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Management of Salmon Stocks in the Copper River, 2021–2024: A Report to the Alaska Board of Fisheries

by

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and

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November 2024

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

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ABSTRACT

This report presents information on the management of Copper River commercial, personal use, subsistence, and sport salmon fisheries through the 2024 season. Some estimates of harvest and abundance do not include 2024 data because it is still preliminary. Chinook salmon *Oncorhynchus tshawytscha*, sockeye salmon *O. nerka*, and coho salmon *O. kisutch* are the targeted species within the Copper River fisheries that occur from mid-May through the end of September. From 2014 to 2023, salmon harvests averaged 1.18 million fish in the Copper River District commercial fishery, 5,100 fish in the Copper River District subsistence fishery, 152,482 fish in the Chitina Subdistrict personal use dip net fishery, 76,985 fish in the Glennallen Subdistrict subsistence fishery, 217 fish in the Batzulnetas subsistence fishery, and 10,372 fish in the Upper Copper River sport fisheries. Sockeye salmon account for over 75% of commercial harvest, over 98% of personal use harvest, 96% of subsistence harvest, and 91% of sport harvest. The inriver passage of salmon estimated at the Miles Lake sonar station in 2023 was the seventh-highest, and in 2024 was the ninth-highest in the last 40 years. The 2021 Chinook salmon run was the second-lowest in the last 15 years, and the 2022 and 2023 runs were above the 2009–2023 average of 55,200 fish. The Upper Copper River sockeye salmon escapement goal has been met in 10 out of the last 10 years; the Copper River Delta sockeye salmon escapement goal has been met 9 out of the last 10 years; the Copper River Delta coho salmon escapement goal has been met 9 out of the last 10 years; and the escapement goal for Chinook salmon has been met 6 of the last 10 years. There are no stocks of concern in the Copper River drainage nor for the Copper River Delta drainages.

Keywords: Chinook salmon, *Oncorhynchus tshawytscha*, king salmon, sockeye salmon, *O. nerka*, coho salmon, *O. kisutch*, rainbow trout, *O. mykiss*, Arctic grayling, *Thymallus arcticus*, commercial, personal use, subsistence, sport fishery, harvest, run size, abundance, survey, Alaska Board of Fisheries, management, Copper River, Klutina River, Gulkana River, Cordova

INTRODUCTION

This report provides background information and summarizes the most recent fishing seasons and management actions for the Copper River commercial, subsistence, personal use, and sport salmon fisheries, and briefly summarizes recent research activities.

AREA DESCRIPTION

The Copper River drainage and estuary encompasses approximately 24,000 square miles. It is Alaska's fifth-largest river system (Figure 1). The river drains large portions of Interior Alaska; drainages include Glennallen, Gulkana, Gakona, Chistochina, Chitina, McCarthy, Kenny Lake, Copper Center, Paxson, Mentasta, and Slana. Adjacent to the outlet of the Copper River is the community of Cordova. Alaska's major highways, together with secondary roads and trails, in conjunction with the Copper River itself, provide relatively good access to most of the major fisheries in the area. The Copper River drainage principal land managers are the National Park Service (NPS), U.S. Forest Service, Bureau of Land Management, Ahtna Native Corporation, Chitina Native Corporation, Chugach Native Corporation, Eyak Native Corporation, and the Alaska Department of Natural Resources.

Alaska Department of Fish and Game (ADF&G) shares management responsibilities for salmon stocks in the Copper River drainage and Copper River Delta between the Divisions of Commercial Fisheries and Sport Fish. The Division of Commercial Fisheries administers the Copper River and Bering River Districts' commercial and subsistence fisheries. Chitina Subdistrict personal use, Glennallen Subdistrict subsistence, and Upper Copper River sport fisheries are administered by the Division of Sport Fish.

MANAGEMENT PLAN BACKGROUND

Copper River District Salmon Management Plan

During the 1980 BOF meeting, the *Copper River District Salmon Management Plan* (5 AAC 24.360) was adopted. The original intent of the management plan was to allow limited Chinook salmon *Oncorhynchus tshawytscha*[1] harvest in years of sockeye salmon *O. nerka* conservation. At the 1996 BOF meeting, the plan was rewritten as an umbrella management plan for Copper River salmon fisheries. The intent of the plan was to direct ADF&G to manage the Copper River District commercial salmon fishery to achieve both annual sockeye salmon and "other salmon" escapement goals, and an annual inriver goal for salmon. The initial sockeye escapement goal was a biological escapement goal (BEG) of 300,000 fish.

Currently, sockeye salmon stocks in the Upper Copper River are managed to achieve a sustainable escapement goal (SEG) of 360,000–750,000 fish. The inriver goal is measured at the Miles Lake sonar and is established annually. The components of the inriver goal are the SEG lower bound, spawning escapement of other salmon, sockeye salmon brood and surplus for the Gulkana Hatchery, and subsistence, personal use, and sport harvests (Table 1). The sockeye salmon SEG and other salmon targets and apportionments for personal use, subsistence, and sport fisheries in the inriver goal are fixed by regulation. The hatchery broodstock and surplus components are determined annually.

Copper River Chinook (King) Salmon Management Plan

There are 3 proposals that address Chinook salmon escapement goals for the Copper River:

1. Proposal 54 – In the commercial fishery, during the statistical weeks 20 and 21, the commissioner may not **close** [open] more than **3** [ONE] 12-hour fishing period**s** within the inside closure area of the Copper River District described in 5 AAC 24.350(1)(B).
2. Proposal 55 – Restrict commercial guide services in the Upper Copper River District when the Copper River commercial fishery is restricted.
3. Proposal 58 – Allow the department to liberalize the Chinook salmon annual limit in the Chitina Subdistrict personal use dip net salmon fishery.

The *Copper River King Salmon Management Plan* (CRKSMP; 5 AAC 24.361) was adopted during the 1996 BOF meeting. The original purpose of this plan was to ensure that the escapement of Chinook salmon into the Copper River drainage provided at or above historic levels, by reducing the harvest potential of the commercial, sport, and personal use fisheries by 5%. This was done by allowing inside statistical area closures, effectively closing off most waters in the middle of the district inside the barrier islands (Figure 2) in the commercial fishery during statistical weeks 20 and 21 (14-day period with an annual start date as early as May 10 and end date as late as May 30), reducing the annual bag limit of Chinook salmon from 5 to 4 in the personal use fishery, and through a sport fish guiding closure on Tuesdays in the sport fishery.

In 1999, the BOF amended the plan. Commercial, personal use, and sport fisheries were managed to achieve a spawning escapement range of 28,000–55,000 Chinook salmon. Sport fish annual limit was reduced from 5 to 4 Chinook salmon (an action resulting from repealing the sport fishing guiding closure on Tuesdays), and personal use language was removed because the Chitina

[1] The colloquial name, *king salmon*, appears as quoted material in this report (italicized); otherwise, the common name *Chinook salmon* is used.

Subdistrict personal use fishery was changed to a subsistence fishery. In 2003, the management plan was again revised, and the SEG was updated to 24,000 Chinook salmon or more, and language reinstating the personal use fishery was included because the Chitina Subdistrict was changed back to a personal use fishery. In 2006, the management plan was revised to direct the commissioner to open no more than 1 fishing period per week during statistical weeks 20 and 21 within the inside closure area of the Copper River District.

In 2011, the management plan was revised to restrict the commercial fishery to a single 12-hour period within the inside closure area during the combined statistical weeks 20 and 21. In addition, the *Copper River Personal Use Dip Net Salmon Fishery Management Plan* (5 AAC 77.591) was revised to delay the potential range of opening dates for the Chitina Subdistrict personal use dip net fishery from June 1–7 to June 7–15. Language was also added to the CRKSMP to provide management guidance for the Chitina Subdistrict personal use fishery and the Glennallen Subdistrict subsistence fishery if the commissioner determined that additional conservation measures were necessary to achieve the escapement goal.

The CRKSMP was revised in 2014 to provide additional management authority within the Glennallen Subdistrict subsistence salmon fishery to (in order of priority) (1) establish a bag limit for Chinook salmon taken by fish wheel, (2) reduce bag limits for Chinook salmon taken by fish wheel and dip net, (3) prohibit retention of Chinook salmon taken by fish wheel and dip net, and (4) modify methods and means if additional measures are necessary to achieve the escapement goal.

The CRKSMP was last revised in 2021 when the escapement goal was changed from an SEG of 24,000 or more to a sustainable escapement goal of 21,000–31,000 Chinook salmon.

STOCK ASSESSMENT INFORMATION

Run Timing and Distribution

Chinook salmon returning to the Copper River begin passing through the Copper River District and enter the Copper River in early May, headed for spawning locations in tributaries of the Upper Copper River. Run timing patterns vary among major spawning stocks, but the general run timing pattern is upriver stocks migrating up the river earlier than downriver stocks (Savereide 2005). Most of the Chinook salmon run (~85% on average) enters the river from mid-May through mid-June and run entry into the river is essentially complete by July 1. Chinook salmon harvest in the commercial fishery is on average 50% complete by the end of May and 90% complete by mid-June.

More than 100 stocks of sockeye salmon with varied run timing characteristics migrate through the Bering River and Copper River District commercial fisheries (Figure 2). Sockeye salmon run timing in the Bering River District begins in early June and continues through mid-July. In the Copper River District, run timing begins in mid-May and ends in mid-to-late August. Three major sockeye salmon stock groupings return to the Copper River and Copper River Delta (CRD): Copper River wild stocks, Gulkana Hatchery stock, and CRD stocks. The most abundant sockeye salmon component, referred to as the Copper River wild stocks, is bimodal (e.g., 2021 Copper River daily inriver passage graph; Figure 3), and dominant early and late run components spawn in Copper River tributaries above Miles Lake. The early-timed Copper River wild stocks are in the commercial fishing district starting in mid-May, peak in late May/early June, and decline into mid-June. The late-timed Copper River wild stocks and hatchery stock sockeye salmon first enter

the commercial fishing district from early to mid-June, peak in late June/early July, and decline in the fishery through August. This harvest timing in the commercial fishery is roughly 1 to 2 weeks travel time in advance of tagging work done just below Miles Lake to establish sockeye salmon run timing characteristics. The second component is an enhanced sockeye salmon run that is produced at the Gulkana Hatchery. This enhanced run has a run timing that overlaps with the late-timed Copper River (Table 2) and CRD wild stock components. The Gulkana Hatchery has been producing sockeye salmon since the early 1970s, and has produced enhanced runs of up to 1.1 million fish but has recently had weak returns with 6 small runs of less than 70,000 fish occurring in the last 7 years.

During 2005–2008, a radiotelemetry study was conducted by the Native Village of Eyak (NVE) to determine spawning distribution and define migratory timing patterns of sockeye salmon in the Copper River. The spawning abundance of sockeye salmon in the major drainages was highest in the Klutina River in all 5 years, averaging 40% of the overall proportion of radiotagged sockeye salmon (Figure 4). Stock-specific run timing varied among stocks in each of the years (2005–2008) but showed a consistent pattern of upriver stocks entering first (e.g., Upper Copper River drainage and Gulkana River stocks) and lower river stocks entering last (e.g., Klutina and Tonsina River stocks; Table 2; Wade et al. 2009).

The third group, referred to as the CRD stocks, spawns in delta systems below the Chugach Mountains between Eyak Lake and the Katalla River (Figure 2). Some components of the CRD stock group have run timing that begins in mid-May, but most of the CRD run is not abundant until mid-June and continuing through late July. Much of the CRD sockeye salmon run overlaps the Gulkana Hatchery sockeye salmon run. The commercial fishery is actively managed to ensure wild stocks are not overexploited while harvesting the potentially dominant hatchery component. Escapement timing and distribution are assessed through weekly aerial surveys.

Finally, there are 2 stocks of coho salmon *O. kisutch* that return to the management area. A small upriver stock of Copper River coho salmon shares a run timing with a much larger stock that returns to streams along the CRD. Coho salmon return to the Copper River District from mid-August through October.

Escapement Enumeration

The 3 methods used to estimate salmon that return to the Copper River are the Miles Lake sonar, aerial surveys of the Upper Copper River tributaries and CRD/Bering River District streams, and a mark–recapture study to estimate inriver abundance of Chinook salmon.

Miles Lake Sonar

The Miles Lake sonar project is the primary management tool for the Copper River and operates from mid-May to the end of July. Sonar passage includes all salmon species and is primarily used for inseason sockeye salmon management and estimating sockeye salmon run strength. Although Chinook and coho salmon pass the sonar site, they constitute a minor portion of the total count. A species apportionment pilot project to differentiate larger-sized Chinook salmon from a mix of smaller-sized Chinook and sockeye salmon has been conducted using Adaptive Resolution Imaging Sonar (ARIS) technology since 2017. This project is slated to continue in 2025. Daily salmon escapement projections, based on average run timing and the estimated preseason total salmon run, are compared to actual daily counts to project run timing and abundance inseason. Temporal achievement of the inriver goal should ensure adequate escapement for all upriver

sockeye salmon components. Sonar is the primary commercial fisheries management tool until mid-June, when aerial surveys are used to estimate escapement into the delta systems. The Miles Lake sonar is the primary management tool for the Chitina Subdistrict personal use fishery because the weekly sonar counts are used to set the fishing schedules for the following week (i.e., hours open per week) through mid-August. For the month of September, the personal use fishery remains open by regulation.

Aerial Surveys

Aerial surveys of CRD/Bering River District streams (Figure 5) are conducted weekly from mid-June through mid-October. These surveys are used in conjunction with inriver counts at the Miles Lake sonar to adjust commercial fishery periods to assure adequate escapement of sockeye and coho salmon into the CRD/Bering River District streams. Due to a large number of spawning systems in the CRD and Bering River District, total escapement enumeration cannot be obtained. Instead, an escapement index is estimated from aerial surveys of selected streams. The observed weekly escapement indices are compared to historical weekly escapement indices, which were calculated using 1971–2016 escapement observations. The SEG range for the CRD (55,000–130,000 sockeye salmon) is compared to the combined peak count for each index stream.

Chinook salmon are broadly distributed throughout the Copper River basin and have been observed in approximately 40 tributaries. Aerial surveys have been conducted for 35 of these systems. However, only 9 of these streams were surveyed consistently from 1966 to 2004. In 2005, the number of surveyed spawning streams was reduced to 4 (Gulkana River, East Fork of the Chistochina River, and Manker and St. Anne Creeks in the Klutina River drainage) because data gathered from the Chinook salmon radiotelemetry study indicated only a minor component of the Chinook salmon run spawned in the clear water tributaries of the glacial rivers (such as the Tazlina and Tonsina Rivers). Assessment of Chinook salmon spawning escapements through aerial surveys of key index areas does not provide an estimate of the total spawning population. The current 4 index streams provide a postseason index of run strength for Upper Copper River Chinook salmon stocks.

Chinook Salmon Inriver Abundance Assessment

Chinook salmon spawning escapement has been estimated by the mark–recapture fish wheel study conducted by NVE since 2003. The objectives of the study are to estimate the annual drainagewide inriver passage of Chinook salmon in the Copper River and to further develop an ongoing, long-term monitoring program to ensure the continued involvement of NVE in the active management of Copper River fisheries. This program estimates the number of Chinook salmon greater than 500 mm (measured snout to tail fork) passing Baird Canyon located just upriver from Miles Lake and before any inriver fisheries. The inriver abundance estimate is generated using 2-event mark–recapture techniques such that the estimates are within 25% of the actual inriver abundance, 95% of the time (Piche et al. 2016). The project has generated inriver abundance estimates for 2003–2024 (Table 3; Piche et al. 2016).

Estimates of total Chinook salmon escapement were determined by subtracting the subsistence, personal use, and sport harvests from the inriver abundance estimates. The resulting escapement estimates were 18,431 in 2021, 32,005 in 2022, and 40,254 in 2023 (Table 4; Botz et al. 2024).

Gulkana River Counting Tower

Since 2002, ADF&G and the Bureau of Land Management have jointly operated a counting tower on the Gulkana River above the West Fork to estimate the escapement of Chinook salmon. Counts at this location do not provide an enumeration of total inriver escapement but do provide a reliable estimate of fish escapement to the area upstream of the counting tower. Counts are conducted from late May to mid-August, and 10-minute counts are expanded to provide an estimate of passage for each hour. Based on the 2002–2004 drainagewide radiotelemetry study on Chinook salmon distribution and run timing in the Copper River drainage, it was estimated that 70% of all Gulkana River Chinook salmon spawned above the counting tower (Savereide 2005). A 2013–2015 radiotelemetry study conducted on Gulkana River Chinook salmon indicated that 45–54% of Chinook salmon spawned upstream of the counting tower during those years (Schwanke and Tyers 2018). A second drainagewide radiotelemetry study conducted from 2019 through 2021 indicated 58–68% of Gulkana River Chinook salmon spawn upstream of the counting tower (Schwanke and Piche 2023). During the various radiotelemetry years, water levels in the Gulkana River influenced upriver spawning extent.

Gulkana River tower estimates loosely track overall Copper River Chinook salmon run entry. Annual estimates of Chinook salmon escapement upstream of the counting tower generally declined from 2002 through 2017 and has been relatively stable since, averaging around 4,800 Chinook salmon (Figure 6). The lowest estimate occurred in 2016 (1,122 Chinook salmon). Passage by the tower reached its highest level in 2019 (8,400 Chinook salmon).

Gulkana Hatchery Contribution Monitoring

ADF&G and Prince William Sound Aquaculture Corporation (PWSAC) use otolith marks to monitor the contribution of sockeye salmon produced at the Gulkana Hatchery to the Copper River fisheries. Fry are marked with strontium chloride while rearing at the hatchery; the otoliths retain this mark even after fish are released from the hatchery and mature at sea. Adult sockeye salmon harvested in the commercial fishery are sampled each week for contribution estimates. Otoliths are removed from these fish, and a scanning electron microscope was used to detect the strontium mark from the hatchery; the proportion with this mark is then used as the hatchery proportion of the commercial harvest for that period.

This contribution assessment has been conducted in some form since 1984. It began in the Chitina Subdistrict personal use dip net fishery in 1984, expanded to the Glennallen Subdistrict subsistence fishery from 2013 to 2015, and again from 2019 to 2022 to include the Glennallen Subdistrict subsistence fishery. Contributions were originally estimated using coded wire tags placed in juveniles but switched to 100% otolith strontium marking in 2004. The hatchery's contribution to the personal use fishery has averaged 10% over the last 5 years, 2019–2023. From 2004 through 2015, contributions averaged 16%. Due to low survivals of hatchery stock sockeye salmon, contributions have varied 4–23% since 2015.

OVERVIEW OF COPPER RIVER SALMON FISHERIES

Salmon fisheries in the Copper River primarily harvest sockeye, Chinook, and coho salmon. These salmon stocks are harvested in 4 fisheries: (1) a commercial gillnet fishery at the mouth of the Copper River; (2) a subsistence gillnet fishery at the mouth of the Copper River, a subsistence dip net and fish wheel fishery in the Copper River between Chitina and the Slana River confluence, and a subsistence fish wheel, dip net and spear fishery in Tanada Creek and the Copper River near

the traditional village site of Batzulnetas; (3) a personal use dip net fishery in the Copper River near Chitina; and (4) sport fisheries that occur in various tributaries (Figure 1).

Since 1999, federal subsistence fisheries have occurred in the Glennallen and Chitina Subdistricts and the Batzulnetas area. Prior to 1999, participants in these subsistence fisheries took part in the state fisheries, and overall participation has not increased because of the federal fisheries. Since 1984, total harvest from Copper River fisheries (including federal subsistence harvest) has ranged as follows: (1) for Chinook salmon, from 11,500 in 2020 (Table 4) to over 87,300 in 1998; (2) for sockeye salmon, from 193,500 in 2018 (Table 5) to 3.20 million in 1997; and (3) for coho salmon, from less than 23,600 in 1997 to nearly 684,000 in 1994.

COMMERCIAL FISHERIES

The adjoining Copper River and Bering River Districts include the waters of the Gulf of Alaska between Hook Point and Cape Suckling (Figure 5).

The Copper River District is managed using 3 primary tools: (1) fish counts at the Miles Lake sonar site; (2) aerial escapement surveys of lower delta systems; and to a lesser extent, (3) weekly anticipated harvest estimates (forecasts) with environmental conditions such as river height considered. The anticipated catch is based on the current year midpoint harvest forecast and the 1998–2007 harvest timing. The management objective is to have a fishing schedule of 2 evenly spaced periods per week starting on the first Monday or Thursday after May 15. Fishing schedules are adjusted during season to account for variations in river flow, run timing, run strength, fishing effort, and other factors. On August 15, ADF&G's management priority switches to coho salmon management. The Bering River District is generally managed concurrently with the Copper River District when Bering River District sockeye and coho salmon escapement aerial surveys indicate that commercial fishing is warranted.

The inside waters closure area was specifically created as a tool to conserve Copper River Chinook salmon. This management strategy was developed by ADF&G based on catch data showing most of the Chinook salmon are harvested in the shallow inside waters area. ADF&G has implemented regular inside-waters closures as a tool to reduce Chinook salmon harvest in Copper River District. The BOF provided additional guidance with the adoption of the *Copper River King Salmon Management Plan* that limits the number of commercial openings inside of the barrier islands (inside closures) to no more than one 12-hour fishing period during statistical weeks 20 and 21 to increase the probability of achieving the Chinook salmon SEG. To conserve Copper River Chinook salmon, ADF&G has used discretionary management authority to implement many more inside closures than required by regulation during each of the last 16 seasons.

The Copper River District's commercial Chinook and sockeye salmon harvest has varied widely around the annual average over the last decade relative to the long-term average (1999–2023; Botz et al. 2024). Chinook salmon commercial fishery harvest during 2014–2023 averaged 45% less than the long-term average (25 years) of 22,100 fish; the annual harvest ranged from 6,100 in 2020 to 23,700 fish in 2015 (Table 4 and Figure 7). Historically, small Chinook salmon runs in 2014, 2016, 2020, and 2021 resulted in missed escapement goals and commercial catches that all ranked in the lowest 20 years since statehood. In contrast to Chinook salmon, the 2014–2023 average sockeye salmon commercial harvest did not decline to the same degree, settling in at 22% below the 25-year average of 1.13 million fish. However, the magnitude of variation in harvest has increased and made it more challenging for fishery participants; harvests have ranged from 48,100 to 2.06 million sockeye salmon over the past 10 years (Figure 8). Annual commercial sockeye

salmon harvests in 2018 and 2020 (Figure 8 and Table 5) were the third and fifth smallest harvests, respectively, since 1889, and are central to a recent application for emergency disaster declaration funding in the gillnet fishery.

The coho salmon commercial harvest has also varied widely over the last 25 years, ranging from 44,100 to 504,000 fish (Botz et al. 2024), but during the last 10 years (Table 6) has acted as a stabilizing force during years of poor sockeye and Chinook salmon harvest. During the 2018, 2020, and 2021 seasons, when the Chinook and sockeye salmon harvest values were near all-time lows, coho salmon harvest, in concert with above-average grounds prices, provided an infusion of funds into the local economy ranging from $2.7 to $6.1 million (Botz et al. 2024).

Another source of harvest accounted for in the commercial fishery is home pack. Commercial fishers may withhold a portion of their catch as home pack. Any commercially caught finfish not sold must be reported on a fish ticket. From 2014 through 2023, an average of 303 permit holders per year reported retaining an average of 580 Chinook and 6,550 sockeye, or 2 Chinook and 22 sockeye salmon per permit, from commercial harvests. Home pack harvest over this period averaged <1% and 1% of the total harvest for sockeye and Chinook salmon, respectively. Home pack of Chinook and sockeye salmon fluctuated near the 2014–2023 average, and during seasons of larger runs fishers retained more fish from their commercial harvest. Home pack retention declined during seasons with weak returns, such as 2018. Due to a poor Copper River sockeye salmon run in 2018, the commercial fishery was closed for 41 days, and Chinook and sockeye salmon home pack harvest dropped 80% to 90% below average (Tables 4, 5, and 7). The 2020 commercial home pack harvest was 225 Chinook and 1,455 sockeye salmon (Botz et al. 2024), showing that home pack harvest will be severely reduced under a weak run and conservative management scenario, like 2018. Low salmon abundance increased the likelihood that fish would be sold to meet financial needs instead of being kept for home pack, and historically low fishing time during these 2 years further reduced the number of opportunities to keep home pack.

SEASON SUMMARIES

There are 4 proposals currently before the BOF that concern commercial fisheries in the Copper River and Bering River Districts:

- Proposals 51, 52, and 53 – Prohibit commercial salmon fishing in the Copper River District after 2 fishing periods until a certain number of salmon have been counted at the Miles Lake sonar.
- Proposal 54 – Allow for a maximum of 3 (12-hour) fishing periods where the inside closure area of the Copper River District is closed during statistical weeks 20 and 21.

2021

Key Highlights from the 2021 Fishing Season:

1. **Challenges:** The season started with historically weak Chinook salmon returns and low early-run sockeye salmon numbers. This resulted in conservative management, including inside waters closures through mid-June and only 48 hours of fishing during the first month of the season.
2. **Chinook salmon harvest:** Harvest peaked May 17 with 2,230 Chinook salmon and totaled 7,500 fish for the season, 43% below the 2011–2020 average of 13,063 fish. Chinook salmon escapement was estimated at 18,432 fish, 26% below the SEG lower bound of 24,000.

3. **Sockeye salmon harvest:** The 405,000 sockeye salmon harvest was 68% below the 2011–2020 average of 1.25 million fish. Peak harvest occurred June 17–18, with 38,900 fish caught. Nearly 70% of the season's total sockeye salmon harvest occurred between mid-June and August.
4. **Coho salmon harvest:** Coho salmon returns were lower than expected with a total harvest of 146,000 fish, which was 33% below the preseason forecast of 219,000. Despite low harvest, coho salmon significantly boosted the exvessel value and accounted for 20% of the total value in the Copper River District.

The 2021 commercial fishery was marked by a historically weak Chinook salmon harvest and low early-season sockeye catches, leading to an extended early season closure. Copper River sockeye and Chinook salmon runs were significantly below average, prompting conservative management measures. However, as Chinook salmon passage neared completion and sockeye salmon strength improved, the fishery resumed regular operations from mid-June until the season's end. Below-average coho salmon runs in both the Copper and Bering River Districts necessitated continued conservative management.

Preseason harvest forecast was for 13,000 Chinook, 844,000 sockeye, and 219,000 coho salmon;[2] however, management required significantly more conservative approach to adapt to the smaller actual runs. The weak sockeye salmon harvest and low inriver passage resulted in only 48 hours of fishing during the first month, in contrast to typical longer durations. In response to the poor Chinook salmon run, management expanded closed waters under (5 AAC 24.350(1)(B)), effectively closing most inside waters. These closures remained in effect through mid-June, exceeding regulatory requirements to protect Chinook salmon.

By mid-June, the commercial harvest pattern stabilized, with Miles Lake sonar passage consistently exceeding objectives. This stability allowed for a return to a regular 2-period-per-week fishing schedule. The Copper River Delta sockeye salmon aerial survey escapement index became an increasingly important management indicator as the season progressed. While surveys fluctuated around minimum escapement in mid-June, they improved by mid-July, permitting fishing opportunities to increase from 12- and 24-hour periods to alternating 36- and 24-hour periods. A near-average total of 480 hours of fishing were recorded from mid-June through mid-August, resulting in a harvest of 278,300 sockeye salmon, which was 69% of the total sockeye salmon harvest for the season (Scannell et al. 2023).

Overall, harvests of Chinook and sockeye salmon were notably low in 2021. The commercial harvest of 7,500 Chinook salmon (Table 4) was 43% below the previous 10-year average of 13,063, with an additional 280 retained for home pack, also below the average of 714. Peak Chinook salmon harvest occurred on May 17, with 2,230 caught during a 12-hour period (Scannell et al. 2023). This suggests that early season conservation measures (inside closures and reduced time) were well-timed to reduce Chinook salmon harvest potential. The Copper River's commercial sockeye salmon harvest of 405,000 fish (Table 5) was 68% below the 10-year average of 1.25 million, with 3,600 retained for home pack—less than half the recent average of 7,807. The peak sockeye harvest occurred during June 17–18, with 39,800 caught in 24 hours, significantly later than typical peak harvest timing. The sockeye salmon harvest was composed of 349,000 (86%) wild fish, whereas 47,200 (12%) were from Gulkana Hatchery. A total of 448 out

[2] Advisory Announcement issued on April 21, 2021. https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1258912184.pdf

of 535 drift gillnet permits were active in the Copper River District in 2021, with effort peaking on May 24 when 394 permits fished during a 12-hour opening (Scannell et al. 2023).

The coho salmon harvest ranked fourth lowest in the last decade, below the average of nearly 70,000 fish. The 2021 coho salmon commercial harvest totaled 146,000 fish (Table 6), which was 33% less than the 219,000 fish harvest forecast (Scannell et al. 2023). Despite this lower harvest, the coho run significantly increased the fishery's exvessel value, highlighting the importance of this late-season fishery. Coho salmon accounted for nearly 20% of the Copper River District's total exvessel value in 2021, with an average ground price of $1.84 per pound and an average weight of 7.44 pounds, resulting in a preliminary total exvessel value of $2.01 million (Scannell et al. 2023).

Effort for coho salmon peaked during the August 30–31 fishing period, with 228 permit holders delivering 36,900 coho salmon. The highest harvest occurred on September 6–7, with 212 permit holders delivering 39,500 coho salmon. Both peak effort and harvest indicated typical run timing for coho salmon in the district. Effort remained high from mid-August through late September, averaging 163 permit holders per period. The average harvest during late August and early September was 38,200 coho salmon per period, notably below the historical average of 106,000 (Scannell et al. 2023).

The inriver goal for salmon passing the Miles Lake sonar site was 605,000 to 955,000 salmon. The 2021 sonar passage estimate was 751,262 (Table 3 and Figure 3), approximately 230,000 fewer than the 2011–2020 average (Scannell et al. 2023). The Copper River sockeye salmon spawning escapement estimate of 506,800 fish was nearly double the SEG lower bound of 360,000, but 25% below the 2011–2020 average of 675,200 (Table 5; Scannell et al. 2023). The Chinook salmon escapement estimate of 18,431 fish (Table 4) was below the 2011–2020 average of 27,700 and under the 24,000 lower bound SEG (Scannell et al. 2023).

Results from aerial surveys in the Copper River District indicated an above-average sockeye salmon run and an average coho salmon run. Peak index counts reached 87,100 sockeye salmon and were within the SEG range of 55,000–130,000 (Scannell et al. 2023). With the commercial fishery regularly opening from mid-June through mid-August, this escapement level confirmed the appropriateness of maintaining a 2-period-per-week schedule. The coho salmon peak index counts within the CRD based on aerial surveys was 45,500 fish and was within the SEG range of 32,000–67,000 fish (Scannell et al. 2023). This level of escapement, near the middle of the escapement goal range, was achieved while allowing a regular fishing schedule.

In 2021, a directed fishery for sockeye salmon in the Bering River District was not feasible due to low fish numbers; however, the coho salmon run proved adequate to support a regular fishery. Whenever possible, the Bering River District was managed concurrently with the Copper River District. The Bering River District effectively remained closed to commercial sockeye salmon harvest until escapement levels approached anticipated indices. Throughout the sockeye salmon season, only 1 aerial survey index count reached the target range, with an escapement index of 13,800 sockeye salmon below the SEG range of 15,000–33,000.

The Bering River District's coho salmon commercial harvest of 42,800 fish was the tenth lowest since 1995 and well below the 2011–2020 average. Aerial surveys confirmed an escapement index of 19,500 coho salmon, aligning with the SEG range of 13,000–33,000 (Scannell et al. 2023). Similar to the Copper River District, the combination of average coho salmon escapement and

below-average harvest demonstrated effective management actions that allowed for controlled harvest opportunities while meeting escapement goals.

2022

Key Highlights from the 2022 Fishing Season:

1. **Challenges:** Cool weather and late ice-out conditions delayed early-season Chinook and sockeye salmon runs, which affected harvest timing and fishing schedules. Additionally, late-season precipitation and poor weather hindered several coho salmon aerial surveys.
2. **Chinook salmon harvest:** The Chinook salmon run was stronger than expected, with 12,300 fish harvested, nearing the 2012–2021 average of 12,000. Peak harvest occurred on May 16 when 3,000 fish were harvested during a 12-hour opener.
3. **Sockeye salmon harvest:** The 601,000 sockeye salmon harvest was 16% below the forecast and 45% below the 2012–2021 average of 1.09 million fish. Harvest peaked in late May and early June when 302,000 sockeye salmon were harvested. The Gulkana Hatchery sockeye salmon run was the lowest since the early 1980s.
4. **Coho salmon harvest:** Low coho salmon returns were probably due to the 2019 drought, and the fishery was closed early due to weak escapement. Only 44,100 fish were harvested, which was roughly 80% below the 2012–2021 average.

The 2022 commercial fishery was notable for above-average Chinook salmon and below-average sockeye salmon runs that still allowed for regular fishing opportunity. A weak coho salmon run, likely affected by poor survival from a 2019 heat wave, resulted in the fishery being closed early. The harvest forecast for the Copper River District was 716,000 sockeye, 211,000 coho, and a total run forecast of 40,000 Chinook salmon.[3] Early in the season, sockeye salmon harvests and inriver passage were below average, necessitating short-duration fishing periods through mid-June. Once Chinook salmon run timing was nearly complete and sockeye salmon runs improved, a stable fishing schedule was implemented for the remainder of the season. However, weak coho salmon runs led to conservative management and early closures for those fisheries.

Early season fishing time was initially reduced due to weak early sockeye salmon counts and uncertainty in Chinook salmon strength. Harvest during the first 2 periods (May 17 and 20) was below expectations, prompting a conservative schedule of once-weekly openings. Large spring tides coincided with early openings, which typically boost salmon movement and commercial harvests. However, concerns over cool weather and late ice-out increased risks of expanding fishing time through June, the peak run period, justifying the conservative management approach.

To further protect Chinook salmon, inside waters were kept closed longer than regulations required. The inside closure area was expanded to include waters east of Kokinhenik Bar, effectively reducing potential harvests. These waters opened in late June as confidence in meeting escapement goals increased (Olson et al. 2023).

Early season sonar passage at Miles Lake was below cumulative objectives due to delayed sonar deployment and late spring conditions including cold water temperatures and extensive ice on shore and in the river. By May 31, cumulative counts were nearly 107,000 fish below minimum objectives. The cumulative count deficit was made up by June 9 (Figure 9) indicating that early segments of sockeye and Chinook salmon runs were well represented in passage to date. To

[3] Advisory Announcement issued on April 18, 2022. http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1368260732.pdf

achieve this level of inriver passage, the commercial fishery was restricted to 96 hours through the first month of the season with an extended closure timed to coincide with historical peak harvest timing in late May and early June (Olson et al. 2023).

By mid-June, the commercial harvest stabilized and sonar passage exceeded objectives, leading to longer fishing periods. Aerial surveys of delta stocks indicated sockeye salmon escapement was within management targets, allowing fishing opportunities to increase from 24-hour to alternating 36- and 48-hour periods by late June, totaling 648 hours of fishing time. During this period, 302,000 sockeye salmon were harvested, accounting for 50% of the season's total (Olson et al. 2023).

Harvests of Chinook salmon were average, while sockeye salmon were below average. A total of 434 out of 535 drift gillnet permits were active, continuing a 4-year decline in effort. The commercial harvest of 12,300 Chinook salmon (Table 4) was similar to the 2012–2021 average of 12,000. Peak Chinook salmon harvest occurred on May 16 when 3,000 Chinook salmon were harvested during a 12-hour fishing period. The sockeye harvest of 601,000 fish (Table 5) was 16% below the forecast and 45% below the average of 1.09 million. Most sockeye salmon harvested were wild, with only 3% from Gulkana Hatchery and 1% from Main Bay Hatchery. Gulkana Hatchery runs were severely diminished, with 21,900 fish, the smallest since the early 1980s. Fishing effort peaked during the third fishing period that began May 26, when 398 permits were fished during a 12-hour opening, although harvest did not peak until the fourth period (12 hours, June 2) with 85,700 sockeye salmon (Olson et al. 2023).

The 2022 Miles Lake inriver salmon goal of 675,800–1.07 million was met with an estimated 785,509 salmon (Table 3 and Figure 9). The Chinook salmon escapement estimate was 32,000 fish (Table 4), exceeding the SEG and 2012–2021 average. The Copper River sockeye salmon SEG was met with an escapement estimate of 517,600 fish (Table 5). The Copper River Delta sockeye salmon SEG was met with a peak aerial survey count of 55,075 sockeye salmon (Olson et al. 2023).

The coho salmon season started in mid-August with a conservative management approach due to a low harvest rate indicating a potentially weak run. Harvests remained well below historical averages despite high participation, with aerial surveys delayed due to poor conditions. After 3 weekly fishing periods, fishing was suspended, pending improvements in escapement indices. Escapement did not improve and the fishery remained closed for the remainder of the season. The coho salmon harvest of 44,100 fish (Table 6) was just a fifth of the average of 220,000.

High precipitation in late summer negatively affected survey conditions, with a late October survey adding nearly 9,000 coho salmon to the total index, but the total peak count of 30,340 coho salmon was still below the escapement goal. The 2022 Copper River Delta peak count index was 33% below the 10-year (2012–2021) average of 45,205 fish (Olson et al. 2023).

The Bering River District sockeye salmon fishery was managed concurrently with the Copper River District when open, with limited sockeye salmon surplus leading to an extended closure at the end of the season. The final sockeye salmon escapement index for the Bering River was 7,095 fish, which was less than half of the lower bound SEG of 15,000 fish (Olson et al. 2023).

The Bering River District coho salmon fishery followed the same fishing schedule as the Copper River District, with weak harvests leading to a single 24-hour period weekly. Low effort persisted through late August, but activity surged at the end of the month, yielding 8,470 coho salmon

harvested by 49 permit holders (Olson et al. 2023). Late-season weather hindered several aerial surveys, and low run entry justified the continued closure of the fishery starting in early September. The total drainage escapement index was 4,685 coho salmon, significantly below SEG range (Olson et al. 2023).

2023

Key Highlights from the 2023 Fishing Season:

1. **Challenges:** Low early-season sockeye salmon harvest and inriver passage led to short fishing periods and extended closures that ran into mid-June. Sonar passage improved mid-June onward resulting in a significant increase in hours fished (82% above average) through mid-August.
2. **Chinook salmon harvest:** Even though the upper bound of the Chinook salmon SEG was exceeded, the commercial fishery was limited to a below-average harvest of 10,700 fish. Harvest peaked May 22 with 1,680 fish caught.
3. **Sockeye salmon harvest:** The harvest totaled 862,000 sockeye salmon, 10% below the 2013–2022 average. Harvest peaked on May 25, with 34,700 fish caught. Gulkana Hatchery's sockeye salmon run was 55% below the 10-year average.
4. **Coho salmon harvest:** The total coho salmon harvest was 134,000 fish, 36% below the 2013–2022 average of 211,000, and the third lowest in 10 years.

The 2023 commercial fishery had below-average Chinook and sockeye salmon harvests despite above-average runs for both species. Coho salmon harvests were low, reflecting the below-average run. Early in the season, low Copper River sockeye salmon harvest and inriver passage led to short fishing periods and extended closures into mid-June. However, when Chinook salmon passage neared completion and sockeye salmon run strength improved, the fishery resumed a consistent schedule from mid-June through the end of the season. Weak coho salmon runs in the Copper and Bering River Districts necessitated conservative management near season's end, with low grounds prices leading to a total exvessel value below 2022 levels (Botz et al. 2024).

The 2023 commercial harvest forecast for the Copper River District at 987,000 sockeye salmon was below the 2013–2022 average harvest, and the total run Chinook salmon forecast estimate of 53,000 fish[4] was above the 2013–2022 average run size (Botz et al. 2024). Due to the above-average Chinook salmon forecast, closed waters described in (5 AAC 24.350(1)(B)) were only anticipated to be utilized during statistical weeks 20 (May 15–May 21) and 21 (May 22–May 28). However, as the season developed it became clear that runs were smaller than forecast. Consequently, inside closure areas were expanded to include waters east of Kokinhenik Bar, significantly reducing harvest potential. These waters remain closed into late June, well beyond closures required in regulation. These waters reopened later in June as confidence in achieving Chinook salmon escapement increased (Botz et al. 2024).

Early season Miles Lake sonar passage remained below minimum objectives into late June, with a cumulative deficit exceeding 100,000 salmon until mid-June. Daily passage peaked at 22,175 on June 7 but declined below targets, reinforcing the need for conservative management (Botz et al. 2024). The fishery was restricted to 96 hours in the first month, 41% less than the 10-year (2013–

[4] Advisory Announcement issued on April 14, 2023 http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1467699165.pdf

2022) average, to ensure early sockeye and Chinook salmon runs were well represented in inriver passage.

From mid-June to July 28, inriver passage and aerial survey indices surpassed expected levels. Miles Lake sonar passage averaged 20,000 salmon daily, exceeding the minimum cumulative passage objective by June 25 and the maximum by July 18 (Botz et al. 2024). As sonar passage and aerial counts remained above targets, fishing opportunities increased to longer duration periods, totaling 708 hours from late June through mid-August, 82% above the 10-year (2013–2022) average for this period (Botz et al. 2024).

In 2023, 426 drift gillnet permits were active in the Copper River District, reflecting a steady decline in effort over 4 years (Botz et al. 2021, 2024; Morella et al. 2021; Scannell et al. 2023). Fishing effort in 2023 peaked on June 1, with 381 permits fished during a 12-hour opening. Peak Chinook salmon harvest occurred on May 22, when 1,680 Chinook salmon were harvested during a 12-hour fishing period (Botz et al. 2024). The commercial harvest of 10,700 Chinook salmon was 11% below the 2013–2022 average harvest of 12,000 (Table 4). Peak sockeye salmon harvest occurred on May 25, when 34,700 sockeye salmon were harvested during a 12-hour fishing period (Botz et al. 2024). The sockeye salmon harvest of 862,000 fish (Table 5) was 10% less than the average. Wild sockeye salmon composed 94% of the catch, with a Gulkana Hatchery contribution of 42,100, or 5% of the Copper River District harvest. Main Bay Hatchery contributed 9,400 fish or 1% of the Copper River District harvest (Botz et al. 2024). The 72,100 Gulkana Hatchery run was 55% below the average of 160,000, continuing the unexplained decline in that hatchery stock production.

Salmon inriver passage improved during the season, with a total estimate of 991,740 salmon (Table 3 and Figure 10) being within the inriver goal range (Botz et al. 2024). The Chinook salmon spawning escapement estimate was 40,250, exceeding the SEG upper bound (Table 4). The Copper River sockeye escapement estimate was 690,349 (Table 5), near the SEG upper bound, and an escapement of 65,775 Copper River Delta sockeye salmon was within the SEG range (Botz et al. 2024).

The total coho salmon commercial harvest was 134,000 fish (Table 6), below the 2013–2022 average of 211,000 (Botz et al. 2024). This harvest was the third lowest in 10 years, possibly due to poor survival rates from drought conditions in the brood year 2019. The coho salmon fishery contributed 9% of the Copper River District's exvessel value, totaling $1.23 million. Coho salmon spawning escapement was 44,440, above the SEG midpoint (Botz et al. 2024).

The Bering River District's sockeye and coho salmon fisheries mirrored those of 2021 and 2022. Aerial survey escapement estimates remained below to within anticipated levels, resulting in continued restrictions. The total sockeye salmon harvest was 11,500, compared to a 25-year average of 9,660, and coho salmon harvest totaled 24,800, 59% below the 10-year average (Botz et al. 2024). The sockeye salmon escapement index of 19,125 sockeye fell within the SEG range, and the coho salmon escapement of 20,950 was within the SEG range (Botz et al. 2024).

2024

Key Highlights from the 2024 Fishing Season:

1. **Challenges:** The season began with restricted fishing due to low passage at Miles Lake and concerns with low Chinook salmon abundance, resulting in short periods and extended closures into mid-June.

2. **Chinook salmon harvest:** The 9,740 Chinook salmon harvest was 27% below the 2014–2023 average of 12,800 fish, and peak harvest occurred on May 30 with 2,020 fish caught.
3. **Sockeye salmon harvest:** Harvest peaked July 4 with 151,000 fish and totaled 1.38 million for the season. This total harvest was 55% above the 10-year average. The commercial harvest was 69% wild stocks.
4. **Coho salmon harvest:** The harvest peaked August 29 with 38,700 fish, 33% of the season total of 118,000 coho salmon. This total harvest fell 53% below the 2014–2023 average of 202,000 fish.

The 2024 commercial fishery had below-average Chinook salmon harvest and above-average sockeye salmon harvest in keeping with the respective weak and strong runs for both species. Coho salmon harvests were low, reflecting the below-average run. Early in the season, low Copper River sockeye salmon harvest and inriver passage led to short fishing periods and extended closures into mid-June. However, when Chinook salmon passage neared completion and sockeye salmon run strength improved, the fishery resumed a consistent schedule from mid-June through the end of the season. Below average coho salmon runs in the Copper and Bering River Districts were large enough to allow for a regular fishing schedule near season's end, with low grounds prices leading to a total exvessel value below 2023.

The 2024 commercial harvest forecasts for the Copper River District were 1.30 million sockeye and 202,000 coho salmon. This sockeye salmon forecast represents a 46% increase over the 10-year (2014–2023) average of 893,000 fish, indicating a robust return. In contrast, the Chinook salmon total run forecast of 47,000 fish[5] is 2% below the 10-year average of 48,000 (Botz et al. 2024). Due to concerns over poor production and high variability in recent run sizes, the area's closed waters were expanded in accordance with (5 AAC 24.350(1)(B)) to include inside waters west of Grass Island Bar and east of Kokinhenik Bar, effectively closing all waters inside barrier islands across the district. These closures were maintained through July 10, affecting the first 14 fishing periods—11 periods beyond the regulatory requirement outlined in (5 AAC 24.361(b)). From the initial fishing period on May 16 until the start of the coho salmon fishery on August 15, the commercial fishery schedule varied significantly, ranging from less than 1 short-duration (12-hour) period per week to 2 extended-duration (48–84 hours) periods weekly. This varied schedule totaled 960 hours fished throughout the Chinook and sockeye salmon season, well above the 10-year (2014–2023) average of 634 hours for this period.

In 2024, 412 of 535 drift gillnet permits were active. Fishing effort peaked on May 30, with 370 permits fished and 2,020 Chinook salmon harvested during a 12-hour opening. Peak sockeye salmon harvest occurred on July 4, with 151,000 fish taken over 60 hours by 243 permits. Peak fishing effort during the coho salmon season occurred when 152 permit holders participated in the 24-hour fishing period that started September 2. Peak coho salmon harvest (38,700 fish) occurred during the 24-hour fishing period that started August 29. The sockeye salmon harvest total of 1.38 million was 55% above the 10-year average, with wild sockeye salmon making up 69% of the catch. The Gulkana Hatchery contributed 250,000 (18%), while Main Bay Hatchery provided 173,000 (13%). The Chinook salmon harvest reached 9,740, below the 10-year average of 12,800, and coho salmon harvests totaled 118,000, well below the average of 202,000.

The preliminary sonar estimate was 948,206 salmon (Table 3), within the inriver goal range of 627,000–1,017,000. Based on aerial surveys, the sockeye salmon escapement was 86,925, within

[5] Advisory Announcement issued on April 12, 2024 http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1567426868.pdf

the SEG range of 55,000–130,000. Coho salmon escapement monitoring is ongoing, with expectations to be within the SEG range of 32,000–50,000. Preliminary estimates for Chinook salmon suggest escapement near the lower bound of the 21,000–31,000 SEG.

The Bering River District opened concurrently with the Copper River District but initially had no directed commercial sockeye salmon harvest due to poor escapement trends. Aerial surveys showed improvement, allowing for a twice-weekly fishing schedule starting July 22. The sockeye salmon harvest totaled 58,100, significantly above the 10-year average of 5,300. The escapement index for sockeye salmon was 20,850, within the SEG range of 15,000–24,000. Commercial fishing effort in the coho salmon fishery was high, coinciding with productive fishing in the eastern portion of the Copper River Delta. Bering River District coho salmon spawning escapement monitoring is ongoing, but escapement is anticipated to be within the SEG range of 13,000–25,000 fish.

GULKANA HATCHERY

The Gulkana Hatchery is located on the Gulkana River, approximately 6 miles north of Paxson Lake. The hatchery was built in 1973 and was initially operated by ADF&G. In 1992, the hatchery was transferred to PWSAC. The donor stock for the facility was the local wild stock at the hatchery site on the Gulkana River. The Gulkana Hatchery was expanded to 2 facilities in 1986. The 2 facilities combined have produced an average of 21.6 million fry annually over the last 10 years. The Gulkana Hatchery produces sockeye salmon for the common property fisheries, which include commercial, personal use, subsistence, and sport fisheries. In addition to the common property harvest, hatchery runs meet broodstock needs and create an additional surplus of enhanced sockeye salmon at the hatchery and the Crosswind Lake remote release site. Because the run timing of hatchery stocks coincides with that of CRD wild and late upriver wild stocks, the harvest rate in the commercial fishery is determined by the strength of the wild stock escapement. Enhanced runs are, therefore, harvested at a rate that can be sustained by wild stocks. This is generally expected to be between 50% and 60% for wild stocks. This wild stock priority creates surpluses of enhanced sockeye salmon when hatchery runs are large and wild stocks are less plentiful. These unharvested enhanced runs are designated as the hatchery surplus component of the inriver escapement goal in the *Copper River District Salmon Management Plan* (5 AAC 24.360).

For planning purposes, ADF&G annually projects the hatchery surplus in the preseason forecast, but the actual surplus will depend upon the actual run strength of the wild and enhanced stocks. Recently, because of the increased survival of sockeye salmon released in Crosswind Lake, the forecasted hatchery surplus has ranged from 9,400 fish in 2019 to 136,036 fish in 2010 (Table 1). The Gulkana Hatchery stocks are intermixed with other sockeye salmon stocks and other salmon species to the extent that no targeted harvest can occur within either the commercial or inriver fisheries. The Gulkana Hatchery broodstock needs are estimated annually and are a component of the Copper River inriver goal. From 1986 through 2019, the broodstock escapement component within the inriver goal has been 20,000 sockeye salmon. Sockeye salmon surplus to broodstock needs is required to ensure that the broodstock escapement objectives are realized. This surplus varies from year to year based on the magnitude of the hatchery run forecast and is added into the inriver goal. Adequate fish should be available for broodstock needs at Gulkana Hatchery if the Copper River inriver goal is attained at the Miles Lake sonar. Starting in 2020, due to broodstock shortfalls in recent years at Gulkana Hatchery with standard hatchery surplus assumptions, the

inriver broodstock surplus assumption was adjusted upward to increase the likelihood of meeting broodstock escapement needs.

ADF&G and PWSAC created a *Basic Management Plan* (BMP) for Gulkana Hatchery that reduced historic release numbers and revised release strategies so that the size of the hatchery's adult returns will be within the ability of ADF&G to manage the mixed stock fishery for sustained yield of wild stocks. The production goal outlined in the BMP is for an annual average run of 300,000 adult sockeye salmon. Determining run strength and correctly managing for the escapements of both CRD and upriver wild sockeye salmon stocks is an ongoing challenge. Recent hatchery shortfalls have highlighted the difficulty in managing hatchery broodstock needs. The Gulkana Hatchery is at the upper extent of the river drainage, and sockeye salmon returning to the hatchery must pass through 4 fisheries and navigate hundreds of river miles before reaching hatchery release sites. Under a weak hatchery run scenario, the predominant wild stocks in the fisheries tend to support the harvest of available surplus and prevent conservation actions that would be needed to specifically manage for the hatchery run. Annual runs from 2014 to 2023 averaged less than 200,000 sockeye salmon (range of 25,400–397,000; Botz et al. 2024).

Mass marking of enhanced stocks using strontium chloride began in the spring of 2000 as part of a cooperative effort between ADF&G and PWSAC. The ability to more accurately estimate the enhanced sockeye salmon contributions to the various fisheries in the Copper River supports ADF&G's efforts to manage the wild stock priority while efficiently utilizing the enhanced sockeye salmon component of the run.

PERSONAL USE FISHERY OVERVIEW

There is only 1 personal use salmon fishery in the Upper Copper River. This occurs in the Chitina Subdistrict of the Upper Copper River District. The Chitina Subdistrict was classified as a personal use fishery in 1984 and is managed under the *Copper River Personal Use Dip Net Salmon Fishery Management Plan* (5 AAC 77.591; Somerville 2022). Only Alaska residents may participate in the Copper River personal use salmon fishery. The subdistrict consists of the mainstem Copper River between the downstream edge of the Chitina-McCarthy Bridge and an ADF&G marker located about 200 yards upstream of Haley Creek in Wood Canyon (Figure 12).

From 1984 to 1990, dip nets were the primary legal gear in the Chitina Subdistrict personal use fishery, but fish wheels were also allowed in a small section of the subdistrict. Since 1991, only dip nets have been allowed in the Chitina Subdistrict. Dip nets are fished from shore or from a boat. Based on anecdotal reports, boats have been used for accessing and dipnetting the Chitina Subdistrict since the 1960s. Efforts have increased in use with the construction of the Chitina-McCarthy Bridge in 1971 and improvements to the Copper River Railroad Right-of-Way. Beginning in 2001, ADF&G has required permit holders to report fishing from either boat or shore. Over the last 10 years, an average of 25% of all permits fished in the Chitina Subdistrict were fished from boats, and over the last 5 years 33% of permits were fished from boats. Sockeye salmon harvest from boats averaged 31% of the total harvest over the last 10 years and 38% over the last 5 years. In addition to personal boats, permit holders can charter drop-off services from transporters (there are 2 such operators) to fish sites accessible primarily or exclusively by boat. Permit holders may also charter boat operators who take them out for a specified number of hours of dipnetting from the charter boat.

The personal use fishery is opened weekly by emergency order (EO). Both a valid Alaska sport fishing license and a permit are required to participate in the personal use fishery. Participants must

record their harvest on their permit before leaving the fishing site and report online upon completion of fishing for the season. The BOF has mandated that Alaskans may participate in either the state subsistence or state personal use fishery in the Upper Copper River drainage, but not both. Some rural residents of the Copper River Basin that are federally qualified may choose to have a combination of federal and ADF&G permits to access both subdistricts.

There are 17 proposals currently before the BOF that concern personal use fisheries in the Copper River drainage:

- Proposal 47 – Require inseason reporting of Glennallen Subdistrict subsistence and Chitina Subdistrict personal use harvest within 5 days.
- Proposal 50 – Prohibit the use of chart plotters or fish finders on boats in the Glennallen and Chitina Subdistricts.
- Proposal 55 – Restrict commercial guide services in the Upper Copper River District when the Copper River commercial fishery is restricted.
- Proposal 58 – Allow the department to liberalize the Chinook salmon annual limit in the Chitina Subdistrict personal use dip net salmon fishery.
- Proposal 59 – Allow the department to liberalize the sockeye salmon annual limit in the Chitina Subdistrict personal use dip net salmon fishery.
- Proposal 60 – Modify the annual limit for the Chitina Subdistrict.
- Proposal 61 – Modify the annual limit and establish a supplemental permit for the Chitina Subdistrict.
- Proposal 62 – Allow inseason adjustment of the Copper River personal use maximum harvest limit.
- Proposal 63 – Amend the opening date of the Chitina Subdistrict personal use fishery.
- Proposal 64 – Prohibit a household from possessing permits for multiple personal use salmon fisheries in the same year.
- Proposal 65 – Require a weekly permit and inseason reporting in the Chitina Subdistrict.
- Proposal 66 – Manage the Chitina Subdistrict personal use fishery to achieve the Gulkana Hatchery broodstock goal.
- Proposal 67 – Prohibit removing Chinook salmon from the water if it is to be released in the Chitina Subdistrict.
- Proposal 68 – Prohibit dipnetting from a boat in the Chitina Subdistrict.
- Proposal 69 – Establish restrictions when dipnetting from a boat in the Chitina Subdistrict.
- Proposal 70 – Extend the lower boundary of the Chitina Subdistrict
- Proposal 71 – Prohibit guiding in the Chitina Subdistrict fishery.

Prior to 1997, the annual limit for a personal use salmon fishing permit was 15 salmon for a household of 1 person and 30 salmon for a household of 2 or more persons, of which no more than 5 may be Chinook salmon. In 1998, the BOF passed a proposal that allowed permit holders, who had filled their original limit, to take 10 additional sockeye salmon under a supplemental permit in weeks when a harvestable surplus of 50,000 salmon or greater was available in the Chitina Subdistrict. In addition, the BOF added language to the *Copper River District Salmon Management Plan* (5 AAC 24.360) that required the maximum harvest level for the Chitina Subdistrict to be reduced to 50,000 salmon if the Copper River District commercial salmon fishery was closed for 13 or more consecutive days. In 2000, when the BOF made a positive customary and traditional (C&T) determination for the Chitina Subdistrict, making it a subsistence fishery rather than

personal use, it reduced the Chinook salmon component of the annual limit to 1 fish and retained this limit when they reversed the C&T determination prior to the 2003 season. In 2015, the BOF changed the total annual limit for each personal use salmon fishing permit to 25 salmon for the head of household and 10 salmon for each dependent of the permit holder, except that only 1 Chinook salmon may be retained per household. As a result of this annual limit change, the BOF removed the supplemental permits for additional sockeye salmon during weeks of surplus salmon passage. In 2017, the BOF removed the requirement to reduce the maximum harvest level for the Chitina Subdistrict to 50,000 salmon if the Copper River District commercial salmon fishery was closed for 13 or more consecutive days.

ADF&G is mandated to manage the commercial fishery each season to achieve the inriver goal which is composed of several elements, one of which is an apportionment of salmon to the personal use fishery. Prior to 1997, the maximum harvest for the personal use fishery was 60,000 salmon, as established in the *Copper River District Salmon Management Plan* (5 AAC 24.360). From 1997 to 1999, the maximum harvest level for the personal use fishery was increased to 100,000 salmon, excluding fish in excess of the inriver goal and not including any salmon harvested after August 31. From 2000 to 2002, as a subsistence fishery, the Chitina Subdistrict had a maximum harvest level of 100,000–150,000 salmon, not including any salmon in excess of the inriver goal or salmon taken after August 31. This harvest range has remained in place following the change of the Chitina Subdistrict back to a personal use fishery in 2003.

Each year, a tentative preseason weekly fishing schedule for the personal use fishery is determined using the sonar anticipated daily passage. The management plan requires that the harvest be distributed throughout the season, based upon the projected sonar counts. Weekly fishing periods are determined using the projected weekly sonar passage and applying the 5-year average catch per hour to the weekly harvest apportionment. The first opening can occur no sooner than June 7 and must occur before June 15. Inriver salmon passage is estimated by the sonar unit located at Miles Lake. Based upon previous migration studies, a 2-week travel period from the Miles Lake sonar to Wood Canyon is used for management purposes from June through the end of August. Once fish start passing the sonar during season, weekly fishing periods are adjusted based upon actual sonar counts. Fishing time is reduced when the weekly sonar passage falls below the projected passage. When weekly sonar passage exceeds the projected passage, fishing time is increased, with a maximum of 168 hours per week (Tables 8–11). Weekly fishing schedules are authorized under general EO authority and consistent with the *Copper River Personal Use Dip Net Salmon Fishery Management Plan* (5 AAC 77.591), and are announced to the public weekly with 5–6 days' notice.

Prior to 2000, personal use permits were only issued from the ADF&G office in Chitina, and harvest in the Chitina Subdistrict personal use fishery was estimated weekly from permits that were returned after each fishing trip. However, the fishery was managed based on the abundance of salmon passing the Miles Lake sonar and not on the weekly harvest estimates. Beginning in 2000, permits were available from ADF&G offices in Anchorage, Fairbanks, Glennallen, and Palmer to increase public convenience, reduce fishery operating costs, and end excessive waiting lines (up to 3 hours) at the Chitina ADF&G office for participants to receive permits. Permit availability was expanded in 2001 to include over 40 license vendors throughout the Southcentral and Interior regions. Beginning in 2016, Chitina Subdistrict permits could also be obtained online, and harvest could be reported online or by mailing in the harvest report prior to October 15. Beginning in 2020, permits were only available online, and starting in 2022, households were

required to report their harvest online by October 15. Expanding the availability of permits has prevented the inseason estimation of weekly harvest and participation since 2000. However, because the fishery is managed using the abundance of salmon passing the Miles Lake sonar, inseason harvest reporting has never been used to manage this fishery. ADF&G relies on sonar passage data and past daily effort and harvest trends to manage fishing time in the Chitina Subdistrict personal use fishery.

Harvest data have been collected from the fisheries below the Chitina-McCarthy Bridge since statehood. This harvest data collection continued after the Upper Copper River District was divided into the Chitina and Glennallen Subdistricts in 1977, and after 1984 when the status of the Chitina Subdistrict was changed from a subsistence to a personal use fishery. Harvest in the Chitina Subdistrict personal use dip net fishery increased from 2009 through 2015 (Figure 13). Harvest of Chinook and sockeye salmon has been variable since 2009 commensurate with run strength and restrictions needed to achieve spawning escapement (Figure 13). Coho salmon harvests make up only a small part of the Chitina Subdistrict harvest, ranging from 442 to 2,034 fish since 2009.

Annual harvest fluctuates directly with inriver fish passage numbers at the Miles Lake sonar. Participation in the Chitina Subdistrict personal use fishery usually reflects the run strength of fish passing the Mile Lake sonar and media coverage of the fishery. Participation is also influenced by changes in access to the fishery either due to river level fluctuations, landslides affecting access along the Copper River Railroad Right-of-Way, and the level of conflict with private property owners. Since 1984, the number of permits issued for the Chitina Subdistrict personal use fishery has averaged 7,802 permits, and ranged from 4,031 permits in 1986 to 12,746 permits in 2015, with the number of permits fished showing the same trends as total permits issued (Somerville 2022). From 2009 through 2015, participation increased from 8,026 (7,958 state and 68 federal) permits issued to 12,746 (12,635 state and 111 federal) permits (Figure 13). With a decrease in sockeye salmon run sizes after 2015, participation declined and stabilized, averaging about 7,800 permits issued and 5,587 permits fished per year.

SEASON SUMMARIES

2021

The 2021 Copper River sockeye salmon run was about 7 days late. As a result, the personal use fishery had a later than usual start on June 10 compared to the preseason forecast date of June 7 (Table 7). The second week of the season was also affected with only 120 hours of fishing time versus the projected 168-hour full week. The sockeye salmon run caught up to, and surpassed, the cumulative forecast passage around June 13, and the personal use fishery remained open for the following 2 weeks. For the remainder of the season, the fishery was open each week at or above forecast. Total number of fishing hours exceeded the preseason schedule of 2,045 hours by 498 hours, and the harvest of 148,716 sockeye salmon was consistent with the previous 10-year average, whereas the Chinook salmon harvest of 945 was about 24% below that average.

2022

The 2022 Copper River sockeye salmon run was 7–8 days late. As a result, the personal use fishery had a later than usual start on June 11 compared to the preseason forecast date of June 7 (Table 8). Starting on June 1, daily sonar passage exceeded forecasts, and the personal use fishery remained open at or above the weekly forecast hours through week 7 of the fishery. Daily sonar passage fell below forecast starting July 12, which led to short fishery openings during weeks 8 and 9.

Thereafter, the fishery was open continuously through September 30. Total fishing hours were about equal to the preseason schedule with the sockeye salmon harvest of 157,944, which was about 8% above the previous 10-year average, and the Chinook salmon harvest of 2,313 was 89% above that average.

2023

The 2023 Copper River sockeye salmon run was again 7–8 days late and had a weak start. As a result, the personal use fishery had a later than usual start on June 15 compared to the preseason forecast date of June 7 (Table 9). The second week of the season was also affected with only 96 hours of fishing time versus the projected 144-hour week. Beginning June 2, daily sonar passage met or slightly exceeded forecasts through June 11, which allowed the personal use fishery higher than forecast fishing time during weeks 3 and 4. Subsequent daily sonar passage greatly exceeded the forecasts with a strong late run of sockeye salmon which allowed the fishery to remain open continuously through September 30. Total fishing hours were about equal to the preseason schedule with the sockeye salmon harvest of 174,532, which was about 17% above the previous 10-year average, and the Chinook salmon harvest of 3,669 was 163% above that average.

2024

The 2024 Copper River sockeye salmon run was again 7–8 days late and had a weak start. As a result, the personal use fishery had a later than usual start on June 13 compared to the preseason forecast date of June 7 (Table 10). However, strong run entry starting on June 6, and very strong late season sockeye salmon run entry allowed the fishery to remain open continuously through September 30. Chinook salmon retention was prohibited starting June 24. Total fishing hours were 196 hours above the preseason schedule of 2,420 hours.

SUBSISTENCE SALMON FISHERIES

Subsistence fishing is permitted in 3 areas: (1) the Copper River District, (2) the Upper Copper River District (Glennallen Subdistrict), and (3) the Batzulnetas area (Figure 14). Of the 3 subsistence areas, the Upper Copper River District has the highest effort and harvest. The U.S. Fish and Wildlife Service also manages subsistence fisheries in the Copper River drainage through the U.S. Forest Service Chugach National Forest (Copper River District) and the National Park Service–Wrangell-St. Elias National Park and Preserve (WRST-NPS; Chitina and Glennallen Subdistricts and Batzulnetas area).

UPPER COPPER RIVER DISTRICT SUBSISTENCE FISHERIES

Under State of Alaska regulations, there are 2 subsistence fisheries in the Upper Copper River District. The Glennallen Subdistrict subsistence fishery is managed by ADF&G under the *Copper River Subsistence Salmon Fisheries Management Plan* (5 AAC 01.647). All Alaskans are eligible to participate in this subsistence fishery based on the McDowell decision in 1989. Alaskans may participate in either the Glennallen Subdistrict subsistence fishery or the Chitina Subdistrict personal use fishery, but not both. There is a second subsistence fishery upstream of the Upper Copper River District which occurs near the traditional Native village site of Batzulnetas at the confluence of Tanada Creek and the Copper River. A household may only receive one Upper Copper River District subsistence salmon fishing permit per year; therefore, a household cannot participate in both the Batzulnetas and Glennallen Subdistrict subsistence fisheries in the same year under state regulations.

There are 4 proposals currently before the BOF that concern subsistence fisheries in the Upper Copper River drainage:

- Proposal 47 – Require inseason reporting of Glennallen Subdistrict subsistence and Chitina Subdistrict personal use harvest within 5 days.
- Proposal 48 – Repeal the prohibition of guiding in the Glennallen Subdistrict subsistence fishery.
- Proposal 49 – Prohibit transport services in the Glennallen Subdistrict subsistence fishery.
- Proposal 50 – Prohibit the use of chart plotters or fish finders on boats in the Glennallen and Chitina Subdistricts.

Glennallen Subdistrict Subsistence Fishery

The Glennallen Subdistrict of the Upper Copper River District opens June 1 through September 30 for continuous subsistence fishing in all waters of the mainstem Copper River upstream of the Chitina-McCarthy Bridge to the mouth of the Slana River (Figure 14). During the 2005 BOF meeting, the *Copper River District Salmon Fishery Management Plan* was modified and established a range of 61,000–82,500 subsistence salmon to accommodate the combined amounts reasonably necessary for subsistence (ANS) in 3 subareas of the Glennallen Subdistrict.

- 25,500–39,000 salmon between the downstream edge of the Chitina-McCarthy Bridge to the mouth of the Tonsina River.
- 23,500–31,000 salmon between the mouth of the Tonsina River and the mouth of the Gakona River.
- 12,000–12,500 salmon between the Gakona River to the mouth of the Slana River.

These ANS amounts were developed from the 3 high years of reported harvest from each subarea between 2000 and 2004 (Somerville 2022).

Fish wheels and dip nets are traditional methods and are the legal gear for the Glennallen Subdistrict—participants must choose and use that gear for the season. Fish wheels have always been allowed in the Glennallen Subdistrict, and dip nets have been allowed in all years except 1979–1983. Dip nets are fished from shore or a boat. Based on anecdotal reports, boats have been used for accessing the Upper Copper River and dipnetting since the 1960s, and increased in use with the construction of the Chitina-McCarthy Bridge in 1971 and improvements to the Copper River Railroad Right-of-Way. In 2010, the number of subsistence dip net permits in this fishery began to increase while the number of fish wheel permits began to decrease (Table 11). The relative change in gear used reflects displacement of households from traditional fish wheels just above the Chitina-McCarthy Bridge (the Kotsina River shifted to the south cutting off access), but also reflected an increase of households newly entering the Copper River fisheries and choosing to dipnet in this subdistrict versus the Chitina Subdistrict. There are more options for subsistence permit holders to access the fishery by dipnetting, especially from a boat, versus from shore, or building and locating a fish wheel or gaining permission to participate on an existing fish wheel. Additionally, charter drop-off services for shore-based dipnetting provide access to those households who have no access to a personal boat. Although the average number of permits issued in this fishery over the last 10 years is about 30% higher than the historical average and the number of permits fished is 17% higher, the overall harvest in this fishery has declined by about 26% over that same time. This dichotomy is explained by the shift to dip nets from fish wheels, which are about 3 times more effective at harvesting salmon than dip nets.

Harvest permits are required for the Glennallen Subdistrict fishery and all harvest must be logged immediately on the permit. Participants are allowed 1 permit per household, and the permit identifies the gear type to be used. The limit is 30 salmon for a household of 1, 60 salmon for a household of 2, and 10 salmon for each additional person in a household of more than 2 people. Individuals may request additional salmon up to a maximum of 200 salmon, and households of 2 or more may request up to 500 salmon. For participants using dip nets, only 5 of the salmon may be Chinook salmon. Glennallen Subdistrict subsistence users must record their harvest and clip both tips of the tail fin from all salmon that are harvested before leaving the fishing site. Harvest must be reported online by October 31 each year. Those permit holders that do not report or report after October 31 are denied a permit the following year.

Harvests in the Upper Copper River subsistence fisheries have been estimated since 1965. Through 2011, the total harvest in the Glennallen Subdistrict subsistence fishery was less than 90,000 fish annually (Table 12 and Figure 15). However, due to multiple years of record-high inriver entry of sockeye salmon to the Copper River, total harvest significantly increased from 2012 to 2015, peaking at 111,689 salmon in 2015. Sockeye salmon harvests have since declined, and the total harvest in 2023 was 66,914 fish. Sockeye salmon are the primary species harvested in this fishery for an average of 96% of total harvest over the 2013–2022 average (Figure 15).

In 1999, federal regulations were adopted for Copper River subsistence fishing, but because federal and state regulations were identical, both federal and state subsistence users participated in the fisheries under the state subsistence permit during 1999–2001. In 2001, because of Federal Subsistence Board (FSB) actions, federally qualified subsistence users were able to begin fishing on May 15 in the Glennallen Subdistrict.

The NPS issued separate federal permits to federal subsistence users beginning in 2002. That year, the FSB established a federal subsistence fishery in the Chitina Subdistrict with a cumulative limit of 200 salmon for a household of 1 and 500 salmon for a household of 2 or more for both the Chitina and Glennallen Subdistricts. Federal subsistence users were able to participate in both fisheries, but state subsistence users must select either the Chitina Subdistrict or Glennallen Subdistrict in which to participate. Harvest under federal permits accounts for about 23% of the overall subsistence harvest each year.

In 2005, the WRST-NPS enforced NPS regulation 36 CFR 2.3 that allows fishing to be conducted within national park boundaries only with closely attended rod and reel. Part 13 of the NPS regulations do allow subsistence uses by residents of the federally determined rural resident zone within national park boundaries. Enforcement of these regulations prohibited subsistence fishing by nonrural residents in that portion of the Copper River upstream of Indian River (which includes approximately 15 river miles of the Glennallen Subdistrict and the Batzulnetas fishery), and required a federal subsistence fishing permit to use a fish wheel or dip net within the boundaries of WRST-NPS. As a result, no state subsistence fishing permits have been requested or issued for this portion of the Glennallen Subdistrict since 2004. Only those rural residents that qualified for federal subsistence salmon harvest in the Glennallen Subdistrict were issued permits to fish in this area. This action excluded approximately 10 Alaska resident households, which were not federally qualified, from using fish wheels or dip nets in this area and required these households to fish elsewhere in the Glennallen Subdistrict.

Batzulnetas Subsistence Fishery

A second state subsistence fishery is allowed in a portion of Tanada Creek, near the traditional Native fishing site of Batzulnetas, with spears and dip nets, and with fish wheels and dip nets one-half mile downstream of the mouth of Tanada Creek in the Copper River. The Batzulnetas fishery encompasses all waters from the regulatory markers near the mouth of Tanada Creek and approximately one-half mile downstream from the mouth and in Tanada Creek between the ADF&G regulatory markers identifying the open water of the creek. The fishery may begin after June 1. Fishing periods during the month of June are one 48-hour period per week. Beginning in July, fishing periods are 84 hours per week until September 1, when the fishery closes.

There are no proposals affecting the Batzulnetas area subsistence fishery.

No state permits have been issued for the Batzulnetas fishery since 2000. No state permits were requested from 2001 to 2004, and since 2005, none have been requested or issued due to WRST-NPS enforcement of NPS regulation 36 CFR 2.3. The relatively small harvest in this fishery fluctuates widely from year to year depending on effort (usually fewer than 4 permits), water levels, and abundance of fish. Since 2001, harvest under federal permits has averaged 142 sockeye salmon, with a maximum of 867 sockeye salmon in 2013, and harvests ranging from 0 to 468 sockeye salmon from 2015 to 2023 (D. Sarafin, Fisheries Biologist, Wrangell-St. Elias National Park and Preserve, National Park Service, Copper Center AK; unpublished data, 2024). Federal harvest reports are due by December 31 each year. As a result, this report contains no Batzulnetas area subsistence fishery harvest data for 2024.

CORDOVA AREA SUBSISTENCE FISHERIES

Boundary lines for subsistence fishing at the mouth of the Copper River are the same as for the commercial gillnet fishery. This is the primary salmon subsistence fishery for Cordova area residents with minor participation of people from outside the area. Subsistence fishing is allowed from May 15 until September 30. From May 15 until 2 days before the commercial opening of Copper River District, subsistence fishing is allowed 7 days per week. Once the commercial season has commenced, subsistence fishing is allowed during commercial fishing periods, by EO, and on Saturdays. Within the Copper River District, drift gillnets are the only legal gear and may have a maximum length of 50 fathoms with a maximum mesh size of 6 inches prior to July 15. The BOF has found that, in a year when there is a harvestable surplus that allows for a commercial fishery, 3,000–5,000 salmon are reasonably necessary for subsistence. In a year when there is no commercial fishery, the BOF has found that 19,000–32,000 salmon are reasonably necessary for subsistence (5 AAC 01.616(b)(2)). This 2-tier ANS signifies that the commercial fishery plays an important role in meeting subsistence needs. Salmon removed from commercial catch as home pack is often used for subsistence purposes and supplement Copper River District subsistence catches. Without an annual commercial fishery, the ANS jumps over 6-fold in the subsistence fishery to ensure more harvest opportunity is provided in this fishery. The legal limit for salmon is 15 for a household of 1, 30 for a household of 2 or more, and 10 salmon for each additional household member; however, the limit for Chinook salmon is no more than 5 per household (5 AAC 01.645(b)). From 2014 to 2023, an average of 263 subsistence permit holders that reported fishing harvested an average of 2 Chinook salmon per year per permit. The number of subsistence permits fished in the Copper River District has increased in the last 6 years since subsistence fishing periods on Saturdays have been implemented. The 2021 through 2023 seasons all had above average levels of participation (Table 12).

Currently, there are 3 proposals before the BOF that concerns subsistence fisheries in the Copper River District:

- Proposal 44 – Allow more than the legal limit of gillnet gear to be onboard a vessel used in the subsistence salmon fishery.
- Proposal 45 – Allow subsistence fishing in the Copper River inside closure area.
- Proposal 46 – Require harvest reporting within 7 days of harvest in the Copper River District subsistence salmon fishery.

SPORT FISHERIES

Sport fisheries targeting salmon in the Upper Copper River drainage occur mainly on the Gulkana, Klutina, and Tonsina Rivers (Figure 16). Sport harvest and effort have been estimated annually since 1977 by a mail survey. The survey does not separate effort by species, but most effort in the major tributaries are assumed directed at salmon. From 2018 to 2022, sport anglers annually expended an average of 26,693 angler-days in the Upper Copper River drainage. Recreational angler effort was relatively stable until 1991 when it began to increase and peaked in 1995 when 102,951 angler-days were expended (Somerville 2022). Since 2000, angler effort in the Upper Copper River drainage declined to a low of 18,049 angler-days in 2022. Effort in 2023 was 34,331 angler-days.

There is one proposal currently before the BOF that concerns salmon sport fisheries in the Upper Copper River drainage:

- Proposal 72 – Close sport fishing for salmon based on water temperature in the Gulkana River.

Sport fisheries for salmon in the Copper River primarily target Chinook and sockeye salmon. The fisheries occur in various tributaries to the Copper River, and the largest harvest occurs in the Gulkana and Klutina Rivers (Figures 17–19). The Chinook salmon fishery was traditionally the most important recreational salmon fishery in the Copper River in terms of effort and economic value. However, when Chinook salmon returns declined after 2008 and sockeye salmon returns increased during 2010–2015, area sockeye salmon fisheries gained in economic importance and angling effort, particularly in the Klutina River. Sport harvest of Chinook salmon from the Upper Copper River drainage increased through 1996 when the harvest peaked at 9,116 Chinook salmon (Somerville 2022). Since 1996, the sport harvest of Chinook salmon from the Upper Copper River drainage has declined 91% to an average of 849 Chinook salmon from 2018 to 2022 (Figure 7; Somerville 2022). Sport fishery restrictions reducing annual limits, no retention, and full closures have contributed to these low Chinook salmon harvest rates since 2009. Approximately 95% of the estimated sport harvest of Chinook salmon taken from the Upper Copper River drainage comes from the Gulkana and Klutina River drainages.

Since 1970, sport harvest of Chinook salmon over 20 inches in length in the Upper Copper River drainage sport fisheries has been increasingly regulated and restricted to ensure sustainable escapements (Somerville 2022). Regulations imposing bag and annual limits have been implemented, and in 2000, the annual limit was reduced from 5 to 4 Chinook salmon. Various tributaries of the Copper River and streams and lakes in the drainage have been closed over the years by regulation to either bolster escapements of stocks that showed declines, or to protect discrete stocks from overexploitation. Many waters are all closed to sport fishing for Chinook

salmon: Fish Creek; Indian Creek; Bernard Creek; Ahtell Creek; Natat Creek; the Little Tonsina River; Manker Creek; Klutina Lake, and all flowing waters entering Klutina Lake; all tributaries to the Tonsina River; Tonsina Lake, and all flowing waters entering Tonsina Lake; the Chokosna River; the Gilahina River; all clearwater tributaries of the Gakona River; Tazlina Lake, and all flowing waters entering Tazlina Lake except a quarter-mile radius around the mouth of Kaina Creek; the Slana River drainage; and Sinona Creek. The major waters that support sport fishing (Gulkana, Klutina, and Tonsina drainages) have seasonal time, area, and gear restrictions.

GULKANA RIVER CHINOOK SALMON FISHERY

The Gulkana River drainage has historically supported the largest sport fishery for Chinook salmon in the Copper River drainage. Chinook salmon begin entering the Gulkana River in early June, and the sport fishery typically peaks during late June through early July, but limited fishing for Chinook salmon continues until the season closes on July 20.

The Gulkana River is open to sport fishing for Chinook salmon from January 1 through July 19. The closure is intended to protect spawning fish (spawning begins in mid-July and continues through late August). The Gulkana River downstream of the Richardson Highway Bridge to the confluence of the Copper River is designated as single-hook, artificial flies only from June 1 to July 31. In all waters downstream of a marker 7.5 miles upstream from the West Fork confluence to the Richardson Highway Bridge, methods and means are liberalized to allow bait and treble hooks during the Chinook salmon season.

Sport harvest of Chinook salmon in the Gulkana River peaked during the late 1990s, and annual harvests often exceeded 4,000 fish (Somerville 2022). The 1993 harvest of 5,892 Chinook salmon was the largest on record from the Gulkana River and accounted for 72% of total Chinook salmon sport harvest in the Copper River drainage that year. Harvests have since declined and have been below 900 fish since 2011, with an average of 394 fish from 2018 to 2022 (Figure 17). Due to low Chinook salmon run numbers, the Gulkana River sport fishery has been restricted through reduced annual limits, catch-and-release fishing only, or complete closure each year from 2009 through 2020, except in 2015, 2018, and 2019 when there were no restrictions on this sport fishery. The fishery was restricted again from 2020 through 2022. As a result of these poor runs and needed restrictions, sport fishing effort declined from over 30,000 angler-days per year in the late 1990s to a low of 4,659 angler-days in 2022. The Upper Copper River Chinook salmon fishery was liberalized in 2023 by increasing the possession limit from 1 to 2 fish. The fishery was liberalized to mitigate escapements exceeding the upper bound spawning escapement goal of 31,000 Chinook salmon. Angler effort on the Gulkana River in 2023 was 13,531 angler-days, and was the highest since 2010, but resulted in a harvest of only 474 Chinook salmon

KLUTINA RIVER CHINOOK SALMON FISHERY

The Klutina River supports the second-largest sport fishery for Chinook salmon in the Upper Copper-Upper Susitna Management Area. The fast water of the Klutina River limits the number of resting pools for Chinook salmon; there are fewer than 2 dozen good fishing sites in the lower portion of the river accessible to most anglers. As a result, most sport anglers hire a guide service for access to Chinook salmon on the river (Schwanke 2009).

Chinook salmon enter the Klutina River in late June, and the run continues well into August. The sport fishery peaks during the third week of July. However, fishing for Chinook salmon continues until the season closes on August 11. Peak spawning occurs from late July through August. The

Chinook salmon season is open from July 1 to July 19 upstream of mile 19.2 of the Klutina River Road, from July 1 to 31 upstream of Mile 13 of the Klutina Lake Road, and July 1 to August 10 downstream from this point. The upper reaches have shorter seasons to protect spawning fish.

Like the Gulkana River, the sport harvest of Chinook salmon in the Klutina River peaked during the late 1990s at 3,489 fish in 1999 and has since declined (Figure 17; Somerville 2022). The Klutina River has been heavily restricted in most years since 2009. In 2023, when the Upper Copper River Chinook salmon fishery was liberalized, a total of 875 Chinook salmon were harvested from the Klutina River which was the highest harvest since 2011.

OTHER COPPER RIVER CHINOOK SALMON FISHERIES

Less than 5% of the harvest of Chinook salmon in the Upper Copper-Upper Susitna Management Area occurs in systems other than the Gulkana and Klutina Rivers (Figure 17). Most of this harvest occurs in the Tonsina River. Chinook salmon run timing to the Tonsina River drainage is from late June through August, similar to the Klutina River.

Regulations allow sport fishing for Chinook salmon in the Tonsina River from July 1 to 19 upstream of the Alyeska Pipeline bridge, and from July 1 through August 10 downstream of this point. The July 20 closure date allows Chinook salmon to spawn undisturbed. The Little Tonsina River, Bernard Creek, and all flowing waters within a quarter-mile radius of their confluence with the Tonsina River are closed to Chinook salmon fishing to protect spawning fish. The harvest of Chinook salmon from the Tonsina River has not exceeded 230 fish since 1998 (Somerville 2022), and has averaged only 71 fish from 2018 to 2022 (Figure 17).

COPPER RIVER SOCKEYE AND COHO SALMON FISHERIES

Sockeye salmon sport harvests in the Copper River primarily occur on the Klutina and Gulkana Rivers and generally generate harvests of 6,000–8,000 fish with exceptionally high harvests in the late 1990s from strong runs up the Gulkana River, and from 2006 to 2013 with strong runs up the Klutina River (Somerville 2022). More recently, sockeye salmon sport harvests have ranged between 3,000 and 7,300 fish, and averaged 4,550 sockeye salmon from 2018 to 2022 (Figure 18). Sockeye salmon harvest from the Klutina River has accounted for about 76% of the area sockeye salmon harvest from 2018 to 2022.

The upper Copper River coho salmon run is relatively small, and coho salmon are present late in the season when most anglers have stopped fishing for the season. The sport fisheries for coho salmon in the Upper Copper River are very small compared to other area fisheries and coho salmon fisheries elsewhere in the state. The average annual coho salmon harvest from 2018 to 2022 was 141 fish (Figure 19). The majority of the coho salmon harvest occurs in the Tonsina River drainage.

Bag limits for sockeye and coho salmon are 3 salmon for all drainages in the Upper Copper River drainage. The only exception to this is in the West Fork of the Gulkana River upstream of an ADF&G marker, where the bag limit increases to 6 sockeye salmon from August 1 to December 31. This higher bag limit for sockeye salmon in the West Fork allows for higher exploitation of Gulkana Hatchery produced fish. However, due to the late timing of this run and the relative remoteness of the West Fork, few anglers take advantage of these more liberal bag limits.

In 2012, 2013, 2014, and 2015, inseason passage of salmon at the Miles Lake sonar indicated that the upper bound of the Copper River sockeye salmon SEG would be exceeded. In response, the

bag and possession limit for sockeye salmon in the Copper River was increased in 2013, 2014, and 2015 from 3 to 6 per day by EO in late June or early July. Those are the only years where the fishery was liberalized.

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REFERENCES CITED

Botz, J., C. W. Russell, J. Morella, and S. Haught. 2021. 2020 Prince William Sound area finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 21-18, Anchorage.

Botz, J., H. Scannell, M. Olson, J. Morella, and R. Ertz. 2024. 2023 Prince William Sound area finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 24-15, Anchorage.

Morella, J., C. Russell, J. Botz, and S. Haught. 2021. 2019 Prince William Sound area finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 21-19, Anchorage.

Olson, M., H. Scannell, J. Botz, J. Morella, S. Haught, and R. Ertz. 2023. 2022 Prince William Sound area finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 23-13, Anchorage.

Piche, M. J., J. C. Whissel, and J. J. Smith. 2016. Estimating the in-river abundance of Copper River Chinook salmon, 2015 annual report. U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program (Study No. 14-505), Anchorage, Alaska.

Savereide, J. W. 2005. Inriver abundance, spawning distribution, and run timing of Copper River Chinook salmon, 2002–2004. Alaska Department of Fish and Game, Fishery Data Series No. 05-50, Anchorage.

Scannell, H., J. Botz, K. Gatt, J. Morella, J. Buza, and R. Ertz. 2023. 2021 Prince William Sound area finfish management report. Alaska Department of Fish and Game, Fishery Management Report No. 23-06, Anchorage.

Schwanke, C. J. 2009. Klutina River Chinook Salmon Creel Survey. 2006. Alaska Department of Fish and Game, Fishery Data Series No. 09-53, Anchorage.

Schwanke, C. J., and M. Tyers. 2018. Gulkana River Chinook salmon spawning distribution and run timing, 2013–2015. Alaska Department of Fish and Game, Fishery Data Series No. 18-29, Anchorage.

Schwanke, C. J., and M. Piche. 2023. Run timing and Spawning Distribution of Copper River Chinook Salmon, 2019–2021. Alaska Department of Fish and Game, Fishery Data Series No. 23-14, Anchorage.

Somerville, M. A. 2022. Background and regulatory history of the sport, personal use, and subsistence fisheries of the Upper Copper/Upper Susitna River Management Area, 1960-2021. Alaska Department of Fish and Game, Fishery Management Report No. 22-10, Anchorage.

Wade, G. D., K. M. van den Broek, T. M. Haluska, J. W. Savereide, and J. J. Smith. 2009. Spawning distribution and run timing of Copper River sockeye salmon, 2008 annual report. Prepared by the Native Village of Eyak, Cordova, for the Alaska Sustainable Salmon Fund, Project No. 45850, Juneau.

TABLES AND FIGURES

Table 1.–Apportionment of the inriver goal for the Copper River, 2014–2024.

Goal category	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Sockeye spawning escapement	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000
Other salmon spawning escapement	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500	17,500
Glennallen subsistence harvest	82,500	82,500	82,500	77,900	77,000	70,400	70,100	73,500	71,500	64,000	64,000
Chitina personal use harvest	132,500	150,000	150,000	130,300	130,500	125,600	133,200	116,500	126,600	131,400	150,000
Sport harvest	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
Hatchery brood stock	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	22,200	20,000
Hatchery surplus	120,400	114,000	66,550	69,000	24,300	9,400	45,200	2,600	65,200	0	0
Minimum inriver goal	748,000	759,000	712,000	690,000	644,000	618,000	661,000	605,000	675,800	610,100	627,000

Table 2.–Run timing statistics past the tagging site at Baird Canyon for major sockeye salmon spawning stocks in the Copper River, 2005–2008.

	Travel time (days)[a]				Mean date of passage[b]			
Stock	2005	2006	2007	2008	2005	2006	2007	2008
Lower Copper	46	61	63	44	6 Jul	28 Jun	24 Jun	3 Jul
Chitina	68	63	45	51	30 Jun	13 Jul	19 Jun	13 Jun
Tonsina	56	54	46	23	13 Jul	17 Jul	22 Jul	19 Jul
Klutina	75	60	69	45	13 Jun	20 Jun	16 Jun	15 Jun
Tazlina	52	64	70	43	31 May	11 Jun	5 Jun	5 Jun
Gulkana	73	65	62	58	4 Jul	7 Jul	2 Jul	29 Jun
Upper Copper	51	28	40	54	2 Jun	7 Jun	11 Jun	12 Jun

[a] Duration refers to the average number of days it took radiotagged fish to travel to their upriver destinations following the tagging event near Baird Canyon.

[b] Mean date of passage is measured at the capture site near Baird Canyon.

Table 3.–Estimates of inriver abundance for Chinook and sockeye salmon in the Copper River, 2007–2024.

Year	Chinook (mark–recapture)[a]	Standard error	Sonar count[b]	Sockeye (mark–recapture)[a]	Standard error
2007	46,349	3,391	919,600	1,259,00	90,648
2008	41,343	2,166	718,344	739,833	32,962
2009	32,400	2,365	709,749	ND	ND
2010	22,323	2,492	923,811	ND	ND
2011	33,889	3,329	914,231	ND	ND
2012	31,452	5,242	1,294,400	ND	ND
2013	32,581	4,425	1,267,060	ND	ND
2014	24,158	2,100	1,218,418	ND	ND
2015	32,306	3,977	1,346,100	ND	ND
2016	16,009	1,193	801,593	ND	ND
2017	40,725	4,187	723,426	ND	ND
2018	52,524	4,034	701,577	ND	ND
2019	43,714	3,143	1,039,354	ND	ND
2020	26,293	2,863	530,313	ND	ND
2021	21,656	1,919	751,262	ND	ND
2022	38,480	2,960	785,509	ND	ND
2023	49,308	5,540	991,740	ND	ND
2024	NA	NA	948,206	ND	ND

Note: ND = No data, NA = Not available.

[a] Estimates from Native Village of Eyak Petersen mark–recapture project.

[b] Sonar counts represented all salmon passing sonar site without differentiation between species.

Table 4.–Estimated harvest by end user and spawning escapement for Copper River Chinook salmon, 2014–2023.

Category	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-year Average (2014–2023)
Commercial harvest[a]	10,207	22,506	12,348	13,834	7,618	19,148	5,880	7,512	12,262	10,682	12,200
Commercial, home pack[a]	768	1,145	727	744	85	742	225	278	534	587	584
Educational [b]	36	50	86	50	40	31	14	17	13	9	35
Subsistence (Copper River District: drift gillnet)[b]	153	167	73	778	1,356	808	657	624	887	948	645
Subsistence (Batzulnetas: dip net, fish wheel, or spear)[c]	0	0	0	2	0	0	0	0	0	0	0
Subsistence (Glennallen Subdistrict: dip net, fish wheel or spear)[d]	1,365	2,212	2,075	2,935	4,531	3,429	2,222	1,685	2,968	3,246	2,667
Federal subsistence (Glennallen Subdistrict: dip net, fish wheel, or spear)[c]	420	402	396	431	3,137	886	670	505	852	673	837
Personal use harvests (Chitina Subdistrict: dip net)[d]	719	1,570	711	1,961	1,273	2,611	751	832	2,214	3,515	1,616
Federal subsistence (Chitina Subdistrict: dip net)[c]	14	15	15	12	101	78	96	113	99	154	70
Sport harvest	931	1,343	327	1,731	1,280	1,565	967	90	342	1,466	1,004
Upriver spawning escapement[e]	20,709	26,764	12,485	33,655	42,242	35,145	21,587	18,431	32,005	40,254	28,328
Total estimated Chinook salmon run size	35,322	56,174	29,243	56,133	61,663	64,443	33,069	30,087	52,176	61,534	47,984

[a] Numbers are from fish ticket data; commercial harvests that have been donated are included in commercial harvests.

[b] Data represent reported state permit harvests.

[c] Data are expanded federal harvests from 2014 to 2023.

[d] Data represent expanded state permit harvests.

[e] Spawning escapements were determined by subtracting Glennallen Subdistrict subsistence, Chitina Subdistrict personal use, and Upper Copper River sport harvests from the estimated inriver abundance of Chinook salmon.

Table 5.–Estimated harvest by end user and spawning escapement for Copper River and Copper River Delta sockeye salmon, 2014–2023.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-year Average (2014–2023)
Commercial harvest[a]	2,050,007	1,750,762	1,175,100	586,079	46,524	1,283,736	102,269	404,638	601,009	862,002	886,213
Commercial, home pack[a]	12,072	10,590	9,598	8,289	1,545	8,016	1,455	3,625	4,172	6,162	6,552
Commercial, donated[a]	0	0	0	0	0	0	0	15	0	0	2
Educational drift gillnet permit[a]	186	91	203	217	6	18	7	6	2	34	77
Subsistence (Copper River District: drift gillnet)[b]	1,675	1,403	1,075	2,448	5,189	6,163	7,091	5,338	5,828	6,326	4,254
Federal subsistence (PWS/Chugach National Forest: dip net, spear, rod, and reel)[b]	76	152	234	127	96	116	41	19	197	134	119
Subsistence (Batzulnetas: dip net, fish wheel, or spear)[b]	146	–	–	256	468	209	67	120	41	211	152
Subsistence (Glennallen Subdistrict: dip net, fish wheel, or spear)[c]	75,501	81,800	62,474	39,859	39,359	60,257	34,577	42,638	46,343	48,106	53,091
Federal subsistence (Glennallen Subdistrict: dip net, fish wheel, or spear)[d]	23,034	26,896	19,365	16,251	16,734	16,130	11,234	14,847	14,174	14,696	17,336
Personal use reported (Chitina Subdistrict: dip net)[c]	157,215	223,080	148,982	132,694	77,051	171,203	78,022	143,301	154,996	168,501	145,505
Federal subsistence (Chitina Subdistrict: dip net)[d]	1,664	2,345	1,321	1,600	3,491	4,210	3,406	5,415	2,948	6,031	3,243
Upriver sport harvest[e]	18,179	9,619	7,801	9,768	2,965	9,379	3,896	6,907	5,871	3,658	7,804
Delta sport harvest[e]	174	130	246	200	22	2,033	413	1,899	2,370	1,347	883
Upriver spawning escapement[f]	864,784	929,931	513,300	465,190	478,679	718,700	362,032	506,816	517,652	690,349	604,743
Delta spawning escapement[g]	128,410	133,330	103,100	113,000	116,940	123,650	111,240	174,150	110,150	131,550	124,552
Hatchery broodstock/excess	53,737	40,123	32,341	17,083	30,306	15,552	10,786	9,562	5,004	10,880	22,537
Total estimated sockeye salmon run size	3,386,860	3,210,252	2,075,140	1,393,061	819,375	2,419,372	726,536	1,319,296	1,470,757	1,949,987	1,877,064

[a] Numbers are from fish ticket data.

[b] Data are reported harvest from returned state and federal subsistence permits.

[c] Data are expanded harvest from returned state and federal subsistence permits.

[d] Data are expanded harvest (2014–2023) from returned state and federal subsistence permits.

[e] Upriver and Copper River Delta sport harvest data are from statewide sport fish harvest surveys.

[f] Beginning in 1999, sockeye salmon spawning escapement was based on the total number of fish past the Miles Lake sonar minus the Chinook salmon inriver midpoint abundance estimate, upriver subsistence, personal use, sport, hatchery broodstock, and onsite hatchery surplus.

[g] Delta spawning escapement estimated by doubling the peak aerial survey index.

Table 6.–Estimated harvest by end user and spawning escapement for Copper River and Copper River Delta coho salmon, 2014–2023.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-year Average (2014–2023)
Commercial harvest[a]	315,776	136,981	367,630	306,287	303,957	78,292	168,524	145,625	44,128	134,030	200,123
Commercial, home pack[a]	1,146	1,423	1,353	1,945	2,581	855	1,590	1,389	405	1,331	1,402
Subsistence (Copper River District – drift gillnet)[b]	0	10	2	43	195	330	326	233	391	431	196
Federal subsistence (PWS/Chugach Nat'l Forest – dip net, spear, rod, and reel)[c]	610	893	555	514	265	671	373	449	498	540	537
Subsistence (Batzulnetas – dip net, fish wheel, or spear)[c]	0	0	0	0	0	0	0	0	0	0	0
Subsistence (Glennallen Subdistrict – dip net, fish wheel, or spear)[d]	233	77	45	68	151	204	67	166	220	193	142
Federal subsistence (Glennallen Subdistrict – dip net, fish wheel, or spear)[c]	23	13	9	1	0	0	1	0	0	0	5
Personal use (Chitina Subdistrict – dip net)[d]	1,129	841	1,182	715	1,436	1,064	815	439	564	776	896
Federal subsistence (Chitina Subdistrict – dip net)[c]	68	14	33	9	31	22	23	3	43	6	25
Delta sport harvest	15,859	24,515	13,094	9,559	9,996	12,901	8,443	11,966	6,722	10,006	12,306
Upriver sport harvest	89	0	0	23	387	137	0	100	219	587	106
Upriver spawning escapement	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Delta spawning escapement[e]	86,020	83,330	152,400	87,520	107,600	74,040	72,850	90,970	60,680	88,880	90,429
Total estimated coho salmon run size	420,953	248,097	536,303	406,684	426,599	168,516	253,012	251,240	113,651	236,193	306,125

Note: ND = No data.

[a] Numbers are from fish ticket data; commercial harvests that have been donated are included in commercial harvests.

[b] Data represent reported state permit harvests.

[c] Data are reported harvest from federal permits.

[d] Data represent expanded state permit harvests.

[e] Delta spawning escapement estimated by doubling the peak aerial survey index.

Table 7.–Chitina Subdistrict fishing schedule, 2021.

Week ending	PU week	Preseason opening schedule	Hours	Actual opening schedule	Hours
June 13	1	Monday, June 07, 12:01 AM – Sunday, June 13, 11:59 PM	168	Thursday, June 10, 12:01 AM – Sunday, June 13, 11:59 PM	96
June 20	2	Monday, June 14, 12:01 AM – Sunday, June 20, 11:59 PM	168	Wednesday, June 16, 12:01 AM – Sunday, June 20, 11:59 PM	120
June 27	3	Monday, June 21, 12:01 AM – Tuesday, June 22, 11:59 PM	48	Monday, June 21, 12:01 AM – Sunday, June 27, 11:59 PM	168
June 27	3	Thursday, June 24, 12:01 AM – Sunday, June 27, 11:59 PM	96		
July 4	4	Monday, June 28, 12:01 AM – Monday, June 28, 11:59 PM	24	Monday, June 28, 12:01 AM – Sunday, July 04, 11:59 PM	168
July 4	4	Thursday, July 01, 12:00 PM – Sunday, July 04, 11:59 PM	84		
July 11	5	Monday, July 05, 12:01 AM – Tuesday, July 06, 11:59 PM	48	Monday, July 05, 12:01 AM – Tuesday, July 06, 11:59 PM	48
July 11	5	Thursday, July 08, 6:00 AM – Sunday, July 11, 11:59 PM	90	Thursday, July 08, 12:01 AM – Sunday, July 11, 11:59 PM	96
July 18	6	Monday, July 12, 12:01 AM – Monday, July 12, 11:59 PM	24	Monday, July 12, 12:01 AM – Sunday, July 18, 11:59 PM	168
July 18	6	Friday, July 16, 12:00 PM – Sunday, July 18, 11:59 PM	60		
July 25	7			Monday, July 19, 12:01 AM – Tuesday, July 20, 11:59 PM	48
July 25	7	Friday, July 23, 6:00 AM – Sunday, July 25, 11:59 PM	66	Thursday, July 22, 12:01 AM – Sunday, July 25, 11:59 PM	96
August 1	8	Monday, July 26, 12:01 AM – Monday, July 26, 11:59 PM	24	Monday, July 26, 12:01 AM – Sunday, August 01, 11:59 PM	168
August 1	8	Thursday, July 29, 6:00 PM – Sunday, August 01, 11:59 PM	78		
August 8	9	Monday, August 02, 12:01 AM – Monday, August 02, 11:59 PM	24	Monday, August 02, 12:01 AM – Monday, August 02, 11:59 PM	24
August 8	9	Friday, August 06, 12:01 AM – Sunday, August 08, 11:59 PM	72	Friday, August 06, 12:01 AM – Sunday, August 08, 11:59 PM	72
August 15	10	Monday, August 09, 12:01 AM – Monday, August 09, 11:59 PM	24	–Continuous–	168
August 15	10	Tuesday, August 10, 6:00 PM – Sunday, August 15, 11:59 PM	126	–Continuous–	
August 22	11	Saturday, August 21, 6:00 AM – Sunday, August 22, 11:59 PM	42	–Continuous–	168
August 29	12	Monday, August 23, 12:01 AM – Monday, August 23, 11:59 PM	24	–Continuous–	168
August 29	12	Thursday, August 26, 6:00 PM – Sunday, August 29, 11:59 PM	78		
September 5	13	Monday, August 30, 12:01 AM – Tuesday, August 31, 11:59 PM	48	–Continuous–	48
		–Open by regulation–	720	–Open by regulation–	720
Total hours			2,135		2,543

Note: PU = personal use.

Table 8.–Chitina Subdistrict fishing schedule, 2022.

Week ending	PU week	Preseason opening schedule	Hours	Actual opening schedule	Hours
June 12	1	Tuesday, June 07, 12:00 PM – Sunday, June 12, 11:59 PM	132	Saturday, June 11, 12:00 PM – Sunday, June 12, 12:00 PM	24
June 19	2	Monday, June 13, 12:00 PM – Sunday, June 19, 11:59 PM	156	Monday, June 13, 12:01 AM – Sunday, June 19, 11:59 PM	168
June 26	3	Monday, June 20, 12:01 AM – Tuesday, June 21, 11:59 PM	48	Monday, June 20, 12:01 AM – Sunday, June 26, 11:59 PM	168
June 26	3	Thursday, June 23, 12:00 PM – Sunday, June 26, 11:59 PM	84		
July 3	4	Monday, June 27, 12:01 AM – Monday, June 27, 11:59 PM	24	Monday, June 27, 12:01 AM – Sunday, July 03, 11:59 PM	168
July 3	4	Thursday, June 30, 6:00 AM – Sunday, July 03, 11:59 PM	90		
July 10	5	Monday, July 04, 12:01 AM – Monday, July 04, 11:59 PM	24	Monday, July 04, 12:01 AM – Sunday, July 10, 11:59 PM	168
July 10	5	Wednesday, July 06, 12:00 PM – Sunday, July 10, 11:59 PM	108		
July 17	6	Monday, July 11, 12:01 AM – Monday, July 11, 11:59 PM	24	Monday, July 11, 12:01 AM – Sunday, July 17, 11:59 PM	168
July 17	6	Thursday, July 14, 12:01 AM – Sunday, July 17, 11:59 PM	96		
July 24	7			Monday, July 18, 12:01 AM – Tuesday, July 19, 6:00 PM	42
July 24	7	Thursday, July 21, 12:00 PM – Sunday, July 24, 11:59 PM	84	Thursday, July 21, 12:00 PM – Sunday, July 24, 11:59 PM	84
July 31	8	Monday, July 25, 12:01 AM – Monday, July 25, 11:59 PM	24		
July 31	8	Thursday, July 28, 12:01 AM – Sunday, July 31, 11:59 PM	96	Thursday, July 28, 12:01 AM – Sunday, July 31, 11:59 PM	96
August 7	9	Monday, August 01, 12:01 AM – Sunday, August 07, 11:59 PM	168	Thursday, August 04, 6:00 PM – Sunday, August 07, 12:00 PM	66
August 14	10	Monday, August 08, 12:01 AM – Sunday, August 14, 11:59 PM	168	–Continuous–	168
August 21	11	Monday, August 15, 12:01 AM – Sunday, August 21, 11:59 PM	168	–Continuous–	168
August 28	12	Monday, August 22, 12:01 AM – Sunday, August 28, 11:59 PM	168	–Continuous–	168
September 5		Monday, August 29, 12:01 AM – Wednesday, August 31, 11:59 PM	72	–Continuous–	72
		–Open by regulation–	720	–Open by regulation–	720
Total hours			2,453		2,424

Note: PU = personal use.

Table 9.–Chitina Subdistrict fishing schedule, 2023.

Week ending	PU week	Preseason opening schedule	Hours	Actual opening schedule	Hours
June 11	1	Wednesday, June 07, 12:01 AM – Sunday, June 11, 11:59 PM	120		0
June 18	2	Monday, June 12, 12:01 AM – Tuesday, June 13, 11:59 PM	48	Thursday, June 15, 12:01 AM – Sunday, June 18, 11:59 PM	96
June 18	2	Thursday, June 15, 12:01 AM – Sunday, June 18, 11:59 PM	96		
June 25	3	Monday, June 19, 12:01 AM – Tuesday, June 20, 11:59 PM	48	Tuesday, June 20, 12:01 AM – Sunday, June 25, 11:59 PM	144
June 25	3	Thursday, June 22, 12:01 AM – Sunday, June 25, 11:59 PM	96		
July 2	4	Monday, June 26, 12:01 AM – Monday, June 26, 11:59 PM	24	Monday, June 26, 12:00 PM – Sunday, July 02, 11:59 PM	156
July 2	4	Thursday, June 29, 12:01 AM – Sunday, July 02, 11:59 PM	96		
July 9	5	Monday, July 03, 12:01 AM – Tuesday, July 04, 11:59 PM	48	Monday, July 03, 12:01 AM – Sunday, July 09, 11:59 PM	168
July 9	5	Friday, July 07, 12:01 AM – Sunday, July 09, 11:59 PM	72		
July 16	6	Thursday, July 13, 12:01 AM – Sunday, July 16, 11:59 PM	96	Monday, July 10, 12:01 AM – Sunday, July 16, 11:59 PM	168
July 23	7	Thursday, July 20, 12:00 PM – Sunday, July 23, 11:59 PM	84	Monday, July 17, 12:01 AM – Sunday, July 23, 11:59 PM	168
July 30	8	Monday, July 24, 12:01 AM – Tuesday, July 25, 12:00 PM	36	Monday, July 24, 12:01 AM – Sunday, July 30, 11:59 PM	168
July 30	8	Thursday, July 27, 12:01 AM – Sunday, July 30, 11:59 PM	96		
August 6	9	Monday, July 31, 12:01 AM – Sunday, August 06, 11:59 PM	168	–Continuous–	168
August 13	10	Monday, August 07, 12:01 AM – Sunday, August 13, 11:59 PM	168	–Continuous–	168
August 20	11	Monday, August 14, 12:01 AM – Sunday, August 20, 11:59 PM	168	–Continuous–	168
August 27	12	Monday, August 21, 12:01 AM – Sunday, August 27, 11:59 PM	168	–Continuous–	168
September 3	13	Monday, August 28, 12:01 AM – Thursday, August 31, 11:59 PM	96	–Continuous–	0
October 1	12	–Open by regulation–	672	–Open by regulation–	672
Total hours			2,400		2,412

Note: PU = personal use.

Table 10.–Chitina Subdistrict fishing schedule, 2024.

Week ending	PU week	Preseason opening schedule	Hours	Actual opening schedule	Hours
June 9	1	Friday, June 07, 12:01 AM – Sunday, June 09, 11:59 PM	72		0
June 16	2	Monday, June 10, 12:01 AM – Sunday, June 16, 11:59 PM	168	Thursday, June 13, 6:00 PM – Sunday, June 16, 6:00 PM[a]	72[a]
June 23	3	Monday, June 17, 12:01 AM – Sunday, June 23, 11:59 PM	168	Monday, June 17, 12:01 AM – Sunday, June 23, 11:59 PM	168
June 30	4	Monday, June 24, 8:00 AM – Sunday, June 30, 11:59 PM	160	Monday, June 24, 12:01 AM – Sunday, June 30, 11:59 PM	168
July 7	5	Monday, July 01, 12:01 AM – Monday, July 01, 11:59 PM	24	Monday, July 01, 12:01 AM – Sunday, July 07, 11:59 PM	168
July 7	5	Wednesday, July 03, 8:00 AM – Sunday, July 07, 11:59 PM	112		
July 14	6	Monday, July 08, 12:01 AM – Monday, July 08, 11:59 PM	24	Monday, July 08, 12:01 AM – Sunday, July 14, 11:59 PM	168
July 14	6	Wednesday, July 10, 8:00 AM – Sunday, July 14, 11:59 PM	76		
July 21	7	Thursday, July 18, 8:00 PM – Sunday, July 21, 11:59 PM	76	Monday, July 15, 12:01 AM – Sunday, July 21, 11:59 PM	168
July 28	8	Monday, July 22, 12:01 AM – Monday, July 22, 11:59 PM	24	Monday, July 22, 12:01 AM – Sunday, July 28, 11:59 PM	168
July 28	8	Thursday, July 25, 8:00 AM – Sunday, July 28, 11:59 PM	88		
August 4	9	Monday, July 29, 12:01 AM – Sunday, August 04, 11:59 PM	168	Monday, July 29, 12:01 AM – Saturday, August 31, 11:59 PM	816
August 11	10	–Continuous–	168	–Continuous–	
August 18	11	–Continuous–	168	–Continuous–	
August 25	12	–Continuous–	168	–Continuous–	
September 1	13	–Continuous–	144	–Continuous–	
October 6	12	–Open by regulation –	720	–Open by regulation–	720
Total hours			2,564		2,616

Note: PU = personal use.

[a] Indicates a departure from the preseason opening schedule.

Table 11.–Number of permits issued and salmon harvested in the Glennallen Subdistrict subsistence salmon fishery, including federal subsistence permits and harvest, 2004–2023.

Year	Number of permits issued				Expanded salmon harvest
	Total	Dip net	Fish wheel	Federal[a]	
2004	1,218	330	626	262	77,925
2005	1,228	363	598	267	89,099
2006	1,238	338	646	254	79,525
2007	1,455	467	707	281	87,572
2008	1,456	536	650	270	61,572
2009	1,364	469	621	274	63,815
2010	1,590	620	701	269	87,655
2011	1,583	617	689	277	79,032
2012	1,802	867	660	275	95,810
2013	1,612	808	531	273	93,474
2014	1,971	1,148	508	315	100,582
2015	1,956	1,128	503	325	111,465
2016	2,089	1,300	469	320	84,366
2017	1,964	1,264	368	332	59,534
2018	1,994	1,312	347	335	63,912
2019	2,056	1,354	359	343	80,906
2020	2,041	1,290	375	376	48,771
2021	1,873	1,205	313	355	59,841
2022	1,525	931	297	297	64,557
2023	1,605	1,001	314	290	66,914
Average 2018–2022	1,898	1,218	338	341	63,597
Average 2013–2022	1,908	1,174	407	327	76,741

[a] Federal permits are not limited to a single gear type and allow use of fish wheel, dip net, or rod and reel.

[b] Expanded ADF&G and federal subsistence harvest data. (Data are expanded to account for harvest issued permits that were not reported on.)

Table 12.–Chinook salmon reported harvest and effort in the Copper River District subsistence drift gillnet fishery and reported harvest of home pack Chinook salmon from the Copper River commercial drift gillnet fishery, 2014–2023.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-year Average (2014–2023)
Number of subsistence permits fished	101	97	77	265	437	347	344	278	351	336	263
Number of subsistence Chinook salmon harvested	153	167	73	778	1,356	808	657	624	887	948	645
Average number of Chinook salmon harvested per subsistence permit	1.5	1.7	0.9	2.9	3.1	2.3	1.9	2.2	2.5	2.8	2
Number of commercial permit holders reporting home pack harvests	386	359	340	363	216	340	241	269	235	285	303
Number of Chinook salmon retained for home pack	768	1,145	727	744	85	742	742	225	278	534	599
Average number of home pack Chinook salmon harvested per permit holder	2.0	3.2	2.1	2.0	0.4	2.2	3.1	0.8	1.2	1.9	2
Combined lower Copper River subsistence and home pack harvests	921	1,312	800	1,522	1,441	1,550	1,399	849	1,165	1,482	1,244

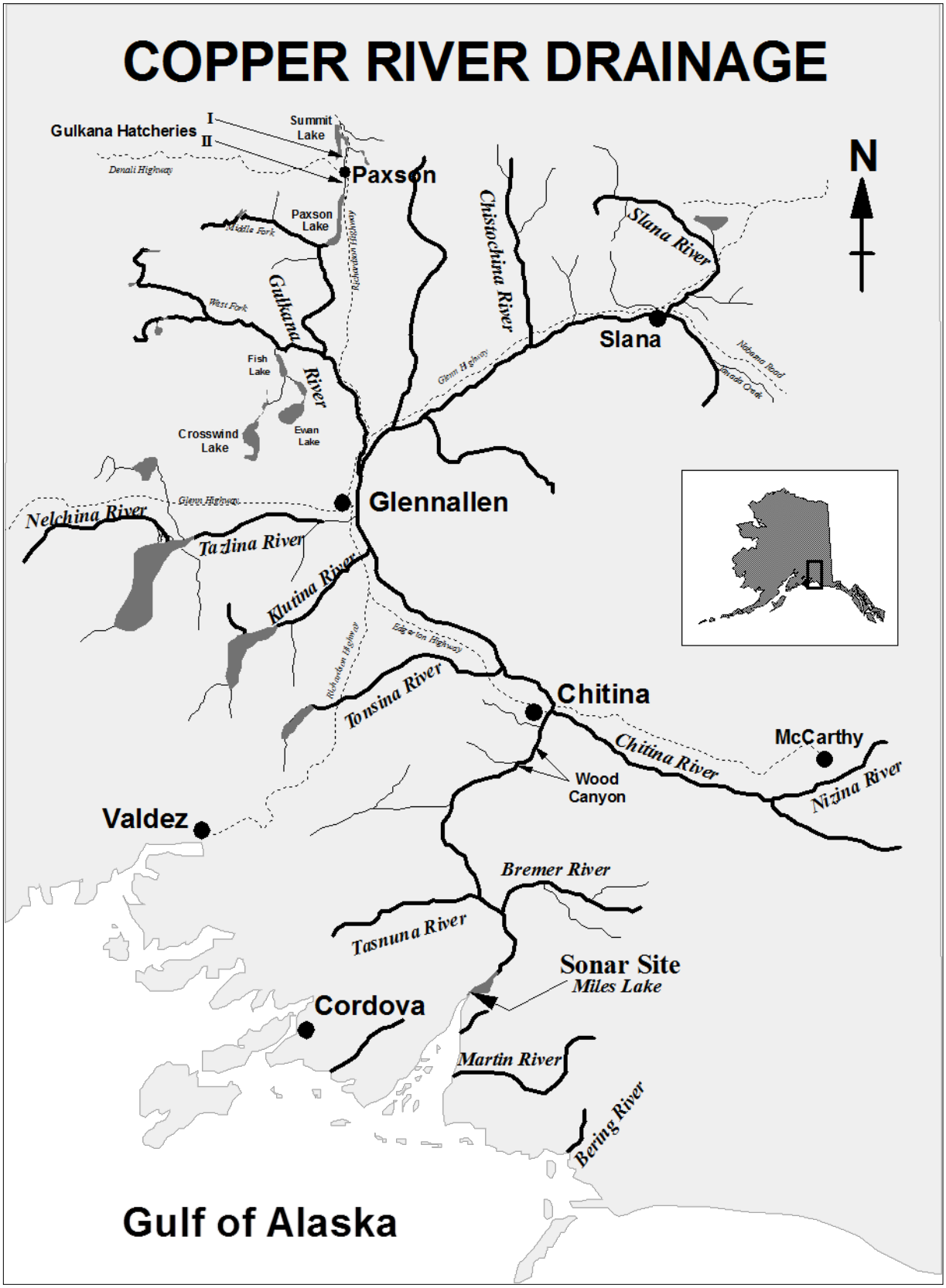


Figure 1.–The Copper River drainage.

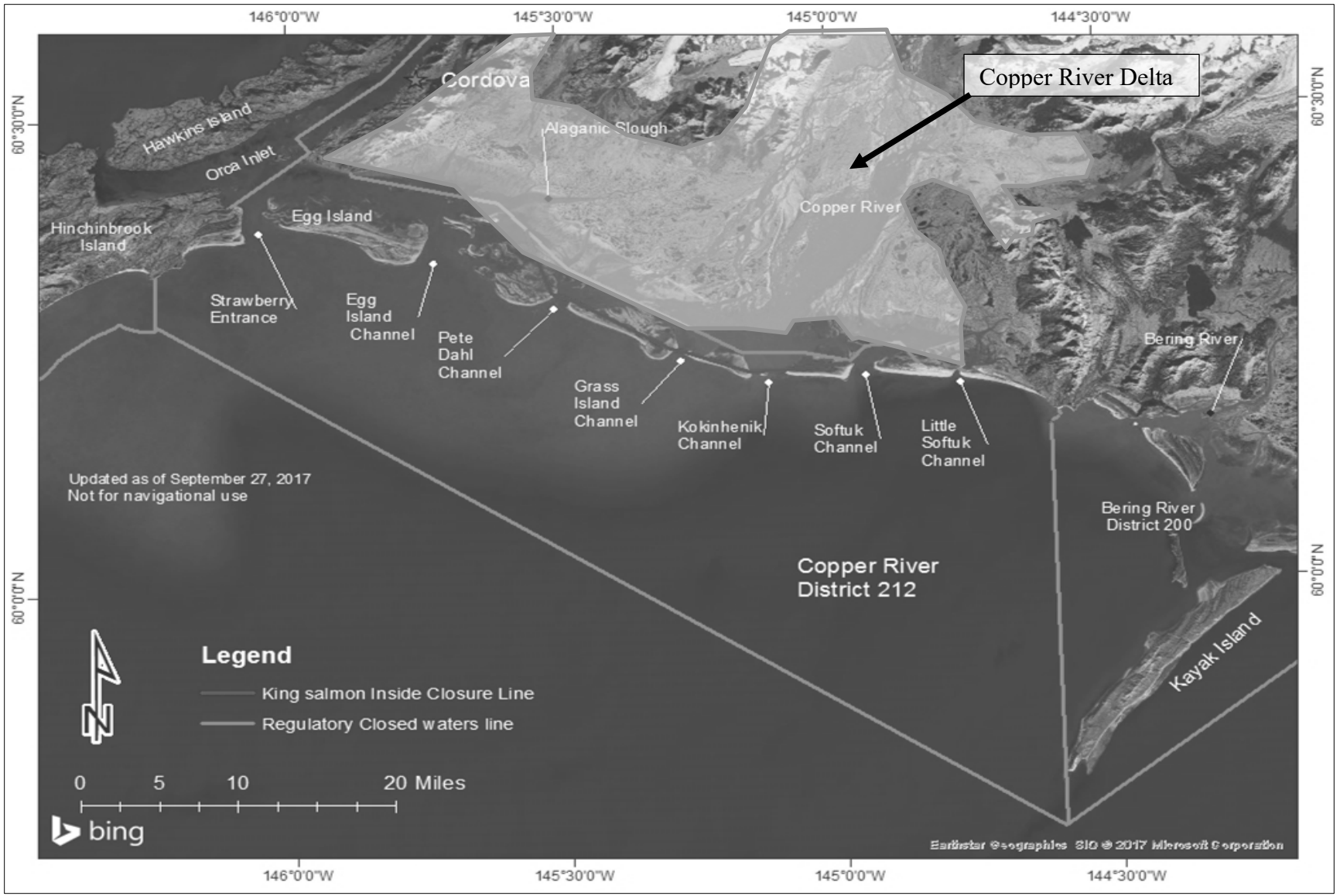


Figure 2.–Map of Copper River and Bering River Districts showing inside closure area and Copper River Delta.

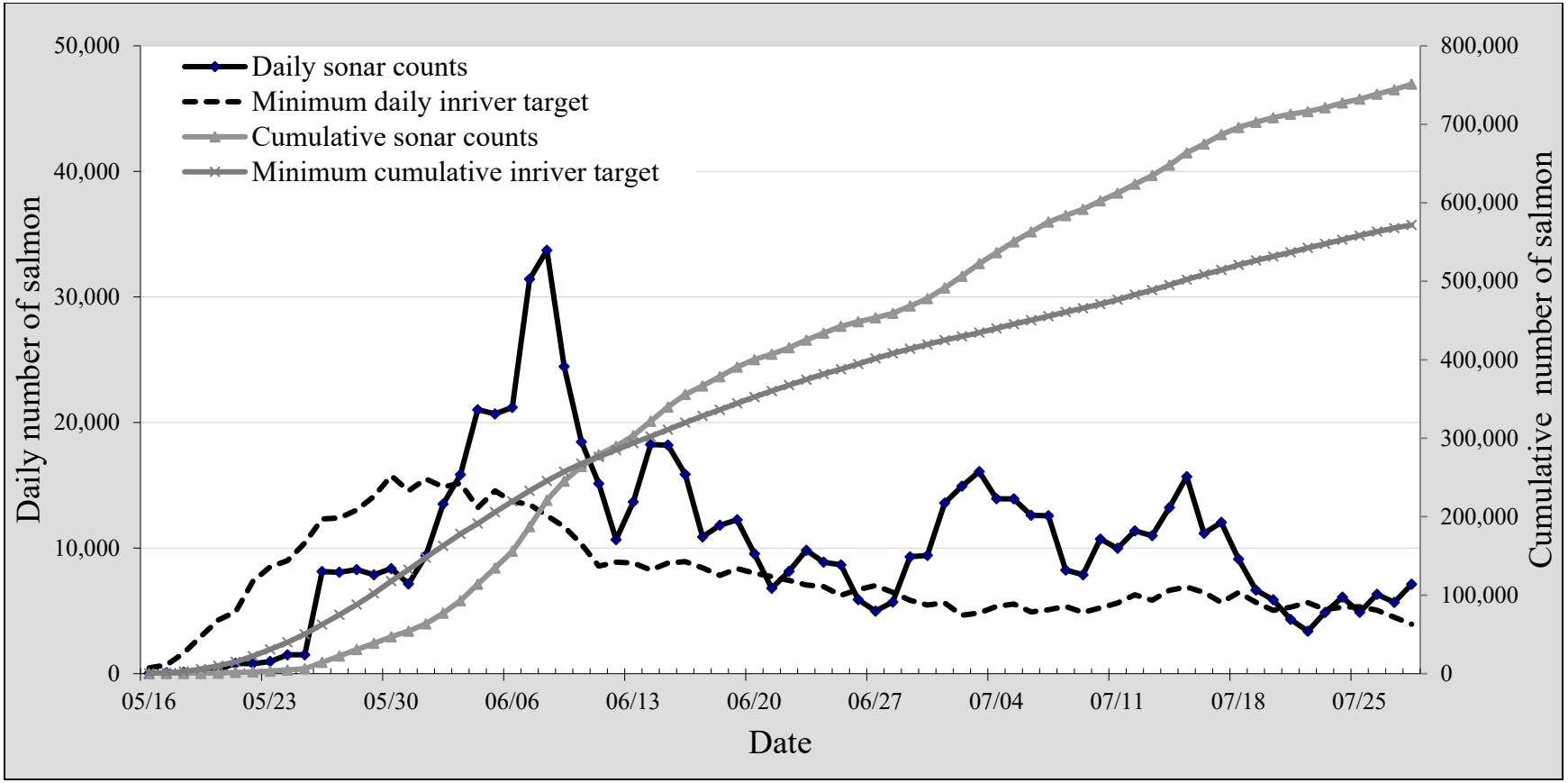


Figure 3.–Daily and cumulative Copper River inriver passage compared to inriver target at the Miles Lake sonar, 2021.

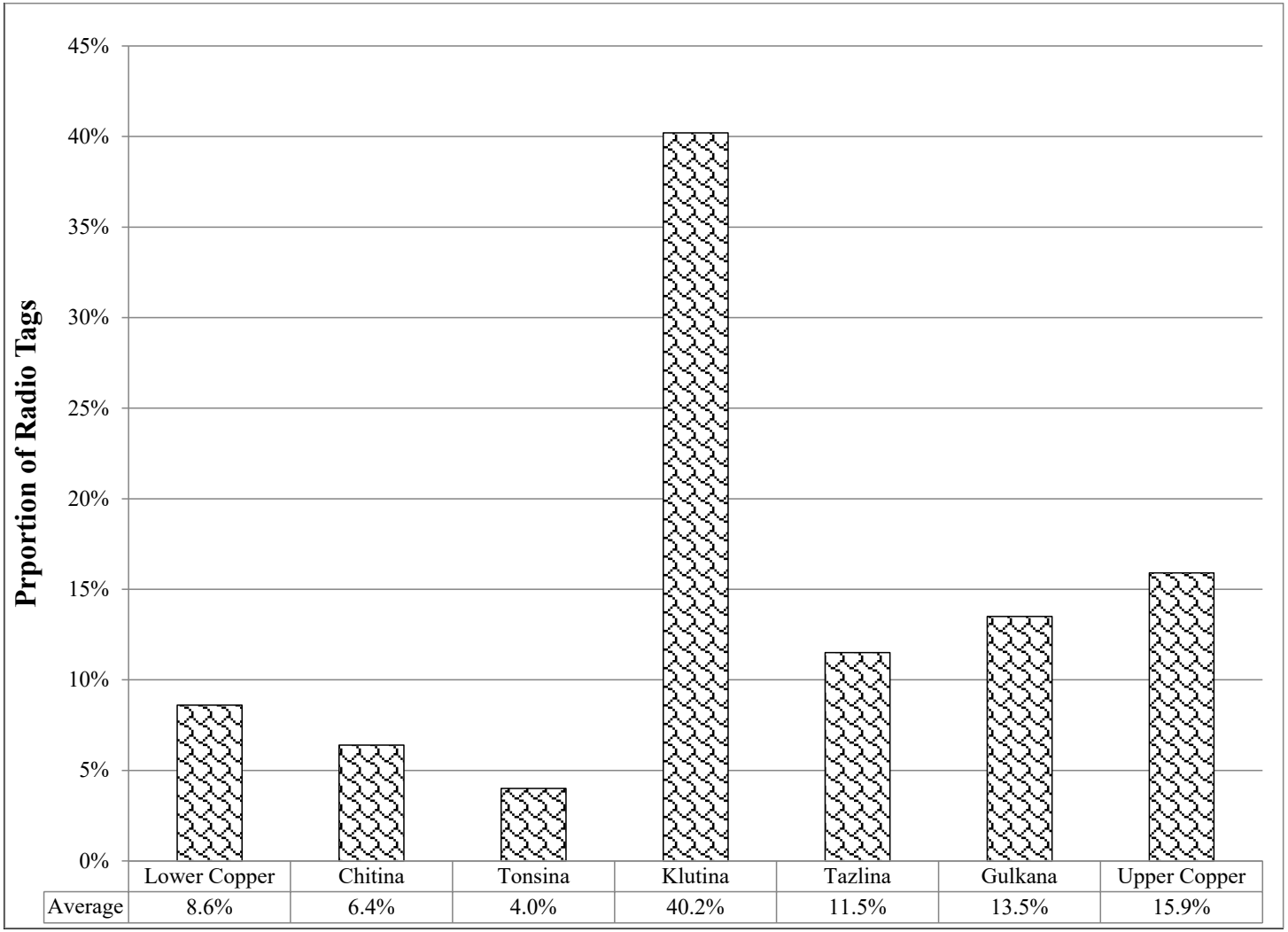


Figure 4.–Average percentage of radiotagged sockeye salmon located within portions of the Copper River drainage, 2005–2009.

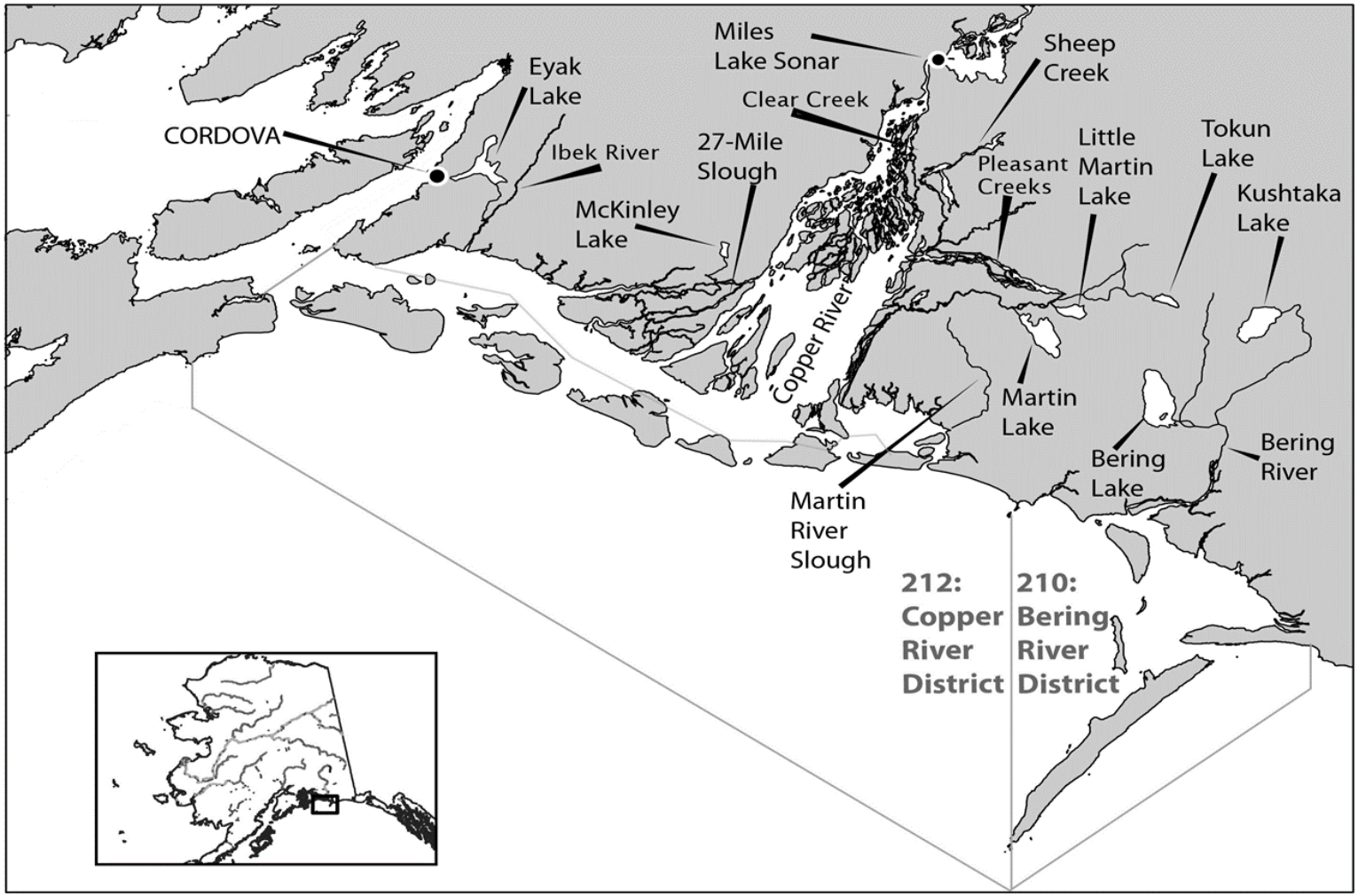
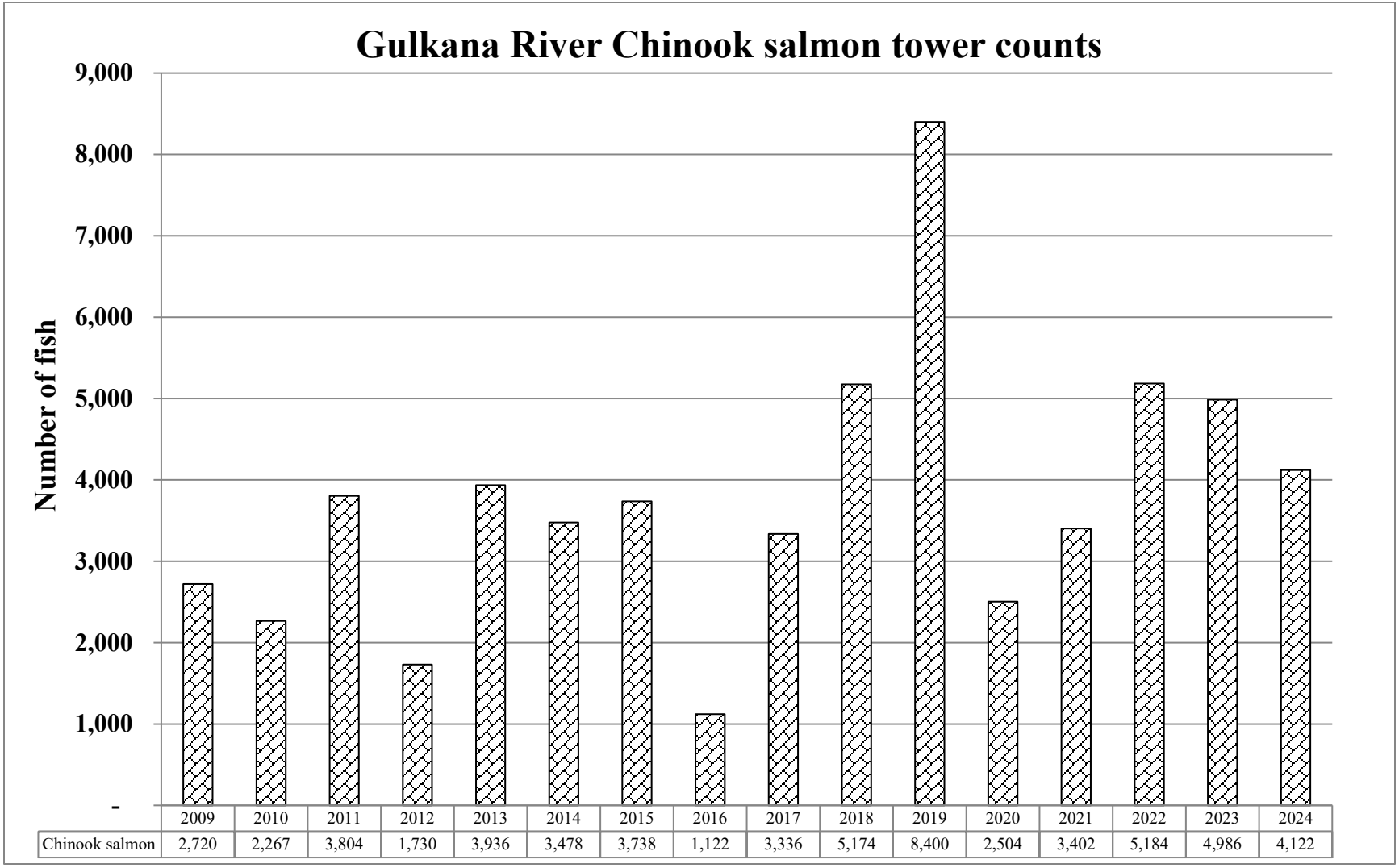
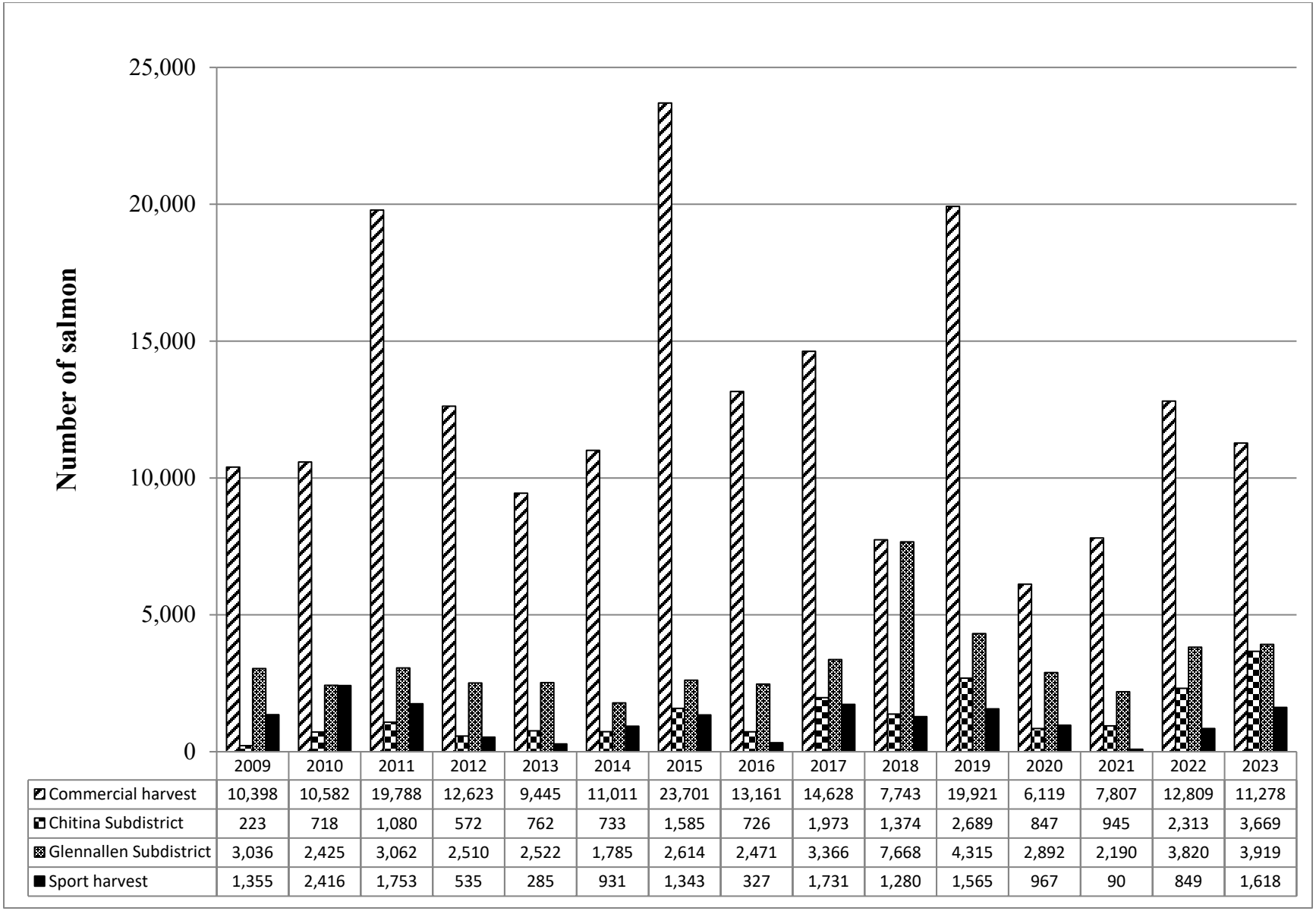


Figure 5.–Map of Copper River Delta and Bering River District sockeye and coho salmon aerial survey locations.



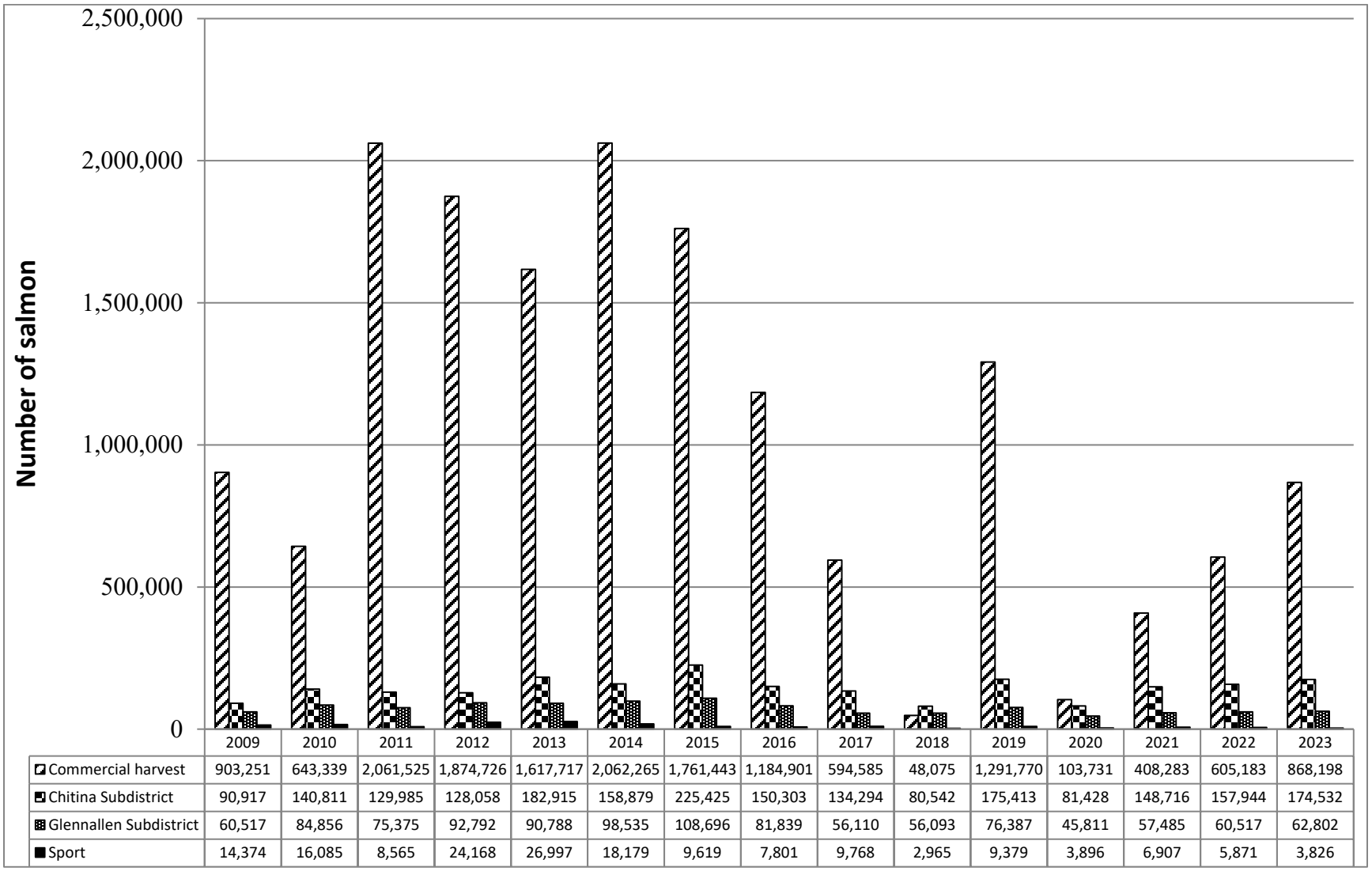
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chinook salmon	2,720	2,267	3,804	1,730	3,936	3,478	3,738	1,122	3,336	5,174	8,400	2,504	3,402	5,184	4,986	4,122

Figure 6.–Total escapement of Chinook salmon past the Gulkana River counting tower, 2009–2024 (data for 2024 are preliminary).



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Commercial harvest	10,398	10,582	19,788	12,623	9,445	11,011	23,701	13,161	14,628	7,743	19,921	6,119	7,807	12,809	11,278
Chitina Subdistrict	223	718	1,080	572	762	733	1,585	726	1,973	1,374	2,689	847	945	2,313	3,669
Glennallen Subdistrict	3,036	2,425	3,062	2,510	2,522	1,785	2,614	2,471	3,366	7,668	4,315	2,892	2,190	3,820	3,919
Sport harvest	1,355	2,416	1,753	535	285	931	1,343	327	1,731	1,280	1,565	967	90	849	1,618

Figure 7.–Chinook salmon harvest in the Copper River by fishery, 2009–2023.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Commercial harvest	903,251	643,339	2,061,525	1,874,726	1,617,717	2,062,265	1,761,443	1,184,901	594,585	48,075	1,291,770	103,731	408,283	605,183	868,198
Chitina Subdistrict	90,917	140,811	129,985	128,058	182,915	158,879	225,425	150,303	134,294	80,542	175,413	81,428	148,716	157,944	174,532
Glennallen Subdistrict	60,517	84,856	75,375	92,792	90,788	98,535	108,696	81,839	56,110	56,093	76,387	45,811	57,485	60,517	62,802
Sport	14,374	16,085	8,565	24,168	26,997	18,179	9,619	7,801	9,768	2,965	9,379	3,896	6,907	5,871	3,826

Figure 8.–Sockeye salmon harvest in the Copper River by fishery, 2009–2023.

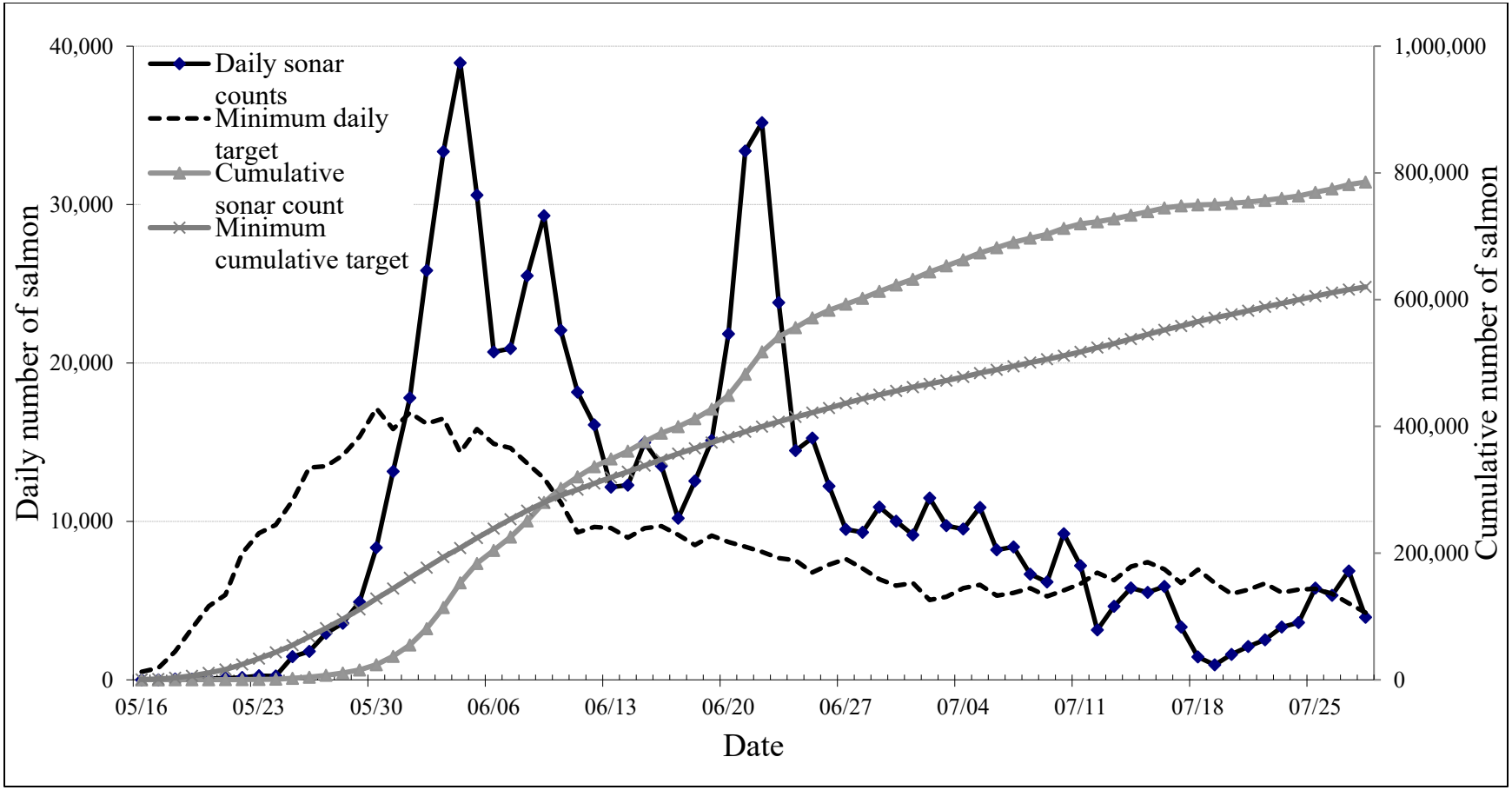


Figure 9.–Daily and cumulative Copper River inriver passage compared to inriver target at the Miles Lake sonar, 2022.

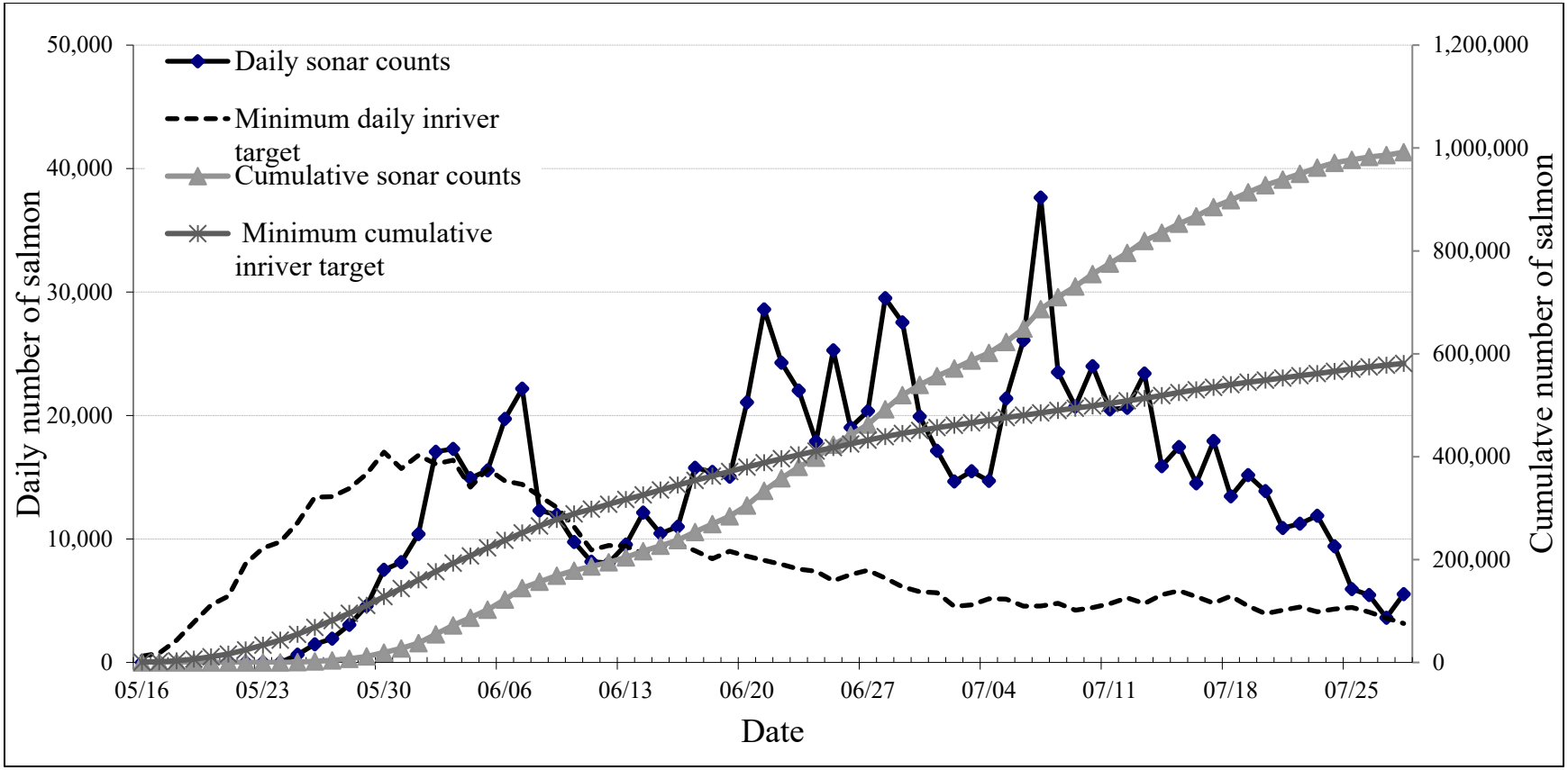


Figure 10.–Daily and cumulative Copper River inriver passage compared to inriver target at the Miles Lake sonar, 2023.

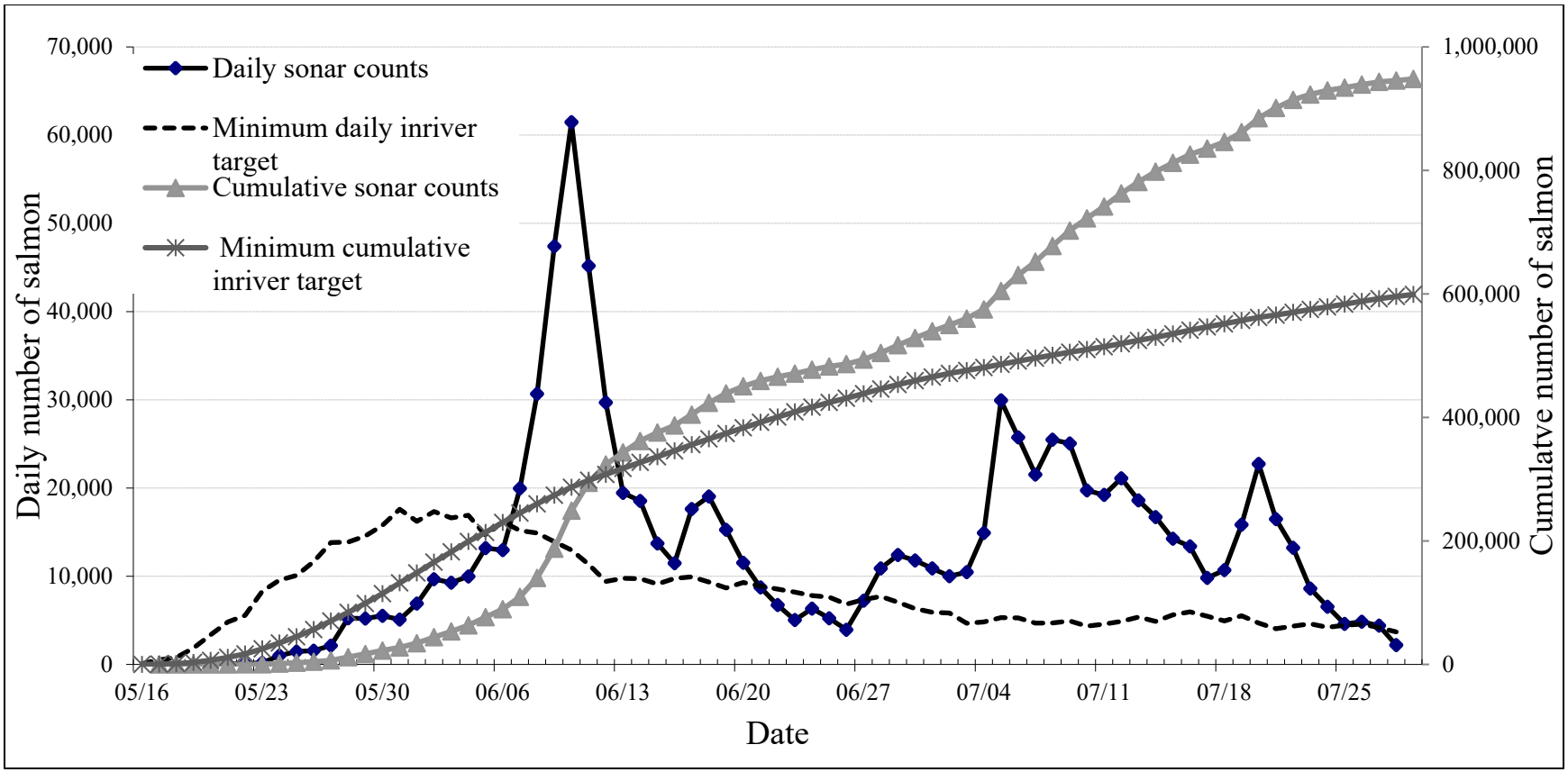


Figure 11.–Daily and cumulative Copper River inriver passage compared to inriver target at the Miles Lake sonar, 2024.

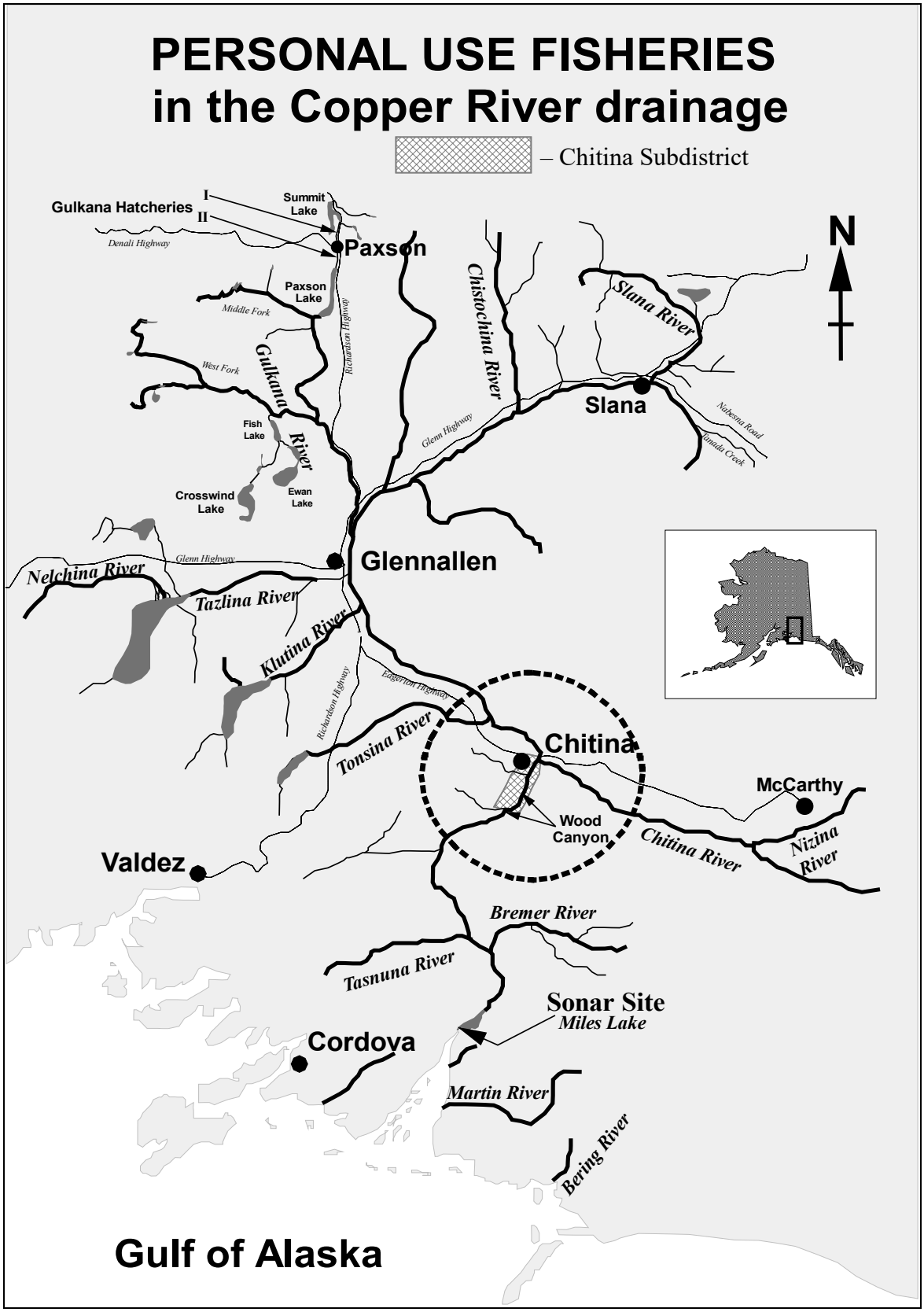
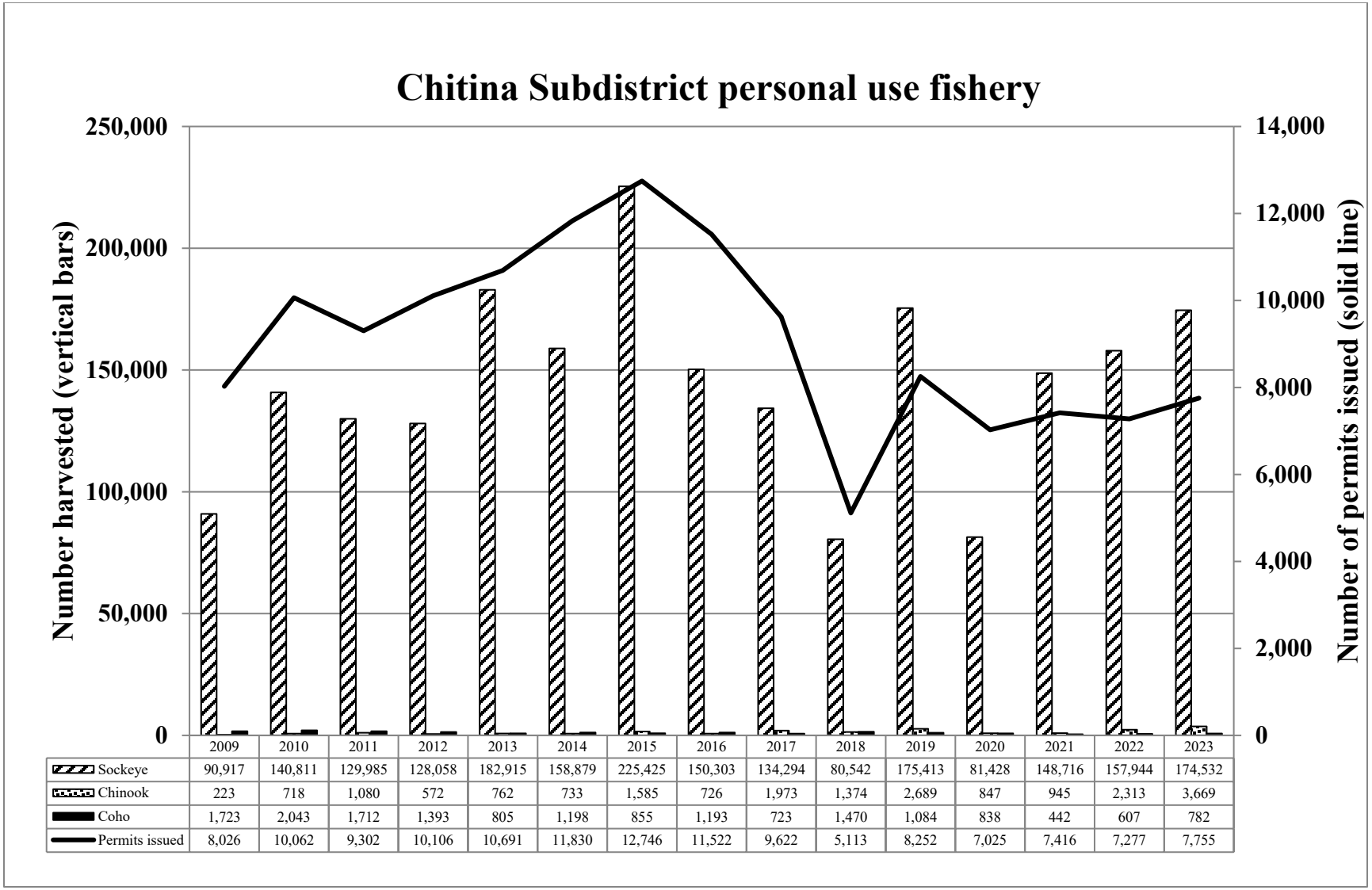


Figure 12.–Map of the personal use salmon fisheries on the Copper River.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sockeye	90,917	140,811	129,985	128,058	182,915	158,879	225,425	150,303	134,294	80,542	175,413	81,428	148,716	157,944	174,532
Chinook	223	718	1,080	572	762	733	1,585	726	1,973	1,374	2,689	847	945	2,313	3,669
Coho	1,723	2,043	1,712	1,393	805	1,198	855	1,193	723	1,470	1,084	838	442	607	782
Permits issued	8,026	10,062	9,302	10,106	10,691	11,830	12,746	11,522	9,622	5,113	8,252	7,025	7,416	7,277	7,755

Figure 13.–Chitina Subdistrict personal use salmon harvest by species, 2009–2023.

Note: ADF&G personal use and federal subsistence estimated harvest (estimates account for unreported harvest from permits issued but not reported).

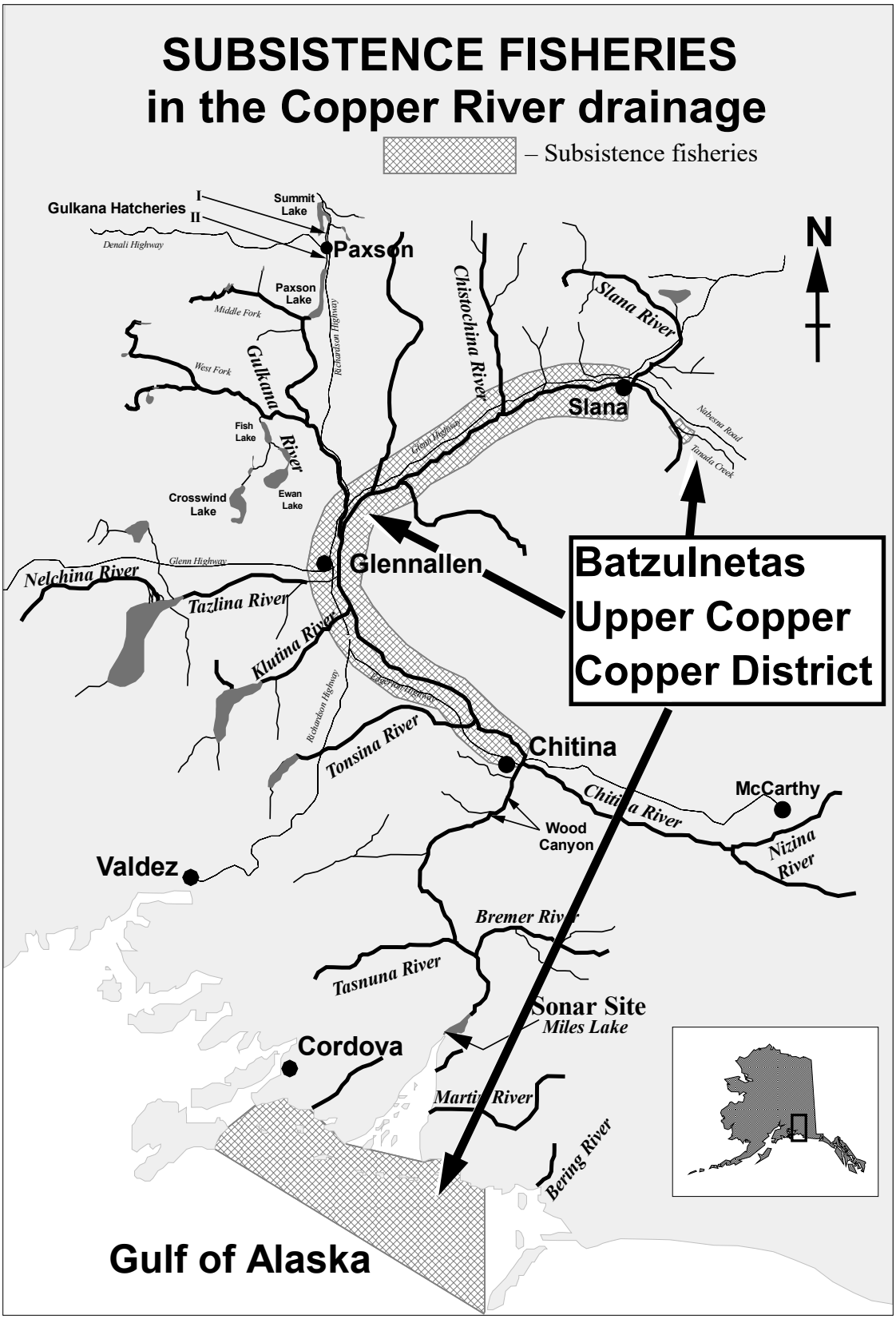
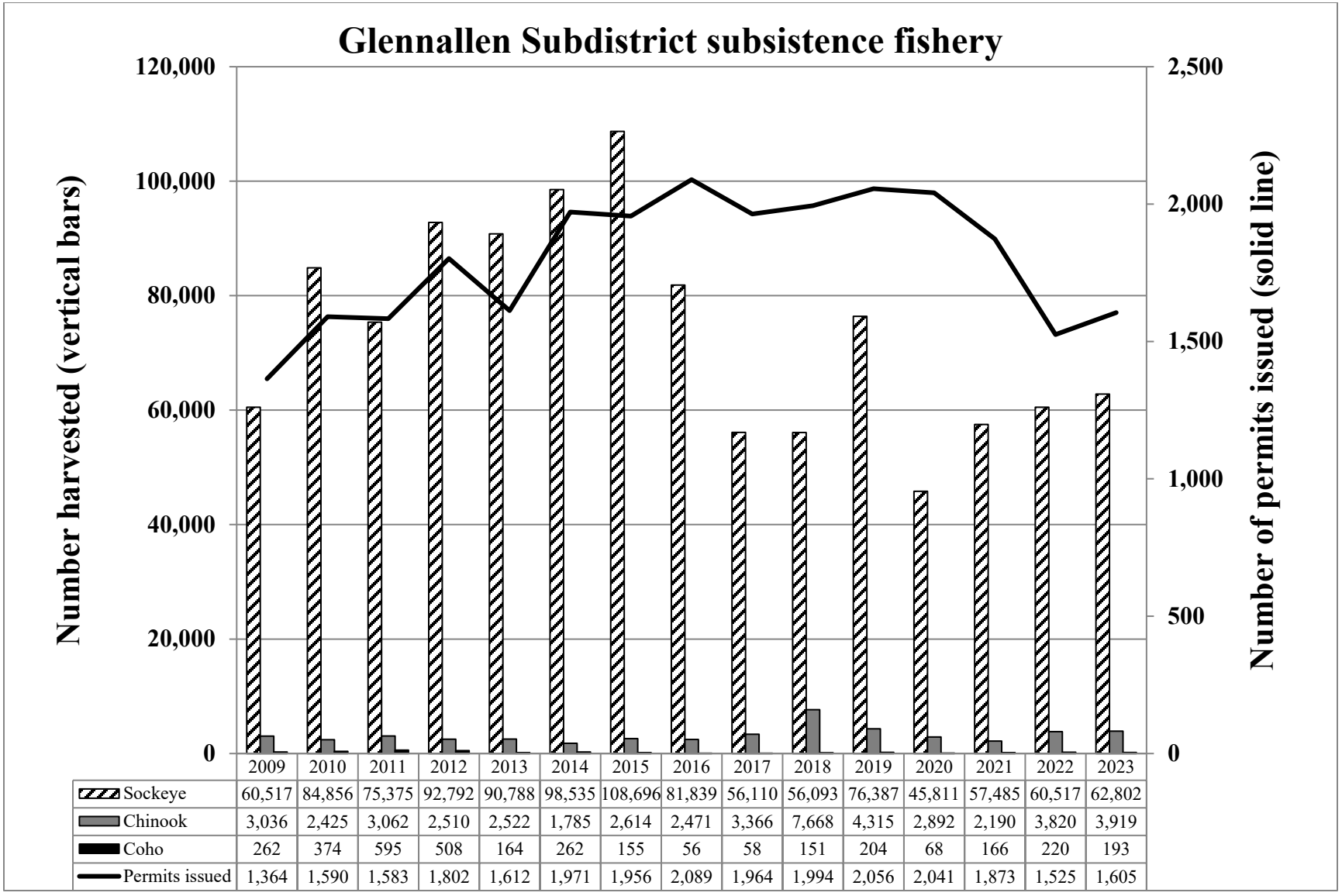


Figure 14.–Map of the subsistence salmon fisheries on the Copper River.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sockeye	60,517	84,856	75,375	92,792	90,788	98,535	108,696	81,839	56,110	56,093	76,387	45,811	57,485	60,517	62,802
Chinook	3,036	2,425	3,062	2,510	2,522	1,785	2,614	2,471	3,366	7,668	4,315	2,892	2,190	3,820	3,919
Coho	262	374	595	508	164	262	155	56	58	151	204	68	166	220	193
Permits issued	1,364	1,590	1,583	1,802	1,612	1,971	1,956	2,089	1,964	1,994	2,056	2,041	1,873	1,525	1,605

Figure 15.–Glennallen Subdistrict salmon harvest by species, 2009–2023.

Note: ADF&G and federal estimated harvest (estimates account for unreported harvest from permits issued but not reported).

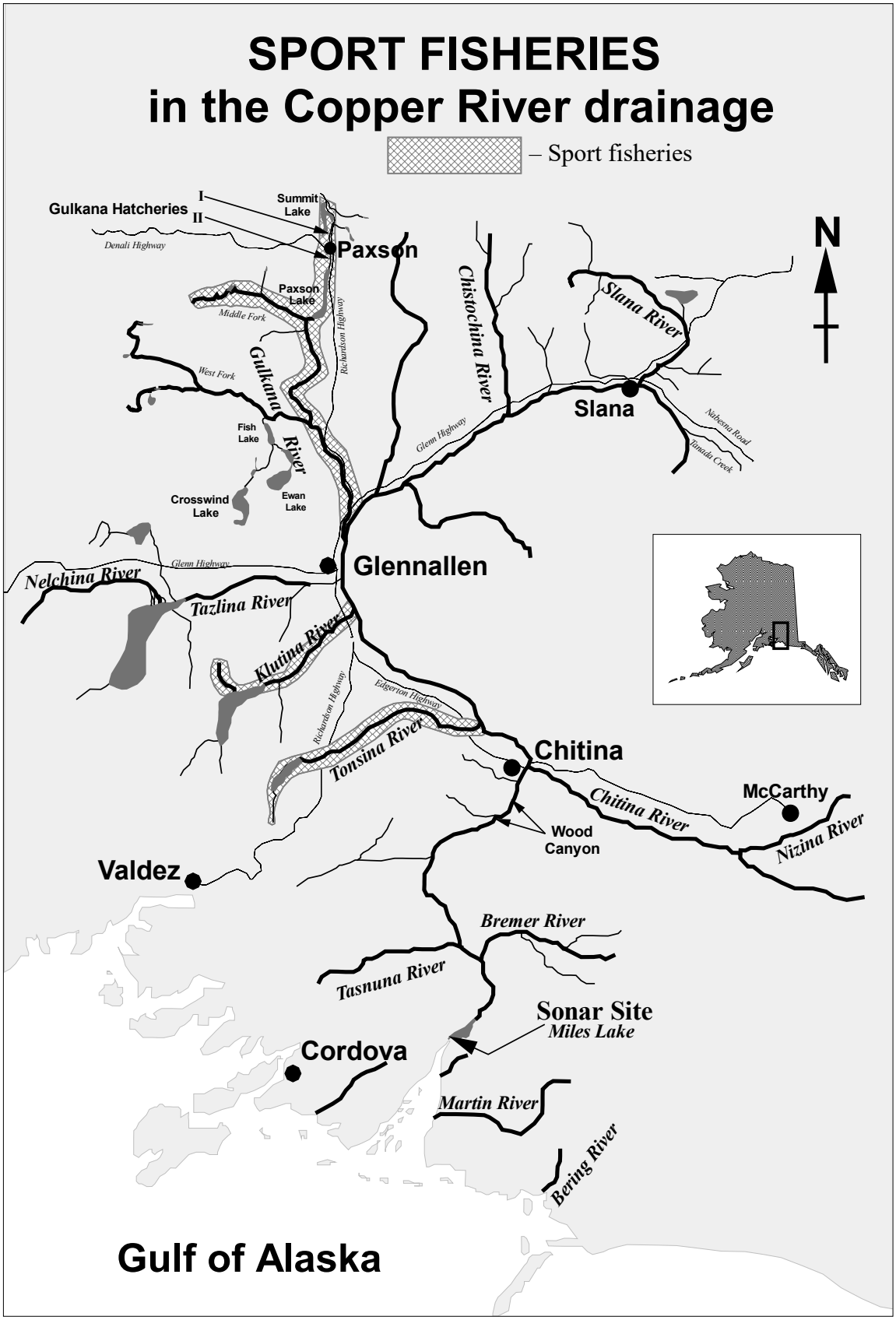
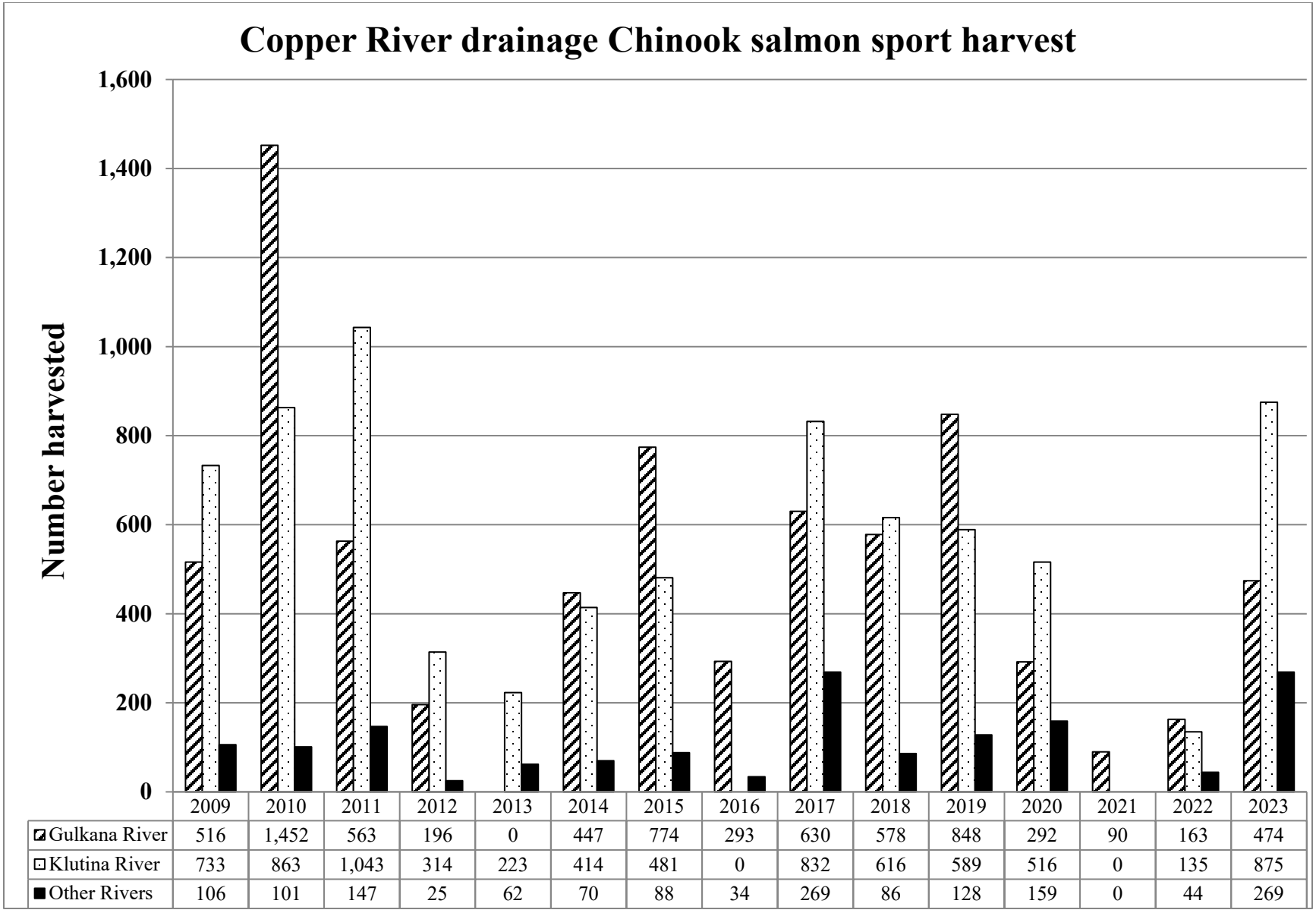
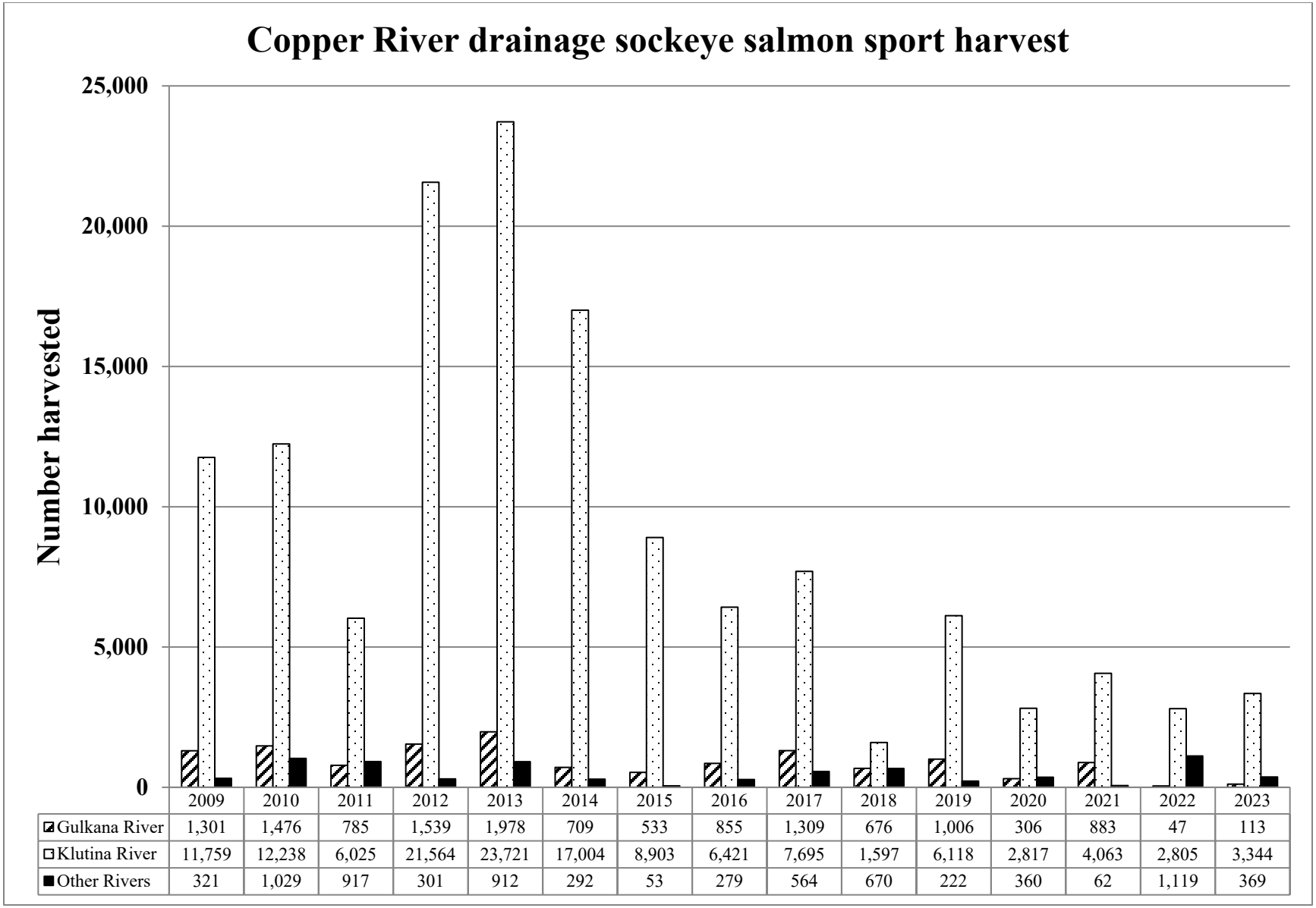


Figure 16.–Map of the sport salmon fisheries on the Copper River.



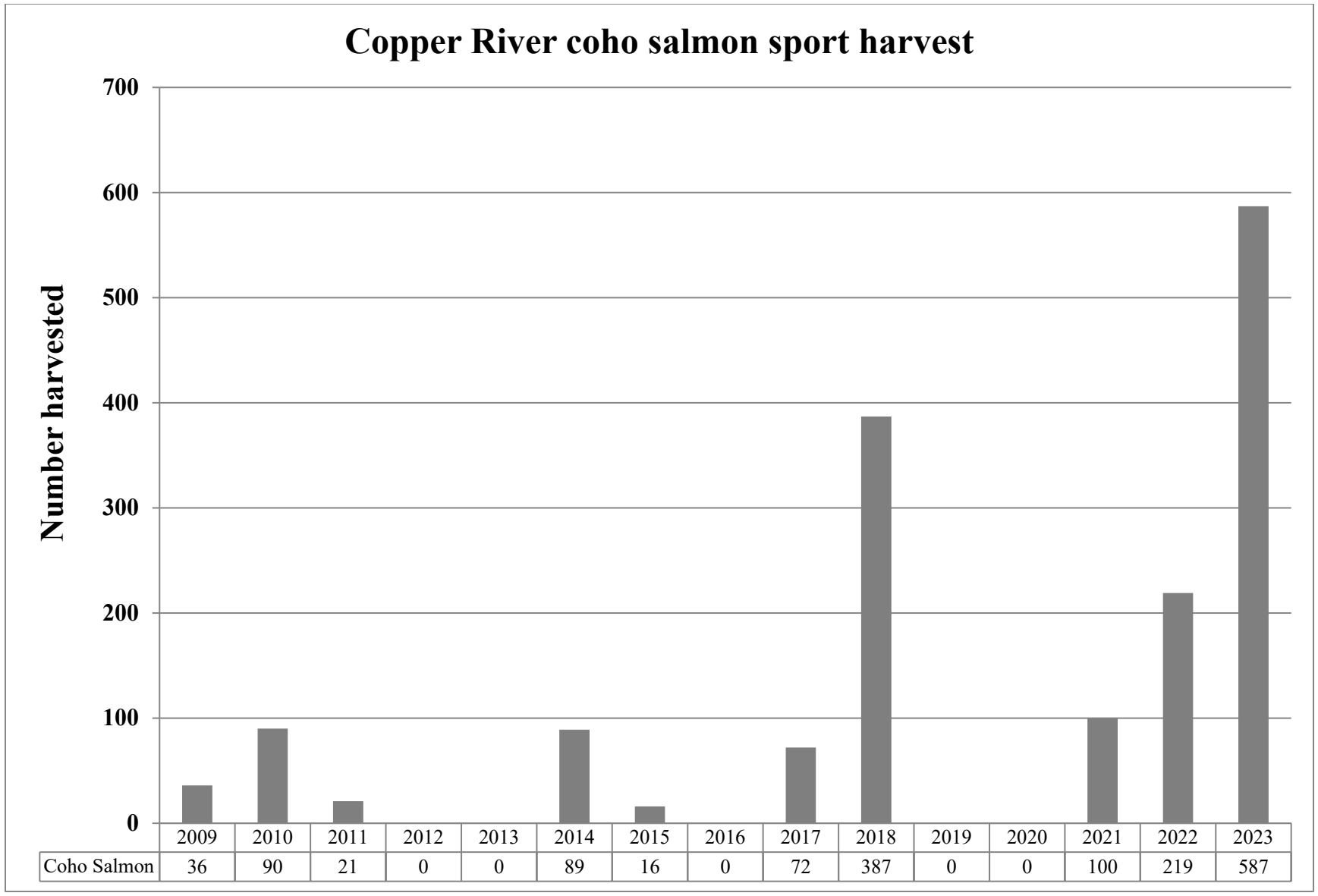
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gulkana River	516	1,452	563	196	0	447	774	293	630	578	848	292	90	163	474
Klutina River	733	863	1,043	314	223	414	481	0	832	616	589	516	0	135	875
Other Rivers	106	101	147	25	62	70	88	34	269	86	128	159	0	44	269

Figure 17.–Copper River Chinook salmon sport harvest, 2009–2023.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gulkana River	1,301	1,476	785	1,539	1,978	709	533	855	1,309	676	1,006	306	883	47	113
Klutina River	11,759	12,238	6,025	21,564	23,721	17,004	8,903	6,421	7,695	1,597	6,118	2,817	4,063	2,805	3,344
Other Rivers	321	1,029	917	301	912	292	53	279	564	670	222	360	62	1,119	369

Figure 18.–Copper River sockeye salmon sport harvest, 2009–2023.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coho Salmon	36	90	21	0	0	89	16	0	72	387	0	0	100	219	587

Figure 19.–Upper Copper River coho salmon sport harvest, 2009–2023.