	572	30	0	4	606
1993	36	26	0	638	12	0	26	676
1994 ^b	0	0	0	0	0	0	0	0
1995	4	3	0	156	0	0	0	156
1996	6	6	0	91	0	0	0	91
1997 ^c	18	12	0	229	0	4	0	233
1998	13	10	0	399	0	0	25	424
1999	5	5	0	164	4	0	0	168
2000	13	13	0	270	4	0	75	349
2001	17	15	14	489	18	0	16	537
2002	3	3	0	150	0	0	0	150
2003	6	5	0	338	0	0	0	338
2004	6	4	0	336	0	0	0	336
2005	2	2	0	188	0	0	0	188
2006	1	1	0	74	0	0	1	75
2007	9	8	0	367	2	0	29	398
2008	10	8	0	386	0	0	14	400
2009	1	1	0	25	0	0	0	25
2010	2	1	0	50	0	0	0	50
2011	0	0	0	0	0	0	0	0
2012	2	2	0	25	0	0	0	25
2013	6	3	0	30	12	0	80	122
2014	0	0	0	0	0	0	0	0
2015	1	1	0	11	0	0	0	11
2016	0	0	0	0	0	0	0	0
2017	2	1	0	0	50	0	0	50
2018	2	1	0	460	0	0	0	460
2019	1	1	0	25	0	0	0	25
2020	1	1	0	250	0	0	0	250

-continued-

Table 9-3.–Page 2 of 2.

Year ^a	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
5-year average (2015–2019)	1	1	0	99	10	0	0	109
10-year average (2010–2019)	2	1	0	60	6	0	8	74
Historical average (1985–2019)	13	10	0	232	7	0	19	259

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

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

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

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

Table 9-4.–Estimated subsistence salmon harvests by community, Adak District, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Adak	1	1	0	250	0	0	0	250
Total	1	1	0	250	0	0	0	250

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

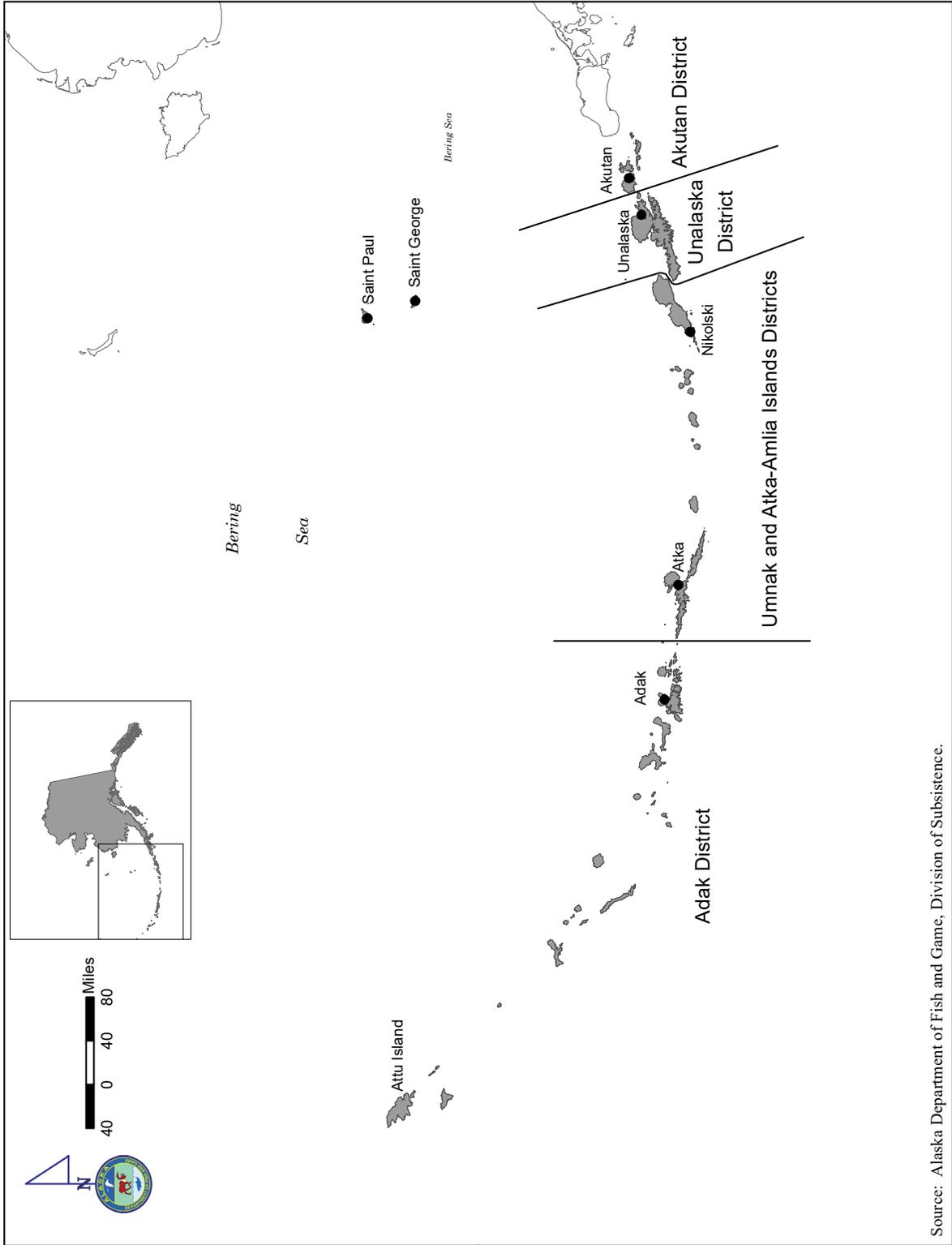
Table 9-5.–Estimated subsistence harvests of salmon by residents of Akutan, Atka, and Nikolski.

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

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

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

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



Source: Alaska Department of Fish and Game, Division of Subsistence.

Figure 9-1.-Map of the Aleutian Islands Area

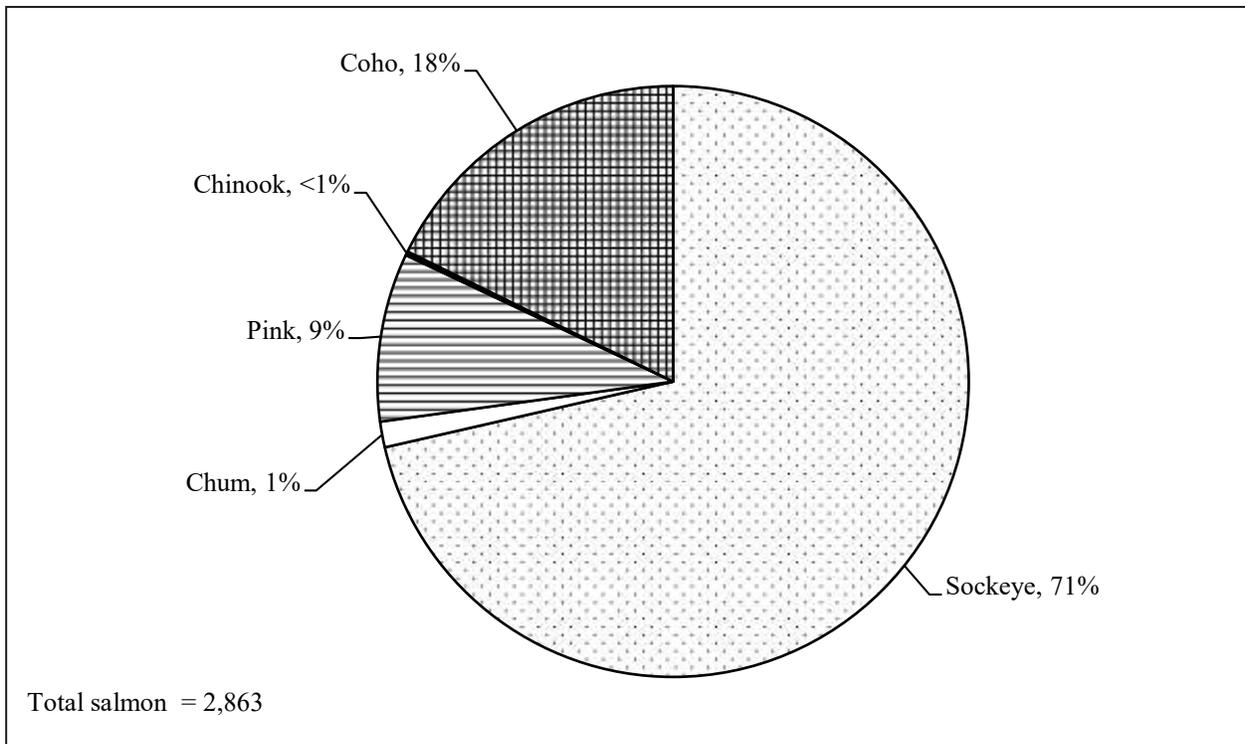


Figure 9-2.—Composition of Unalaska District estimated subsistence salmon harvest by species, 2020.

CHAPTER 10: KODIAK AREA

INTRODUCTION

The Kodiak Management Area (KMA or Kodiak Area) encompasses the waters of the Gulf of Alaska surrounding the Kodiak Archipelago and those waters along that portion of the Alaska Peninsula that drain into Shelikof Strait (Figure 10-1). The portion of the Kodiak Island Borough's population living along the island's road system is the largest community outside the nonsubsistence areas defined by the Alaska Joint Board of Fisheries and Game (Figure 10-1). The population of the Kodiak Island Borough according to the State of Alaska Department of Labor and Workforce Development (13,101 in 2020) comprises all individuals residing on Kodiak and nearby islands; however, this population is often distinguished by which communities have access to the road system. Communities along the Kodiak Island road system include Kodiak City (5,581), Kodiak Station (U.S. Coast Guard base; 1,673), Womens Bay (743), Chiniak (61), and the remainder of the road-accessible Kodiak Island Borough (this includes all residents of Kodiak Island who are on the road system but are not identified within the population of a census designated place [CDP] or city) (4,419). For the purpose of this report, we include Chiniak as part of the Kodiak Road system because a road links it with Kodiak City, although Chiniak uses its own postal code. Communities (and their estimated populations in 2020) within the Kodiak Island Borough that are located off the road system include Akhiok (63), Aleneva CDP (5), Karluk (27), Larsen Bay (34), Old Harbor (216), Ouzinkie (109), and Port Lions (170).¹

SALMON HARVEST IN THE KODIAK AREA

Salmon Harvest Regulations

Permits have been required to harvest salmon for subsistence purposes in the Kodiak Area since 1962 (5 AAC 01.530(a)). Since 1990, all Alaska state residents have been eligible to participate in subsistence salmon fishing in the Kodiak Area under state regulations. While only Alaska residents may participate in subsistence salmon fisheries, both residents and nonresidents have an opportunity to harvest salmon in the Kodiak Area under sport fishing regulations, as well as retaining salmon from commercial harvests as "home pack." For the state subsistence fishery, each year a new permit is mailed to any household that returned a completed permit the previous year. Permits are also available by request in person, by phone, or by mail at the ADF&G Kodiak office. In addition, ADF&G field staff at Karluk and Olga Bay can issue permits upon request. All permit holders are required to record their harvest on the permit, listing areas fished by date and salmon harvested by species, and return the permit, regardless of whether they fished, no later than February 1 of the previous year (5 AAC 01.530(c)). Permits may be returned in person or via mail, email, fax, or phone to the Kodiak ADF&G office. ADF&G sends reminder postcards in February to permit holders who have not returned their permits (Anderson et al. 2016a).

Legal gear for subsistence salmon fishing in the Kodiak Area under state regulations includes gillnets (maximum length 50 fathoms) and seines. Commercial purse seines may be used for subsistence fishing only before June 1 and after September 15 (5 AAC 01.510 (2)). Salmon seine vessels cannot be used for subsistence salmon fishing 24 hours before, during, and 24 hours after any period open for commercial salmon fishing. Fishers are required to physically attend their net while fishing and have their valid subsistence salmon permit with them; they should also record the numbers of all fish harvested on the permit before concealing the fish from plain view or transporting them from the harvest area.

Generally, fishing is open year-round from 6:00 AM to 9:00 PM daily, and the entire Kodiak Management Area is open to subsistence salmon fishing. Closed waters include the freshwater systems of Afognak Island, as well as other areas near heavily-exploited salmon systems—because they are small, easily accessible, and at risk of overexploitation (5 AAC 01.525) (Anderson et al. 2016b).

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed December 1, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>.

In most of the Kodiak Management Area, there is no annual limit for subsistence salmon harvests. However, in the fresh waters of Kodiak Island, east of the line from Crag Point south to the westernmost point of Saltery Cove, including the waters of Woody and Long islands, and the salt waters bordering this area within a mile of Kodiak Island, excluding the waters bordering Spruce Island, permit holders are limited to 25 salmon annually plus an additional 25 salmon for each member of the same household whose names are listed on the permit. Fishers can obtain an additional permit if they can demonstrate that additional fish are needed (5 AAC 01.530).

The department has the authority to reduce or liberalize subsistence fishing periods in season, through emergency orders, in years when salmon runs to a particular system are weaker or stronger than expected. Regulations for the Karluk River specify that if the department projects that the biological escapement goal for Chinook salmon will not be met and the sport fishery is thus restricted, it may restrict, by emergency order, the retention of king salmon in the subsistence fishery in the Karluk watershed (5 AAC 01.548). On June 23, 2020, the department determined it unlikely that the lower end of the escapement goal for Karluk River Chinook salmon (3,000) would be achieved. As a result, on June 25, subsistence fishers could not retain Chinook salmon in the Karluk River drainage, and they were required to return them to the water unharmed.²

A number of emergency orders (EOs) occurred at Saltery Creek. The initial EO liberalized the waters in front of Saltery Creek by reducing the waters closed to subsistence fishing back to the stream terminus, as well as at Ouzinkie Harbor back to the stream terminus.³ However, the closed waters were expanded back out to the full harbor in front of Saltery Creek on July 25 with this expansion re-confirmed with a final EO issued on August 7, 2020.⁴ On August 1, the department increased closed waters for subsistence fishing in Ugak Bay to all waters of Ugak Bay west of the longitude of Gull Point,^{4,5} thus reducing the subsistence fishery.

In 2020, federal regulations governing subsistence salmon fishing by eligible rural residents of the Kodiak Island Borough in federally managed public waters of the Kodiak Area were generally identical to the state regulations summarized above, except that rod and reel (in addition to gillnets and seines) was legal subsistence gear under federal rules. Additionally, federal regulations allowed subsistence salmon fishing 24 hours a day. A list of federal public waters closed to subsistence salmon fishing in the Kodiak area is available in the *2019–2021 Subsistence Management and Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska* published by the Federal Subsistence Management Program.⁶ Changes to the regulations occur following the biannual Federal Subsistence Board meetings, which occurred in 2020; however, they were not adopted until November after the season's close. Since approximately 2010, Kodiak National Wildlife Refuge (KNWR) staff have issued a separate subsistence

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2. Alaska Department of Fish and Game Division of Commercial Fisheries, “Kodiak Subsistence Salmon Fishery Advisory Announcement #02,” news release, June 23, 2020. Accessed December 1, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1166567062.pdf>
 3. Alaska Department of Fish and Game Division of Commercial Fisheries, “Kodiak Subsistence Salmon Fishery Advisory Announcement #01,” news release, June 12, 2020. Accessed December 1, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1160721545.pdf>
 4. Alaska Department of Fish and Game Division of Commercial Fisheries, “Kodiak Subsistence Salmon Fishery Advisory Announcement #05,” news release, August 7, 2020. Accessed December 1, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1205252240.pdf>
 5. Alaska Department of Fish and Game Division of Commercial Fisheries, “Kodiak Subsistence Salmon Fishery Advisory Announcement #04,” news release, July 30, 2020. Accessed December 1, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1199718244.pdf>
 6. U.S. Fish and Wildlife Service. [2013], “Federal Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska, April 1, 2019–March 31, 2021.” Federal Subsistence Board, Office of Subsistence Management, Accessed July 19, 2022. https://www.doi.gov/sites/doi.gov/files/uploads/2019-21_fisheries_regs_book_web_reduced.pdf

salmon fishing permit for federally qualified residents of the Kodiak Island Borough from the KNWR office in Kodiak.

Salmon Harvest Assessment Program

ADF&G staff in the Division of Commercial Fisheries' Kodiak office manage the annual subsistence salmon harvest assessment program for the Kodiak Area. A consistent challenge for the program has been the significant number of permits sent each year to previous permit holders that are returned to ADF&G by the U.S. Postal Service marked as "undeliverable." As a result, the actual number of permits issued per year is unknown and harvest reports have not been expanded for this area since 1999 (Table 10-1). Results of the harvest monitoring program therefore reflect only the reported harvests of subsistence fishers who returned permits. Fishers who did not return a permit, however, were not sent a permit the following year. The permit harvest assessment program does not collect noncommercial salmon harvests with rod and reel gear or retained from commercial harvests. Prior to 2020, the most recent Division of Subsistence comprehensive harvest surveys with Kodiak road system residents were for the 1993 study year and estimated that approximately one third of salmon harvested for home use was harvested with subsistence nets, one half came through rod and reel harvests, and the remainder was salmon retained from commercial catches (Fall and Utermohle 1995a).

Annual rod and reel harvests occurring under state sport fishing regulations are tracked through a statewide mail-out survey of a random sample of sport fish license holders, managed by the Division of Sport Fish. Rod and reel gear is legal subsistence gear under federal subsistence regulations if it occurs in a federal subsistence fishery by federally qualified users, and is recorded on federal subsistence permits. Commercial fishermen, both residents and non-residents, may retain legally harvested salmon for their own use including personal consumption or for bait but not for sale (5 AAC 39.010(b)) and this must be reported on an ADF&G fish ticket at the time of landing (5 AAC 18.355(b)). This is often referred to as "home pack."

Multiple efforts have been made to understand issues with salmon harvest permit reporting. ADF&G staff suspected that a substantial amount of subsistence harvests occurred without permits, especially in areas off the Kodiak Island road system. In response, staff from the Division of Commercial Fisheries and the Division of Subsistence visited six communities off the road system in the Kodiak Island Borough (Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions) in June 2001 to implement an area permit vendor program. ADF&G staff trained a resident in each community to issue subsistence fishing permits and conducted outreach activities to encourage subsistence fishers to obtain permits, record their harvests, and return the permits at the end of the season. Despite these efforts, Kodiak Island subsistence salmon permit data continued a downward decline.

A separate review of the annual permit program by the Division of Subsistence in Kodiak Island communities during 2004–2006 concluded that unreturned or lost permits contributed to the ongoing underestimation of the annual subsistence salmon harvest, and that communication between fisheries managers and community residents about the importance of an accurate annual harvest estimate should be improved (Williams et al. 2010). Additional salmon harvest research conducted in Kodiak City, Larsen Bay, and Old Harbor between 2012 and 2014 came to a similar conclusion on the importance of improved communication between managers and residents. The final report for the study also called for a revision of the language on the subsistence salmon permit to better reflect the actual language in the regulation book, which states that additional permits are available upon request (Marchioni et al. 2016:41). Division of Commercial Fisheries staff make numerous outreach efforts on subsistence fishing regulations and permitting. However, the ongoing issues with permit distribution still prevents the expansion of harvest estimates.

Finally, additional information on salmon harvest is collected outside of the permit program through systematic in-person household harvest surveys conducted by the ADF&G Division of Subsistence. The division has periodically collected subsistence harvest data in Kodiak Island communities for over 30 years (Fall 2006; Fall and Utermohle 1995b; 1999; Sill et al. 2021; Williams et al. 2010). Results of these surveys are reported in the Community Subsistence Information System (CSIS), a depository of Alaska subsistence information maintained by the Division of Subsistence. The division plans to conduct comprehensive

household harvest surveys on the Kodiak Island road system in 2022 for the 2021 study year to produce current estimates of salmon and nonsalmon fish used for subsistence.

Subsistence Salmon Harvests in 2020

In 2020, a total of 1,146 subsistence permits with harvest information were returned to ADF&G (tables 10-1 and 10-2). Of these, 1,047 (91%) were returned by residents of the Kodiak Island Borough; 97 (8%) were returned by residents of other Alaska communities, and two (<1%) were issued to Alaska residents who were serving in the military outside of the state (Table 10-2).

The total reported subsistence salmon harvest for the Kodiak Area in 2020 was 20,081 fish; this is significantly higher than the reported 2019 harvest of 12,688 salmon, in line with the recent 5-year (2015–2019) average of 20,031 salmon, and less than the 10-year (2010–2019) average of 25,318 salmon (Table 10-1). The higher reported harvest compared to 2019 is likely attributed to the availability of sockeye salmon fishing opportunities for road-connected areas, including the Buskin and Pasagshak rivers.

Residents of Kodiak Island Borough communities harvested 19,580 salmon (98% of the harvest) from the Kodiak Area, and permit holders from other Alaska communities harvested the remaining 2% (501 salmon, Figure 10-2). Kodiak Island Borough residents harvested significantly more than the 12,688 salmon reported harvested in these communities in 2019. More specifically, residents living along the Kodiak Island road system (including Chiniak) comprised approximately 96% of the Kodiak Island Borough population in 2020, and harvested 12,526 salmon, or 62% of total area harvest for Kodiak Island Borough Residents (Table 10-2; Figure 10-2). In comparison, the six villages and other populated remote locations that do not have access to the road system surrounding Kodiak City harvested 7,054 salmon (36%) in 2019 (Table 10-2, Figure 10-2). Of the Kodiak Area harvest, Kodiak City harvested the most, 12,439 salmon (62%) followed by Ouzinkie at 16%, Karluk at 10%, Akhiok and Port Lions at 3%, Larsen Bay and Old Harbor at 2%, and road-accessible Chiniak at less than 1%.

In 2020, the Kodiak Area subsistence salmon harvest was dominated by sockeye salmon; it was composed of 16,295 (81%) sockeye salmon, 2,789 (14%) coho salmon, 736 (4%) pink salmon, 150 (<1%) chum salmon, and 111 (<1%) Chinook salmon (Table 10-1; Figure 10-3). The reported sockeye salmon harvest in 2020 was an 80% increase from the previous year's reported sockeye salmon harvest of 9,064 fish, similar to the 5-year average of 16,388 sockeye salmon but significantly less than the recent 10-year average of 21,239 fish. The 2020 coho salmon harvest of 2,789 fish was more than the 2019 reported harvest of 2,366 fish and the recent 5-year average of 2,556 fish and less than the 10-year average of 2,871 fish. The chum salmon reported harvest in 2020 (150 fish) was less than the 2019 harvest of 247 fish and less than the recent 5-year and 10-year averages (228 fish and 214 fish, respectively). The pink salmon reported harvest in 2020 (736 fish) was less than the 2019 harvest of 907 fish, almost equal to the 5-year average of 737 fish and less than the 10-year average of 870 fish. Chinook salmon reported harvests in 2020 (111 fish) were similar to the 2019 harvest of 104 fish and similar to, but slightly lower than the recent 5-year and 10-year averages of 121 and 124 fish, respectively. In all cases, the 2020 harvests and the 5- and 10-year averages were less than their respective historical averages (1986–2019) (Table 10-1).

According to Anderson et al. (2016b), historically the most-utilized harvest areas for subsistence salmon fisheries in the Kodiak Management Area are the Buskin and Pasagshak rivers, which are located in the north end of Kodiak Island, and the Afognak River on the southeast side of Afognak Island. Additional harvest areas documented during recent research by Division of Subsistence researchers are presented in Marchioni et al. (2016).

Records received from the Kodiak National Wildlife Refuge office indicate that in 2020, a total of 43 federal permits were issued, a slight increase from 40 permits issued in 2019. There were 7 permits returned in 2020 compared to 5 returned in 2019. From those 7 permits, the total 2020 estimated harvest was 230 fish, composed of 151 sockeye salmon and 79 coho salmon. This is more than twice the 2019 harvest of 109 sockeye salmon (Table 10-4).

As discussed earlier, the delivery and return of permits from subsistence fishers living in communities outside of the road system, including Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions, continues to be a challenge. The outreach effort and area permit vendor program implemented in 2001 appeared to result in increased participation in the permit program in these six communities: a total of 100 permits were returned in 2000; from 2001 through 2007 between 189 and 143 permits were returned (Table 10-3). The yearly reported subsistence salmon harvests during this time were generally higher. Since 2008, however, the number of returned permits from these communities has not exceeded 125 (Table 10-3). This is likely due to a combination of lower permit participation as well as less fishing associated with people moving from communities into the city of Kodiak. In the 2020 season, 87 permits were returned by the six communities. The lowest number on record occurred in 2019, with 75 permits returned. During these years, a limited local vendor program with tribal councils in Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions was in place. The Kodiak ADF&G office contacts the tribal councils each year to ensure they have enough permits and regulation booklets, and to obtain a list of individuals who received a permit the previous year.⁷

Retention of Salmon Taken in Commercial Fisheries in 2020

In 2020, 61 commercial fishermen in the Kodiak Management Area reported on fish tickets that they retained for personal or home use a total of 13,011 salmon from their commercial harvests (Table 10-5). This included 4,760 pink salmon, 3,660 coho salmon, 3,439 sockeye salmon, 775 chum salmon, and 377 Chinook salmon. Compared to 2019, commercial fisherman retained 3,150 fewer pink salmon, 744 more coho salmon, 939 more sockeye salmon, 495 more chum salmon, and 8 more Chinook salmon. The composition of retained harvests in 2020 differed from the subsistence fishery in that pink salmon made up the majority of the harvest (37%), followed by coho salmon (28%), sockeye salmon (26%), chum salmon (6%), and Chinook salmon (3%) (Table 10-5; Figure 10-4). Commercial fishermen retained slightly less than the amount from their commercial harvests in 2020 compared to 2019, 32% more than the recent 5-year average of 9,834 fish, and 31% more than the 10-year average of 9,901 fish (Table 10-5). The increase in retention likely correlates with a relatively strong sockeye return in comparison to 2019. In addition, the retention of pink salmon was over 1,000 in an even year for the first time since 2014, making it a much stronger return than has been typical in recent even years, which have lower pink salmon return than odd years in Kodiak.

OTHER SUBSISTENCE FISHERIES IN THE KODIAK AREA

Finfishes

In the Kodiak Area, a permit is also required to fish for herring, trout, char, or crab (5 AAC 01.530; 5 AAC 02.405); only one permit is issued through the Kodiak ADF&G office and applies to all the required species. The permit has space for a person to record harvests of salmon, herring, and crab, but reporting of trout and char is not required. In 2020, 3,075 lb of herring was reported on subsistence permits, which was similar to the most recent (2003–2019) historical average of 3,015 herring but more than double the 2019 herring harvest of 1,305 lb, close to double the recent 5-year average (1,637 lb), and higher than the recent 10-year average (2,146 lb from 2010–2019) (Table 10-6). Fish other than those listed above may be taken at any time for subsistence purposes without a permit; however, there are bag limits and gear restrictions for the taking of halibut, lingcod, and rockfish in the Kodiak Area under state regulations (5 AAC 01.510; 5 AAC 01.520; 5 AAC 01.545). Halibut may also be taken for subsistence by federally qualified residents by obtaining a federal subsistence halibut registration certificate. Subsistence harvest data are currently available for communities and tribes in the Kodiak Area from 2003–2012 (Fall and Koster 2014); 2014 (Fall and Lemons 2016); 2016 (Fall and Koster 2018); 2018 (Fall and Koster 2020); and 2020 (Sill and Koster 2022). Due to a reduction in funding, Pacific halibut subsistence harvest estimates are only collected biennially since 2012.

7. Jacqueline Keating, Division of Subsistence, Subsistence Resource Specialist, personal communication with Amanda Dorner, Division of Commercial Fisheries, Kodiak office, April 20, 2020.

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

Marine Invertebrates

Kodiak Island residents harvest a variety of marine invertebrates, including crabs, clams, cockles, mussels, chitons, octopuses, sea urchins, and others, but regulations only concern the harvest of Dungeness, Tanner, and king crab. Regulations require harvest reporting on a subsistence permit and establish sex, size, bag and possession limits, and gear limits and requirements for all species of crabs as well as seasons for king crab fishing. In 2020, a total of 3,835 crab were reported on subsistence permits, of which 15 were king crab, 2,915 were Tanner crab, and 767 were Dungeness crab. The total crab harvest in 2020 was slightly less than the 2019 combined harvest of 3,991 crab (Table 10-7). King crab harvests decreased by 22 crab. Tanner crab harvests increased by 338 crab. Dungeness crab harvests decreased by 510 crab. The total number of the reported crab harvest for 2020 was a 10% decrease from the recent 5-year average of 4,267 crab, and a 39% decrease from the 10-year average of 6,259 crab.

Table 10-1.—Historical subsistence salmon harvests, Kodiak Area, 1986–2020.

Year	Permits		Reported salmon harvest ^a					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1986	1,244	1,002	90	14,391	6,998	605	2,371	24,455
1987	1,124	880	101	13,198	6,463	1,299	2,421	23,482
1988	1,098	699	108	10,081	4,291	377	1,320	16,177
1989	2,800	717	43	12,638	4,123	419	1,553	18,776
1990	2,900	1,167	131	17,959	8,627	655	1,605	28,977
1991	1,406	1,225	177	21,835	8,208	714	1,743	32,677
1992	1,561	1,195	318	20,684	8,643	643	1,646	31,934
1993	1,496	959	243	19,471	7,176	838	2,696	30,424
1994	2,550	1,464	205	17,962	7,491	440	1,758	27,856
1995	1,950	1,194	175	19,416	5,603	293	1,548	27,035
1996	1,567	1,390	253	28,287	5,117	381	1,125	35,163
1997	2,098	1,638	383	33,293	6,369	234	1,458	41,737
1998	1,841	1,126	350	20,459	5,348	214	1,412	27,783
1999	ND	1,438	397	26,497	4,932	388	1,266	33,480
2000	ND	1,376	273	24,873	5,399	341	742	31,628
2001	ND	2,153	273	33,833	5,920	427	1,158	41,611
2002	ND	2,271	593	32,977	6,057	350	1,665	41,642
2003	ND	2,275	500	32,104	6,096	384	1,484	40,568
2004	ND	2,240	379	30,217	5,819	261	1,395	38,071
2005	ND	1,900	431	27,002	7,447	592	2,343	37,815
2006	ND	1,906	280	22,905	6,640	441	1,827	32,093
2007	ND	1,879	207	24,556	4,630	240	1,532	31,165
2008	ND	1,637	151	20,809	4,336	168	1,128	26,592
2009	ND	1,737	159	21,852	4,570	186	1,180	27,947
2010	ND	1,890	158	22,170	4,200	273	1,266	28,067
2011	ND	1,996	122	34,037	2,367	198	1,199	37,923
2012	ND	1,866	54	23,865	2,920	166	1,154	28,159
2013	ND	1,688	119	27,757	2,528	175	826	31,405
2014	ND	1,666	183	22,617	3,915	184	573	27,472
2015	ND	1,544	186	16,053	3,057	271	1,168	20,735
2016	ND	1,512	135	20,902	2,267	160	715	24,179
2017	ND	1,448	83	22,374	1,918	274	446	25,095
2018	ND	1,311	97	13,549	3,174	190	449	17,459
2019	ND	1,391	104	9,064	2,366	247	907	12,688
2020	ND	1,146	111	16,295	2,789	150	736	20,081

-continued-

Table 10-1.–Page 2 of 2.

Year	Permits		Reported salmon harvest ^a					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	ND	1,441	121	16,388	2,556	228	737	20,031
10-year average (2010–2019)	ND	1,631	124	21,239	2,871	214	870	25,318
Historical average (1986–2019)	ND	1,523	219	22,344	5,148	383	1,385	29,479

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

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

Table 10-2.—Reported subsistence salmon harvests by community and species, Kodiak Area, 2020.

Community	Permits returned	Reported salmon harvest					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Akhiok	7	0	590	15	0	10	615
Chiniak	15	4	22	60	0	1	87
Karluk	9	0	1,935	0	0	0	1,935
Kodiak (city)	945	77	9,808	1,929	90	535	12,439
Larsen Bay	12	2	380	21	1	13	417
Old Harbor	13	13	170	150	9	58	400
Ouzinkie	23	8	2,657	393	11	47	3,116
Port Lions	23	4	314	188	0	65	571
Subtotal, Kodiak Island Borough	1,047	108	15,876	2,756	111	729	19,580
Anchorage	38	3	235	0	0	0	238
Chickaloon	1	0	0	0	0	0	0
Chignik Lagoon	1	0	0	0	0	0	0
Chugiak	2	0	0	0	0	0	0
Cold Bay	1	0	14	0	0	0	14
Eagle River	5	0	0	0	0	0	0
Fairbanks	5	0	68	2	0	0	70
Fritz Creek	1	0	0	0	0	0	0
Girdwood	2	0	0	0	0	0	0
Homer	13	0	16	12	0	0	28
Juneau	2	0	73	13	0	0	86
Kasilof	2	0	0	0	0	0	0
Kenai	3	0	0	0	0	0	0
Nikiski	1	0	0	0	0	0	0
Ninilchik	1	0	0	0	0	0	0
Palmer	1	0	0	0	0	0	0
Seldovia	5	0	13	6	39	7	65
Seward	1	0	0	0	0	0	0
Sitka	1	0	0	0	0	0	0
Soldotna	5	0	0	0	0	0	0
Wasilla	6	0	0	0	0	0	0
Subtotal, other Alaska	97	3	419	33	39	7	501
Other USA ^b	2	0	0	0	0	0	0
Total	1,146	111	16,295	2,789	150	736	20,081

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

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

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

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

Year	Permits returned	Reported salmon harvest	Source
2000 ^a	100	6,299	Fall et al. 2002:105
2001	189	9,034	Fall et al. 2003a:117
2002	167	9,386	Fall et al. 2003b:121
2003	165	8,714	Brown et al. 2005b:123
2004	170	7,845	Fall et al. 2007a:118
2005	147	10,172	Fall et al. 2007b:105
2006	143	7,114	Fall et al. 2009a:113
2007	143	5,138	Fall et al. 2009b:105
2008	117	5,850	Fall et al. 2011:111
2009	118	5,824	Fall et al. 2012:119
2010	118	5,896	Fall et al. 2013a:129
2011	125	5,786	Fall et al. 2013b:132
2012	112	4,939	Fall et al. 2014:164
2013	98	4,798	Fall et al. 2015:173
2014	106	4,690	Fall et al. 2017:179
2015	95	4,286	Fall et al. 2018:173
2016	99	5,212	Fall et al. 2019:166
2017	84	5,073	Fall et al. 2020:169
2018	87	7,002	Brown et al. 2021:173
2019	75	3,374	Brown et al. 2022:176
2020	87	7,054	Table 10-2

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

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

Table 10-4.—Federal subsistence salmon harvests by community, Kodiak Area, 2020.

Year	Community	Permits		Estimated salmon harvest					
		Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2015	Kodiak (city)	19	19	0	53	10	0	0	63
2016	Kodiak (city)	51	42	13	168	65	0	0	246
2017	Kodiak (city)	55	29	0	428	68	0	12	509
2018	Kodiak (city)	35	24	0	119	0	0	45	164
2018	Larsen Bay	1	0	0	0	0	0	0	0
2019	Kodiak (city)	40	5	0	109	0	0	0	109
2020	Kodiak (city)	43	7	0	151	79	0	0	230
Historical average (2015–2019)		35	18	2	147	32	0	8	189

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

Table 10-5.—Retention of salmon taken in commercial salmon fisheries but not sold, by species, for the Kodiak Management Area, 1997–2020.

Year	Permits	Salmon harvest ^a					Total
		Chinook	Sockeye	Coho	Chum	Pink	
1997	10	7	678	91	2	6	784
1998	4	8	26	9	0	0	43
1999 ^b							
2000 ^b							
2001	9	16	465	1,215	33	0	1,729
2002	33	57	5,447	7,542	0	566	13,612
2003 ^c	36	72	11,025	12,310	86	1,492	24,985
2004	13	8	3,052	290	10	253	3,613
2005	16	54	4,432	811	11	4,385	9,693
2006	31	100	1,442	2,786	128	1,140	5,596
2007	13	26	1,577	520	8	2,246	4,377
2008	19	76	2,513	681	0	0	3,270
2009	23	49	1,393	936	6	1,002	3,386
2010	42	160	2,330	2,976	15	6,267	11,748
2011	57	161	1,314	2,009	67	6,390	9,941
2012	57	195	4,116	1,971	31	1,413	7,726
2013	64	592	3,032	1,164	1,067	5,721	11,576
2014	77	189	3,371	2,230	18	3,035	8,843
2015	70	293	3,231	1,551	740	4,008	9,823
2016	63	239	3,270	1,175	172	571	5,427
2017	71	312	3,928	4,120	100	4,712	13,172
2018	75	92	3,802	2,630	36	214	6,774
2019	77	369	2,500	2,916	280	7,910	13,975
2020	61	377	3,439	3,660	775	4,760	13,011
5-year average (2015–2019)	71	261	3,346	2,478	266	3,483	9,834
10-year average (2010–2019)	65	260	3,089	2,274	253	4,024	9,901
Historical average (1997–2019)	41	146	2,997	2,378	134	2,444	8,100

Source ADF&G fish ticket database.

a. This is the number of salmon taken by CFEC permit holders with commercial gear during commercial fishing periods that was not sold, but instead was kept for the crew's own use. Prior to 1997 this data was not recorded on ADF&G fish tickets.

b. Confidential data.

c. In 2003 there was concern that salmon taken as home pack were being custom processed for later sale for consumptive use. In response the Alaska Board of Fisheries passed a regulation clearly stating that these fish were not to be sold or bartered (5 AAC 39.010).

Table 10-6.—Historical subsistence crab harvests, Kodiak Area, 1995–2020.

Year	Permits		Reported pounds herring harvest
	Issued	Returned	
2003	ND	16	2,180
2004	ND	24	4,173
2005	ND	37	5,385
2006	ND	33	5,199
2007	ND	37	5,167
2008	ND	21	4,024
2009	ND	36	3,966
2010	ND	26	2,773
2011	ND	27	2,385
2012	ND	24	3,260
2013	ND	24	2,393
2014	ND	17	2,164
2015	ND	13	1,515
2016	ND	15	1,800
2017	ND	11	2,263
2018	ND	8	1,302
2019	ND	9	1,305
2020	ND	17	3,075
5-year average (2015–2019)	ND	11	1,637
10-year average (2010–2019)	ND	17	2,146
Historical average (2003–2019)	ND	22	3,015

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

Table 10-7.—Historical subsistence crab harvests, Kodiak Area, 1995–2020.

Year	Permits		Reported crab harvest			
	Issued	Returned	King	Tanner	Dungeness	Total
1995	1,935	1,191	2,603	2,478	1,817	6,898
1996	1,556	1,297	513	2,181	1,552	4,246
1997	2,081	1,572	292	2,764	1,667	4,723
1998	1,816	543	217	2,260	1,516	3,993
1999	ND	182	177	2,875	1,510	4,562
2000	ND	242	215	5,311	1,324	6,850
2001	ND	497	323	9,180	1,476	10,979
2002	ND	362	305	6,843	2,295	9,443
2003	ND	406	322	7,211	3,838	11,371
2004	ND	437	459	8,757	2,615	11,831
2005	ND	424	440	7,736	3,074	11,250
2006	ND	383	394	6,517	2,692	9,603
2007	ND	304	298	4,765	2,192	7,255
2008	ND	281	360	4,124	1,844	6,328
2009	ND	330	406	6,210	1,992	8,608
2010	ND	410	339	8,498	2,520	11,357
2011	ND	390	264	9,645	2,115	12,024
2012	ND	257	220	5,727	721	6,668
2013	ND	255	199	5,252	613	6,064
2014	ND	227	181	4,177	780	5,138
2015	ND	204	215	3,367	536	4,118
2016	ND	182	210	2,434	574	3,218
2017	ND	214	201	3,338	529	4,068
2018	ND	216	231	4,168	1,542	5,941
2019	ND	176	137	2,577	1,277	3,991
2020	ND	154	153	2,915	767	3,835
5-year average (2015–2019)	ND	198	199	3,177	892	4,267
10-year average (2010–2019)	ND	253	220	4,918	1,121	6,259
Historical average (1995–2019)	ND	439	381	5,136	1,704	7,221

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

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

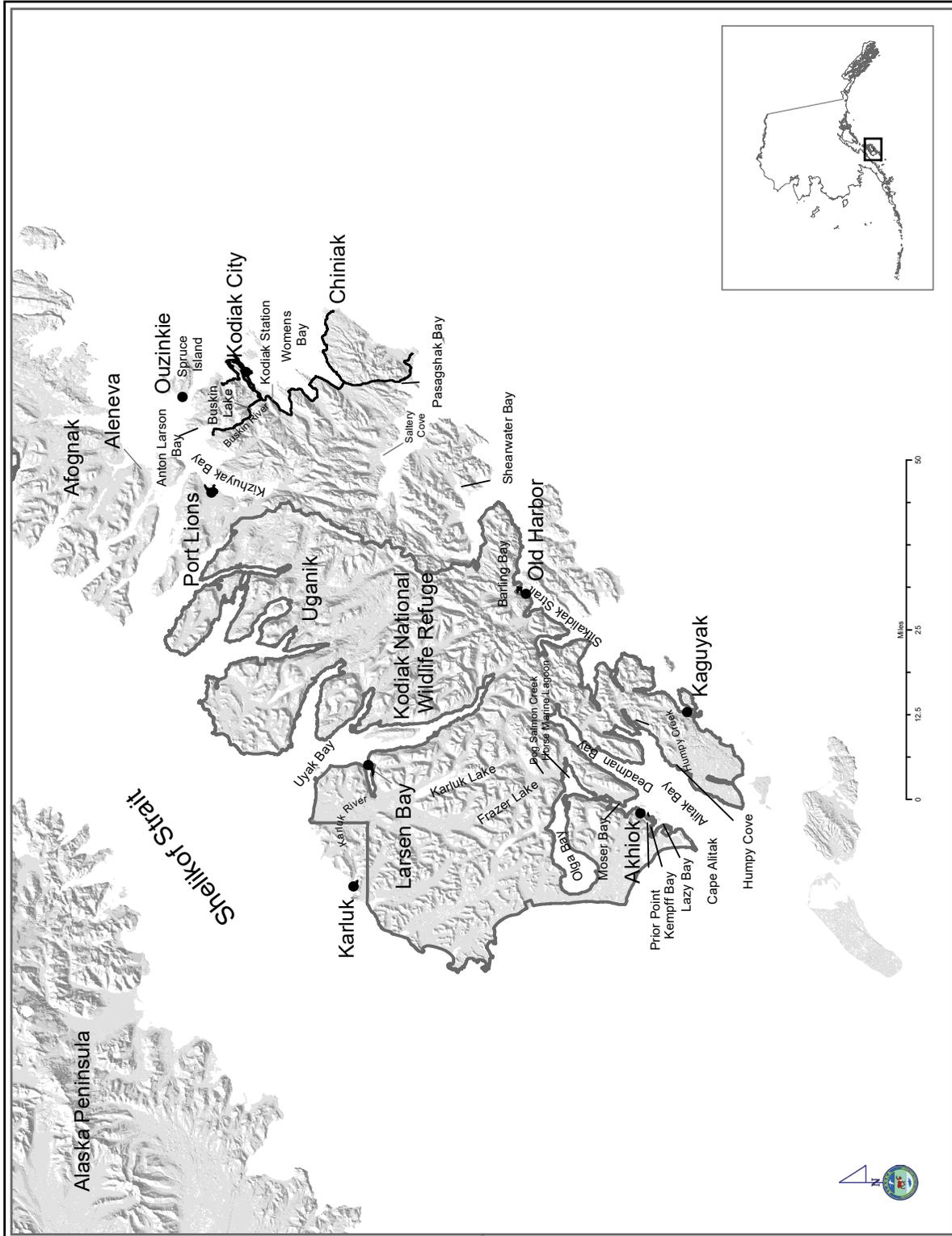


Figure 10-1.-Kodiak Area map.

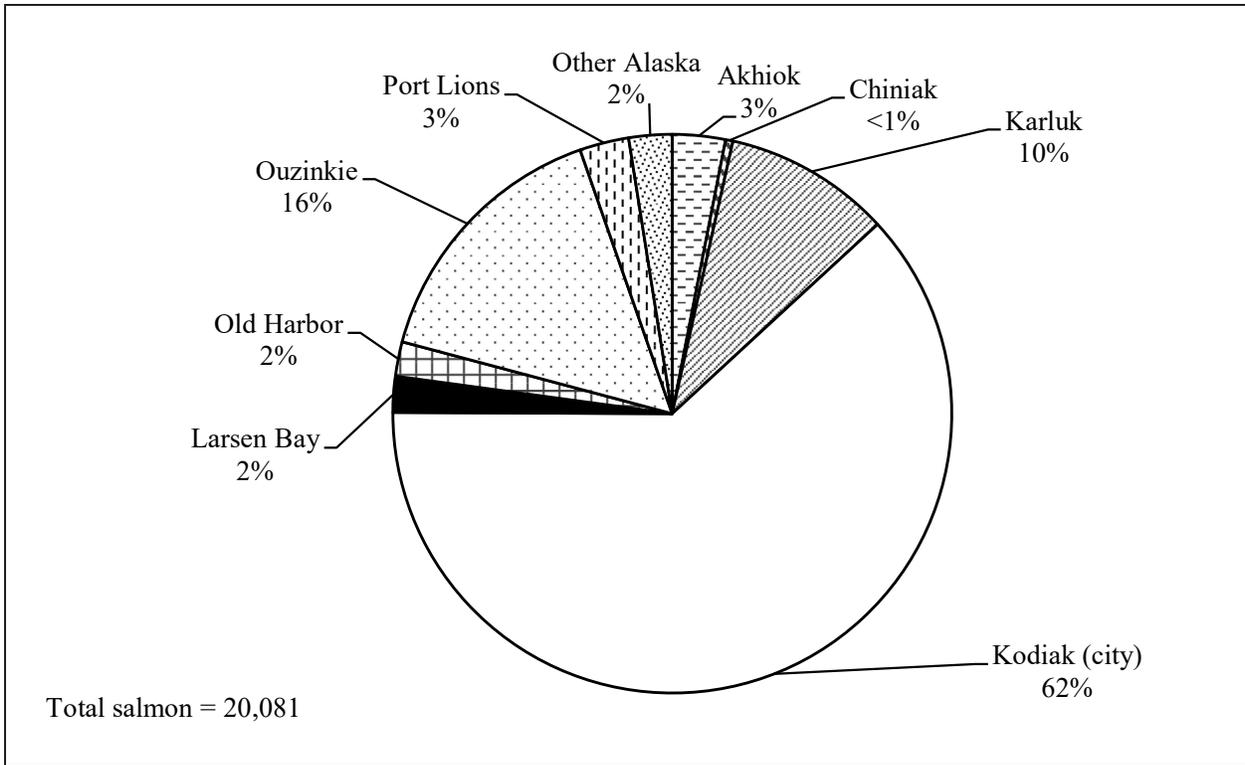


Figure 10-2.—Subsistence salmon harvests by community, Kodiak Area, 2020.

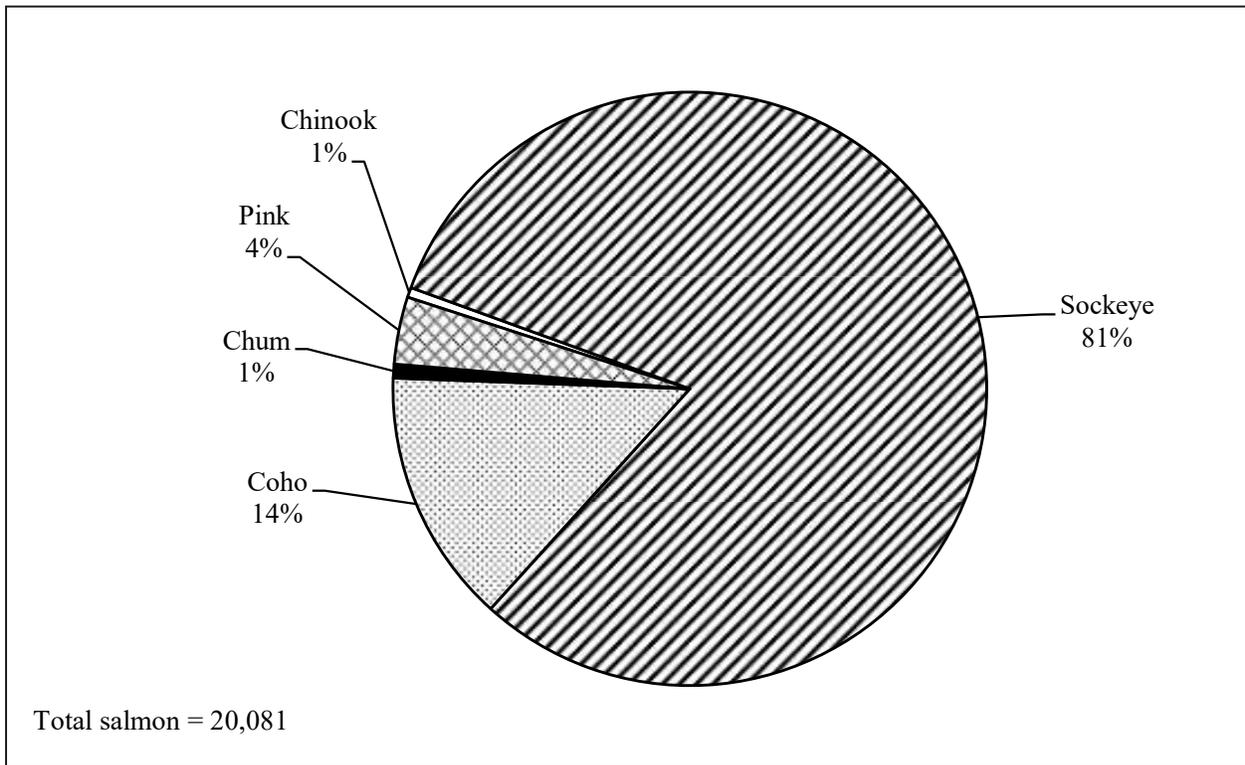


Figure 10-3.—Composition of Kodiak Area subsistence salmon harvest by species, 2020.

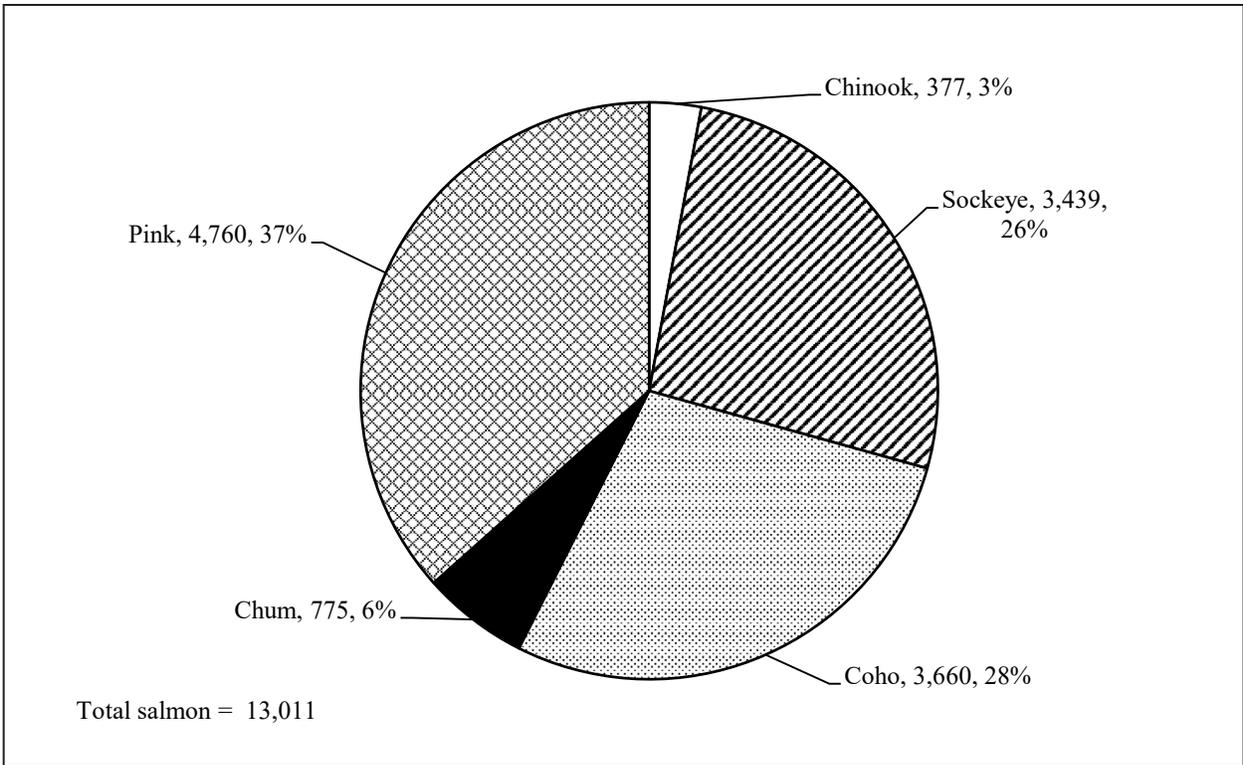


Figure 10-4.—Salmon retained from commercial harvests for home use, Kodiak Area, 2020.

CHAPTER 11: COOK INLET AREA

INTRODUCTION

As shown in Figure 11-1, most of the waters of the Cook Inlet Management Area are within the Anchorage–Matsu–Kenai Nonsubsistence Area as established by the Alaska Joint Board of Fisheries and Game [5 AAC 99.015 (3)]. The population of the entire Cook Inlet Area in 2020 was 457,459, including the Municipality of Anchorage (population 289,697), the Kenai Peninsula Borough (58,957), and the Matanuska-Susitna Borough (108,805). This represented 62% of the state’s total population in 2020.¹ Because subsistence fisheries are not permitted within nonsubsistence areas, noncommercial harvesting opportunities occur under sport, personal use, and educational fishing regulations (as well as limited opportunity under federal subsistence regulations). However, portions of the Cook Inlet Management Area are excluded from the nonsubsistence area.

The first half of this chapter outlines harvests in the eligible Cook Inlet subsistence fisheries. Areas excluded from the nonsubsistence area include the Tyonek Subdistrict; the western portion of the Susitna River drainage; waters north of Point Bede that are west of a line from the easternmost point of Jakolof Bay and north of the westernmost point of Hesketh Island, including Jakolof Bay, and that are south of a line west of Hesketh Island; and those waters south of Point Bede which are west of the easternmost point of Rocky Bay, in Lower Cook Inlet. In total, there are six Cook Inlet communities that fall outside of the Anchorage–Matsu–Kenai Nonsubsistence Area. Residents of Port Graham (population 162 in 2020) and Nanwalek (formerly called English Bay, population 247) subsistence fish primarily under state regulations in the Port Graham and Koyuktolik Subdistricts. Further up Kachemak Bay, residents of Seldovia (population 434 in the city and village CDP) are eligible for a local subsistence set gillnet fishery. On the west side of Cook Inlet, residents of Tyonek (population 152) rely on subsistence salmon in the Tyonek Subdistrict. Skwentna (population 62) and Beluga (population 34) also fall outside of the nonsubsistence area, and a subsistence fish wheel fishery exists in the mainstem of the Yentna River.

The second half of this chapter is a summary of federal subsistence salmon fisheries and state personal use salmon fisheries for the Cook Inlet Area. Federal regulations allow residents of Cooper Landing, Hope, and Ninilchik to harvest salmon in the Kenai National Wildlife Refuge and Chugach National Forest, while state personal use fisheries provide opportunities for Alaska residents to obtain salmon for home uses using set gillnets or dip nets in nonsubsistence areas. In addition to the federal and personal use fisheries, harvest opportunities in the Cook Inlet Area are available through commercial retention and under sport and educational fishing regulations. Commercial harvesters may retain finfish from their lawfully taken commercial catch for home use (“home pack”). Fishers are required to report retained fish on their commercial fish ticket, not on the subsistence salmon permit or personal use permit. In some parts of Alaska, in addition to gear authorized under subsistence fishing regulations, subsistence users report that substantial numbers of fish for home uses are taken with rod and reel (Fall et al. 2009), which is allowable gear under sport fishing regulations. Detailed harvest summaries for the personal use, sport, educational, and commercial fisheries of the Upper Cook Inlet (UCI) Management Area can be found in annual management reports prepared by the ADF&G divisions of Sport Fish and Commercial Fisheries.

NANWALEK/PORT GRAHAM SUBSISTENCE FISHERY

History and Regulations

Two predominately Alaska Native communities, Nanwalek and Port Graham, are located in the Port Graham Subdistrict. The BOF first established subsistence regulations for the subsistence set gillnet fishery in 1980 for the Port Graham and Koyuktolik subdistricts, located along the southern shore of outer Kachemak Bay. Partially in response to depressed sockeye salmon runs to English Bay Lakes near the community of Nanwalek, the BOF added waters of the Port Chatham and Windy Bay subdistricts to the areas available

1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau, n.d, “Research and Analysis Homepage,” Accessed December 19, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

for salmon harvest by subsistence permit at the November 2001 meeting, beginning in 2002 (Hollowell et al. 2019). For a detailed description of this subsistence fishery and other subsistence harvests and uses in Nanwalek and Port Graham, see Stanek (1985), and for the most recent comprehensive study done in these communities, see Jones et al. (2016).

The four primary species harvested in the Koyuktolik, Port Chatham, Port Graham, and Windy Bay subdistricts are sockeye, pink, chum, and coho salmon. The fishery is open in the Port Graham and Koyuktolik subdistricts from April 1 through September 30, and in the Port Chatham and Windy Bay subdistricts from April 1 through August 1, from 10:00 PM Thursday to 10:00 AM Wednesday. Cook Inlet subsistence regulations (5 AAC 01.580) specify that salmon may only be taken under the authority of a department issued subsistence fishing permit and that the permit holder shall record daily catches on forms provided by the department. The area open for the subsistence set gillnet fishery includes the entire shoreline of the subdistrict to near the head of Port Graham Bay. There are no household bag or possession limits. Allowable gear includes set gillnets no longer than 35 fathoms, no deeper than 45 meshes, and no larger than a 6-inch stretched mesh. Sockeye salmon returns to the English Bay River have been monitored using a picket weir since 1993 (Hollowell et al. 2019). In the 27 years since, escapement for this species has fallen below the sustainable escapement goal (SEG) twice. The current SEG of 6,000–13,500 fish has been met or exceeded for the past ten years—the minimum has been exceeded since 2012, and the maximum has been exceeded since 2017. Over 31,000 fish were counted in 2020 (Hollowell et al. 2022).

Harvest Assessment Methods

Prior to 2012, the Division of Subsistence issued household permits through cooperative agreements with the village councils of Port Graham and Nanwalek. In earlier years, salmon subsistence permits were paired with a subsistence calendar that recorded not only salmon, but a variety of shellfish, berries and wild game that were harvested as well. In later years, Division of Subsistence staff circulated a one-page permit with a table for recording daily salmon harvests. Staff responsible for subsistence permits in the past have noted that years of higher permit returns were almost exclusively the result of staff traveling to Port Graham and Nanwalek and going door to door to retrieve permits.²

Due to budget constraints, responsibility for the distribution, collection, and summarizing of subsistence permits for the communities of Seldovia, Port Graham, and Nanwalek was transferred from the Division of Subsistence to the Division of Commercial Fisheries, Homer office, in 2012. Similar to the permits issued by the Division of Subsistence the prior year, 2012 permits were a single sheet with a tear-off upper portion that would be retained by the village council representative, and a lower portion that the user would take into the field and record daily catch. The lower portion could then be mailed directly to the Homer ADF&G office. Prior to 2012, permits were not available to members of the public from the Homer office.

Sockeye salmon returns to the English Bay lakes have generally been good since the early 1990s when the reestablished English Bay weir recorded return data (Hollowell et al. 2019). This weir is on the site of an earlier weir that was established by the Department of Commerce, Bureau of Fisheries in 1927, and was used from 1927–1941 to measure salmon returns to this system. During the 13 years when the weir was operated, an average of 22,200 sockeye salmon were counted. Beginning in 1989, ADF&G collected eggs from the English Bay Lake system, incubated them over the following winter at the Big Lake and Tutka hatcheries, and released them back in the lake the following spring. Releases of sockeye salmon fry occurred in most years from 1990 through 2015 with incubation later occurring at the Port Graham Hatchery from 1992 through 2007, and then at the Trail Lakes Hatchery from 2008 through 2020. Inseason escapement monitoring of passage through the English Bay River weir has taken place since 1994, with openings and closures in the commercial fisheries based on actual salmon passage at the weir versus anticipated passage. During the summer, much of the waterflow associated with the English Bay River is derived from rainfall. The volume of water in the river can have a significant impact on salmon passage by the weir. Therefore, despite the enhancement efforts, the most recent 10-year average count (2010–2020) of 12,113 fish is much

2. Robbin LaVine, ADF&G Subsistence Resource Specialist, email to Glenn Hollowell, ADF&G Fishery Biologist, 2012.

lower than returns recorded at the original weir from 1927–1941. Consequently, there have been a number of recent years where due to dry weather, the commercial fishery has been closed by emergency order in season until passage at the weir built up to anticipated levels for that date. Subsistence fishing has a higher priority than commercial fishing according to state statute. As a result, managers strive to keep subsistence harvest open during periods of commercial closures in order to provide reasonable opportunity for subsistence in those areas. On June 30, 2020, Advisory Announcement #8 expanded the subsistence fishing period in the Port Graham subdistrict from 5½ days per week to 6½ days per week.³ Division of Commercial Fisheries staff make regular trips to Nanwalek discussing salmon management of the English Bay River with residents as well as assessing sockeye and pink salmon returns.

Harvest Estimates for 2020

The 2012 change in responsibility for permit distribution and harvest recording for Port Graham and Nanwalek included some change in methodology. Earlier, the Division of Subsistence contracted a local resident in each community to ensure distribution and collection of permits. In addition, the Division of Subsistence sent staff members to Nanwalek and Port Graham to collect harvest information. However, this approach was discontinued when responsibility for permitting was transferred to the Division of Commercial Fisheries. As is the case elsewhere in Alaska, in those towns or villages which lack an ADF&G office, a local government official distributes permits. It is the responsibility of the permit holder to return completed permits at the end of the season to the department.

In 2020, 10 permits were issued to Port Graham and Nanwalek residents, and 6 permits were returned—the same number as in 2019. This is higher than in 2017 and 2018 when only two permits were returned, but still significantly lower than the years prior to 2012. The relatively high permit return in 2016 (32 permits) is likely due to Subsistence Division staff assisting with permit collection while conducting household surveys that year for a subsistence salmon study (Table 11-1). Estimated salmon harvests for home uses in 2020 totaled 388 salmon, including both subsistence set gillnet and reported rod and reel harvests (Table 11-1). The 2020 harvest was lower than the previous year (1,103 salmon) and slightly higher than the harvest in 2018 (118 salmon). However, all three years represent a substantial decrease from the historical average (1981–2019) of 4,702 salmon. Since 2012, the reported annual harvest in this fishery very likely under-represents the total harvests due to low compliance with subsistence permit harvest reporting regulations. Corresponding with the sharp drop in permit returns, reported harvests began declining in 2014, with approximately 600 salmon reported that year, versus 8,800 the previous year, and reported salmon harvests have varied widely since then—2,371 salmon and 1,595 salmon were reported in 2015 and 2016 respectively, dropping to 380 salmon reported harvested in 2017 and 118 total salmon reported harvested in 2018. In 2019, reported harvests increased to 1,103 salmon but in 2020 declined again to 512 salmon.

In 2020, 50 permits were mailed to Port Graham, and 50 were mailed to Nanwalek. An additional 50 calendar style permits were mailed to each community at the request of the Division of Subsistence, so each village received 100 permits in total. A total of 10 permits were issued to Port Graham residents—6 were returned. No permits were issued to Nanwalek residents. The total reported harvest was 512 salmon, primarily sockeye salmon (284 fish, 55%) followed by coho salmon (102 fish, 20.3%) (Table 11-2; Figure 11-2).

SELDOVIA SUBSISTENCE FISHERY

History and Regulations

The BOF established a subsistence set gillnet fishery in the Seldovia area beginning in 1995. The fishery is located on the south side of Kachemak Bay, near Seldovia, which is in the Southern District of the Lower Cook Inlet Fisheries Management Area. The subsistence fishery operates in a split season: the spring fishery is open April 1 through May 30, and the fall fishery is open the first two weekends of August. In the spring

3. Alaska Department of Fish and Game Division of Commercial Fisheries, “Lower Cook Inlet Salmon Fishery Announcement #8,” June 30, 2020. Accessed December 20, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1173362619.pdf>

season, fishing is allowed during two 48-hour periods each week, while in the fall season, fishing is open during the first two consecutive Saturdays and Sundays in August from 6:00 AM Saturday, until 6:00 PM Sunday.

At the 2019 Alaska Board of Fisheries meeting in Seward, three changes were made to the subsistence fishery in Seldovia Bay. The early season was extended to July 1 with fishing periods in June occurring when commercial periods typically are closed, from 6:00 AM Saturday until 6:00 AM Monday, and from 6:00 AM Wednesday until 6:00 AM Thursday. In addition, the area open to subsistence set gillnet increased in size both to the north towards Barabara Point, and south of Seldovia Bay along the outer coast approximately three-quarters of a mile. Finally, the board reduced minimum spacing between subsistence nets used in this fishery from 600 feet to 300 feet. These changes resulted in significant increases to subsistence opportunities for individuals.

The BOF has set a guideline harvest level (GHL) of 200 Chinook salmon and an annual possession limit of 20 Chinook salmon per household. There are no seasonal limits for other salmon species.

Seasons and bag limits were designed in 1995 to reduce potential interceptions of enhanced Chinook salmon bound for the stocking site in the Seldovia small boat harbor (Hollowell et al. 2012:14). The gear allowed includes set gillnets no longer than 35 fathoms, no deeper than 45 meshes, and no larger than a 6-inch stretched mesh. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction.

Harvest Assessment Methods

Household permits for this fishery have been available either from ADF&G offices or the Seldovia harbormaster's office since this fishery began. Harvest is reported directly on the permit. No calendars have ever been issued to accompany permits, and staff have never traveled to Seldovia to distribute or collect permits. Subsistence fishers are required to return their completed permits to the Homer office by the end of November. In recent years, approximately two-thirds of the permits issued to users have been returned at the end of the season.

The 2020 Season

A total of 15 permits were issued for the Seldovia subsistence fishery in 2020; 5 were returned (Table 11-4). The estimated harvest was 156 sockeye salmon (84% of the overall harvest), 26 Chinook salmon (14%), 2 chum salmon (1%), 2 pink salmon (1%) and no coho salmon (Figure 11-3). Sockeye and Chinook harvests increased 200% and 300% respectively from 2019 harvests, when the BOF adopted changes to regulation. Participation in this fishery has declined over the past 22 years from a high of 45 permits in 1996 to only 4 permits in 2016. Total salmon harvests from 1998 through 2005 were higher than the first two years of the fishery, the result of a longer season that began in 1998 when the BOF lengthened the season by 10 days in May. The additional fishing time resulted in increased harvests of both Chinook and sockeye salmon from 1998 through 2003 (Table 11-4). However, Chinook salmon harvests have declined since 2004.

TYONEK SUBDISTRICT

History and Regulations

Subsistence salmon fishing regulations for the Tyonek Subdistrict were established by court order in 1980 and subsequently permanently established by the BOF. This set gillnet 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 easternmost part of Granite Point (5 AAC 01.555(b)). The area is unique in that all the lands within the subdistrict are owned by the Tyonek Native Corporation. This feature often raises issues of trespass for those individuals living outside the Tyonek area who do not seek prior permission to land their boats or set their nets on the privately owned uplands. For a detailed discussion of this fishery and other subsistence uses at Tyonek, see Jones et al. (2015), Holen and Fall (2011), Stanek et al. (2007), and Fall et al. (1984).

In 2011, the Alaska Board of Fisheries modified the Northern District King Salmon Management Plan (5 AAC 21.366). This modification was in response to reduced abundance of Chinook salmon in the Northern District. The management action aligned commercial fishing closures in the Northern District with sport fishing closures on the Chuitna and Deshka rivers. In that year, only the Chuitna River experienced a closure (Shields and Dupuis 2012:10).⁴

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

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

Harvest Assessment Methods

Household permits are issued by ADF&G prior to fishing, and harvests are recorded on the permit. A Division of Subsistence staff person travels to Tyonek each April and issues approximately 40–50 permits within several hours. Permits are also available in the Anchorage ADF&G office or in the Tyonek village office.

Prior to the 2015 annual salmon report, the Tyonek Subdistrict salmon harvest numbers were based on reported permit data, partly due to the high return rate achieved from 1980–1990 when the fishery was limited to residents of Tyonek. Beginning in 2015 and continuing through 2020, all salmon harvests have been estimated based on permit return rates by community. These estimated harvests replace the reported harvests that previously appeared in Table 11-6 in prior annual reports.⁵

The 2020 Season

In 2020, 54 permits were issued for the Tyonek Subdistrict subsistence salmon fishery, and 17 (31%) were returned. This is a much lower return rate than 2019, which had a return rate of 78%. The lower return rate may have been due to disruptions of the COVID-19 pandemic, including that the Division of Subsistence was unable to complete its postseason follow-up in the community. Tyonek residents received 43 permits (79%), and 11 permits were issued to other Alaska residents, including 6 to residents of Anchorage (11%; Table 11-5). Residents of Tyonek accounted for 63% of the estimated harvest total (1,105 of 1,728 salmon), including 75% of the estimated Chinook salmon harvest (890 of 1,180 Chinook salmon) (Table 11-5).

The 2020 estimated harvest of 1,728 salmon was slightly higher than the 2019 harvest of 1,484 salmon, and slightly lower than the historical average of 1,794 salmon (Table 11-6). Of the total estimated subsistence salmon harvest in 2020, 1,180 were Chinook salmon (68%), 387 were coho salmon (22%), and 161 were sockeye salmon (10%). No chum or pink salmon were reported (Figure 11-4). There were no emergency orders that directly affected the Tyonek Subdistrict subsistence salmon fishery in 2020.

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4. In 2020, the BOF further amended the Northern District King Salmon Management Plan to align commercial fishing opportunity with the different levels of sport fishing restrictions for the Deshka River (5 AAC 21.366 (10)).
 5. For more detailed information about reported and estimated harvest numbers see Jones, B. E. and D. Koster. 2018. Subsistence Harvests and Uses of Salmon in Tyonek, 2015 and 2016. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 439, Anchorage. <http://www.adfg.alaska.gov/techpap/TP439.pdf>

UPPER YENTNA RIVER FISH WHEEL FISHERY

History and Regulations

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

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

Harvest Assessment Methods

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

Harvests in 2020

In 2020, 26 subsistence permits were issued for the Yentna River subsistence fish wheel fishery, and all 26 were returned (tables 11-7 and 11-8). In 2020, 10 of the 26 permit holders resided in the Skwentna area (38%), while 9 permit holders resided in Wasilla (34%). Residents of Anchorage (1 permit) and other Cook Inlet and Matanuska area communities held the remaining 7 permits (Table 11-7; Figure 11-5). Permit holders living in the community of Skwentna in 2020 harvested 273 of the estimated 764 salmon, or 36% of the harvest (Table 11-7).

Of the total harvest of 764 salmon estimated for 2020, 549 were sockeye salmon (72%), 186 coho salmon (24%), 13 Chinook salmon (2%), 11 pink salmon (1%), and 5 chum salmon (1%) (Figure 11-6). It became legal to harvest Chinook salmon for subsistence in 2018 after the Board of Fisheries established a positive customary and traditional use finding for this fishery.⁶ The 2020 harvest of 764 salmon was higher than the previous two years (641 salmon in 2019 and 623 salmon in 2018) The 2020 harvest was also higher than the 5-year average (714 salmon), the 10-year average (658 salmon), and the historical average (585 salmon) (Table 11-8).

FEDERAL SUBSISTENCE SALMON FISHERIES IN COOK INLET

Since 2007, federal regulations allow for the harvest of salmon, trout, and Dolly Varden by residents of Cooper Landing, Hope, and Ninilchik in the Kenai National Wildlife Refuge and Chugach National Forest. This includes the harvest of salmon by dip net in the Kenai River. In 2019, the total harvest in the federal fishery on the Kenai and Kasilof rivers was 6,116 salmon, most of which (6,050) were sockeye salmon. The rest (66) were coho salmon. (Table 11-9). There were a total of 402 permits issued to residents of these three communities, with 177 permits issued to residents of Ninilchik, 176 to residents of Cooper Landing, and 49 to residents of Hope (Table 11-9).

Table 11-10 shows the harvest in this fishery since it was established in 2007. In all 14 years, sockeye salmon composed the majority of the harvest, with 2020 being the highest harvest (6,050 sockeye salmon), followed by 2019 at 5,444 sockeye salmon harvested by residents of the three Kenai Peninsula communities.

6. The BOF modified the C & T finding for this fishery to include a positive finding for Chinook salmon, thereby allowing the subsistence harvest of Chinook consistent with sustained yield management, beginning in 2018.

COOK INLET PERSONAL USE SALMON FISHERIES

Background

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

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

Upper Cook Inlet Personal Use Salmon Fisheries

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

In 2020, 26,473 permits were issued for Upper Cook Inlet personal use fisheries, excluding the Beluga River dip net fishery. For the four fisheries combined (described in more detail below and including unknown fishing locations), the estimated harvest was 427,325 salmon, including 399,030 sockeye salmon (93%) (Table 11-12). The estimated harvest in these fisheries in 2020 was lower than the previous year (461,546 salmon), higher than the 5-year (2015–2019) average of 420,560 salmon, and slightly lower than the 10-year average of 492,846 salmon. For 1996 through 2019, the average annual harvest was 363,736 salmon, although participation and harvest grew steadily until about 2013 (Table 11-13).

Table 11-14 reports the number of permits issued for these four Upper Cook Inlet personal use fisheries and the estimated harvest by place of residence of the permit holder. Residents of the Municipality of Anchorage (including Anchorage, Chugiak, Eagle River, JBER [Joint Base Elmendorf/Richardson], and Girdwood) held the most permits (54%) and accounted for 53% of the harvest, followed by Matanuska-Susitna Borough residents (21% of permits; 22% of harvests), and Kenai Peninsula Borough residents (17% of permits; 17% of harvest).

Kasilof River Personal Use Set Gillnet Fishery

This fishery takes place at the mouth of the Kasilof River between regulatory markers approximately one mile on either side of the river. Legal gear is a set gillnet no more than 10 fathoms in length, 6 inches in mesh size, and 45 meshes in depth. The fishery is open daily from 6:00 AM to 11:00 PM from June 15 through June 24. In 2020, the total estimated harvest in the fishery was 14,901 salmon, of which 14,745 (99%) were sockeye salmon (note that the harvests for this set gillnet fishery plus the dip net fisheries in the Kasilof River, the Kenai River, and Fish Creek are reported through a single permit system, the combined estimated totals are reported above). The average annual harvest from 1996 through 2019 was 20,104 salmon (Table 11-15).

Kasilof River Dip Net Fishery

This dip net fishery takes place in the lower mile of the Kasilof River 24 hours per day from June 25 through August 7. Retention of Chinook salmon in this fishery is prohibited. The estimated harvest in 2020 was 100,953 salmon, of which 94,064 (93%) was sockeye salmon. From 1996 through 2019, the average annual harvest in this fishery was 58,209 salmon (Table 11-16).

Kenai River Dip Net Fishery

This dip net fishery takes place in the lower Kenai River downriver of the Warren Ames Bridge. Fishing is open from July 10 through July 31, seven days per week from 6:00 AM to 11:00 PM; when the abundance of sockeye salmon is greater than two million fish, the fishery may be open by emergency order 24 hours a day. No more than one Chinook salmon per permit may be retained in this fishery. Estimated harvests totaled 274,072 salmon in 2020, including 257,864 sockeye salmon (94%). The average annual harvest from 1996 through 2019 was 270,210 salmon, with harvest—along with participation—generally rising over that period (Table 11-17).

Fish Creek Dip Net Fishery

This dip net fishery opens by emergency order if the department projects an escapement into Fish Creek (Knik Arm) of more than 50,000 sockeye salmon. The season is July 10 through July 31. Open waters extend from the terminus of Fish Creek upstream to one-quarter of a mile above the Knik–Goose Bay Road. No Chinook salmon may be retained in this fishery. In 2020, the estimated harvest totaled 31,558 salmon, 28,109 (89%) of which was sockeye salmon, 6% coho salmon 4% pink salmon, 1% chum salmon, and <1% Chinook salmon. The fishery did not open from 2002 through 2008, from 2012 through 2013 and in 2016. The average annual harvest for those years with an open fishery was 11,845 salmon (Table 11-18).

Unknown Upper Cook Inlet Personal Use Dip Net Fishery

Because not all participants in the Upper Cook Inlet personal use dip net fisheries indicate the location of their fishing activities when they return their permits, an estimate of harvests in an “unknown” Upper Cook Inlet dip net fishery is produced annually. Harvests that could not be attributed to one of the four Upper Cook Inlet personal use fisheries (three dip net fisheries and one set gillnet fishery—excluding the Beluga River fishery, which is discussed below) were estimated at 2,055 salmon in 2020, 93% of which was sockeye salmon (1,916 fish) (Table 11-19).

Beluga River Personal Use Salmon Fishery

Participation in this dip net fishery, which first took place in 2008, is limited to Alaska residents 60 years of age or older. The fishery is open 24 hours per day from July 10 to August 31 within the Beluga River, western Cook Inlet, from about one-quarter mile upstream of the Beluga River bridge to about one mile below the bridge. The fishery operates under the single seasonal limit for Cook Inlet Area personal use salmon fisheries (25 salmon for the permit holder and 10 additional salmon for each dependent), except only one Chinook salmon may be retained. Participants must report their harvest weekly to ADF&G, and the fishery closes when 500 salmon have been harvested (5 AAC 77.540(g)). Since its establishment, harvests in this fishery have been generally low, only surpassing 100 salmon in five years and 200 salmon in two of those five years. In 2020, harvests totaled 113 salmon, compared to 214 salmon in 2019, and 54 salmon in 2018

(Table 11-20). Harvest data by place of residence are presently not available for this fishery, and totals for this fishery are not included with other Upper Cook Inlet personal use fisheries summarized in Table 11-14.

Lower Cook Inlet Personal Use Salmon Fisheries

Kachemak Bay Set Gillnet Fishery

This set gillnet fishery along Kachemak Bay in the Lower Cook Inlet Management Area was a subsistence fishery before being reclassified as a personal use fishery in the early 1980s. By regulation, the fishery begins at 6:00 AM the first Monday or Thursday following August 15 and continues through the last Wednesday or Saturday before September 16 and only from 6:00 AM Monday until 6:00 AM Wednesday and from 6:00 AM Thursday until 6:00 AM Saturday. The fishery closes either on that final day or when a guideline harvest range of 1,000–2,000 coho salmon has been achieved. In addition to a valid Alaska resident sport fishing license, participants must obtain a personal use permit from the Homer ADF&G office—this is separate from the permit program for the Upper Cook Inlet personal use fisheries, and households may only hold a permit from one or the other personal use fishery in a given year. Seasonal limits are 25 salmon for the permit holder and 10 salmon for each additional household member (5 AAC 77.549). Fishers are encouraged to phone the Homer ADF&G office to report their daily harvests and are required to return their harvest information when the fishery closes each year. Table 11-21 provides historical harvests for this fishery for 1969 through 2019. In 2020, the reported harvest, based on 153 returned permits (79% of the 194 permits issued), was 1,430 salmon, of which 1,050 (73%) were coho salmon. The recent 10-year average harvest for this fishery (2010–2019) was 2,075 salmon (Table 11-21). Harvest data by place of residence are presently not available for this fishery.

China Poot Dip Net Fishery

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

OTHER SUBSISTENCE FISHERIES IN COOK INLET

Federal halibut subsistence harvest data are currently available for rural communities and tribes with traditional uses of halibut in the Cook Inlet area. Residents of Port Graham, Nanwalek, and Seldovia participate in this program, as well as tribal members living in other Cook Inlet Area communities. The most recent survey was conducted in 2020. For the 2020 findings, see Sill and Koster (2022). Due to a lack of funding, no harvest estimate for the subsistence halibut fishery is available for 2013, 2015, 2017, or 2019.

There are no annual harvest assessment programs for other subsistence finfish fisheries in Cook Inlet. Harvest estimates based on comprehensive household surveys conducted by the Division of Subsistence are available in the CSIS for freshwater and marine species spanning multiple years for selected Cook Inlet communities. Of note in Lower Cook Inlet are rockfish (*Sebastes*) documented in Turek et al. (2009). Information on other fish species used in Upper Cook Inlet by Tyonek and Beluga residents can be found in Stanek et al. (2007), Holen et al. (2014), and Jones et al. (2015). For information for the Lower Cook Inlet communities of Seldovia, Port Graham, and Nanwalek, see Jones and Kostik (2016).

Table 11-1.—Historical subsistence salmon harvests, Port Graham and Koyuktolik subdistricts, 1981–2020.

Year	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1981	ND	57	138	2,670	825	177	874	4,684
1982	ND	61	124	2,354	1,493	220	2,932	7,123
1983	ND	46	67	2,480	471	95	187	3,300
1984	ND	24	45	3,262	510	6	673	4,496
1985	ND	24	146	1,177	621	26	345	2,315
1986	ND	44	125	647	481	14	1,062	2,329
1987	ND	55	21	901	914	114	714	2,664
1988	ND	48	104	1,021	844	110	1,756	3,835
1989	ND	44	51	157	1,155	74	1,495	2,932
1990	ND	60	265	1,162	1,417	151	2,960	5,955
1991	ND	63	163	688	2,053	221	4,587	7,712
1992	ND	71	200	535	1,150	236	1,421	3,542
1993	ND	56	277	1,148	913	257	2,663	5,258
1994	ND	70	300	830	1,370	504	1,979	4,983
1995	ND	87	585	1,795	538	376	1,273	4,567
1996	ND	75	310	1,744	939	276	749	4,018
1997	ND	26	202	325	203	153	511	1,394
1998	ND	19	169	289	243	240	459	1,400
1999	ND	54	485	3,157	1,747	1,104	2,023	8,516
2000	ND	67	259	4,664	1,831	953	1,606	9,313
2001	ND	49	133	1,085	1,295	228	1,454	4,195
2002	ND	79	346	10,620	1,057	488	1,831	14,342
2003	ND	52	465	5,534	1,006	532	1,572	9,109
2004	ND	80	312	3,525	1,303	213	1,600	6,953
2005	ND	68	292	2,126	1,193	180	1,608	5,399
2006	ND	53	275	2,559	1,200	296	2,131	6,461
2007 ^a	ND	24	92	532	0	63	74	761
2008	ND	48	124	4,352	1,448	269	2,682	8,875
2009	ND	44	44	3,497	528	140	914	5,123
2010 ^a	ND	35	30	1,630	1,448	308	1,054	4,470
2011	ND	53	53	5,702	1,491	511	2,632	10,389
2012	ND	8	24	961	414	31	482	1,912
2013	28	14	17	4,888	2,685	897	410	8,897
2014	35	7	19	347	10	44	164	584
2015	33	5	36	877	47	872	539	2,371
2016	34	32	17	620	697	239	22	1,595
2017	26	2	0	339	0	37	4	380
2018	15	2	3	76	7	2	30	118
2019	18	6	11	716	75	97	204	1,103

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Year	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2020	ND	6	19	232	89	48	0	388
5-year average (2015–2019)	-	9	13	526	165	249	160	1,113
10-year average (2010–2019)	-	16	21	1,616	687	304	554	3,182
Historical average (1981–2019)	-	44	1,120	1,495	595	775	2,988	4,702

Source Hollowell et al. (2022). ADF&G Division of Subsistence, 1981–2011.

Note There are no records indicating the numbers of permits issued for 1981–2012 and 2020. Only the numbers of permits returned are recorded. For this reason, averages of the number of permits issued that cannot be calculated are indicated with "-".

a. Harvest reports are incomplete.

Table 11-2.–Subsistence salmon harvests by community, Port Graham and Koyuktolik subdistricts, 2020.

Community	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Nanwalek	ND	0	0	0	0	0	0	0
Port Graham	ND	6	19	232	89	48	0	388
Total	ND	6	19	232	89	48	0	388

Source Hollowell et al. (2022)

Note This table includes reported data only as the returns weren't sufficient for expansion.

ND = no data

Table 11-3.–Subsistence salmon harvests by community, Seldovia, 2020.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Seldovia	15	9	26	156	0	2	2	186
Total	15	9	26	156	0	2	2	186

Source Hollowell et al. (2022).

Table 11-4.—Historical subsistence salmon harvests, Seldovia, 1996–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1996	45	44	51	9	0	0	0	60
1997	20	17	52	22	0	0	0	74
1998	23	21	145	67	0	9	0	220
1999	16	15	150	130	0	38	0	318
2000	28	21	252	332	0	19	0	603
2001	19	17	151	140	0	0	0	290
2002	21	19	136	255	14	10	34	450
2003	20	14	91	299	1	75	18	483
2004	14	11	117	82	5	20	0	223
2005	18	15	53	74	14	13	100	254
2006	17	14	14	11	0	0	25	50
2007	19	16	23	61	11	32	96	223
2008	12	10	4	37	49	6	78	174
2009	18	14	18	100	13	18	57	206
2010	16	12	3	133	41	47	88	312
2011	7	4	0	96	0	0	18	114
2012a	20	7	3	29	0	0	20	52
2013	15	10	3	123	1	14	63	204
2014	19	15	5	116	0	5	65	191
2015	8	6	19	82	0	5	0	105
2016	4	4	7	53	0	2	1	63
2017	13	9	11	92	0	0	3	105
2018	9	6	11	11	0	1	53	76
2019	7	5	6	53	0	1	0	60
2020	15	9	26	156	0	2	2	186
5-year average (2015–2019)	8	6	11	58	0	2	11	82
10-year average (2010–2019)	12	8	7	79	4	7	31	128
Historical average (1997–2019)	17	14	55	100	6	13	30	205

Source Hollowell et al. (2022); ADF&G Division of Subsistence, 1996–2011.

a. Reported data only. Sample size insufficient for expansion.

Table 11-5.—Subsistence salmon harvests by community, Tyonek Subdistrict, 2020.

Community	Permits		Estimated salmon harvests					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Anchorage	6	2	93	102	0	0	0	195
Kenai	4	1	196	16	180	0	0	392
Soldotna	1	1	1	30	5	0	0	36
Tyonek	43	13	890	13	202	0	0	1,105
Total	54	17	1,180	161	387	0	0	1,728

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

Table 11-6.—Historical subsistence salmon harvests, Tyonek Subdistrict, 1980–2020.

Year	Permits		Estimated salmon harvests					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1980	67	67	1,936	262	0	0	0	2,198
1981	70	70	2,002	269	64	32	15	2,382
1982	69	69	1,590	310	113	4	14	2,031
1983	73	73	2,755	251	78	6	0	3,090
1984	70	70	2,364	310	66	23	3	2,766
1985 ^a	176	ND	1,967	163	91	10	0	2,231
1986 ^a	101	ND	1,674	198	210	44	45	2,171
1987	64	61	1,689	174	156	25	10	2,055
1988	47	42	1,776	102	283	13	9	2,183
1989	49	47	1,303	89	120	1	0	1,513
1990	42	37	886	75	400	14	23	1,397
1991	57	54	925	20	69	0	0	1,014
1992	57	44	1,170	96	294	24	9	1,594
1993	62	54	1,566	68	88	25	23	1,769
1994	58	49	905	101	122	27	0	1,154
1995	70	55	1,632	54	186	18	0	1,891
1996	73	49	1,615	88	177	9	27	1,917
1997	70	42	1,051	200	241	13	0	1,505
1998	74	49	1,430	251	97	3	2	1,783
1999	77	54	1,620	247	175	20	66	2,127
2000	60	47	1,461	78	103	0	8	1,649
2001	84	58	1,450	254	72	9	6	1,790
2002	101	71	1,609	314	162	6	14	2,106
2003	87	74	1,384	136	54	12	9	1,595

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Year	Permits		Estimated salmon harvests					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2004	97	75	1,751	121	168	0	0	2,040
2005	78	67	1,183	65	159	2	0	1,409
2006	82	55	1,366	32	23	1	0	1,422
2007	84	67	1,526	249	164	3	4	1,946
2008	94	77	1,492	146	227	11	16	1,892
2009	89	69	817	229	320	2	1	1,369
2010	105	77	1,116	281	223	3	3	1,626
2011	114	63	851	202	34	10	10	1,107
2012	89	69	1,102	223	174	3	5	1,507
2013	82	48	1,352	278	311	0	32	1,973
2014	92	73	896	487	575	15	5	1,978
2015	83	72	1,070	505	568	16	6	2,165
2016	74	64	1,030	188	225	8	12	1,462
2017	74	49	1,304	442	306	31	6	2,089
2018	65	42	1,042	146	155	6	13	1,362
2019	67	42	1,062	264	137	16	5	1,484
2020	54	17	1,180	161	387	0	0	1,728
5-year average (2015–2019)	73	54	1,102	309	278	15	8	1,712
10-year average (2010–2019)	85	60	1,083	302	271	11	10	1,675
Historical average (1981–2019)	79	59	1,389	196	188	11	10	1,794

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2021).

a Harvests were not expanded due to unknown permit returns.

ND = no data

Table 11-7.—Subsistence salmon harvests by community, Upper Yentna River, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook ^a	Sockeye	Coho	Chum	Pink	
Anchorage	2	2	0	40	4	1	0	45
Chugiak	1	1	0	54	0	0	1	55
Eagle River	1	1	0	4	0	0	0	4
Skwentna	11	11	0	139	62	8	1	210
Sterling	1	1	0	19	0	0	0	19
Wasilla	5	5	5	94	66	2	1	168
Willow	3	3	0	62	23	7	13	105
Total	24	24	5	412	155	18	16	606

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

a. Regulations prohibited the retention of Chinook salmon in this fishery until 2018 (5 AAC 01.595).

Table 11-8.—Historical subsistence and personal use salmon harvests, Upper Yentna River, 1996–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1996 ^a	17	17	0	242	46	51	115	454
1997 ^a	24	21	0	549	83	10	30	672
1998	21	18	0	495	113	15	30	653
1999	18	16	0	516	48	13	18	595
2000	19	19	0	379	92	7	4	482
2001	16	15	0	545	50	4	10	608
2002	25	22	0	454	133	31	14	632
2003	19	15	0	553	67	8	2	630
2004	21	19	0	441	146	3	36	625
2005	18	17	0	177	42	25	24	268
2006	22	22	0	368	175	26	14	583
2007	22	22	0	367	66	18	17	468
2008	16	16	0	310	57	7	23	397
2009	17	17	0	253	14	6	0	273
2010	32	32	0	642	50	18	38	748
2011	25	25	0	598	90	21	337	1,046
2012	21	21	0	279	24	19	21	343
2013	22	19	0	160	92	32	128	412
2014	20	18	0	328	84	32	17	460
2015	29	27	0	578	151	69	47	845
2016	26	25	0	514	204	37	36	790
2017	26	26	0	454	185	10	21	670
2018	28	28	16	419	170	8	10	623
2019	28	28	0	476	107	40	18	641
2020	26	26	13	549	186	5	11	764

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Year	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	27	27	3	488	163	33	26	714
10-year average (2010–2019)	26	25	2	445	116	29	67	658
Historical average (1996–2019)	22	21	1	429	97	20	39	585

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

- a. This fishery was classified as personal use in 1996 and 1997; it has been a subsistence fishery since 1998.
- b. Regulations prohibited the retention of chinook salmon in this fishery until 2018 (5 AAC 01.595).

Table 11-9.–Federal subsistence salmon harvests by community, Kenai and Kasilof rivers, 2020.

Community	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cooper Landing	176	81	0	1,509	29	0	0	1,538
Hope	49	33	0	484	19	0	0	503
Ninilchik	177	157	0	4,057	18	0	0	4,075
Total	402	271	0	6,050	66	0	0	6,116

Source Federal Subsistence Management System Permits Database.

Note Data has not been expanded

Table 11-10.—Historical federal subsistence salmon harvests, Kenai and Kasilof rivers, 2007–2020.

Year	Permits		Reported salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2007	136	131	0	742	5	0	0	747
2008	160	151	2	1,716	12	0	0	1,730
2009	160	138	0	1,104	9	0	0	1,113
2010	169	151	0	943	0	0	0	943
2011	131	123	0	1,090	0	0	0	1,090
2012	133	121	0	1,438	0	0	0	1,438
2013	142	138	0	1,515	4	0	0	1,519
2014	153	145	0	1,941	2	0	0	1,943
2015	187	180	2	2,056	0	0	0	2,058
2016	227	219	2	2,500	12	0	0	2,514
2017	364	345	2	4,428	12	0	19	4,461
2018	368	354	0	4,348	35	0	6	4,389
2019	354	325	0	5,444	11	0	7	5,462
2020	402	ND	0	6,050	66	0	0	6,116
5-year average (2015–2019)	300	285	1	3,755	14	0	6	3,777
10-year average (2010–2019)	223	210	1	2,570	8	0	3	2,582
Historical average (2007–2019)	206	194	1	2,251	8	0	2	2,262

Source Federal Subsistence Management System Permits Database.

Table 11-11.—Miscellaneous Upper Cook Inlet personal use and subsistence salmon harvests, 1981–1995.

Year ^a	Permits		Reported salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
<i>Noncommercial gillnet fishery</i>								
1981	1,108	NA	68	466	12,713	305	149	13,701
<i>Fall coho personal use/subsistence</i>								
1983	295	NA	0	0	712	0	0	712
1984	309	NA	1	2	2,261	7	10	2,281
1985	998	NA	50	805	11,265	53	108	12,281
1986	892	NA	0	0	2,422	0	0	2,422
1987	486	NA	8	9	2,213	37	2	2,269
1988	449	NA	2	19	2,662	10	38	2,731
1989	365	NA	0	0	2,376	0	0	2,376
1990	420	NA	0	0	2,290	0	0	2,290
1991 ^b	360	NA	0	0	2,703	8	0	2,711
1993	535	NA	0	0	1,168	0	23	1,191
<i>Northern/Central districts subsistence/personal use setnet^c</i>								
1985 ^d	638	NA	117	2,218	1,427	121	90	3,973
1991	7,065	NA	496	20,855	3,372	1,596	517	26,836
1992	9,200	NA	957	28,949	8,821	1,753	1,217	41,697
1994	10,127	NA	1,260	36,701	9,509	1,601	1,653	50,724
1995	9,300	NA	1,294	45,259	9,678	1,665	1,236	59,132
<i>Knik Arm subsistence</i>								
1985	405	NA	4	1,649	2,055	212	48	3,968

Source Ruesch and Fox (1996); Brannian and Fox (1996).

- a. Years listed are only the years in which the fishery was open.
- b. In 1991, the fall coho fishery operated as a personal use fishery separate from subsistence setnet fisheries (Ruesch and Fox 1992).
- c. Summary data reported in Ruesch and Fox (1996) and in Brannian and Fox (1996) include dip net and setnet harvests. Here, only setnet harvests are included. See separate tables for the Kasilof River dip net fishery and the Kenai River dip net fishery for harvest data for those fisheries.
- d. In 1985, this subsistence fishery was open in areas generally open to commercial fishing, except for the Upper Subdistrict, which had a separate season and permit (called the “fall coho fishery” in this table). The Knik Arm subsistence gillnet fishery was also administered separately in 1985 (Ruesch 1987).
- e. For 1991, 1992, 1994, and 1995, the number of permits issued includes all Upper Cook Inlet dip net and setnet fisheries except the Tyonek subdistrict.

NA = Data not available.

Table 11-12.—Cook Inlet personal use salmon fisheries, 2020.

Year ^a	Permits		Estimated salmon harvest ^b					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
<i>Lower Cook Inlet</i>								
Kachemak Bay setnet	194	153	7	112	1,050	11	250	1,438
China Poot Bay dip net ^a								
Subtotal, Lower Cook Inlet	194	153	7	112	1,050	11	250	1,438
<i>Upper Cook Inlet</i>								
Kasilof River setnet ^c			70	14,745	1	23	62	14,901
Kasilof River dip net ^c			12	94,064	1,318	807	4,752	100,953
Kenai River dip net ^c			23	257,864	1,023	1,540	13,622	274,072
Fish Creek dip net ^c			7	28,109	1,736	337	1,369	31,558
Unknown Upper Cook Inlet ^c			22.4	2,296	538	68	747	3,672
Subtotal, common permit fisheries^c	28,955	21,458	150	398,995	4,671	2,782	20,614	427,212
Beluga River dip net	15	10	0	35	74	1	3	113
Subtotal, Upper Cook Inlet	26,473	19,671	150	399,030	4,745	2,783	20,617	427,325
Cook Inlet Total	26,667	19,824	157	399,142	5,795	2,794	20,867	428,763

Source ADF&G Division of Sport Fish

- a. Permits are not issued for this fishery and harvest estimates are not produced.
- b. Estimated harvests for all fisheries except Kachemak Bay setnet. Only reported harvests are available.
- c. A single permit is issued for the Kasilof setnet, Kasilof dip net, Kenai dip net, and Fish Creek dip net fisheries. In some cases, returned permits did not indicate the area fished.

Table 11-13.—Estimated personal use salmon harvests, Upper Cook Inlet personal use fishery total, 1996–2020.

Year	Permits		Estimated salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1996	14,576	13,452	452	145,545	4,811	350	2,973	154,131
1997	14,919	13,756	464	148,940	777	88	844	151,113
1998	15,535	13,190	549	176,581	2,685	220	1,933	181,968
1999	17,197	14,216	1,108	208,589	1,413	168	2,078	213,356
2000	16,107	13,582	1,102	149,267	3,638	290	2,482	156,779
2001	16,915	14,398	1,138	218,688	2,637	276	1,821	224,560
2002	17,568	14,284	1,070	259,623	3,271	757	8,470	273,191
2003	19,110	15,726	1,711	298,831	2,250	371	2,082	305,245
2004	21,910	17,748	1,098	350,091	3,754	502	2,715	358,160
2005	21,905	19,081	1,132	369,776	3,415	428	2,520	377,271
2006	18,563	16,532	1,405	216,047	3,759	746	12,434	234,391
2007	23,046	20,312	1,924	356,717	2,727	614	2,352	364,334
2008	23,722	20,259	1,601	318,594	3,249	727	11,869	336,040
2009	29,619	25,029	1,384	457,539	4,204	559	6,969	470,655
2010	31,590	25,222	1,059	514,255	8,405	1,090	6,482	531,291
2011	34,515	27,193	1,453	630,242	6,754	1,169	4,879	644,497
2012	34,315	27,080	167	629,757	5,512	627	4,854	640,757
2013	35,211	26,772	84	454,315	5,119	1,053	4,424	464,995
2014	35,989	27,866	50	506,047	9,370	1,859	26,795	544,121
2015	34,916	27,115	127	521,985	10,648	1,926	7,256	541,942
2016	31,216	23,854	820	348,706	4,589	1,150	9,805	365,070
2017	29,981	22,325	1,346	406,890	1,664	1,962	11,240	423,102
2018	24,732	18,545	138	292,233	3,004	984	14,818	311,140
2019	26,460	19,661	166	447,849	3,065	1,755	8,711	461,546
2020	28,955	21,458	150	398,995	4,671	2,782	20,614	427,212
5-year average (2015–2019)	29,461	22,300	519	403,533	4,594	1,555	10,366	420,560
10-year average (2010–2019)	31,893	24,563	541	475,228	5,813	1,358	9,926	492,846
Historical average (1996–2019)	24,567	19,883	898	351,129	4,197	820	6,700	363,736

Source ADF&G Division of Sport Fish

Note Does not include the Beluga River dip net fishery.

Table 11-14.–Personal use salmon harvest estimates by community, Upper Cook Inlet, 2020.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Anchor Point	173	145	0	2,261	5	4	121	2,393
Clam Gulch	43	35	0	441	1	1	18	461
Cooper Landing	13	12	0	145	0	0	5	150
Fritz Creek	14	12	0	185	0	0	3	188
Homer	477	394	1	6,068	23	18	471	6,582
Hope	8	8	0	61	0	0	7	68
Kasilof	357	302	15	5,577	8	11	230	5,841
Kenai	1,368	1,065	8	19,656	95	74	971	20,804
Moose Pass	15	11	0	208	0	1	11	221
Nanwalek	1	0	0	10	0	0	1	11
Nikiski	123	94	0	1,411	14	7	57	1,488
Nikolaevsk	19	17	0	361	0	0	12	373
Ninilchik	94	82	0	1,114	24	2	54	1,195
Seldovia	4	3	0	70	0	0	1	71
Seward	150	116	1	1,823	24	13	65	1,926
Soldotna	1,639	1,344	12	22,523	134	65	1,149	23,883
Sterling	356	297	1	4,963	17	28	230	5,240
Subtotal, Kenai Peninsula Borough	4,854	3,937	39	66,878	347	225	3,406	70,896
Anchorage	13,023	9,342	63	176,523	1,722	1,588	9,545	189,441
Chugiak	585	488	2	8,980	112	39	373	9,506
Eagle River	1,537	1,274	3	21,235	173	71	950	22,432
Bird Creek	1	0	0	10	0	0	1	11
Girdwood	186	142	0	2,234	25	9	115	2,383
Joint Base Elmendorf Richardson	240	179	0	2,586	35	13	186	2,820
Subtotal, Anchorage Municipality	15,572	11,425	69	211,569	2,068	1,719	11,170	226,595

-continued-

Table 11-14.–Page 2 of 5.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Big Lake	198	140	0	2,553	58	22	160	2,793
Chickaloon	14	11	0	129	0	0	8	138
Palmer	1,636	1,299	13	23,730	481	86	1,090	25,400
Sutton	58	44	0	774	49	21	25	869
Talkeetna	70	54	1	918	93	2	28	1,043
Trapper Creek	26	21	0	294	1	2	20	316
Wasilla	4,033	3,020	16	57,077	1,218	401	2,965	61,677
Willow	182	154	0	2,894	51	6	181	3,134
Subtotal, Matanuska-Susitna Borough	6,217	4,743	30	88,370	1,952	541	4,477	95,369
Adak	1	1	0	0	0	0	0	0
Akiachak	2	2	0	110	0	0	0	110
Akutan	1	1	0	0	0	0	0	0
Ambler	2	2	0	75	0	0	0	75
Anaktuvuk Pass	3	0	0	31	0	0	2	34
Anderson	2	2	0	58	0	0	0	58
Aniak	1	1	0	5	0	0	2	7
Arctic Village	2	2	0	49	0	0	0	49
Barrow	72	39	0	1,335	4	16	28	1,384
Beaver Creek	2	2	0	27	0	0	0	27
Bethel	14	7	0	236	1	1	5	243
Cantwell	11	8	0	156	0	0	2	159
Chevak	1	0	0	10	0	0	1	11
Chitina	1	1	0	7	0	0	0	7
Circle	1	1	0	27	0	0	4	31
Clear	6	5	0	76	1	15	7	99
Copper Center	10	10	1	127	1	1	5	135
Cordova	4	2	0	50	0	0	2	52
Craig	1	1	0	10	0	0	0	10

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Table 11-14.—Page 3 of 5.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Delta Junction	46	41	0	792	1	1	43	836
Denali Park	19	14	0	250	6	3	10	268
Dillingham	1	1	0	0	0	0	0	0
Dot Lake	1	1	0	0	0	0	0	0
Eielson AFB	16	14	0	255	0	0	5	260
Elim	1	1	0	75	0	0	0	75
Ester	13	12	0	236	2	0	9	247
Fairbanks	614	447	1	8,616	76	38	446	9,178
Fort Wainwright	24	16	0	237	3	11	17	268
Gakona	2	2	0	28	0	0	0	28
Galena	1	1	0	30	0	0	0	30
Glennallen	8	6	0	80	0	0	20	100
Grayling	1	1	0	0	0	0	0	0
Haines	2	1	0	12	0	0	1	13
Healy	27	24	0	520	2	0	24	547
Holy Cross	1	0	0	10	0	0	1	11
Hooper Bay	1	1	0	5	0	0	0	5
Huslia	1	1	0	11	0	0	6	17
Juneau	31	24	0	292	1	3	14	310
Ketchikan	5	5	0	82	0	0	2	84
Kipnuk	1	0	0	10	0	0	1	11
Kivalina	1	1	0	3	0	0	0	3
Kobuk	1	0	0	10	0	0	1	11
Kodiak (city)	13	5	0	120	1	1	5	127
Kongiganek	3	3	0	46	0	0	0	46
Kotzebue	19	9	0	244	1	2	9	255
Kwigillingok	2	1	0	19	0	0	1	20

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Table 11-14.—Page 4 of 5.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Manley Hot Springs	1	0	0	10	0	0	1	11
Manokotak	2	0	0	21	0	0	1	22
McGrath	2	1	0	20	0	0	1	21
Metlakatla	1	1	0	0	0	0	0	0
Mountain Village	1	0	0	10	0	0	1	11
Napakiak	2	1	0	10	0	0	1	11
Nenana	16	12	0	280	3	13	16	313
Nightmute	1	0	0	10	0	0	1	11
Nikolai	1	0	0	10	0	0	1	11
Noatak	3	1	0	29	0	0	1	30
Nome	8	5	0	43	2	0	2	48
Noorvik	2	1	0	35	0	0	1	36
North Pole	178	135	1	2,921	25	11	109	3,067
Nuiqsut	5	1	0	85	0	1	2	89
Nunapitchuk	1	1	0	2	0	0	0	2
Perryville	1	1	0	0	0	0	0	0
Petersburg	6	6	0	100	0	0	9	109
Point Hope	3	1	0	21	0	0	1	22
Port Graham	1	0	0	10	0	0	1	11
Port Lions	1	1	0	0	0	0	0	0
Prudhoe Bay	1	0	0	10	0	0	1	11
Quinhagak	1	0	0	10	0	0	1	11
Saint Marys	1	1	0	15	0	0	0	15
Saint Paul Island	1	1	0	2	0	0	0	2
Salcha	4	3	0	25	0	0	2	27
Sand Point	1	1	0	5	0	0	2	7
Savoonga	1	1	0	0	0	0	0	0

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Table 11-14.—Page 5 of 5.

Community	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Scammon Bay	1	1	0	35	0	0	0	35
Selawik	1	0	0	10	0	0	1	11
Sitka	4	3	0	15	0	0	1	16
Skagway	3	2	0	29	0	0	1	30
Skwentna	1	1	0	10	0	0	0	10
Tatitlek	1	1	0	0	0	0	0	0
Tok	8	4	0	84	1	1	6	93
Tuluksak	1	0	0	10	0	0	1	11
Two Rivers	5	5	0	57	0	0	1	58
Unalakleet	1	1	0	0	0	0	0	0
Unalaska	2	2	0	3	0	0	0	3
Valdez	29	24	0	433	7	1	13	453
Venetie	1	1	0	25	0	0	0	25
Whittier	4	3	0	103	0	0	1	104
Wrangell	2	1	0	10	0	0	1	11
Subtotal, other Alaska	1,302	943	4	18,889	145	125	844	20,006
Other USA	78	52	0	919	6	15	48	988
Unknown Communities	932	358	7	12,371	152	157	670	13,357
Total	28,955	21,458	150	398,995	4,671	2,782	20,614	427,212

Source ADF&G Division of Sport Fish

Note Includes Kasilof River setnet fishery, Kasilof River dip net fishery, Kenai River dip net fishery, Fish Creek (Knik Arm) dip net fishery and unknown fishery.

Table 11-15.—Estimated personal use salmon harvests, Kasilof River setnet fishery, 1982–2020.

Year ^a	Permits		Estimated salmon harvest					Total
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1982	649	NA	372	7,543	24	NA	17	7,956
1983	684	NA	307	8,846	NA	NA	NA	9,153
1984	698	NA	165	12,926	NA	NA	NA	13,091
1985	692	NA	203	10,746	NA	NA	NA	10,949
1986	NA	NA	168	9,609	NA	NA	NA	9,777
1987	NA	NA	184	9,375	NA	NA	NA	9,559
1988	NA	NA	118	9,803	NA	NA	NA	9,921
1989	NA	NA	186	9,928	NA	NA	NA	10,114
1990	NA	NA	133	7,123	NA	NA	NA	7,256
1991 ^b	NA	NA	34	8,380	NA	NA	NA	8,414
1992	--	--	--	--	--	--	--	--
1993	NA	NA	47	7,942	NA	NA	NA	7,989
1994	--	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	--	--
1996 ^c	NA	NA	46	9,506	0	1	8	9,561
1997	NA	NA	65	17,997	1	3	102	18,168
1998	NA	NA	126	15,975	0	12	15	16,128
1999	NA	NA	442	12,832	25	10	10	13,319
2000	NA	NA	514	14,774	9	10	17	15,324
2001	NA	NA	174	17,201	6	7	11	17,399
2002	NA	NA	192	17,980	12	13	30	18,227
2003	NA	NA	400	15,706	107	4	9	16,226
2004	NA	NA	163	25,417	58	0	6	25,644
2005	NA	NA	87	26,609	326	1	16	27,039
2006	NA	NA	287	28,867	420	6	11	29,591
2007	NA	NA	343	14,943	68	0	2	15,356
2008	NA	NA	151	23,432	65	23	35	23,706
2009	NA	NA	127	26,646	165	11	14	26,963
2010	NA	NA	136	21,924	23	1	23	22,107
2011	NA	NA	167	26,780	47	3	23	27,020
2012	NA	NA	103	15,638	161	15	53	15,970
2013	NA	NA	46	14,439	129	5	3	14,622
2014	NA	NA	50	22,567	30	18	105	22,770
2015	NA	NA	61	27,567	191	2	20	27,841
2016	NA	NA	141	26,539	23	23	5	26,731
2017	NA	NA	118	21,927	5	43	48	22,141
2018	NA	NA	120	14,390	2	5	22	14,539
2019	NA	NA	131	15,864	19	16	84	16,114
2020	NA	NA	70	14,745	1	23	62	14,901

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Table 11-15.–Page 2 of 2.

Year ^a	Permits		Estimated salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	NA	NA	114	21,257	48	18	36	21,473
10-year average (2010–2019)	NA	NA	107	20,764	63	13	39	20,986
Historical average (1996–2019) ^d	NA	NA	175	19,813	79	10	28	20,104

Source Ruesch and Fox (1996) for 1982–1995; Division of Sport Fish for 1996–2020.

a. The fishery was closed 1992, 1994, and 1995.

b. This fishery was administered separately from the subsistence setnet fisheries that operated in 1991 (Ruesch and Fox 1992).

c. Current regulations in place since 1996. Permits since 1996 issued for 4 Upper Cook Inlet personal use salmon fisheries.

d. Historical average based on years since 1996 when current regulations were adopted.

Table 11-16.—Estimated personal use salmon harvests, Kasilof River dip net fishery, 1981–2020.

Year ^b	Permits		Estimated salmon harvest ^a					Total
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1981	NA	NA	NA	10,300	NA	NA	NA	10,300
1982	NA	NA	NA	1,800	NA	NA	NA	1,800
1983	NA	NA	NA	11,124	NA	NA	NA	11,124
1984	NA	NA	NA	12,771	NA	NA	NA	12,771
1985	NA	NA	NA	16,284	NA	NA	NA	16,284
1986	NA	NA	NA	38,674	NA	NA	NA	38,674
1987	NA	NA	NA	18,454	NA	NA	NA	18,454
1988	NA	NA	NA	3,547	NA	NA	NA	3,547
1989	--	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	--	--
1991 ^{cd}	7,065	5,480	10	907	2	0	3	922
1992	9,500	4,104	24	1,230	24	0	3	1,281
1993	--	--	--	--	--	--	--	--
1994 ^e	10,127	4,823	54	6,414	137	14	59	6,678
1995	NA	NA	NA	4,160	NA	NA	NA	4,160
1996 ^f	NA	NA	50	11,197	334	17	103	11,701
1997	NA	NA	35	9,737	90	19	19	9,900
1998	NA	NA	134	45,161	731	74	610	46,710
1999	NA	NA	127	37,176	286	52	264	37,905
2000	NA	NA	134	23,877	1,004	34	841	25,890
2001	NA	NA	138	37,612	766	23	307	38,846
2002	NA	NA	106	46,769	1197	139	1862	50,073
2003	NA	NA	57	43,870	592	30	286	44,835
2004	NA	NA	44	48,315	668	90	396	49,513
2005	NA	NA	16	43,151	538	102	658	44,465
2006	NA	NA	55	56,144	1,057	105	992	58,353
2007	NA	NA	35	43,293	487	136	383	44,334
2008	NA	NA	46	54,051	509	143	787	55,536
2009	NA	NA	34	73,035	1,441	173	1,274	75,957
2010	NA	NA	31	70,774	1,768	279	974	73,826
2011	NA	NA	24	49,766	977	144	652	51,563
2012	NA	NA	16	73,419	1,170	147	896	75,648
2013	NA	NA	18	85,528	1,666	339	683	88,234
2014	NA	NA	0	88,513	2,606	342	2,769	94,230
2015	NA	NA	0	89,000	2,723	597	1,607	93,927
2016	NA	NA	26	58,273	1,255	329	1,733	61,616
2017	NA	NA	14	78,260	605	969	2,850	82,698
2018	NA	NA	6	92,034	673	326	3,272	96,311
2019	NA	NA	3	80,730	553	810	2,840	84,936
2020	NA	NA	12	94,064	1,318	807	4,752	100,953

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Table 11-16.–Page 2 of 2.

Year ^b	Permits		Estimated salmon harvest ^a					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	NA	NA	10	79,659	1,162	606	2,460	83,898
10-year average (2010–2019)	NA	NA	14	76,630	1,400	428	1,828	80,299
Historical average (1996–2019) ^g	NA	NA	48	55,820	987	226	1,127	58,209

Source Nelson et al. (1999) for 1981–1990 and 1993–1995; Brannian and Fox (1996) for 1991, 1992, and 1994; Division of Sport Fish for 1996–2020.

a. Personal use harvests are estimated based on the annual sport harvest survey conducted by the Division of Sport Fish prior to 1996, and are estimated based on permit returns since 1996. Only sockeye salmon harvests reported, 1981–1990.

b. Fishery closed 1989–1990, and 1993. Classified as a subsistence fishery in 1991 and 1992.

c. In 1991, 1992, and 1994, a single permit issued for all Upper Cook Inlet subsistence fisheries except Tyonek (Central dip net, central setnet, northern setnet) (Brannian and Fox 1996). Permit return rate for 1992 was approximately 43.2% (Ruesch and Fox 1993).

d. Harvests for 1991 and 1992, and subsistence harvests for 1994, are reported, not estimated.

e. In 1994 both a subsistence and a personal use dip net fishery took place in the Kasilof River (Nelson 1999). Sockeye harvests included 3,679 salmon in the personal use fishery and 2,735 salmon in the subsistence fishery. Harvest data for other species in the personal use fishery are not available.

f. Current regulations have been in place since 1996. Permits have been required since 1996 and are issued for 4 Upper Cook Inlet personal use fisheries.

g. Historical average based on years since 1996 when current regulations were adopted.

NA = Data not available.

Table 11-17.—Estimated personal use salmon harvests, Kenai River dip net fishery, 1981–2020.

Year ^b	Permits		Estimated salmon harvest ^a					Total
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1981	--	--	--	--	--	--	--	--
1982 ^c	NA	NA	NA	NA	NA	NA	NA	0
1983	NA	NA	NA	7,562	NA	NA	NA	7,562
1984	--	--	--	--	--	--	--	--
1985	--	--	--	--	--	--	--	--
1986	--	--	--	--	--	--	--	--
1987	NA	NA	NA	24,086	NA	NA	NA	24,086
1988	NA	NA	NA	16,880	NA	NA	NA	16,880
1989	NA	NA	NA	48,976	NA	NA	NA	48,976
1990	--	--	--	--	--	--	--	--
1991 ^{d,e}	7,065	5,480	44	10,468	146	2	17	10,677
1992 ^f	9,500	4,104	158	28,429	1,475	74	598	30,734
1993	NA	NA	NA	33,467	NA	NA	NA	33,467
1994	10,127	4,823	187	13,897	2,535	114	1,263	17,996
1995	NA	NA	NA	14,352	NA	NA	NA	14,352
1996 ^g	NA	NA	295	102,821	1,932	175	2,404	107,627
1997	NA	NA	364	114,619	559	58	619	116,219
1998	NA	NA	254	103,847	1,011	85	1,032	106,229
1999	NA	NA	488	149,504	1,009	102	1,666	152,769
2000	NA	NA	410	98,262	1,449	193	1,457	101,771
2001	NA	NA	638	150,766	1,555	155	1,326	154,440
2002	NA	NA	606	180,028	1,721	551	5,662	188,568
2003	NA	NA	1,016	223,580	1,332	249	1,647	227,824
2004	NA	NA	792	262,831	2,661	387	2,103	268,774
2005	NA	NA	997	295,496	2,512	321	1,806	301,132
2006	NA	NA	1,034	127,630	2,235	551	11,127	142,577
2007	NA	NA	1,509	291,270	2,111	472	1,939	297,301
2008	NA	NA	1,362	234,109	2,609	504	10,631	249,215
2009	NA	NA	1,189	339,993	2,401	285	5,482	349,350
2010	NA	NA	865	389,552	2,870	508	3,655	397,450
2011	NA	NA	1,243	537,765	4,745	915	3,914	548,582
2012	NA	NA	40	526,992	4,008	425	3,770	535,235
2013	NA	NA	11	347,222	3,169	701	3,625	354,728
2014	NA	NA	0	379,823	4,710	1,194	19,140	404,867
2015	NA	NA	66	377,532	4,150	957	4,147	386,852
2016	NA	NA	638	259,057	3,277	717	7,834	271,523
2017	NA	NA	1,194	297,049	732	886	7,962	307,823
2018	NA	NA	7	165,028	529	441	10,435	176,440
2019	NA	NA	30	331,408	977	689	4,631	337,735
2020	NA	NA	23	257,864	1,023	1,540	13,622	274,072

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Table 11-17.–Page 2 of 2.

Year ^b	Permits		Estimated salmon harvest ^a					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	NA	NA	387	286,015	1,933	738	7,002	296,075
10-year average (2010–2019)	NA	NA	409	361,143	2,917	743	6,911	372,124
Historical average (1996–2019) ^b	NA	NA	627	261,924	2,261	480	4,917	270,210

Source Nelson et al. (1999) for 1981–1990 and 1993–1995; Brannian and Fox (1996) for 1991, 1992, and 1994; Division of Sport Fish for 1996–2020.

a. Personal use harvests are estimated based on the annual sport harvest survey conducted by the Division of Sport Fish prior to 1996, and are estimated based on permit returns since 1996. Only sockeye salmon harvests reported, 1981–1990.

b. Fishery closed 1981, 1984–1986, and 1990. Classified as a subsistence fishery in 1991, a portion of 1992 and 1994.

c. The 1982 harvest is reported as “unknown” but “insignificant” (Nelson 1999; Brannian and Fox 1996).

d. Subsistence harvests for 1991, 1992, and 1994 are reported, not estimated.

e. 1991, 1992, and 1994 permits: single permit issued for all Upper Cook Inlet subsistence fisheries except Tyonek.

f. Harvests for 1992 include 16,240 sockeye salmon in the subsistence fishery and 12,189 sockeye in the personal use fishery. Harvests for other species are for the subsistence fishery only. Personal use harvests are not available for the other species.

g. Current regulations have been in place since 1996. Permits have been required since 1996 and are issued for 4 Upper Cook Inlet personal use fisheries.

h. Historical average based on years since 1996 when current regulations were adopted.

NA = Data not available.

Table 11-18.—Estimated personal use salmon harvests, Fish Creek dip net fishery, 1987–2020.

Year ^b	Permits		Estimated salmon harvest ^a					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1987	NA	NA	0	2,200	0	0	2,200	4,400
1988	NA	NA	0	3,000	0	0	3,000	6,000
1989	NA	NA	0	5,000	0	0	5,000	10,000
1990	NA	NA	0	6,500	0	0	6,500	13,000
1991	NA	NA	0	14,369	0	549	567	15,485
1992	NA	NA	0	19,002	0	607	678	20,287
1993	NA	NA	0	37,224	973	503	2,068	40,768
1994	NA	NA	0	16,012	1,336	248	632	18,228
1995	NA	NA	0	9,102	2,640	99	290	12,131
1996	NA	NA	37	17,260	2,414	153	331	20,195
1997	NA	NA	0	3,277	63	4	53	3,397
1998	NA	NA	1	4,036	649	29	80	4,795
1999	NA	NA	0	1,083	17	0	12	1,112
2000	NA	NA	0	6,925	958	29	83	7,995
2001	NA	NA	0	436	18	1	2	457
2002	--	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--	--
2009	NA	NA	10	9,898	53	33	66	10,060
2010	NA	NA	12	23,705	3,576	290	1,721	29,304
2011	NA	NA	2	5,236	905	72	155	6,370
2012	--	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--	--
2014	NA	NA	0	5,829	1,895	227	4,218	12,169
2015	NA	NA	0	19,260	3,321	329	1,329	24,239
2016	--	--	--	--	--	--	--	--
2017	NA	NA	1	4,894	281	54	273	5,503
2018	NA	NA	5	18,659	1,779	208	880	21,531
2019	NA	NA	2	15,886	1,508	195	1,110	18,701
2020	NA	NA	7	28,109	1,736	337	1,369	31,558
Historical average (1996–2019)	NA	NA	5	9,742	1,246	116	737	11,845

Source Brannian and Fox (1996) for 1987–1994; Howe et al. (1996) for 1995; Division of Sport Fish for 1996–2011 and 2014–2020.

a. Estimates derived from statewide sport harvest survey prior to 1996. Permits required since 1996.

b. Fishery closed 2002–2008, 2012, 2013, and 2016.

Table 11-19.—Estimated salmon harvests, unknown Upper Cook Inlet personal use fishery, 1996–2020.

Year	Permits		Estimated salmon harvest					
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1996	NA	NA	24	4,761	131	4	127	5,047
1997	NA	NA	0	3,310	64	4	51	3,429
1998	NA	NA	34	7,562	294	20	196	8,106
1999	NA	NA	51	7,994	76	4	126	8,251
2000	NA	NA	44	5,429	218	24	84	5,799
2001	NA	NA	188	12,673	292	90	175	13,418
2002	NA	NA	166	14,846	341	54	916	16,323
2003	NA	NA	238	15,675	219	88	140	16,360
2004	NA	NA	99	13,527	366	25	210	14,227
2005	NA	NA	32	4,520	39	4	40	4,635
2006	NA	NA	29	3,406	47	84	304	3,870
2007	NA	NA	37	6,729	61	6	28	6,861
2008	NA	NA	41	6,890	66	58	412	7,467
2009	NA	NA	25	7,968	144	57	133	8,327
2010	NA	NA	15	8,300	168	12	109	8,604
2011	NA	NA	17	10,695	80	35	135	10,962
2012	NA	NA	8	13,548	173	40	135	13,904
2013	NA	NA	9	7,126	155	8	113	7,411
2014	NA	NA	0	9,315	129	78	563	10,085
2015	NA	NA	0	8,626	263	41	153	9,083
2016	NA	NA	15	4,837	34	81	233	5,200
2017	NA	NA	19	4,760	41	10	107	4,937
2018	NA	NA	0	2,085	21	4	209	2,319
2019	NA	NA	0	3,961	8	45	46	4,060
2020	NA	NA	15	1,916	55	7	62	2,055
5-year average (2015–2019)	NA	NA	7	4,854	73	36	150	5,120
10-year average (2010–2019)	NA	NA	8	7,325	107	35	180	7,657
Historical average (1996–2019)	NA	NA	45	7,856	143	37	198	8,279

Source ADF&G Division of Sport Fish.

Table 11-20.—Beluga River senior personal use dip net fishery summary, 2008–2020.

Year	Permits		Reported salmon harvest					Total
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2008	20	20	0	31	35	0	0	66
2009	11	11	0	140	78	0	7	225
2010	14	14	0	47	1	5	0	53
2011	13	12	0	137	17	5	0	159
2012	7	7	0	9	7	0	0	16
2013	8	8	0	30	55	1	2	88
2014	10	10	0	32	12	1	1	46
2015	8	8	0	65	17	0	0	82
2016	11	10	0	52	45	2	2	101
2017	9	9	0	26	36	0	4	66
2018	10	9	0	37	17	0	0	54
2019	13	10	0	166	44	0	4	214
2020	15	10	0	35	74	1	3	113
5-year average (2015–2019)	10	9	0	69	32	0	2	103
10-year average (2010-2019)	10	10	0	60	25	1	1	88
Historical average (2008–2019)	11	11	0	64	30	1	2	98

Source ADF&G Division of Sport Fish.

Table 11-21.—Personal use/subsistence salmon harvests, Kachemak Bay setnet fishery (excluding the Port Graham/Nanwalek subsistence fishery and the Seldovia subsistence fishery), Lower Cook Inlet, 1969–2020.

Year	Households or permits		Reported salmon harvest					Total
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1969	47	44	0	9	752	0	38	799
1970	78	73	0	12	1,179	13	143	1,347
1971	112	95	2	16	1,549	7	44	1,618
1972	135	105	1	11	975	69	48	1,104
1973	143	128	0	18	1,304	40	84	1,446
1974	148	118	0	16	376	77	43	512
1975	292	276	4	47	1,960	61	632	2,704
1976	242	221	16	46	1,962	56	1,513	3,593
1977	197	179	12	46	2,216	119	639	3,032
1978	311	264	4	35	2,482	34	595	3,150
1979	437	401	6	37	2,118	41	2,251	4,453
1980	533	494	43	32	3,491	25	1,021	4,612
1981	403	383	15	73	4,370	68	718	5,244
1982	395	372	41	49	7,398	154	956	8,598
1983	344	328	5	17	2,701	44	305	3,072
1984	368	346	3	25	3,639	105	804	4,576
1985	328	302	5	49	3,317	34	138	3,543
1986	349	310	7	68	3,831	56	3,132	7,094
1987	363	339	5	50	3,979	61	279	4,374
1988	439	417	14	73	5,007	75	1,445	6,614
1989	477	453	41	156	7,219	53	883	8,352
1990	578	543	12	200	8,323	69	1,846	10,450
1991	472	459	8	47	4,931	23	366	5,375
1992	365	350	5	63	2,277	21	643	3,009
1993	326	317	6	44	1,992	18	463	2,523
1994	286	284	66	80	4,097	18	1,178	5,439
1995	235	232	118	108	2,916	7	343	3,492
1996	299	293	302	102	3,347	24	1,022	4,797
1997	276	264	384	191	1,817	12	257	2,661
1998	227	214	135	20	1,461	5	167	1,788
1999	146	141	276	119	1,803	3	168	2,369
2000	213	206	104	28	2,064	4	304	2,504
2001	154	148	86	27	1,579	16	150	1,858
2002	122	113	61	33	1,521	12	251	1,878
2003	104	96	17	57	1,071	9	170	1,324
2004	91	83	7	56	1,554	16	172	1,805
2005	108	96	8	57	833	13	296	1,207
2006	89	82	15	41	1,295	5	221	1,577

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Table 11-21.–Page 2 of 2.

Year	Households or permits		Reported salmon harvest					Total
	Total	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2007	141	133	10	113	1,431	34	641	2,229
2008	146	142	2	92	1,844	14	687	2,639
2009	145	142	9	273	646	4	101	1,033
2010	128	122	14	149	875	17	251	1,306
2011	119	112	15	223	806	5	145	1,194
2012	98	95	5	137	1,471	6	275	1,894
2013	123	118	9	122	1,732	3	135	2,001
2014	160	154	13	310	2,273	4	198	2,798
2015	136	131	10	509	1,373	22	152	2,066
2016	170	169	18	166	2,033	8	335	2,560
2017	148	145	6	298	2,388	11	212	2,915
2018	192	187	6	259	1,947	11	161	2,384
2019	156	151	9	147	1,287	27	162	1,632
2020	194	153	7	112	1,050	11	250	1,430
5-year average (2015–2019)	160	157	10	276	1,806	16	204	2,311
10-year average (2010–2019)	143	138	11	232	1,619	11	203	2,075
Historical average (1969–2019)	237	223	38	97	2,447	32	533	3,148

Source Hollowell et al. (2020).

Table 11-22.—Estimated personal use salmon harvests, China Poot dip net fishery, 1980–1995.^a

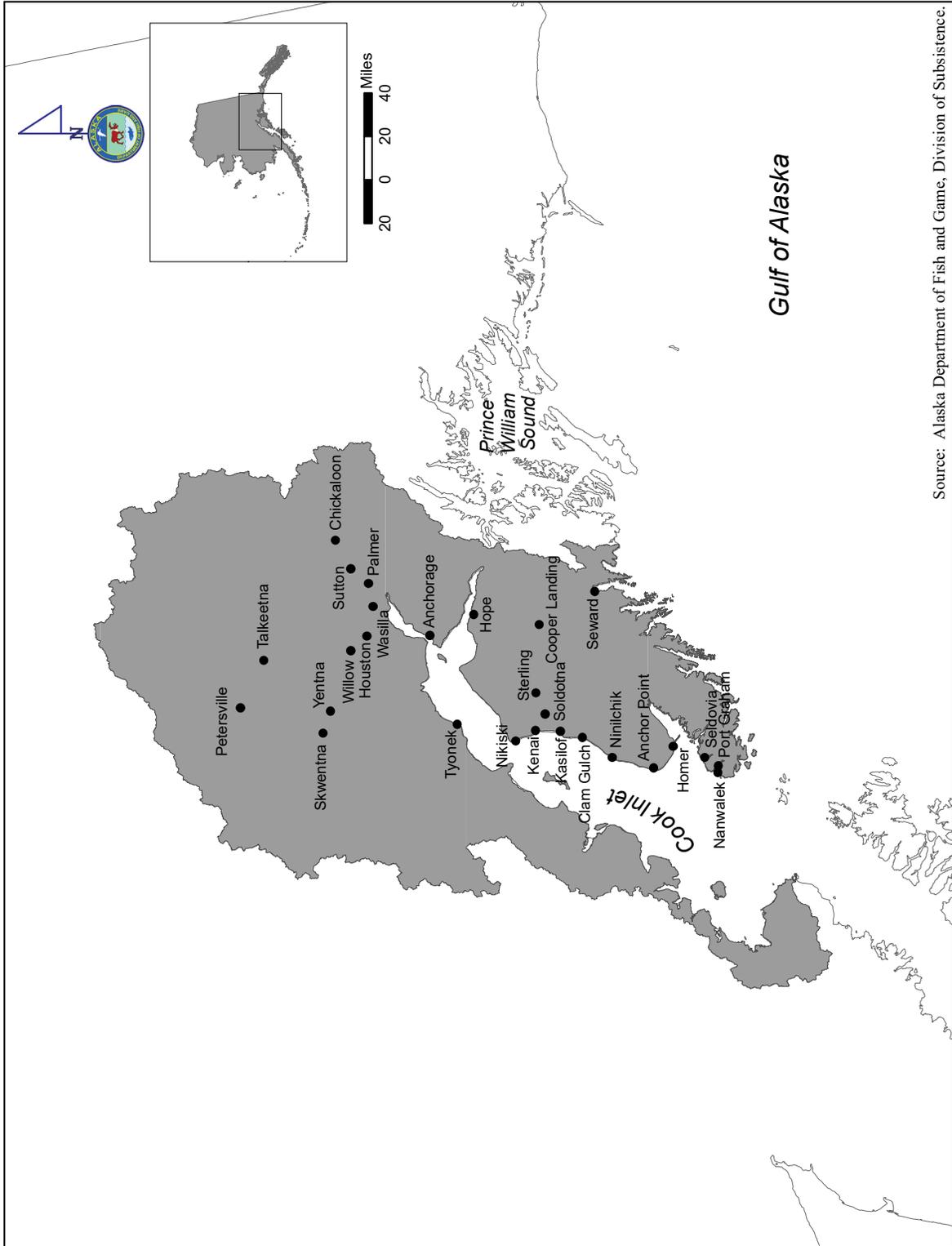
Year	Fishers	Estimated salmon harvest					Total
		Chinook	Sockeye	Coho	Chum	Pink	
1980	NA	0	1,000	0	0	0	1,000
1981 ^a	--	--	--	--	--	--	--
1982	NA	0	1,320	0	0	0	1,320
1983	1,956	0	5,910	0	0	0	5,910
1984	1,237	0	1,794	0	0	0	1,794
1985	398	0	794	0	0	12	806
1986	993	0	1,815	0	0	673	2,488
1987	1,016	0	1,231	0	0	0	1,231
1988	1,361	0	1,910	0	127	36	2,073
1989	1,428	0	5,416	0	0	239	5,655
1990	1,537	0	5,835	0	178	68	6,081
1991	395	0	1,528	0	0	33	1,561
1992	810	0	3,468	0	76	183	3,727
1993	1,036	0	4,260	0	0	45	4,305
1994	1,372	0	5,715	0	0	34	5,749
1995	2,261	0	8,605	0	0	77	8,682
Historical average (1980–1995)	1,215	0	3,373	0	25	93	3,492

Source Fall and Stanek (1990), for 1980 to 1989, based on annual reports of the sport fish harvest survey. 1990 through 1995: annual sport fish angler survey report. Harvest data as reported in annual sport fish angler survey reports differ from data reported in Nelson (1995:222), which reports “sport and personal use harvests combined.”

Note Harvest data not collected after 1995.

a. Fishery was closed in 1981.

NA = Data not available.



Source: Alaska Department of Fish and Game, Division of Subsistence.

Figure 11-1.-Map of the Cook Inlet Area.

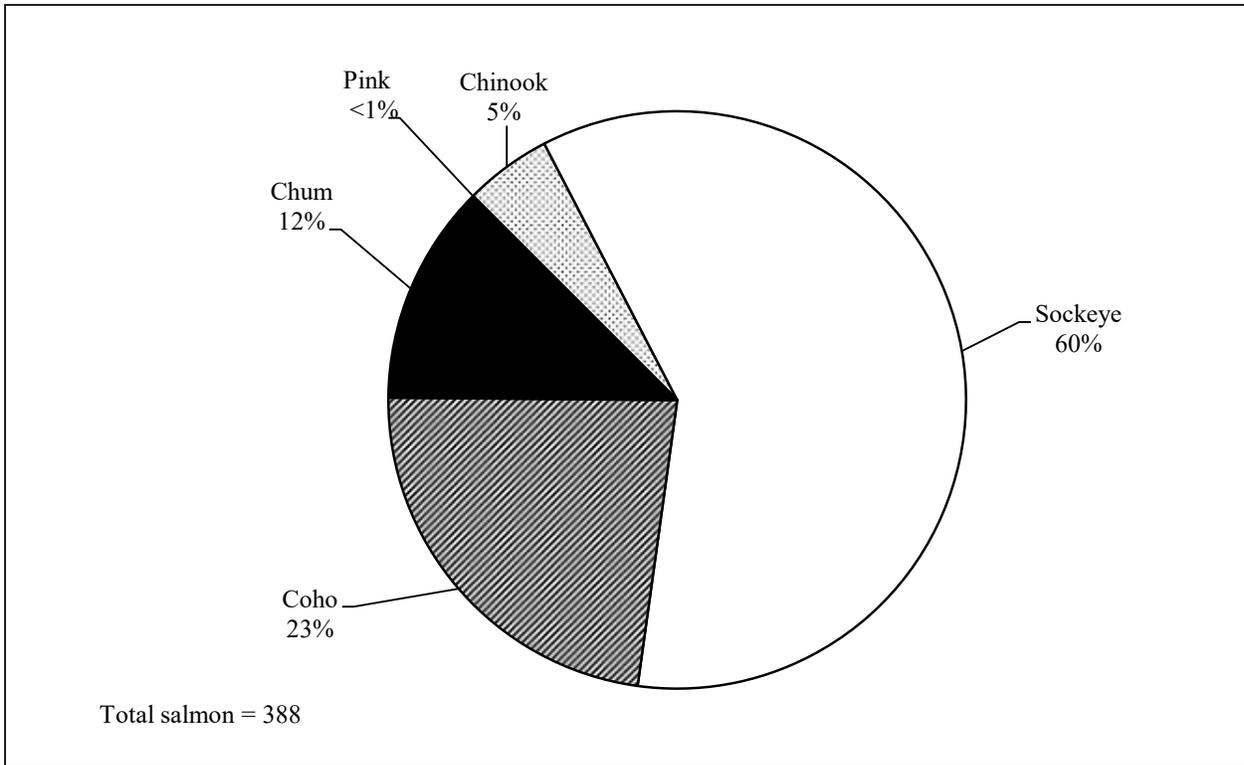


Figure 11-2.—Subsistence salmon harvests in the Port Graham and Koyuktolik subdistricts, 2020.

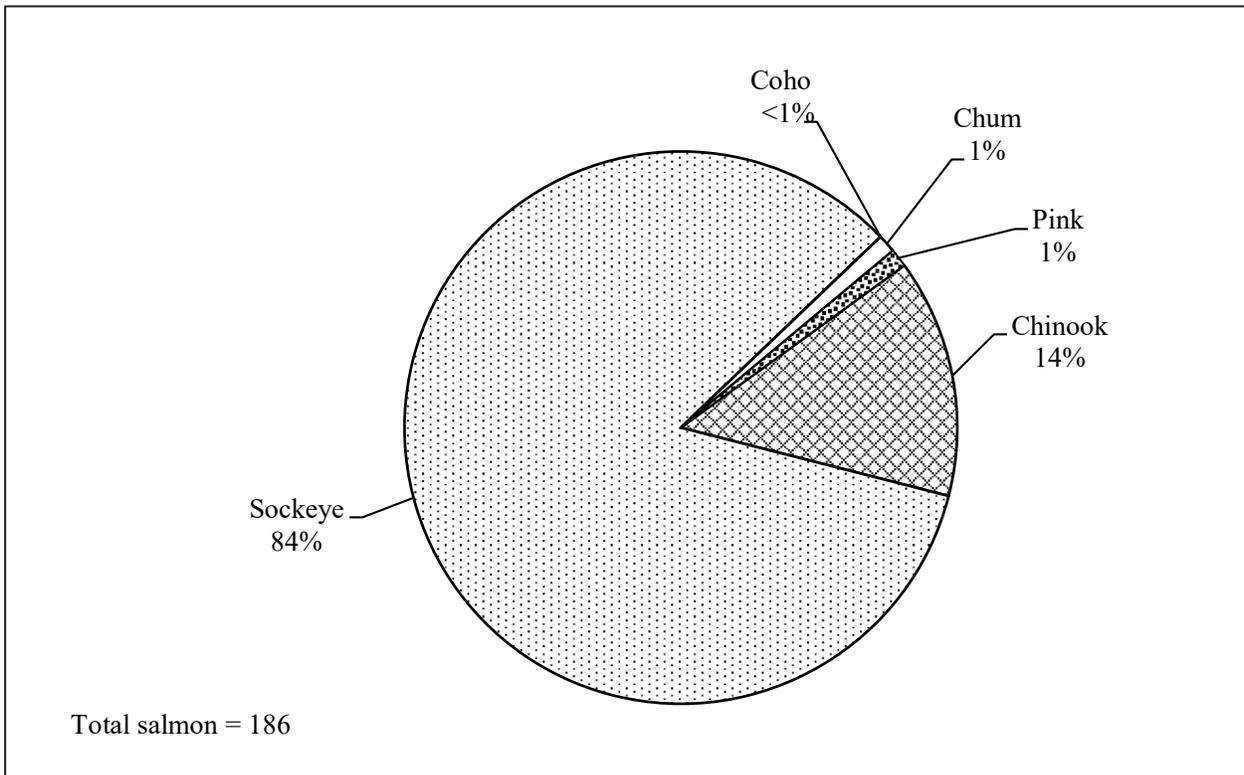


Figure 11-3.—Subsistence salmon harvests in Seldovia, 2020.

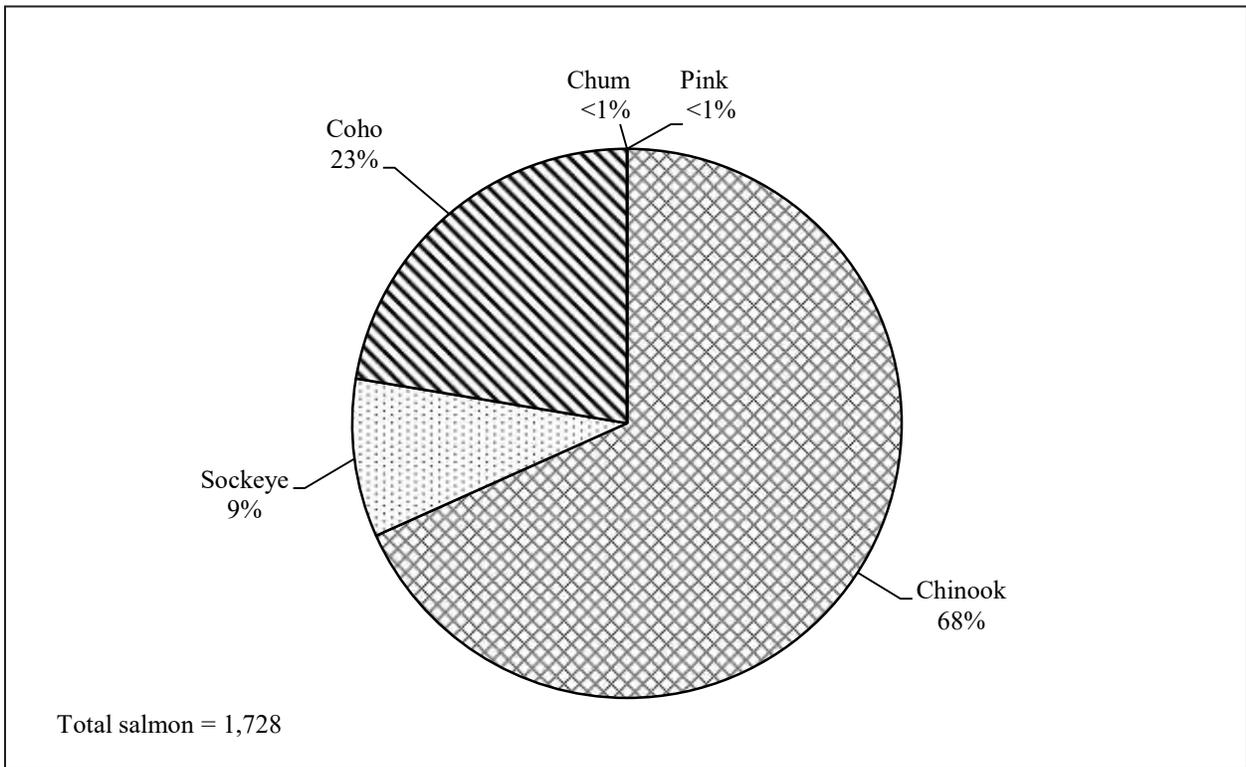


Figure 11-4.—Subsistence salmon harvests in the Tyonek Subdistrict, 2020.

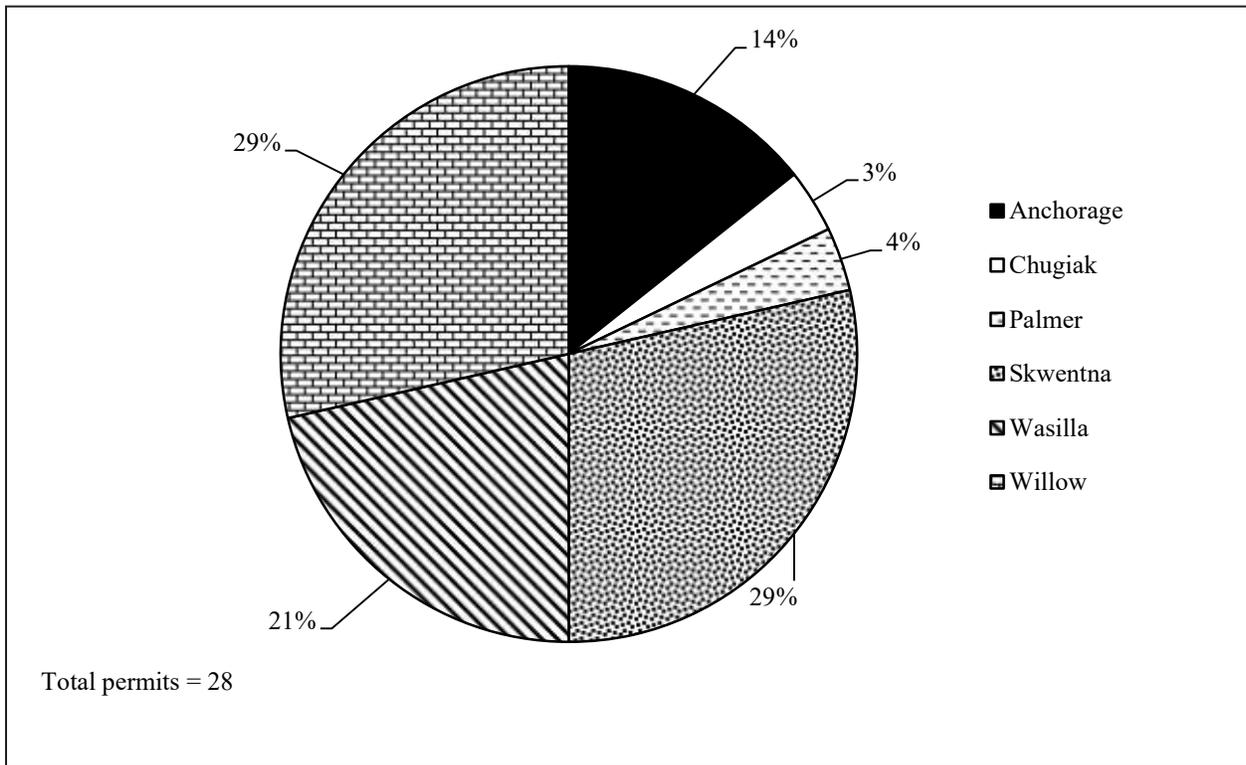


Figure 11-5.—Permits issued, by place of residence, for the Upper Yentna River fishery, 2020.

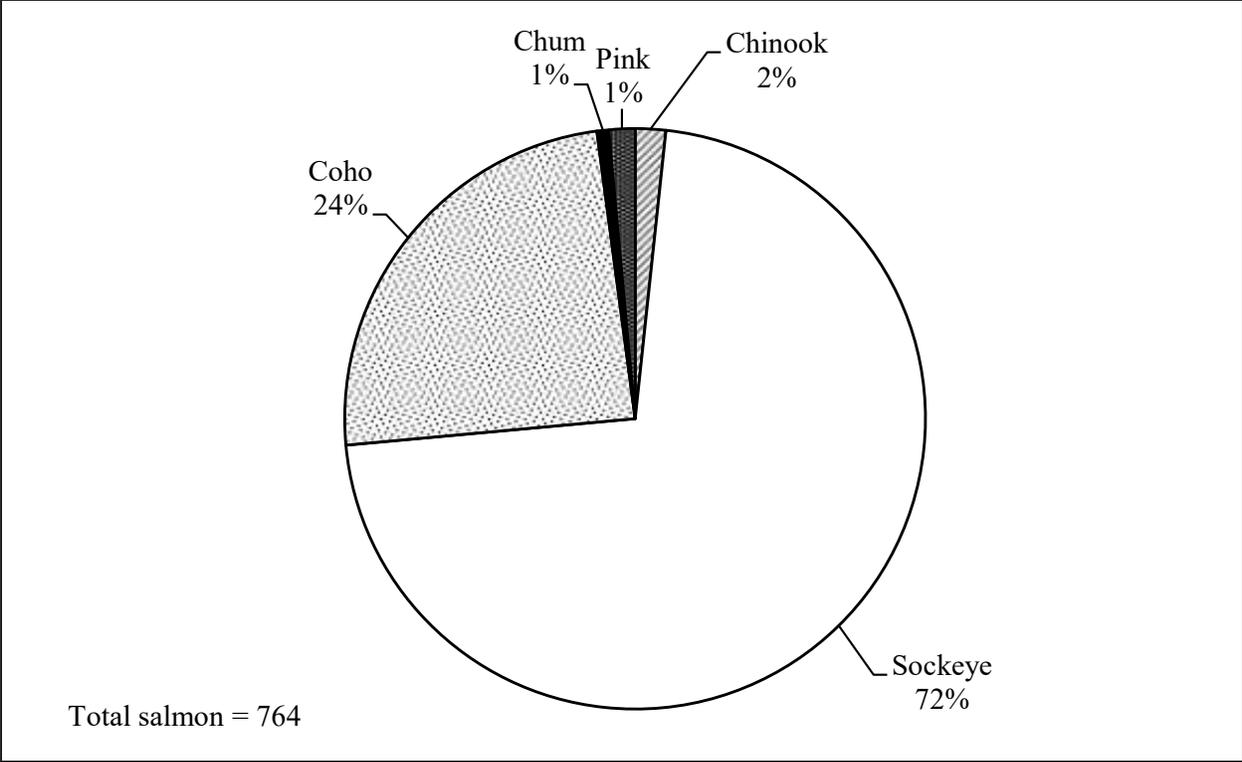


Figure 11-6.-Subsistence salmon harvests in the Upper Yentna River, 2020.

CHAPTER 12: PRINCE WILLIAM SOUND AREA

INTRODUCTION

Under subsistence regulations, the Prince William Sound (PWS) Area (Figure 12-1) includes all waters of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling south of the Yukon Area described in 5 AAC 05.100, and all waters of the upper Susitna River drainage upstream of the Susitna River's confluence with the Oshetna River (5 AAC 05.100). The PWS Area is regulatorily complex, with varying boundaries under subsistence, commercial, sport, and personal use regulations; each of these uses occur within the area. The PWS Area's main geographical features are the Copper River, its tributaries, and Prince William Sound. It has a total land area of 38,000 square miles.

The topography of the large and complex Prince William Sound system creates ecological conditions that support many salmon runs. The area supports both natural and enhanced runs of pink *Oncorhynchus gorbuscha*, sockeye *O. nerka*, chum *O. keta*, coho *O. kisutch*, and Chinook *O. tshawytscha* salmon.

State managed personal use and state and federal subsistence fisheries within these waters provide salmon to households within the Copper River Basin, Prince William Sound, and other communities across Alaska. Subsistence fisheries are not permitted in the Valdez Nonsubsistence Area (5 AAC 99.015(a) (5)). In 2020, approximately 9,857 personal use and subsistence permits for the Prince William Sound Area were issued to Alaska residents, with a total estimated harvest of 152,912 salmon.

In addition to subsistence and personal use fisheries, the area supports commercial gillnet and purse seine fisheries, as well as sport fisheries for all salmon types. Six hatcheries run by nonprofit aquaculture associations contribute pink, sockeye, and chum salmon to the area's fisheries. The Gulkana Hatchery in Paxson augments production of sockeye salmon to the Copper River.

In 2020, there were nine subsistence and one personal use salmon fisheries with annual harvest assessment programs in the Prince William Sound Area:

- In the Upper Copper River:
 - Glennallen Subdistrict: state subsistence permit program,
 - Glennallen Subdistrict: federal subsistence permit program,
 - Chitina Subdistrict: state personal use permit program,
 - Chitina Subdistrict: federal subsistence permit program,
 - Batzulnetas: federal subsistence permit program,
- In the Copper River and Bering River Districts: state subsistence permit program,
- In Prince William Sound's waters:
 - Eastern District–Tatitlek: state subsistence permit program,
 - Southwestern District–Chenega Bay: state subsistence permit program,
 - Prince William Sound, general area: state subsistence permit program, and
 - PWS/Chugach National Forest federal subsistence permit program.

The Upper Copper River area is accessible to fishers by the Richardson, Glenn, and Edgerton highways and the Chitina-McCarthy Road. The Copper River Delta and communities along the Prince William Sound shoreline are accessible primarily via boat or plane, except for Valdez, which is also accessible by the Richardson Highway. Besides Copper River and PWS communities, other communities show a high amount of use of some of the PWS fisheries, including Anchorage, Fairbanks, Palmer, Wasilla, and the Upper Tanana River area.

The 21 communities of the Copper River Basin range from fewer than 12 people to over 480 and had a total 2020 population of approximately 2,617 people.¹ More communities are situated in the Copper River Basin than along the coastline of the Prince William Sound Management Area. The coastline communities range in size from Valdez and Cordova (2020 population estimates of 3,985 and 2,609 residents, respectively) to Whittier (272 residents), Tatitlek (90 residents), and Chenega Bay (59 residents).²

HARVEST ASSESSMENT PROGRAMS

Annual subsistence-personal use salmon harvest assessments have been conducted in the PWS Management Area since at least 1960, by either the Division of Commercial Fisheries or Division of Sport Fish for the state-managed fisheries. Harvest assessment programs for the federal subsistence fisheries are administered by the National Park Service in the Upper Copper River and the US Forest Service for Prince William Sound. For both state and federal subsistence and personal use fisheries, the harvest assessment programs are based on required fishing permits. Permits include a harvest record, and fishers are required to record at least the dates they fished and the number of each species harvested each day. Other standard permit conditions include prohibition of fishing within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction. Any specific permit requirements for each fishery are detailed in the relevant sections below. Harvest estimates for the fisheries are made based on reported harvests expanded to all permit holders. As noted in Chapter 1, the Division of Subsistence expands harvest estimates from reported harvests in order to account for unreturned permits. This differs from the methods used by other divisions for areas like the Glennallen Subdistrict, which only report data from returned permits. Therefore, total harvest estimates from the Division of Subsistence differ slightly from those presented in annual Fisheries Management Reports. Harvest estimates are not made for all PWS Area fisheries.

UPPER COPPER RIVER DISTRICT

For both state and federal management purposes, the Upper Copper River District of the Prince William Sound 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: the Chitina Subdistrict, which consists of all waters of the Upper Copper River District downstream of the downstream edge of the Chitina–McCarthy Road Bridge, and the Glennallen Subdistrict, which consists of all remaining waters of the Upper Copper River District. The state also created the Batzulnetas fishery in 1987 through an emergency regulation to settle the federal district court case of *John vs. Alaska*. All tributaries to the Copper River are closed to subsistence salmon fishing, except for Tanada Creek where the subsistence harvest of salmon is allowed in the vicinity of Batzulnetas (described in more detail below). Under federal regulations, the total number of salmon per household taken within the Upper Copper River District exchanged in customary trade may not exceed 50% of the annual harvest limit per household and may not exceed the total cash value of \$500 annually. State regulations for the district do not allow exchange of subsistence-caught fish for limited amounts of cash under customary trade regulations. In 2020, sockeye and Chinook returns to the Copper River were some of the weakest on record, with little fishing opportunity and the third smallest commercial harvest in the past 50 years (Botz et al. 2021:3).

The state established the Glennallen and Chitina subdistricts in 1977. Prior to that time, the Upper Copper River was treated as one unit for management purposes. In 2002, the Federal Subsistence Board (FSB) created a federal permit requirement for qualified rural residents (primarily residents of Copper River Basin and Upper Tanana communities), which is administered by the National Park Service (NPS) in conjunction with the Office of Subsistence Management (OSM) of the US Fish and Wildlife Service (USFWS). The Glennallen and Chitina subdistricts have had separate state and federal permit programs since 2002. The

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1. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed December 8, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>
 2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed December 8, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

personal use dip net fishery that takes place in the Chitina Subdistrict under state regulations has in the past been classified as either subsistence (1977–1983, 1985, and 2000–2002) or personal use. Historical data for this fishery, including years when it was classified as subsistence, are included in statewide summaries as personal use. For a detailed discussion of the history of these fisheries, see Simeone and Fall (1996).

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

- Federal permits allow fishing with multiple gear types, including rod and reel, but state permits allow fishing with only two gear types—dip nets or fish wheels. Thus while prior to 2003, annual report summaries for the Glennallen Subdistrict showed the number of permits issued by gear type, this is not possible for the combined state and federal data summaries reported here.
- Some households obtain both the state and federal permit for the Glennallen Subdistrict. Of these “dual-permitted” households, some report harvest and effort only on their state permits (not returning the federal permit), some report harvest and effort only on their federal permits (not returning the state permit), some report identical harvests and efforts on both permits, and some return neither permit. It is not possible to identify duplicates in the permit data, so the tables in this report reflect estimates based on all returned state and federal permits in the Glennallen Subdistrict.
- Until 2006, state permits collected only the permit holder’s city in terms of their mailing address, but federal permits collected this and the “community of primary residence.” Since the Copper River area has a number of smaller communities without their own post offices, state permits issued to residents of these communities prior to 2006 did not provide adequate information to assure analysis results accurately reflected the true community of residency of harvesters. But because of the precision of the federal permit regarding place of residence, the federal permit place of residence data were used to compile the harvest tables, in combination with the mailing address data from state permits. Since there were several dual-permitted households in the Glennallen Subdistrict fishery, the federal residence community was used as the default where this information differed.

Glennallen Subdistrict State and Federal Subsistence Fisheries

Regulations

The Glennallen Subdistrict is that portion of the mainstem Copper River upstream of the downstream edge of the Chitina-McCarthy Bridge to the mouth of the Slana River. The Board of Fisheries (BOF) made two customary and traditional (C&T) use determinations that apply to the Glennallen Subdistrict: the board has found that all waters of the Glennallen Subdistrict support customary and traditional uses of salmon and that all waters of the Prince William Sound Area, outside the nonsubsistence area, support customary and traditional uses of freshwater finfish other than salmon.

ADF&G issues state permits at ADF&G offices (in Glennallen, Tok, Delta Junction, Fairbanks, Palmer, and Anchorage) under the authority of 5 AAC 01.630. Federal permits can be applied for in person at the NPS Wrangell-St. Elias Visitor’s Center in Copper Center, the Slana Ranger Station, from the Tetlin Wildlife Refuge in Tok, the NPS Chitina Ranger Station, and through McCarthy area ranger staff. In 2020, NPS accepted requests for permits by phone and distributed some by mail in an effort to mitigate transmission risks associated with the COVID-19 pandemic.

In the state fishery, households may participate in either the Glennallen Subdistrict subsistence fishery or the Chitina Subdistrict personal use fishery in any given year, but not both. In the Glennallen Subdistrict, fishers may use either fish wheels or dip nets, but not both; the fisher must specify which type of gear they will be using on the permit. Federally qualified rural resident households may hold permits for both federal subsistence fisheries in the Upper Copper District, or for the Glennallen subdistrict federal subsistence

fishery and Copper River state subsistence or personal use fisheries but state and federal harvest limits are not additive. Federal subsistence permit holders may use rod and reel in addition to fish wheels and dip nets: a fisher is not limited to using only one type of gear. Only one unit of gear per person may be operated at any one time; multiple users under the same household permit may fish with multiple gear types but must be within reasonable proximity to each other.

The state season is June 1–September 30; the federal season is May 15–September 30. Annual limits are the same under state and federal regulations: 30 salmon for a household with one person or 60 salmon for a household of two persons, of which no more than five may be Chinook salmon if taken with a dip net. For a household of more than two, 10 salmon for each additional person may be added to the annual limit. Upon request, permits can be issued for additional salmon, with limits of 200 salmon for single person households and 500 for households of two or more persons. The number of Chinook salmon (5) taken by dip net does not increase with household size under state regulations; federal permit holders may take up to five additional Chinook salmon with rod and reel. ADF&G may issue emergency orders to establish a bag limit for Chinook salmon taken with a fish wheel and reduce the bag limit for Chinook salmon taken with either a dip net or a fish wheel when necessary to achieve escapement goals.

Under the provisions of 5 AAC 01.630 (h), a village council or other similarly qualified organization may obtain a permit to operate a fish wheel on behalf of its members upon approval of a harvest assessment plan submitted to ADF&G. These organizations may also issue household permits and register fish wheels. Since 1997 permits have been issued to tribal organizations from Chistochina, Gakona, Kluti-Kaah, Chickaloon, and Chitina. Table 12-1 summarizes data for the permits issued for village fish wheels by ADF&G from 1997 through 2015; no permits have been issued in the subsequent years.³ In addition to this state provision, there is a similar provision in federal regulations: 50 CFR 100.27(e)(11)(xiv) which allows for federal village permits. In 2020, one village permit was issued.⁴

Subsistence Salmon Harvests in 2020⁵

As shown in Table 12-2, ADF&G and NPS issued a total of 2,041 subsistence salmon permits for the Glennallen Subdistrict for 2020. This total is slightly higher than the recent 5-year average (2,013 permits), 10-year average (1,863 permits), and the historical average (1989–2019; 1,306 permits). Since 2000, the number of dip net permits issued and fished has increased while the number of permits for fish wheels issued and fished has decreased for the state fishery.⁶ Beginning in 1990, all residents of the state of Alaska could obtain state subsistence fishing permits anywhere subsistence fisheries are authorized; the majority of permits in the Glennallen subdistrict are issued to residents of Anchorage, the Mat-Su Valley, and Fairbanks.

The total estimated Glennallen Subdistrict subsistence salmon harvest in 2020 for both federal and state fisheries was 55,220 salmon, the majority of which were sockeye salmon (Table 12-2). The harvest was composed of 51,897 sockeye salmon (approximately 94% of the year's salmon harvest), 3,246 Chinook salmon, and 77 coho salmon. Pink and chum salmon are not present in the upper Copper River. The 2020 total Copper River sockeye salmon run was one of the weakest on record. As a result, the 2020 harvest was lower than the 2019 harvest, with significantly less sockeye and Chinook salmon harvested. Harvests of all three species of salmon in 2020 were less than the 5- and 10-year averages. Harvests of sockeye and coho salmon were also lower than the historical averages, while Chinook salmon harvests remained higher than the historical average.

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3. During this time frame, some federal permits have been issued for village fish wheels. Data from these permits were not available at the time of publication of this report.
 4. David Sarafin, NP Fisheries Biologist, personal communication, February 15, 2023.
 5. As noted in Chapter 1, the methods used in this report to estimate the subsistence and personal use harvests may differ slightly from the methods used by other divisions to analyze data from a few fisheries, resulting in slightly different estimates of total harvests than those presented in fishery management reports for the region.
 6. Mark Somerville, ADF&G Fisheries Biologist, personal communication, April 23, 2020.

Table 12-3 reports subsistence salmon harvests in the Glennallen Subdistrict by place of residence of permit holders in 2020. Copper Basin residents caught 26% of the harvest (14,390 salmon) and other Alaska residents harvested 74% (40,830 salmon). Of all Glennallen Subdistrict permits (federal and state), residents of Copper Basin communities held 369 permits (approximately 18%) and other Alaska residents held 1,672 permits (82%) (Table 12-3). A similar number of permits were issued to Copper Basin residents and other Alaska residents in 2019, but Copper Basin residents harvested a slightly higher percentage of the total salmon harvest in 2020 as compared to 2019. For communities within the Copper River basin, the majority of the harvest was taken by residents of Copper Center (6,746 salmon), Tazlina (1,764), Glennallen (1,612) and Gakona (1,014). Compared to 2019, estimated harvests for these Copper Basin communities decreased by nearly 5,000 fish in 2020. Residents of other Alaska communities harvested approximately 25,000 less salmon in 2020 than in 2019. Of other Alaska residents, Anchorage residents obtained the most permits (535) and harvested the most salmon with an estimated 11,446 fish. Seven communities accounted for 90% of the estimated salmon harvest by residents of communities outside of the Copper Basin: Anchorage (11,446 salmon), Wasilla (13,323), Fairbanks (4,536), Palmer (3,208), Valdez (1,899), North Pole (1,179), and Eagle River (1,017).

Chitina Subdistrict State Personal Use Fishery

Regulations

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

The Chitina Subdistrict personal use fishery is managed under the Copper River Personal Use Dip Net Salmon Fishery Management Plan (5AAC 77.591). The fishing season runs from June 7 to September 30. In season, this fishery is managed by emergency orders which set weekly fishing periods, based on actual inriver counts at the sonar station located at Miles Lake.⁷ During the 2020 season, the fishery was closed from July 27 through August 31 in an effort to reach the sockeye salmon escapement goal.^{8,9}

In the personal use fishery, a household permit and an Alaska state resident sport fishing license are required. Households may not possess both the Chitina state personal use permit and a Glennallen Subdistrict state subsistence permit in the same year. Under state regulations, dip nets are the only legal gear in the Chitina Subdistrict. Annual limits in this fishery are based on household size: 25 salmon for the head of household (permit holder) and 10 additional salmon per dependent of the permit holder. Only one Chinook salmon may be harvested annually. Rainbow/steelhead trout taken by dip net under the state fishery must be released immediately and returned to the water unharmed. Additional permit requirements are for the fisher to indicate whether they fished from a boat or from shore, and that the tail tips of personal use caught fish must be clipped immediately.

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7. Alaska Department of Fish and Game Division of Sport Fish, “2020 Copper River Personal Use Dip Net Salmon Fishery Preseason Schedule,” news release, May 6, 2020. Accessed January 3, 2023 <https://www.adfg.alaska.gov/sf/EONR/index.cfm?ADFG=region.NR&Year=2020&NRID=2930>
 8. Alaska Department of Fish and Game Division of Sport Fish, “Copper River Personal Use Dip Net Salmon Fishing Closed Week Of July 27 – August 2,” news release, July 22, 2022, Accessed January 3, 2023. <https://www.adfg.alaska.gov/sf/EONR/index.cfm?ADFG=region.NR&Year=2020&NRID=3008>
 9. Alaska Department of Fish and Game Division of Sport Fish, “Copper River Personal Use Dip Net Salmon Fishing Closed Through August,” news release, August, 29, 2022, Accessed January 3, 2023. <https://www.adfg.alaska.gov/sf/EONR/index.cfm?ADFG=region.NR&Year=2020&NRID=3015>

Personal Use Salmon Harvests in 2020

As reported in Table 12-4, the total estimated salmon harvest in the Chitina Subdistrict personal use fishery in 2020 was 80,776 fish, including 79,296 sockeye salmon (98%), 763 Chinook salmon, and 718 coho salmon. In 2020, 6,784 permits were issued and 6,044 were returned (89%). While the 2020 total estimated harvest was comparable to the 2018 harvest, it was less than half of the 2019 harvest (182,543 salmon), and substantially lower than the recent 5-year average (159,591 salmon), the 10-year average (157,963 salmon) and historical average (125,835). The number of permits issued in 2020 was lower than in 2019, and less than the 5-year, 10-year, and historical averages. As compared to 2019 when sockeye returns were substantially higher and resulted in multiple extended fishing periods throughout most of the season, lower 2020 harvest numbers reflect lower returns and multiple closures of the fishery. Harvests of sockeye, coho, and Chinook salmon in 2020 were all well below the recent and historical average harvests for each species, although coho salmon harvest had the smallest gap with 718 salmon harvested in 2020 compared to the 5-year average of 1,097 salmon.

Table 12-5 reports estimated salmon harvests in the Chitina Subdistrict personal use fishery by community in 2020; over half of the participants in this fishery lived in Anchorage or Fairbanks. Only 23 Copper Basin residents (<1%) obtained state personal use salmon permits for the Chitina Subdistrict in 2020 and harvested an estimated 119 salmon, all sockeye salmon. Approximately 80,658 salmon were harvested by residents of communities outside the Copper Basin. The communities with the most permits issued and the most salmon harvested were Anchorage (2,168 permits and 28,313 salmon), Fairbanks (1,738 permits and 18,997 salmon), Wasilla (623 permits and 8,097 salmon), North Pole (523 permits and 5,343 salmon), and Palmer (360 permits and 4,364 salmon). Slightly fewer residents of these communities obtained permits in 2020 compared to 2019 and harvested substantially less salmon.

Chitina Subdistrict Federal Subsistence Fishery

Regulations

In 2020, qualified Alaska rural residents could obtain federal subsistence permits for the Chitina Subdistrict from NPS. Legal gear included fish wheels, dip nets, and rod and reel. Federally qualified rural resident households may hold permits for both federal subsistence fisheries in the Upper Copper District, or for the Chitina subdistrict federal subsistence fishery and Copper River state subsistence or personal use fisheries but state and federal harvest limits are not additive. Federal seasonal limits for the Chitina Subdistrict were the same as for the Glennallen Subdistrict but could not be combined. The federal season opens on June 1 and remains open through September 30. Under federal regulations, rainbow/steelhead trout incidentally taken from fish wheels could be retained.

Federal Subsistence Harvests in 2020

As reported in Table 12-6, an estimated 3,818 salmon were harvested in the federal Chitina Subdistrict subsistence fishery in 2020. While this is lower than the estimated harvest in 2019, it is still higher than the recent 5-year average of 2,866 salmon, the recent 10-year average of 2,815 salmon and the historical average (2003–2019; 2,256 salmon).

The total harvest included 3,702 sockeye salmon (97%), 89 Chinook salmon, and 27 coho salmon. A total of 215 permits were issued, which was the largest number of permits ever issued for this fishery. Table 12-7 reports 2020 harvest and permit numbers according to each permittee's community of residence. Copper Center, Kenny Lake, McCarthy, Tok, Chitina, and Glennallen accounted for 81% of the issued permits and 88% of the estimated harvest.

Native Village of Batzulnetas Subsistence Fishery

Regulations

For both state and federal subsistence fisheries in the Batzulnetas area, the open area is all waters from regulatory markers near the mouth of Tanada Creek and approximately one-half mile downstream from that mouth and all waters of Tanada Creek between regulatory markers. Legal gear in the state fishery includes

fish wheels and dip nets in the Copper River and dip nets and spears in Tanada Creek. In the federal fishery in the Copper River, legal gear includes fish wheels, dip nets, and rod and reel. The federal fishery in Tanada Creek allows the use of dip nets, rod and reel, and spear; a fyke net may also be used upstream of the NPS weir, pursuant to consultation with the inseason manager. The state fishing season opens by regulation on June 1; from June 1 through June 30, the fishery is open for 48 hours each week from noon Friday to noon Sunday. From July 1 through September 1 the fishery is open for 84 hours each week from noon Friday through 11:59 p.m. Monday. The state season closes by regulation on September 1. The federal fishing season is open continuously from May 15 through September 30 or until the season is closed by special action. Chinook salmon may not be retained under state regulations, which also require a fish wheel to be equipped with a live box or for the fisher to attend the fish wheel. Under federal regulations, Chinook salmon may not be taken in Tanada Creek but may be retained if taken in a fish wheel in the Copper River.

Subsistence Harvests in 2020

Since 1987, either a state or federal subsistence permit has been issued in 24 of the 34 years (Table 12-8). Only federal permits for the Batzulnetas area have been issued since 2001. One permit was issued and returned nearly every year from 1998 through 2007. No permits were issued in 2006, 2009, or 2016. From 2010 through 2015, two to four permits were issued each year with most permits being returned each year. Since 2017, one permit has been issued and returned each year. The recent 5-year average harvest was 187 salmon, almost entirely composed of sockeye salmon. Estimated harvests ranged from a low of 0 in 2005 and 2015 to 997 salmon in 1997. In 2020, one permit holder harvested 67 salmon, all sockeye (Table 12-8).

COPPER RIVER DISTRICT

As previously stated, the total Copper River sockeye salmon run in 2020 was one of the weakest on record. This resulted in conservative management and escapement at the lower end of the escapement goals. The 2020 Copper River sockeye salmon total run was 726,000 fish, and 1% was harvested by the subsistence fishery (Botz et al. 2021:5).

State Subsistence Fishery

Background and History

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

ADF&G, by direction from the BOF, manages Copper River District salmon runs to assure sustained yield to meet all user group allocations as outlined in the Copper River District Salmon Management Plan (5 AAC 24.360).

Regulations

Permits are required to participate in subsistence fishing for salmon and freshwater fish species under the authority of 5 AAC 01.630. Historically fishers had to declare their intent to fish in the Copper River Flats Area or in Prince William Sound, even though the permit is valid to fish in both locations. 2020 was the first year that permits were issued online, and declaring a fishing location was not required when the permit was issued. This led to not being able to allocate harvest by fishing location for reporting purposes in many cases as described in more detail below. Legal gear is set or drift gillnet no longer than 50 fathoms. The fishing season is May 15–October 31. Subsistence fishing is allowed seven days per week in the Copper River District from May 15 until two days before the opening of the commercial fishery. Once commercial fishing has commenced, subsistence fishing is allowed only during commercial fishing periods, generally

lasting 12 to 36 hours, and on Saturdays from 6:00am to 10:00 pm. The Saturday openings for subsistence fishing were new in 2018, a result of Board of Fisheries action taken in 2017 to allow for more subsistence fishing opportunity.¹⁰ Commercial fishing periods began on May 14 in 2020 and subsistence first opened concurrent with the commercial fishing opener.¹¹ Preseason forecasts were for a below average sockeye salmon run, leading ADF&G to implement a conservative management approach with waters closed for the protection of sockeye and Chinook salmon. Regulations stipulate that once the Copper River District is closed to commercial salmon fishing for the season, subsistence fishing is allowed seven days a week until October 31. The 2020 commercial salmon fishing season in the Copper River District closed on October 9.¹² Annual limits for salmon are 15 for a household of one; 30 salmon for a household of two or more; and 10 salmon for each additional person in the household. There is a limit of five Chinook salmon per permit.

Subsistence Salmon Harvests in 2020

Due to the change in fishing location reporting requirements with the introduction of online reporting in 2020, separate estimates for the Copper River and Prince William Sound general districts were not available for 2020. Table 12-9 shows the historical subsistence harvest for the Copper River District through 2019, when 567 permits were issued and 542 were returned. The recent 5-year average (2015–2019) was 4,234 salmon, 81% of which were sockeye (3,432 salmon). In 2020, for the Copper River District and Prince William Sound general district fishing locations combined, 708 permits were issued, and 611 were returned (Table 12-10). For both districts, the 2020 estimated harvest was 11,999 salmon, composed of 10,742 sockeye (90%), 841 Chinook (7%), 375 coho (3%), and less than 1% pink and chum salmon. This is significantly higher than the average 5-year, 10-year, and historical harvests. Most of the permits were issued to Cordova residents (428 permits; 60%) and Cordova residents harvested 54% of the total estimated harvest (Table 12-11). Residents of Anchorage, Wasilla, and Homer harvested an additional 31% of the total harvest.

Salmon Harvests in the Educational Fishery

An educational fishery program is a systematic program for educating persons concerning historic, contemporary, or experimental methods for locating, harvesting, handling, or processing fishery resources (5 AAC 93.200).¹³ Since 2002 in the Copper River District, there is a state permitted educational drift gillnet fishery. In 2020, there was a reported harvest of 7 sockeye salmon and 14 Chinook salmon (Botz et al. 2021:46, 48). This was well below average for sockeye salmon harvests and slightly below average for Chinook salmon harvests; the 10-year (2010–2019) average harvest in the educational fishery was 116 sockeye salmon and 39 Chinook salmon (Botz et al. 2021:46, 48). Historically, no coho salmon have been harvested in this fishery (Botz et al. 2021:63).

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10. Alaska Department of Fish and Game Division of Commercial Fisheries, “Prince William Sound Salmon Fishery News Release #1, 2017, Alaska Board of Fisheries Actions: Prince William Sound Area,” news release, February 23, 2018. Accessed September 9, 2020. <http://www.adfg.alaska.gov/static/applications/DCFnewsrelease/891393506.pdf>
 11. Alaska Department of Fish and Game Division of Commercial Fisheries, “Prince William Sound Salmon Fishery Announcement #1,” news release, May 4, 2020. Accessed December 19, 2022. <http://www.adfg.alaska.gov/static/applications/DCFnewsrelease/1151394407.pdf>
 12. Alaska Department of Fish and Game Division of Commercial Fisheries, “Prince William Sound Salmon Fishery Announcement #70,” news release, September 30, 2020. Accessed December 19, 2022. <http://www.adfg.alaska.gov/static/applications/DCFnewsrelease/1226084411.pdf>
 13. An application for an educational permit is required, as described in 5 AAC 93.210.

PRINCE WILLIAM SOUND

Eastern District (Tatitlek) Subsistence Salmon Fishery

Background and History

Salmon may be taken for subsistence purposes only in those waters north of a line from Porcupine Point near Goose Island to Granite Point near Glacier Island, and south of a line from Point Lowe to Tongue Point in Valdez Arm (5 AAC 01.648 (b)). This area is mostly within the Eastern District of Prince William Sound but encompasses a portion of the Northern District as well. The primary participants in this fishery are residents of Tatitlek. Prior to 1992, permits were issued only in Tatitlek, but since 1992, they have been issued at the Cordova ADF&G office as well. Permits may be returned in person to the Cordova ADF&G office or the Tatitlek Village IRA Council office or mailed at the end of the fishing season.

Regulations

Legal gear for this fishery includes seines up to 50 fathoms in length and 100 meshes deep with a maximum mesh size of four inches or gillnets up to 150 fathoms in length with a maximum mesh size of six and one-quarter inches. Pink salmon may be taken in fresh water with dip nets only. The open season is May 15–October 31, under the following fishing periods: seven days per week from May 15 until two days before the commercial opening of the Eastern and Northern districts; during commercial openers and Saturdays from 6:00am until 10:00pm for the duration of the commercial fishing season; and seven days per week from two days after the closure of the commercial season through October 31. In 2020, the Eastern District opened to commercial fishing on July 11 and closed on September 11; the Northern District opened on July 23 and closed on September 11. There are no bag or possession limits for this fishery.

Subsistence Harvests in 2020

In 2020, there were six permits issued for this fishery and five were returned (83%), with a reported harvest of 588 salmon (258 sockeye, 284 coho, 37 pink salmon, 7 chum, and 2 Chinook salmon) (Table 12-12). Compared to 2019, only one additional permit was issued in 2020, but more than four times the amount of salmon were harvested. While the total harvest was significantly greater than the year prior, it is more closely aligned with the 10-year average of 471 salmon. Household harvest surveys regularly report higher harvests than the reported permit harvests due to expanded estimates that account for unreturned permits and nonrecorded harvests, as well as other methods of harvests. Comparisons with household harvest surveys suggest that the harvest assessment program for this fishery may underestimate harvests; harvest numbers from permit returns are substantially lower than those estimated through periodic household surveys. As shown in Table 12-13, household surveys in Tatitlek resulted in an estimate of 1,085 salmon taken with subsistence methods in 2014, compared to the 149 salmon taken that year or the 588 taken in 2020 based on returned permits (Table 12-13). In Tatitlek, salmon for home use are also acquired with rod and reel and removal from commercial harvests.

Southwestern District (Chenega) Subsistence Salmon Fishery

Background and History

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

Regulations

Legal gear for this fishery includes seines up to 50 fathoms in length and 100 meshes deep with a maximum mesh size of four inches, and gillnets up to 150 fathoms in length with a maximum mesh size of 6¼ in. Pink salmon may be taken in fresh water with dip nets only. The open season is May 15–October 31, under the following fishing periods: seven days per week from May 15 until two days before the commercial opening of the Southwestern District; during commercial openers and Saturdays from 6:00am until 10:00pm for the duration of the commercial fishing season; and seven days per week from two days after the closure of the commercial season through October 31. In 2020, the Southwestern District opened to commercial fishing on June 1 and closed on September 11; the Montague district opened on June 1 and closed on September 11. There are no bag or possession limits for this fishery.

Subsistence Harvests in 2020

In 2020, 12 permits were issued and 11 were returned for this fishery, with a harvest of 16 salmon reported (5 sockeye and 11 chum). This is more than the 2 permits issued in 2019, and in line with the recent 5-year average of 12 permits issued. However, the number of salmon harvested remains much lower than the recent 5-year average (74 salmon), 10-year average (158), and historical average (1988–2019, 454 salmon; Table 12-14). It is possible that the harvest assessment program for this fishery underestimates total subsistence harvests if there are unreported harvests. Additionally, it is likely that salmon harvested under other regulations (that do not fall under the subsistence harvest assessment program) help meet community needs. As shown in Table 12-15, household surveys in Chenega Bay in 2014 (Fall and Zimpelman 2016) provided an estimate of 758 salmon taken with subsistence methods, including sockeye, chinook, and chum salmon harvests which were absent from the reported permit harvests for that year.

Prince William Sound General Districts

Background and History

Subsistence fishing for salmon is allowed in the districts of the Prince William Sound Area that are outside of the Valdez Nonsubsistence Area and are not included in the above sections. Since the creation of separate regulations for the waters fished by Tatitlek and Chenega Bay residents in 1988, participation in the general Prince William Sound fishery has been low. Residents of Anchorage are the primary participants in this fishery.

Regulations

Subsistence fishing in the other districts of the Prince William Sound Area is open from May 15 to October 31; from May 15 until two days before the commercial opening; during commercial openers and Saturdays from 6:00am until 10:00pm for the duration of the commercial fishing season; and seven days per week from two days after the closure of the commercial season through October 31. Permits are required and may be obtained from the Cordova ADF&G office. Annual limits are 15 salmon for a household of one, 30 salmon for a household of 2, and 10 salmon for each additional person in the household.

Subsistence Harvests in 2020

As stated in the Copper River District section, separate estimates for the Copper River and Prince William Sound general districts were not available for 2020 due to the change in fishing location reporting requirements with the introduction of online reporting in 2020. Table 12-16 displays historical harvests and permits issued specifically for the Prince William Sound general districts through 2019. The number of issued permits has been typically low, with a historical average (1960–2019) of 11 issued and 8 returned (77%). Recent 5-year and 10-year averages are higher due to the significant increase in participation in 2019, with 22 permits issued (21 returned; 95%) and 16 permits issued (15 returned), respectively. As stated previously, results for the Copper River District and Prince William Sound general district fishing locations are combined for 2020 in Table 12-10. For both districts combined, 708 permits were issued, and 611 were returned. The 2020 estimated harvest was 11,999 salmon, composed of 10,742 sockeye (90%), 841 Chinook (7%), 375 coho (3%), and less than 1% pink and chum salmon.

Prince William Sound/Chugach National Forest Federal Subsistence Fishery

Background and History

In 2005, the federal government through the U.S. Forest Service began issuing permits for subsistence fishing within the Chugach National Forest portion of the PWS Area (Haught et al. 2017:44). Federal permits are required to fish for salmon, trout, whitefish, grayling, Dolly Varden, and char (U.S. Fish and Wildlife Service, Office of Subsistence Management 2019:73–74).

Regulations

Allowable gear types for the Prince William Sound/Chugach Subdistrict federal subsistence salmon fishery include dip net, rod and reel, spear, and gaff. Additionally, a gillnet is allowed for nonsalmon species, only during specified seasons. Harvesting salmon is not allowed in Eyak Lake and its tributaries, the Copper River and its tributaries, and the Eyak River upstream from the Copper River bridge. Annual limits for salmon other than pink are the same as state limits in the PWS general districts. Specific pink salmon limits are listed on the permit; federal regulations allow the harvest of pink salmon from specified freshwater areas with a dip net from May 15–September 30 and no harvest or possession limits.

Subsistence Harvests in 2020

In 2020, the total reported harvest of salmon was 428 salmon, including 375 coho salmon and 41 sockeye salmon (Table 12-17). The total number of issued permits was 90, with 25 returned (27%). Compared to 2019, 30 less permits were issued and approximately 360 less fish were harvested. The 2020 harvest was less than the historical average (2015–2019) of 723 salmon (Table 12-18).

Other Subsistence Fisheries in the Prince William Sound Area

There are several nonsalmon and shellfish subsistence fisheries that occur in PWS, under both federal and state regulations. During household subsistence harvest surveys conducted by the Division of Subsistence in Copper River and PWS communities between 2009 and 2014, the use of nonsalmon fish was estimated at 57% to 100% of households in these communities, with per capita harvests ranging from 4 lb to 53 lb. In the Upper Copper River watershed, resident species such as Arctic grayling, burbot, and whitefishes, among other species, are harvested for home use. In the marine communities of Prince William Sound, halibut and herring, along with a variety of shellfish are commonly harvested species. Detailed summaries of study methods and findings from these household surveys appear in Holen et al. (2015), Kukkonen and Zimpelman (2012), La Vine et al. (2013), and La Vine and Zimpelman, editors (2014).

Subsistence halibut harvest estimates for eligible communities and tribes in the Prince William Sound Area communities of Cordova, Chenega Bay, and Tatitlek are available for 2020 (Sill and Koster 2022). In 2018, a new permit requirement for subsistence herring fishing took effect, mandating harvest reporting, but no harvest limits. In 2020, 1,985 fish (35,449 pounds) were reported harvested (Sill and Koster 2022). Under state and federal regulations, permits are available for the harvest of freshwater finfish species in the Copper River drainage. State permits are available from the Glenallen ADF&G office. Federal permits are available to federally qualified users for harvest within the federal waters of the Copper River drainage. Federal permits for waters of the Upper Copper River drainage have been rarely requested and none were issued in 2020. The federal permits of the Chugach National Forest portion of the PWS Area do allow for harvest of freshwater fish. Freshwater fish harvest under this fishery permit within the Copper River Drainage has been very limited, limited harvest of non-salmon does occur outside of the drainage. Participation in the state permit program has been increasing, prompting research to determine what harvest levels are sustainable (Schwanke and Tyers 2021).

In addition to finfishes, residents of PWS management areas harvest marine invertebrates. Many subsistence species do not require permits or reporting, but a few species do: shrimp, tanner crab, and king crab. Detailed summaries of shrimp harvest estimates and data from returned permits appear in Rumble et al. (2020). for 2010–2020. Detailed harvest reports beginning with the 2008/2009 season for both tanner and golden king crab are available in Rumble et al. (2020).

Table 12-1.—Subsistence harvests by village fish wheel permits, Glennallen Subdistrict, 1997–2015

Year	Village	Reported subsistence harvest					Total
		Chinook	Sockeye	Coho	Steelhead	Other	
1997	Chistochina	105	342	139	88	1	675
1997	Gakona	8	1,242	0	0	0	1,250
1997	Kluti-Kaah	12	61	0	0	0	73
1999	Chickaloon	1	5	0	0	0	6
1999	Gakona ^a	0	0	0	0	0	0
1999	Kluti-Kaah	46	85	0	0	0	131
2000	Chickaloon	73	200	0	0	0	273
2000	Chistochina	1	880	0	0	0	881
2000	Kluti-Kaah	20	110	0	0	0	130
2001	Chickaloon	20	120	0	0	0	140
2001	Chistochina	4	1,203	0	0	0	1,207
2001	Kluti-Kaah	3	259	114	0	0	376
2002	Chickaloon	0	91	0	0	0	91
2002	Chitina ^b	0	0	0	0	0	0
2003	Chickaloon	8	105	0	0	0	113
2004	Chickaloon	5	178	0	0	0	183
2004	Chistochina	17	1,563	0	0	0	1,580
2005	Chistochina	4	545	0	0	0	549
2005	Chickaloon	20	533	0	0	1	554
2005	Gakona	9	442	0	0	0	451
2006	Chistochina	8	559	0	0	0	567
2006	Chickaloon ^b	0	0	0	0	0	0
2006	Chitina	0	497	0	0	0	497
2007	Chitina ^b	0	0	0	0	0	0
2008	Chickaloon ^b	0	0	0	0	0	0
2008	Gakona	1	241	15	0	0	257
2009	Chickaloon ^b	0	0	0	0	0	0
2009	Kluti-Kaah	0	30	0	0	0	30
2010	Chickaloon	2	237	0	0	0	239
2010	Gakona ^a	0	0	0	0	0	0
2010	Kluti-Kaah ^b	0	0	0	0	0	0
2011	Gulkana	2	50	0	0	0	52
2011	Gakona	5	37	0	0	0	42
2013	Mentasta Lake	5	551	0	0	0	556
2014	Mentasta Lake	0	158	0	0	0	158
2015	Chickaloon	0	20	0	0	0	20

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

a. Did not fish

b. Did not return permit.

Table 12-2.—Historic subsistence salmon harvests, Glennallen Subdistrict, 1989–2020.

Year	Permits		Estimated salmon harvest ^a					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1989	386	360	796	28,724	67	0	0	29,587
1990	406	384	639	32,219	91	0	0	32,949
1991	712	645	1,314	39,364	241	0	0	40,919
1992	655	619	1,440	45,115	345	0	0	46,900
1993	773	696	1,443	54,003	76	0	0	55,523
1994	970	776	1,979	69,143	71	0	0	71,193
1995	858	726	1,968	54,336	975	0	0	57,280
1996	850	788	1,483	52,269	552	0	0	54,305
1997	1,136	1,058	2,608	83,692	183	0	0	86,483
1998	1,010	951	1,846	64,876	553	0	0	67,275
1999	1,102	1,040	3,234	76,456	1,145	0	0	80,835
2000	1,251	1,197	4,937	60,551	539	5	0	66,032
2001	1,239	1,176	3,480	81,960	1,142	20	0	86,601
2002	1,308	1,162	4,446	63,028	686	1	0	68,161
2003	1,227	1,101	3,344	64,618	650	0	0	68,612
2004	1,212	1,032	4,503	82,174	880	0	0	87,557
2005	1,234	1,070	2,785	91,715	252	0	0	94,752
2006	1,239	1,100	3,233	78,244	266	0	0	81,743
2007	1,458	1,277	4,125	86,678	308	0	0	91,110
2008	1,455	1,269	3,417	59,293	694	0	0	63,404
2009	1,364	1,138	3,341	67,887	287	0	0	71,515
2010	1,587	1,331	2,653	92,632	422	0	0	95,706
2011	1,586	1,328	3,649	81,216	1,131	0	0	85,996
2012	1,805	1,557	2,649	94,991	470	0	0	98,110
2013	1,616	1,400	2,663	96,573	154	0	0	99,390
2014	1,972	1,660	1,869	103,860	295	0	0	106,024
2015	1,956	1,650	2,762	112,937	188	0	0	115,887
2016	2,089	1,688	2,557	85,336	66	0	0	87,960
2017	1,970	1,604	3,488	61,395	72	0	0	64,955
2018	1,995	1,654	7,559	58,079	154	0	0	65,792
2019	2,056	1,687	4,772	79,264	163	0	0	84,199
2020	2,041	1,699	3,246	51,897	77	0	0	55,220
5-year average (2015–2019)	2,013	1,657	4,228	79,402	129	0	0	83,759
10-year average (2010–2019)	1,863	1,556	3,462	86,628	311	0	0	90,402
Historical average (1989–2019)	1,306	1,133	2,935	71,052	423	1	0	74,411

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

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

Table 12-3.—Subsistence salmon harvests by community, Glennallen Subdistrict, 2020.

Community	Permits		Estimated salmon harvest ^a					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Chistochina	7	6	32	359	0	0	0	391
Chitina	24	18	28	784	0	0	0	812
Copper Center	119	105	241	6,504	0	0	0	6,746
Copperville	2	2	24	222	0	0	0	246
Gakona	27	22	66	947	0	0	0	1,014
Glennallen	74	68	101	1,508	2	0	0	1,612
Gulkana	2	0	0	0	0	0	0	0
Kenny Lake	35	30	114	1,275	0	0	0	1,390
McCarthy	24	20	0	11	0	0	0	11
Mendeltna	1	1	0	45	0	0	0	45
Silver Springs	2	2	18	160	0	0	0	178
Slana	17	17	5	164	0	0	0	169
Tazlina	32	27	159	1,605	0	0	0	1,764
Tolsona	3	3	2	12	0	0	0	14
Subtotal, Copper Basin	369	321	791	13,597	2	0	0	14,390
Anchor Point	1	1	4	14	0	0	0	18
Anchorage	535	416	732	10,714	0	0	0	11,446
Anderson	1	1	2	35	0	0	0	37
Barrow	4	1	0	0	0	0	0	0
Bethel	1	1	0	1	0	0	0	1
Big Lake	10	9	9	172	0	0	0	181
Cantwell	1	1	0	2	0	0	0	2
Chickaloon	5	4	5	185	0	0	0	190
Chugiak	28	23	97	554	0	0	0	651
Clear	1	1	1	35	0	0	0	36
Delta Junction	38	32	40	694	11	0	0	745
Denali Park	1	0	0	0	0	0	0	0
Dutch Harbor	1	1	0	0	0	0	0	0
Eagle River	69	63	89	929	0	0	0	1,017
Eielson AFB	9	8	14	19	0	0	0	33
Ester	4	4	42	116	0	0	0	158
Fairbanks	226	200	280	4,244	11	0	0	4,536
Fort Greely	5	4	3	6	0	0	0	9
Fort Wainwright	3	1	0	0	0	0	0	0
Fritz Creek	1	1	0	4	0	0	0	4
Girdwood	8	8	9	29	0	0	0	38
Houston	2	2	8	36	0	0	0	44
Indian	3	3	1	18	0	0	0	19

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Community	Permits		Estimated salmon harvest ^a					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Joint Base Elmendorf Richardson	7	6	1	12	0	0	0	13
Juneau	3	3	17	25	0	0	0	42
Kennicott	3	3	0	0	0	0	0	0
Kotzebue	1	0	0	0	0	0	0	0
Mentasta Lake	1	1	0	0	0	0	0	0
Nabesna	3	3	0	74	0	0	0	74
Nenana	2	2	0	0	0	0	0	0
Nome	1	1	0	0	0	0	0	0
North Pole	80	69	58	1,121	0	0	0	1,179
Northway	5	4	10	216	0	0	0	226
Palmer	115	96	228	2,958	23	0	0	3,208
Point Hope	1	1	0	0	0	0	0	0
Salcha	8	6	4	72	0	0	0	76
Seward	4	3	1	1	0	0	0	3
Shageluk	1	0	0	0	0	0	0	0
Sitka	1	0	0	0	0	0	0	0
Skagway	1	1	0	0	0	0	0	0
Soldotna	2	2	2	255	0	0	0	257
Sutton	4	2	0	4	0	0	0	4
Talkeetna	7	7	3	29	0	0	0	32
Tanacross	1	1	0	56	0	0	0	56
Tetlin	1	0	0	0	0	0	0	0
Tok	69	63	24	922	0	0	0	947
Tonsina	4	4	4	0	0	0	0	4
Two Rivers	2	1	10	32	0	0	0	42
Valdez	48	38	104	1,795	0	0	0	1,899
Wasilla	327	265	638	12,656	30	0	0	13,323
Whittier	1	0	0	0	0	0	0	0
Willow	12	11	16	265	0	0	0	281
Subtotal, other communities	1,672	1,378	2,455	38,300	74	0	0	40,830
Total	2,041	1,699	3,246	51,897	77	0	0	55,220

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

a. Includes salmon harvested under federal as well as state subsistence fishing regulations and permits.

Table 12-4.—Historical subsistence and personal use salmon harvests, state Chitina Subdistrict permits, 1989–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1989	4,584	4,353	2,269	56,547	865	0	0	59,681
1990	5,689	5,475	2,711	66,435	1,516	0	0	70,662
1991	6,222	5,990	4,092	78,412	3,378	0	0	85,882
1992	6,387	6,229	3,422	87,090	1,524	0	0	92,036
1993	7,914	7,914	2,729	89,629	1,358	0	0	93,716
1994	7,060	5,939	4,198	106,163	2,204	0	0	112,566
1995	6,762	5,442	5,617	94,494	5,861	0	0	105,972
1996	7,196	6,962	3,607	95,645	3,404	0	0	102,656
1997	9,086	8,919	5,470	149,020	160	0	0	154,650
1998	10,002	9,751	6,746	137,530	2,156	0	0	146,431
1999	9,941	9,607	5,964	142,682	2,199	0	0	150,845
2000	8,145	7,676	3,219	109,370	3,758	0	0	116,347
2001	9,458	8,356	3,171	137,047	2,687	0	0	142,905
2002	6,804	5,736	2,093	90,655	2,034	0	0	94,782
2003	6,440	5,438	1,962	84,790	2,579	0	0	89,332
2004	8,153	6,855	2,521	111,203	2,751	0	0	116,476
2005	8,232	6,768	2,155	129,506	1,885	0	0	133,546
2006	8,497	6,762	2,598	128,469	2,343	0	0	133,410
2007	8,378	7,187	2,782	131,460	1,747	0	0	135,990
2008	8,041	6,861	1,991	82,961	2,747	0	0	87,699
2009	7,958	6,908	229	93,766	1,667	0	0	95,662
2010	9,308	7,757	700	140,089	1,892	0	0	142,680
2011	9,167	7,566	1,118	138,089	1,866	0	0	141,073
2012	10,016	8,030	613	136,441	1,411	0	0	138,465
2013	10,424	8,482	762	185,970	882	0	0	187,614
2014	11,618	9,332	812	169,971	1,059	0	0	171,842
2015	12,571	10,509	1,631	232,266	953	0	0	234,850
2016	11,353	9,301	691	153,916	1,256	0	0	155,863
2017	9,436	7,665	2,109	138,989	644	0	0	141,742
2018	4,966	4,033	1,318	80,121	1,515	0	0	82,955
2019	8,070	6,639	2,738	178,688	1,116	0	0	182,543
2020	6,784	6,044	763	79,296	718	0	0	80,776
5-year average (2015–2019)	9,279	7,629	1,697	156,796	1,097	0	0	159,591
10-year average (2010–2019)	9,693	7,931	1,249	155,454	1,259	0	0	157,963
Historical average (1989–2019)	8,319	7,240	2,646	121,207	1,981	0	0	125,835

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Note Under state regulations, this fishery was classified as personal use from 1986 through 1999; in 2000, 2001, and 2002, it was classified as a subsistence fishery, in 2003, it was reclassified as personal use.

Table 12-5.—Personal use salmon harvests by community, state Chitina Subdistrict permits, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Chitina	1	1	0	14	0	0	0	14
Copper Center	5	5	0	39	0	0	0	39
Glennallen	17	15	0	66	0	0	0	66
Subtotal, Copper Basin	23	21	0	119	0	0	0	119
Akiachak	1	0	0	0	0	0	0	0
Allakaket	1	1	0	35	0	0	0	35
Anaktuvuk Pass	1	1	0	2	0	0	0	2
Anchor Point	4	3	0	9	0	0	0	9
Anchorage	2,168	1,903	345	27,818	149	0	0	28,313
Anderson	1	0	0	0	0	0	0	0
Arctic Village	1	1	0	20	0	0	0	20
Barrow	24	14	7	111	0	0	0	118
Bethel	1	1	0	0	0	0	0	0
Big Lake	27	23	1	482	0	0	0	484
Cantwell	3	3	0	49	0	0	0	49
Chickaloon	9	9	2	166	0	0	0	168
Chugiak	79	75	13	1,167	2	0	0	1,182
Clear	3	2	0	23	0	0	0	23
Cordova	1	1	1	30	0	0	0	31
Craig	1	1	0	25	0	0	0	25
Delta Junction	259	237	17	2,697	48	0	0	2,763
Denali National Park	18	16	1	234	8	0	0	243
Dillingham	1	1	0	0	0	0	0	0
Eagle	1	1	0	0	0	0	0	0
Eagle River	211	197	28	2,536	1	0	0	2,565
Eielson AFB	48	45	6	484	0	0	0	491
Elmendorf AFB	33	32	5	530	0	0	0	535
Ester	41	39	4	422	22	0	0	448
Fairbanks	1,738	1,534	147	18,512	338	0	0	18,997
Fort Greely	9	9	0	106	0	0	0	106
Fort Wainwright	73	65	6	773	8	0	0	786
Fort Yukon	1	0	0	0	0	0	0	0
Gakona	1	1	0	0	0	0	0	0
Girdwood	18	15	1	97	2	0	0	101
Haines	1	0	0	0	0	0	0	0
Healy	14	13	1	204	0	0	0	205
Homer	12	12	0	162	0	0	0	162

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Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Hope	1	1	0	0	0	0	0	0
Houston	6	5	0	97	0	0	0	97
Huslia	1	1	0	27	0	0	0	27
Indian	3	3	0	16	0	0	0	16
Juneau	6	4	0	50	0	0	0	50
Kasilof	1	1	0	22	0	0	0	22
Kenai	7	5	1	46	0	0	0	48
Kiana	1	1	1	0	0	0	0	1
Kodiak	3	2	0	84	0	0	0	84
Kotzebue	1	1	0	25	0	0	0	25
Manley Hot Springs	3	2	0	60	0	0	0	60
McGrath	1	0	0	0	0	0	0	0
Minto	2	1	0	20	0	0	0	20
Napaskiak	1	1	0	0	0	0	0	0
Nenana	12	12	2	100	0	0	0	102
Nikolaevsk	3	3	0	62	0	0	0	62
Ninilchik	2	2	0	35	0	0	0	35
North Pole	523	467	38	5,268	37	0	0	5,343
Nunapitchuk	1	1	0	3	0	0	0	3
Palmer	360	332	36	4,323	5	0	0	4,364
Point Lay	1	1	0	0	0	0	0	0
Ruby	1	1	0	35	0	0	0	35
Salcha	37	34	4	380	1	0	0	385
Savoonga	1	1	0	1	0	0	0	1
Selawik	1	1	0	0	0	0	0	0
Seward	6	6	0	56	0	0	0	56
Silver Springs	1	1	0	4	0	0	0	4
Sitka	3	3	0	25	0	0	0	25
Soldotna	16	14	1	272	0	0	0	273
Sterling	2	1	0	70	0	0	0	70
Sutton	53	51	2	836	9	0	0	847
Talkeetna	14	13	2	174	0	0	0	177
Tanacross	1	1	1	14	0	0	0	15
Tanana	1	0	0	0	0	0	0	0
Tok	18	17	1	58	0	0	0	59
Trapper Creek	11	9	0	177	0	0	0	177
Two Rivers	20	20	1	240	1	0	0	242
Valdez	149	134	11	1,229	0	0	0	1,240
Wasilla	623	557	68	7,955	74	0	0	8,097

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Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Willow	21	21	5	166	0	0	0	171
Wiseman	1	1	0	0	0	0	0	0
Wrangell	2	1	0	0	2	0	0	2
Other USA	14	13	1	241	0	0	0	242
Unknown community	22	22	0	311	10	0	0	321
Subtotal, other communities	6,761	6,023	763	79,177	718	0	0	80,658
Total	6,784	6,044	763	79,296	718	0	0	80,776

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 12-6.—Historical subsistence salmon harvests, federal Chitina Subdistrict permits, 2003–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2003	99	71	33	1,316	152	0	0	1,500
2004	109	83	9	1,631	28	0	0	1,668
2005	77	64	27	1,498	0	0	0	1,526
2006	76	62	16	1,681	26	0	0	1,723
2007	97	86	29	1,095	41	0	0	1,165
2008	81	65	26	939	97	0	0	1,062
2009	68	34	15	1,522	22	0	0	1,560
2010	92	38	36	5,352	88	0	0	5,476
2011	84	42	21	3,090	14	0	0	3,125
2012	90	80	5	981	9	0	0	996
2013	99	85	20	2,399	8	0	0	2,428
2014	113	102	15	1,709	74	0	0	1,797
2015	111	100	15	2,475	17	0	0	2,507
2016	128	95	20	1,979	45	0	0	2,044
2017	132	104	15	1,795	9	0	0	1,819
2018	131	117	100	3,254	34	0	0	3,388
2019	181	161	83	4,464	22	0	0	4,570
2020	215	185	89	3,702	27	0	0	3,818
5-year average (2015–2019)	137	115	47	2,793	25	0	0	2,866
10-year average (2010–2019)	116	92	33	2,750	32	0	0	2,815
Historical average (2003–2019)	104	82	29	2,187	40	0	0	2,256

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 12-7.—Subsistence salmon harvests by community, federal Chitina Subdistrict permits, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Chitina	21	18	15	590	0	0	0	606
Copper Center	41	36	28	737	0	0	0	765
Gakona	11	7	0	30	0	0	0	30
Glennallen	20	17	8	132	7	0	0	147
Gulkana	1	0	0	0	0	0	0	0
Kennicott	3	3	0	0	0	0	0	0
Kenny Lake	39	35	23	1,312	0	0	0	1,335
McCarthy	27	22	1	307	15	0	0	323
Slana	4	4	0	31	0	0	0	31
Tazlina	10	7	10	234	0	0	0	244
Tok	26	25	2	180	5	0	0	187
Tolsona	4	4	0	42	0	0	0	42
Tonsina	5	5	0	108	0	0	0	108
Willow	2	1	0	0	0	0	0	0
Total	215	185	89	3,702	27	0	0	3,818

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 12-8.—Historical subsistence salmon harvests, Batzulnetas fishery, 1987–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1987	8	8	0	22	0	0	0	22
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	1	1	0	160	0	0	0	160
1994	4	4	0	997	0	0	0	997
1995	4	2	0	32	0	0	0	32
1996	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0
1998	1	1	0	382	0	0	0	382
1999	1	1	0	55	0	0	0	55
2000	1	1	0	55	0	0	0	55
2001	1	1	1	61	0	0	0	62
2002	1	1	0	208	0	0	0	208
2003	1	1	0	164	0	0	0	164
2004	1	1	0	182	0	0	0	182
2005	1	1	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	1	1	0	1	0	0	0	1
2008	1	1	0	1	0	0	0	1
2009	0	0	0	0	0	0	0	0
2010	3	3	0	106	0	0	0	106
2011	3	3	0	101	0	0	0	101
2012	3	3	1	136	0	0	0	137
2013	3	3	5	862	0	0	0	867
2014	2	2	0	116	0	0	0	116
2015	4	4	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0
2017	1	1	2	254	0	0	0	256
2018	1	1	0	468	0	0	0	468
2019	1	1	0	209	0	0	0	209
2020	1	1	0	67	0	0	0	67
5-year average (2015–2019)	1	1	0	186	0	0	0	187
10-year average (2010–2019)	2	2	1	225	0	0	0	226
Historical average (1987–2019)	1	1	0	139	0	0	0	139

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022); Sarafin 2022.

Table 12-9.—Historical subsistence salmon harvests, Copper River District (Copper River Flats), 1965–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
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

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Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2003	384	367	730	1,655	37	0	16	2,439
2004	511	487	1,163	1,910	48	5	3	3,129
2005	237	224	260	830	15	0	1	1,106
2006	421	399	779	4,355	1	0	0	5,135
2007	469	445	1,211	6,458	16	2	6	7,694
2008	506	482	495	4,161	55	0	21	4,732
2009	323	293	232	1,916	23	1	0	2,173
2010	326	320	281	2,034	27	22	0	2,365
2011	273	263	220	1,839	35	2	0	2,096
2012	378	359	248	4,499	0	19	0	4,767
2013	531	497	916	6,073	1	2	18	7,010
2014	288	269	161	1,771	0	5	2	1,939
2015	243	234	178	1,531	0	0	0	1,709
2016	198	192	75	1,119	0	0	12	1,206
2017	451	442	813	2,608	44	3	2	3,470
2018	684	637	1,462	5,627	213	5	6	7,313
2019	567	542	838	6,275	350	8	0	7,471
2020 ^a	NA	NA	NA	NA	NA	NA	NA	NA
5-year average (2015–2019)	429	409	673	3,432	121	3	4	4,234
10-year average (2010–2019)	394	376	519	3,337	67	7	4	3,935
Historical average (1965–2019)	203	189	288	1,461	112	2	2	1,864

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

a. Fishing location for Copper River District was not available for 2020.

NA = Data not available.

Table 12-10.—Historical subsistence salmon harvests, Prince William Sound general and Copper River District (Copper River Flats), 1965–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1965	53	36	19	711	132	34	246	1,142
1966	48	34	68	257	19	50	20	414
1967	65	59	90	167	5	0	5	268
1968	21	18	12	41	27	0	208	288
1969	56	36	24	94	164	0	0	281
1970	33	28	78	212	0	0	0	290
1971	32	28	11	36	4	0	69	120
1972	104	79	196	749	70	0	0	1,015
1973	113	105	162	344	533	0	0	1,039
1974	12	6	9	7	4	0	0	20
1975	4	2	0	5	0	0	0	5
1976	27	14	2	19	0	0	0	21
1977	27	26	10	74	0	0	0	85
1978	37	30	45	22	15	0	0	81
1979	64	43	54	31	20	0	0	105
1980	65	50	21	42	29	0	0	93
1981	84	59	68	209	190	3	0	470
1982	143	117	72	870	132	31	40	1,145
1983	113	94	94	155	113	98	11	470
1984	126	112	77	378	153	2	11	621
1985	116	110	89	298	105	36	19	548
1986	113	99	89	369	75	0	0	534
1987	113	106	58	416	21	17	0	512
1988	121	104	71	317	56	9	10	463
1989	86	71	66	397	60	5	0	527
1990	96	84	69	543	102	0	4	718
1991	138	120	153	935	43	0	0	1,130
1992	136	119	158	909	47	0	0	1,114
1993	117	99	144	615	45	0	0	804
1994	106	101	171	494	70	0	0	734
1995	130	114	173	779	35	0	0	987
1996	186	164	309	1,086	53	0	0	1,448
1997	273	246	223	1,148	1,967	0	0	3,337
1998	249	233	314	905	724	0	0	1,944
1999	297	278	377	1,422	729	0	0	2,528
2000	419	403	717	4,534	46	18	3	5,318
2001	473	444	881	3,275	75	2	0	4,232
2002	366	340	589	3,327	30	11	11	3,968

-continued-

Table 12-10.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
2003	395	378	730	1,703	37	3	16	2,490
2004	519	494	1,163	1,922	48	10	3	3,146
2005	251	237	260	834	15	0	1	1,110
2006	432	408	779	4,375	31	0	0	5,185
2007	472	448	1,211	6,488	16	2	6	7,724
2008	517	492	496	4,194	55	0	21	4,766
2009	324	294	232	1,916	23	1	0	2,173
2010	328	322	281	2,034	27	22	0	2,365
2011	277	267	249	1,879	36	12	5	2,181
2012	392	371	248	4,566	0	51	0	4,866
2013	539	505	916	6,085	1	26	18	7,046
2014	311	290	161	1,777	0	5	2	1,945
2015	266	255	178	1,601	0	3	0	1,783
2016	200	194	75	1,120	0	0	12	1,207
2017	457	447	813	2,624	44	3	2	3,486
2018	710	661	1,463	5,738	235	24	15	7,475
2019	618	593	848	6,836	350	33	3	8,070
2020 ^a	708	611	841	10,742	375	16	26	11,999
5-year average (2015–2019)	450	430	675	3,584	126	13	6	4,404
10-year average (2010–2019)	410	391	523	3,426	69	18	6	4,042
Historical average (1960–2019)	214	198	289	1,489	124	9	14	1,924

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

NA = Data not available.

a. Fishing location was not available for 2020, therefore Prince William Sound general and Copper River District were combined.

Table 12-11.—Subsistence salmon harvests by community, Prince William Sound general and Copper River District (Copper River Flats), 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Anchor Point	1	1	0	0	0	0	0	0
Anchorage	96	83	52	1,612	3	9	1	1,678
Chenega Bay	7	1	0	0	0	0	0	0
Chitina	1	1	2	25	0	0	0	27
Chugiak	1	1	0	0	0	0	0	0
Copper Center	1	1	0	0	0	0	0	0
Cordova	428	377	584	5,791	146	1	0	6,522
Delta Junction	5	5	13	206	0	0	0	219
Dillingham	1	1	0	15	0	0	0	15
Eagle River	8	8	5	49	10	0	0	64
Fairbanks	3	2	8	83	0	0	0	90
Girdwood	7	7	8	140	0	0	0	148
Homer	42	36	55	711	119	0	0	884
Juneau	4	4	4	54	0	0	0	58
Kasilof	1	1	1	7	0	0	0	8
Kenai	2	2	2	35	0	0	0	37
Moose Pass	1	1	0	0	0	0	0	0
North Pole	1	1	0	0	0	0	0	0
Palmer	14	10	4	189	0	0	0	193
Portage	1	1	0	27	0	0	0	27
Seward	8	7	11	137	0	0	0	149
Soldotna	6	5	7	71	0	0	0	78
Sterling	3	3	9	144	43	0	0	196
Sutton	1	1	0	19	0	0	0	19
Talkeetna	1	1	0	8	0	0	2	10
Tatitlek	4	3	4	31	0	0	0	35
Valdez	10	8	13	165	0	0	0	178
Wasilla	45	34	53	1,035	53	5	23	1,169
Willow	5	5	7	189	0	0	0	196
Total	708	611	841	10,742	375	16	26	11,999

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 12-12.—Historical subsistence salmon harvests, Prince William Sound, Eastern District, 1988–2020.

Year	Permits		Reported salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1988	17	NA	2	210	249	297	143	901
1989	14	NA	1	107	653	43	28	832
1990	13	NA	0	5	241	4	10	260
1991	19	NA	0	107	984	28	320	1,439
1992	15	NA	2	441	369	49	30	891
1993	18	NA	2	512	305	74	144	1,037
1994	14	NA	0	50	143	70	50	313
1995	15	0						
1996	6	NA	0	0	38	0	0	38
1997	6	NA	0	107	45	54	0	206
1998	11	NA	0	2	71	28	4	105
1999	17	NA	0	344	541	31	31	947
2000	12	3	0	140	468	40	40	688
2001	14	9	0	114	230	12	60	416
2002	19	8	6	437	278	66	71	858
2003	15	8	0	81	185	12	20	298
2004	18	12	2	358	505	28	105	998
2005	16	3	0	98	286	16	200	600
2006	11	1	0	3	18	25	35	81
2007	14	0						
2008	1	1	0	60	0	0	0	60
2009	12	4	0	170	131	0	0	301
2010	8	5	0	165	142	10	50	367
2011	10	4	0	922	536	22	0	1,480
2012	16	8	15	954	75	8	0	1,052
2013	22	11	0	613	277	129	0	1,019
2014	18	5	0	46	103	0	0	149
2015	16	4	0	110	143	8	0	261
2016	5	5	0	0	0	0	0	0
2017	7	5	0	45	55	0	0	100
2018	16	7	0	143	0	4	0	147
2019	5	4	0	100	37	2	0	139
2020	6	5	2	258	284	7	37	588
5-year average (2015–2019)	10	5	0	80	47	3	0	129
10-year average (2010–2019)	12	6	2	310	137	18	5	471
Historical average (1988–2019)	13	5	1	215	237	35	45	533

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

NA = Data not available.

Table 12-13.—Estimated harvests of salmon for home use, Tatitlek, 2014

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

Source Fall et al. (2016).

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

Table 12-14.—Historical subsistence salmon harvests, Prince William Sound, Southwestern District, 1988–2020.

Year	Permits		Reported salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1988	10	NA	1	50	8	294	251	604
1989	8	NA	0	322	0	180	554	1,056
1990	7	NA	1	36	5	2	20	64
1991	12	NA	3	345	42	53	195	638
1992	14	NA	1	526	23	99	313	962
1993	22	NA	2	835	50	124	232	1,243
1994	16	NA	5	192	77	161	402	837
1995	10	NA	2	152	67	41	67	329
1996	7	NA	0	107	7	46	105	265
1997	5	NA	44	193	30	272	110	649
1998	4	NA	13	114	20	119	65	331
1999	14	NA	57	499	62	101	168	887
2000	12	8	24	39	229	143	211	646
2001	16	9	2	119	92	146	95	454
2002	10	5	10	142	123	60	83	418
2003	13	7	6	219	156	147	149	677
2004	8	5	3	535	44	84	56	722
2005	13	8	10	515	84	174	124	907
2006	7	6	0	159	1	111	28	299
2007	4	3	2	293	27	55	4	381
2008	15	3	4	97	75	30	70	276
2009	5	4	2	168	26	84	5	285
2010	9	5	0	55	0	87	6	148
2011	17	6	2	134	26	60	50	272
2012	23	14	0	603	20	77	0	700
2013	13	4	0	19	0	63	0	82
2014	10	5	0	0	0	0	10	10
2015	21	4	0	56	35	12	0	103
2016	7	6	0	32	1	15	0	48
2017	6	5	0	105	0	61	0	166
2018	22	1	0	13	2	40	0	55
2019	2	2	0	0	0	0	0	0
2020	12	11	0	5	0	11	0	16
5-year average (2015–2019)	12	4	0	41	8	26	0	74
10-year average (2010–2019)	13	5	0	102	8	42	7	158
Historical average (1988–2019)	11	6	6	209	42	92	105	454

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

NA = Data not available.

Table 12-15.—Estimated harvests of salmon for home use, Chenega Bay, 2014

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

Source Fall et al. (2016).

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

Table 12-16.—Historical subsistence salmon harvests, Prince William Sound general, 1960–2020.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1960	50	NA	1	139	505	27	1,292	1,964
1961	12	NA	3	41	123	3	732	902
1962	9	NA	0	0	119	142	214	475
1963	9	NA	0	0	406	24	298	728
1964	15	NA	0	11	0	0	900	911
1965	22	16	0	0	0	34	246	281
1966	3	3	0	3	19	50	20	92
1967	4	3	0	0	5	0	5	11
1968	4	3	0	0	27	0	208	235
1969	7	3	0	0	37	0	0	37
1970	1	1	0	0	0	0	0	0
1971	3	2	0	0	0	0	69	69
1972	0	0	0	0	0	0	0	0
1973	19	16	0	0	343	0	0	343
1974	3	1	0	0	0	0	0	0
1975	2	0						
1976	0	0	0	0	0	0	0	0
1977	4	4	0	0	0	0	0	0
1978	3	2	0	0	0	0	0	0
1979	15	2	0	0	0	0	0	0
1980	26	15	0	12	10	0	0	23
1981	12	8	0	5	44	3	0	51
1982	35	27	0	109	5	31	40	185
1983	26	21	0	27	45	98	11	181
1984	8	8	0	10	0	2	11	23
1985	22	16	1	37	22	36	19	116
1986	25	14	0	9	27	0	0	36
1987	18	17	5	33	6	17	0	61
1988	7	7	2	51	7	9	10	79
1989	11	7	0	0	0	5	0	5
1990	8	8	0	0	7	0	4	11
1991	9	5	0	4	0	0	0	4
1992	10	6	0	33	0	0	0	33
1993	6	6	1	104	10	0	0	115
1994	5	4	0	0	0	0	0	0
1995	4	2	0	0	0	0	0	0
1996	10	7	0	0	0	0	0	0
1997	4	3	0	4	0	0	0	4
1998	4	3	0	0	0	0	0	0

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Table 12-16.–Page 2 of 2.

Year	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1999	3	3	0	0	0	0	0	0
2000	3	3	0	0	0	0	0	0
2001	5	5	0	0	0	0	0	0
2002	11	9	0	38	0	9	11	57
2003	11	11	0	48	0	3	0	51
2004	8	7	0	12	0	5	0	17
2005	14	13	0	4	0	0	0	4
2006	11	9	0	20	30	0	0	50
2007	3	3	0	30	0	0	0	30
2008	11	10	1	33	0	0	0	34
2009	1	1	0	0	0	0	0	0
2010	2	2	0	0	0	0	0	0
2011	4	4	29	40	1	10	5	85
2012	14	12	0	67	0	32	0	99
2013	8	8	0	12	0	24	0	36
2014	23	21	0	6	0	0	0	6
2015	23	21	0	71	0	3	0	74
2016	2	2	0	1	0	0	0	1
2017	6	5	0	16	0	0	0	16
2018	26	24	1	111	22	19	9	162
2019	51	51	10	561	0	25	3	599
2020 ^a	NA	NA	NA	NA	NA	NA	NA	NA
5-year average (2015–2019)	22	21	2	152	4	9	2	170
10-year average (2010–2019)	16	15	4	89	2	11	2	108
Historical average (1960–2019)	11	8	1	27	23	10	49	109

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

a. Fishing location for Prince William Sound general was not available for 2020

NA = Data not available.

Table 12-17.—Federal Subsistence salmon harvests by community, Prince William Sound/Chugach Subdistrict, 2020.

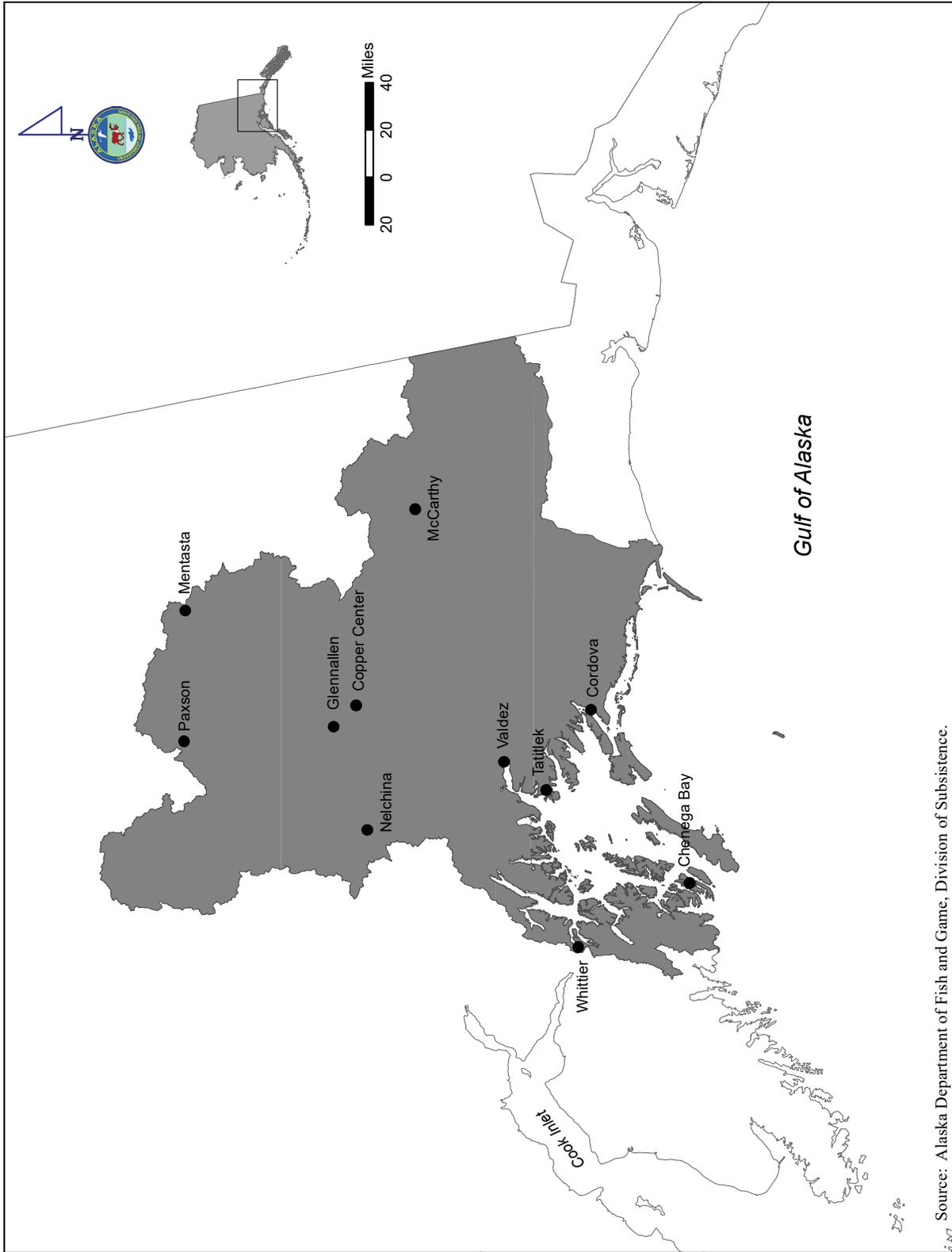
Community	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
Cordova	90	25	0	41	375	0	12	428
Total	90	25	0	41	375	0	12	428

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).

Table 12-18.—Historical Federal Subsistence salmon harvests, Prince William Sound/Chugach Subdistrict, 2015–2020.

Year	Permits		Reported salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
2015	94	64	0	152	893	0	0	1,045
2016	110	93	0	234	555	0	0	789
2017	97	83	0	127	514	0	0	641
2018	97	92	3	96	255	0	0	354
2019	120	54	0	116	671	0	0	787
2020	90	25	0	41	375	0	12	428
Historical Average (2015–2019)	104	77	1	145	578	0	0	723

Source ADF&G Division of Subsistence, ASFDB 2020 (ADF&G 2022).



Source: Alaska Department of Fish and Game, Division of Subsistence.

Figure 12-1.—Map of the Prince William Sound Area.

CHAPTER 13: THE SOUTHEAST REGION

INTRODUCTION

The Southeast region is divided by subsistence regulations into two areas: the Southeastern Alaska Area and the Yakutat Area. The Southeastern Alaska Area includes all waters between a line projecting southwest from the westernmost tip of Cape Fairweather and Dixon Entrance, and the Yakutat Area includes all waters of Alaska between the longitude of Cape Suckling and the longitude of Cape Fairweather. Positive customary and traditional use (C&T) findings, which allow for subsistence fishing opportunity, have been made for most of the waters in the Southeast region (5 AAC 01.666 and 5 AAC 01.716) (Figure 13-1). In areas where no positive C&T finding exists, personal use fisheries may be authorized. In addition, the Joint Board of Fisheries and Game identified two nonsubsistence areas in the Southeast region: the Juneau Nonsubsistence Area and the Ketchikan Nonsubsistence Area (Figure 13-1) (5 AAC 99.015). By statute, no subsistence fisheries may be authorized in nonsubsistence areas. In addition to subsistence and personal use fishing, commercial fishermen in Southeast Alaska often retain a portion of their harvest for personal use, and federally qualified users can fish under federal subsistence regulations. Harvests from these methods are summarized at the end of the chapter. The Stikine River is the largest federal subsistence salmon fishery in the Southeast region and permits and harvests are included in the following sections, rather than within the federal fisheries summary.

The Southeast region is divided into six areas for management purposes:

- Yakutat Management Area,
- Haines Management Area,
- Juneau Management Area,
- Sitka Management Area,
- Petersburg-Wrangell Management Area, and
- Ketchikan Management Area.

HARVEST ASSESSMENT PROGRAMS

Since 1990, any Alaska resident may harvest salmon under state subsistence or personal use regulations; in the Southeast region, a permit is required to harvest salmon under either set of regulations. Permits have been required since 1985 in the Southeastern Alaska Area and since 1989 in the Yakutat Area. The Division of Commercial Fisheries (DCF) is responsible for administering the subsistence and personal use salmon permit programs in the Southeast region. Since 2018, permits for both types of fisheries are available only online. Permits are valid for one calendar year and must be returned by November of each year; in Yakutat, fishers intending to fish over the winter may retain a copy of their permit and report any additional harvest by May of the following year. New permits are not issued to anyone who has failed to return a permit issued for the previous year. Permit information, including names, addresses, and details from the harvest calendars, such as locations and amount of harvest, species harvested, and date of harvest, is entered into *OceanAK*, an internal ADF&G-managed harvest database. The harvest information collected each year through returned permits composes the basis of the harvest assessment program in the Southeast region. Estimated salmon harvests for the Southeast region have been presented in this series of reports since 2001, with the exception of 2018. In 2018, because of unanticipated permit return problems stemming from the change to the online system, it was not possible to estimate the subsistence and personal use harvests for the year. Reported numbers were used for the 2018 report, except for the federally managed Stikine River subsistence fishery, which did have harvest estimates.

REGULATIONS

Subsistence regulations are valid in areas where there are fish stocks with positive C&T determinations; outside of these areas, personal use regulations may apply. To participate in either a subsistence or personal

use fishery in the Southeast region, a person must obtain a harvest permit. In addition, for personal use fisheries, a valid resident sport fishing license is required, unless the fisher is a resident under the age of 18 or is over 60 years of age and has obtained a permanent ID card from the department. Beginning in 2016, annual and daily possession limits were specified in regulation. Season dates are established annually and included on area-specific permit conditions. In addition, the department can issue emergency orders to change season length or open areas in season. Permits are issued at the household level; one permit is issued per household, and the household may not obtain or possess more than one permit. The permit recipient must be an Alaska resident. Subsistence and personal use permits include personal information about the permittee, rules and regulations governing harvesting methods and means, and a harvest calendar that details all the fish caught under each permit. Permits are not issued for the taking of coho salmon in the Taku or Stikine River drainages, or for Chinook salmon, trout, or char anywhere in the Southeast Alaska Area (in the Yakutat Area Chinook salmon are legally targeted); however, such fish taken incidentally under the conditions of a permit are legal to take (up to two Chinook and six coho salmon in possession) and must be recorded on the permit. Other regulations concerning the subsistence and personal use fisheries can be found in 5 AAC 01 (*Subsistence Finfish*) and 5 AAC 77 (*Personal Use Fishery*). These regulations include:

- fishermen must record their harvests daily prior to leaving the immediate fishing area,
- the permit must be with the permittee, other authorized members of the household, or authorized proxy while taking or transporting subsistence or personal use salmon,
- the dorsal fins of subsistence salmon and both tips of the tail fin of personal use salmon must be removed immediately when taken,
- fishing is not allowed within 300 ft of a dam, fish ladder, weir, culvert, or other artificial obstruction,
- a person may not possess sport-caught and subsistence-caught/personal use-caught salmon on the same day,
- salmon taken under subsistence or personal use permits cannot be used for bait in commercial fisheries,
- salmon may not be harvested for subsistence or personal use by a line attached to a rod or pole, except in the Redoubt bay and lake subsistence salmon fishery.

Regulations that apply to specific management areas are included in the relevant sections below.

SUBSISTENCE/PERSONAL USE SALMON HARVESTS IN 2020

In 2020, the total estimated subsistence and personal use salmon harvest for the Southeast region from state subsistence salmon fisheries and the federal Stikine River subsistence fishery¹ was 54,128 fish (Table 13-1). This is below the estimated harvest for 2019 (61,916 salmon) but is close to the most recent 5-year average (54,596 salmon) (Table 13-2). The 2020 estimated harvest is slightly below the 10-year (55,969 salmon) and historical averages (56,360 salmon). Prior to 1996, only permits returned with harvest data were included in the database and reported harvests could not be expanded to account for permits not returned. In 2020, 66% of issued permits were returned in the Southeast region which is a poorer return rate than the 77% of permits returned in 2019 and the 5-year and 10-year average return rates. Sockeye salmon usually make up the largest proportion of subsistence/personal use salmon harvests in the Southeast Alaska Area, in contrast to the commercial fishery, which has been dominated by pink salmon harvests since the early 1900s (Conrad and Gray 2019). As expected, in 2020, sockeye salmon contributed the greatest amount to the overall subsistence/personal use harvest at 44,649 fish (82%), followed by 4,096 pink salmon (8%), 4,034 coho salmon (7%), 845 chum salmon (2%), and 505 Chinook salmon (1%) (Table 13-1; Figure 13-2). Compared to 2019, the 2020 estimated harvest of sockeye, chum, and Chinook salmon was smaller and the harvest of pink and coho salmon was larger. In terms of composition of the harvest, sockeye salmon in 2020 composed a smaller percentage of the harvest (87% in 2019), and pink and coho salmon composed

1. There is also a general federal permit for subsistence fisheries in Southeast. Harvests under these permits are not included in the general harvest tables. These harvests are summarized in Table 13-8.

larger percentages (5% and 6% in 2019, respectively). Pink salmon returns have exhibited a pattern of low even-year returns and higher than average odd-year returns since 2006, with the exception of 2019 when pink salmon returns were lower than average (Conrad and Gray 2020).

The 2020 estimated subsistence/personal use salmon harvests by management area were as follows: Juneau 14,265 (26%), Haines 11,356 (21%), Ketchikan 11,124 (21%), Sitka 7,806 (14%), Petersburg 4,901 (9%), and Yakutat 4,675 (9%) (Table 13-3, Figure 13-3). Compared to 2019 harvests, estimated harvests in the Sitka Management Area were substantially lower (19,562 salmon in 2019) and those in the Ketchikan Management area were higher (6,725 fish in 2019). Harvests in the Juneau and Haines management areas were slightly higher in 2020 and in the Petersburg and Yakutat management areas they were slightly lower.

The number of permits issued in the state subsistence/personal use salmon fisheries and the federal Stikine subsistence salmon fishery per year, on average, for the 10-year time period of 2010–2019, is 3,288 with a range of 2,217 to 3,732 permits (Table 13-2). Permits issued in 2020 reversed a trend of increasing permits since 2014, with a total of 2,376 permits issued and 1,559 returned. The Southeast region is a large geographic region with diverse harvest characteristics. The following sections will discuss harvests and fishery participation for each of the six management areas.

YAKUTAT MANAGEMENT AREA

The Yakutat Management Area stretches from Cape Fairweather to Cape Suckling and encompasses the Yakutat area subsistence fisheries. Subsistence fishing is under the management responsibility of the DCF Yakutat Area office. A federal subsistence salmon permit allows for harvest in all stream systems of the Yakutat Management Area but is mainly used on the Alsek and Situk rivers. Federal harvest information from the federal fisheries is discussed at the end of the report, under Federal Subsistence Fisheries of the Southeast Region.

Yakutat Area Subsistence Fisheries

Background and History

The Alaska Board of Fisheries (BOF) identified the freshwaters upstream from the terminus of streams and rivers from the Doame River to the Tsiu River, the waters of Yakutat Bay and Russell Fjord, and the waters of Icy Bay as customarily and traditionally used for subsistence salmon fishing (5 AAC 01.666 (a) (3)). Unlike the other management areas, in the Yakutat Management Area subsistence salmon fishing locations are not restricted to specific streams, nor are there daily or annual limits on the number of fish harvested, and fishing is permitted year-round. King salmon migrate through the Yakutat area in the spring time, beginning in April and continuing through July. Sockeye salmon arrive in local waters beginning in May, followed by pink, chum, and coho salmon around July or August. In 2020, sockeye salmon fishing in the Situk River, the river that normally supports the largest concentration of fishing effort in the Yakutat Management Area, was reduced in an effort to protect local Chinook salmon stocks.

Yakutat is the only community within the Yakutat Management Area. The 2020 population of the Yakutat City and Borough increased 22% from 2019 and was 662 residents, over 100 more people than were estimated living in Yakutat in 2019.²

Regulations

The Yakutat Management Area was the only one in the Southeast Region that did not include any personal use salmon fisheries. In the Yakutat area, regulations did not specify daily or annual limits. Allowable gear types for subsistence fishing were set gillnet, drift gillnet, beach seine, purse seine, hand purse seine, dip net, cast net, spear, handline, longline, power gurdy troll gear, and hand troll gear. Troll gear could not exceed two lines and hand troll gear could not be hook and line attached to a rod or pole and reel. In Yakutat Bay from April 1 through May 31 and on the Situk River, subsistence fishers were required to attend their

2. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

nets when being used to harvest salmon. The weekly subsistence fishing period during the commercial salmon net season was from 6:00 AM Friday to 6:00 PM Saturday; in 2020, the commercial fishing season began on June 8 and ended on October 14.^{3,4} To reduce the harvest of Chinook salmon, an emergency order was released on April 13, 2020 that closed subsistence fishing for Chinook salmon in the Situk-Ahrnklin Inlet on May 1, 2020, and closed the mouth of the Situk River and Johnson Slough to all subsistence fishing.⁵ Any live Chinook salmon harvested incidentally were requested to be released. The federal district ranger also closed the Situk River to the harvest of Chinook salmon under federal regulations.⁶ Inseason, the Situk-Ahrnklin Inlet opened to the retention of Chinook salmon in the subsistence fishery on July 17, 2020 because the inriver Chinook salmon run was projected to achieve the upper end of the escapement goal range.⁷ The federal district ranger reopened the federal subsistence Chinook salmon fishery in the Situk River on July 22, 2020, but disallowed the use of gillnets in order to minimize incidental mortality of Chinook salmon.⁸

Harvest Assessment Program

The estimated total state subsistence salmon harvest for the Yakutat Management Area in 2020 was 4,675 salmon, including 3,182 sockeye salmon (68%), 1,155 coho salmon (25%), 228 Chinook salmon (5%), 109 pink salmon (2%), and one chum salmon (<1%) (Table 13-3). A reported 81 permits were fished (Table 13-3). The estimated harvest was similar to the 5,173 salmon harvested and 87 permits fished in 2019. Slightly fewer sockeye and pink salmon and more coho salmon were harvested in 2020.

Residents of Yakutat were issued 69 subsistence permits, with 41 returned (66%) (Table 13-4). This represents a decrease in the number of permits issued in 2019 and 2018. The estimated total subsistence salmon harvest for the community of Yakutat in 2020 was 4,069 salmon, similar to the 4,430 salmon harvested in 2019. The composition of harvests was also similar, but fewer sockeye and pink salmon and more coho salmon were harvested in 2020. The 2020 harvest composition was 2,706 sockeye salmon (67%), 1,043 coho salmon (26%), 226 Chinook salmon (6%), and 93 pink salmon (2%) (Table 13-4). Not all permits issued to residents of Yakutat were necessarily fished in the Yakutat area.

HAINES MANAGEMENT AREA

The Haines Management Area, encompassing the subsistence fisheries and a personal use fishery on the Taiya River, stretches from Little Island in Lynn Canal north to Chilkat Inlet, and includes the waters of the Chilkat River, as well as the waters in the Chilkoot Inlet to Skagway. Subsistence salmon fisheries in the waters traditionally used by the residents of the Haines area are under the management responsibility of the DCF Haines Area office.

3. ADF&G Division of Commercial Fisheries, “Yakutat Commercial Set Gillnet Opening Announcement,” news release, June 4, 2020. Accessed November 15, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1158542834.pdf>
4. ADF&G Division of Commercial Fisheries, “Yakutat Commercial Set Gillnet Season Closure Announcement,” news release, October 14, 2020. Accessed November 15, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1229331004.pdf>
5. ADF&G Division of Commercial Fisheries, “2020 Situk River Chinook Salmon Forecast and Fisheries Restrictions,” news release, April 13, 2020. Accessed November 15, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1145051482.pdf>
6. Federal Subsistence Board, “Federal Subsistence Chinook Salmon Fishery Closed in the Situk River,” Emergency Special Action No 12-KS-01-20, May 22, 2020. Accessed November 15, 2022. <https://www.doi.gov/sites/doi.gov/files/uploads/2020-situk-king-closure-fsa-final-signed.pdf>
7. ADF&G Division of Commercial Fisheries, “2020 Situk-Ahrnklin Inlet Subsistence Fishery,” news release, July 14, 2020. Accessed November 15, 2022. <http://www.adfg.alaska.gov/static/applications/dfnewsrelease/1189384920.pdf>
8. Federal Subsistence Board, “Federal Subsistence Chinook Salmon Fishery Reopens in the Situk River,” Emergency Special Action No 12-KS-02-20, July 21, 2020. Accessed November 15, 2022. <https://www.doi.gov/sites/doi.gov/files/uploads/2020-situk-chinook-fsa2-final-signed.pdf>

Haines Area Subsistence/Personal Use Fisheries

Background and History

Positive C&T findings for salmon in this area identify all the waters of the Chilkat River and Chilkat Inlet north of the latitude of Glacier Point, and in the Chilkoot River, Lutak Inlet, and Chilkoot Inlet north of the latitude of Battery Point, excluding waters of Taiya Inlet north of the latitude of the tip of Taiya Point (5 AAC 01.716 (a)(13)(A)). Sockeye salmon escapement to Chilkat Lake fell below the lower range of the biological escapement goal (BEG) in 2020, after nearly a decade of exceeding that level.⁹ Chilkoot Lake supports one of the largest sockeye salmon runs in Southeast Alaska and that run has consistently achieved or exceeded the sustainable escapement goal (SEG) range for this system since 2010.¹⁰

There are several communities in the Haines Management Area: the city and borough of Haines, which includes the settlements of Covenant Life, Lutak, Mosquito Lake, and Mud Bay, as well as Klukwan on the Chilkat River and Skagway at the head of Taiya Inlet. In 2020, the combined population of these communities was 3,367, a decrease of approximately 400 residents compared to 2019 estimates.¹¹

Regulations

Regulations for the Haines Management Area limited where salmon could be taken for subsistence uses to the Chilkat River, Chilkat Inlet, Lutak Inlet, and Chilkoot River. These areas combined had the following possession and annual limits: for sockeye salmon, a possession limit of 25 fish and an annual limit of 50 fish; for coho salmon, a possession limit of 20 fish and annual limit of 40; and for pink and chum salmon, combined, a possession limit of 75 fish and an annual limit of 100 (5 AAC 01.745(i)). Subsistence salmon fishing was closed in the salt waters of Lynn Canal during closed periods of the commercial salmon net fishery, except subsistence fishing was allowed in a portion of these waters the Saturday before and the day before any commercial drift gillnet openings in the waters of Section 15-A. Subsistence salmon fisheries in Lynn Canal and Chilkat Inlet are managed under the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384). Under this plan, the subsistence net fisheries in the Chilkat Inlet were closed through July 15, and most of the Chilkat River was closed to subsistence net fisheries from the third week in June through the fourth week in July. The Chilkat River Chinook salmon stock was designated as a stock of concern at the 2018 BOF meeting after multiple years (2012–2014 and 2016–2018) of failing to achieve escapement goals. Since 2018, the subsistence fisheries in Lynn Canal have followed guidelines outlined in the Chilkat River and King Salmon River King Salmon Stock Status and Action Plan, 2018 (Lum and Fair 2018). Included in the Haines specific permit conditions and announced prior to the start of the fishery were a variety of measures intended to reduce the incidental harvest of Chinook salmon in the marine and in-river subsistence fisheries, including time and area closures and a request for all live Chinook salmon caught incidentally be released, due to a low preseason forecast for Chilkat River king salmon abundance and as outlined in the action plan.¹² The personal use fishery for pink and chum salmon in the Taiya River had a combined possession limit of 10 fish and a combined annual limit of 20 fish. No season was specified.

9. “Salmon Stock Status and Escapement Goals in Southeast and Yakutat” presented to the BOF in March 2021 and available at <http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2021-2022/se/FMS21-03.pdf>

10. Heintz et al. (2017) provides escapement estimates to the Chilkoot and Chilkat lakes systems for years prior to 2016. Escapement information from 2017 through 2020 is presented in “Salmon Stock Status and Escapement Goals in Southeast and Yakutat” presented to the BOF in March 2021 and available at <http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2021-2022/se/FMS21-03.pdf>

11. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

12. Alaska Department of Fish and Game Division of Commercial Fisheries, “Chilkat River subsistence salmon fishing closures,” news release, May 22, 2020. Accessed November 15, 2022. <http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1155722995.pdf>

Allowable gear types in the Haines Management Area subsistence fishery were set and drift gillnets. This gear could be used to take salmon in the mainstem and side channels, but not in the tributaries of the Chilkat River from Mile 4 of the Haines Highway to one mile upstream of Wells Bridge. Drift and set gillnets could not exceed 50 ft in length when fishing in the Chilkat River, and drift gillnets fished in marine waters could not exceed 50 fathoms in length.

Harvest Assessment Program

The estimated subsistence/personal use salmon harvest in the Haines Management Area in 2020 was 11,356 salmon, including 9,033 sockeye salmon (80%), 1,725 pink salmon (15%), 324 coho salmon (3%), 266 chum salmon (2%), and 8 Chinook salmon (<1%) (Table 13-3). The estimated salmon harvest was slightly higher than the 2019 estimated harvest of 10,589 fish; more sockeye salmon were harvested in 2020 but they composed a smaller percentage of the total harvest while more pink salmon were also harvested and composed a larger proportion of the harvest. Harvests of coho, chum, and Chinook salmon all decreased, in total numbers as well as percent of harvest. An estimated 463 permits were fished in the Haines Management Area in 2020, which was 50 permits more than were fished in 2019.

In the Haines Borough, 369 permits were issued to residents—one per household—with Haines addresses, and 308 were returned (83%) (Table 13-4). In 2019, 90% of 465 issued permits were returned. Permits issued to residents of the city of Haines, Mud Bay, Mosquito Lake, Covenant Life, or Lutak are included in the Haines totals. In Klukwan, seven permits were issued and three were returned (43%), the same as in 2019. Twenty-nine residents of Skagway were issued permits and 23 returned them (79%). Not all permits issued to residents of the Haines area were necessarily fished in the Haines area. The reported salmon harvest by Haines, Klukwan, and Skagway residents combined (10,205 salmon total) included 8,081 sockeye salmon (79%), 1,538 pink salmon (15%), 316 coho salmon (3%), 262 chum salmon (3%), and eight Chinook salmon (<1%) (Table 13-4). Compared to the 2019 estimated harvest, the total estimated harvest in 2020 was of nearly 900 more fish. Estimated harvests of sockeye salmon and pink salmon increased, and harvests of chum salmon decreased by nearly 300 fish. Harvests of coho and Chinook salmon decreased as well, but only slightly.

JUNEAU MANAGEMENT AREA

The Juneau Management Area encompasses subsistence fisheries in the Angoon area and the Hoonah area, as well as personal use fisheries in the Juneau area. Subsistence and personal use harvests by residents of Elfin Cove, Tenakee Springs, Gustavus, Excursion Inlet, and Pelican occur primarily, but not exclusively, in the Juneau Management Area. Management responsibility for the area rests with both the DCF Juneau and Sitka area offices. Overall, in 2020 there were an estimated 784 permits fished in the Juneau Management Area with a harvest of 14,265 salmon (Table 13-3). Compared to 2019, approximately 125 more permits were fished and 200 more fish were harvested. Sockeye salmon harvests constituted 93% of the total harvest, similar to 2019.

Angoon Area Subsistence Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Angoon are under the management responsibility of the DCF Juneau and Sitka area offices. In 1989, the BOF created a positive C&T finding for salmon in the waters of District 12 in Basket Bay west of 134 53.88° W. long (5 AAC 01.716 (a)(10)(A), 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 (5 AAC 01.716 (a)(10)(C)), and in waters of Section 13-C (5 AAC 01.716 (a)(11)(B)(iii)).

The residents of Angoon are the principal subsistence fishers in this area. In 2020, Angoon had a population of 357, a decrease of approximately 50 people from 2019.¹³ Angoon Tlingit have traditionally used most of

13. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

the west coast of Admiralty Island, from Hawk Inlet to the southern tip of Admiralty Island, and lands and waters of the east coasts of Chichagof and Baranof islands, including Peril Strait. Based on permit data from 1996 through 2006, as well as interviews with local fishers, the waters of Kootznahoo Inlet, Favorite Bay, and Hood Bay to the south; Mitchell Bay, Salt Lake, and Kanalku bays further east; and Chatham and Peril straits to the west continue to provide the people of Angoon with salmon and other marine resources. Few stock assessment projects have occurred in these systems. In 2017, escapement of sockeye salmon into the Kanalku system was lower than the 2012–2016 average (Vinzant and Heintz 2018); sockeye salmon stock assessment has not been conducted since 2017. The USFS and Angoon Community Association (ACA) maintained a video weir on Sitkoh Lake in 2020 and counted just under 10,000 sockeye salmon, which was one of the best escapements since 2015.¹⁴ USFS and ACA also ran a sockeye salmon stock assessment project in Kook Lake (Basket Bay) in 2005, 2007, and 2010–2017.

Regulations

Possession and annual limits for Angoon area subsistence sockeye salmon fisheries were specified in regulation (5 AAC 01.745 (g) and (h)) and range from a low of 15 fish in possession and 30 fish annually at Basket Bay and 20 fish in possession and annually at Kanalku Bay to the most liberal areas of Hanus Bay (Lake Eva), Sitkoh Bay and Hasselborg River-Salt Lake with 50 fish in possession and annually. Kanalku, Basket, Hanus, and Sitkoh bays all opened to subsistence sockeye salmon fishing on June 1, closing first in Kanalku and Basket bays on July 31, Hanus Bay on August 15, and then at Sitkoh Bay on August 31. Hasselborg River–Salt Lake system was open from July 1–August 31. The subsistence coho salmon fishery in Hasselborg River–Salt Lake was open from July 1–October 31 with a possession and annual limit of 20 fish. Coho salmon harvested in other streams within the Angoon area could be taken from June 1–October 31, with limits of 20 in possession and 40 annually from all combined streams. Pink salmon could be harvested from June 1–September 30, with a possession and annual limit of 150 fish. The season for chum salmon in all streams of the area was from June 1–October 31, and the possession and annual limit was 50 fish. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets were the allowable subsistence gear types. Drift gillnets could not exceed 50 fathoms in length.

Harvest Assessment Program

The estimated 2020 salmon harvest in the Angoon area subsistence fisheries was 1,730 salmon, including 1,685 sockeye salmon (97%) and 45 chum salmon (3%) (Table 13-3). This is several hundred fish lower than what was reported in 2019. The starkest difference between years was the lack of pink, coho, or Chinook salmon, which composed about 8% of the 2019 harvest. An estimated 82 permits were fished in the area, compared to an estimated 71 permits fished in 2019.

The estimated salmon harvest for the community of Angoon in 2020, from 14 returned permits (42 permits were issued; 33%), totaled 1,221 salmon, a decrease of approximately 100 fish from the 2019 harvest. Fewer permits were issued in 2020, but the permit return rate was much worse in 2020 (72% return rate in 2019). The 2020 harvest comprised 1,176 sockeye salmon (96%) and 45 chum salmon (4%) (Table 13-4). Not all permits were fished in the Angoon area. Angoon residents harvested similar amounts of sockeye and chum salmon in 2020 as in 2019, but did not harvest any coho or pink salmon, which were harvested in the previous year.

Hoonah Area Subsistence Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Hoonah are under the management responsibility of the DCF Juneau and Sitka area offices. In 1989, the BOF adopted a positive C&T finding for sockeye salmon in waters of District 13 that are along the western shore of Yakobi Island

14. USFWS Office of Subsistence Management. “Fisheries Update for the Week of June 6–12, 2022.” Report #3. Accessed November 15, 2022. <https://www.doi.gov/subsistence/news/fishing/fisheries-update-week-june-6-12-2022-report-3>

east of a line from Cape Spencer light to Surge Bay light (5 AAC 01.716 (a)(11)(B)(i); and a positive C&T finding for salmon other than sockeye salmon in the waters of District 13 (5 AAC 01.716 (a)(11)(A)) and in the waters of sections 14-B and 14-C (5 AAC 01.716 (a)(12)(B)). In the Hoonah area, sockeye salmon stocks are only monitored at Neva Lake; 2020 escapement of sockeye salmon was below average and was smaller than the 2019 escapement estimate.¹⁵

The residents of Hoonah are the principal subsistence users of the waters in this area. In 2020, Hoonah had a population of 931, an increase of approximately 150 residents over 2019.¹⁶

Regulations

Possession and annual limits for subsistence sockeye salmon fishing in Hoonah area streams ranged from 10 fish in possession and annually at Neva Creek to 50 fish in possession and annually at Surge Bay and Hoktaheen Cove (5 AAC 01.745(h)(1)(B)(ii) and (g)(1)(B)(x)). The permit specified open seasons for sockeye salmon at the following locations: Surge Bay, and Neva Creek from June 1–August 15; Hoktaheen Cove from June 1–July 20; and Berg Bay from June 1–July 31. Coho salmon could be taken in streams in the areas with positive C&T findings from June 1–October 31, with limits of 20 fish in possession and 40 fish annually. Pink salmon could be harvested under a subsistence permit in all streams in the Hoonah area from June 1–September 30, with a possession and annual limit of 150 fish. Chum salmon could be harvested in the same waters from June 1–October 31, with a possession and annual limit of 50 fish. Gaffs, spears, beach seines, dip nets, drift gillnets, and cast nets were the types of subsistence gear allowed in the Hoonah area subsistence fisheries. Drift gillnets could not exceed 50 fathoms in length.

Harvest Assessment Program

The estimated subsistence salmon harvest in the Hoonah area subsistence fisheries in 2020 was 1,705 salmon, a decrease of approximately 1,000 salmon from 2019 and similar to the 2018 salmon harvest. The 2020 harvest comprised 1,652 sockeye salmon (97%), 24 pink salmon (1%), 18 chum salmon (1%), and 11 coho salmon (1%) (Table 13-3). The overall decrease in the salmon harvest as compared to 2019 was driven by a decrease in the sockeye salmon harvest. Harvests of other salmon species in 2020 were similar to 2019 estimates. An estimated 85 permits were fished in the Hoonah area in 2020 which was similar to the 83 fished in 2019.

For the community of Hoonah, in 2020, 44 permits were issued and 16 were returned (36%), a decrease in the number of permits issued, returned, and return rate compared to 2019. The 2020 estimated harvest was 1,122 salmon, consisting of 930 sockeye salmon (83%), 168 coho salmon (15%), 14 chum salmon (1%), and 11 pink salmon (1%) (Table 13-4). Permits issued to Hoonah residents may not have been fished in the Hoonah area. The estimated harvest was slightly smaller than the 2019 harvest of 1,596 salmon. Fewer sockeye salmon and more coho salmon were harvested in 2020 compared to 2019.

Elfin Cove, Gustavus, Excursion Inlet, Pelican, and Tenakee Springs Subsistence and Personal Use Salmon Fisheries

Background

Subsistence and personal use salmon fisheries in the waters traditionally used by the residents of Elfin Cove, Gustavus, Excursion Inlet, Pelican, and Tenakee Springs are under the management responsibility of the DCF Juneau and Sitka area offices. Traditionally, fishers from these communities fish primarily in districts 11, 12, 13, and 14; harvests are included in the Angoon area subsistence fisheries, Hoonah area subsistence fisheries, and Juneau area personal use fisheries categories in Table 13-3. Elfin Cove fishers harvest salmon from Hoktaheen Cove and Surge Bay in District 13. Gustavus and Excursion Inlet fishers

15. USFWS Office of Subsistence Management. “Fisheries Update for the Week of June 6–12, 2022.” Report #3. Accessed November 15, 2022. <https://www.doi.gov/subsistence/news/fishing/fisheries-update-week-june-6-12-2022-report-3>

16. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

harvest salmon primarily from Surge Bay and Hoktaheen Cove in District 13, but also from the Taku River in District 11, the Berg River and Neva Creek in District 14, and the Chilkat River in District 15. Residents of Pelican and Tenakee Springs harvest salmon at Kook Creek and Kook Lake Outlet in Basket Bay, Taku River and Sweetheart Creek in District 11, and Hoktaheen Cove in District 13. Most of the salmon stocks in these areas have positive C&T findings as described in other sections of this report.

In 2020, Gustavus was the largest community in this area with 655 residents. The combined population of the other four communities was 278. The population of Gustavus increased by slightly more than 100 residents compared to the 2019 estimate, but that of the other three communities changed little.¹⁷

Regulations

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

Harvest Assessment Program

In 2020, residents of Elfin Cove, Gustavus, Excursion Inlet, Pelican, and Tenakee Springs harvested an estimated 201 salmon, based on returned subsistence salmon permits (Table 13-4). Fifteen permits were issued to Gustavus residents, five were issued to residents of Pelican, and one permit was issued to Elfin Cove and one to Tenakee Springs residents. No permits were issued to residents of Excursion Inlet. About one-half (55%) of these permits were returned. The permit issued in Elfin Cove was not returned, so there is no harvest data for that community. Most of the salmon harvest was of sockeye salmon: Gustavus residents harvested an estimated 92 sockeye salmon (80%) Pelican residents harvested 72 (100%), and 8 were harvested in Tenakee Springs (53%). Gustavus and Tenakee Springs residents harvested 18 pink salmon, seven coho salmon, and four chum salmon. Not all permits were necessarily fished in the Juneau Management Area. Estimated harvests were about one-half of the 2019 estimate, but the composition of harvest was similar.

Juneau Area Personal Use Fisheries

Juneau fishers primarily harvest sockeye salmon from the Taku River and Sweetheart Creek in District 11, which are in the Juneau Nonsubsistence Area described in 5 AAC 99.105(a)(2) (Figure 13-1). These waters are under the management responsibility of the DCF Juneau Area office. In 2020, the estimated Taku River sockeye salmon escapement was above the escapement goal range and well above the recent average (PSCTTC 2022). No run information is available for Sweetheart Creek sockeye salmon for 2020. These fish originate in the Snettisham Hatchery and are released as unfed fry into the waters of Sweetheart Lake. Since Sweetheart Creek is barriered and all sockeye salmon are hatchery origin, the entire run is available for harvest. Personal use regulations apply to salmon fishing for home uses in this area. Juneau area residents are the principal participants in the designated personal use fisheries in District 11. In 2020, the City and Borough of Juneau had a population of 32,255, an increase of approximately 200 residents over the 2019 estimate and similar to the 2018 population estimate.¹⁸

Regulations

Regulations specifying annual and possession limits under personal use regulations can be found at 5 AAC 77.682. In the Juneau area, the limit for sockeye salmon in possession in Sweetheart Creek was 25 fish with no annual limit, and in the Taku River the possession and annual limit was 10 sockeye salmon for a household of one person and 20 sockeye salmon for a household of two or more people. The Taku River was open to personal use fishing upstream of the Taku River Lodge to the United States/Canada border from July 13 through August 12. Sweetheart Creek was open from June 1 through October 31. In all streams in the Juneau Management Area, except along the Juneau road system, the open season for pink salmon was

17. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

18. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. "Research and Analysis Homepage." Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

June 1–September 30 with a 150 fish possession and annual limit; for chum salmon, the open season was June 1–October 31 with a possession and annual limit of 50 fish.

In the Taku River, only set gillnets could be used, and they could not exceed 15 fathoms in length. The permit holder had to be present at the net while it was in use. In Sweetheart Creek, the use of spearguns and hook and line fishing for salmon was prohibited. Salmon could be taken for personal use only upstream from the ADF&G regulatory marker located near the stream mouth.

Harvest Assessment Program

The 2020 total estimated salmon harvest for the Juneau area personal use fisheries was 10,831 salmon, about 1,500 more fish than was estimated in 2020. The 2020 harvest consisted of 9,926 sockeye salmon (92%), 575 coho salmon (5%), 305 pink salmon (3%), 24 Chinook salmon (<1%), and one chum salmon (<1%) (Table 13-3). Most of the increased harvest is attributable to an increased sockeye salmon harvest. Harvests of coho and Chinook salmon increased by a small amount, and the harvest of pink and chum salmon harvests decreased slightly. An estimated 628 permits were fished in the Juneau area personal use fisheries in 2020, compared to an estimated 517 fished in 2019. The number of permits fished in the Juneau area has been increasing since at least 2017.

In 2020, 682 permits were issued to residents of the City and Borough of Juneau and 471 were returned (69%) (Table 13-4). The estimated personal use and subsistence salmon harvest totaled 12,317 salmon, including 11,209 sockeye salmon (91%), 547 coho salmon (4%), 526 pink salmon (4%), 23 Chinook salmon (<1%), and 13 chum salmon (<1%) (Table 13-4). Not all permits were fished solely in the Juneau area. Substantially fewer permits were issued and returned than in 2019 (912 issued and 726 returned). Despite fewer permits issued, the estimated salmon harvest in 2020 was higher than the 11,004 salmon estimated in 2019. Harvests of all species except chum salmon were greater in 2020, but the majority of the increase stems from the increased sockeye salmon harvest.

SITKA MANAGEMENT AREA

The Sitka Management Area encompasses subsistence fisheries in the Sitka area, as well as the Angoon, Hoonah, and Kake areas. Management responsibility for the area rests with the DCF Juneau, Sitka, and Petersburg area offices. Details and permit data for the Hoonah and Angoon area subsistence fisheries are included under the Juneau Management Area discussion and details and permit data for the Kake area subsistence fisheries are found under the Petersburg-Wrangell Management Area.

Sitka Subsistence and Personal Use Salmon Fisheries

Background and History

In 1989, the BOF adopted a positive C&T finding for sockeye salmon in those waters of Section 13-A south of the latitude of Cape Edward and the waters along the western shore of Yakobi Island east of a line from Cape Spencer light to Surge Bay light, in waters of Section 13-B north of the latitude of Redfish Cape, and in waters of Section 13-C (5 AAC 01.716(a)(11)(B)). At the March 1997 BOF meeting in Sitka, this finding was extended to include all other salmon species in all waters of District 13 (5 AAC 01.716 (a)(11) (A)). Sockeye salmon stocks without a positive C&T finding in this area can only be fished under personal use regulations. Principal salmon waters and streams used by Sitka fishers include Klag Bay–Lake Anna, Lake Stream–Ford Arm, Necker Bay, Redoubt Bay, Salmon Lake, and Redfish Bay. Sockeye salmon run information is available for Redoubt Bay and Klag Bay. In 2020, the sockeye salmon run into Redoubt Bay was above escapement goals, but escapement was less than recent years.¹⁹ For Klag Bay, the sockeye

19 “Salmon Stock Status and Escapement Goals in Southeast and Yakutat” presented to the BOF in March 2021 and available at <http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2021-2022/se/FMS21-03.pdf>

salmon escapement in 2020 was 4,122 salmon, which was better than in 2019 but still among the lowest escapements on record.²⁰

The residents of Sitka are the principal subsistence users of the salmon stocks in the area; residents of Port Alexander in southern Baranof Island also use these stocks. The Sitka Tlingit have traditionally used most of the Pacific coast of Baranof and Chichagof islands from Point Urey to Cape Ommaney for subsistence activities, including the myriad islands lying off the coast, and up Peril Strait between Chichagof and Baranof islands into Hoonah Sound as far as Patterson Bay. Sitkans share the use of Yakobi Island and the sockeye salmon fisheries at Hoktaheen Cove and Surge and Takanis bays with the residents of Hoonah, Pelican, Gustavus, and Juneau. Sitka residents often travel as far as Sitkoh Bay and Peril Strait to harvest salmon; salmon stocks in these areas are often used by residents of Kake as well. In 2020, the city and borough of Sitka had a population of 8,387, continuing a slightly decreasing trend.²¹ In Port Alexander, the 2020 population count was 78 residents, about 20 residents more than previous years.

Regulations

In 2020, the sockeye salmon season for all Sitka locations opened June 1 and closed between July 20 and August 31 as typically occurs. As stated on the permit, Falls Lake and Bay closed on July 13, but was open again from July 23 to August 15. On July 20, Hoktaheen Cove, Takanis Bay, and Gut Bay closed to sockeye salmon fishing. On July 31, Small Arm Whale Bay (Politofski Lake) and other unlisted sockeye salmon systems with positive C&T findings closed to subsistence/personal use fishing. On August 15, Klag and Surge bays, Lake Anna and Ford Arm, and Hanus Bay (Lake Eva) closed. The last areas closed on August 31 and included Necker, Redfish, Redoubt, and Sitkoh bays.

Possession and annual limits for sockeye salmon varied from 10 fish in possession and 20 fish annually at Gut Bay to 100 fish in possession and no annual limit at Necker Bay (5 AAC 01.745 (g)(1)). Sitkoh, Takanis, Surge, Klag, and Hanus bays, Hoktaheen Cove, and Whale Bay had possession and annual limits of 50 sockeye salmon. Lake Anna, Ford Arm and Ford Arm Lake, and Falls Lake and Bay had possession and annual limits of 25 fish. Redfish Bay had limits of 50 in possession and 100 fish annually. For subsistence/personal use locations not listed on the permit, the possession limit and annual limit was 10 sockeye salmon.

In January 2003, the BOF adopted the *Redoubt Bay and Lake Sockeye Salmon Management Plan* (5 AAC 01.760). The plan provided a management approach for subsistence, sport, and commercial fisheries that target Redoubt Lake sockeye salmon based on an optimal escapement goal of 7,000–25,000 fish. As specified in regulation, by default the fishery was open from June 1–August 31 with a possession limit of 10 fish and an annual limit of 50 fish. If the projected sockeye salmon escapement fell below 7,000 fish or above 10,000 fish, the season or limits would change in season. In 2020, an emergency order on July 21 liberalized harvest limits in the Redoubt Bay and Lake subsistence fishery to 25 sockeye salmon in possession and 100 sockeye salmon annually.²²

Salmon streams flowing across or adjacent to the Sitka road system were closed to subsistence and personal use fishing for coho and chum salmon. The season for chum salmon in other waters with positive C&T findings within the Sitka Management Area, except for the listed sockeye salmon streams, was July 15–October 31, with a possession limit of 50 fish and no annual limit. Pink salmon could be harvested from the same waters under subsistence fishing permit conditions from July 15–September 30, with a possession limit of 100 fish and no annual limit. Coho salmon within the Sitka Management Area could be taken under subsistence fishing permit conditions from August 16–October 31 and in Redoubt, Necker, Redfish, and

20. Kyle Rosendale, Fishery Biologist, Sitka Tribe of Alaska, personal communication with Lauren Sill, ADF&G, October 2021.

21. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

22. Alaska Department of Fish and Game ^{Division} of Commercial Fisheries, “Redoubt Bay and Lake subsistence and sport sockeye salmon limits increased,” news release, July 21, 2020. Accessed November 15, 2022. <http://www.adfg.alaska.gov/static/applications/DCFnewsrelease/1194417994.pdf>

Sitkoh bays from September 1–October 31 with a possession limit of 20 fish and an annual limit of 40 fish for any combination of streams.

Allowable subsistence gear for all areas except for Redoubt Bay included hand purse seines, beach seines, drift gillnets, dip nets, cast nets, gaffs, and spears. In Redoubt Bay only, the use of rod and reel gear was allowed as subsistence gear along with gaff, spear, and dip net. Limitations listed in sport regulations concerning rod and reel gear also applied in this fishery. Portions of Falls Lake, Gut Bay, Silver Bay, and Indian River had closed areas and/or restricted gear types specified on the permit.

Harvest Assessment Program

The estimated salmon harvest in the Sitka Management Area subsistence and personal use fisheries in 2020 was 7,806 salmon, consisting of 7,186 sockeye salmon (92%), 421 coho salmon (5%), 147 pink salmon (2%), 29 chum salmon (<1%), and 24 Chinook salmon (<1%) (Table 13-3). This was a substantial decrease from the 2019 estimated harvest of 19,562 fish. Contributions of each species to the overall harvest remained similar. An estimated 405 permits were fished in the Sitka Management Area in 2020, compared to an estimated 598 permits in 2019, likely accounting for some of the decrease in the harvest.

The estimated salmon harvest for the community of Sitka in 2020, based on 369 issued and 243 returned permits (66%), was 7,574 salmon. The harvest comprised 7,013 sockeye salmon (93%), 419 coho salmon (6%), 94 pink salmon (1%), 27 chum salmon (<1%), and 21 Chinook salmon (<1%) (Table 13-4). Not all permits were necessarily fished solely in the Sitka Management Area. The number of permits issued, as well as overall harvests, decreased substantially from 2019. The 2019 estimated harvest, based on 866 issued and 677 returned permits was 18,682 fish. Most of the decreased harvest was of sockeye salmon. Three permits were issued to residents of Port Alexander and all were returned, with an estimated harvest of 180 salmon, similar to 2019 estimates.

PETERSBURG-WRANGELL MANAGEMENT AREA

The Petersburg-Wrangell Management Area includes the Kake area subsistence fisheries, the Petersburg-Wrangell subsistence and personal use fisheries, the Point Baker–Port Protection area subsistence fisheries, and the federal Stikine River subsistence fishery. In 2020, 314 permits were fished in the Petersburg-Wrangell Management Area under state subsistence/personal use or federal Stikine River regulations. The total estimated salmon harvest was 4,901 fish, with sockeye salmon composing 68% of the harvest (Table 13-3). The estimated harvest was approximately 1,000 fewer fish than in 2019 despite the number of permits fished increasing by about 50.

Kake Area Subsistence Fisheries

Background and History

Subsistence salmon fisheries in the waters traditionally used by the residents of Kake are under the management responsibility of the Petersburg and Sitka Area offices. In 1989, the BOF adopted a positive C&T finding for salmon in the waters of District 9 north of the latitude of Swain Point (5 AAC 01.716 (a)(8)(A)), in the waters of District 10 west of a line from Pinta Point to False Point Pybus (5 AAC 01.716 (a)(9)(A)), and in the waters of District 5 north of a line from Point Barrie to Boulder Point.²³ Principal salmon waters and streams used predominately by Kake fishers include Gut Bay and Falls Lake Creek on the southwest coast of Baranof Island (Sitka Management Area), as well as Saginaw, Security (Salt Chuck), Pillar (Kutlaku Creek), and Tebenkof (Alecks Creek) bays on Kuiu Island (Petersburg-Wrangell Management Area).

23. The waters with a positive customary and traditional use determination are shared between the Kake area and the Point Baker/Port Protection area. The geographic description provided here delineates the boundaries used by the Division of Commercial Fisheries to define the “Kake Subsistence Area” on the permit.

In 2020, Kake had a population of 543, compared to the 2019 estimate of 571.²⁴ Kake residents shared the use of the southern coastal waters of Admiralty Island with residents of Angoon and Petersburg. In recent years, principal subsistence salmon fishing by Kake residents has occurred in Gut Bay and Falls Creek on Baranof Island, and at Kutlaku Creek in Pillar Bay. Little is known about the magnitude of the Gut Bay run, but the Organized Village of Kake and the USFS began monitoring escapement into Gut Bay in 2019, before the project was put on hold until 2022 due to staffing shortages. Sockeye salmon escapement into Falls Lake in 2020 totaled 800 salmon, which was the poorest escapement since 2001.²⁵ Information about the strength of runs to other area streams is not available.

Regulations

The 2020 permit provided subsistence opportunities for sockeye salmon in Alecks Creek, Bay of Pillars, Falls Lake, and Gut Bay. The season opened in each of these systems on June 1 and closed between July 20 and August 15. Falls Lake had a closed period between July 13 and 23. Any systems not listed on the permit were closed to the retention of sockeye salmon. In all of these systems, possession limits ranged from 10 to 50 sockeye salmon and annual limits from 20 to 50 fish (5 AAC 01.745(f)).

Pink, chum, and coho salmon could be harvested in all streams in the Kake area, except for the sockeye salmon streams identified on the permits. The open season for pink salmon was July 15–September 15, and there was a possession limit of 100 pink salmon and no annual limit. Chum salmon could be harvested from July 1–October 31, and there was a possession limit of 50 fish and no annual limit. The coho salmon season lasted from August 16–October 31, and there was a limit of 20 fish in possession and 40 fish annually.

Permitted subsistence gear included gaffs, spears, hand operated beach seines, dip nets, drift gillnets, and cast nets.

Harvest Assessment Program

As reported in Table 13-3, the estimated salmon harvest in the Kake area subsistence fisheries in 2020 was 680 salmon, including 621 sockeye salmon (91%), 40 chum salmon (6%), 12 Chinook salmon (2%), 4 pink salmon (1%), and 3 coho salmon (<1%). An estimated 60 permits were fished in the Kake area subsistence fisheries in 2020. This compares to an estimated 56 permits fished in 2019 with an estimated harvest of 1,053 salmon. The 2020 harvest was more similar to the 718 salmon harvested in 2018. In 2020, although fewer sockeye salmon were harvested than in 2019, sockeye salmon composed a slightly larger percentage of the harvest.

Residents of the community of Kake obtained 62 permits in 2020 and returned 29 of those (47%) (Table 13-4). An estimated 680 salmon were harvested: 588 sockeye salmon (87%), 38 chum salmon (6%), 34 coho salmon (5%), 11 pink salmon (2%), and 9 Chinook salmon (1%). Not all permits were necessarily fished solely in the Kake area. Fewer permits were issued and returned in 2020 than in 2019 and the estimated harvest in 2020 was a few hundred fewer fish than the estimated harvest of 971 fish in 2019. Coho salmon composed 5% of the 2020 harvest while in 2019 no coho salmon were harvested.

Petersburg–Wrangell Area Subsistence/Personal Use State Fisheries

Background and History

Subsistence and personal use salmon fisheries in the waters traditionally used by the residents of Wrangell and Petersburg are under the management responsibility of the DCF Petersburg Area office. In 2002, the BOF made a positive C&T finding for salmon stocks (excluding enhanced Chinook, chum, and coho salmon within the waters of the Anita Bay THA) in District 7 (5 AAC 01.716 (a)(6)) and District 8 (5 AAC 01.716 (a)(7)). These waters include Thoms Place, Harding River, Mill Creek, and the Stikine

24. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

25. USFWS Office of Subsistence Management. “Fisheries Update for the Week of June 28–July 4, 2021.” Report #6. Accessed November 15, 2022. <https://www.doi.gov/sites/doi.gov/files/fisheries-updates-no-6-june-28-july-4-2021.pdf>

River. The 2020 Stikine River sockeye salmon terminal run was well below average and well below the preseason forecast (PSC/TTC 2022). Personal use fisheries are authorized on some salmon stocks in this area that do not have a positive C&T finding.

The Petersburg-Wrangell subsistence-personal use area includes Salmon, Red, and Shipley bays. Petersburg and Wrangell residents are the principal users of the salmon stocks of Salmon Bay on Prince of Wales Island, as well as Crystal Creek, Thoms Creek, Mill Creek, and the Stikine River. In 2020, the population of the Petersburg borough (including Hobart Bay CDP and Kupreanof) was 3,398 and that of Wrangell was 2,127.²⁶ The Petersburg population is a slight increase over the 2019 estimate (3,233) while the Wrangell population count was a decrease from the 2019 estimate (2,406).

Regulations

Shipley, Salmon, and Red bays were open for subsistence sockeye salmon fishing from June 1 to July 31. The subsistence fishing season opened in Thoms Place on June 19 and in Mill Creek on July 1; both systems closed on July 31. Fishing at Thoms Place was open weekly from Friday to Sunday. Limits for sockeye salmon were 25 in possession and 50 annually from Shipley Bay and 30 in possession and annually from Salmon Bay and Red Bay, combined (5 AAC 01.745(f)). Thoms Place and Mill Creek both had a possession limit of 20 fish and an annual limit of 40 fish.

For all streams in the Petersburg-Wrangell area with positive C&T findings, except the sockeye salmon locations listed on the permit, subsistence fishing for pink, chum, and coho salmon was permitted. The open season for subsistence pink salmon fishing was July 15–September 15, with a daily possession limit of 100 pink salmon and no annual limit. The open season for subsistence chum salmon fishing was July 1–October 31, with a daily possession limit of 50 fish and no annual limit. Subsistence coho salmon fishing was permitted from August 16–October 31, with a limit of 20 fish in possession and 40 annually.

Allowed subsistence and personal use gear included gaffs, spears, beach seines, dip nets, drift and set gillnets, and cast nets. Drift gillnets could not exceed 50 fathoms in length. Set gillnets could be used only in Shipley Bay within 100 yards of the terminus of Shipley Creek, and the permit holder was required to be physically present at the net while in operation. A federal subsistence permit was needed to fish the Stikine River.

The personal use sockeye fishery at Hatchery Creek, which drains into Sweetwater Lake, was open Thursdays through Sundays from June 1–June 30. Harvest limits were set at six fish daily and 18 annually. Personal use pink salmon fishing was open in Windham Bay from July 15–August 31 with a possession limit of 100 fish and no annual limit. Personal use coho salmon fishing was open in the Blind Slough/Wrangell Narrows Terminal Harvest Area (THA) on Fridays from 6:00 AM to 8:00 PM from August 7 to September 4 with possession and annual limits of 25 coho salmon. In the Anita Bay THA personal use fishery, the harvest of Chinook, chum, and coho salmon was allowed June 1–October 31 with possession and annual limits of 25 fish in any combination. Outside of Anita Bay THA and Blind Slough, in areas without C&T determinations, the possession limit for coho salmon was six fish. Salmon could be taken only by drift gillnets in the Anita Bay THA.

Harvest Assessment Program

The estimated salmon harvest in the Petersburg-Wrangell area state subsistence/personal use fisheries in 2020 was 1,557 salmon, including 652 sockeye salmon (42%), 633 coho salmon (41%), 146 pink salmon (9%), 86 chum salmon (6%), and 39 Chinook salmon (3%) (Table 13-3).²⁷ An estimated 131 permits were fished in 2020. Compared to 2019, about 50 more permits were fished and 250 more fish were harvested in 2020. Sockeye salmon consistently composes a smaller percentage of the total harvest in this area than in

26. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

27. Prior to the 2019 report, harvests in the Petersburg–Wrangell Area Subsistence/Personal Use State Fisheries included harvests from the Point Baker/Port Protection subsistence area. Beginning with the 2019 report, those harvests are detailed in their own section, below.

other Southeast areas, and in 2020 sockeye salmon composed a smaller proportion than the 51% in 2019. Coho salmon harvests in turn composed a larger percentage than the 30% in 2019.

As reported in Table 13-4, in 2020, Petersburg, including Kupreanof city, residents were issued 114 permits and returned 89 (79%). The estimated subsistence/personal use salmon harvest for the community of Petersburg in 2020 was 1,819 salmon, including 1,035 sockeye salmon (57%), 598 coho salmon (33%), 143 pink salmon (8%), 27 Chinook salmon (2%), and 17 chum salmon (1%). Not all permits were necessarily fished solely in the Petersburg-Wrangell area. Slightly fewer permits were issued and returned, but the harvest total was very similar to the 2019 estimate of 1,972 fish. The total harvest of sockeye salmon was less than in 2019 and it composed a smaller percentage of the harvest, whereas the harvest of coho salmon increased over 2019 amounts and contributed a greater percentage to the total harvest.

As shown in Table 13-4, 169 permits were issued to residents of Wrangell in 2020 and 144 of them were returned (85%). The estimated salmon harvest was 2,214 salmon, including 1,560 sockeye salmon (71%), 385 pink salmon (17%), 147 Chinook salmon (7%), 83 chum salmon (4%), and 39 coho salmon (2%). Not all permits were necessarily fished solely in the Petersburg-Wrangell area. The estimated harvest in 2020 was about 600 fish less than the 2019 harvest and on par with the 2018 reported harvest. Compared to 2019, fewer sockeye salmon and more pink salmon were harvested.

2020 Federal Stikine River Subsistence Salmon Fishery

In January 2004, the U.S. and Canada negotiated a modified Pacific Salmon Treaty that allowed for a U.S. subsistence salmon fishery on the Stikine River. The Federal Subsistence Board implemented a Stikine River subsistence sockeye salmon fishery in 2004, followed by directed Chinook and coho salmon subsistence fisheries authorized in 2005. Regulatory changes implemented for the 2006 season included an increase in the mesh size of gillnets during the Chinook salmon fishery and an earlier starting date for the sockeye salmon fishery. In 2008, two additional regulatory changes were made: subsistence fishing permits became valid for the entire season (May 15–October 1); and the start date of the coho salmon fishery was moved up to August 1. The latter change allowed a continuous subsistence fishery throughout the season. Effective for the 2015 season, the Federal Subsistence Board adopted a new regulation requiring subsistence fishers to check their nets at least twice daily. A regulatory change in 2017 provided expanded delegation of authority from the Federal Subsistence Board (FSB) to the Wrangell District Ranger to close and reopen the fishery based on Pacific Salmon Treaty requirements. For more information about this fishery see Ream and Merriam (2017).

Current Federal Regulations

The federal subsistence fisheries regulatory year begins April 1. Regulations are detailed in Subpart C and D of the *Code of Federal Regulations* (36 CFR part 242 and 50 CFR part 100). All residents of Yakutat and Southeastern fishery management areas have been found to have a positive customary and traditional use determination for all fish in the Southeastern Alaska area under federal regulations (50 CFR 100.24). The sections relevant specifically to the Stikine River are found at 36 CFR 242.27. A federal permit is required to harvest Chinook, sockeye, and coho salmon in the mainstem of the Stikine River. Regulations stipulate fishing seasons for Chinook salmon from May 15 through June 20, for sockeye salmon from June 21 through July 31, and for coho salmon from August 1 through October 1. Annual household limits range from five for Chinook salmon (equal to or greater than 28 inches) to 20 for coho salmon and 40 for sockeye salmon. Other salmon may be harvested incidentally under the terms of the permit and must be recorded on the permit. No possession limits are specified. Only dip nets, spears, gaffs, rod and reel, beach seine, or gillnets not exceeding 15 fathoms in length could be used. The maximum gillnet stretched mesh size was 8 inches during the Chinook salmon season and 5½ inches during the sockeye salmon season. There was no maximum mesh size during the coho salmon season. Fishing nets had to be checked at least twice per day. The total annual harvest level for the Stikine River is controlled by the inseason manager and may be closed

or expanded by special action. In 2020, the Wrangell district ranger closed the Chinook salmon fishery in the Stikine River to conserve Chinook salmon.²⁸

Harvest Assessment Program

For Chinook, coho, and sockeye salmon fisheries harvest assessment, a telephone-based monitoring program with a random subset of permit holders was used in season, with permits and harvest reporting used for overall harvest assessment postseason. Similar to past years, in 2020, 129 fishing permits were issued, with 76% going to Wrangell households and 24% to Petersburg households (Table 13-5). All 129 issued permits were returned, and 67 permits recorded fishing activity. The Stikine River subsistence harvest totaled 1,637 salmon, about 600 fewer fish than the 2019 harvest, and several hundred fish below the 5-year and 10-year average harvest, but slightly above the historical average (Table 13-6). The 2020 harvest consisted of 1,185 sockeye salmon (72%), 279 pink salmon (17%), 133 Chinook salmon (8%), 30 coho salmon (2%), and 10 chum salmon (1%) (Table 13-6). Harvests of sockeye and coho salmon decreased and harvest of pink and Chinook salmon increased slightly from 2019 (Table 13-6).

Petersburg residents obtained 29 federal Stikine River permits in 2020 and harvested 334 salmon (20% of the total salmon harvest): most of the harvest was sockeye salmon (83%), followed by pink and Chinook salmon (10% and 7%, respectively) (Table 13-5). In Wrangell, based on 100 permits issued and returned, 1,303 salmon were harvested. The catch consisted of 909 sockeye salmon (70%), 247 pink salmon (19%), 109 Chinook salmon (8%), 30 coho salmon (2%), and eight chum salmon (1%) (Table 13-5). Compared to 2019, Petersburg and Wrangell residents each harvested 300 fewer fish. In both communities, sockeye salmon composed a smaller proportion of the total harvest, while pink and Chinook salmon composed a greater proportion.

Point Baker–Port Protection Subsistence Fisheries

Background and History

The DCF Petersburg Area office manages subsistence and personal use salmon fisheries in the waters used by fishers from the communities of Point Baker and Port Protection. These fishers rely especially on the Salmon Bay and Red Bay sockeye salmon stocks at the northern end of Prince of Wales Island. In 1997, the BOF adopted a positive C&T finding for salmon and other fishes in the waters of District 5 north of a line from Point St. Albans to Cape Pole (5 AAC 01.716 (a)(4)), in the waters of Section 6-A west of a line from Macnamara Point to Mitchell Point and in the waters of Section 6-B west of the longitude of Macnamara Point (5 AAC 01.716 (a)(5)).

In 2020, Point Baker had 12 residents, the same number as in 2019 and Port Protection had a population of 36, an increase of 7 people over the 2019 estimate.²⁹

Regulations

The Point Baker drift gillnet subsistence sockeye salmon fishery occurs in 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 fishery was open Wednesdays at 12:00 PM to Sundays at 12:00 PM, from June 3–July 31. Only drift gillnet gear, not to exceed 50 fathoms in length, was allowed. Harvest was limited to 25 sockeye salmon in possession and annually. Pink and chum salmon subsistence harvests were allowed in all streams within the Point Baker–Port Protection area for stocks with positive C&T findings, except for the sockeye salmon streams identified on the permit. There was a 100-fish possession limit for pink salmon, with no annual limit. For chum salmon, 50 fish were allowed in possession with no annual limit.

28. Federal Subsistence Board, “Federal subsistence Chinook salmon fishery closed in the Stikine River, “Emergency Special Action No. 13-KS-02-20, April 2, 2020, Accessed November 15, 2022. <https://www.doi.gov/sites/doi.gov/files/uploads/fsa-13-ks-02-20-sa-stikine.pdf>

29. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

Coho salmon could be harvested under subsistence regulations for stocks with positive C&T findings in all streams in the Point Baker–Port Protection area with a possession limit of 20 fish and annual limit of 40 fish.

Harvest Assessment Program

The estimated salmon harvest in the Point Baker–Port Protection subsistence fisheries in 2020 was 1,028 salmon, including 884 sockeye salmon (86%), 107 pink salmon (10%), 27 chum salmon (3%), 8 coho salmon (1%), and 1 Chinook salmon (<1%) (Table 13-3). An estimated 56 permits were fished in 2020.

Port Protection households maintain either a Ketchikan or Point Baker post office box, therefore their harvests can be included in either the Point Baker or Ketchikan harvest estimates. In 2020, three permits were issued to Point Baker households. All were returned with a harvest of 23 chum salmon and 5 pink salmon (Table 13-4).

KETCHIKAN MANAGEMENT AREA

The Ketchikan Management Area includes subsistence fisheries in the Hydaburg area, the Craig-Klawock area, the Kasaan area, two small systems in the Ketchikan area, and personal use fisheries in the Ketchikan area. All of these areas are under the management responsibilities of the DCF Ketchikan Area office. There were 281 permits fished in the Ketchikan Management Area in 2020, slightly more than the 212 permits fished in 2019. The estimated salmon harvest was 11,124 fish, substantially more than the 6,725 fish harvested in 2019 (Table 13-3). Sockeye salmon harvests contributed 86% of this harvest, which is a greater percentage than in 2019.

Craig, Klawock, and Hydaburg Subsistence Fisheries

Background and History

Hydaburg area waters with a positive C&T finding for salmon include Section 3-A (5 AAC 01.716(a)(3)(A)) and the waters of District 2 in Nichols Bay north of 54° 42.12' N lat. (5 AAC 01.716 (a)(2)(B)). Craig–Klawock area waters with a positive C&T finding for salmon include Section 3-B east of a line from Point Ildefonso to Tranquil Point and the waters of Warm Chuck Inlet north of a line from a point on Heceta Island at lat. 55° 44' N, long. 133° 25' W to Bay Point (5AAC 01.716 (a)(3)(B)(iii)); and Section 3-C in the waters of Karheen Passage north of 55° 48' N lat. and east of 133° 20' W long. and in the waters of Sarkar Cove and Sarkar Lake (5 AAC 01.716 (a)(3)(C)).

Residents of the communities of Hydaburg, Craig, and Klawock on the west coast of Prince of Wales Island primarily use the salmon stocks of sections 3-A and 3-B, with the main harvest locations at Hetta Inlet–Sukkwon Strait (Hetta Lake Creek), Big Salt–Trocadero Bay (Klawock River), and Sea Otter Sound (Sarkar River). 2020 counts of sockeye salmon through the weir at Hetta Lake were substantially lower than in 2019, which in turn were lower than counts in 2018.³⁰ In the Klawock River escapement estimates were higher than both 2018 and 2019.³¹

In 2020, 1,036 people were living in Craig, 720 were in Klawock, and Hydaburg had a population of 380.³² Compared to 2019, the populations of all three communities decreased, by about 40 residents each in Craig and Klawock, and by about 20 residents in Hydaburg.

30. U.S. Forest Service, “Subsistence harvest and escapement, Southeast Alaska region” presented to the Southeast Regional Advisory Council in March 2022 and available at <https://www.doi.gov/sites/doi.gov/files/6-fisheries-report-2022-serac-fed-fish-presentation-508.pdf>

31. U.S. Forest Service, “Subsistence harvest and escapement, Southeast Alaska region” presented to the Southeast Regional Advisory Council in March 2022 and available at <https://www.doi.gov/sites/doi.gov/files/6-fisheries-report-2022-serac-fed-fish-presentation-508.pdf>

32. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

Regulations

The subsistence sockeye salmon fishery in the Klawock River ran from July 7–August 7, Mondays at 8:00 AM to Fridays at 5:00 PM, with a 20 sockeye salmon possession limit and no annual limit (5 AAC 01.710(e) and 5 AAC 01.745(1)(C)). In Hetta Inlet, Eek Creek, Klakas Lake, and Sarkar Cove, the season opened on June 1. The first two systems closed on August 31, and the latter two closed on July 31. The possession limit in each of these systems was 20 fish; only Sarkar Cove had an annual limit, which was 40 fish. Other systems in the Ketchikan Management Area with positive C&T findings for salmon were open to sockeye salmon fishing June 1–July 31, with a 10 sockeye salmon possession limit and a 20 sockeye salmon annual limit. Such streams had to be approved by ADF&G and listed on the permit. All streams in the Ketchikan Management Area with positive customary and traditional use findings were open for pink salmon July 1–September 30 with a 150 fish possession limit and no annual limit. Chum and coho salmon fishing was open in the same waters July 1–October 31 with a possession limit of 25 chum and 20 coho salmon. There was no annual limit for chum salmon, but there was a 40 coho salmon limit annually. Additional conditions on the 2020 subsistence/personal use salmon permit for the Ketchikan Management Area stipulated that beach seines, drift gillnets, spears, gaffs, cast nets, and dip nets were allowable subsistence/personal use gear. A beach seine could not obstruct more than one-half the width of any fish stream and any channel or side channel of a fish stream, including the estuary leading to a fish stream. Sockeye salmon could not be retained as incidental catch.

Harvest Assessment Program

The estimated salmon harvest for the Craig–Klawock–Hydaburg area subsistence fisheries in 2020 was 8,561 salmon, including 7,297 sockeye salmon (85%), 762 coho salmon (9%), 352 pink salmon (4%), and 149 chum salmon (2%) (Table 13-3). The 2020 estimated harvest was more than double the 2019 harvest estimate of 3,567 fish. Harvest of all species increased between the two years. An estimated 97 permits were fished in the area in 2020, compared to the 84 permits fished in 2019.

As reported in Table 13-4, 44 permits were issued to residents of Craig and 22 (50%) were returned; 52 permits were issued in Klawock and 28 were returned (54%); and 11 permits were issued to Hydaburg residents, 1 of which was returned, recording no harvest. Fewer permits were issued to residents of each community, and fewer were returned than in 2019. The estimated salmon harvest of Craig residents was 682 fish, about 200 fewer fish than in 2019. By species, the harvest consisted of 482 sockeye salmon (71%), 98 coho salmon (14%), 46 pink salmon (71%), 36 chum salmon (5%), and 20 Chinook salmon (Table 13-4). In 2019, there was no harvest of chum or Chinook salmon, and only five pink salmon. Conversely, the harvest of sockeye and coho salmon decreased in 2020, and sockeye salmon composed a smaller percentage of the harvest. The estimated harvest for Klawock was 7,908 fish, a large increase from the estimated 2019 harvest of 2,125. The 2020 harvest consisted of 6,870 sockeye salmon (87%), 561 coho salmon (7%), 340 pink salmon (4%), and 137 chum salmon (2%) (Table 13-4). Sockeye salmon composed a larger percentage of the harvest in 2020 than in 2019 (82%) and coho salmon a smaller percentage (15%). Not all harvests by residents of these three communities necessarily occurred in the Craig-Klawock-Hydaburg area.

Kasaan Area Subsistence Fisheries

Background and History

There is a positive C&T finding for salmon in waters on the east coast of Prince of Wales Island for the Kasaan area waters of District 2 north of the latitude of the northernmost tip of Chasina Point then west of a line from the northernmost tip of Chasina Point to the easternmost tip of Grindall Island to the easternmost tip of the Kasaan Peninsula (5 AAC 01.716 (a)(2)(A)). Salmon fishing in all other marine waters along the east coast of Prince of Wales Island occurs under personal use and sport regulations. The principal waters used for personal use salmon fishing along the eastern coast of Prince of Wales Island are Kegan Lake, the Thorne River, and Hatchery Creek–Sweetheart Creek. The personal use fisheries are described in the Ketchikan Area Personal Use Fisheries section.

In 2020, Coffman Cove had a population of 127, Edna Bay’s population was 25, Hollis had a population of 65, Kasaan’s population was 30, the population of Naukati Bay was 142, Thorne Bay’s population was 476, and the population of Whale Pass was 86.³³ Compared to 2019, the combined population of these communities decreased by several hundred people.

Regulations

The season for subsistence sockeye fishing in the Karta River was from June 1 to July 31 with a possession limit of 20 sockeye salmon and no annual limit (5 AAC 01.745(e)(1)(B)). All streams in the Ketchikan Management Area with positive C&T findings not otherwise listed on the permit were open for subsistence sockeye salmon fishing June 1–July 31, with a 10 fish possession limit and a 20 fish annual limit. All streams with a positive C&T determination were open to pink salmon fishing July 1–September 30, with a limit of 150 fish in possession and no annual limit. Coho and chum salmon fishing was also open in these waters July 1–October 31, with a limit on coho salmon harvests of 20 fish in possession and 40 fish annually. The limit on chum salmon harvests was 25 fish in possession and no annual limit.

Allowable gear in the subsistence fishery included beach seines, spears, gaffs, drift gillnets, cast nets, and dip nets. Sockeye salmon could not be retained as incidental catch after the closure of the subsistence fishery in that system.

Harvest Assessment Program

As reported in Table 13-3, in 2020, 48 permit holders fished in the Kasaan area subsistence fisheries with a reported salmon harvest of 432 salmon. In 2019, 42 permits were fished in the area with a reported harvest of 562 fish. The 2020 harvest included 373 sockeye salmon (86%), 53 coho salmon (12%), 4 pink salmon (1%), and 2 chum salmon (1%). Fewer salmon of all species, except chum salmon, were harvested compared to 2019, but sockeye salmon composed a bigger proportion of the harvest in 2020.

A total of 28 permits were issued to residents of Coffman Cove, Edna Bay, Hollis, Kasaan, Naukati Bay, Thorne Bay, and Whale Pass. Approximately 57% of these permits were returned with an estimated harvest of 482 salmon. Slightly more coho (158) and pink salmon (147) were harvested than sockeye salmon (146), with an additional 31 chum salmon harvested. No harvest was reported in Edna Bay, Naukati Bay, or Whale Pass. Not all permits were fished solely in their respective areas.

Ketchikan Area Personal Use/Subsistence Fisheries

Background and History

Some waters within sections 1-A, 1-C, 1-D, 1-E, 1-F, and District 2 fall within the Ketchikan Nonsubsistence Area (Figure 13-1). The BOF made a positive C&T finding for salmon stocks in the waters traditionally used by the Tongass Tlingit of Saxman. These waters include the Naha River, Boca de Quadra in the waters of Sockeye Creek, and within 500 yards of the terminus of Sockeye Creek, and in Hugh Smith Lake (5 AAC 01.716 (a)(1)(B)).³⁴ The McDonald Lake sockeye salmon run is one of the largest in southern Southeast Alaska. Escapement into this system has been below the SEG since 2016, and estimated escapement in 2020 was the lowest on record (Piston and Fish 2021). In 2018, the BOF designated this sockeye salmon run as a stock of management concern.

The communities of Ketchikan and Saxman are the principal users of the fisheries in the Ketchikan area. In 2020, the population of the Ketchikan borough, excluding Saxman, was 13,564. Saxman, located within the Ketchikan Gateway Borough, had a population of 384.³⁵ The nearby community of Metlakatla had a population of 1,454 residents in 2020, compared to an estimated 1,362 in 2019. The population count in Ketchikan was greater than the 2019 estimate, but smaller for the community of Saxman.

33. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

34. The positive C&T findings in District 1 include salmon stocks found within the Ketchikan Nonsubsistence Area.

35. Alaska Department of Labor and Workforce Development (ADLWD), Juneau. n.d. “Research and Analysis Homepage.” Accessed November 9, 2022. <http://live.laborstats.alaska.gov/pop/index.cfm>

Regulations

The 2020 subsistence/personal use salmon permit for the Ketchikan Management Area provided for a July 1–August 30 open season for sockeye salmon at McDonald Lake (Yes Bay), with a possession and annual limit of 20 fish. Kegan Lake and Thorne River were open from June 1–July 31, with a possession limit of 12 sockeye salmon and an annual limit of 50 sockeye salmon. Hugh Smith Lake and Naha River subsistence sockeye salmon fishing was open June 22–July 31 with a 12-sockeye salmon possession limit and no annual limit. Other streams in the Ketchikan Management Area that were open to personal use fishing were open June 1–July 31 with a limit of 10 sockeye salmon in possession and a 20 fish annual limit. Leask Creek, Mahoney creek and lake, and Helm Bay Creek, and marine waters within 500 yards of the terminus of these streams, remained closed. For pink and chum salmon, all stocks in streams with no positive C&T finding within the Ketchikan Management Area, except the Ketchikan road system, were open to personal use fishing. The season for pink salmon ran from June 1–September 30 with a limit of 150 fish in possession and no annual limit. For chum salmon, the open season was from June 1–October 31 with a possession limit of 25 and no annual limit. The season for Chinook salmon ran from July 1 to August 30 in the Herring Bay THA only; the possession limit was 50 fish with no annual limit. Chinook salmon could not be retained in any fishery that occurred in or adjacent to Behm Canal. Sockeye salmon could not be retained as incidental catch. The legal gear types specified under the terms of this permit included beach seines, drift gillnets, spears, gaffs, cast nets, and dip nets. Gillnets were allowed in Yes Bay, Kendrick Bay, Nakat Inlet, and Neets Bay; they could not exceed 50 fathoms in length. Herring Bay gillnets could not exceed 10 fathoms in length, with no mesh size restrictions. A beach seine could not obstruct more than one-half the width of any fish stream and any channel or side channel of a fish stream, including the estuary leading to a fish stream.

Harvest Assessment Program

The total estimated salmon harvest in the Ketchikan area personal use/subsistence fisheries in 2020 was 2,131 fish, including 975 sockeye salmon (46%), 892 pink salmon (42%), 169 chum salmon (8%), 58 coho salmon (3%), and 36 Chinook salmon (2%) (Table 13-3). An estimated 143 permits were fished. In comparison, the estimated 2019 harvest was 1,720 salmon, with 66% of the harvest being attributed to sockeye salmon, 17% to coho salmon, and the remaining 17% coming from harvests of the chum, coho, and Chinook salmon.

As reported in Table 13-4, 141 permits were issued to people with Ketchikan addresses and 61 were returned (43%). One permit was issued to a resident of Loring and one to Ward Cove, but neither were returned. The estimated harvest was 1,824 fish, comprising 1,012 sockeye salmon (55%), 663 pink salmon (37%), 104 chum salmon (6%), 28 coho salmon (2%), and 16 Chinook salmon (1%). In Saxman, 4 permits were issued and 3 returned (75%), resulting in a total harvest of 19 sockeye salmon, 8 pink salmon, and 7 chum salmon. Three permits were issued to Metlakatla residents but were not returned. Fewer permits were issued in all three communities and fewer were returned. In both Ketchikan and Saxman, 2020 harvests were approximately 300 fewer fish than in 2019, with sockeye salmon composing the majority of the decrease. Several hundred more pink salmon were harvested in 2020 as compared to 2019.

RETENTION OF SALMON TAKEN IN COMMERCIAL FISHERIES IN 2020

Commercial fishermen, both residents and non-residents, may retain legally harvested salmon for their own use including personal consumption or for bait but not for sale (5 AAC 39.010(b)), a practice commonly referred to as “home pack”. Any retained fish must be reported on an ADF&G fish ticket at the time of landing (5 AAC 18.355(b)). For some households in Southeast Alaska, “home pack” is the primary source of salmon.

In 2020, commercial fishermen in the Southeast Region reported on fish tickets that they retained for personal or home use a total of 29,354 salmon from their commercial harvests (Table 13-7). This included 13,663 pink salmon (47%), 4,236 Chinook salmon (14%), 4,091 coho salmon (14%), 3,893 sockeye salmon (13%), and 3,471 chum salmon (12%). Compared to the 38,662 salmon retained in 2019, more Chinook and chum salmon were retained while fewer pink, coho, and sockeye were retained.

FEDERAL SUBSISTENCE FISHERIES OF THE SOUTHEAST REGION

Federal regulations apply on inland waters within or adjacent to Admiralty Island National Monument, Misty Fjords National Monument, the Tongass National Forest, and Wrangell-St. Elias National Park and Preserve, excluding marine waters except the Makhnati Island Area. Federal C&T determinations have been made for salmon in all waters of the Southeast Alaska Region. Residents of Juneau and Ketchikan are non-federally qualified users and may not participate in federal subsistence salmon fisheries. A federal permit is required to harvest salmon from federal waters under federal regulations; permits are available from area U.S. Forest Service offices and National Park Service. Regulations concerning the harvest of salmon from federal waters are generally similar to, but in some cases more permissive than, state subsistence regulations. For example, rod and reel is a recognized subsistence gear type under federal regulation. Harvest limits in the federal salmon fishery mirror harvest limits in adjacent state subsistence or personal use fisheries, except for the Stikine River, as detailed above.

In 2020, a total of 196 federal permits were issued and 67 permits were fished (Table 13-8). In total, 1,102 fish were reported harvested under federal subsistence permits, not including the Stikine River harvest earlier reported. The federal subsistence salmon harvest included 452 sockeye salmon, 354 coho salmon, 246 pink salmon, 22 Chinook salmon, and five chum salmon. The federal nonsalmon fish harvest was composed entirely of 23 steelhead trout. Fewer permits were fished in 2020 than in 2019, but about 100 more fish were harvested, mostly pink and sockeye salmon.

OTHER SUBSISTENCE AND PERSONAL USE FISHERIES IN THE SOUTHEAST REGION

Residents of Southeast Alaska and Yakutat harvest a diverse assortment of marine species for subsistence uses. Along with salmon, residents harvest many types of finfishes including halibut, sablefish, lingcod, herring and herring eggs, plus many species of marine invertebrates. Halibut, herring eggs, sablefish, eulachon, trout, and some species of crab have permit programs or harvest assessments in place. For those species that do not, the only estimates of subsistence or personal use harvests come from periodic household surveys conducted by the Division of Subsistence and are available in an online database, the Community Subsistence Information System (CSIS).³⁶ Subsistence fishing for halibut is managed by the National Marine Fisheries Service. Halibut may be taken for subsistence by qualified residents by obtaining a federal subsistence halibut registration certificate. Subsistence harvest data are currently available for communities and tribes in the Southeast Alaska region from 2003–2012 (Fall and Koster 2014); 2014 (Fall and Lemons 2016); 2016 (Fall and Koster 2018); 2018 (Fall and Koster 2020), and 2020 (Sill and Koster 2022). Due to a reduction in funding, since 2012 Pacific halibut subsistence harvest estimates are only collected biennially. While a permit is not required to harvest herring eggs on substrate besides kelp (for which a permit is required), a harvest monitoring program has been in place since 2002 for the harvest of herring eggs from Sitka Sound. Results from that monitoring program can be found in Sill and Cunningham (2021). For shellfish, under specific situations, permits are required for taking king crab; all other shellfish can be taken without a permit. Regulations concerning subsistence shellfish fisheries can be found at 5 AAC 02.100.

The Southeast Region is a geographically large and diverse area of the state. Trends in harvest numbers, composition, and permit participation differ between management areas, but sockeye salmon remains the most harvested salmon species under state subsistence and personal use regulations in all management areas. Despite the 2020 fishing season occurring while Alaskans were still adapting to the COVID-19 pandemic, substantial numbers of residents continued to participate in subsistence and personal use salmon fishing in Southeast Alaska and in the permit program. The estimated numbers of household permits fished in each management area in 2020 ranged from 81 permits in Yakutat Management Area to 784 permits in the Juneau Management Area (Table 13-3). Compared to 2019 estimated harvests, the overall estimated harvest in 2020 was smaller. At the management area level, harvests in the Sitka Management Area decreased substantially and Ketchikan Management Area harvests increased. Regionwide, fewer permits were issued in 2020 than any year since 1996, excepting 2010 (Table 13-2). Additionally, the percentage of issued permits that were returned decreased and were well below the recent 5-year, 10-year, and historical

36. <http://www.adfg.alaska.gov/sb/CSIS/>

averages. Only two years since 1995 have a lower return rate, and one of those years was 2018 when the permit return process changed and moved online.

Table 13-1.–Subsistence and personal use salmon harvests by district, Southeast region, 2020.

Fishing location	Name	Permits fished	Estimated salmon harvest					Total
		Estimated	Chinook	Sockeye	Coho	Chum	Pink	
District 1	Ketchikan-Behm Canal	143	36	975	58	169	892	2,131
District 2	Clarence Strait-East Prince of Wales Island	48	0	373	53	2	4	432
District 3	Inside Waters-West Prince of Wales Island	97	0	7,297	762	149	352	8,561
District 5	Sumner Strait							
District 6	East Sumner Strait-North Frederick Sound	119	3	1,006	598	38	126	1,771
District 7	East Etolin Island-Wrangell Island-Ernest Sound	56	38	496	9	67	85	695
District 8	Stikine River	12	0	34	34	8	43	119
District 9	South Chatham Strait-West Frederick Sound	60	12	621	3	40	4	680
District 10	East Frederick Sound							
District 11	Juneau-Taku Inlet-Stephens Passage	628	24	9,926	575	1	305	10,831
District 12	Angoon-North Chatham Strait-East Chichagof	64	0	1,181	0	0	0	1,181
District 13	Sitka-Outer Baranof and Chichagof-Peril Strait	499	24	9,253	432	89	165	9,963
District 14	Icy Strait-Glacier Bay	17	0	88	0	3	6	97
District 15	Lynn Canal-Chilkat Inlet	463	8	9,033	324	266	1,725	11,356
Yakutat Forelands	Yakutat Forelands	59	8	2,948	1,121	1	101	4,180
Yakutat Bay	Yakutat Bay	29	219	234	34	0	8	495
Subtotal, state permit fisheries		–	372	43,464	4,004	835	3,817	52,491
Stikine River	Stikine River Federal Fishery	67	133	1,185	30	10	279	1,637
Total		–	505	44,649	4,034	845	4,096	54,128

Source ADF&G Division of Subsistence, ASFDB 202 (ADF&G 202).

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

Table 13-2.—Historical subsistence and personal use salmon harvests, Southeast region, 1985–2020.

Year ^a	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
1985	ND	1,271	19	20,006	360	2,951	2,136	25,472
1986	ND	1,354	29	21,974	277	2,840	971	26,091
1987	ND	1,322	34	25,405	117	3,878	1,474	30,908
1988	ND	1,013	94	19,898	97	3,013	1,145	24,247
1989	ND	1,479	580	32,860	1,381	3,113	3,664	41,598
1990	ND	1,543	524	36,376	1,615	3,433	3,529	45,477
1991	ND	1,554	262	37,765	766	3,271	1,741	43,805
1992	ND	1,860	614	53,131	4,939	3,201	2,942	64,827
1993	ND	2,121	537	56,249	3,515	2,583	2,143	65,027
1994	ND	2,239	800	57,097	3,607	4,211	3,639	69,354
1995	ND	2,005	1,203	45,087	3,702	3,370	3,215	56,577
1996	4,172	3,341	1,170	69,216	3,090	5,553	3,204	82,233
1997	4,211	3,529	780	58,782	2,701	4,515	4,080	70,858
1998	4,273	3,629	1,082	62,551	3,264	6,442	3,910	77,250
1999	4,308	3,717	1,393	56,618	1,933	5,557	3,280	68,782
2000	3,771	3,170	1,359	52,867	2,151	3,414	2,619	62,411
2001	3,605	3,116	1,457	55,157	3,266	3,968	4,230	68,080
2002	3,326	2,732	1,857	56,379	3,176	2,183	3,210	66,804
2003	3,595	2,924	1,543	64,670	3,052	6,275	3,894	79,434
2004	3,703	3,235	1,583	61,419	2,446	3,151	3,164	71,763
2005	3,304	2,772	887	39,694	2,283	1,831	4,959	49,655
2006	3,405	2,809	1,356	54,862	1,873	1,731	3,603	63,425
2007	3,156	1,622	1,199	43,100	1,444	721	3,273	49,737
2008	3,153	2,820	1,052	41,548	3,555	1,421	1,897	49,472
2009	3,421	3,097	1,208	49,507	3,616	2,006	3,290	59,627
2010	2,217	1,829	1,828	52,258	3,885	878	3,721	62,571
2011	3,315	2,918	916	41,733	3,060	1,147	5,494	52,350
2012	3,397	2,983	816	51,729	3,322	1,233	2,838	59,938
2013	3,564	3,170	983	49,547	3,799	1,417	3,597	59,343
2014	3,438	3,035	1,013	44,786	3,353	986	2,368	52,507
2015	3,148	2,694	493	38,738	2,990	1,202	4,908	48,331
2016	3,175	2,664	508	47,727	3,598	1,660	3,754	57,248
2017	3,192	2,488	552	44,161	2,880	1,255	4,962	53,810
2018 ^c	3,697	2,050	354	45,256	3,299	1,193	1,572	51,674
2019	3,732	2,870	547	53,687	3,437	1,164	3,081	61,916
2020	2,376	1,559	505	44,649	4,034	845	4,096	54,128

-continued-

Table 13-2.–Page 2 of 2.

Year ^a	Permits		Estimated salmon harvest					
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
5-year average (2015–2019)	3,389	2,553	491	45,914	3,241	1,295	3,655	54,596
10-year average (2010–2019)	3,288	2,670	801	46,962	3,362	1,214	3,629	55,969
Historical average (1985–2019)	3,512	2,485	875	46,910	2,624	2,765	3,186	56,360

Source ADF&G Division of Subsistence, ASFDB 202 (ADF&G 202).

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

b. The only federal harvest data included in this table is from the Stikine River subsistence salmon fishery. Other federal subsistence salmon data is available, but not included in this table.

c. Stikine River Federal Fishery is the only fishery with expanded harvest estimates in 2018. All other harvest data was not expanded into estimates.

ND = no data.

Table 13-3.—Estimated subsistence and personal use salmon harvests by management and use areas, Southeast region, 2020.

Area	Estimated permits fished	Estimated salmon harvest					
		Chinook	Sockeye	Coho	Chum	Pink	Total
Yakutat Management Area	81	228	3,182	1,155	1	109	4,675
Haines Management Area	463	8	9,033	324	266	1,725	11,356
Juneau Management Area	784	24	13,262	586	64	330	14,265
Juneau Personal Use Area	628	24	9,926	575	1	305	10,831
Angoon Subsistence Area	82	0	1,685	0	45	0	1,730
Hoonah Subsistence Areaa	85	0	1,652	11	18	24	1,705
Sitka Management Area	405	24	7,186	421	29	147	7,806
Petersburg/Wrangell Management Area	314	185	3,341	674	164	537	4,901
Petersburg/Wrangell Personal Use Area	131	39	652	633	86	146	1,557
Point Baker/Port Protection Subsistence Area	56	1	884	8	27	107	1,028
Kake Subsistence Areaa	60	12	621	3	40	4	680
Stikine River Federal Subsistence Fishery	67	133	1,185	30	10	279	1,637
Ketchikan Management Area	281	36	8,645	874	321	1,248	11,124
Ketchikan Personal Use Area	143	36	975	58	169	892	2,131
Kasaan Subsistence Area	48	0	373	53	2	4	432
Craig-Klawock-Hydaburg Subsistence Area	97	0	7,297	762	149	352	8,561
Total	–	505	44,649	4,034	845	4,096	54,128

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

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

Table 13-4.—Subsistence and personal use salmon harvests by community, Southeast region, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Anchor Point	1	0	0	0	0	0	0	0
Anchorage	56	14	0	740	8	0	44	792
Angoon	42	14	0	1,176	0	45	0	1,221
Bethel	2	0	0	0	0	0	0	0
Coffman Cove	3	1	0	27	0	0	0	27
Craig	44	22	20	482	98	36	46	682
Delta Junction	1	0	0	0	0	0	0	0
Douglas	60	46	7	809	124	4	33	976
Eagle River	5	1	0	0	0	0	0	0
Edna Bay	1	0	0	0	0	0	0	0
Elfin Cove	1	0	0	0	0	0	0	0
Fairbanks	13	3	0	221	0	0	0	221
Gustavus	15	8	0	92	6	4	13	114
Haines	369	308	8	7,296	303	240	1,347	9,194
Hollis	8	7	0	23	6	17	104	150
Hoonah	44	16	0	930	168	14	11	1,122
Hydaburg	11	1	0	0	0	0	0	0
Hyder	1	1	0	0	0	0	14	14
Juneau	622	425	16	10,400	423	9	493	11,341
Kake	62	29	9	588	34	38	11	680
Kasaan	3	2	0	65	47	0	23	134
Kenai	3	2	0	0	0	0	0	0
Ketchikan	141	61	16	1,012	28	104	663	1,824
Klawock	52	28	0	6,870	561	137	340	7,908
Klukwan	7	3	0	315	2	21	35	373
Kupreanof city	1	0	0	0	0	0	0	0
Loring	1	0	0	0	0	0	0	0
Lost River	2	1	0	50	0	0	0	50
Metlakatla	3	0	0	0	0	0	0	0
Naukati Bay	1	0	0	0	0	0	0	0
Nenana	1	1	0	14	0	0	0	14
Palmer	4	2	0	30	0	0	0	30
Pelican	5	3	0	72	0	0	0	72
Petersburg	113	89	27	1,035	598	17	143	1,819
Point Baker	3	3	0	0	0	23	5	28
Port Alexander	3	3	6	150	10	3	11	180
Saxman	4	3	0	19	0	7	8	33
Sitka	369	243	21	7,013	419	27	94	7,574
Skagway	29	23	0	470	10	1	156	638

-continued-

Table 13-4.–Page 2 of 2.

Soldotna	1	1	2	0	0	0	0	2
Tenakee Springs	1	1	1	8	1	0	5	15
Thorne Bay	10	5	0	32	106	14	16	168
Unknown	1	1	0	0	0	0	0	0
Utqiagvik (Barrow)	1	1	0	147	0	0	0	147
Valdez	1	0	0	0	0	0	0	0
Ward Cove	1	0	0	0	0	0	0	0
Wasilla	12	1	0	300	0	0	0	300
Whale Pass	2	1	0	0	0	0	4	4
Willow	2	0	0	0	0	0	0	0
Wrangell	169	144	147	1,560	39	83	385	2,214
Yakutat	69	41	226	2,706	1,043	0	93	4,068
Total	2,376	1,559	505	44,649	4,034	845	4,096	54,128

Source ADF&G Division of Subsistence, ASFDB 2021 (ADF&G 2022).

Stikine federal fishery communities are included in this table.

Table 13-5.—Subsistence salmon harvests by community for the Federal Stikine River subsistence salmon fishery, Southeast region, 2020.

Community	Permits		Estimated salmon harvest					Total
	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	
Petersburg	29	29	24	276	0	2	32	334
Wrangell	100	100	109	909	30	8	247	1,303
Total	129	129	133	1,185	30	10	279	1,637

Source Cross (2020).

Table 13-6.—Historic subsistence salmon harvests for the Federal Stikine River subsistence salmon fishery, Southeast region, 2004–2020.

Year	Permits	Estimated salmon harvest					Total
	issued	Chinook	Sockeye	Coho	Chum	Pink	
2004	40	12	243	0	11	22	288
2005	35	15	252	53	22	69	411
2006	48	37	390	21	20	23	491
2007	44	36	244	23	11	59	373
2008	50	25	428	42	12	18	525
2009	80	31	723	21	46	66	887
2010	107	61	1,653	135	37	60	1,946
2011	129	66	1,741	40	74	189	2,110
2012	130	53	1,302	112	47	32	1,546
2013	124	101	1,655	186	87	156	2,185
2014	125	86	1,527	143	60	82	1,898
2015	125	71	1,844	131	46	171	2,263
2016	136	59	2,166	73	23	65	2,386
2017	130	60	1,727	117	150	303	2,357
2018	117	94	1,732	57	74	126	2,083
2019	117	72	1,870	71	17	241	2,271
2020	129	133	1,185	30	10	279	1,637
5-year average (2015–2019)	125	71	1,868	90	62	181	2,272
10-year average (2010–2019)	124	72	1,722	107	62	143	2,105
Historical average (2004–2019)	97	637	648	61	76	803	1,501

Source Cross (2020).

Table 13-7.—Salmon removed from commercial catch for home use, Southeast region, 2020.

Year	Salmon harvest					Total
	Chinook	Sockeye	Coho	Chum	Pink	
2020	4,236	3,893	4,091	3,471	13,663	29,354

Source ADF&G fish ticket database.

Table 13-8.—Subsistence salmon harvests, other Southeast Alaska federal subsistence fisheries, 2020.

Year	Permit	Permits issued	Permit used	Dolly Varden	Cutthroat trout	Steelhead	Rainbow trout	Chinook	Sockeye	Coho	Chum	Pink
2020	SE General	196	67					22	452	354	5	246
2020	POWKIa - Spring					21						
2020	POWKIa - Winter					2						

Source Federal Subsistence Management System Permits Database.

a. Prince of Wales and Kosciusko Islands steelhead trout fishery.

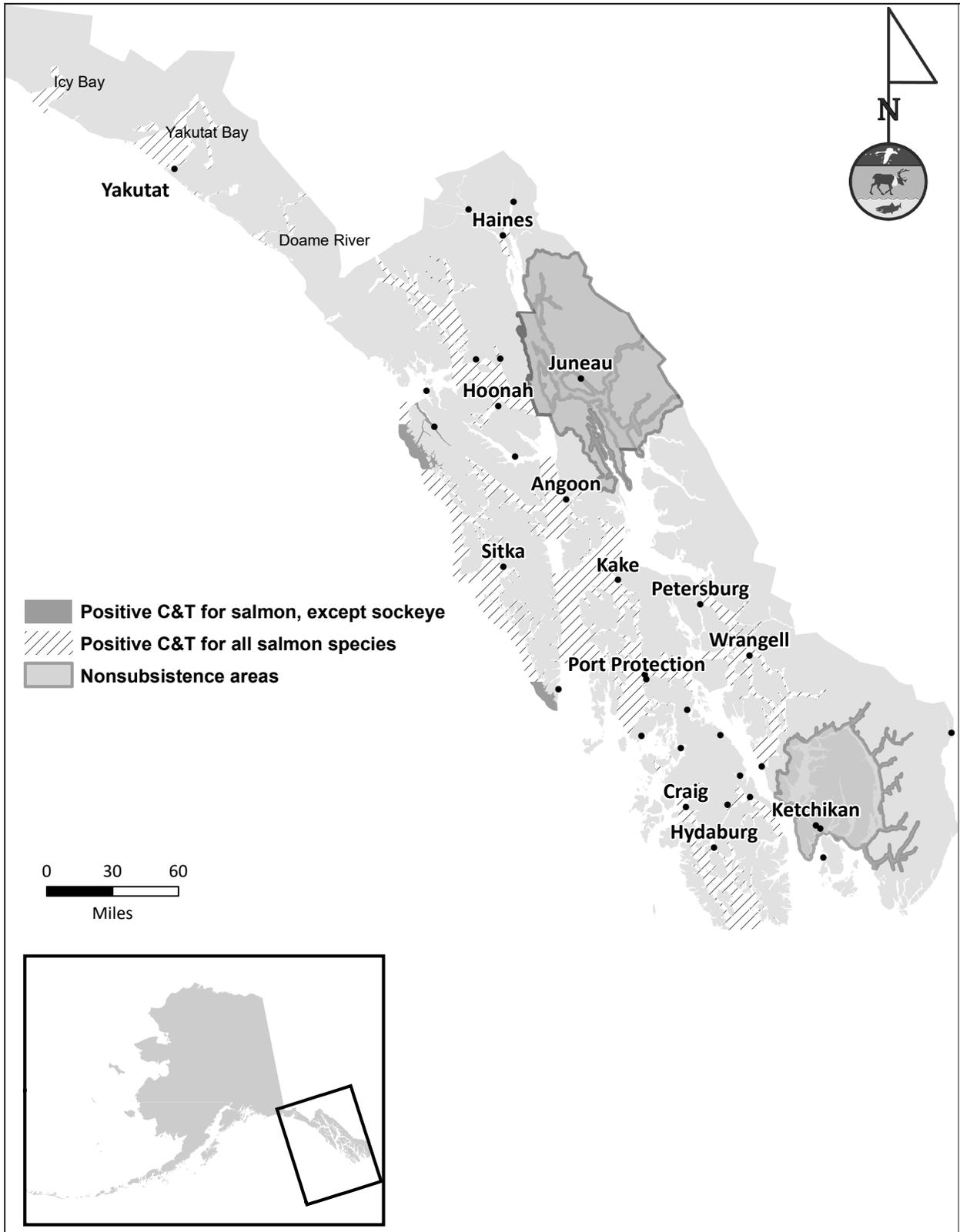


Figure 13-1.—Map of the Southeast Alaska Area.

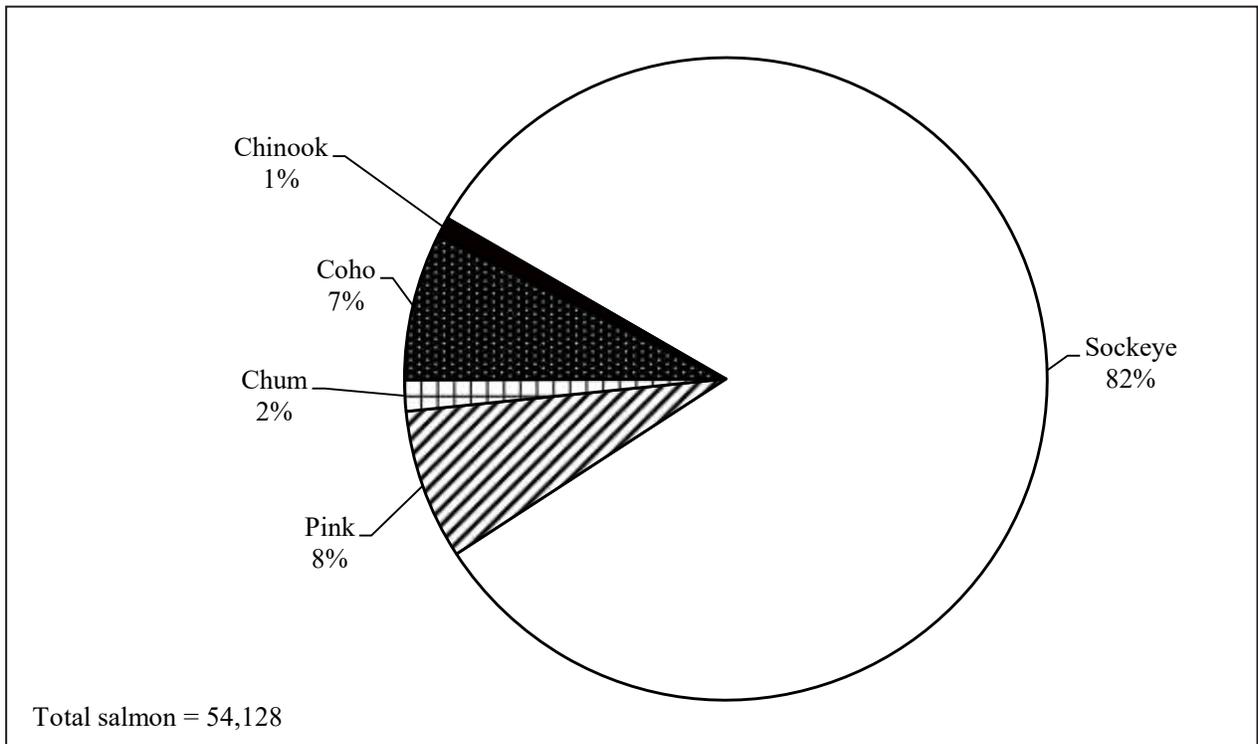


Figure 13-3.—Southeast region subsistence and personal use harvests by species, 2020.

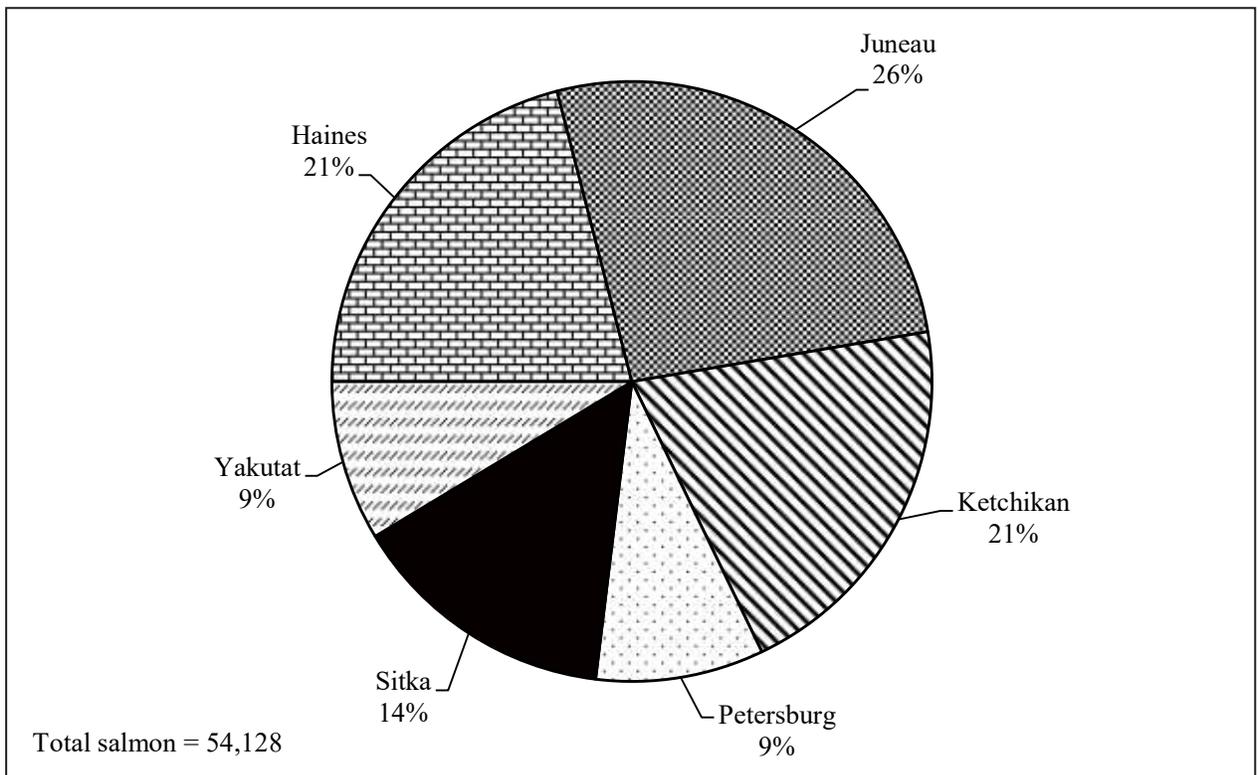


Figure 13-2.—Total salmon harvested by management area, Southeast region, 2020.

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

This annual report for 2020 is the result of the work of a number of Division of Subsistence staff. Former division employees Dave Caylor, Jeannie Heltzel, and Brian Davis, and current employee David Koster helped design and update the Alaska Subsistence Fisheries Database. Data for 2020 were compiled by Terri Lemons with edits and review from Dave Koster and Gayle Neufeld. Division personnel who authored report chapters were Caroline Brown, Tim Bembenic, Molly Brown, Helen Cold, Jesse Coleman, Emily Donaldson, Jacob Egelhoff, Bronwyn Jones, Jacqueline M. Keating, Morgan Urquia, and Chance Wilcox. We also acknowledge the contributions of Lisa Olson and Adam Knight, who reviewed and edited the report.

As noted in the report itself, this is the 22nd in a series of statewide summaries of subsistence and personal use fisheries harvest data. We encourage those who use this report to offer ideas and suggestions to improve future volumes in this series.

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