Fishery Management Report No. 24-30

Fishery Management Report for the Sport, Personal Use, and Subsistence Fisheries of the Upper Copper River and Upper Susitna River Management Area, 2023

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**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figures or figure captions.

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

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

FISHERY MANAGEMENT REPORT NO. 24-30

FISHERY MANAGEMENT REPORT FOR THE SPORT, PERSONAL USE, AND SUBSISTENCE FISHERIES OF THE UPPER COPPER RIVER AND UPPER SUSITNA RIVER MANAGEMENT AREA, 2023

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ABSTRACT

Information specific to sport, personal use, and subsistence fisheries in the Upper Copper River and Upper Susitna River Management Area in 2023 and fishery management actions taken in 2024 are presented. Estimates of fishing effort, total harvest, and catch are summarized through the 2023 season. This information is provided to the Alaska Board of Fisheries, as well as to the general public and interested parties. Major fisheries within the area are detailed, including descriptions of the performance of these fisheries, regulatory actions by the Alaska Board of Fisheries, social and biological issues, and descriptions of ongoing research and management activities.

Keywords: Copper River, Susitna River, Klutina River, Gulkana River, Chitina Subdistrict, Glennallen Subdistrict, king salmon, Chinook salmon, sockeye salmon, burbot, lake trout, Arctic grayling, sport fisheries, sport fishery management, personal use fisheries, subsistence fisheries, fisheries management plans

EXECUTIVE SUMMARY

This document provides information specific to the sport fishing opportunities and the sport, personal use, and subsistence fisheries that exist within the Upper Copper River and Upper Susitna River Management Area (UCUSMA). Information specific to the sport, personal use, and subsistence fisheries within the UCUSMA during 2023 and fishery management actions taken in 2024 are presented along with a brief history of these fisheries and past Alaska Board of Fisheries (BOF) decisions that have affected them.

INTRODUCTION

This report provides information for the UCUSMA and is one in a series of reports annually updating fisheries management information within Region III. The report is provided for the Board of Fisheries (BOF), Fish and Game Advisory Committees (ACs), the general public, and other interested parties. It presents a description of area fisheries; summary of the fisheries' effort, harvest, and catch; fisheries assessment information; and the management strategies that are developed from that information.

The mission of the Division of Sport Fish of the Alaska Department of Fish and Game (ADF&G) is to protect and improve the state's fishery resources. This is achieved by managing for sustainable yield of wild stocks of sport fish, providing diverse sport fishing opportunities, and providing information to assist the BOF in optimizing social and economic benefits from sport fisheries. In order to implement these goals, the division has in place a fisheries management process.

A regional review is conducted annually during which the status of important area fisheries is considered and research needs are identified. Fisheries stock assessment and research projects are developed, scheduled, and implemented to meet information needs identified by fisheries managers. Projects are planned within a formal operational planning process. Biological information gathered from these research projects is combined with effort information and input from user groups to assess the need for and development of fisheries management plans and to propose regulatory strategies.

Division of Sport Fish management and research activities are funded by Fish and Game and Federal Aid in Fisheries Restoration funds. Fish and Game funds are derived from the sale of state sport fishing licenses. Federal Aid funds are derived from federal taxes on fishing tackle and equipment established by the Federal Aid in Sport Fish Restoration Act (also referred to as the Dingell–Johnson Act or D–J Act). D–J funds are provided to the states at a match of up to 3-to-1 with the Fish and Game funds. Additional funding specified for providing, protecting, and managing access to fish and game is provided through a tax on boat gas and equipment established

by the Wallop–Breaux (W–B) Act. Other peripheral funding sources may include contracts with various government agencies and the private sector or, in a few cases, State of Alaska general funds (GF).

This area management report provides information regarding the UCUSMA and its fisheries for 2023, with information, if available, from the 2024 season. This report is organized into two primary sections: a management area overview including a description of the management area and a summary of effort, harvest, and catch for the area (based on data from the SWHS), and a section on the significant area fisheries including specific harvest and catch by species and geographical region or drainage.

Sport fishing effort and harvest of sport fish species in Alaska have been estimated and reported annually since 1977 using a mail survey. The Alaska Sport Fishing Survey (commonly referred to as the Statewide Harvest Survey [SWHS]) is designed to provide estimates of effort, harvest, and catch on a site-by-site basis. It is not designed to provide estimates of effort directed towards a single species. Species-specific catch-per-unit-effort (CPUE) information can seldom be derived from the survey data. A questionnaire is mailed to a stratified random sample of households containing at least one individual with a valid fishing license (resident or nonresident). Currently, information gathered from the survey includes participation (number of anglers and days fished) and number of fish caught and number harvested by species and site for guided and unguided fishing. These surveys estimate the number of angler-days of fishing effort expended by sport anglers fishing Alaska waters as well as the sport harvest. Survey results for each year are not available until the following year; hence, the results for 2023 were not available until fall 2024. Additionally, creel surveys have been selectively used to verify the mail survey for fisheries of interest or for fisheries that require more detailed information or inseason management.

The utility of SWHS estimates depends on the number of responses received for a given site (Mills and Howe 1992). In general, estimates from smaller fisheries with low participation are less precise than those of larger fisheries with high participation for estimates from 1977 to 1990. Therefore, the following guidelines were implemented for evaluating survey data:

1. Estimates based on fewer than 12 responses should not be used other than to document that sport fishing occurred.
2. Estimates based on 12 to 29 responses can be useful in indicating relative orders of magnitude and for assessing long-term trends.
3. Estimates based on 30 or more responses are generally representative of levels of fishing effort, catch, and harvest.

SWHS estimates have been compared to onsite creel surveys for estimates from 1996 to 2006, and using coefficient of variation (CV) of harvest estimates was recommended to determine precision of estimates (Clark 2009). CVs of harvest estimates from the SWHS should be 0.30 or less before using the estimates for evaluating long term trends and CVs of 0.20 or less before use in stock assessments.

SECTION I: MANAGEMENT AREA OVERVIEW

MANAGEMENT AREA DESCRIPTION

The UCUSMA consists of all waters and drainages of the Copper River upstream of Haley Creek in Wood Canyon, and all waters and drainages of the Upper Susitna River upstream from the

confluence of the Oshetna River (Figure 1). Located within the UCUSMA are the communities of Glennallen, Gulkana, Gakona, Copper Center, Kenny Lake, Chitina, McCarthy, Chistochina, Paxson, Mentasta, and Slana. Three of the state's major highways (Glenn, Richardson, and Edgerton), together with numerous secondary roads and trails, provide access to most of the area's sport fisheries. Float-equipped aircraft are commonly used during the summer to access the area's many remote lake and stream fisheries, and snowmachines are the popular mode of travel to remote fisheries during winter. Principal land managers in the UCUSMA are the National Park Service (Wrangell–St. Elias National Park), Bureau of Land Management (BLM; Gulkana Wild and Scenic River), Ahtna Incorporated, Chitina Native Corporation, and the Alaska Department of Natural Resources.

FISHERY RESOURCES

The UCUSMA offers a variety of freshwater fishing opportunities. Three species of Pacific salmon (Chinook or king salmon *Oncorhynchus tshawytscha*, sockeye salmon *O. nerka*, and coho salmon *O. kisutch*) are available to anglers fishing the Upper Copper River drainage; however, no anadromous runs of salmon return to the Upper Susitna River drainage, and waters upstream of the Oshetna River confluence are closed to salmon fishing. Resident stocks of Arctic grayling (*Thymallus arcticus*), burbot (*Lota lota*), Dolly Varden (*Salvelinus malma*), rainbow and steelhead trout (*O. mykiss*), lake trout (*S. namaycush*), and whitefish (*Coregonus*) are present in many UCUSMA waters and are targeted by fishers. Additionally, rainbow trout, coho salmon, Arctic grayling, and Arctic char (*S. alpinus*) reared at the state-owned Ruth Burnett Hatchery in Fairbanks and the William Jack Hernandez Hatchery in Anchorage are stocked in several lakes across the UCUSMA. Stocked-lake fisheries provide additional diversified angling opportunities and may reduce harvest pressure on wild fish stocks.

Wild sockeye salmon stocks from the Copper River drainage are enhanced with fish produced by the Gulkana Hatchery. Production of sockeye salmon began in 1973 to mitigate lost spawning and rearing capacity that occurred with reconstruction of the Richardson Highway and has continued ever since. The Gulkana Hatchery is owned by ADF&G and operated under a lease agreement by Prince William Sound Aquaculture Corporation (PWSAC) and is located on the Upper Gulkana River near the community of Paxson. Egg takes are conducted near the hatchery, and incubation and start-up rearing are accomplished at the hatchery. Fry are subsequently released at Crosswind, Paxson, and Summit Lakes and the returning adults are harvested by the sport, personal use, and subsistence fisheries in the Upper Copper River drainage and by the commercial and subsistence fisheries in the Copper River District located at the mouth of the Copper River.

The BOF has established 1 personal use fishery, 2 subsistence salmon fisheries, and 1 freshwater finfish subsistence fishery in the UCUSMA. The personal use fishery and 1 subsistence fishery target salmon in the Upper Copper River District (UCRD), which is defined by regulation as all waters of the mainstem Copper River from the mouth of the Slana River downstream to an east-west line crossing the Copper River approximately 200 yards upstream of Haley Creek (5 AAC 01.605; Figure 2). The other subsistence salmon fishery occurs on the Copper River and in Tanada Creek in the Batzulnetas Area. The Batzulnetas Area fishery is located upstream of the Slana River and Tanada Creek, near the former Native Village of Batzulnetas, and is outside of the UCRD boundaries (Figure 2). The remaining subsistence fishery targets freshwater finfish (excluding salmon) and occurs in freshwaters throughout the management area. The freshwater finfish subsistence fishery primarily targets whitefish, although other resident fish species may be taken

as specified on the permit required to participate in the fishery. In addition to these state fisheries, federal subsistence fisheries for salmon and freshwater finfish also occur in the UCUSMA.

Federal subsistence salmon fisheries are administered concurrently with state fisheries in the UCRD and Batzulnetas Area. The Alaska National Interest Lands Conservation Act (ANILCA) established a rural subsistence use priority of fish and game on lands and waters for which the federal government asserts jurisdiction. Under ANILCA, the federal government asserts management responsibility on federal public lands and waters within the boundaries of any conservation unit (National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, or National Forest Monument, and including BLM lands not currently under selection by the State of Alaska or Native Corporations or Villages). Currently, the federal government asserts its authority under ANILCA over waters within and adjacent to the Wrangell–St. Elias National Park and Preserve (including the Copper River mainstem) and the Gulkana River National Wild River corridor to ensure that subsistence opportunity for federally qualified rural residents is prioritized. The State of Alaska has also established a priority for subsistence use of fish and game by Alaska residents (AS 16.05.258 (b)) and does not discriminate between rural and urban residents (consistent with Alaska State Constitution Article VIII, sections 3 and 15). The federally managed subsistence salmon fisheries in the Upper Copper River District require coordination between state and federal managers to ensure state-established Chinook and sockeye salmon escapement goals are attained.

ESTABLISHED MANAGEMENT PLANS AND POLICIES

Regulations governing fisheries in the UCUSMA are found in 5 AAC 52.001 through 5 AAC 52.065, 5 AAC 75.001 through 5 AAC 75.995 (sport fishing); in 5 AAC 77.001 through 5 AAC 77.016, 5 AAC 77.550, 5 AAC 77.570, and 5 AAC 77.591 (personal use fishing); in 5 AAC 01.001 through 5 AAC 01.040 and 5 AAC 01.600 through 5 AAC 01.647 (subsistence fishing); and in 5 AAC 24.360 (*Copper River District Salmon Management Plan*) and 5 AAC 24.361 (*Copper River King Salmon Management Plan*).

UCUSMA salmon fisheries have been the focus of allocative conflicts. These conflicts have led the BOF to establish several management plans and policies to guide management of the fisheries in the area. The goal of these plans is to allocate salmon resources among users and to provide managers with guidelines to maintain a sustained yield of the resident fish stocks in the area. The following management plans and policies have been adopted by the BOF for UCUSMA fish stocks:

> *Copper River District Salmon Management Plan* (5 AAC 24.360). This management plan sets the annual allocation of salmon for upriver users and contains spawning escapement goals for sockeye and other salmon; inriver apportionment goals for the subsistence, personal use, and sport fisheries in the drainage; and hatchery brood stock and hatchery surplus goals. The goals are met through regulation of the Copper River District commercial fishery near the mouth of the Copper River and are measured by the sonar counter at Miles Lake.
>
> *Copper River King Salmon Management Plan* (5 AAC 24.361). This management plan provides for a sustainable escapement goal (SEG) for Chinook salmon in the Copper River drainage of 21,000–31,000 fish. To achieve this goal, during statistical weeks 20 and 21 (generally, the first 2 weeks of the commercial fishing season) the commissioner may not

open more than one 12-hour fishing period within the inside closure area of the Copper River District. The sport fishery of the Upper Copper River drainage has an annual limit for Chinook salmon 20 inches or greater in length of 4 fish. The department has authority to restrict the sport fishery to achieve the escapement goals by the following: (a) reduction of the annual limit; (b) modification of other methods and means not specified in the plan; (c) catch-and-release only designation; and (d) closure of specific waters to sport fishing for Chinook salmon. In the Chitina Subdistrict personal use fishery, the limit for Chinook salmon is 1 fish and the department has authority to prohibit retention of Chinook salmon as needed. For conservation, the department can also restrict the Glennallen Subdistrict subsistence fishery by (a) establishing a bag limit for Chinook salmon taken by fish wheel; (b) reducing the bag limit for Chinook salmon taken by fish wheel and dip net; (c) prohibiting the take of Chinook salmon by fish wheel and dip net; and d) modifying methods and means for fish wheels.

The *Copper River Subsistence Salmon Fisheries Management Plan* (5 AAC 01.647) stipulates that adequate escapement of salmon pass the Miles Lake sonar in the Lower Copper River and that subsistence needs are met. It also establishes the open area, gear, season, bag and possession limits, and permit requirements for a subsistence fishery near the traditional fishing village of Batzulnetas along a portion of Tanada Creek and its confluence with the Copper River.

The *Copper River Personal Use Dip Net Salmon Fishery Management Plan* (5 AAC 77.591) establishes fishing seasons, open area, gear, bag limits, and seasonal harvest level for the Chitina Subdistrict personal use fishery in the Upper Copper River. The harvest will be distributed throughout the season based on projected daily sonar counts from the Miles Lake sonar counter. Harvest will be adjusted, based on actual sonar counts, through reduction or increase of fishing times by emergency order.

Management of UCUSMA resident freshwater finfish and stocked waters sport fisheries are guided by several regional and statewide policies. Components and guidance within these policies and plans can constrain the scope of or may supersede area management plans to ensure sustainable management of affected fish stocks.

The *Wild Arctic Grayling Management Plan* (5 AAC 52.055) directs ADF&G to manage wild Arctic grayling populations in the UCUSMA for long-term sustained yield through a conservative harvest regime. The plan establishes and defines 3 management approaches under which ADF&G shall manage wild Arctic grayling populations in the UCUSMA: (1) the regional management approach; (2) the conservative management approach; and (3) the special management approach. The plan also outlines guidelines and considerations for ADF&G, the public, and/or BOF to change or address the management approach for a water body or fish stock.

The *Wild Lake Trout Management Plan* (5 AAC 52.060) directs ADF&G to manage wild lake trout populations in the UCUSMA by employing a conservative harvest regime and by maintaining harvest below the maximum sustained yield level. ADF&G may take 1 or more management actions if there is a conservation or biological concern for the sustainability of the fishery or a stock harvested in that fishery. These actions include reduction of bag and possession limit, reduction of fishing time, allowing only catch-and-release fishing, and modification of methods and means of harvest. The plan also specifies

allowable measures to reduce harvest if the harvest level exceeds sustainable yield for a 2-year period. Finally, the plan establishes a process for designating special management waters and means for limiting harvest in these areas to meet management objectives.

The *Upper Copper River and Upper Susitna River Area Stocked Waters Management Plan* (5 AAC 52.065) directs ADF&G to manage stocked waters in the UCUSMA to provide the public diverse fishing opportunities. The plan establishes and defines 3 management approaches under which ADF&G shall manage stocked waters in the UCUSMA: (1) the regional management approach; (2) the conservative management approach; and (3) the special management approach. Stocked waters may be reclassified through a proposal from the public, ADF&G, or BOF during the BOF's meeting cycle.

The *Special management areas and liberal harvest opportunities for trout* (5 AAC 75.210), *Statewide management standards for wild trout* (5 AAC 75.220), and *Policy for the management of sustainable wild trout fisheries* (5 AAC 75.222) were adopted by the BOF to provide future BOF, fisheries managers, and the sport fishing public with (1) management policies and implementation directives for area rainbow and steelhead trout fisheries; (2) a systematic approach to developing sport fishing regulations that includes a process for rational selection of waters for special management; and (3) recommended research objectives.

MAJOR ISSUES

The major issues associated with UCUSMA sport, personal use, and subsistence fisheries are summarized below:

Copper River Chinook salmon: Chinook salmon runs have declined from a peak in 1995 of 119,217 fish to an average of 46,472 fish since 2009. Recent declines in Chinook salmon have required restrictive inseason actions in the UCUSMA sport, personal use, and subsistence fisheries, as well as in the Copper River District commercial fisheries to ensure that the spawning escapement goal is achieved. Low Chinook salmon runs also affect management of Copper River sockeye salmon fisheries using nonselective gear, like gillnets and fish wheels, that are concurrent with the Chinook salmon fisheries. For example, the Copper River District commercial fishery and the Glennallen Subdistrict subsistence fishery have forgone opportunities for sockeye salmon to minimize Chinook salmon harvest during the past 10 years.

Copper River dip net fisheries: The opportunity to dipnet salmon on the Copper River attracts upwards of 10,000 users from around the state each year. Although most dipnetters participate in the Chitina Subdistrict personal use dip net salmon fishery, dip nets have become a more common gear type in the Glennallen Subdistrict subsistence salmon fishery as well. Participation in the Glennallen Subdistrict subsistence dip net fishery has more than doubled since 2008. The Chitina Subdistrict personal use dip net salmon fishery has been controversial since before its designation as a personal use fishery in 1984. Although the personal use fishery is tightly managed, the large number of people fishing, camping, and boating creates social conflicts in the Chitina area. Because of this influx of people, dipnetting is often characterized as a free-for-all and is attributed to perceived declines in salmon abundance.

Land access: Ahtna Incorporated (the regional Alaska Native Corporation) and several village corporations own a majority of the land along the 3 rivers supporting major fisheries in the UCRD. Ahtna Inc. controls the uplands along the Klutina River between Klutina Lake and the Richardson Highway. The corporation owns about ⅓ of the land along the Gulkana River downstream of Sourdough Landing. Ahtna Inc. or its shareholders also own the majority of land along the Copper River within the Glennallen Subdistrict. Several legal challenges have ensued over the years with regards to public access across Ahtna lands resolving some issues while complicating others.

The creation of the Wrangell–St. Elias National Park in 1981 altered allowable land use, access to various fisheries and the Copper River, and the regulatory structure within those federal lands. Some of these issues, such as changing regulations related to fisheries and allowed activities within Park boundaries, still persist.

Finally, there are few established trails on state lands that can accommodate year-round access. Many lakes and sections of rivers that could provide great fishing opportunities are inaccessible in summer due to lack of trails and trail routes established on solid surfaces for non-winter use. Groomed or well-used winter trails are also limited to specific areas and travel in winter often requires backcountry trail-blazing skills not common in the general public.

Burbot and lake trout fisheries: The lakes of the UCUSMA have historically supported some of the largest sport fisheries for burbot and lake trout in Alaska. These species are slow growing and long lived. To ensure sustainability, once-liberal harvest regulations have been restricted, and the use of setlines for burbot, which are generally allowed through most of the state, have been prohibited in most of the UCUSMA. These species remain popular and one of the most common fishing violations is the continued use of setlines in area lakes, which is prohibited.

SPORT FISHING EFFORT, HARVEST, AND CATCH

Effort, harvest, and catch statistics for UCUSMA sport fisheries are reported under the headings of the "Upper Copper River Drainage" (Area I) and the "Susitna River Drainage" (Area M) in annual versions of *Alaska Statewide Sport Fish Harvest Studies; Participation, Catch, and Harvest in Alaska Sport Fisheries; and Estimates of Participation, Catch, and Harvest in Alaska*, accessible through the ADF&G e-library (http://www.adfg.alaska.gov/sf/publications/).

Over the past decade (2013–2022), angler effort in the UCUSMA has made up approximately 21% of the sport fishing effort in Region III and about 1.5% of statewide sport fishing effort. In the UCUSMA, angler effort peaked in the early-to-mid 1990s but generally remained between 40,000 and 60,000 angler-days until 2013 (Somerville 2022). Since 2013, angler effort has been below 40,000 angler-days annually, with an all-time low of 18,049 angler-days in 2022 (Table 1). The 2023 estimate of 34,331 angler-days was above the recent 5- and 10-year averages but still below the historical effort that once occurred within the area. The general decline in sport angler effort in the UCUSMA mimics similar declines in other Region III management areas.

Most of the sport fishing effort in the UCUSMA occurs in the Gulkana and Klutina River drainages and in Upper Susitna River drainage lakes, which include Lake Louise and Susitna and Tyone Lakes (Table 1). The Gulkana and Klutina River drainages combined accounted for 68%, and the Upper Susitna River drainage lakes accounted for 13%, of all areawide sport fishing effort in 2023.

This distribution of effort is relatively consistent with historic trends in the UCUSMA (Somerville 2022).

Sockeye salmon are the predominant species harvested in the UCUSMA, averaging 44% of all species harvested over the past 5 years (2018–2022) and 57% of the total harvest over the past 10 years (2013–2022; Table 2). In 2023, sockeye salmon made up 35% of the total UCUSMA sport fishery harvest. The next most harvested species in the UCUSMA during 2023 were Arctic grayling (17%), Chinook salmon (15%), stocked rainbow trout (10%), lake trout (7%), and coho salmon and Dolly Varden (both 5%), followed by burbot (3%) and whitefish and wild rainbow trout (both 2%). Total UCUSMA sport fish harvest in 2023 was approximately 6% above the recent 5-year average (2018–2022) but 33% below the recent 10-year (2013–2022) average.

Arctic grayling are the predominant species caught in the UCUSMA representing 48% of all species caught from 2018–2022 and 45% from 2013–2022 and made up 60% of the total catch in 2023 (Table 3). The next most caught species in 2023 were sockeye salmon (15% of total catch), followed by wild rainbow trout (9%), lake trout (4%), Chinook salmon and Dolly Varden (both 3%), stocked rainbow trout and coho salmon (both 2%), and burbot and whitefish (both 1%).

The response rate for the SWHS has steadily decreased in the last 15 years, dropping from around 45% in the late 2000s to less than 30% for the first time in 2022, and again in 2023, while the number of surveys that are mailed has generally remained the same (Restrepo et al. 2023). Moreover, the number of responses has been affected by the general decrease in fishing effort within Region 3. Although precision targets are still typically met at statewide, regional, and some drainagewide levels, many smaller fisheries within Region III have too few respondents to create estimates that meet precision targets. The SWHS requires a minimum number of respondents (12) to produce rough estimates of harvest, catch, and effort in a sport fishery and a larger number of respondents (30) to produce a more accurate estimate. The majority of individual fisheries within Region III that have been quantified in the past through the SWHS are no longer receiving 12 or more responses. These drops have affected interpretation of general trends and sustainability because there are no longer statistically sound estimates of harvest, catch, and effort for many Region III fisheries. Efforts are ongoing to improve and modernize the SWHS.

SECTION II: FISHERIES

CHINOOK SALMON SPORT FISHERIES

Fishery Description

Overview

The Copper River drainage supports the only anadromous runs of Chinook salmon in the UCUSMA. No anadromous runs of Chinook salmon return to the Upper Susitna River drainage upstream of the Oshetna River (Figure 1). Chinook salmon are found in at least 40 tributaries distributed throughout the Copper River Basin, and an extensive amount of genetic work has been conducted on Copper River Chinook salmon stocks (Seeb et al. 2006). Chinook salmon stocks have been grouped into genetically distinct groups throughout the Copper River drainage: stocks that spawn in the Chitina River drainage; Middle Copper River stocks composed of the Tonsina, Klutina, and Tazlina drainages; Gulkana River stocks; and Upper Copper River stocks above the Gulkana River confluence. Current technologies and insufficient genetic data preclude managing

Copper River Chinook salmon fisheries for stock-specific harvest in season (Seeb et al. 2009, Templin et al. 2011).

Chinook salmon begin to return to the Copper River drainage in early May. The peak timing in the Lower Copper River is from mid-May to mid-June, with the run essentially complete by July 1. However, small numbers of Chinook salmon continue to enter the Copper River through August. Chinook salmon make their way to spawning areas in the Upper Copper River tributaries through June and July and spawning occurs in late July through August. There are no known Chinook salmon spawning streams downstream of Haley Creek (Figure 2).

From 1960 to 1998, Copper River Chinook salmon harvests gradually increased in the commercial, personal use, subsistence, and area sport fisheries; however, since 1998, Chinook salmon harvests in all Copper River fisheries have declined (Somerville 2022; Table 4). Declining harvests appear to be the result of declining stock abundance and inseason management restrictions since 2009 rather than decreased efficiencies in the various fisheries (Table 5).

Chinook salmon sport fisheries occur in the Tebay River (Chitina River drainage); Tonsina, Klutina, and Gulkana Rivers; Kaina Creek (Tazlina River drainage); and the East Fork Chistochina River (Figures 1–3). All other tributaries of the Copper River and the north side of the Chitina River are closed to Chinook salmon fishing. Although open to sport fishing, the Copper and Chitina River mainstems are too glacial for successful sport fishing and the south bank tributaries of the Chitina River are generally too remote or glacial to have much, if any, sport fishing effort. The current bag and possession limit for sport-caught Chinook salmon ≥20 inches is 1 fish and the Upper Copper River drainagewide annual bag limit is 4 Chinook salmon ≥20 inches per year.

Fisheries on the Gulkana and Klutina Rivers have accounted for about 89% of the sport-harvested Chinook salmon in the UCUSMA over the past 10 years (2013–2022; Table 6). Sport harvest of Chinook salmon in the Upper Copper River demonstrated the same trend as overall harvest with a steady increase from 1977 (the first-year sport harvest of fish was estimated and reported) through 1996 when sport harvest peaked at 9,116 Chinook salmon (Somerville 2022). Chinook salmon sport harvest declined after 1996 to a low of 90 Chinook salmon in 2021 (Table 6). Sport harvest of Chinook salmon appears to trend with overall run abundance (Table 4), inseason regulatory restrictions (Table 5), and resulting declines in angling effort (Table 1).

Inseason management actions have been implemented most years since 2009 and have included reduction of the annual limit, bait restrictions, and fishery closures in response to low Chinook salmon run numbers (Table 5). Chinook salmon sport harvests ranged from 90 to 2,416 fish during this period and averaged 1,103 fish. In 2015, 2018, and 2019, no inseason management actions were implemented and 1,343, 1,280, and 1,565 Chinook salmon, respectively, were harvested each year in the Upper Copper River sport fisheries (Table 6). In 2023, inseason management actions liberalizing the sport fishery were taken for the first time ever because escapement exceeded the upper bound of the SEG, allowing the Chinook salmon possession limit to be increased from 1 to 2 fish; a total of 1,618 Chinook salmon were harvested.

The number of sport fishing guides operating on area rivers increased from the early 1980s through 1990s. For example, prior to the 1986 season, only 1 individual specialized in guiding anglers for Chinook salmon on the Gulkana River. By 1989, 5 guides were operating on the Gulkana River (Potterville and Webster 1990), and from 2007 through 2015, 8–29 guides operated annually on the Gulkana River (Sigurdsson and Powers 2009–2014, 2016). On the Klutina River, 15–28 guides have operated there annually from 2005, when logbooks became required, through 2015. Inseason

management actions from 2009 to 2014 affected the number of guides operating in the Upper Copper River and the choice of rivers on which they operated. Freshwater guide logbooks were discontinued after 2018. Currently 7–15 guide services operate on area rivers primarily targeting Chinook salmon and sockeye salmon. Some guides have branched out to target resident species on the Klutina and Gulkana Rivers as well.

Gulkana River Chinook salmon sport fishery

The Gulkana River drainage originates in the Alaska Range and flows south to join the Copper River near the community of Gulkana (Figure 3). The section of the Gulkana River mainstem upstream from Sourdough Creek was designated as "wild" in 1980 under the Wild and Scenic Rivers Act. Access to the river, downstream of Paxson Lake, is limited to 7 state and federal trail and site easements and 1 privately owned and controlled site accessible from the Richardson Highway. Anglers use rafts, canoes, and powerboats to gain access to the more remote sections of the river. Raft and canoe anglers frequent the various sections of the river from Paxson Lake downstream to the Richardson Highway Bridge. Powerboat operators generally launch at the BLM Sourdough launch and use the river from approximately 2 miles below Sourdough to several miles upstream of the confluence of the West Fork. Powerboat operators also launch from the Richardson Highway Bridge and fish the 5-mile reach of the river above the bridge. Additionally, powerboat operators access the mouth of the Gulkana River, when the river level is sufficiently high, by launching near the Richardson Highway Bridge and boating down the Gulkana River or, when water levels are lower, by launching in the Gakona River to the north and then boating down the Copper River.

Chinook salmon begin entering the Gulkana River in early to mid-June, and late May in some years. The sport fishery peaks during late June/early July but fishing for Chinook salmon continues until the season closes July 20. Spawning begins in mid-July and continues through late August. Most spawning occurs upstream of the confluence of the West Fork (Figure 3). Until 2009, the Gulkana River drainage supported the largest Chinook salmon sport fishery in the UCUSMA (Tables 6 and 7). Since 2009, harvest and catch of Chinook salmon have been significantly reduced by inseason restrictions to ensure Gulkana River and Copper River drainagewide escapement needs.

The regulations used to manage the Gulkana River Chinook salmon fishery attempt to maximize angler opportunity while still providing protection for spawning Chinook salmon and other resident fish species such as Arctic grayling and rainbow/steelhead trout. Twelvemile Creek, the Middle Fork drainage, and all waters of the Gulkana River drainage upstream of the Middle Fork confluence, are closed to fishing for Chinook salmon year-round to protect spawning fish (Figure 3). The remainder of the river is open to Chinook salmon fishing from January 1 through July 19. From June 1 through July 19, anglers may use bait, artificial lures, and treble hooks upstream from the Richardson Highway Bridge to an ADF&G marker located 7.5 miles upstream of the West Fork confluence. From June 1 through July 31, anglers are limited to using only single-hook, artificial flies downstream from the Richardson Highway Bridge to an ADF&G marker approximately 500 yards downstream of the confluence with the Copper River. In the entire Gulkana River drainage from July 20 to May 31, and year-round in all waters upstream of the ADF&G marker 7.5 miles upstream of the West Fork confluence with the mainstem, only unbaited, single-hook artificial lures may be used. These restrictions are intended to protect the resident rainbow trout population and the small population of steelhead that return to the Gulkana River.

Klutina River Chinook salmon sport fishery

The semi-glacial Klutina River drops rapidly out of Klutina Lake and enters the Copper River at the community of Copper Center (Figures 1). Access to the river is available from the old and the new Richardson Highway and along the Klutina Lake Road (also called the Brenwick-Craig Road) that parallels the river. Shore anglers participate in the fishery adjacent to the Richardson Highway and the Klutina Lake Road. Jet-powered riverboats are used by experienced operators to access the upstream portions of the river. The river has considerable stretches of whitewater and is considered very challenging to navigate. Jet boats are launched from private land adjacent to the highway or from a boat launch within the highway right-of-way (ROW) along the new Richardson Highway Bridge. Rafters also use the Klutina River and launch from sites located at mile 4, mile 14, and mile 22 of the Klutina Lake Road and exit the river at the new Richardson Highway Bridge. The fast water of the Klutina River limits the number of resting pools for Chinook salmon to less than 2 dozen good fishing sites that are accessible to most anglers.

The Klutina River supports the second largest sport fishery for Chinook salmon in the UCUSMA (Tables 6 and 7). Chinook salmon begin entering the Klutina River in late June, with the run continuing into August. The Chinook salmon sport fishery opens on July 1, peaks during the third week of July, and continues until the season closes on August 11. Chinook salmon spawn from late July through August in tributary streams of the river and lake and in the mainstem of the river. Most spawning is believed to occur upstream of a point adjacent to mile 19.2 on the Klutina Lake Road. Open seasons for Chinook salmon and areas closed to sport fishing for Chinook salmon on the Klutina River provide protection to spawning fish. On the Klutina River, from an ADF&G marker located adjacent to mile 19.2 of the Klutina Lake Road upstream to Klutina Lake, Chinook salmon may be taken only from July 1 through July 19. From mile 19.2 downstream to an ADF&G marker at mile 13 of the Klutina Lake Road, Chinook salmon may be taken from July 1 through July 31. From mile 13 downstream to the confluence of the Copper River, Chinook salmon may be taken from July 1 through August 10.

Fishery Management Objectives

The *Copper River King Salmon Management Plan* was adopted by the BOF in 1996 and is the primary guide to management of Chinook salmon stocks in the Copper River drainage and was most recently amended at the 2021 BOF meeting. Copper River Chinook salmon stocks are harvested in (1) commercial and subsistence gillnet fisheries in the Copper River District near the mouth of the river; (2) a personal use dip net fishery in the Chitina Subdistrict near Chitina; (3) a subsistence dip net and fish wheel fishery in the Glennallen Subdistrict between the Chitina/McCarthy Bridge and Slana River; and (4) sport fisheries in various tributaries. Because most of these fisheries are composed of mixed stocks, Copper River Chinook salmon are managed in aggregate to achieve a drainagewide spawning escapement. The current drainagewide sustainable escapement goal (SEG) of 21,000–31,000 Chinook salmon was adopted by the BOF at the December 2021 meeting, which replaced the management plan's previous goal of 24,000 or more fish adopted in 2003. There are no tributary-specific escapement goals.

To achieve the Chinook salmon escapement goal and ensure sustained yield of the various tributary stocks, inseason run strength indicators are monitored throughout the duration of the season and the management of the fisheries is adjusted accordingly. Inseason run strength is assessed through harvest reporting in the commercial fishery, catch and recapture rates at the Native Village of Eyak (NVE) research fish wheels, apportioned (by length) Chinook salmon counts at the Miles Lake

sonar, Chinook salmon passage past the Gulkana River counting tower, and anecdotal harvest reports in the various upriver fisheries. Area Management Biologists communicate with anglers and guides to gauge sport fishing success, and personal use and subsistence fishing success is measured through a harvest sampling project in Chitina as well as through contacts with dipnetters and fish wheel users. Data from all of these sources are monitored and analyzed to make the most well-informed management decisions. Fisheries managers from Division of Sport Fish and Division of Commercial Fisheries work closely throughout the run to ensure escapement goals are met and management plans are followed.

Implementing an upper bound escapement goal for Chinook salmon is a recent change to Copper River fisheries management. The 2022 season was the first since 2003 that an upper bound has been managed for as previously only a lower bound, minimum SEG was in place. Under current regulations, EO authority allows for the liberalization of the Chinook salmon sport fisheries if the upper bound of the goal may be exceeded but the commissioner does not hold the authority to liberalize the subsistence or personal use fisheries, both of which have higher harvest potential than the area's sport fisheries. The new upper bound escapement goal adds another option for management of the Copper River Chinook salmon fisheries and the execution of the current goal has resulted in liberalization to the Chinook salmon sport fisheries for the first time ever.

Final assessment of annual Chinook salmon run strength uses data from aerial surveys, the Gulkana River tower counts, sonar apportionments, final harvest reporting in the Chitina Subdistrict personal use and Glennallen Subdistrict subsistence fisheries, SWHS on sport fishing catch and harvest, and the total inriver abundance estimate from NVE fish wheels. The aerial index counts on clearwater tributaries to Klutina Lake and River, the Gulkana River, and the East Fork Chistochina River provide a measure of Chinook salmon spawning distribution throughout the drainage and relative abundance in each of those systems. This aerial survey assessment is captured in an annual Chinook salmon run memo from the Area Management Biologist (Appendix C1). Passage data collected from the Gulkana River counting tower is analyzed and expanded to create an annual escapement estimate of Chinook salmon spawning above the tower site. Although no formal escapement goal is in place for the Gulkana River, the escapement data is used to monitor the most popular Chinook salmon sport fishery in the Copper River drainage. Harvest reporting data in the personal use and subsistence fisheries, coupled with SWHS sport harvest estimates, are compiled to produce a total inriver harvest estimate of Chinook salmon. This total inriver harvest is then subtracted from the inriver abundance estimate to produce the annual Chinook salmon drainagewide escapement estimate, which in turn is used to gauge if the management actions of the various Chinook salmon fisheries were successful.

Proposals to change regulations affecting the various Copper River Chinook salmon fisheries are brought before the BOF nearly every cycle. Over the last several BOF meetings, proposals directed solely at the Chinook salmon sport fishery haven't been as common as those affecting Chinook salmon in the commercial, personal use, and subsistence fisheries. For the upcoming December 2024 BOF meeting, **proposal 45** seeks to open the Copper River District inside closed waters in place for Chinook salmon conservation to subsistence fishing; **proposal 54** seeks to open the inside closed waters to commercial fishing; and **proposals 51–53** seek to restrict the commercial fishery after the first 2 openings to protect early run stocks of Chinook and sockeye salmon bound for the Upper Copper River. These proposals would impact the number of Chinook salmon inriver and the management of the upriver fisheries. **Proposal 55** seeks to restrict guides in the Upper Copper River drainage if the commercial fishery is closed for Chinook salmon conservation and

proposal 72 seeks to close the Gulkana River Chinook and sockeye salmon sport fisheries when water temperature exceeds 18°C at any time during a 24-hour period for 3 consecutive days or exceeds 20°C.

During the 2021 BOF meeting in Cordova, proposal 5 sought an Optimal Escapement Goal (OEG) for Copper River Chinook salmon that differed from the recommended 21,000–31,000 Chinook salmon SEG. This proposal failed. Proposal 41 sought to remove the mandatory inside area closures in the Copper River District commercial gillnet fishery, potentially affecting the abundance of early returning Chinook salmon stocks returning to the Upper Copper River. This proposal also failed. A proposal to prohibit catch-and-release sport fishing in the UCUSMA was submitted for the December 2017 BOF meeting in Valdez. The proposal failed.

Recent Fishery Performance

The 2023 Chinook salmon run was estimated to be 61,534 fish (Table 4), which was larger than the preseason forecast of 53,000 fish. Chinook salmon entry into the Lower Copper River appeared 7–9 days late based on Native Village of Eyak (NVE) catch rates and apportionment data from the Miles Lake sonar for late May and early June. Additionally, weak Gulkana River tower counts in June and reports of low catch in the various upriver fisheries supported this observation. However, as June progressed, indices of Chinook salmon abundance continued to increase at the NVE fishwheels and Miles Lake sonar and by the third week in June, Chinook salmon abundance in the lower river was tracking below forecast but strong enough to allow unrestricted harvest opportunity in the upriver fisheries. By mid-July, all projections indicated an inriver abundance that exceeded 50,000 Chinook salmon and projected that the upper bound of the escapement goal would be exceeded. Effective July 20, the sport fish possession limit was increased from 1 to 2 fish for the remainder of the season (no changes to the daily bag or annual limits were implemented; Table 5). This was the first time the Chinook salmon sport fishery had ever been liberalized to offer additional harvest opportunity since the upper bound of the escapement goal was projected to be exceeded. The 2023 Chinook salmon spawning escapement was 40,102 fish and the upper bound of the drainagewide escapement goal was exceeded by approximately 9,000 fish.

The harvest of Chinook salmon in the UCUSMA sport fisheries during 2023 was estimated at 1,618 fish, which was nearly double the recent 5-year average harvest (2018–2022) and 80% above the recent 10-year average harvest (2013–2022; Table 6). Even though the run was strong, the late run timing of fish and poor river conditions negatively affected harvest on the Gulkana River, as the river was running high and muddy during the first half of June. The Gulkana River total harvest was only 15–20% larger than the recent 5-year and 10-year harvests but not as large as other years with similar-sized Chinook salmon runs, such as 2018 and 2019 (Tables 4 and 6). The Klutina River harvest was more than double the 5-year and 10-year average harvests and the Tonsina River harvest was also larger than the recent averages. Liberalization in the sport fishery did not begin until after the Gulkana River was closed to king salmon sport fishing and primarily increased harvest on the Klutina and Tonsina Rivers. Liberalizing the Chinook salmon possession limit from 1 to 2 fish likely impacted overall harvest because many UCUSMA anglers are not local and only come to fish once during the season, such as over a weekend, and are limited by the 1-fish bag and possession limits.

The 2024 Chinook salmon run to the Copper River was substantially weaker than the forecast of 47,000 fish and required restrictions to all UCUSMA fisheries (Table 5). Catch rates of Chinook

salmon in the NVE research fish wheels by June 17 were the lowest on record since 2003 and recapture rates were indicating a potential inriver return near the lower bound of the escapement goal. Additionally, anecdotal catch reports from the personal use, subsistence, and sport fisheries indicated Chinook salmon abundance was less than expected. Due to the concerns that the escapement goal would not be met, restrictions in the Upper Copper River sport fisheries and the Chitina Subdistrict personal use dip net salmon fishery were warranted. Effective June 24, all waters of the Upper Copper River drainage were restricted to catch-and-release fishing for Chinook salmon, prohibited the use of bait, and required only unbaited, single-hook, artificial lures be used, and the retention of Chinook salmon in the personal use fishery was closed for the remainder of the season. Run entry continued to decline over the following week and it was projected that the final inriver abundance estimate would be near the lower bound of the sustainable escapement goal prior to accounting for inriver harvest. Due to the concerns that the Chinook salmon escapement goal would not be met, closing the Upper Copper River Chinook salmon sport fisheries completely and prohibiting retention of Chinook salmon in the Glennallen Subdistrict subsistence salmon fishery was warranted. These restrictions were likely insufficient to achieve the drainagewide Chinook salmon escapement goal of 21,000–31,000 fish. At the time of publication, the 2024 Chinook salmon inriver abundance estimate, along with inriver harvest estimates, are not yet available.

Research and Management Activities

Copper River Chinook salmon stocks have been monitored, studied, and actively managed since the 1960s. Except for 3 years, aerial escapement surveys have been consistently conducted in 35 systems since 1966 (Pirtle 1980; Randall et al. 1981; Brady et al. 1991; Roberson and Whitmore 1991; Taube 2002; Sharp et al. 2000; Hollowell et al. 2007; Bell et al. 2010; Botz et al. 2012; Vega et al. 2019; Russell et al. 2021; Morella et al. 2021; Botz et al. 2021; Scannell et al. 2023). Nine of these clearwater systems have been considered index streams used for determining annual Chinook salmon abundance and distribution. Radiotelemetry data from 2002–2004 confirmed that 45% of Chinook salmon spawned in these 9 index streams (the remainder spawned in glacial mainstems of those systems) but that those streams only represented 26–46% of the total escapement in the Copper River drainage (Savereide 2005). Because surveys of those streams provided insufficient data to accurately estimate total Chinook salmon escapement to the Copper River, the annual aerial surveys for Chinook salmon were reduced to just 4 index streams (Manker and St. Anne Creeks in the Klutina River drainage, Gulkana River drainage, and East Fork Chistochina) with the objective to use the surveys to provide comparable year-to-year indices of escapement and distribution throughout the Copper River drainage. Of these systems, only the indices for the Gulkana River have correlated with drainagewide escapement estimates for Chinook salmon. Results of aerial surveys are reported in an annual internal memo (Appendix C).

Copper River Chinook salmon inriver abundance has been estimated since 2003 by a two-event mark–recapture study. A series of 4 fish wheels in the Lower Copper River (located downstream of all Upper Copper River fisheries) are used to capture (for marking) and recapture marked and unmarked Chinook salmon. The project has been conducted by the Native Village of Eyak (NVE) and has provided a postseason estimate of annual Chinook salmon inriver abundance (Piche et al. 2024). The inriver abundance estimate is critical in determining if the drainagewide escapement goal was achieved each season.

A Chinook salmon counting tower has been operated annually on the Gulkana River since 2002. The project has been in collaboration with BLM to estimate escapement of Chinook salmon in the

system upstream of the tower site (Hansen and Ocaña 2022). The tower site is established approximately 2 miles upstream of the West Fork confluence and is located far enough upstream that nearly all Chinook salmon sport harvest occurs downriver of the site (Somerville and Hansen 2021). Escapement of Chinook salmon has ranged from 1,044 to 8,352 fish since 2002 and has averaged about 3,900 Chinook salmon annually (Hansen and Ocaña 2022). Although no formal escapement goal is in place for the system, area sport fish managers use the average escapement as a measure for assessing Chinook salmon run strength, which helps with the inseason management of the sport fishery on the Gulkana River (the most popular Chinook salmon sport fishery in the UCUSMA). Additionally, estimates of escapement above the counting tower are significantly related to the escapement estimates of the entire Copper River and provide a real-time assessment of monitoring and estimating inseason run strength drainagewide (Schwanke and Tyers 2019b; Hansen and Ocaña 2022).

Recently, a radiotelemetry study focused on Copper River Chinook salmon was conducted from 2019–2021. This study looked at distribution and run timing and was designed to mimic the last radiotelemetry study that was conducted on the species from 2002–2004 in order to assess if any changes had occurred since then (Schwanke and Piche 2023). It was found that the proportions of the total escapement of Chinook salmon returning to the 6 major spawning tributary/areas (Upper Copper, Gulkana, Tazlina, Klutina, Tonsina, and Chitina River drainages) had not changed, nor did any significant changes in run timing past the tagging site occur (Schwanke and Piche 2023). It appears that despite significant changes in run strength, harvest strategies, and environmental conditions, spawning distributions for Copper River Chinook salmon stocks have not changed over the past 2 decades.

Additional radiotelemetry work has been conducted specifically on Gulkana River Chinook salmon. From 2013 through 2015, Chinook salmon distribution and spawning was tracked to determine what proportion of Chinook salmon spawned above the Gulkana River counting tower during those years. Telemetry data from this 3-year project indicated that about 45–54% of Gulkana River Chinook salmon spawned above the counting tower (Schwanke and Tyers 2018). However, the drainagewide studies from 2002–2004 and from 2019–2021 indicated that 50–86% and 58–68%, respectively, spawned upstream of the tower site (Savereide 2005a; Schwanke and Piche 2023). The cause of this apparent shift in spawning locations is not clearly identified and may be the result of low water conditions in 2013–2015, a long-term trend due to unidentified environmental factors, or differences in capture method for tag deployment and analysis between the Gulkana River specific and drainagewide studies (Schwanke and Piche 2023; Schwanke and Tyers 2018).

The last creel survey monitoring success of guided and unguided anglers and anglers fishing from boat and from shore in the UCUSMA was conducted on the Klutina River in 2006 (Schwanke 2009a). Past studies have also been conducted on the Gulkana (in 1989 and 1996) and Klutina (in 1989) Rivers (LaFlamme 1997; Potterville and Webster 1990). Data from these studies indicated that guided Chinook salmon anglers were generally more successful than unguided anglers on these rivers. Harvest estimates from guide logbooks also indicated that most Chinook salmon were harvested by guided anglers (Sigurdsson and Powers 2009–2014).

In 2014, a study to assess Copper River Chinook salmon smolt abundance and their marine survival was initiated. Juvenile Chinook salmon were coded-wire-tagged through the spring of 2020. Adult return monitoring began in 2017 and will continue through 2026. Data from the project will provide additional information on Copper River-specific Chinook salmon productivity, such as

recruitment and mortality, that are currently unknown. Such data will provide insight for age-structure population models used to inform management of Copper River Chinook salmon (Joy and Huang 2017).

In 2019, the Miles Lake sonar, which is the primary measure of sockeye salmon abundance in the Copper River, was upgraded to an ARIS sonar system that allows for species apportionment of large Chinook salmon. Large Chinook salmon are assumed to be those fish passing >772 mm total length. Although the ARIS sonar counts are not a complete measure of Chinook salmon inriver abundance, they provide an important measure of run strength and timing for inseason management. Further analysis between the Miles Lake ARIS sonar count and the Native Village of Eyak mark–recapture inriver abundance estimate is needed before relying solely on the sonar to assess drainagewide abundance or if the escapement goal has been achieved.

SOCKEYE SALMON SPORT FISHERIES

Fishery Description

In the UCUSMA, only the Copper River drainage supports wild and enhanced stocks of sockeye salmon. Wild stocks are widely distributed and are present in approximately 125 Upper Copper River tributaries. The primary spawning stocks, in order of magnitude, are the Klutina River, the Upper Copper River drainage upstream of the Gulkana River (Slana River and Tanada Creek), Gulkana River, Tazlina River, the Chitina River drainage (Lakina River [Long Lake] and Tana River), and the Tonsina River (Figure 1). Most of these tributary systems have large lakes that support rearing sockeye salmon. Enhanced stocks are limited to the Gulkana River from production at the Gulkana Hatchery near Paxson.

The abundance of salmon migrating into the Copper River has been estimated annually since 1978 by sonar at Miles Lake (Figure 2). Although there was no species apportionment program in place prior to 2019, it was assumed that most of the fish passing the sonar were sockeye salmon. Beginning in 2019, ARIS software was added to the Miles Lake sonar and a study begun to apportion out large Chinook salmon from the overall sonar counts. Since 2019, sockeye salmon have made up no less than 95% of sonar counts in any given year (Shane Shepard, Division of Commercial Fisheries Biologist, ADF&G, Cordova, August 22, 2024; unpublished data). Sonar counts are discontinued by July 30 each year, prior to the end of the sockeye run and before significant numbers of coho salmon enter the river.

Sockeye salmon enter the Copper River starting in May and have been first counted at the Miles Lake sonar as early as May 18. Although sockeye salmon are present in the Upper Copper River in late May, they do not arrive in substantial numbers until early June. The Gulkana River sockeye salmon return begins in early June and continues into September and is made up of 2 distinct run timing stocks. Sockeye salmon begin entering the Klutina River in mid-June and continue through August. The Gulkana and Klutina Rivers support the main sockeye salmon sport fisheries in the UCUSMA.

Since 1999, the Klutina River has consistently supported the largest sockeye salmon sport fishery in the UCUSMA. Approximately 86% of the area's total sport sockeye salmon harvest is taken from the Klutina River (years 2013–2022; Table 8) and sport angler effort on the Klutina River is primarily driven by sockeye salmon abundance. The Klutina River is a main producer of sockeye salmon in the drainage, as a previous radiotelemetry study has indicated that 33–54% of tagged

Copper River sockeye salmon spawned there from 2005 to 2009 (Wade et al. 2007–2010). Spawning activity is known to occur in various locations of the river, lake, and tributaries.

Prior to 1999, the Gulkana River generally supported the largest sockeye salmon sport fishery in the UCUSMA (Somerville 2022). On the Gulkana River, the abundance of Chinook salmon drives the level of sport fishing effort, whereas the abundance of sockeye salmon has very little influence. The sockeye salmon run to the Gulkana River is composed of both wild and hatchery stocks and has accounted for 7–19% of the sockeye salmon radiotagged in the Copper River from 2005–2009 (Wade et al. 2007–2010). The Gulkana Hatchery has been producing sockeye salmon since the early 1970s and in the late 1990s, produced enhanced returns of up to 800,000 adult salmon (Sharp et al. 2000). A strontium chloride otolith marking program was initiated for hatchery fish in 2000 and since then, hatchery returns have ranged from about 54,010 to 581,000 sockeye salmon (J. Morella, Division of Commercial Fisheries Biologist, ADF&G, Cordova, April 15, 2022; unpublished data). Spawning takes place in several upper-reach tributaries and lakes of the Gulkana River drainage.

Fishery Management Objectives

Copper River sockeye salmon management is primarily guided by the *Copper River District Management Plan* (5 AAC 24.360) and the *Copper River Subsistence Salmon Fisheries Management Plan* (5 AAC 01.647). Sockeye salmon stocks are harvested in (1) commercial and subsistence gillnet fisheries in the Copper River District near the mouth of the river; (2) a personal use dip net fishery in the Chitina Subdistrict near Chitina; (3) a subsistence dip net and fish wheel fishery in the Glennallen Subdistrict between the Chitina-McCarthy Bridge and Slana River; and (4) sport fisheries in various tributaries (Table 9). Because most of these fisheries harvest a mixture of stocks, Copper River sockeye salmon are managed to achieve an aggregate drainagewide spawning escapement of 360,000–750,000 fish. Both Division of Sport Fish and Division of Commercial Fisheries managers are involved in ensuring escapement goals are met and the 2 divisions work closely throughout the run.

Under the *Copper River District Salmon Management Plan* (5 AAC 24.360), the department is directed to manage the commercial fishery to achieve an inriver allocation of the following:

- 360,000 sockeye salmon for spawning escapement;
- 17,500 for spawning escapement of other salmon;
- 61,000–82,500 sockeye salmon (wild stocks only) for subsistence harvest;
- 100,000–150,000 sockeye salmon (including hatchery stocks) for personal use harvest;
- 15,000 salmon (all species) for sport fishery harvest; and
- an amount of sockeye salmon determined annually for hatchery brood and surplus fish.

Management of upriver fisheries is based on the abundance of salmon counted past the Miles Lake sonar and no specific fishery objectives are established for the various tributary sockeye salmon stocks. Run strength is assessed through harvest reporting in the commercial fishery and sonar counts at Miles Lake. Inseason inriver harvest is estimated through anecdotal reports from sport anglers and guides, anecdotal reports from Chitina Subdistrict personal use dipnetters and observation of effort in that fishery, and the same for the Glennallen Subdistrict subsistence fishery. Upper Copper River sockeye salmon sport fisheries have only been restricted in 2018 and 2020, when run entry data indicated the lower bound of the drainagewide escapement goal might not be achieved. In contrast, sockeye salmon sport fisheries were liberalized in 2013, 2014, 2015,

and 2019 when run entry exceeded the upper bound of the sockeye salmon drainagewide escapement goal.

Proposals to change regulations affecting the various Copper River sockeye salmon sport fisheries are brought before the BOF nearly every cycle. However, the 2024 BOF meeting has no proposals directed solely towards sockeye salmon sport fisheries. During the 2021 BOF meeting in Cordova, Proposal 31 sought to increase the possession limit of sockeye salmon from 3 fish (the daily bag limit) to 6 fish and passed 4 to 2. At the 2017 BOF meeting in Valdez, there were proposals to set an optimum escapement goal for sockeye salmon in the Copper River and to prohibit catch-and-release sport fishing in the Upper Copper River drainage; however, both proposals failed. A third proposal closing the Gulkana River drainage from the confluence between the East and Middle Fork upstream through Summit Lake to sockeye salmon fishing was carried.

Recent Fishery Performance

In 2023, the Copper River sockeye salmon run came in above forecast, with a total estimated run of 1,948,506 fish (Table 9). No restrictions or liberalizations were enacted in the sport fisheries. The sockeye salmon run was late coming into the Copper River. The Miles Lake sonar counts were below anticipated through the first half of June, and it wasn't until June 25 that the cumulative passage caught up to the expected cumulative passage for that date. From there onward, sockeye salmon passage remained strong through the rest of the season. Inriver abundance of sockeye salmon was estimated to be 942,432 fish and the final spawning escapement was estimated at 690,181 sockeye salmon, which was within the sustainable escapement goal range.

Over the past 5 years (2018–2022), sport harvest of sockeye salmon from UCUSMA waters has averaged 4,550 fish, which is approximately 50% of the 10-year average harvest of 9,398 fish (years 2013–2022; Table 8). Areawide sockeye salmon sport harvest in 2023 was low, estimated at 3,826 fish and was the third lowest harvest since 2003. The Klutina River accounted for 87% of the sockeye salmon sport harvest in 2023, which was typical. The Copper River downstream of the Klutina River accounted for 9% of the harvest and the Gulkana River accounted for 3% of the harvest.

Sockeye salmon abundance and harvest in the Copper River drainage has generally been decreasing since the late 1990s with the exception of a 5-year period from 2011–2015 (Somerville 2022). The 4th and 5th smallest sockeye salmon runs recorded since 1978 occurred in 2020 and 2018, respectively. Contrarily, 5 of the 7 largest runs since 1978 occurred between 2011–2015. Sport harvest of sockeye salmon in the UCUSMA is driven by inriver abundance, with larger runs yielding higher harvests and smaller runs lower harvests, as expected. However, the low sport harvest in 2023 was atypical for sonar passage of approximately 940,000 fish and instead was more similar to the 2020 harvest that was associated with sonar passage of 504,000 fish coupled with a sockeye salmon season sport fishing closure on August 3 (Tables 8 and 9). The low sport harvest in 2023 may be related to decreased sport fishing effort, or due to the delayed run entry of sockeye salmon into the upper Copper River tributaries caused by high water events occurring downstream on the Copper River mainstem.

On the Gulkana River, sockeye salmon harvests have trended more with Chinook salmon harvests versus showing any annual trends up or down. Although the Gulkana River Chinook salmon counting tower enumerates sockeye salmon passage, the tower counts only a portion of the Gulkana River mainstem sockeye salmon run because operations typically end well before completion of the run. Therefore, it is difficult to analyze sockeye salmon counts from the tower

for long-term abundance trends because it is unknown if variation in counts is due to run strength or run timing. From 2019–2023, counting tower operations have continued past the end of the Chinook salmon run to enumerate more returning sockeye salmon. The 2019–2023 seasons were the latest tower counts conducted and approximately 0–56% of the annual sockeye salmon run has been enumerated during those extension periods (Hansen and Ocaña 2022; ADF&G Division of Sport Fish, Glennallen, 2023, unpublished data). Even with more counts occurring, sockeye salmon escapements during those years were all below the historic average escapement observed. Additionally, the number of sockeye salmon returning to the Gulkana Hatchery has been insufficient to meet their egg-take goals for the past several years (Wilson 2020–2023).

The sockeye salmon run was late coming into the Copper River in 2024. The Miles Lake sonar counts were below anticipated through June 6 and it wasn't until June 11 that the cumulative passage finally caught up to the expected cumulative passage for that date. A large spike in salmon passage occurred June 7–19, with daily passage consistently exceeding the anticipated passage. Notably, June 8–11 had daily passages ranging 3.1–4.7 times larger than anticipated for those days and on June 9, a total of 61,250 salmon passed the Miles Lake sonar. From there onward, sockeye salmon cumulative passage remained above anticipated for the remainder of the season, even though daily passages dropped below anticipated for approximately 1 week (June 20–26). Preliminary numbers from the Miles Lake sonar indicate the inriver run was 627,000. No management actions were taken for the sockeye salmon sport fishery in 2024 and it is expected that the sockeye salmon escapement goal will be achieved.

Research and Management Activities

Sockeye salmon stocks of the Copper River have, in general, been consistent and robust for several decades and, for the most part, have been adequately monitored through an extensive aerial survey program and by the Miles Lake sonar project. Except for 1993–1995, the escapement of sockeye salmon to Upper Copper River tributaries has been documented from 1966–2021 by the Division of Commercial Fisheries through aerial index counts to monitor spawner distribution in the drainage (Pirtle 1980; Randall et al. 1981; Brady et al. 1991; Hollowell et al. 2007; Botz et al. 2010, 2012, 2013; Sheridan et al. 2013, 2014; Wiese et al. 2015; Haught et al. 2017; Vega et al. 2019; Russell et al. 2017, 2021; Morella et al. 2021; Botz et al. 2021). Aerial escapement surveys provide distribution and relative abundance data only and are not used for inseason management. The Miles Lake sonar project, located in the Lower Copper River, has operated for over 40 years, and provides a reliable estimate of inriver abundance. These sonar counts are used for inseason management and have been a consistent and critical component in determining if the drainagewide sockeye salmon SEG has been achieved.

A radiotelemetry project designed to monitor spawning distribution and run timing of sockeye salmon in the Upper Copper River was conducted from 2005 to 2009 (Wade et al. 2007–2010). During the study, an average of 40.1% of radio tagged sockeye spawned in the Klutina River drainage, 15.9% in Upper Copper River drainages (upstream of the Gulkana River), 13.5% in the Gulkana River drainage, 11.6% in the Tazlina River drainage, 6.8% in Lower Copper River drainages (downstream of the Chitina River and above Bremner Canyon), 6.3% in the Chitina River drainage, and 3.9% in the Tonsina River drainage. Of these systems, the Tazlina River and Upper Copper River drainages had the earliest mean run timing for sockeye salmon, followed by the Klutina River drainage, the Chitina River drainage, the Lower Copper River drainages, the Gulkana River drainage, and finally the Tonsina River drainage (Wade et al. 2007–2010). Because

distribution hasn't been formally examined since 2009, another 2-year sockeye salmon radiotelemetry project began in 2024 and will continue through 2025 to reevaluate distribution.

Due to the prolonged inability of the Gulkana Hatchery to meet their sockeye salmon egg-take goals, Prince William Sound Aquaculture Corporation (PWSAC) funded the Gulkana River counting tower to continue operations past the end of the Chinook salmon run to enumerate more returning sockeye salmon for a 5-year period. The tower extension occurred annually during 2019–2023 and extended counts to no later than mid-September. The extension of the operational period was to provide PWSAC with an estimate of late run sockeye salmon passing upstream of the tower so they could anticipate the number of fish returning to their egg-take sites.

Recently, Copper River sockeye salmon have been the subject of studies by other nondepartment entities. The Prince William Sound Science Center and University of Alaska have been engaged in studies looking at the energetics of Copper River sockeye salmon stocks (Pete Rand, Prince William Sound Science Center, Cordova, Alaska; personal communication). These studies began in 2019 and are ongoing. Additional studies from the College of William and Mary have identified naturally developed immune signatures for several stocks of sockeye salmon in the Copper River drainage (Zwollo 2012, 2018). Knowledge of salmon energetics and how immune signatures affect migration, homing, and spawning success directly informs development of better management plans and strategies to ensure long-term sustainability of the Copper River sockeye salmon stocks. The Native Village of Eyak and Ahtna Intertribal Resource Commission (AITRC) have been conducting a feasibility study on operating a sonar near mile 4 of the Klutina River to enumerate sockeye salmon passage and run timing into the system. A suitable site was found in 2021 and during 2022–2023, one high-resolution sonar was deployed on the north bank that provided imagery for approximately half of the river's width (Piche and Gorze 2023). An estimated 84,188 salmon migrated past the sonar in 2022 and 100,398 salmon in 2023 (Matt Piche, Natural Resources Coordinator and Fisheries Biologist III, Native Village of Eyak, Cordova, October 4, 2024, personal communication). The sonar did not operate in 2024 but is expected to resume in 2025.

WILD ARCTIC GRAYLING SPORT FISHERIES

Fishery Description

Wild Arctic grayling inhabit nearly every stream and most lakes across the UCUSMA. They are the most caught species in the area and for the past 10 years (2013–2022) have accounted for approximately 47% of the annual total catch of all species (Table 3). Wild Arctic grayling were the most harvested fish in the UCUSMA from 1977 to 1995 (Somerville 2022) but have been surpassed nearly every year since 1996 by sockeye salmon and by Chinook salmon from 2005 through 2007 (Table 2). Harvest of wild Arctic grayling declined from 1988 to 1999 and was most likely the result of more restrictive regulations that reduced overall bag limits and restricted anglers to 5 fish, of which only 1 fish may be >14 inches in the Gulkana River drainage to ensure the sustained yield of the area's wild Arctic grayling stocks (Taube 2002). In 2003, the bag and possession limit in all area lakes, outside of the Gulkana River drainage, was reduced to 5 wild Arctic grayling with no size limit. Continued declines in harvest reflect a general decline in areawide fishing effort since 2002 (Table 1) and increased angler preference for catch-and-release fishing rather than more restrictive regulations or a downturn in population sizes.

The Gulkana River drainage accounts for 13–68% of the annual wild Arctic grayling harvest (Table 10) and 43–80% of the annual catch (Table 11). In the remainder of the UCUSMA there is

no large, single water body that supports similar levels of harvest or catch of wild Arctic grayling. Instead, anglers target many different streams and lakes in the Upper Susitna River drainage, which includes Lake Louise, as well as streams and lakes in the Upper Copper River drainage upstream of the Gulkana River. In these areas anglers have a diverse selection of fishing areas to explore and enhance their fishing experience.

Fishery Management Objectives

The Wild Arctic Grayling Management Plan (5 AAC 52.055) was adopted in 2004 and designates 3 management approaches: regional, conservative, and special. Most wild Arctic grayling fisheries in the UCUSMA fall under the regional management approach and are open to fishing all year, with or without bait, and a bag and possession limit of 5 fish with no size limit. Under the conservative management approach, a fishery is open to harvest from June 1–March 31, catch-and-release from April 1–May 31 to protect spawning fish, and may be limited to unbaited, single-hook, artificial lures and a bag and possession limit of 2 fish. Size limits may or may not be imposed.

Four fisheries within the UCUSMA are classified under the conservative management approach: Mendeltna Creek (2 fish ≥12 inches), Moose Lake, and Our Creek in the Tazlina drainage (2 fish, no size limit), and the Gulkana River upstream of Paxson Lake (2 fish, open all year).

There is one proposal being brought forward to the BOF in 2024 concerning Arctic grayling. **Proposal 91** seeks to remove closed seasons and modify bag and possession limits for Arctic grayling in Mendeltna Creek, Moose Lake, and Our Creek, and remove the minimum length limit for Mendletna Creek Arctic grayling. The department submitted this proposal, and it would align these waters to the regional management approach and general background regulations.

ADF&G submitted proposals 30 and 34 to the BOF in 2021. Proposal 30 sought to extend the single hook, artificial fly regulations of the Lower Gulkana River upstream to cover the portion of the river under the Richardson Highway bridge. Proposal 34 sought to remove the 14-inch size limit for Arctic grayling in the Gulkana River drainage. Both proposals were carried by the BOF. Proposal 35 sought to move Moose Creek, a small stream flowing through Glennallen, from the regional management approach to the conservative management approach by reducing the bag limit from 5 fish to 2 fish and imposing a spawning closure. This proposal failed. A proposal to prohibit catch-and-release fishing in the UCUSMA was submitted for the 2017 BOF meeting in Valdez. The proposal failed.

Recent Fishery Performance

Total harvest of wild Arctic grayling in 2023 was 1,806 fish (Table 10). The 2023 harvest was 12% above the recent 5-year (2018–2022) but 22% below the recent 10-year (2013–2022) average harvests of the species. The majority (66%) of Arctic grayling harvested within the UCUSMA were taken from the Gulkana River drainage, which is typical, and overall harvest from that system in 2023 was almost double the recent 5-year average (2018–2022; Table 10). The Upper Susitna River drainage contributed 25% of the total harvest in 2023. Within the UCUSMA, it is common that most wild Arctic grayling are released after being caught rather than retained by anglers.

Wild Arctic grayling catch was the second lowest ever reported since 2004 at 14,695 fish (Table 11). The low catch is driven by the low angler effort and is not a result of low abundance.

Research and Management Activities

Research on wild Arctic grayling in the UCUSMA has been primarily concentrated on the Gulkana River drainage, the area's single largest Arctic grayling fishery. Williams and Potterville (1983) identified a decrease in the maximum size of sport caught Arctic grayling on the Gulkana River from 1968 to 1981. Concerns over this decrease in size and increasing sport effort prompted a change in regulation for Arctic grayling on the Gulkana River limiting anglers to 5 fish of which only 1 fish could be ≥14 inches total length. Additional research conducted by Bosch (1995) verified the size structure of Gulkana River Arctic grayling and indicated that larger fish were predominantly found in the upper tributaries of the drainage and less so in the mainstem. Recent estimates of abundance and size structure (Gryska 2019; Schwanke and Tyers 2019a) and radiotelemetry studies (Schwanke 2021; Schwanke and Bernard 2020) demonstrated that larger Arctic grayling seek colder waters in the upper tributaries of the Gulkana River drainage during summer and early fall and only move into mainstem waters to overwinter and to access spawning streams in the early spring before migrating back into upper tributaries. The upper drainage tributaries are in remote locations that greatly limit anglers from exploiting these waters and the larger Arctic grayling within the Gulkana River drainage; however, the portion upstream of Paxson Lake is more accessible. It was because of this research that the department proposed removing the Gulkana River drainage 14-inch size limit from regulation during the 2021 BOF cycle.

In 2023, Mendeltna Creek was sampled for Arctic grayling in its most popular fishing area: approximately upstream of its intersection with Oil Well Road down to its crossing with the Glenn Highway. Research conducted in Mendeltna Creek in 2023 concluded that no adult fish were found in the accessible portions of the creek during the spring Arctic grayling fishery closure and additionally that during summer, the creek supports primarily sub-adult fish (less than 5% achieving 12 inches in length) due to its relatively warm water. Adult-sized Arctic grayling seek out cool water refugia during midsummer and do not appear to be present to anglers. Due to potential sustainability concerns, regulations for Arctic grayling were restricted for Mendeltna Creek in 2000. However, since 2004, there have been fewer than 12 Statewide Harvest Survey respondents for the system, and some years the system does not even show up in the survey, indicating little to no fishing occurred. The Mendeltna Creek Lodge, located along the Eastern bank of Mendeltna Creek at the Glenn Highway crossing, burned down in December 2017 and is no longer in operation. Additionally, the other primary vehicular access point (Oil Well Road) for Mendeltna Creek Arctic grayling fishery has greatly deteriorated and now requires ATVs and a significant amount of brush and tree clearing to access. It appears that the adoption of conservative regulations on Mendeltna Creek are now unnecessary and overly restrictive.

With reduced angler effort and a higher propensity for anglers to practice catch-and-release rather than consumptive harvest, the department has closely reviewed its restrictive regulations for Arctic grayling in the UCUSMA. Since 2021, there has been an effort to simplify the regulations and encourage anglers to participate in area fisheries. UCUSMA Arctic grayling stocks are strong and diverse and should remain sustainable even with reduced regulatory complexity and increased angler opportunity.

LAKE TROUT SPORT FISHERIES

Fishery Description

The UCUSMA has numerous lake trout fisheries along the road system (Figure 4). They are fished year-round and are the main species targeted by ice fishing anglers in the area. Lake trout are harvested mainly from lakes within the Tyone River drainage (Lake Louise, and Susitna and Tyone Lakes) and the Gulkana River drainage (Paxson, Summit, and Crosswind Lakes; Table 12). Other popular lakes include Copper and Tanada Lakes in the Upper Copper River drainage. Lake Louise has supported the most popular lake trout fishery in the UCUSMA, with harvest peaking at over 4,000 fish in the early 1980s (Somerville 2022). Paxson Lake was the second-largest fishery with harvests above 2,000 fish also in the early 1980s. More recently, total lake trout harvests in the UCUSMA have been less than 2,000 total fish since 2006 (Table 12) but Lake Louise and Paxson Lake remain the 2 most popular lakes due to accessibility and because they are gateway lakes to the Tyone and Gulkana River drainages respectively.

Fishery Management Objectives

Sport fishing regulations for lake trout have gone through several changes since 1960 (Somerville 2022). These changes have had significant impacts on lake trout harvests and angler effort in the UCUSMA. For example, from 1960 through 1982 anglers could harvest up to 10 lake trout of any size per day. From 1983 through 1999 bag limits were reduced from 10 fish to limits of 1–3 fish and various size limits were imposed to protect females through at least 1 spawning cycle. Beginning in 2000, size limits were removed from the larger, most popular UCUSMA lakes starting with Paxson and Summit Lakes where the bag limit was reduced to 1 lake trout and anglers were limited to single hook gear all year and no bait from November through April. These regulations were extended to Lake Louise and Susitna, Tyone, and Crosswind Lakes in 2012. All other lakes have remained at background regulations of 2 fish of any size with no bait or hook restrictions. The harvest of lake trout has declined within the UCUSMA when comparing 5 and 10-yr averages (Figure 12).

Lake trout populations within the UCUSMA are currently managed conservatively and are considered healthy and sustainable under current regulations. The department initiated a regional review of lake trout regulations and management in 2002 and developed a lake trout management plan that was adopted by the BOF in 2005 (Burr 2006). Under this management plan, the minimum size limit for lake trout was removed in Paxson and Summit Lakes and the bag limit was set to 1 fish per day beginning in 2006. Additionally, the use of bait was prohibited from April 16–October 31 but allowed from November 1–April 15 to provide for the burbot fisheries. In 2012, these same regulations were implemented for Lake Louise and Susitna, Tyone, and Crosswind Lakes, which effectively aligned lake trout management in all large lakes with high angler effort and harvest rates that consistently met or exceeded sustainable levels. These regulation changes reduced fishing mortality below the sustainable yield estimates for these lakes.

Management of lake trout populations in the UCUSMA is guided by the *Wild Lake Trout Management Plan* (5 AAC 52.060) and the department uses the Lake Area Model (LAM; Evans et al. 1991) as a conservative guideline to determine sustainable harvests of lake trout from area lakes. The LAM is based on a relatively small range of mostly southern Canadian lakes and their observed sustainable yields and provides a general guideline for sustainable harvests. The predicted annual yields from the model are inherently imprecise (Burr 2006); therefore, they are

treated as a threshold that should not be exceeded rather than a target level of lake trout exploitation.

The LAM predicted potential yield is the level of sustainable biomass that can be removed from the lake. Based on average lengths and weights of lake trout in the specific lake, or based on average lake trout weight per length, the sustainable yield of fish can be calculated and adjusted based on any size limit restriction. The sustainable yield includes all harvest of lake trout plus an additional 10% of the total catch to compensate for hooking mortality of released fish. In the large, popular lakes, such as Lake Louise, catch levels can drive the management of the fishery more than direct harvest (Table 13).

The LAM adequately protects lake trout populations from overexploitation but may be overly restrictive for most lake trout fisheries in the UCUSMA. Region III Sport Fish staff have begun a review of an updated yield model for lake trout based on a substantially larger sampling of lakes and including lakes in latitudes similar to Alaska (Lester et al. 2021). These efforts are ongoing and results will be presented in an updated lake trout management plan.

Proposals seeking to change lake trout regulations in the UCUSMA appear before the BOF about once every 2 or 3 board cycles. Although there are no lake trout specific proposal being brought to the BOF in 2024, **proposal 92** would impact the lake trout fishery in Paxson and Summit Lakes because it proposes to increase the period bait is allowed in winter by 1 month (through May 15). **Proposal 93** would rescind the seasonal, spring sport fishing closure in the Hungry Hollow drainage from the outlet of Wait-a-Bit Lake upstream, a system that does have lake trout present. Additionally, **proposal 90** aims to reduce the burbot limit in Crosswind Lake to minimize incidental lake trout catch and mortality.

Past BOF lake trout proposals included proposal 36 at the 2021 BOF meeting in Cordova that sought an increased bag limit for lake trout on Crosswind Lake. The proposal failed. A proposal to prohibit catch-and-release fishing in the UCUSMA was submitted for the 2017 BOF meeting in Valdez. The proposal failed.

Recent Fishery Performance

As with other resident species fisheries, the harvest of lake trout has been declining over the last 10 to 15 years. Total lake trout harvest in 2023 was 727 fish (Table 12) and was about 37% larger than the recent 5-year average but still 10% below the recent 10-year average harvest. Within the management area, most lake trout are harvested from the Susitna River drainage (46–50%) followed by the Gulkana River drainage (24–34%). Lake specific assessments of catch, effort and harvest are not possible due to poor accuracy and estimates only indicate that some level of fishing and harvest has occurred.

Research and Management Activities

There has been little research done on UCUSMA lake trout populations over the last 20 years. In March 2024, the department assessed the lake trout population size structure at Crosswind Lake to better estimate the mean weight of fish being caught. This information is used as model input for the LAM.

BURBOT SPORT FISHERIES

Fishery Description

Burbot fisheries primarily occur from November to April using closely attended set lines. Many lakes and rivers of the UCUSMA historically contained large populations of burbot (Figure 4) and prior to 1990, these waters supported an average of 56% of the statewide sport harvest of this species (Somerville 2022). The largest fishery historically occurred in Lake Louise, Susitna, and Tyone Lakes. Other fisheries occur in various lakes of the Gulkana River drainage (e.g., Paxson, Summit, and Crosswind Lakes), Tazlina River drainage, and smaller remote lakes scattered throughout the UCUSMA.

Fishery Management Objectives

UCUSMA burbot populations are managed for long-term sustainability. Unattended set lines are prohibited in the area with the exception of the mainstem Copper River, east bank tributaries of the Copper River, and west bank tributaries of the Copper River downstream of the Richardson Highway and Tok Cutoff (with the exception of the Gulkana River, which is closed to the use of set lines). Anglers are also limited to a bag of 2 burbot in most popular road-accessible lakes and lakes in the entire Tyone River drainage and Summit Lake along the Richardson Highway. Anglers targeting more remote lakes and roadside lakes that have traditionally low angler effort are limited to a bag of 5 burbot.

Proposals seeking to change burbot regulations in the UCUSMA are typically infrequent; however, 3 proposals have been submitted for the December 2024 BOF meeting. **Proposal 89** seeks to increase the bag and possession limit for burbot in Lake Louise, **proposal 90** aims to reduce the burbot limit in Crosswind Lake, and **proposal 92** would impact the burbot fishery in Paxson and Summit Lakes as it proposes to increase the period bait is allowed in winter by 1 month (through May 15). Prior to the 2024 board cycle, the last proposal directly concerning UCUSMA burbot fisheries was a department-generated proposal in 2011 to reopen Tolsona Lake to burbot fishing with a 2-fish bag limit.

Recent Fishery Performance

The harvest of burbot in the UCUSMA has been relatively low since 2011 and has only exceeded 1,000 fish annually once since then (Table 14). Past SWHS harvest estimates for burbot in the UCUSMA have varied greatly from year to year.

Research and Management Activities

Management of burbot fisheries in the UCUSMA is generally done over a long-term period and relies on data from the SWHS as well as direct assessment of specific lakes. Inseason management primarily involves conducting angler checks in the field and enforcement action to discourage and prevent the illegal use of unattended set lines.

Out of concern that burbot stocks in the UCUSMA were being overexploited, the department began to evaluate the life history of Interior Alaska burbot and determine stock status and sustained yields of burbot fisheries in the UCUSMA. Annual results of these studies are summarized in Lafferty et al. (1990–1992), Lafferty and Bernard (1993), Parker et al. (1987–1989), Schwanke and Bernard (2005a–b), Schwanke and Perry-Plake (2007), Schwanke (2009b), Taube et al. (1994, 2000), and Taube and Bernard (1995, 1999, 2001, 2004). The results of this work led to the

adoption of increasingly restrictive regulations that have achieved sustainable burbot fisheries within the UCUSMA.

Although current regulations have been in place for over 20 years and UCUSMA burbot populations appear stable, the monitoring of specific lakes has continued. Burbot populations in Crosswind Lake (Schwanke 2009b) and in Tanada and Copper Lakes (Schwanke and McCormick 2010) were assessed to establish baseline population sizes for these lakes as recent trends had indicated potential increases in sport effort. Thermal habitat selection by burbot was also investigated in Tanada and Copper Lakes (Scannell et al. 2016). Follow up assessment of the Tolsona Lake burbot population (Schwanke 2014) led to that lake being reopened in 2012 with a 2 fish bag limit, after being closed for 13 years.

Over the last few years, observations by area staff and anecdotal reports from anglers of increased burbot catches indicated a possible increase in the Lake Louise burbot population. An abundance assessment was conducted in 2021 to determine if the burbot population was larger than last assessed in 2005. The 2021 assessment yielded a catch per unit effort (CPUE) for burbot of 0.71 (Gutierrez et al. 2023), which was 48% greater than the last CPUE of 0.48 in 2005 (Schwanke and Perry-Plake 2007). The 2021 assessment had the highest CPUE attained in the lake since 1987 and indicates that the burbot population in Lake Louise has increased and can support additional harvest opportunities under current effort and harvest trends.

UPPER COPPER RIVER PERSONAL USE FISHERY

Fishery Description

A personal use fishery occurs annually in a portion of the mainstem Copper River known as the Chitina Subdistrict (CSD). The CSD was first established in 1977, concurrently with the establishment of the Glennallen Subdistrict (GSD), and divided the previously defined Upper Copper River District (UCRD) into 2 separate fisheries. Splitting the UCRD into the CSD and GSD was partially due to growth in the fishery and particularly the use of dip nets below the Chitina-McCarthy Bridge and allowed for more effective management of the CSD fishery. While the upper and lower boundaries of the CSD changed several times after 1977, the current CSD boundary has remained the waters of the mainstem Copper River from the downstream edge of the Chitina-McCarthy Bridge to a line approximately 200 yards upstream of Haley Creek as designated by a pair of ADF&G markers, since 1991.

The CSD fishery has primarily been managed as a personal use fishery since 1984. The CSD, and the section of the UCRD below the Chitina-McCarthy Bridge prior to the CSD establishment in 1977, were managed as a subsistence fishery through 1983. Beginning in 1984, the CSD was designated a personal use fishery. The designation of the CSD fishery changed back to a subsistence fishery the single year of 1985 and again from 2000–2002 (Somerville 2022) but since 2003, the designation has remained personal use.

A $15 permit is required to participate in the CSD fishery. Revenue from the fee is used for maintenance and improvements for fishery access, the upkeep of pit toilets, and garbage removal at several locations. All Alaska residents are eligible to obtain a permit and the permit covers the entire household. Households are limited to a single permit in a calendar year and annual limits that are based on household size apply. Nonresidents may not participate in any capacity.

Dipnets have been the only legal gear allowed in the CSD fishery since 1986 and the subdistrict is particularly suited to dip nets as the river narrows through Woods Canyon, which concentrates fish

along its banks. Dipnetters walk, bike, and use all-terrain vehicles (ATVs) to access riverbanks of the CSD from the Copper River railroad right of way. Access to the fishery also occurs by boat launching at unimproved sites near the Chitina-McCarthy Bridge and through Chitina Native Corporation lands near the mouth of O'Brien Creek. Commercial transporters have operated in the fishery since its inception and drop off dipnetters at specific locations within Woods Canyon that would normally be inaccessible to most people. Additionally, guide services, where dipnetters fish from the guide's boat, have operated since the 1980s but have only become popular since 2014, with 3 guide businesses currently operating up to 5 boats in the fishery. The popularity of the CSD fishery steadily grew with improved services and access (including improvements to the Glenn, Richardson, and Edgerton Highways) from 44 permits issued in 1960 with a harvest of about 8,800 salmon (Somerville 2022) to a peak of 12,635 permits issued in 2015 with a harvest of about 227,000 salmon. Over the past 10 years (2013–2022), participation and harvest have averaged about 9,000 issued permits and a harvest of around 150,000 salmon (Table 15).

Salmon are present in the CSD from mid-May through September, and the personal use fishery season is from June 7 through September 30. Chinook salmon make up about 1% of the annual harvest in the CSD, whereas sockeye salmon make up about 98% in most years (Table 15). Generally, 60% of the Chinook salmon harvest in the CSD occurs by the end of June and 80% by the middle of July. For sockeye salmon, 50% of the harvest is usually achieved between the first and second week of July and 75% by the end of July. Coho salmon are present in the fishery from about mid-August through September and make up less than 1% of the annual harvest.

Fishery Management Objectives

Like subsistence fisheries, personal use fisheries allow more efficient fishing gear and higher annual limits than sport fisheries, but unlike subsistence fisheries, they lack management priority over other fisheries. Personal use fisheries differ from sport fisheries in both their objectives and management. Both fisheries provide Alaskans the opportunity to harvest fish for personal consumption, but personal use fisheries are managed to maximize harvest potential, whereas sport fisheries are managed to provide diversity of opportunity. Anyone can participate in Alaska's sport fisheries provided they have a sport fishing license; however, only Alaska residents may participate in personal use fisheries provided they have a sport fishing license and a permit, if required, for the personal use fishery.

The BOF established the *Copper River Personal Use Dip Net Salmon Fishery Management Plan* (5 AAC 77.591) in 1984, which divided the inriver allocation of salmon into subsistence harvest, personal use harvest, sport fishery harvest of sockeye and Chinook salmon, hatchery broodstock, and specific spawning escapement goals for sockeye, Chinook, and other salmon. The BOF apportioned 60,000 salmon for the Chitina Subdistrict personal use fishery at that time. The plan also required management to achieve a set percentage of the apportioned harvest each week through the season (Somerville 2022).

The *Copper River Personal Use Dip Net Salmon Fishery Management Plan* (5 AAC 77.591) has been revised several times since its adoption in 1984 (Somerville 2022). At its 1996 meeting, the BOF adopted changes to the plan, moving the inriver salmon apportionment guidelines from the personal use plan to the *Copper River District Salmon Management* Plan (5 AAC 24.360) within commercial fisheries regulations. The BOF also increased the personal use apportionment to 100,000 salmon and, in conjunction with the creation of the *Copper River King Salmon Management Plan* (5 AAC 24.361), the allowable limit of Chinook salmon in the CSD was

reduced from 5 to 4 fish. Finally, the set percent-harvest objectives in the plan were removed and replaced with an abundance-based management objective linked to passage of salmon at the Miles Lake sonar. The fishery has been managed on a weekly basis with fishing time determined each week based on the number of salmon counted at the sonar. The maximum harvest in the CSD personal use dip net salmon fishery is 100,000–150,000 salmon, which does not include any salmon in excess of the inriver goal or salmon taken after August 31.

Bag limits have changed significantly in the CSD due to changes in the fishery's status and through proposals to the BOF (Somerville 2022). The current bag limits were established at the 2014 BOF meeting in Cordova: households are limited to an annual limit of 25 salmon for the head of household and 10 salmon for each additional household member, except that only 1 Chinook salmon may be retained per household. Households are limited to a single permit and may only possess either a Chitina Subdistrict personal use dip net salmon fishery permit or a Glennallen Subdistrict subsistence fishery permit in any given year, but not both.

The *Copper River Personal Use Dip Net Salmon Fishery Management Plan* directs harvest in the fishery to be distributed throughout the season based on abundance. The department establishes a preseason schedule based on forecast daily salmon passage at the Miles Lake sonar and the allowable harvest, which is then adjusted during the season based on run strength. To ensure harvest is proportionally distributed throughout the run, the department adjusts the allowable fishing time (open periods) based on weekly (Monday through Sunday) sonar counts at Miles Lake. Total allowable fishing hours each week is calculated as the weekly number of counted salmon apportioned to the CSD personal use fishery divided by the average (3- to 5-year) catch-per-hour of salmon in the CSD fishery for that week. However, during seasons where it appears the sockeye salmon escapement goal may not be met, the CSD fishery may be further restricted or closed during a week even though sonar abundance for that week indicates a harvestable surplus of salmon.

A total of 17 proposals directed towards the CSD personal use fishery have been submitted to the BOF for the 2024 meeting. **Proposal 47** aims to require mandatory inseason reporting for the fishery, **proposal 50** seeks to prohibit the use of chartplotters or fish-finders on boats in the CSD, and **proposal 55** seeks to restrict commercial guiding if the commercial gillnet fishery is prohibited from fishing the inside closed waters for more than 2 consecutive periods. **Proposals 58 and 59** would provide the department authority to increase Chinook salmon and sockeye salmon annual limits in the CSD fishery if the upper bound escapement goals are projected to be exceeded. **Proposals 60 and 61** seek to lower the annual limits, and **proposal 62** seeks to restrict the maximum harvest level of the CSD personal use fishery if the commercial gillnet fishery is closed for 13 consecutive days. **Proposal 63** seeks to delay the opening date of the CSD fishery, **proposal 64** seeks to restrict households from holding both a CSD personal use permit and an Upper Cook Inlet personal use permit in the same calendar year, and **proposal 65** seeks to require weekly permitting and reporting for the CSD fishery. **Proposal 66** seeks to manage the personal use fishery for Gulkana Hatchery broodstock needs. **Proposal 67** seeks to prohibit removing king salmon from the water prior to release in the personal use fishery, **proposal 68** seeks to prohibit dipnetting from a boat, and **proposal 69** aims to restrict time and area for dipnetting from a boat. **Proposal 70** seeks to extend the lower boundary of the CSD and **proposal 71** aims to prohibit guiding in the CSD fishery.

Ten proposals were submitted for consideration by the BOF in 2021 that related to the CSD salmon fishery. Proposals prohibiting dipnetting near tributary mouths of the UCRD, dipnetting from a

boat in the UCRD, dipnetting from a moving boat in a portion of the CSD, dipnetting from a boat when within 50 feet of a person dipnetting from shore in the CSD, prohibiting the use of gillnet mesh in dip nets, and prohibiting the use of depth or fish finders on boats in the UCRD all failed. Proposals to extend the lower boundary of the CSD downstream a half mile, to reduce the maximum harvest level in the CSD personal use fishery when the Copper River commercial fishery harvest is 50% below the 10-year average on June 1, to amend the annual limit for salmon in the CSD, and to amend the opening date of the CSD personal use fishery from June 7 to June 1 also failed.

Four proposals were submitted for consideration at the 2017 BOF meeting in Valdez that concerned the CSD personal use fishery. One proposal to remove the automatic reduction to the maximum harvest limit when the Copper River District commercial fishery is closed for 13 or more consecutive days was carried. Proposals to extend the lower boundary of the CSD, prohibit the use of monofilament netting in dip nets, and require logbooks for transporters and guides in the fishery failed.

Recent Fishery Performance

In 2023, a total of 7,559 permits were issued for the Chitina Subdistrict personal use fishery and 79% of those permits were fished (Table 15). The participation rate for 2023 was higher than the recent 5-year (70%) and 10-year (65%) averages. A total of 168,501 sockeye salmon and 3,515 Chinook salmon were harvested in 2023 (Table 15). Both sockeye and Chinook salmon harvests in the fishery during 2023 were above the recent 5-year and 10-year averages and notably, the Chinook salmon harvest was the highest since 2004.

The 2023 CSD personal use fishery season was opened by EO on June 15 for a 96-hour fishing period (Appendix A1). This was the latest opening of the personal use fishery on record. The salmon run was 7–9 days late and late winter breakup and high water delayed the installation of Miles Lake sonar until the last week in May. By June 5 daily counts were strong enough to allow for 144 hours of fishing the week of June 19, which aligned with the preseason schedule. While cumulative inriver passage was still below anticipated due to the late run, daily counts were higher than expected through June 11 and the fishery was opened for 156 hours the week of June 26, an increase of 36 hours from the preseason schedule. Daily passage remained higher than anticipated and on June 25, inriver abundance exceeded the cumulative expected passage for that date. On July 3, the fishery was opened for 168 hours, an increase of 48 hours from the preseason schedule. Daily counts stayed above anticipated for the remainder of the season and the CSD personal use fishery remained open, continuously, from July 3 through September 30 due to adequate sonar passage. The 2023 Miles Lake sonar passage estimate of 991,740 salmon was above the inriver goal of 610,000 salmon.

Harvest of sockeye salmon in the personal use fishery is directly related to salmon passage past the Miles Lake sonar. The inriver abundance of sockeye salmon over the past 5 years (2018–2022) has averaged 725,130 fish compared to the recent 10-year average (2013–2022) of 883,647 fish (Table 9). Sockeye salmon harvest in the personal use fishery over the past 5 years was also lower (estimated at 128,808 sockeye salmon) than the recent 10-year average of 149,586 sockeye salmon. When comparing the personal use fishery sockeye salmon harvest to the inriver abundance estimate, both the recent 5-year and 10-year harvest rates have averaged around 18% and since 2004, and harvest rates have ranged from 10% to 21% of the inriver abundance. Interannual

variation between harvest rates is in part related to changes in river stage height and flow, both of which impact fishing success.

The 2024 CSD personal use fishery season was opened by EO on June 13 (Appendix A1). Similar to the past 2 years, the 2024 salmon run was late. By June 2, only 46,991 salmon were counted past Miles Lake sonar compared to the preseason projection of 111,918 salmon. This deficit resulted in the season opening being delayed by 6 days from the preseason schedule and restricted to a 72-hour period (6:00 p.m. June 13–6:00 p.m. June 15). From June 3–9, sonar counts increased and exceeded the projection for that week by approximately 90,000 salmon, which allowed the fishery initial opening to be extended by 6 hours (through 11:59 pm June 15) and for the fishery to remain open continuously the following week through June 23. The personal use fishery was closed to king salmon retention beginning June 24 but salmon counts past Miles Lake sonar were strong enough to allow the fishery to remain open continuously June 24–30 for sockeye salmon harvest, which was an increase of 8 hours from the preseason schedule. Daily counts remained strong throughout July and the cumulative inriver passage remained above anticipated. The fishery was open continuously from July 1 through September 30 due to adequate sonar passage. This was an increase of 212 hours from the preseason schedule. The 2024 preliminary Miles Lake sonar passage estimate of 939,403 salmon was above the inriver goal of 627,000 salmon.

Research and Management Activities

The department has been sampling sockeye salmon and Chinook salmon harvested in the CSD for over 30 years. Data on length, age (sockeye salmon otoliths and Chinook salmon scales), and sex is collected for use in forecast models for both sockeye and Chinook salmon. Additionally, collected sockeye salmon otoliths are examined for strontium marks to determine what percentage of the CSD personal use fishery harvest is of hatchery origin (Haught et al. 2019). In conjunction with the National Park Service, genetic tissue samples have been collected from CSD sampled sockeye salmon from 2022–2024. Similarly, concurrent genetic testing has been conducted in the commercial drift gillnet fishery in the Copper River District and in the Glennallen Subdistrict subsistence fishery.

Inseason management of the CSD personal use fishery requires management staff to be present in the fishery. Both the Area Management Biologist and Assistant Area Management Biologist frequently visit the CSD to assess fishing success, and secondarily to assist with enforcement of fishery regulations in cooperation with the Alaska Wildlife Troopers.

UPPER COPPER RIVER SUBSISTENCE SALMON FISHERIES

Fishery Description

Glennallen Subdistrict Subsistence Salmon Fishery

A subsistence salmon fishery is prosecuted each year in the Glennallen Subdistrict (GSD). The GSD is defined as the waters of the mainstem Copper River from the downstream edge of the Chitina-McCarthy Bridge extending upstream, for approximately 146 miles, to the confluence with the Slana River. Although the GSD covers a long stretch of the Copper River, access to the fishery is very limited. The available shoreline of the Copper River for securing a fish wheel or dipnetting from shore is a mixture of personal private property, Native Corporation and Village lands, Wrangell–St. Elias National Park lands, and state lands. For the general public who do not own river front property, the only access to the river is by boat using a public launch site or along the

approximate 1 mile of state shoreline lands along the east bank of the Copper River just upstream of the Chitina-McCarthy Bridge (Figure 2).

Although both the GSD and CSD were managed as subsistence fisheries through 1983, the BOF made a positive customary and traditional (C&T) determination for the GSD and negative C&T for the CSD in 1984. In 1992, the state legislature passed a new subsistence statute that maintained the requirement that subsistence uses be "customary and traditional" and that they retain priority over all other uses. This legislation also required the BOF to establish amounts necessary for subsistence (ANS) when designating a fishery as subsistence. An ANS acts as a metric to measure a subsistence fishery but imparts no inseason management responsibility on the department to ensure achievement of the ANS or that harvest does not exceed the ANS. The BOF can revisit an ANS if a subsistence fishery grows or changes in some fundamental way.

The ANS for the GSD has changed several times since 1992 (Somerville 2022) and most recently at the 2005 BOF meeting in Valdez. There, the BOF divided the GSD into 3 subareas over concern that too few salmon were escaping the personal use and subsistence fisheries in the vicinity of Chitina. The BOF established an ANS for each subarea: the Chitina-McCarthy Bridge to the Tonsina River subarea was assigned an ANS of 25,500–39,000 salmon; the Tonsina River to the Gakona River subarea was assigned an ANS of 23,500–31,000 salmon; and the Gakona River to the Slana River subarea was assigned an ANS of 12,000–12,500 salmon. These ANS numbers were based on the 3 highest reported harvests (including both federal and state fisheries) from each subarea between 2000 and 2004. The total ANS for the GSD then became 61,500–82,500 salmon. This range was added as the subsistence apportionment in the Copper River inriver goal in 2006 and has not changed since.

Since 1984, subsistence permit holders in the GSD have been able to use either a dip net or a fish wheel to harvest their fish (Somerville 2022) but must choose one or the other for the season. Fish wheel permit holders harvest more fish per permit (about 81 sockeye salmon and 4 Chinook salmon per permit fished) than dip net permit holders (about 31 sockeye salmon and 1 Chinook salmon per permit fished; Table 16). Although fish wheels harvest more fish, they require a large time investment and cost in construction and maintenance, as well as launching and retrieval. Dip nets can be readily purchased and are easily transported to the fishing site. With the increased availability of boats capable of navigating the Copper River, dip nets have become a popular method for subsistence permit holders to conveniently access the fishery.

The preferred gear type in the GSD subsistence fishery has transitioned from fish wheels to dip nets over the past 20 years. The number of fish wheel permits issued annually peaked at 847 permits in 1997 and averaged 794 permits from 1997–2001 (Somerville 2022). However, after 2001, the number of fish wheel permits gradually declined, reaching a low of 297 in 2022 and has averaged 338 permits over the past 5 years (2018–2022; Table 16). During this same period, the number of dip net permits rose to a high of 1,354 in 2019 and has averaged 1,218 permits over the past 5-years (2018–2022; Table 16). The shift from fish wheels to dipnets reflects changes in local demographics and the channel shift of the Kotsina River that adversely impacted access to fish wheels on state shoreline directly upstream of the Chitina-McCarthy Bridge. Secondly, subsistence permit holders from outside the Copper Basin lack connections needed to access the few private fish wheels along the river and find using boats and dip nets a more convenient way to meet their subsistence needs. Also, many households don't need the amounts of fish normally harvested with a fish wheel.

GSD subsistence fishery harvests are dominated by sockeye salmon, which have made up about 93% and 95% of the average annual harvest over the past 5 and 10 years, respectively, followed by Chinook salmon at 6% and 4% (Table 16). Subsistence harvest of sockeye salmon steadily increased from 1960 through 2015 but has since declined and closely tracks with changes in total permits issued (Somerville 2022). Chinook salmon harvests rose from 1960 through 2002 and tracked with the number of permits issued in each subdistrict until about 2003 (Somerville 2022). After 2003, Chinook salmon harvest in the GSD declined to a range of about 1,300 to 3,300 Chinook salmon, except for 2 higher harvest years in 2018 (4,531) and 2019 (3,429). Households fishing with dip nets in the GSD are limited to 5 Chinook salmon per year but have an average harvest of just over 1 Chinook salmon per permit, whereas households utilizing a fish wheel, which have no species-specific limit, harvest an average of about 5 Chinook salmon per permit.

Batzulnetas Subsistence Salmon Fishery

When the State of Alaska limited subsistence salmon harvest to the mainstem of the Copper River downstream of the confluence of Slana River in 1964, several traditional fishing sites on the Tonsina and Klutina Rivers, on the Copper River upstream of the Slana River, and on Tanada Creek were prohibited. One of these sites consisted of the waters of the Copper River upstream of the Slana River and a portion of Tanada Creek, known as Batzulnetas by the Ahtna people (Figure 2). Batzulnetas was used as a traditional village and fish camp by people originally from Mentasta Village and, in particular, by the families of Katie John and Doris Charley. In 1984, Katie John and Doris Charley presented a proposal to the BOF to allow subsistence fishing at the traditional location. The proposal failed and the following year the Native American Rights Funds filed a lawsuit on behalf of Katie John under Title VIII of ANILCA to compel the State to reopen the historic Batzulnetas fishery. The legal battle that ensued lasted through 2015. However, several actions and legal decisions during the ensuing years affected management of not only the Batzulnetas fishery but all Upper Copper River fisheries and all subsistence fisheries statewide as well.

The BOF adopted regulations allowing for a subsistence fishery at Batzulnetas at its 1987 meeting. Beginning in 1988, salmon, other than Chinook salmon, could be taken in the Copper River between ADF&G regulatory markers near the mouth of Tanada Creek and approximately 1.5 miles downstream from the mouth and in Tanada Creek between regulatory markers identifying the open waters of the creek. A Batzulnetas subsistence permit was required and allowable gear was limited to fish wheels and dip nets in the Copper River and dip nets and spears in Tanada Creek. The fishery was open 2 days per week in June and 3.5 days per week in July and August. Annual permit limits were set the same as in the GSD. Initially, the fishery was restricted to only residents of Dot Lake and Mentasta Village, but this restriction was removed after the 1989 McDowell decision.

Despite the State of Alaska opening a fishery at Batzulnetas, the litigants believed the fishery was too restrictive and continued the legal case petitioning the federal government to intercede under provisions within ANILCA. Beginning in 1999, the federal government assumed management authority over subsistence fishing in navigable waters of Alaska adjacent to or within federal lands. This included the Copper River, which has since been under dual management for subsistence fishing with federally qualified rural residents able to get a federal subsistence permit in the Batzulnetas subsistence area fishery. Because the western boundary of the Wrangell–St. Elias National Park encompasses both shores of the Copper River upstream of Indian Creek, the federal government does not recognize state-issued subsistence permits in the GSD upstream of Indian

Creek or in the Batzulnetas subsistence area. However, if nonfederally qualified state residents were to request a state subsistence permit for these waters, one would be issued.

Under state management, subsistence users have harvested salmon from the Batzulnetas fishery as early as 1988 when 22 sockeye salmon were reported harvested (Somerville 2022). Harvest was again reported between 1993 and 1999 with an average annual harvest of 320 sockeye salmon and a range of 0–997 salmon during those 7 years. No Batzulnetas permits were requested in 2000. Beginning in 2001, Batzulnetas permits have been issued through the NPS with participation limited to residents of Dot Lake and Mentasta Village.

Federal Subsistence Salmon Fisheries

A stipulation within the 1980 ANILCA legislation requires that fisheries and wildlife managed for subsistence on federal lands and waters must provide a rural priority. The State of Alaska managed the UCRD subsistence fisheries with a rural priority beginning in 1982. However, providing a rural priority in state subsistence fisheries was found, in the McDowell decision, to violate provisions in the Alaska Constitution that require equal opportunity for all Alaska residents to subsistence hunt and fish. Several attempts were made through the state legislature and governor to align Alaska's Constitution with the rural priority requirements of ANILCA, but all failed. In 1999, the United States Fish and Wildlife Service assumed management of the Copper River subsistence fisheries in all waters within or adjacent to federal conservation unit lands such as the Wrangell–St. Elias National Park. The National Park Service administers the federal subsistence fisheries in the GSD, the CSD, and at Batzulnetas.

At first, the federal system adopted the state subsistence fishery regulations and because federal and state regulations were identical, both federal and state subsistence users participated in the fisheries under the state GSD subsistence salmon fishery permit. In 2001, federally qualified subsistence users were able to begin fishing on May 15 in the GSD, yet federal subsistence limits remained identical to state limits so federal subsistence users still fished under the state subsistence permit that year. In 2002, the Federal Subsistence Board established a federal subsistence fishery in the CSD with an annual 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 also allowed to participate in both fisheries, whereas state subsistence users were allowed to participate in either the CSD or GSD fishery but not both. As a result, the National Park Service (NPS) has issued separate federal subsistence fishing permits to federally qualified subsistence users since 2002 (Appendices B1 and B2). Although this change did not affect overall subsistence harvest from the Copper River, the number of state permits issued decreased after 2001 due to a portion of the federally qualified residents opting for federal permits rather than state permits (Somerville 2022). Over the past 5 years (2018–2022), average salmon harvest taken under federal permits accounted for about 25% of the total GSD harvest and about 2% of the total CSD harvest.

Fishery Management Objectives

Glennallen Subdistrict Subsistence Salmon Fishery

Management of the GSD state subsistence fishery is guided by provisions in state regulations 5 AAC 01.600 through 5 AAC 01.645. These regulations set the allowable gear types, fishery boundaries, annual limits, ANS, and permit stipulations. The *Copper River Subsistence Fisheries Management Plan* (5 AAC 01.647) further directs how the Copper River District commercial drift

gillnet fishery will be managed to ensure adequate escapement occurs and that subsistence uses are accommodated. The GSD fishery is managed to provide reasonable opportunity for harvesting salmon for subsistence uses consistent with the principles of sustained yield.

A free subsistence permit is required to participate in the GSD fishery. All Alaska residents are eligible to obtain a permit and the permit covers the entire household. Nonresidents may not participate in the subsistence fishery in any capacity. Households are limited to a single permit in a calendar year, and the annual permit limits are as follows: 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 people using dip nets, only 5 fish of the annual limit may be Chinook salmon. No species-specific limits are in place for fish wheel users, but ADF&G does have EO authority to establish an annual bag limit for Chinook salmon taken by fish wheel and also have the ability to modify the annual limit for Chinook salmon taken by dip net and modify methods and means in the subsistence fishery to reduce harvest of Chinook salmon if conservation actions are warranted. Fishers must record their harvest on their permit each day they fish prior to leaving the fishing site and must report their permit harvest to the department no later than October 31.

The GSD subsistence fishery has rarely been restricted. The fishery opens by regulation on June 1 and remains open continuously through September 30. In 2017, a limit of 2 Chinook salmon per season was imposed on the fishery preseason in response to the lowest ever Copper River Chinook salmon forecast. This restriction was lifted on June 4 when it was clear the Chinook salmon run was much stronger than forecast. In 2018, the fishery was restricted to 48 hours of fishing time per week June 25–July 7 to reduce the harvest of sockeye salmon in the fishery. In 2021, the Chinook salmon run was one of the weakest on record and resulted in Chinook salmon retention being prohibited in the GSD from June 28–July 31. Even with the Chinook salmon restriction in place, the fishery remained open continuously to allow for the harvest of sockeye salmon. In 2024, the Chinook salmon run was projecting to below the lower end of the escapement goal and resulted in Chinook salmon retention being prohibited in the GSD from June 29–July 31. Like 2021, the fishery remained open continuously to allow for sockeye salmon harvest.

A total of 4 proposals affecting the GSD are being brought to the BOF in 2024. **Proposal 47** requires inseason reporting, **proposal 48** seeks to repeal the prohibition of guide services in the subsistence fishery, **proposal 49** seeks to prohibit transporter services in the GSD, and **proposal 50** seeks to prohibit the use of fish-finders and chartplotters in the GSD.

A total of 11 proposals affecting the GSD subsistence fishery were submitted for consideration by the BOF at the 2021 meeting in Cordova. Proposal 6 sought to require inseason reporting of subsistence, sport fish, and personal use harvests and effort. Proposals 8 through 17 sought to limit dipnetting in the fishery by prohibiting dipnetting near tributary streams, dipnetting from a boat, using gillnet mesh in dip nets, or using depth finders, or by requiring special permits for dipnetting from a boat. Proposals 6 and 8–17 all failed. Proposal 7 sought to prohibit guiding in the subsistence fishery; after being revised to limit the prohibition to guiding from a boat, it was carried.

There were 5 proposals submitted for consideration at the 2017 BOF meeting in Valdez that affected the GSD subsistence fishery. Proposals requiring live boxes to be installed on fish wheels or that the fish wheels be closely attended, prohibiting dipnetting from a boat, or requiring an

automatic delay of 7 days in the opening of the fishery based on the preseason Chinook salmon forecast all failed. Two proposals prohibiting the use of monofilament in dip nets and requiring logbooks for transporters or guides in both the GSD and CSD fisheries also failed.

Batzulnetas Subsistence Salmon Fishery

Management of the Batzulnetas subsistence fishery is guided by the *Copper River Subsistence Fisheries Management Plan.* The fishery opens by regulation on June 1 and remains open through September 1 or until closed by emergency order. Fishing periods are 12:00 noon Friday through 12:00 noon Sunday from June 1 through June 30, and from 12:00 noon Friday through 12:00 noon Monday from July 1 through September 1. The Batzulnetas fishery is managed to provide reasonable opportunity for harvesting salmon for subsistence uses consistent with the principles of sustained yield. There have been no state permits issued for this fishery since 2000.

Very few proposals have been submitted to the BOF regarding the Batzulnetas subsistence fishery. No proposals regarding the Batzulnetas fishery were submitted to the BOF in 2024 and or in 2021. One proposal was submitted by ADF&G at the 2017 BOF meeting in Valdez seeking a change in regulations to automatically open the Batzulnetas area subsistence fishery each season rather than require an EO to be issued. The proposal carried.

Federal Subsistence Salmon Fisheries

The National Park Service administers the federal subsistence fisheries in the GSD, CSD, and Batzulnetas area. Federal subsistence salmon fisheries are managed to ensure sufficient fish are available to meet the subsistence needs of federally qualified rural residents. The federal government has no management responsibilities for ensuring escapement or the needs of other users.

Under federal regulation, households of 1 may harvest up to 200 salmon in the combined GSD, CSD, and Batzulnetas Area fisheries and households of 2 or more may harvest up to 500 salmon. Participants may use fish wheels, dip nets, and rod and reel in the Copper River; and in Tanada Creek they may use dip nets, spears, and rod and reel, as well as fyke nets, after consultation with NPS biologists. Permit holders are limited to 5 Chinook salmon taken with a dip net or rod and reel. The federal fisheries are open continuously from May 15 through September 30.

Recent Fishery Performance

Glennallen Subdistrict Subsistence Salmon Fishery

A total of 1,315 state subsistence permits were issued for the Glennallen Subdistrict in 2023 (Table 16). Most of the permits (76%) were for dipnetting and 75% of all permits were fished. The total harvest from the GSD state subsistence fishery was 52,187 salmon. This was above the recent 5-year (2018–2022) average harvest but below the 10-year (2013–2022) average. No management actions were taken in the subsistence fishery in 2023.

Batzulnetas Subsistence Salmon Fishery

There have been no state permits issued for the Batzulnetas subsistence fishery since 1999. All harvest in the Batzulnetas subsistence fishery since 2000 has been taken under federal subsistence permits.

Federal Subsistence Salmon Fisheries

In the GSD federal subsistence fishery, 673 Chinook salmon and 14,696 sockeye salmon were harvested in 2023 (Appendix B1). These harvest rates are consistent with those in the state GSD fishery. Most federal GSD permit holders use fish wheels.

In the CSD federal subsistence fishery, 60 Chinook salmon and 2,806 sockeye salmon were harvested in 2023 (Appendix B2). Harvest has been increasing in the CSD federal fishery since 2018 due to a change in the federal management of the subdistrict. Prior to 2018, the CSD federal fishery was limited to the same openings as the state CSD personal use fishery. However, beginning in 2018, the federal fishery has been opened continuously and is unaffected by any closures in the state personal use fishery. This has attracted more federally qualified rural residents to fish in the CSD during periods when the state personal use fishery is closed and competition is greatly reduced.

Only 2 permits were issued for the Batzulnetas area in 2023 and therefore harvest remains confidential. Overall participation in the Batzulnetas subsistence fishery is low, with 0–4 permits issued annually since 2001.

Research and Management Activities

The department has been sampling harvested sockeye salmon and Chinook salmon in the GSD since 2019. Data on length, age (sockeye salmon otoliths and Chinook salmon scales), and sex is collected for use in forecast models for both sockeye and Chinook salmon. Additionally, collected sockeye salmon otoliths are examined for strontium marks to determine what percentage of the GSD harvest is of hatchery origin (Haught et al. 2019). In conjunction with the National Park Service, genetic tissue was also collected from GSD sampled sockeye salmon from 2022–2024. This genetic sampling matched similar sockeye salmon sampling in the commercial drift gillnet fishery in the Copper River District and in the Chitina Subdistrict personal use fishery.

Both the Area Management Biologist and Assistant Area Management Biologist spend 1–3 days per week in the Chitina Area monitoring the fishery. Assessing fishing success is the primary driver of being in the fishery each week. Secondarily, the biologists assist with enforcement of the fishery regulations in cooperation with the Alaska Wildlife Troopers.

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TABLES AND FIGURES

Table 1.–Sport fishing effort (angler-days) in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

	Gulkana River						Copper River			Upper Susitna River			Other sites			
Year	Lakes	Streams	Total	Tazlina River	Klutina River	Tonsina River	Upstream of Gulkana River	Downstream of Klutina River[a]	Stocked lakes	Lakes	Streams	Total	Lakes	Streams	Total	Area total
2004	3,257	17,351	20,608	**241**	10,472	1,007	1,431	**2,608**	1,406	6,071	819	6,890	1,611	**318**	1,929	46,592
2005	5,209	15,277	20,486	**613**	10,516	**593**	**1,133**	**539**	2,313	3,793	801	4,594	721	**293**	1,014	41,801
2006	2,545	11,910	14,455	**587**	12,285	716	**734**	**855**	2,790	4,032	1,111	5,143	**738**	**804**	1,542	39,107
2007	3,297	19,323	22,620	593	16,512	562	1,180	**578**	1,974	7,689	520	8,209	**150**	**459**	**609**	52,837
2008	4,099	16,794	20,893	**641**	12,677	653	1,216	**1,349**	1,453	7,089	1,383	8,472	**807**	**210**	**1,017**	48,371
2009	4,373	13,340	17,713	**802**	15,665	645	**1,653**	**508**	2,254	7,595	1,250	8,845	**1,407**	3,917	5,324	53,409
2010	2,880	13,834	16,714	1,540	16,534	725	1,726	974	2,049	9,896	1,424	11,320	**400**	**250**	650	52,232
2011	2,407	6,134	8,541	**1,366**	9,915	**535**	**408**	1,366	3,117	4,609	1,423	6,032	**233**	**480**	**713**	31,993
2012	2,524	5,593	8,117	1,067	18,030	**380**	**894**	628	2,510	6,625	1,163	7,788	**721**	**233**	954	40,368
2013	2,658	6,322	8,980	**1,331**	16,357	**898**	**1,589**	**1,717**	1,163	5,240	1,758	6,998	**166**	**405**	**571**	39,604
2014	2,972	5,503	8,475	**741**	17,276	**436**	**332**	652	1,331	5,549	**639**	6,188	**139**	**283**	**422**	35,853
2015	2,385	6,840	9,225	**742**	12,371	737	**1,393**	**692**	2,171	3,696	1,271	4,967	**121**	**62**	**183**	32,481
2016	3,048	6,129	9,177	**693**	9,974	**437**	1,548	**563**	3,014	3,120	1,264	4,384	**241**	**196**	**437**	30,227
2017	3,217	8,001	11,218	**559**	10,075	**517**	**554**	1,082	2,041	3,106	**670**	3,776	**826**	**244**	1,070	30,892
2018	1,461	6,552	8,013	**1,738**	4,682	**351**	**1,512**	**426**	1,869	4,447	1,063	5,510	**685**	**458**	1,143	25,244
2019	1,851	9,006	10,857	**1,102**	9,284	**501**	**724**	**2,173**	3,659	7,267	**479**	7,746	**795**	**207**	1,002	37,048
2020	3,930	6,025	9,955	**358**	5,238	828	**683**	**456**	1,788	5,040	1,827	6,867	**1,531**	**653**	2,184	28,357
2021	1,514	3,736	5,250	**1,488**	6,302	**292**	**625**	**804**	4,090	4,145	**1,465**	5,610	**90**	**215**	**305**	24,766
2022	**1,269**	3,390	4,659	**626**	5,196	**610**	**363**	**1,269**	1,549	2,593	**234**	2,827	**540**	**410**	**950**	18,049
2023	10,292	3,239	13,531	**293**	9,852	**782**	**380**	1,158	2,510	4,422	**261**	13,531	**611**	**531**	**1,142**	34,331
Average 2018–2022	2,005	5,742	7,747	1,062	6,140	516	781	1,026	2,591	4,698	1,014	5,712	728	389	1,117	26,693
Average 2013–2022	2,431	6,150	8,581	938	9,676	561	932	983	2,268	4,420	1,067	5,487	513	313	827	30,252

Note: Effort data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

[a] Copper River drainage streams and lakes below the confluence with the Klutina River and excluding the Tonsina River drainage.

Table 2.–Number of fish harvested, by species, by sport fishing in Upper Copper River and Upper Susitna River Management Area waters, 2004–2023.

Year	Chinook salmon	Sockeye salmon	Coho salmon[a]	Rainbow trout (wild)	Rainbow trout (stocked)	Dolly Varden[a]	Lake trout	Arctic grayling[a]	Burbot	Whitefish	Landlocked salmon[b]	Other fish	Total fish
2004	3,435	6,464	131	696	1,615	2,153	2,044	4,177	1,127	885	0	1,629	24,356
2005	4,093	8,135	72	378	1,440	891	2,354	3,899	1,374	1,089	122	16	23,863
2006	3,425	14,297	54	486	1,618	777	737	3,387	575	662	42	111	26,171
2007	5,113	22,965	0	32	573	712	964	2,766	577	124	0	17	33,843
2008	3,616	11,431	56	324	694	396	1,470	4,231	1,234	655	0	18	24,125
2009	1,355	13,381	36	241	1,013	943	1,875	4,480	2,850	569	44	81	26,868
2010	2,416	14,743	90	158	1,006	682	1,631	4,723	2,997	759	78	0	29,283
2011	1,753	7,727	21	262	803	231	726	1,849	556	298	10	12	14,248
2012	535	23,404	0	512	936	753	676	4,091	995	107	11	0	32,020
2013	285	26,611	0	129	246	1,036	1,096	3,606	1,576	586	0	21	35,192
2014	931	18,005	89	240	353	148	819	2,264	458	597	0	0	23,904
2015	1,343	9,489	16	339	1,517	1,012	1,062	4,775	238	345	0	0	20,136
2016	327	7,555	0	131	1,547	1,545	1,443	2,903	555	10	83	0	16,099
2017	1,731	9,568	72	193	1,359	270	997	2,267	611	143	49	13	17,273
2018	1,280	2,943	387	218	969	1,125	732	1,945	474	223	21	0	10,317
2019	1,565	7,346	0	64	3,019	151	553	2,265	472	68	0	0	15,503
2020	967	3,483	0	258	925	260	730	1,887	582	405	0	0	9,497
2021	90	5,008	100	56	2,029	624	552	1,397	576	50	0	0	10,482
2022	342	3,971	219	132	122	306	96	846	197	20	0	0	6,251
2023	1,618	3,826	587	210	1,122	560	727	1,851	330	236	0	0	11,067
Average 2018–2022	849	4,550	141	146	1,413	493	533	1,668	460	153	4	0	10,410
Average 2013–2022	886	9,398	88	176	1,209	648	808	2,416	574	245	15	3	16,465

[a] Includes fish caught in stocked waters.

[b] Landlocked salmon includes stocked Chinook and coho salmon.

Table 3.–Number of fish caught, by species, by sport fishing in Upper Copper River and Upper Susitna River Management Area waters, 2004–2023.

Year	Chinook salmon	Sockeye salmon	Coho salmon[a]	Steelhead trout	Rainbow trout (stocked)	Rainbow trout (wild)	Dolly Varden[a]	Lake trout	Arctic grayling[a]	Burbot	Whitefish	Landlocked salmon[b]	Other fish	Total fish
2004	12,664	10,912	478	64	6,624	6,212	5,622	8,212	51,219	1,626	1,420	0	1,637	106,690
2005	9,704	16,093	172	64	4,096	6,858	2,551	11,057	50,760	2,150	2,259	279	32	106,075
2006	10,971	21,778	72	50	4,125	3,790	2,189	4,043	25,524	1,054	1,023	42	111	74,772
2007	12,109	30,875	11	99	1,666	4,253	3,647	6,125	29,815	1,503	273	0	26	90,402
2008	7,827	16,912	57	61	2,819	7,414	1,814	9,140	47,718	1,482	1,605	0	36	96,885
2009	4,231	19,788	36	20	2,563	4,607	3,211	12,843	76,559	3,471	1,076	554	81	129,040
2010	8,213	19,489	114	84	5,044	4,926	1,089	14,082	54,882	5,897	1,994	282	10	116,106
2011	7,025	11,873	21	0	4,498	3,794	1,058	3,846	19,738	1,157	483	10	23	53,526
2012	1,869	30,336	0	0	5,155	4,141	1,712	4,217	30,320	1,853	373	66	0	80,042
2013	1,195	36,246	229	58	1,149	4,826	2,304	8,218	29,991	2,162	691	0	42	87,111
2014	2,248	24,943	129	0	1,931	3,405	493	4,491	26,163	821	2,400	0	0	67,024
2015	4,165	13,654	16	0	2,846	2,313	3,163	7,680	28,702	493	721	0	0	63,753
2016	1,508	8,718	0	0	5,416	5,521	2,510	6,319	44,661	758	217	83	0	75,711
2017	7,508	12,465	150	19	7,504	4,680	2,522	6,152	34,060	734	335	115	13	76,257
2018	5,087	4,112	387	62	3,689	3,064	3,023	5,383	24,217	853	477	41	0	50,395
2019	4,454	8,630	42	0	9,998	2,115	877	7,153	38,843	2,680	355	0	0	75,147
2020	3,404	4,430	0	10	3,566	4,395	1,228	4,924	28,239	1,062	669	0	0	51,927
2021	590	7,034	607	0	8,087	2,097	917	3,083	13,230	1,643	279	550	0	38,117
2022	1,242	5,727	673	0	826	3,432	1,198	1,564	22,549	377	247	0	0	37,835
2023	3,318	5,411	877	0	2,218	1,694	2,034	3,055	14,785	1,351	1,265	11	0	36,019
Average 2018–2022	2,955	5,987	342	14	5,233	3,021	1,449	4,421	25,416	1,323	405	118	0	50,684
Average 2013–2022	3,140	12,596	223	15	4,501	3,585	1,824	5,497	29,066	1,158	639	79	6	62,328

[a] Includes fish caught in stocked waters.

[b] Landlocked salmon includes stocked Chinook and coho salmon.

Table 4.–Annual estimates of Copper River Chinook salmon harvests, run size, and escapement, 2004–2023.

Year	Commercial harvest[a]	Copper River District subsistence harvest[b]	Sport harvest[c]	Glennallen Subdistrict harvest[d]	Chitina Subdistrict harvest[d]	Total harvest	Inriver abundance[e]	Total run	Drainagewide spawning escapement[f]
2004	38,894	1,106	3,435	3,982	2,502	49,919	40,564	80,564	30,645
2005	35,775	260	4,093	2,618	2,094	44,840	30,333	66,368	21,528
2006	31,312	779	3,425	3,229	2,681	41,426	67,789	99,880	58,454
2007	40,274	1,145	5,113	3,939	2,722	53,193	46,349	87,768	34,575
2008	12,071	470	3,616	3,218	2,022	21,397	41,343	53,884	32,487
2009	10,398	212	1,355	3,036	223	15,224	32,400	43,010	27,786
2010	10,582	276	2,416	2,425	718	16,417	22,323	33,181	16,764
2011	19,788	212	1,753	3,062	1,080	25,895	33,889	53,889	27,994
2012	12,623	237	535	2,510	572	16,477	31,452	44,312	27,835
2013	9,445	854	285	2,522	762	13,868	32,581	42,880	29,012
2014	11,011	153	931	1,785	733	14,613	24,158	35,322	20,709
2015	23,701	167	1,343	2,614	1,585	29,410	32,306	56,174	26,764
2016	13,161	73	327	2,471	726	16,758	16,009	29,243	12,485
2017	14,628	778	1,731	3,366	1,973	22,476	40,725	56,131	33,655
2018	7,743	1,356	1,280	7,668	1,374	19,421	52,524	61,623	42,202
2019	19,921	808	1,565	4,315	2,689	29,298	43,714	64,443	35,145
2020	6,119	657	967	2,892	847	11,482	26,293	33,069	21,587
2021	7,807	624	90	2,190	945	11,656	21,656	30,087	18,431
2022	12,809	887	342	3,820	2,313	20,172	38,480	52,176	32,004
2023	11,278	948	1,618	3,919	3,669	21,432	49,308	61,534	40,102
Average 2018–2022	10,880	866	849	4,177	1,634	18,406	36,533	48,280	29,874
Average 2013–2022	12,635	636	886	3,364	1,395	18,915	32,845	46,115	27,199

Note: The inriver abundance is estimated by the Native Village of Eyak.

[a] Includes Copper River District commercial harvest plus homepack, donated, and educational harvests.

[b] Includes state and federal subsistence harvests in the Copper River District.

[c] Includes sport harvest in the Copper River Delta and the Upper Copper River upstream of Haley Creek

[d] These data are expanded to reflect unreported state harvest and include reported federal harvest in 2004 and expanded federal harvest beginning in 2005.

[e] This inriver abundance estimate is from a Chinook salmon mark–recapture project occurring upstream of Miles Lake sonar but downstream of any upriver harvests.

[f] The drainagewide escapement estimate is the inriver abundance estimate minus upriver Chinook salmon harvests.

Table 5.–Chinook salmon regulatory action history for the Copper River District commercial and Upper Copper River sport, personal use, and subsistence salmon fisheries, 2009–2024.

Year	Escapement[a]	Date	Copper River District[b]	Chitina Subdistrict	Glennallen Subdistrict	Upper Copper River sport fishery
2009	27,787	21-May	Inside area closed 6 out of 13 periods		No action	
		8-Jun		Prohibit retention		
		16-Jun				Reduce annual limit from 4 to 2, only 1 of the 2 from any tributary or Copper River mainstem.
		29-Jun				Close the Gulkana River drainage to sport fishing for Chinook salmon.
		27-Jul				Prohibit retention and use of bait and treble hooks in Klutina River
2010	**16,764**	20-May	Inside area closed 5 out of 12 periods		No action	
		21-Jun		Prohibit retention		Reduce annual limit from 4 to 2, only 1 of the 2 from any tributary or Copper River mainstem.
2011	27,994	16-May	Inside area closed 5 out of 14 periods		No action	
		25-Jun				Reduce annual limit from 4 to 2, only 1 of the 2 allowed from any tributary or Copper River mainstem and prohibited retention in Copper River drainage upstream of Klutina River
		27-Jun		Prohibit retention		
2012	27,835	17-May	Inside area closed 10 out of 13 periods		No action	
		18-Jun		Prohibit retention		
		30-Jun				Reduce annual limit from 4 to 1 and prohibit retention and the use of bait and treble hooks in Gulkana River
		28-Jul				Prohibit retention and use of bait and treble hooks in Klutina River and Upper Copper River drainage downstream of Klutina River

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Table 5.–Page 2 of 5.

Year	Escapement[a]	Date	Copper River District[b]	Chitina Subdistrict	Glennallen Subdistrict	Upper Copper River sport fishery
2013	29,008	16-May	Inside area closed 4 out of 9 periods		No action	
		15-Jun				Reduce annual limit from 4 to 1 and prohibit retention and use of bait and treble hooks in Gulkana River
		24-Jun		Prohibit retention		
2014	**20,709**	15-May	Inside area closed 11 out of 13 periods			
		14-Jun				Reduce annual limit from 4 to 1
		16-Jun		Prohibit retention		
2015	26,764	15-May	Expanded inside area and closed 10 out of 15 periods	No action	No action	No action
2016	**12,826**	15-May	Expanded inside area and closed 12 out of 14 periods	No action	No action	
		18-Jun				Prohibit retention and the use of bait and treble hooks in Copper River drainage upstream of the Klutina River
		20-Jun		Prohibit retention		
		25-Jun				Close Upper Copper River drainage to sport fishing for Chinook salmon

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Table 5.–Page 3 of 5.

Year	Escapement[a]	Date	Copper River District[b]	Chitina Subdistrict	Glennallen Subdistrict	Upper Copper River sport fishery
2017	33,655	1-Jan			Reduced limit to 2 fish and fish wheels required to be closely attended	Close Upper Copper River drainage to sport fishing for Chinook salmon
		15-May	Expanded inside area and closed 9 out of 13 periods			
		1-Jun		Prohibit retention		
		4-Jun			Rescinded all restrictions	
		5-Jun				Open Upper Copper River drainage sport fishing for Chinook salmon with 2-fish annual bag limit
		19-Jun		Allow retention		
2018	42,202	15-May	Inside area closed for 3 out of 3 periods	No action	No action	No action
2019	45,149	15-May	Inside area closed for 6 out of 13 periods		No action	
2020	**21,587**	15-May	Expanded inside area and closed 4 out of 5 periods			
		20-Jun				Reduce annual limit from 4 to 1
		22-Jun		Prohibit retention		

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Table 5.–Page 4 of 5.

Year	Escapement[a]	Date	Copper River District[b]	Chitina Subdistrict	Glennallen Subdistrict	Upper Copper River sport fishery
2021	**18,433**	17-May	Expanded inside area and closed for 9 out of 9 periods			
		21-Jun		Prohibit retention		Reduce annual limit from 4 to 1
		26-Jun				Close Upper Copper River drainage to sport fishing for Chinook salmon.
		28-Jun			Prohibit retention and fish wheels required to be closely attended	
		1-Aug			Allow retention	
2022	32,004	16-May	Expanded inside area and closed for 9 out of 12 periods		No action	
		20-Jun		Prohibit retention		Close Upper Copper River drainage to retention of Chinook salmon.
		27-Jun		Allow retention		Allow retention, but reduce annual limit from 4 to 2
2023	39,220	15-May	Expanded inside area and closed for 8 out 12 periods	No action	No action	
		20-Jul				Increase possession limit from 1 to 2

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Table 5.–Page 5 of 5.

Year	Escapement[a]	Date	Copper River District[b]	Chitina Subdistrict	Glennallen Subdistrict	Upper Copper River sport fishery
2024	ND	15-May	Expanded inside area and closed for season	No action	No action	
		24-Jun		Prohibit retention	No action	Close Upper Copper River drainage to retention of Chinook salmon.
		29-June			Prohibit retention	Close Upper Copper River drainage to sport fishing for Chinook salmon.
		1-Aug			Allow retention	

Note: ND = no data

[a] Numbers in **bold** are below the escapement goal.

[b] Reflects number of periods excluding the portion of the Copper River District in and around the barrier islands through the end of the Chinook salmon run (approximately June 30)

Table 6.–Harvest of Chinook salmon by sport anglers in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

	Gulkana River							Copper River			
Year	Upper river[a]	Lower river[a]	Unspecified	Total	Tazlina River	Klutina River	Tonsina River	Upstream of Gulkana River	Downstream of Klutina River[b]	Other waters	Area
2004	64	1,670	156	1,890	**0**	1,338	115	0	**39**	53	3,435
2005	392	2,081	100	2,573	**0**	1,276	**214**	**0**	**15**	15	4,093
2006	464	1,495	**188**	2,147	**0**	1,136	100	**0**	**13**	**29**	3,425
2007	467	2,639	**163**	3,269	0	1,683	0	0	**113**	**48**	5,113
2008	241	2,036	**46**	2,323	**0**	1,160	0	0	**118**	**15**	3,616
2009	62	454	**0**	516	**0**	733	58	**0**	**48**	0	1,355
2010	401	1,038	**13**	1,452	0	863	0	0	101	**0**	2,416
2011	0	536	**27**	563	**0**	1,043	**0**	**0**	107	**40**	1,753
2012	14	106	**76**	196	0	314	**0**	**0**	25	**0**	535
2013	0	0	**0**	0	**0**	223	**51**	**0**	**0**	**11**	285
2014	16	431	**0**	447	**0**	414	**16**	**0**	54	**0**	931
2015	116	658	**0**	774	**0**	481	50	**20**	**18**	**0**	1,343
2016	0	225	**68**	293	**0**	0	**0**	0	**34**	**0**	327
2017	34	502	**94**	630	**0**	832	**111**	**0**	137	**21**	1,731
2018	0	558	**20**	578	**0**	616	**86**	**0**	**0**	**0**	1,280
2019	123	671	**54**	848	**0**	589	**128**	**0**	**0**	**0**	1,565
2020	67	225	**0**	292	**0**	516	127	**0**	**32**	**0**	967
2021	0	68	**22**	90	**0**	0	**0**	**0**	**0**	**0**	90
2022	77	67	**19**	163	**0**	135	**16**	**0**	**0**	**28**	342
2023	**0**	474	**0**	474	**0**	875	**131**	**0**	138	**0**	1,618
Average 2018–2022	53	318	23	394	0	371	71	0	6	6	849
Average 2013–2022	43	341	28	412	0	381	59	2	28	6	886

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

[a] The Gulkana River at Sourdough is the boundary that separates the upper river from the lower river.

[b] Copper River drainage waters downstream of the confluence with the Klutina River exclude the Tonsina River drainage.

Table 7.–Catch of Chinook salmon by sport anglers in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

	Gulkana River							Copper River			
Year	Upper river[a]	Lower river[a]	Unspecified	Total	Tazlina River	Klutina River	Tonsina River	Upstream of Gulkana River	Downstream of Klutina River[b]	Other waters	Area total
2004	1,380	5,433	555	7,368	**0**	4,135	521	404	**173**	63	12,664
2005	1,596	4,697	217	6,510	**0**	2,651	**483**	**0**	**45**	15	9,704
2006	1,719	5,664	**204**	7,587	**0**	2,890	367	**0**	**13**	**114**	10,971
2007	1,203	7,254	**163**	8,620	62	3,025	31	16	**275**	**80**	12,109
2008	549	5,389	**46**	5,984	**11**	1,670	15	0	**132**	**15**	7,827
2009	616	1,469	**0**	2,085	**0**	1,888	79	**15**	**164**	0	4,231
2010	982	3,719	**39**	4,740	13	3,240	39	0	181	**0**	8,213
2011	64	2,372	**161**	2,597	**17**	3,476	**72**	**0**	802	**61**	7,025
2012	177	495	**13**	685	0	1,118	**41**	**0**	25	**0**	1,869
2013	0	327	**0**	327	**0**	560	**285**	**0**	**0**	**23**	1,195
2014	34	1,000	**0**	1,034	**0**	955	**130**	**0**	129	**0**	2,248
2015	516	2,533	**0**	3,049	**33**	835	210	**20**	**18**	**0**	4,165
2016	54	474	**509**	1,037	**36**	361	**40**	0	**34**	**0**	1,508
2017	47	1,731	**443**	2,221	**0**	3,458	**1,367**	**0**	441	**21**	7,508
2018	197	2,387	**218**	2,802	**0**	2,018	**85**	**0**	**182**	**0**	5,087
2019	1,000	2,224	**73**	3,297	**0**	940	**217**	**0**	**0**	**0**	4,454
2020	272	662	**0**	934	**0**	1,406	1,032	**0**	**32**	**0**	3,404
2021	0	304	**87**	391	**0**	177	**0**	**0**	**22**	**0**	590
2022	359	293	**42**	694	**0**	397	**48**	**0**	**75**	**28**	1,242
2023	**0**	1,253	**0**	1,253	**0**	1,619	**251**	**0**	195	**0**	3,318
Average 2018–2022	366	1,174	84	1,624	0	988	276	0	62	6	2,955
Average 2013–2022	248	1,194	137	1,579	7	1,111	341	2	93	7	3,140

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

[a] The Gulkana River at Sourdough is the boundary that separates the upper river from the lower river.

[b] Copper River drainage waters downstream of the confluence with the Klutina River exclude the Tonsina River drainage.

Table 8.–Harvest of sockeye salmon by sport anglers in the Upper Copper River and Upper Susitna River Management Area drainages, 2004–2023.

	Gulkana River							Copper River			
Year	Upper river[a]	Lower river[a]	Unspecified	Total	Tazlina River	Klutina River	Tonsina River	Upstream of Gulkana River	Downstream of Klutina River[b]	Other waters	Area total
2004	33	776	23	832	**0**	5,069	142	11	**0**	266	6,464
2005	57	939	73	1,069	**0**	6,646	**0**	**0**	**180**	140	8,135
2006	230	693	**0**	923	**0**	13,222	0	**0**	**130**	**22**	14,297
2007	70	1,300	**38**	1,408	0	21,242	25	0	**290**	**0**	22,965
2008	369	206	**0**	575	**0**	10,107	0	0	**749**	**0**	11,431
2009	328	886	**87**	1,301	**51**	11,759	0	**0**	**270**	0	13,381
2010	160	1,316	**0**	1,476	0	12,238	156	0	708	**165**	14,743
2011	0	684	**101**	785	**46**	6,025	**0**	**0**	871	**0**	7,727
2012	11	1,528	**0**	1,539	0	21,564	**0**	**0**	301	**0**	23,404
2013	25	1,953	**0**	1,978	**97**	23,721	**0**	**0**	**687**	**128**	26,611
2014	0	586	**123**	709	**0**	17,004	**0**	**0**	292	**0**	18,005
2015	31	502	**0**	533	**0**	8,903	0	**0**	**53**	**0**	9,489
2016	21	770	**64**	855	**0**	6,421	**52**	15	**105**	**107**	7,555
2017	0	1,309	**0**	1,309	**0**	7,695	**42**	**21**	481	**20**	9,568
2018	0	676	**0**	676	**0**	1,597	**0**	**0**	**488**	**182**	2,943
2019	0	1,006	**0**	1,006	**18**	6,118	**0**	**0**	**0**	**204**	7,346
2020	0	242	**64**	306	**0**	2,817	21	**24**	**188**	**127**	3,483
2021	0	883	**0**	883	**0**	4,063	**62**	**0**	**0**	**0**	5,008
2022	47	0	**0**	47	**0**	2,805	**0**	**0**	**919**	**200**	3,971
2023	**0**	113	**0**	113	**0**	3,344	**23**	**0**	346	**0**	3,826
Average 2018–2022	9	561	13	584	4	3,480	17	5	319	143	4,550
Average 2013–2022	12	793	25	830	12	8,114	18	6	321	97	9,398

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

[a] The Gulkana River at Sourdough is the boundary that separates the upper river from the lower river.

[b] Copper River drainage waters downstream of the confluence with the Klutina River exclude the Tonsina River drainage.

Table 9.–Annual estimates of Copper River sockeye salmon harvests, run size, and escapement, 2004–2023.

Year	Copper River District		Sport harvest[c]	Glennallen Subdistrict harvest[d]	Chitina Subdistrict harvest[d]	Total harvest	Inriver abundance[e]	Total run	Drainagewide spawning escapement[f]
	Commercial harvest[a]	Subsistence harvest[b]							
2004	1,048,677	1,822	7,383	73,214	108,527	1,239,623	628,950	1,819,138	433,945
2005	1,333,657	939	8,803	86,140	122,463	1,552,002	824,792	2,276,868	515,599
2006	1,498,537	4,505	14,455	76,056	124,810	1,718,363	891,917	2,592,909	579,552
2007	1,904,218	6,184	24,713	83,338	126,154	2,144,607	873,252	2,961,972	612,146
2008	323,176	4,001	12,682	57,632	82,318	479,809	677,001	1,141,329	480,597
2009	903,251	1,810	14,374	60,517	90,917	1,070,869	677,348	1,721,986	469,124
2010	643,339	2,016	16,085	84,856	140,811	887,107	901,488	1,715,995	502,992
2011	2,061,525	1,818	8,565	75,375	129,985	2,277,268	880,342	3,097,537	607,652
2012	1,874,726	4,334	24,168	92,792	128,058	2,124,078	1,262,948	3,276,472	953,194
2013	1,617,717	5,741	26,997	90,788	182,915	1,924,158	1,234,479	3,009,733	860,929
2014	2,062,265	1,751	18,179	98,535	158,879	2,339,609	1,194,260	3,386,860	864,958
2015	1,761,443	1,555	9,619	108,696	225,425	2,106,738	1,313,794	3,209,312	930,061
2016	1,184,901	1,185	7,801	81,839	150,303	1,426,029	785,584	2,075,016	513,546
2017	594,585	2,602	9,768	56,110	134,294	797,359	682,701	1,393,988	465,539
2018	48,075	5,189	2,965	56,093	80,542	192,864	649,053	819,279	478,701
2019	1,291,770	6,233	9,379	76,387	175,413	1,559,182	995,940	2,418,906	721,033
2020	103,731	7,091	3,896	45,811	81,428	241,957	504,020	726,495	362,445
2021	408,283	5,338	6,907	57,485	148,716	626,729	729,606	1,319,276	511,274
2022	605,183	5,828	5,871	60,517	157,944	835,342	747,029	1,470,090	520,120
2023	868,198	6,326	3,826	62,802	174,532	1,115,684	942,432	1,948,506	690,181
Average 2018–2022	491,408	5,936	5,804	59,259	128,808	691,215	725,130	1,350,809	518,715
Average 2013–2022	967,795	4,251	10,138	73,226	149,586	1,204,997	883,647	1,982,896	622,861

[a] Includes Copper River District commercial harvest plus homepack, donated, and educational harvests.

[b] Includes state and federal subsistence harvests in the Copper River District.

[c] Includes sport harvest in the Copper River Delta and the Upper Copper River upstream of Haley Creek.

[d] These data are expanded to reflect unreported state harvest and include reported federal harvest (2002–2004) and expanded federal harvest beginning in 2005.

[e] This inriver abundance estimate is the Miles Lake sonar count minus the Chinook salmon mark–recapture inriver abundance point estimate.

[f] The drainagewide escapement estimate is the inriver abundance estimate minus upriver sockeye salmon harvests.

Table 10.–Harvest of wild Arctic grayling by sport anglers in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

		Tazlina River drainage				Copper River drainage				
Year	Gulkana River drainage	Mendeltna Creek	Other lakes and streams	Klutina River drainage	Tonsina River drainage	Upstream of Gulkana River	Downstream of Klutina River[a]	Upper Susitna River drainage	Other waters	Area total
2004	1,331	**65**	**73**	197	112	805	**124**	819	589	4,115
2005	1,553	**0**	**500**	59	**86**	**432**	**96**	380	540	3,646
2006	1,179	**46**	**359**	77	8	**194**	**137**	998	**298**	3,296
2007	729	**97**	**130**	138	0	840	**144**	387	**19**	2,484
2008	1,665	**190**	**34**	17	59	616	**42**	1,431	**76**	4,130
2009	1,522	**0**	**85**	47	35	**462**	**0**	1,216	1,078	4,445
2010	2,081	107	90	57	12	210	89	1,850	**227**	4,723
2011	532	**0**	**0**	0	**9**	**14**	28	1,195	**29**	1,807
2012	1,393	**0**	**710**	42	**0**	**243**	67	1,335	**144**	3,934
2013	436	**23**	**401**	0	**0**	**1,087**	**72**	1,340	**0**	3,359
2014	501	**81**	**243**	49	**0**	**220**	0	**700**	**77**	1,871
2015	1,299	**82**	**963**	92	33	**655**	**82**	1,530	**0**	4,736
2016	1,025	**31**	**0**	73	**64**	509	**0**	1,201	**0**	2,903
2017	1,485	**0**	**29**	12	**0**	**227**	0	**442**	**0**	2,195
2018	850	**0**	**0**	0	**0**	**288**	0	586	**208**	1,932
2019	1,280	**194**	**0**	0	**0**	**39**	0	**431**	**146**	2,090
2020	406	**7**	**25**	32	0	**95**	0	978	**344**	1,887
2021	500	**0**	**100**	28	**0**	**150**	50	**569**	**0**	1,397
2022	149	**0**	**109**	0	**0**	**371**	0	**31**	**97**	757
2023	1,198	**0**	**22**	135	**0**	**0**	0	451	**0**	1,806
Average 2018–2022	637	40	47	12	0	189	10	519	159	1,613
Average 2013–2022	793	42	187	29	10	364	20	781	87	2,313

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

[a] Copper River drainage waters downstream of the confluence with the Klutina River exclude the Tonsina River drainage.

Table 11.–Catch of wild Arctic grayling by sport anglers in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

		Tazlina River drainage				Copper River drainage				
Year	Gulkana River drainage	Mendeltna Creek	Other lakes and streams	Klutina River drainage	Tonsina River drainage	Above Gulkana River	Below Klutina River[a]	Upper Susitna River drainage	Other waters	Area total
2004	34,543	**269**	**171**	1,407	301	3,904	**238**	4,828	5,011	50,672
2005	40,344	**129**	**1,321**	805	**343**	**2,623**	**96**	2,718	2,209	50,588
2006	15,638	**250**	**716**	232	25	**1,578**	**143**	5,628	**850**	25,060
2007	20,103	**711**	**438**	1,486	274	3,342	**246**	1,828	**269**	28,697
2008	35,613	**1,036**	**474**	276	278	1,788	**1,095**	6,055	**553**	47,168
2009	41,749	**1,078**	**590**	795	435	**3,478**	**187**	6,046	21,311	75,669
2010	38,766	776	1,247	248	141	1,353	181	10,074	**1,680**	54,466
2011	13,363	**1,150**	**71**	449	**136**	**141**	28	3,296	**110**	18,744
2012	17,358	**141**	**1,569**	798	**0**	**1,245**	398	6,679	**912**	29,100
2013	17,129	**69**	**1,176**	840	**155**	**534**	**234**	8,198	**620**	28,955
2014	13,163	**471**	**849**	129	**342**	**1,179**	0	**7,107**	**1,328**	24,568
2015	12,731	**287**	**1,686**	513	552	**3,140**	**232**	9,317	**0**	28,458
2016	35,188	**234**	**593**	199	**429**	1,788	**199**	5,614	**345**	44,589
2017	24,222	**0**	**2,298**	376	**124**	**227**	881	**4,523**	**1,237**	33,888
2018	14,442	**0**	**776**	781	**0**	**361**	0	6,924	**309**	23,593
2019	24,534	**387**	**912**	24	**40**	**1,247**	122	**7,009**	**326**	34,601
2020	13,111	**188**	**661**	707	177	**1,087**	0	10,531	**1,265**	27,727
2021	5,447	**0**	**787**	668	**36**	**312**	340	**5,160**	**30**	12,780
2022	17,483	**129**	**181**	65	**282**	**929**	22	**877**	**2,403**	22,371
2023	10,466	**39**	**42**	1,478	**449**	**0**	0	2,221	**0**	14,695
Average 2018–2022	15,003	141	663	449	107	787	97	6,100	867	24,214
Average 2013–2022	17,745	177	992	430	214	1,080	203	6,526	786	28,153

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

[a] Copper River drainage waters downstream of the confluence with the Klutina River exclude the Tonsina River drainage.

Table 12.–Harvest of lake trout by sport anglers in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

	Gulkana River drainage					Upper Susitna River drainage							
Year	Paxson Lake	Summit Lake	Crosswind Lake	Other lakes and streams	Drainage-wide total	Lake Louise	Susitna Lake	Other lakes and streams	Drainage-wide total	Klutina River drainage	Tazlina River drainage	Other waters	Area total
2004	46	**107**	105	30	288	770	30	347	1,147	14	**0**	595	2,044
2005	50	**32**	519	71	672	370	429	478	1,277	66	**16**	323	2,354
2006	61	**10**	191	32	294	200	148	42	390	0	**0**	**53**	737
2007	77	**56**	**97**	54	284	340	61	0	401	0	0	**279**	964
2008	173	**67**	**90**	0	330	604	206	85	895	0	**0**	**245**	1,470
2009	191	**125**	295	18	629	493	**217**	230	940	25	**58**	223	1,875
2010	268	**192**	**164**	0	624	697	73	101	871	0	54	**82**	1,631
2011	**42**	**37**	**50**	36	165	239	**122**	62	423	0	**75**	**63**	726
2012	149	**0**	**32**	0	181	169	**66**	94	329	16	0	**150**	676
2013	132	**0**	**300**	113	545	239	**108**	35	382	0	**21**	**148**	1,096
2014	155	**109**	**16**	11	291	278	**120**	**86**	484	0	**0**	**44**	819
2015	213	**59**	**56**	0	328	297	**194**	111	602	16	**0**	**116**	1,062
2016	200	**37**	**47**	203	487	201	**0**	380	581	21	**0**	**354**	1,443
2017	**175**	**66**	**211**	37	489	273	**0**	**59**	332	26	**0**	**150**	997
2018	49	**0**	**27**	0	76	396	**56**	104	556	0	**0**	**100**	732
2019	98	**104**	**29**	0	231	191	**49**	**0**	240	0	**0**	**82**	553
2020	141	**44**	**75**	22	282	252	**44**	25	321	0	**0**	**127**	730
2021	**10**	**0**	**0**	0	10	29	**10**	**144**	183	0	**0**	**359**	552
2022	**12**	**20**	**9**	0	41	5	**31**	**0**	36	0	**0**	**19**	96
2023	**37**	**36**	**11**	0	156	430	**40**	**25**	495	113	**0**	**35**	727
Average 2018–2022	62	34	28	4	128	175	38	55	267	0	0	137	533
Average 2013–2022	119	44	77	39	278	216	61	94	372	6	2	150	808

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

Table 13.–Catch of lake trout by sport anglers in the Upper Copper River and Upper Susitna River Management Area by drainage, 2004–2023.

	Gulkana River drainage					Upper Susitna River drainage							
Year	Paxson Lake	Summit Lake	Crosswind Lake	Other lakes and streams	Drainage-wide total	Lake Louise	Susitna Lake	Other lakes and streams	Drainage-wide total	Klutina River drainage	Tazlina River drainage	Other waters	Area total
2004	182	**279**	861	683	2,005	3,985	794	845	5,624	14	**0**	569	8,212
2005	1,365	**689**	2,256	182	4,492	2,570	1,011	1,309	4,890	98	**321**	1,256	11,057
2006	287	**128**	483	380	1,278	1,468	791	151	2,410	0	**30**	**325**	4,043
2007	650	**136**	**1,212**	516	2,514	2,342	495	182	3,019	0	0	**477**	6,010
2008	969	**1,168**	**1,338**	221	3,696	1,838	1,394	1,125	4,357	15	**0**	**725**	8,793
2009	677	**906**	2,657	768	5,008	3,571	**923**	1,107	5,601	134	**288**	1,277	12,308
2010	1,908	**1,434**	**1,489**	209	5,040	6,386	671	305	7,362	21	272	**845**	13,540
2011	**42**	**62**	**360**	452	916	1,758	**436**	173	2,367	24	**373**	**129**	3,809
2012	1,078	**0**	**167**	336	1,581	974	**363**	990	2,327	32	0	**59**	3,999
2013	462	**43**	**1,483**	223	2,211	4,372	**608**	277	5,257	0	**463**	**104**	8,035
2014	843	**109**	**336**	293	1,581	1,559	**646**	**624**	2,829	0	**37**	**44**	4,491
2015	666	**1,168**	**775**	238	2,847	2,809	**1,203**	309	4,321	49	**0**	**227**	7,444
2016	1,823	**123**	**135**	770	2,851	1,296	**205**	599	2,100	21	**43**	**150**	5,165
2017	**949**	**66**	**3,280**	294	4,589	969	**272**	**72**	1,313	26	**0**	**29**	5,957
2018	353	**0**	**99**	152	604	2,814	**570**	1,031	4,415	129	**0**	**235**	5,383
2019	889	**404**	**138**	204	1,635	2,791	**2,626**	**0**	5,417	0	**0**	**24**	7,076
2020	683	**113**	**569**	362	1,727	2,305	**364**	47	2,716	0	**0**	**177**	4,620
2021	**119**	**18**	**36**	0	173	403	**1,274**	**287**	1,964	0	**0**	**897**	3,034
2022	**18**	**267**	**53**	62	400	393	**285**	**113**	791	0	**0**	**373**	1,564
2023	**71**	**147**	**431**	152	801	1,366	**270**	**25**	1,661	451	**0**	**74**	2,987
Average 2018–2022	412	160	179	156	908	1,741	1,024	296	3,061	26	0	341	4,335
Average 2013–2022	681	231	690	260	1,862	1,971	805	336	3,112	23	54	226	5,277

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

Table 14.–Harvest of burbot by sport anglers in the Upper Copper River and Upper Susitna River Management Area waters by drainage, 2004–2023.

	Gulkana River drainage				Upper Susitna River drainage							
Year	Paxson Lake	Crosswind Lake	Other lakes and streams	Drainage-wide total	Lake Louise	Susitna and Tyone Lakes	Other lakes and streams	Drainage-wide total	Tazlina River drainage	Klutina River drainage	Other waters	Area total
2004	20	336	0	356	317	91	10	418	**0**	0	353	1,127
2005	112	859	94	1,065	25	74	10	109	**25**	0	175	1,374
2006	0	229	0	229	210	46	64	320	**13**	13	**0**	575
2007	0	**55**	30	85	185	30	0	215	0	0	**277**	577
2008	40	**302**	0	342	241	452	17	710	**111**	0	**71**	1,234
2009	0	452	0	452	489	**237**	0	726	**69**	0	1,603	2,850
2010	166	**129**	533	828	1,231	147	18	1,396	422	18	**333**	2,997
2011	**61**	**60**	36	157	144	**36**	48	228	**146**	0	**25**	556
2012	33	**0**	0	33	134	**67**	104	305	0	63	**594**	995
2013	35	**421**	18	474	266	**407**	0	673	**83**	0	**346**	1,576
2014	0	**0**	0	0	221	**237**	**0**	458	**0**	0	**0**	458
2015	16	**0**	0	16	71	**0**	48	119	**39**	0	**64**	238
2016	0	**76**	0	76	84	**90**	0	174	**129**	0	**176**	555
2017	**0**	**117**	11	128	55	**55**	**0**	110	**0**	0	**373**	611
2018	0	**68**	0	68	213	**21**	0	234	**76**	0	**96**	474
2019	0	**0**	0	0	305	**104**	**0**	409	**0**	0	**63**	472
2020	0	**101**	0	101	302	**132**	0	434	**0**	0	**47**	582
2021	**0**	**0**	25	25	139	**142**	**0**	281	**0**	0	**270**	576
2022	**0**	**23**	0	23	53	**45**	**0**	98	**0**	0	**76**	197
2023	**0**	**127**	0	127	117	**48**	**0**	165	**0**	29	**9**	330
Average 2018–2022	0	38	5	43	202	89	0	291	15	0	110	460
Average 2013–2022	5	81	5	91	171	123	5	299	33	0	151	574

Note: Harvest data are from the Alaska Sport Fishing Survey (http://www.adfg.alaska.gov/sf/sfpublic/sportfishingsurvey/). Although data are presented for all waters, data in **bold** result from fewer than 12 respondents and are subject to high variance. Bold data show relative distribution of annual effort and, as presented, only indicate that sport fishing occurred in these waters, or, in cases where harvest or catch is reported, that some level of harvest occurred.

Table 15.–Number of permits issued and expanded salmon harvests for the Chitina Subdistrict state personal use salmon fishery in the Copper River, 2004–2023.

	Permits		Estimated salmon harvest			
Year	Issued	Fished	Chinook	Sockeye	Coho	Total[a]
2004	8,156	4,955	2,495	107,312	2,860	113,176
2005	8,230	5,330	2,043	120,013	1,869	124,403
2006	8,497	5,291	2,663	123,261	2,715	129,103
2007	8,377	5,549	2,694	125,126	1,742	130,222
2008	8,041	4,803	1,999	81,359	2,711	86,476
2009	7,958	4,830	214	90,035	1,712	92,228
2010	9,970	6,075	700	138,487	2,013	141,565
2011	9,217	5,710	1,067	128,052	1,702	131,265
2012	10,016	5,781	567	127,143	1,385	129,362
2013	10,592	6,768	744	180,663	797	182,904
2014	11,717	7,116	719	157,215	1,129	159,392
2015	12,635	7,829	1,570	223,080	841	226,832
2016	11,394	6,219	711	148,982	1,182	151,480
2017	9,490	6,161	1,961	132,694	715	136,043
2018	4,982	3,044	1,273	77,051	1,436	80,135
2019	8,071	5,467	2,611	171,203	1,064	175,487
2020	6,810	4,466	751	78,022	815	79,818
2021	7,222	5,565	832	143,301	439	145,006
2022	7,100	5,527	2,214	154,996	564	158,238
2023	7,559	6,008	3,515	168,501	776	173,134
Average 2018–2022	6,837	4,814	1,536	124,915	864	127,737
Average 2013–2022	9,001	5,816	1,339	146,721	898	149,534

[a] Total includes steelhead trout and unidentified salmon.

Table 16.–Number of permits issued and expanded salmon harvests for the Glennallen Subdistrict state subsistence salmon fishery in the Copper River, 2004–2023.

	Permits issued			% permits	Harvest			
Year	Dip net	Fish wheel	Total	fished	Chinook	Sockeye	Coho	Total[a]
2004	330	626	956	77%	3,346	55,510	577	59,497
2005	363	598	961	76%	2,229	64,213	154	66,615
2006	338	646	984	77%	2,769	57,710	212	60,774
2007	467	707	1,174	75%	3,276	65,714	238	69,284
2008	536	650	1,186	72%	2,381	43,157	493	46,106
2009	469	621	1,090	72%	2,493	46,849	228	49,643
2010	620	701	1,321	72%	2,099	70,719	293	73,260
2011	617	689	1,306	74%	2,319	59,622	372	62,477
2012	867	660	1,527	69%	2,095	76,305	335	78,851
2013	808	531	1,339	73%	2,148	73,728	143	76,044
2014	1,148	508	1,656	66%	1,365	75,501	233	77,131
2015	1,128	503	1,631	70%	2,212	81,800	77	84,105
2016	1,300	469	1,769	64%	2,075	62,474	45	64,617
2017	1,264	368	1,632	64%	2,935	39,859	57	42,862
2018	1,312	347	1,659	61%	4,531	39,359	151	44,073
2019	1,354	359	1,713	68%	3,429	60,257	204	63,920
2020	1,290	375	1,665	60%	2,222	34,577	67	36,903
2021	1,205	313	1,518	72%	1,685	42,638	166	44,509
2022	931	297	1,228	70%	2,968	46,343	220	50,306
2023	1,001	314	1,315	75%	3,246	48,106	193	52,187
Average 2018–2022	1,218	338	1,557	66%	2,967	44,635	162	47,942
Average 2013–2022	1,174	407	1,581	67%	2,557	55,654	136	58,447

[a] Total includes steelhead trout and unidentified salmon.

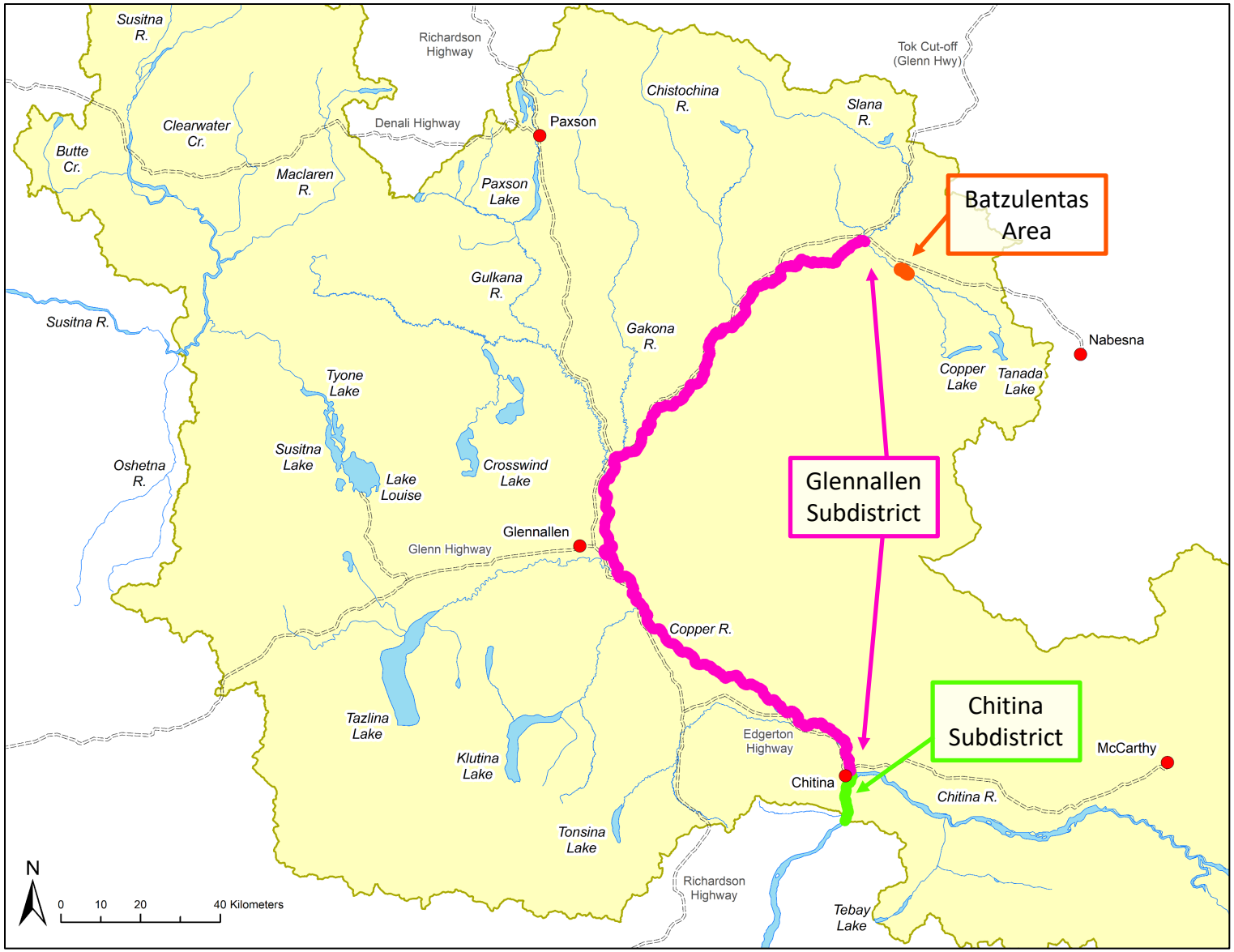

Figure 1.–The Upper Copper River and Upper Susitna River Management Area (UCUSMA).

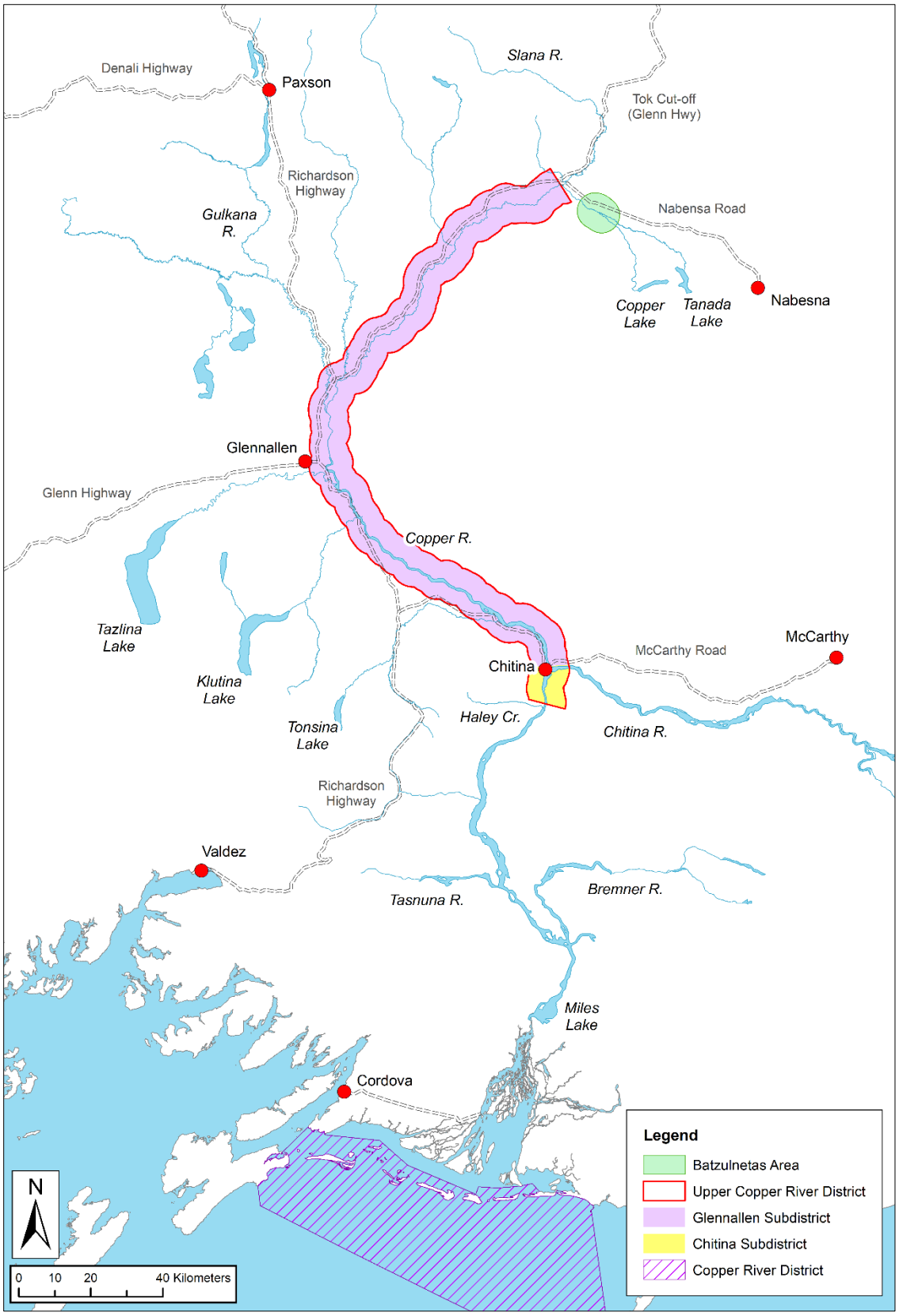

Figure 2.–Upper Copper River fishery subdistricts and areas.

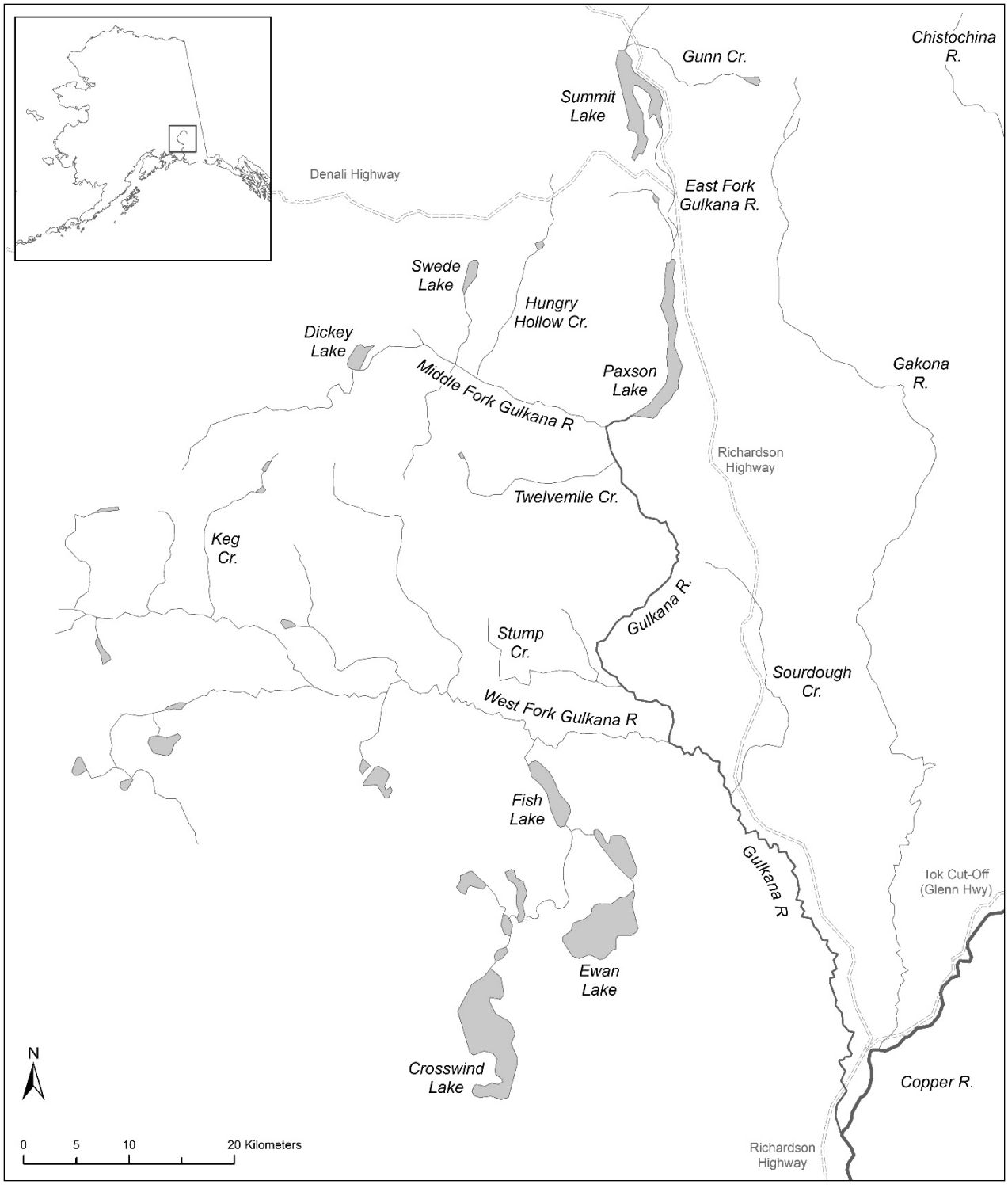

Figure 3.–Gulkana River drainage.

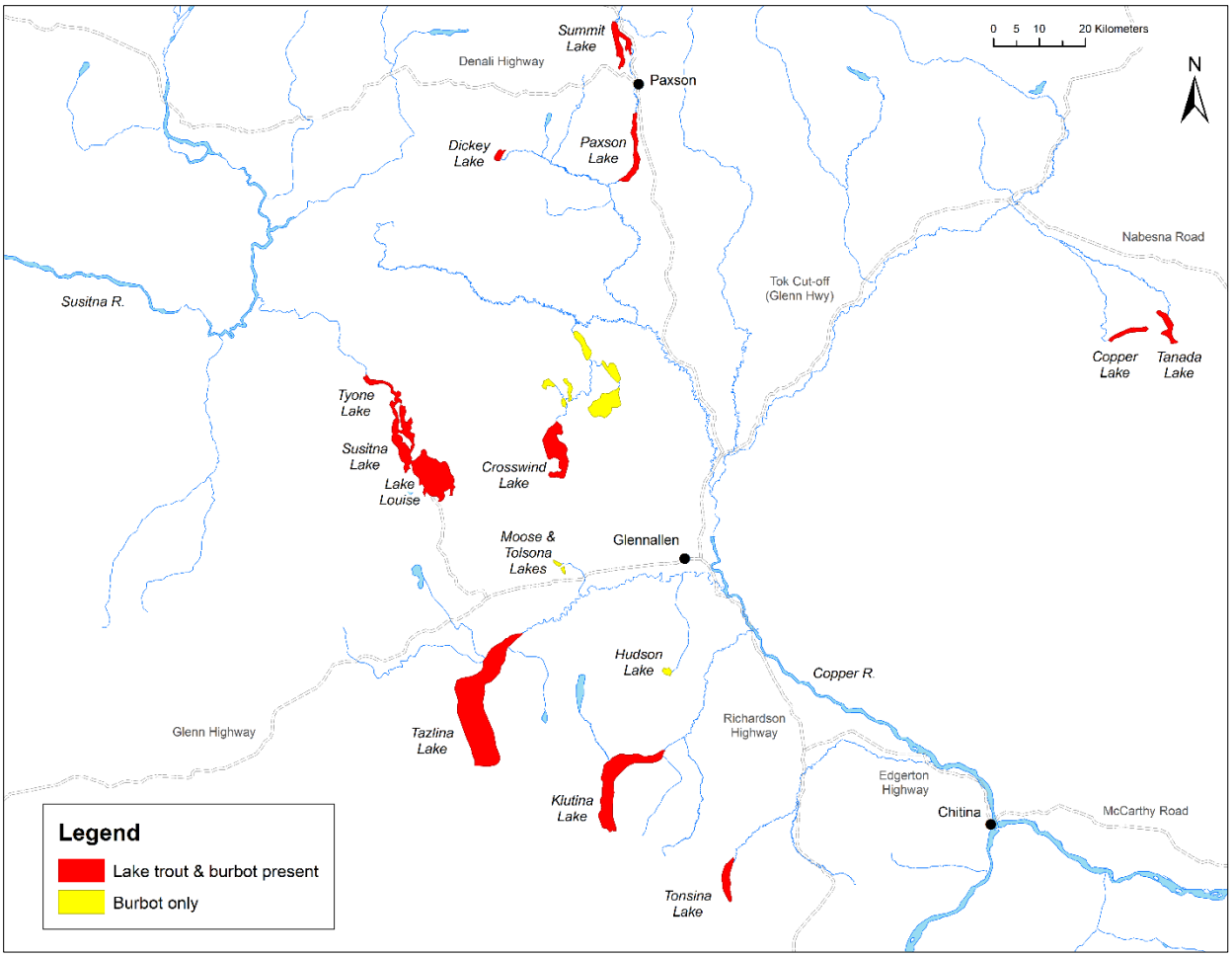

Figure 4.–Upper Copper River and Upper Susitna River Management Area lake trout and burbot fisheries.

APPENDIX A: EMERGENCY ORDERS

Appendix A1.–Emergency orders (EO) issued for Upper Copper River and Upper Susitna River Management Area sport, personal use, and subsistence fisheries during 2023 and 2024.

Year	EO Number	Explanation
2023	3-RS-I-11-23	Establishes the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River through August 31, 2023, and opens the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for a 96-hour period on June 15, 2023. The Chitina Subdistrict of the Upper Copper River District will be open from 12:01 a.m. Thursday, June 15, through 11:59 p.m. Sunday, June 18.
2023	3-RS-I-12-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of June 19, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Tuesday, June 20, through 11:59 p.m. Sunday, June 25.
2023	3-RS-I-13-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of June 26, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Tuesday, June 27, through 11:59 p.m. Sunday, July 2.
2023	3-RS-I-14-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 3, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 3, through 11:59 p.m. Sunday, July 9.
2023	3-RS-I-15-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 10, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 10, through 11:59 p.m. Sunday, July 16.
2023	3-RS-I-16-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 17, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 17, through 11:59 p.m. Sunday, July 23.
2023	3-RS-I-18-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 24, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 24, through 11:59 p.m. Sunday, July 30.
2023	3-KS-I-19-23	Increases the possession limit in the Upper Copper River drainage upstream of the south bank of Haley Creek for king salmon, 20 inches or longer, from 1 to 2 fish effective 12:01 a.m. Thursday, July 20, 2023.
2023	3-RS-I-20-23	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the period of July 31–August 31, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 31, through 11:59 p.m. Thursday, August 31.
2024	3-RS-I-5-24	Establishes the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River through August 31, 2024, and opens the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for a 72-hour period on June 13, 2024. The Chitina Subdistrict of the Upper Copper River District will be open from 6:00 p.m. Thursday, June 13, through 6:00 p.m. Sunday, June 16.
2024	3-RS-I-6-24	Supersedes 3-RS-I-5-24 and amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of June 17, 2024. The Chitina Subdistrict will be open from 6:00 p.m. Thursday, June 13, through 11:59 p.m. Sunday, June 23.

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Year	EO Number	Explanation
2024	3-RS-I-7-24	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of June 24, 2024. The Chitina Subdistrict will be open from 12:01 a.m. Monday, June 24, through 11:59 p.m. Sunday, June 30. In addition, this emergency order closes the Chitina Subdistrict personal use dip net salmon fishery to the retention of Chinook salmon effective 12:01 a.m. Monday, June 24. Chinook salmon incidentally taken may not be retained and must be released immediately and returned to the water unharmed.
2024	3-KS-I-8-24	Prohibits the retention of Chinook salmon in the Upper Copper River drainage upstream of the south bank of Haley Creek effective 12:01 a.m. Monday, June 24, 2024. In addition, the use of bait and treble hooks are also prohibited. Chinook salmon may not be retained or possessed, may not be removed from the water, and must be released immediately.
2024	3-KS-I-9-24	Closes the Upper Copper River drainage upstream of the south bank of Haley Creek to sport fishing for Chinook salmon effective 12:01 a.m. Saturday, June 29, 2024. In addition, the use of bait in specified waters is also prohibited.
2024	3-KS-I-10-24	Closes the Glennallen Subdistrict subsistence salmon fishery to the retention of Chinook salmon from 12:01 a.m. Saturday, June 29, through 11:59 p.m. Wednesday, July 31, 2024. In addition, permit holders fishing fish wheels must closely attend those wheels while in operation.
2024	3-RS-I-11-24	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 1, 2024. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 1, through 11:59 p.m. Sunday, July 7.
2024	3-RS-I-13-24	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 8, 2024. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 8, through 11:59 p.m. Sunday, July 14.
2024	3-RS-I-14-24	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 15, 2024. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 15, through 11:59 p.m. Sunday, July 21.
2024	3-RS-I-15-24	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 22, 2024. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 22, through 11:59 p.m. Sunday, July 28.
2024	3-RS-I-16-24	Amends the schedule for the personal use dip net salmon fishery in the Chitina Subdistrict of the Upper Copper River for the week of July 10, 2023–August 31, 2023. The Chitina Subdistrict will be open from 12:01 a.m. Monday, July 29, through 11:59 p.m. Saturday, August 31.

APPENDIX B: FEDERAL SUBSISTENCE DATA

Appendix B1.–Federal subsistence permits and harvest from the Glennallen Subdistrict, 2004–2023.

Year	Permits issued	Permits fished	Estimated harvested				
			Chinook	Sockeye	Coho	Steelhead	Other
2004	262	148	636	17,704	152	12	0
2005	267	197	389	21,927	187	0	41
2006	254	170	460	18,346	28	15	71
2007	281	224	663	17,624	57	9	122
2008	270	139	837	14,475	229	26	52
2009	274	170	543	13,668	34	19	110
2010	269	175	326	14,137	81	42	62
2011	277	173	743	15,753	223	5	317
2012	275	169	415	16,487	173	42	106
2013	273	160	374	17,060	21	7	88
2014	315	206	420	23,034	29	10	59
2015	325	210	402	26,896	78	7	201
2016	320	171	396	19,365	11	7	368
2017	332	212	431	16,251	1	7	533
2018	335	199	3,137	16,734	0	4	46
2019	343	209	886	16,130	0	1	53
2020	376	185	670	11,234	1	6	54
2021	355	173	505	14,847	0	1	0
2022	297	147	852	14,174	0	16	55
2023	290	133	673	14,696	0	0	26
Average 2018–2022	341	183	1,210	14,624	0	6	42
Average 2013–2022	327	187	807	17,572	14	7	146

Note: Reported harvest only 2002–2004; expanded harvest (estimates include harvest from non-returned permits) after 2004.

Appendix B2.–Federal subsistence permits and harvest from the Chitina Subdistrict, 2004–2023.

Year	Permits issued	Permits fished	Chinook	Sockeye	Coho	Steelhead	Other
2004	109	ND	7	1,215	18	0	0
2005	76	27	51	2,450	0	0	0
2006	75	29	18	1,549	20	0	0
2007	98	74	28	1,028	41	0	0
2008	82	38	23	959	100	0	0
2009	68	39	9	882	11	0	0
2010	92	38	18	2,324	30	0	0
2011	85	42	13	1,933	10	0	0
2012	90	33	5	915	8	8	0
2013	99	39	18	2,252	8	2	10
2014	113	49	14	1,664	69	10	0
2015	111	52	15	2,345	14	7	0
2016	128	43	15	1,321	11	0	4
2017	132	47	12	1,600	8	0	0
2018	131	58	101	3,491	34	0	0
2019	181	90	78	4,210	20	0	0
2020	215	95	96	3,406	23	0	0
2021	194	102	113	5,415	3	0	0
2022	177	77	99	2,948	43	0	2
2023	196	105	154	6,031	6	0	0
Average 2018–2022	180	84	98	3,894	25	0	0
Average 2013–2022	148	65	56	2,865	23	2	2

Note: Reported harvest only 2002–2004; expanded harvest (including estimated harvest from non-returned permits) after 2004. Beginning in 2019 the federal fishery was open continuously; prior to 2019, the fishery was opened and closed on a weekly basis consistent with the state personal use fishery.

APPENDIX C: CHINOOK SALMON MEMO

Memorandum

To: Jeff Estensen, Regional Supervisor

Thru: Klaus Wuttig, Regional Management Supervisor

From: Tracy Hansen, Assistant Area Management Biologist, and
Mark Somerville, Area Management Biologist

Date: 12/13/2023

Subject: Upper Copper River Chinook salmon aerial survey summary

Tracy Hansen conducted aerial Chinook salmon surveys for the East Fork Chistochina River and Manker and St. Anne Creeks in the Klutina River drainage on July 20, and for the Gulkana River on July 28. All surveys were conducted in a Piper Super Cub (PA-18) piloted by Harley McMahan.

Survey conditions were rated poor (4.0 on a scale of 5) during the East Fork Chistochina River survey. This rating was due to less than 50% of the survey being conducted with good light. Overcast skies with large amounts of glare made it difficult to see into the water and made deep holes unobservable even though water conditions were perfect (i.e., good clarity, no ripples or waves). While Chinook salmon were observed throughout the river, most were in the lower and middle reaches. An index count of 657 Chinook salmon was observed (Table 1). This index count was near the escapement objective of 650 Chinook salmon (Table 2) and was 6% below the long-term (1977–2022) average for this river. However, the 2023 aerial count was 36% below the recent 10-year (2013–2022) average count and 20% below the recent 10-year median count.

Survey conditions were rated excellent (1.0 on a scale of 5) during the Manker and St. Anne surveys. Chinook salmon were distributed in Manker Creek but two groups were located at the mouth of the creek. No Chinook salmon were observed in St. Anne Creek but 10 were observed in the Klutina Lake directly below the mouth. Numerous sockeye salmon were observed near the mouth of St. Anne Creek. A combined index count of 156 Chinook salmon was observed for Manker and St. Anne creeks (Table 1). This index count was 50% below the combined escapement objective of 385 Chinook salmon for the Klutina River drainage (Table 2). The 2023 Manker Creek count was 17% below the long-term (1977–2022) average count for that system, 37% below the recent 10-year (2013–2022) average count, and 60% above the 10-year median count. The 2023 St. Anne Creek count was 92% below the long-term average count, 87% below the recent 10-year average, and 89% below the median 10-year count for that creek.

Survey conditions were rated good to very good (2.0 – 3.0 on a scale of 5) for the mainstem Gulkana River survey and poor (4.0 on a scale of 5) for the West Fork Gulkana River. Approximately 92% of Chinook salmon were counted in the mainstem Gulkana River, 2% were

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counted in the West Fork Gulkana River, and 6% were counted in the Middle Fork Gulkana River. Of the fish counted in the mainstem, over 99% were counted above Sourdough and 74% were counted above the counting tower. An index count of 1,105 Chinook salmon was observed (Table 1), which was 5% above the escapement objective of 1,050 Chinook salmon (Table 2). The 2023 Gulkana River count was 5% above the long-term (1977–2022) average, 9% below the recent 10-year (2013–2022) average, and 12% above the recent 10-year median counts for this river.

2023 Inseason Management

The 2023 Chinook salmon run to the Copper River was forecast at 53,000 fish with a potential range of 28,000 – 74,000 fish. Run entry into the lower river appeared 7–9 days late based on NVE catch rates and apportionment data from the Miles Lake ARIS sonar during late May and early June. Weak Gulkana River tower counts in June and reports of low catch in the various upriver fisheries supported this observation. However, as June progressed, indices of Chinook salmon abundance continued to increase at the NVE fishwheels and Miles Lake sonar. By the third week in June, Chinook salmon abundance in the lower river was tracking below forecast but strong enough to allow unrestricted harvest opportunity in the upriver fisheries.

By mid-July, all projections indicated an inriver abundance that exceeded 50,000 Chinook salmon and projected that the upper bound of the escapement goal would be exceeded. The later running stocks of Chinook salmon appeared strong, with NVE capture rates and ARIS apportionment counts being larger than anticipated by that point in the season. Effective July 20, the sport fish possession limit was increased from 1 to 2 fish for the remainder of the season (no changes to the daily bag or annual limits were implemented). This was the first time the Chinook salmon sport fishery has been liberalized to offer additional sport harvest opportunity. Currently, the department does not hold EO authority to liberalize the subsistence or personal use fisheries, both of which have higher harvest potential than the area's sport fisheries.

Chinook salmon counts at the Gulkana River counting tower were consistent with overall Copper River run strength and run timing. A total of 4,986 Chinook salmon were estimated to have passed the tower from June 16 – August 18, which was near the recent 5-year (2018–2022) average escapement (4,927 fish) at the project (Figure 1). The midpoint of the run past the tower was July 15, which was 10 days later than the average midpoint.

The Copper River District commercial harvest of 10,431 Chinook salmon was 17% below the 10-year average harvest of 12,600 fish. The commercial salmon fishing season in the Copper River District began on Monday, May 15 and the expanded inside Chinook salmon closed area in the Copper River District was in effect through June 19 when the run was estimated to be 95% complete.

Copper River subsistence and personal use permit reports indicate above average harvest estimates of Chinook salmon in the fisheries this past summer. Preliminary estimates point to approximately

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4,500 Chinook salmon taken in the Glennallen Subdistrict and about 3,800 Chinook salmon taken in the Chitina Subdistrict. The Chitina Subdistrict harvest is the largest since the annual limit was reduced to one fish in 2000. The Glennallen Subdistrict harvest was the 3rd largest , since 2000.

The preliminary Native Village of Eyak (NVE) inriver mark–recapture estimate of Chinook salmon was 49,308 fish. While both abundance and harvest data are not yet been finalized, it is likely that the upper bound escapement goal will be exceeded, by upwards of 10,000 fish.

Table C1-1.–2023 Upper Copper River Chinook salmon aerial survey indices.

Water body	Date	Chinook salmon counted		
		Alive	Dead	Total
E Fork Chistochina River	20-Jul	657	0	657
Gulkana River				
Mouth to Bridge	28-Jul	0	0	0
Bridge to Sourdough	28-Jul	3	0	3
Sourdough to West Fork	28-Jul	17	0	17
West Fork to Tower	28-Jul	242	0	242
Tower to Middle Fork	28-Jul	750	4	754
Middle Fork to Paxson Lake	28-Jul	0	0	0
Middle Fork to Dickey Lake	28-Jul	62	0	62
West Fork (mouth to Moose Creek)	28-Jul	24	3	27
Gulkana River total	28-Jul	1,098	7	1,105
Klutina River				
Manker Creek	28-Jul	146	0	146
St. Anne Creek	28-Jul	10	0	10
Klutina River total	28-Jul	176	0	176

Table C1-2.–Upper Copper River Chinook salmon aerial survey objectives and average counts 1977–2022.

Drainage	Waterbody	Objective[a]	Average (1977–2022)[b]	Average (10-year)[c]	Median (10-year)[c]
Chistochina	East Fork Chistochina	650	696	1,024	817
Gulkana	Gulkana River	1,050	1,048	1,211	983
Klutina	Manker Creek	385	176	227	91
	St. Anne Creek		128	76	89

[a] Escapement index objectives are the average indices from flights conducted between July 17 to August 10, 1977–1995, and developed at time of Copper River King Salmon Management Plan. Index objectives for Manker Creek and St. Anne Creek, Greyling Creek and Little Tonsina River, and Mendeltna Creek and Kaina Creek are combined by drainage.

[b] Includes index counts conducted between July 17 and July 31, with the number of years included specific to each stream.

[c] Includes the most recent 10 years of index counts conducted between July 17 and July 31.

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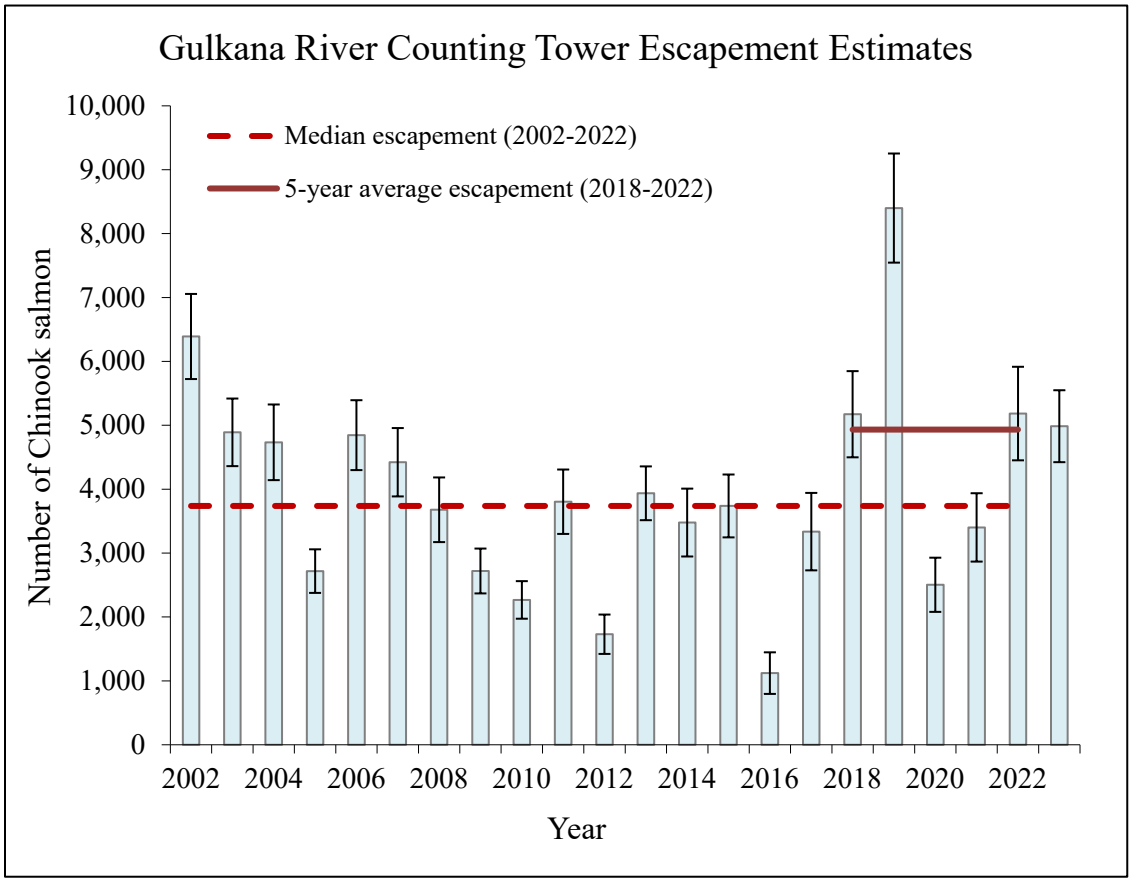

Figure C1-1.–Estimated escapement of Chinook salmon past the Gulkana River counting tower, with 95% confidence intervals, 2002–2023.