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Yukon River Salmon Stock Status and Fishery Overview: A Report to the Alaska Board of Fisheries, November 2025

by

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

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

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ABSTRACT

This report provides the Alaska Board of Fisheries (BOF) with information on Yukon Area salmon stock status, including escapement and harvest data for the November 2025 regulatory meeting. This report includes data through 2024; final run size and harvest numbers from 2025 were not available at the time of publication. The BOF classified the Yukon River Chinook salmon *Oncorhynchus tshawytscha* stock as a stock of yield concern at its September 2000 work session. Currently, this is the only stock of concern listed in the Yukon Area. An action plan was developed by the Alaska Department of Fish and Game and acted upon by the BOF in January 2001. Chinook salmon escapement goals throughout the Yukon River drainage were not met from 2020 to 2024. Conservative management actions taken during season have included full subsistence fishery closures to protect low runs as they migrate upriver. Additionally, Yukon River summer chum, fall chum *O. keta*, and coho salmon *O. kisutch* experienced drastic run size declines since 2020. Most escapement goals for chum and coho salmon have not been achieved since 2020, despite significant subsistence, personal use, and commercial fishery restrictions and closures. Historically, the Yukon River chum and coho salmon stocks have met or exceeded escapement goals and provided for subsistence, personal use, and commercial fisheries, with a few exceptions of decreased production in a couple of tributaries.

Keywords: Chinook salmon, *Oncorhynchus tshawytscha*, summer and fall chum salmon, *Oncorhynchus keta*, coho salmon, *Oncorhynchus kisutch*, stock of concern, commercial, fishing, sustainable salmon fisheries policy, Alaska Board of Fisheries, Yukon River

INTRODUCTION

The *Policy for the Management of Sustainable Salmon Fisheries* (SSFP; 5 AAC 39.222) directs the Alaska Department of Fish and Game (ADF&G) to provide the Alaska Board of Fisheries (BOF) with reports on the status of salmon stocks and identify any salmon stocks that present a concern related to yield, management, or conservation during regular BOF meetings. This report provides ADF&G's assessment of Yukon River Chinook (*Oncorhynchus tshawytscha*), summer chum (*O. keta*), fall chum (*O. keta*), and coho (*O. kisutch*) salmon. In addition to reviewing salmon stocks, this report provides an overview of nonsalmon harvest and management information to help support discussions of proposals at the 2025 BOF meeting. Nonsalmon species are harvested year-round in the Yukon Area and remain an important source of subsistence food, especially during years of low salmon runs and harvest closures. Fishing opportunities for nonsalmon species have been affected by restrictions during both the summer and fall salmon seasons.

The Yukon River has seen an unprecedented decline in salmon returns for all species since 2020. Aside from a limited number of late-season commercial openings for summer chum salmon in 2020, there have been no commercial salmon fishery openings in the Yukon Area for the last 5 years (2020–2024). Management actions during the same time period included complete closures to subsistence salmon fishing as a means to protect poor Chinook, chum, and coho salmon returns. Escapement goals for Yukon River salmon were not achieved during 2020–2024, except for the drainagewide goal for summer chum salmon in 2020, 2023, and 2024. Current escapement goals are summarized in Table 1. Based on definitions and criteria established in the SSFP, ADF&G has determined that changes to Yukon River salmon stock of concern designations are warranted.

The BOF has made a positive customary and traditional (C&T) use finding for Chinook, summer chum, fall chum, coho, and pink salmon in the Yukon Area. The BOF has found that 45,500–66,704 Chinook, 83,500–142,192 summer chum, 89,500–167,900 fall chum, 20,500–51,980 coho, and 2,100–9,700 pink salmon are the amounts reasonably necessary (ANS) for subsistence uses in the Yukon Area.

Summer chum, fall chum, and coho salmon in the Yukon River drainage had been productive prior to 2020, allowing for subsistence, personal use, and commercial salmon fishing with few restrictions (Tables 2, 3, and 4). However, starting in 2020, chum salmon stocks across western Alaska and the North Pacific Ocean experienced unexpected declines. In 2020, Arctic–Yukon–Kuskokwim (AYK) stocks experienced age-4 chum salmon failures, the dominant age class of Yukon River chum salmon. This then contributed to a record-low proportion of age-5 fish in 2021. Fall chum salmon returned with a low run size in 2020 in the Yukon River drainage, leading to severe subsistence salmon closures and no commercial or personal use fishing. Fall chum, summer chum, and coho salmon returned with record-low runs in 2021. Salmon fishing was closed in the Yukon Area in 2021 and 2022. In 2023 and 2024, subsistence fishing for summer chum salmon was opened during the later part of the run with selective gear types, while requiring that Chinook salmon be released alive. Fishing during the fall seasons in 2023 and 2024 was mostly closed, aside from some fishery openings on the Teedrinjik River in 2023, and retention of coho salmon was allowed from selective gear types in 2023 and 2024. Notably, the parent years contributing to the poor 2020–2024 chum and coho salmon returns achieved or exceeded escapement goals except for some tributary goals for summer chum salmon in 2016 and 2018, fall chum salmon in 2015 and 2018, and coho salmon in 2018 (Tables 5 and 6).

STOCK OF CONCERN RECOMMENDATION

CHINOOK SALMON

In accordance with the SSFP guidelines, the BOF designated Yukon River Chinook salmon as a stock of yield concern in 2000 due to low harvests from 1998 to 2000 (Table 7), and projected low harvest in 2001 relative to the 1989–1998 average (Vania 2000). This designation has been reaffirmed in each subsequent cycle. An action plan was developed by ADF&G and adopted by the BOF in January 2001.

In response to not meeting Chinook salmon escapement goals during the period from 2008 to 2013, the BOF implemented significant changes to the management plan and regulations to increase flexibility and reduce harvest during years of low abundance. From 2014 to 2018, escapement goals were generally met in monitored systems (Table 8), and in 2019, 4 of 7 goals were achieved, including 1 that was exceeded. In 2022, gear regulations were updated to allow for greater flexibility in releasing salmon species of conservation concern while maintaining harvest opportunities for more abundant species.

From 2020 to 2024, Yukon River Chinook salmon runs declined to unprecedented lows. Average subsistence harvest dropped to 5,777 fish—about 80% below the 2010–2019 average of 27,874 (Table 7). From 2021 to 2024, directed fisheries for Chinook salmon remained closed. This resulted in annual harvests of approximately 2,000 fish, primarily from test fisheries, incidental catch, and limited early or late season harvests. Despite these closures, no escapement goals were met during this period (Table 8). As a result, ADF&G recommends reclassifying Yukon River Chinook salmon from a stock of yield concern to a stock of management concern.

Research suggests that continued poor returns will probably continue for the foreseeable future. Juvenile abundance of Canadian-origin Chinook salmon in the northern Bering Sea has declined since 2017, with 2024 marking the lowest level since surveys began in 2003 (Figure 1). Productivity has remained fewer than 1 recruit per spawner from 2015 through the most recent brood year, 2018 (Figure 2).

FALL CHUM SALMON

In response to guidelines established in the SSFP, the BOF designated 3 stocks of concern for Yukon River fall chum salmon. Those were a stock of yield concern for fall chum salmon in the Yukon River drainage and a stock of management concern for fall chum salmon on the Toklat and Fishing Branch Rivers. The determination for fall chum salmon as a stock of yield concern in the Yukon River drainage was based on a substantial decrease in yields and harvestable surpluses during the period of 1998–2000 (Figure 3), and the expectation of a very low run in 2001. The determination for Toklat and Fishing Branch Rivers as stocks of management concern was based on escapements not meeting the optimal escapement goal (OEG) of 33,000 for the Toklat River from 1996 to 2000 and not meeting the escapement objective of 50,000–120,000 salmon for the Fishing Branch River from 1997 to 2000. An action plan was subsequently developed by ADF&G (ADF&G 2000) and acted upon by the BOF in January 2001. During the 2004 BOF meeting, the 2 stocks with management concern designations, the Toklat and Fishing Branch Rivers, were removed. This was due to an updated biological escapement goal (BEG) for the Toklat and management of the Fishing Branch River being covered by an annex to the Pacific Salmon Treaty, the U.S./Canada *Yukon River Salmon Agreement*, which is governed under the authority of the Yukon River Panel. Additionally, these stocks continued to be addressed by the overall fall chum salmon yield concern. Improved runs since the 2003 season ultimately led the BOF to remove the stock of concern designation in 2007.

Beginning in 2020, the run size of Yukon River fall chum salmon has been poor, including the 4 lowest run sizes on record. Full fishery closures were implemented each year. Test fishery distributions and incidental harvest in U.S. nonsalmon fisheries from 2020 to 2024 averaged 3,726 fall chum salmon, which is about 1% of the recent 10-year average harvest for this stock. Despite these low harvests, annual escapements have been below the minimum drainagewide escapement goal of 300,000 in each year from 2020 to 2024. Based on the inability to achieve escapement goals, ADF&G recommends designating Yukon River fall chum salmon as a stock of management concern.

ACTION PLAN REVIEW

ADF&G manages Yukon River Chinook and summer chum salmon under the following 5 key management plans, which have been refined since major stock declines in the early 2000s (Appendix A1):

5 AAC 05.360 – Yukon River King Salmon Management Plan

5 AAC 05.362 – Yukon River Summer Chum Salmon Management Plan

5 AAC 74.060 – Chena and Salcha River King Salmon Sport Harvest Management Plan

5 AAC 05.367 – Tanana River Salmon Management Plan

5 AAC 05.368 – Anvik River Chum Salmon Fishery Management Plan

The original goals stated in the action plan include reducing fishing mortality to meet spawning escapement goals, providing opportunities for subsistence users to harvest levels within the ANS range, and reestablishing the historical range of harvest levels for other user groups.

The challenges associated with achieving escapement goals and assessing harvestable surplus have changed over time. Historically, run sizes were sufficient to meet escapement needs and allow for sustainable harvest. The primary challenge for reliably harvesting available surplus has been run assessment during the season. Despite having the best possible assessment of abundance, preseason and inseason projections of run size are uncertain. Accurate run size estimates are often limited until the midpoint of the run. By the time the midpoint of the run has been determined, the majority of the salmon have migrated past the lower river districts (Figure 4). Therefore, if the available surplus has been underutilized, it is hard to make up for that later in the run. However, from 2020 to 2024, poor run sizes have become the dominant management issue. With few exceptions, most runs were too small to meet escapement goals and therefore could not provide an opportunity for directed harvest.

Between 2019 and 2023, differences between passage estimates obtained from the Pilot Station and Eagle sonar projects suggested significant natural en route mortality of Canadian-origin Chinook salmon. This mortality was probably due to diseases, such as *Ichthyophonus*, or other natural causes. In 2024, the difference between estimates was much smaller, indicating lower en route mortality. ADF&G is actively developing new tools to estimate disease-related mortality in season, which may vary significantly from year to year, but will be critical for future management decisions.

Additional challenges exist for the management of Yukon River summer chum, whose migration overlaps considerably with that of Chinook salmon. Even when a harvestable surplus has been identified for summer chum salmon, harvest opportunity has been limited to selective gear types to reduce the incidental harvest of Chinook salmon. These selective gear types are less efficient than gillnets, resulting in a reduced harvest that the stock may otherwise support.

The current management plans offer enough flexibility to meet escapement goals, minimize fishing restrictions, and maximize harvests when run sizes allow. However, when run sizes fall below escapement thresholds, the plans require the closures of directed fisheries to protect salmon runs.

STOCK ASSESSMENT

RESEARCH AND ONGOING PROJECTS

ADF&G, federal agencies, Department of Fisheries and Oceans (DFO) Canada, Native organizations, Yukon Delta Fisheries Development Association (YDFDA), and various organized groups of local researchers operate salmon stock assessment projects throughout the Yukon River drainage, which are used to inform fishery management decisions in the Alaska portion of the Yukon River drainage. Inseason run assessment includes run timing and relative abundance indices from test fisheries based on catch per unit effort (CPUE), which serves as a platform for collecting age, sex, and length (ASL) composition, and tissue sampling for inseason genetic mixed stock analysis (MSA). Assessment projects such as sonar, weir, and tower counts enumerate passing fish (both salmon and nonsalmon), aerial, boat, and ground surveys are also used to monitor escapement in tributaries. Additionally, fisheries are monitored using commercial CPUE and subsistence, personal use, and sport fisheries catch data for inseason and postseason estimates of total run size for select salmon species and determination of their exploitation rates. Since 2020, there has been an additional focus on fish health, including *Ichthyophonus* monitoring, body condition assessments, fecundity measures, and migration success, some of which use radiotagging methods.

Pilot Station Sonar

Since 1995, the mainstem sonar project located near the community of Pilot Station (hereafter called Pilot Station sonar) has provided inseason estimates of salmon passage for Yukon River drainage fisheries management. This project produces the first estimation of fish passage in the Yukon River, located at river km 197 (Pfisterer et al. 2017). Resident freshwater species and all 5 Pacific salmon species are enumerated and then apportioned by species through test fishing with gillnets of various mesh sizes. Data quality and environmental events that complicate fish passage estimates are considered inseason to ensure accurate estimates.

Updated selectivity parameters for all species were developed after the 2015 season and are used for producing passage estimates inseason at the project (Pfisterer et al. 2017; Table 9). The daily passage estimates by species since 1995 were updated with these improved selectivity parameters. Estimates can be obtained from ADF&G, Division of Commercial Fisheries, and the Arctic–Yukon–Kuskokwim database management system (hereafter cited as AYKDBMS[1]).

The estimated passage of salmon at Pilot Station sonar is used inseason, along with historical run timing comparisons, to project the end-of-season run size. Managers then compare the run to the preseason projection and manage fisheries accordingly. The drainagewide total run and escapement estimates of Chinook and summer chum salmon are ultimately produced by postseason run reconstruction models that take into account harvest, mainstem sonar passage estimates, tributary escapement, age, sex, and length, and genetic data (Hamazaki and Conitz 2015; Conners et al. 2023; Table 10 and Figure 5).

Inseason Mixed Stock Analysis

Beginning in 2005, genetic stock identification of Chinook salmon has been used as an additional management tool and is particularly useful in projecting inseason run sizes of Canadian-origin stocks. The Canadian stock has varied from 31–54%, but on average, makes up 42% of the run (Table 11). In most years, 3 pulses of Chinook salmon sampled in the Pilot Station sonar test fishery are analyzed in season for stock composition, and results are reported within 48 hours of receipt at ADF&G's Gene Conservation Laboratory in Anchorage. Pulse-specific genetic information assists with management decisions. For example, managers use the genetic proportions from each pulse applied to the weighted passage to assess U.S.-origin and Canadian-origin Chinook salmon run strength. Having this information early in the run allows managers to make informed decisions about the ability to meet escapement goals, border objectives, and support subsistence needs.

Genetic samples from chum salmon are collected from the Pilot Station sonar test fishery and have been analyzed by the U.S. Fish and Wildlife Service (FWS) on a nearly weekly basis since 2004. Initial estimates of stock composition provide the relative proportions between summer and fall chum salmon stocks that overlap in July. Additionally, genetic assessment is used to determine fall chum salmon stocks of U.S. and Canadian origin, which is also very useful information for more timely fishery management. In 2015, coho salmon genetics were also collected from the Pilot

[1] Arctic–Yukon–Kuskokwim Database Management System (AYKDBMS). 2006– . Alaska Department of Fish and Game, Division of Commercial Fisheries. Juneau, AK. https://www.adfg.alaska.gov/CF_R3/external/sites/aykdbms_website/Default.aspx (accessed October 18, 2025).

Station test fishery and analyzed to look at regional genetic relationships in populations (Flannery and Loges 2016).

EAGLE SONAR

A sonar assessment project was established below the U.S./Canada border near Eagle to estimate the passage of Chinook and fall chum salmon into the Canadian mainstem.[2] ASL information from test fishing at Eagle sonar gives reasonable estimates of the age class composition of the passage into Canada. The sonar site is ideal due to stable river bottom morphology and because Chinook and fall chum salmon runs are clearly separated by time at this location. The community of Eagle is upstream from the sonar site, and the Eagle harvest is subtracted from the sonar estimate to determine border passage by species. The passage estimate is used to assess border objectives agreed to within the *Yukon River Salmon Agreement* (Table 12).

SUBSISTENCE AND PERSONAL USE HARVEST PROGRAM

Most Yukon Area communities have no regulatory requirements to report their subsistence salmon harvest. Harvest information is collected through a voluntary postseason household survey program, using personal interviews, follow-up telephone interviews, postal questionnaires, and harvest calendars (Padilla et al. 2025). For surveyed communities, harvest estimates are created that account for all households in a community, including those not surveyed. In areas along the entire Tanana River drainage (District 6) and where the Yukon River is accessible by the road system (portions of District 5), participants must document their harvest on a subsistence or personal use permit. Subsistence and personal use harvest is critical for determining total run size and is an index of whether adequate fishing opportunity was provided when harvestable surpluses exist.

Although the subsistence salmon harvest survey focuses on salmon harvesting households, it also includes questions about the harvest of nonsalmon species. Results from the survey are the only drainagewide estimate of the harvest of certain nonsalmon species. However, due to the survey's stratified sampling methodology, designed to target salmon fishery users, these data are probably not fully reflective of the use of nonsalmon species in Yukon River communities.

MARINE RESEARCH

Marine research has been integral to ocean habitat usage, migration patterns, basic ecology, and potential drivers and bottlenecks in Yukon River salmon populations. A combination of marine research surveys, high seas tagging data, and genetic stock composition informs our understanding of migration patterns for Yukon River Chinook (Murphy et al. 2009; Myers et al. 2010; Larson et al. 2013) and chum salmon (Myers et al. 2010). Annually, since 2002, the Northern Bering Sea Salmon and Ecosystem Survey (NBS Survey) has been a collaborative effort between the National Oceanic and Atmospheric Administration (NOAA) and ADF&G. This effort has greatly increased our understanding of the marine ecology of Yukon River salmon and has helped identify periods in their life stages that are most important to determine run abundance (Murphy et al. 2025). The

[2] Evidence suggests that Canada's Department of Fisheries and Oceans (DFO) fish wheel mark–recapture program (1982–2004) tended to underestimate the passage of Chinook salmon into Canada. Therefore, adoption of sonar as a more reliable method to estimate this number has dramatically improved estimates of escapement, exploitation rates, and brood year return information. Historical escapement goals were based on DFO fish wheels and are not directly comparable to present sonar-based escapement goals. Conversion factors have been developed to allow comparisons of escapement, exploitation rates, and brood-year return information to historical data, although this should be cautiously considered. In this report, Eagle sonar-based data (2005–2024) are emphasized because they are deemed most accurate.

survey focuses on juvenile salmon during their first summer at sea. The juvenile life stage is a critical time in a salmon's life when salmon must grow quickly to avoid predation but also store enough energy prior to their first winter in the ocean (Beamish and Mahnken 2001). Data are collected on the abundance, distribution, health, and genetics of juvenile salmon. In addition, data from this survey also provides a forecast for adult Chinook salmon runs up to 3 years into the future. The NBS Survey has been funded through 2025, but funds will need to be secured for future surveys to continue monitoring juvenile salmon abundance, distribution, and ecology. Although the focus of the NBS Survey has been on Chinook and chum salmon, there is ongoing work to develop juvenile-based adult chum salmon forecasts. Additionally, there is interest in exploring juvenile abundance estimates for coho salmon and identifying factors that have caused recent run declines.

ADF&G continues to expand its marine survey efforts. ADF&G is currently leading and collaborating with federal agencies, nongovernment organizations (NGOs), academic institutions, and international entities to address marine research needs. New projects have been initiated focusing on Chinook salmon bycatch in the Bering Sea-Aleutian Island (BSAI) pollock fishery and chum salmon catch in South Alaska Peninsula fisheries. In collaboration with the University of Alaska Fairbanks and NOAA, ADF&G is leading the development of a habitat model to predict where and when Chinook salmon occur in the Bering Sea. If successful, that information can be provided to marine fishery management to reduce bycatch by avoiding fishing in specific areas when Chinook salmon could be present. ADF&G is also leading a study to estimate the genetic stock composition of chum salmon caught in South Alaska Peninsula fisheries starting with the 2022 season through 2026 (Foster and Dann 2022). This study seeks to update stock-specific chum salmon harvests in South Alaska Peninsula fisheries that are over a decade old (Western Alaska Salmon Stock Identification Program; Eggers et al. 2011). Complete results from 2022 to 2024 sampling are anticipated to be published prior to the Alaska Peninsula finfish BOF meeting in February 2026. ADF&G has also initiated new projects to understand the root causes of declines in Yukon River salmon stocks. This includes a collaboration with NOAA to use chum salmon samples collected during a high seas winter survey in the North Pacific Ocean to assess winter distribution, overlap in habitat utilization with wild and hatchery salmon, diet, and health condition of AYK chum salmon. Finally, a new project in collaboration with NOAA, the U.S. Geological Survey (USGS), and the Yukon River Drainage Fisheries Association, aims to tie the marine environment to the freshwater migration of Chinook salmon. The objective of this research is to determine whether female Chinook salmon achieve adequate ocean nutrition to successfully reach their spawning grounds and produce eggs that are equipped to survive, given changes in marine diet, heat stress, long spawning migrations, and increased disease.

ANTHROPOGENIC FACTORS AFFECTING THE SALMON STOCKS

Salmon spawning, rearing, and migration habitat throughout much of the United States and Canadian portions of the drainage remain largely undisturbed; however, some habitat factors are present that may adversely affect salmon production. Although the effects of these factors are not well understood, the potential individual and cumulative effects of these habitat factors should be considered when assessing the future stock productivity. A detailed discussion of these habitat issues in Alaska is found in the public draft of the *Yukon River Comprehensive Salmon Plan for*

Alaska[3] and Holder and Senecal-Albrecht (1998). This plan discusses mining, logging, and potential pollution and habitat changes related to urban development, rural sanitation, increased road traffic along a few tributaries, and agriculture. This plan is currently open for public review. Although logging and mining may occur in the Yukon Territory of Canada, where a large proportion of Yukon River Chinook and fall chum salmon spawn, these processes are monitored by the Canadian government and are not discussed in detail here.

With few notable exceptions, the Yukon River watershed is free-flowing. The Chena River Lake (Tanana River drainage) Flood Control Project is the only dam in the Alaska portion of the drainage. The structure was built by the U.S. Army Corps of Engineers from 1973 to 1979 to control flood waters in downtown Fairbanks in response to the devastating 1967 flood. Some resource users have raised concerns about the dam's effects on the emigration of salmon fry or the migration of adults. During high water events, the dam's gates are lowered to divert some of the Chena River's flow to a vegetated floodway immediately upstream of the dam until the flow recedes to manageable levels. This diverted water may later flow into the Tanana River or drain back into the Chena River. The potential effects on outgoing juveniles from stranding, avian predation, and disruption of imprinting are unknown. The Whitehorse Dam on the mainstem Yukon River in Whitehorse, Canada, is known to impede the passage of spawning salmon and the outmigration of juvenile salmon, and numerous studies have been conducted to evaluate the effect of the dam on resident and migrating fish. This dam provides a fish ladder to allow passage of fish and has a mitigation hatchery with an annual release target of 150,000 Chinook salmon fry upstream of the dam. Fish passage at the Whitehorse Dam and hatchery activities have been ongoing since the mid-1980s, and data are summarized in the annual JTC report (JTC 2025). The Whitehorse Dam recently underwent a licensing review and was renewed with a 20-year term. The Wareham Dam and the Mayo Lake Control Structure were constructed in the early 1950s and provide hydroelectric power from the Mayo River in Canada. Both structures prevent upstream fish passage and have extirpated salmon species within a portion of their historic spawning grounds.

Climate change is associated with rising water temperatures in both fresh water and marine environments, with implications for salmon survival. At a global scale, the 10 warmest years are also the most recent years (2015—2024) according to the World Meteorological Organization (1850–2024; World Meteorological Organization 2025.[4] Relatively warmer air temperatures have been linked to elevated water temperatures, variable snow/ice cover, permafrost melt, and glacial retreat, each of which has implications for Yukon River salmon habitats, growth, and survival. A review of Yukon River water temperature data indicated water temperatures greater than 17°C were common and prolonged during the summer season. Those high temperatures are known to increase stress on migrating salmon. Both the Bering Sea and Gulf of Alaska marine ecosystems have experienced unusually warm conditions over the past decade. The eastern Bering Sea has been in a warm phase since 2014 and has experienced heat waves between 2016 and 2019 (Siddon 2021). The Gulf of Alaska experienced heat waves between 2014 and 2016 and again in 2019 (Ferris and Zador 2021). Higher ocean temperatures increase metabolic demands, which require salmon to consume more food to meet their energetic needs. Additionally, changing temperature

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[3] Yukon River Comprehensive Salmon Plan for Alaska, under public review. https://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheriesPlanning.enhance (cited September 19, 2025).

[4] World Meteorological Organization. 2025. WMO confirms 2024 as warmest year on record at about 1.55°C above pre-industrial level. WMO Press Release. https://wmo.int/news/media-centre/wmo-confirms-2024-warmest-year-record-about-155degc-above-pre-industrial-level (accessed October 20, 2025).

regimes are associated with changes in the abundance, quality, and distribution of salmon prey (Siddon 2021). Temperatures in both the Bering Sea and Gulf of Alaska have returned to more average conditions in recent years; however, a lagged effect of prior-year warm conditions on recent years' salmon returns are possible.

It is estimated that at least 50% of all water bodies in the Yukon watershed have not been evaluated for the distribution of anadromous species, and a similar or higher percentage of first and second-order tributaries have not been surveyed. Without submittal of documentation based on field work, these streams are not afforded legal protection under Alaska Statute 16.05.841 (Fishway Act) or AS 16.05.871 (Anadromous Fish Act). A significant number of streams could be added/corrected in the Anadromous Waters Catalog. Regular review of the catalog is conducted, and nominations are submitted to document the presence of anadromous fish.

CHINOOK SALMON STOCK STATUS

ESCAPEMENT

Tributary escapements have been monitored using counting towers and sonar projects on the Chena and Salcha Rivers, a weir project on the East Fork Andreafsky River, and aerial surveys on the Anvik, West Fork Andreafsky, and Nulato Rivers (Figure 6). For the Chena and Salcha River salmon enumeration projects, visual counts from a counting tower are the primary means of enumeration, supplemented by sonar counts during periods of high, occluded water. The BEG for the Chena River was met or exceeded in 9 out of 20 years from 2005 to 2024; however, it has not been met since 2018. The BEG for the Salcha River was met or exceeded in 11 out of 20 years from 2005 to 2024; however, it has not been met since 2019. Both the Chena and Salcha River estimates in some years are a combination of visual counts, sonar estimates, or modeled data due to flooding or mechanical issues with the sonars. Chinook salmon aerial surveys were not flown in 2021 due to high water and poor visibility, and several tributaries in 2022 were unable to be indexed due to poor conditions. During 2020–2024, no aerial survey escapement goals were met (Tables 8 and 12).

During 2010–2022, the Chinook salmon border passage objective consisted of an interim management escapement goal (IMEG) of 42,500–55,000 Chinook salmon and a harvest share for Canadian fisheries. The harvest share was calculated as 20–26% of the total allowable catch (surplus above escapement needs) of Canadian-origin Chinook salmon, outlined by the *Yukon River Salmon Agreement*. The lower end of the IMEG and Canadian harvest share objective was achieved in 2011 and from 2014 to 2018. The upper bound of the IMEG and harvest share was exceeded during 2014–2017 (Table 12 and Figures 7–8).

In 2023, the Yukon River Panel did not agree upon a goal; Alaska used the previous Chinook salmon IMEG range, and DFO in Canada used the upper end of the range (55,000 fish) as the management objective for border passage. In April of 2024, Canada and Alaska implemented a 7-year rebuilding target (border passage goal) of 71,000 Canadian-origin Chinook salmon (JTC 2025). Fishing for Chinook salmon in the Alaska portion of the drainage remains closed unless the border passage objective is anticipated to be met. The agreement also directs that management considerations take into account en route mortality and uncertainty in estimates when projecting border passage and any potential harvest opportunity in the mainstem Yukon River.

Despite conservative management actions from 2019 to 2024, low run sizes and inseason management uncertainty resulted in border passage below the objectives (Table 12).

HARVEST

Poor Chinook salmon runs have caused a dramatic decline in commercial and sport Chinook salmon harvests since 1998, and decreased subsistence harvest opportunities since 2007 (Table 7, Figure 8). Chinook salmon-directed commercial fisheries have not occurred since 2007, and the summer chum salmon-directed fisheries have been conservatively managed to reduce incidental harvest of Chinook salmon. Two management areas encompass the Yukon River sport fisheries: the Yukon River Area (YRA) that excludes the Tanana River, and the Tanana River Area (TRA). Due to poor projected Chinook salmon run sizes during 2018–2024, the sport fishery closed preseason in the YRA. However, in 2019, sport fishing was reopened on July 11 with an annual limit of 1 Chinook salmon greater than 20 inches. For the TRA, the majority of sport fishing occurs in the Chena and Salcha Rivers, and the earliest portion of the run arrives in late June, so management decisions are usually made later than the YRA, which includes the lowermost portion of the Yukon River. During 2018, the Chinook salmon bag limit was reduced to 1 fish, and bait was prohibited in the TRA. During 2019, the Chinook salmon fishery in TRA was restricted to catch-and-release, and in late July, sport fishing closed for Chinook salmon. During 2020–2024, sport fishing for Chinook salmon was closed in the TRA for the entire season.

From 2020 through 2024, yearly subsistence harvests of Chinook salmon have fallen below the established ANS range of 45,500–66,704 Chinook salmon. The most recent year Chinook salmon ANS was met in 2019 (Table 7). Subsistence fishing for salmon was closed the entire season from 2021 to 2024. The subsistence harvest of 1,564 Chinook salmon in 2023 was the lowest on record. Approximately 30% of that harvest came from the ADF&G test fishery, with those fish being distributed to local communities (Table 7).

EXPLOITATION RATES

The exploitation rate is defined as the proportion of the run that is harvested; hence, stock-specific total run, escapement, and harvest estimates are needed to calculate exploitation rates. From 1998 through 2007, an average of 43% of the Canadian-origin Chinook salmon total run was harvested in Alaska, while 26% of U.S. stocks were taken within Alaska (Figure 8). With poor returns of Canadian-origin and U.S.-bound fish in recent years, coupled with a conservative management strategy, the average exploitation rate for the recent period of 2020–2024 has decreased to approximately 10% for Canadian stocks and 4% U.S. stocks, with a low 4% and 1%, respectively, in 2021 (Figure 8).

BROOD YEAR RETURN INFORMATION

The brood year data for Canadian-origin Chinook salmon is used to assess the productivity of the Canadian-origin stock and serves as a representative of the drainagewide run at this time. A new integrated drainagewide run reconstruction model was developed as part of the review of the escapement goal for the Canadian stock for the Yukon River Panel between 2019 and 2022 (Conners et al. 2023) The brood table for the Canadian stock has been adopted by the Joint Technical Committee (JTC) and the Yukon River Panel but currently no decisions have been made about brood table use for the lower or middle stock groups. Total brood year return divided by the parent-year escapement is a measure of stock productivity and is expressed as recruits or returns per spawner (R/S). Higher R/S values suggest better productivity. The minimum level of replacement for a stock is set at an R/S of 1; i.e., for each fish that spawns, 1 fish returns to spawn (Figure 3). The most recent brood year with most of the age classes returned (ages 3–6) is 2018.

The R/S of Canadian-origin Chinook salmon has ranged from a low of 0.18 to a high of 5.35, with an overall R/S average of 2.16 from 1982 to 2018 (Figure 3).

Brood year tables also provide information regarding the age class composition of the return. Yukon River Chinook salmon return as age-2 through age-8 fish, but age-5 and age-6 salmon dominate the run. Age class composition of the run varies from year to year because of the variability in individual year class strengths.

FACTORS AFFECTING CHINOOK SALMON STOCKS

Marine Distribution, Abundance, and Survival

After leaving the Yukon River in the early summer months, juvenile Chinook salmon spend their first few months at sea in relatively shallow waters of the continental shelf of the NBS (Murphy et al. 2025). Immature Chinook salmon from the Yukon River are believed to spend the rest of their marine life in the Bering Sea, alternating between southern Bering Sea shelf habitats in the winter and moving into the central Bering Sea basin in the summer (Figure 9; Myers et al. 2010).

The abundance and genetic data collected from the NBS Survey are used to calculate the stock-specific abundance of juvenile Yukon River Chinook salmon for all years (2003–2024; Murphy et al. 2017; Howard et al. 2020; Murphy et al. 2025). Juvenile abundance data combined with total adult returns provides a powerful piece of information that identifies which life stages are most influential to adult run abundance. For Yukon River Chinook salmon, there is a strong, positive relationship between the abundance of juveniles in the NBS and the number of adult Chinook salmon that return to the Yukon River years later. This suggests that later marine survival, the years spent in the ocean after the juvenile life stage, is remarkably stable (Murphy et al. 2017; Howard et al. 2020; Murphy et al. 2025). This means that factors dictating whether run sizes will be good or poor are occurring sometime between the spawner life stage and the juvenile's first winter in the ocean. Stable survival after the juvenile life stage suggests that later marine drivers of mortality, such as competition with hatchery fish, predation, and catch in federal marine fisheries, such as the BSAI (Bering Sea-Aleutian Island pollock fishery), are not substantially changing future run sizes. Although these later marine factors may not be primary drivers of run size decline in Yukon River Chinook salmon, it is still important to consider concerns from stakeholders about whether there is an appropriate management balance among all fisheries for providing equitable access to salmon. Recent analyses leveraging juvenile Yukon River Chinook salmon data suggest that during the past 20 years, the spawner life stage itself may be particularly influential to abundance patterns of this stock (Howard and von Biela 2022). Agencies, nongovernmental organizations (NGOs), and tribal groups are actively investigating factors in the spawning life stage that may be important drivers for the sustained low abundance of Yukon River Chinook salmon. These factors include increased mortality associated with *Ichthyophonus* infection, increased river temperatures, and decreased success of eggs due to poor maternal marine stage food quality.

Bering Sea Bycatch of Yukon River Stocks

Yukon River-bound Chinook salmon are taken as bycatch in the Bering Sea groundfish fishery, and Yukon subsistence users have consistently expressed concern about effects on western Alaska salmon stocks, particularly after an estimated 130,000 Chinook salmon were taken as bycatch in 2007. The North Pacific Fishery Management Council (council) acted in 2009 to manage Chinook salmon bycatch under Amendment 91 by creating a hard cap on Chinook salmon bycatch and creating a bycatch avoidance program with incentive plans. Amendment 91 went into effect during the 2011 fishing season. In April 2015, the council approved regulations (Amendment 110) that lowered the bycatch cap for Chinook salmon during historically low runs as indexed by the Unalakleet, Upper Yukon, and Kuskokwim River stocks. When this 3-system index of inriver adult Chinook salmon run sizes is below the threshold of 250,000 fish, the performance standard and hard cap applicable to the Bering Sea pollock fishery are lowered in the following year. This cap was triggered in 2018 and from 2020 to 2025.

A marked reduction in bycatch has occurred since 2008, and the 2020–2024 average bycatch in the pollock directed fishery is less than 15,000 Chinook salmon.[5] Approximately 20,000 Chinook salmon have been caught through August 2025, although these numbers are preliminary.

Change in Size and Age at Return

Yukon River Chinook salmon size at age for each age class and overall size has declined roughly 5–7% since the late 1970s. (Ohlberger et al. 2020). Lengths at age have been below respective averages since 2020, with the smallest recorded lengths in the recent 5 years (AYKDBMS). A decline in body length is partially a result of a change in size-selective gear types over time, but is also probably a result of changing ocean conditions which have dynamic effects on food sources, growth rates, competition among species, predator/prey interactions, and other factors affecting survival and age at maturity (Lewis et al. 2015; Ohlberger et al. 2020).

Age class composition of the Canadian-origin Chinook salmon returns from brood years 1979–2017 indicates that there was a dramatic decrease in age-7 salmon from an average of 28% during years 1979–1982, to an average of 8% during the following 10-year period (1983–1992). From 1993 to 2012, the age-7 age class included, on average, about 4% of the return, and in 2013–2017, the age-7 class contributed 2% of the return. The brood year age class composition for age-4 salmon remained relatively stable during 1993–2001, and increased during 2001–2017 (Figure 10). Starting in 2001, there has been a trend of age-5 and age-6 Chinook salmon alternately dominating the brood year age class composition, with age-5 dominating consistently since 2010 (Figure 10).

Declining body size (at age), coupled with a reduction in older age classes, influences the quality of spawning escapement. A study conducted by Ohlberger et al. (2020), looking at historical observations of body size from the Yukon River, found that the average female reproductive potential has declined 24–35% since the 1970s. Due to these concerns, they suggested that the change in spawning quality be taken into consideration when developing future assessment programs and management reference points.

Fish Health

Many factors affect fish health and disease burden of Yukon River salmon. Water temperature, environmental stresses for salmon and their prey, and natural rhythms of disease may result in increased viral load, affecting the overall health of salmon. *Ichthyophonus* affected Chinook salmon populations, with an increased virulence between 1999 and 2004, along with documented declines in the population (Kocan et al. 2004). In 2020, subsistence users reported seeing signs of *Ichthyophonus* in Chinook salmon hearts and flesh. These reports resulted in an ADF&G sampling

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[5] NOAA 2024 Annual report for the Alaska Groundfish Fisheries Chinook salmon incidental catch and Endangered Species Act consultation. 2025. NOAA, National Marine Fisheries Service, Alaska Region, Juneau, AK. https://www.fisheries.noaa.gov/s3/2025-02/2024-chinook-incidental-catch-esa-annual-rpt_0.pdf (accessed October 20, 2025).

program in 2021, followed by a partnership with FWS to conduct a 3-year sampling program that began in 2022, designed to test the hypothesis that *Ichthyophonus* disease may be contributing to large-scale natural mortality of Canadian-origin Chinook salmon in Alaska. Limited lethal sampling to collect heart tissue for *Ichthyophonus* laboratory testing was conducted at a lower river location (Pilot Station sonar), mid-river location (Rampart Rapids), and upriver location (Fort Yukon or Eagle sonar). Preliminary results from samples taken during 2022–2024 show that roughly 35% were infected in 2022, 47% in 2023, and 42% in 2024, but of the fish infected, the level or severity of infection declined over the 3-year period.

The Salmon Ocean Ecology Program continued a study that began in 2022 to evaluate the condition, diet, and thiamine levels (a vital B-vitamin required for a range of metabolic processes) of Chinook salmon returning to the Yukon River. *Ichthyophonus* infection status was also evaluated for juvenile and immature Chinook salmon and common Chinook salmon prey species sampled from the northern and southern Bering Sea surveys. Marine sampling was initiated to help determine when, during their marine residency, Chinook salmon became infected with *Ichthyophonus* and which foods are potential sources of infection. Opportunistic marine sampling for *Ichthyophonus* began in 2021, and agencies continue to explore options to implement a more standardized marine disease surveillance program in future years. ADF&G and FWS continue to support efforts led by the University of Alaska Fairbanks and USGS to evaluate the feasibility of nonlethal *Ichthyophonus* surveillance methods using blood and muscle tissue. ADF&G, USGS, and Alaska Pacific University secured funding and completed the first of a 2-year (2024 and 2025) laboratory trial aimed at determining the *Ichthyophonus* disease severity levels associated with mortality in Yukon River Chinook salmon. ADF&G is hoping to quantify Chinook salmon affected by *Ichthyophonus*, as well as other diseases such as microsporidiosis, an emerging disease recognized in Oregon Chinook salmon in 2021.

ADF&G completed 2 years (2023–2024) of a 3-year drainagewide radiotelemetry study to evaluate the upriver migration success of Yukon Chinook salmon, with a special focus on the Canadian-origin stock component. Fish were tagged with esophageal radio tags at the mouth of the Yukon River near Emmonak and tracked along the mainstem in Alaska using ground-based tracking towers and aerial survey methods. DFO and several Canadian First Nations coordinated with ADF&G to extend tracking efforts into Canada to evaluate distribution and en route mortality in Canada (JTC 2025). Survival in 2024 was high, with 95 (98%) of the 97 Canadian-origin fish tagged detected at the U.S.-Canada border tracking stations.

In addition to possible disease-induced mortality, high water temperatures have been shown to cause decreased spawning success and early mortality. Evidence of heat stress in Yukon River Chinook salmon was documented in 2016 and 2017 (von Biela et al. 2020). Samples to detect heat stress in Chinook salmon are an ongoing project with samples collected from 2022 through 2024, but analysis of that research is still ongoing, and results are unavailable at the time of this publication. Understanding disease burden and other factors that may cause inriver prespawning mortality will allow for more accurate run reconstruction and better management strategies to detect disease and account for excess mortality to continue to reach escapement goals.

SUMMER CHUM SALMON STOCK STATUS

Most summer chum salmon spawn in the Yukon River drainage downstream of and within the Tanana River drainage (Figure 4). Stock composition of Yukon River summer chum salmon runs has varied over the last decade. The contribution of the Anvik River, historically the largest producer of summer chum salmon, to the overall Yukon River stock production above Pilot Station sonar has decreased from approximately 46% during the years 1995–2002, an average of 22% between 2003 and 2019, to an average of 15% after 2019. This reduction corresponds with increased production in other chum salmon spawning streams. In 2014 and 2015, ADF&G implemented a comprehensive radiotagging project for summer chum salmon to gain a better understanding of spawning distribution and abundance. Roughly 22% of the radiotagged summer chum salmon entered the Koyukuk River in 2014; however, that number increased to 27% in 2015. During both years, roughly 21% of tagged summer chum salmon entered the Anvik River and roughly 10% entered the Bonasila River (Larson et al. 2017).

The Yukon River summer chum salmon run is typically managed as a single stock. The regulatory management plan, 5 AAC 05.362 *Yukon River Summer Chum Salmon Management Plan,* was modified in 2016 to provide recommended management actions based on various run sizes and to account for the drainagewide escapement goal of 500,000 to 1,200,000 fish (Table 1).

HARVEST

Commercial and subsistence harvests of summer chum salmon have fluctuated from decade to decade. The average harvest was highest in the 1980s, and approximately 1,200,000 summer chum salmon were harvested. From 2020 to 2024, commercial fishing was limited to a few openings (2020) or completely closed (2021–2024). The 2019–2023 average of summer chum salmon harvested in commercial, subsistence, personal use, and sport fisheries combined is 76,467 fish (Table 2). Subsistence harvests for summer chum salmon had been relatively stable in the Yukon Area; however, the 2020–2024 average of 21,687 fish is lower than the 2010–2019 average of 90,903 fish, reflecting recent low run sizes, fishing closures, and restricted fishing to protect Chinook and summer chum salmon runs.

Subsistence users mainly target summer chum salmon in the Lower Yukon River, below the confluence with the Tanana River. Although summer chum salmon are found as far upstream as the lower portions of Districts 5 and 6, they are not typically targeted for human consumption due to their declining quality at those upstream areas. Starting in 2012, managers have had the option of opening fishing periods during the summer season with selective gear types (beach seines, dip nets, and fish wheels) and require the live release of Chinook salmon. These gear types are less effective than gillnets but allow fisheries to target chum salmon in times of Chinook salmon conservation.

Although dip nets are not as efficient as gillnets for harvesting summer chum salmon, the success of the 2014–2018 commercial fisheries are largely due to the use of selective gear, which accounted for 34–64% of the total summer chum salmon commercial harvest. Summer chum salmon commercial harvests during this same period were the largest since 1996. With the use of selective gear types to commercially harvest summer chum salmon, commercial fishing during 2014–2018 was initiated earlier than in other years; however, commercial fishing did not start until July 3 in 2019 and June 27 in 2020. Due to the late start of the season in 2019, there were no selective gear openings due to the Chinook salmon run being nearly complete. The commercial harvest was 227,089 summer chum salmon before the transition date to the fall season. In 2020, the commercial fishery was closed after 5 periods due to low abundance and harvest levels. There were no commercial seasons during 2021–2025 due to low run sizes.

Average summer chum and Chinook salmon run timing overlap considerably, with the middle 50% of the Chinook salmon run overlapping with the middle 50% of the summer chum salmon run for 9 days (Figure 11). Due to this overlap and Chinook salmon harvest restrictions, ADF&G has developed management strategies that address the need to conserve Chinook salmon during poor runs while also providing harvest opportunities on the available surplus of summer chum salmon. In recent years (2019–2024), the summer chum salmon run has been a week to 10 days late. By regulation, the fishery transitions from summer to fall season management on July 16 in District 1. Pilot Station sonar passage estimates switch from summer to fall chum on July 18 (based on 2–3 day run timing). Based on genetics and fish passage, a significant number of summer chum salmon have been estimated in the early part of the fall season. Harvest opportunity with selective gear types was open in the first 7 to 10 days of the fall season in 2023 and 2024.

ESCAPEMENT

A Bayesian state-space integrated run reconstruction and spawner–recruitment analysis, using data from 1978 to 2014, was used to establish a summer chum salmon drainagewide escapement goal range of 500,000–1,200,000 in 2016 (Hamazaki and Conitz 2015; Figure 12), and the model output is used to represent the total run of summer chum salmon. The run reconstruction model is updated annually and is used to evaluate if the escapement goal was met each year. The drainagewide goal was met or exceeded from 2016 to 2020, and in 2023 and 2024. If the same BEG had been in place historically, the upper end of the goal would have been exceeded from 2004 to 2019 (Figure 12).

Tributary escapements have been monitored with a weir project on the East Fork Andreafsky River and a sonar on the Anvik River (Figure 13). The East Fork Andreafsky River sustainable escapement goal (SEG) of at least 40,000 fish was established in 2010 and was not met in 2014, 2018, and from 2020 to 2024. The Anvik River BEG was established in 2005 and met most years, except 2009, 2016, and 2018–2024. Neither project operated in 2020, and the East Fork Andreafsky River weir did not operate or had few counting days due to high water from 2022 to 2024 (Figure 13).

YIELD

The average yield is 300,000 summer chum salmon based on brood return from Yukon River drainagewide escapements from 1978 to 2017 (Figure 14). In the early years, between 1978 and 1992, the average yield was 1.2 million summer chum salmon with a range of -1.2 million to 2.8 million fish. Most years up through 1992, the yield was positive, except for the returns from 1985 and 1988. In the last 2 decades, yields have become highly variable, like the run abundances, with the yield from 1993 to 2019 averaging a negative 189,000 summer chum salmon, with a range of 2.8 million to 5.2 million fish. Since 1993, 13 of the 27 (48%) brood year returns through 2019 resulted in not meeting replacement and producing yield. With larger and more variable run sizes, the frequency and depth of negative yields have resulted in substantially less production.

EXPLOITATION RATES

Similar to Chinook salmon, the exploitation rate for summer chum salmon is defined as that proportion of the run that is harvested; hence, stock-specific total run, escapement, and harvest estimates are needed to calculate exploitation rates.

Total exploitation rates exerted by Yukon River fisheries on summer chum salmon over 45 years average about 19%, ranging from a high of 46% in 1978 to a low of 0.80% in 2021 (Figure 15). Exploitation rates from the years 2000–2001, the last extreme low production cycle, were reduced to 13% in 2000 and 11% in 2001. Now, 2 decades later, even worse returns in 2021 and 2022 have further reduced the exploitation to new lows of less than 1%. The 2010–2019 average exploitation rate was 20%, which is higher than the 2020–2024 average exploitation rate of 3%.

BROOD YEAR RETURN INFORMATION

Total brood year return divided by the parent-year escapement is a measure of stock productivity and is expressed as recruits or returns per spawner (R/S). Higher R/S values suggest better productivity. The minimum level of replacement for a stock is set at an R/S of 1; i.e., for each fish that spawns, 1 fish returns to spawn (Figure 16). The most recent brood year with most of the age classes returned (ages 3–5) is 2019. The ratio of R/S for summer chum salmon stocks has ranged from a low of 0.10 to a high of 11.77, with an overall average of 1.49 R/S from 1978 to 2019 (Figure 16).

Brood year tables also provide information regarding the age class composition of the return. Yukon summer chum salmon return as age-2 through age-7 fish, but age-4 and age-5 salmon dominate the run (Figure 17). Age class composition of the run varies from year to year because of the variability in individual year class strengths.

FACTORS AFFECTING SUMMER CHUM SALMON STOCKS

Summer chum salmon run timing starts in early June, peaks in late June, and in recent years, has extended through the end of July. They spawn in tributaries on the lower 500 miles of the Yukon River, using sloughs with silty and small gravel substrates. Upwelling, water temperatures, and dewatering are critical factors for successful hatching and rearing. Offspring migrate to the ocean with spring floods the following year. Several months are spent in estuarine environments acclimating and growing, feeding primarily on insects and invertebrates. Juvenile chum salmon spend their first few months in the ocean in the nearshore environments of the Northern Bering Sea (NBS) but extend farther offshore and farther south into the southern Bering Sea (SBS) compared to Yukon River Chinook salmon. Yukon River chum salmon migrate seasonally between the southern Bering Sea shelf in the summer and the North Pacific Ocean/Gulf of Alaska in the winter (Myers et al. 2010; Figure 9). In total, Yukon River summer chum salmon spend 3 or 4 years in the ocean before returning to their natal streams to spawn. In the ocean, chum salmon eat a variety of foods: copepods, small fish, squid, and gelatinous zooplankton. Salmon are an integral part of the food web and are prey to larger fishes, mammals, and birds during their entire life cycle.

Juvenile abundance estimates for Yukon River fall chum salmon can be calculated from the NBS Survey data. However, unlike Chinook salmon, there is not a strong relationship between juvenile fall chum salmon abundance and future adult fall chum salmon returns (Murphy et al. 2021). This suggests that factors in the later marine life stage might be more important in determining future run sizes of fall chum salmon. For juvenile chum salmon, temperature plays an important role in both abundance and energy density (a proxy for percent lipid stored in the body). Although warmer temperatures typically result in higher juvenile abundances, energy density is low in warmer years (Farley et al. 2024). We believe that juveniles with lower energy density at the end of their first summer at sea have a lower chance of surviving their first winter in the ocean.

The recent extremely low run sizes of chum salmon returning to the Yukon River (and western Alaska in general) between 2020 and 2022 are an example of how temperature influences chum salmon dynamics. For juvenile chum salmon, the amount of food in their stomachs decreases with increasing sea surface temperature (Murphy et al. 2021). Additionally, the amount of lipids (energy) stored by juvenile chum salmon also decreases with increasing sea surface temperature (Farley et al. 2024). Juvenile chum salmon from the Yukon River entering the Bering Sea after 2016 have faced marine heat wave conditions in both of their marine habitats, and evidence suggests they may not have stored enough energy during their first summer at sea to survive in later marine life. Juvenile chum salmon were in average condition during the 2024 NBS Survey (Fergusson et al. 2024). The record-high abundance of juvenile fall chum salmon in 2024 and average energetic density indices are expected to result in improved run sizes to the Yukon River 3 to 4 years in the future.

FALL CHUM SALMON STOCK STATUS

Currently, the Yukon River fall chum salmon run is in a low abundance cycle that began in 2020 when there was a lack of age-4 fish returning from the 2016 parent year. The occurrence was widespread, affecting chum salmon stocks in all of western Alaska, including both hatchery and wild stocks as far south as British Columbia. The Yukon Area stocks since then have been slower to recover than other areas, in part due to the large distances they must migrate in the Yukon River, both for outmigration and as returning adults. The run recovered from the previous low-abundance years that occurred between 1998 and 2001. From 2002 through 2019, the fall chum salmon stocks averaged over 1 million fish, similar to the run sizes of the past, with escapements within or exceeding the drainagewide goal range of 300,000 to 600,000 fall chum salmon during those years. Since 2020, the drainagewide goal has not been achieved; however, in 2023, the 3 U.S. tributary escapement goals were achieved, but the 2 Canadian IMEGs were not. There is little difference in the average run abundance (1 million fish) between the 1974–1992 and 2002–2019 periods; the annual run sizes in the latter period have been more variable. From 1974 through 1992, there was a prominent even/odd-year abundance cycle, where odd-numbered years were substantially larger; however, after 1993, the pattern changed. Since then, the years 1993, 2000, and 2021 were extremely low run years, with the largest runs occurring in 1995, 2005, and 2017. After 1993, and again after the recovery from the poor observed returns from 1998 to 2002, it became more common to have 3 consecutive years of high abundance. The current decline was harsher, and since the low in 2021, returns have exhibited higher production in odd-numbered years, as seen in 2023 and 2025.

HARVEST

Estimates of subsistence harvests of fall chum salmon were stable from 1979 to 1992, with an average of 180,000 fish annually. Fall chum salmon was used for both human and dog food throughout the migration route in Alaska. Because fall chum salmon migrate to the upper reaches of the Yukon River drainage, they are more robust with higher levels of fat to make the longer migration than the summer chum salmon component, which is distributed mostly downstream of the confluence of the Tanana River drainage. Run timing of fall chum salmon migration allowed for large numbers to be cribbed just before freeze-up in late September to provide winter food supplies to dog teams that were, at one time, numerous in the Upper Yukon Management Area. Subsistence harvests have fluctuated during times when the fishery was reduced or closed by management actions to provide for minimum escapement goals. However, many dog teams have been reduced as the tradition fades, with the lack of salmon to support kennels; the 2003–2019 average harvest was 82,000 fall chum salmon. Only 5 out of 16 years (31%) during 2004–2019 were above the lower end of the ANS range of 89,500–167,900 fall chum salmon. Commercial harvests of fall chum salmon are allowed on surpluses above that needed for escapement and subsistence priorities and therefore fluctuate more widely, as shown by historical productivity (Figure 18). The average commercial harvest from 2004 to 2019 was 205,000 fall chum salmon. Harvests of fall chum salmon from years all fisheries were open (2010–2019) averaged 354,000 fish (Table 3, Figure 19). Decreases in exploitation rates are pronounced in years of fishery restrictions for fall chum salmon (Figure 20).

ESCAPEMENT

Fall chum salmon are discrete spawners choosing areas of upwelling and relatively warmer water to incubate their eggs in a shorter time than summer chum salmon. Major fall chum salmon spawning areas are located in the Tanana, Teedriinjik, and Porcupine River drainages, and within the Canadian portion of the mainstem Yukon River drainage (Figure 6). Most of the spawning areas for fall chum salmon within the drainage are assessed annually, and their relationship with the assessment at Pilot Station sonar estimates are highly correlated, greatly assisting inseason management.

In 2009, the escapement goal was converted to an SEG of 300,000–600,000 fish (Fleischman and Borba 2009). Since 2014, a Bayesian state-space model has been used to determine the drainagewide escapement. The goal for the Toklat River was discontinued in 2010, but the Sheenjek River, an upper Yukon River tributary, was discontinued in 2015, and the Tanana River goal was discontinued in 2019, with no means to monitor the systems that contributed to these components (Figure 6). The Teedriinjik and Delta River goals were updated in 2019 using the percentile method (Clark et al. 2014) and developed as SEGs from their former BEG status.

The current drainagewide SEG for fall chum salmon has not been met since 2019 (Table 5, Figure 18). The low end of the drainagewide escapement goal range has been 300,000 fall chum salmon since 2004, and was achieved all 16 years prior to 2020. Several individual tributary escapement goals are used for monitoring fall chum salmon. The Delta and Teedriinjik Rivers escapement goal ranges were updated in 2019, resulting in increases. The current Delta River SEG of 7,000–20,000 fall chum salmon was met 4 out of 6 years (2019–2024), the Teedriinjik River SEG of 85,000–234,000 fish was met 2 out of 5 years (2019 and 2021–2024; the project was not operated in 2020). The mainstem Canada IMEG of 70,000–104,000 fish was updated in 2010 and achieved all 10 years prior to 2020, and the Fishing Branch River IMEG of 22,000–49,000 fish was updated in 2008 and achieved 5 times (2009, 2012–2013, and 2016–2017; Table 5). Neither Canadian fall chum salmon IMEGs have been achieved in the last 5 years (2020–2024).

YIELD

The average yield is 197,000 fall chum salmon based on brood return from Yukon River drainagewide escapements from 1974 to 2020 (Figure 3). In the early years, between 1974 and 1993, during the consistent even/odd-year abundance cycles, the average yield was 353,000 fall chum salmon, with a range of -308,000 to 941,000 fish. Since 1994, yields have become highly variable, along with run abundances, with the yield from 1994 to 2020 averaging only 82,000 fall chum salmon, with a range of -1.6 million to 2.6 million fish. Since 1994, 13 of the 27 (48%) brood year returns through 2020 resulted in not meeting replacement or producing yield. With larger and more variable run sizes, the frequency and depth of negative yields have resulted in substantially less production.

Brood Year Return Information

The brood year data are used to assess the productivity of the aggregate fall season chum salmon stocks to represent the drainagewide run. Total brood year return divided by the parent-year escapement is a measure of stock productivity and is expressed as recruits or returns per spawner (R/S). Higher R/S values suggest better productivity. The minimum level of replacement for a stock is set at an R/S of 1; i.e., for each fish that spawns, 1 fish returns to spawn (Table 13, Figure 21). The most recent brood year with all age classes returned (ages 3–6) is 2018, and recruits for incomplete brood years of age-6 for 2019 and age-5 for 2020 are estimated. The ratio of R/S for fall season chum salmon stock for complete brood years has ranged from a low of 0.08 from 2017 to a high of 9.00 from 2001, with an overall average of 1.65 R/S from 1974 to 2018 (Table 13, Figure 21).

Age class composition of the annual returns is based on chum salmon captured in the test fisheries in the Lower Yukon River in a given year and is used to develop the brood tables. Fall chum salmon return to the Yukon River as age-3 through age-6 fish, but age-4 and age-5 salmon dominate the run (Figure 21). During the fall season, age-4 chum salmon contribute on average 69% and dominate most years (1974–2018; except 1992, 2006, and 2009), whereas age-5 fish represent 26% of the return. As such, the effect of these recent poor runs could be felt through the 2029 season. However, if the recruit per spawner remains favorable, run sizes could rebound to levels that support at least some level of subsistence harvest.

There is some indication of density dependence in fall chum salmon, as noted by low abundance years producing above-average to record-high return per spawner, but large runs often result in the poorest R/S well below 1:1 (Figure 21). The unique locations these fish spawn in are finite in size (some areas may be decreasing with climate change) and probably cannot support additional spawners without disrupting each other. Historically, fall chum salmon have rebounded quickly following years of poor run sizes, due to their inherent potential for high productivity from low escapements. However, Yukon River fall chum salmon have shown slower signs of recovery during this most recent decline compared to other chum salmon stocks across the AYK region. Of note is that the return per spawner for fall chum salmon stocks has been increasing annually since 2017 (Figure 3) and was well above 1:1 in 2021 (>2.5 R/S).

Factors Affecting Fall Chum Salmon Stocks

Fall chum salmon generally have a shorter incubation period because they spawn in late October but still hatch in April, similar to the emergence of other salmon species. Because the fall chum salmon spawning areas are concentrated in upwelling waters that are relatively warmer and have a more consistent temperature regime throughout the wintertime period, sufficient degree days are accrued. Habitat issues, such as geological changes in aquifers of upwelling waters, would have a drastic effect on the suitability for spawning beds. Severe cold winters with low levels of insulating snow could reduce the available habitat if freezing occurred deep enough or caused areas to become dewatered. Juvenile chum salmon travel to the ocean with the spring runoff that first year of emergence and face predation for the rest of their lives. ADF&G monitors select spawning ground overwintering temperatures in the Delta and Toklat Rivers. Research is ongoing in the Canadian portion of the drainage concerning the shift of the Kaskawulsh Glacier in 2016. Previously, the glacier supplied Kluane Lake with a significant annual summer influx, but now it primarily drains into southeast Alaska. Kluane Lake is now primarily supported by upwelling water and summer rain runoff, and the water levels in the lake have greatly diminished. It is unknown whether this will be enough to support the fall chum salmon populations in the drainage.

Some factors related to the consistent incubation temperatures may contribute to fall chum salmon being larger in body size and weight than summer chum salmon, which allows them to return younger (predominantly as age-4 fish), whereas summer chum salmon typically contain a higher proportion of age-5 fish.

Lack of food in the ocean could also explain the slow recovery of chum salmon to the Yukon River compared to other areas of Alaska. The fall chum salmon in the Yukon River has the longest spawning migration compared to all other chum salmon in the world. This feat requires a large amount of fuel reserves to ascend to the headwaters of the Yukon River. The return of adult fall chum salmon in 2021 set a new record-low length at age for all age classes 3–5, based on the ASL collections in the Lower Yukon test fishery dataset from 1981 to 2024. Since 2021, the primary parent year of age-4 fish has steadily been increasing in size.

COHO SALMON STOCK STATUS

Coho salmon are the latest species of salmon to enter the Yukon River, and they overlap considerably with the more abundant fall chum salmon. Coho salmon range upriver to the Tanana River, but not many ascend to the mainstem Yukon River to Canada, except for a few known to make a migration to the upper Porcupine River. In Alaska fisheries, coho salmon are typically harvested incidentally while targeting fall chum salmon.

ESCAPEMENT

There are currently no escapement goals for coho salmon in the Yukon River drainage. Most of the annual escapement monitoring occurs within the Tanana River drainage, particularly the Delta Clearwater River, Richardson Clearwater River, and the Nenana River drainage (Table 6). The historical SEG for the Delta Clearwater River of 5,200–17,000 coho salmon was discontinued in 2023 because it did not correlate with any of the other assessments and was not useful for fishery management.

In recent years, a coho salmon run size index has been developed that expands the Pilot Station sonar passage estimates by comparing the timing of the next closest monitoring project in the Lower Yukon River (test fisheries near Emmonak or Mountain Village) using the appropriate lag for travel time. Further, commercial and subsistence harvests below the sonar site are included to provide an index of coho salmon abundance for the Yukon River. Subsistence harvest in this area is fairly stable, averaging 3,000 coho salmon annually. However, the commercial harvest can vary drastically (<1,000 to 177,000) depending on the management of the fall chum salmon fishery. This index does not include coho salmon spawning in tributaries below the sonar site. Currently, the data used for estimating the coho salmon run size index is based on the years 1995 and 1997 through 2024 (excluding 2009). This model results in an average (1995–2024) run size of 216,000 coho salmon in the Yukon River (Table 14).

An index of Yukon River drainagewide escapement is derived from the coho salmon run size index minus the total harvest of coho salmon (Table 14, Figure 22). The average escapement using this dataset was 164,000 coho salmon from 1995 to 2019. Coho salmon were also affected by the downturn in survival; during the years 2020 through 2024, escapement only averaged 82,000 coho salmon. The primary parent year of age-4 fish from 2021 was returning from the lowest run in the index of 46,000 coho salmon, and was a substantial improvement in contributions to the 2025 run. None of the monitored tributary escapements correlate with the index of abundance estimates for coho salmon.

HARVEST

Subsistence harvests of coho salmon have been decreasing, on average, by decade from 31,000 in the 1990s, 20,000 in the 2000s, 12,000 fish through 2019, and less than 1,400 during the recent years (2020–2024) with heavy restrictions (Table 4; JTC 2022). The decline in subsistence prior to 2020 was not for lack of need but partly due to a different way of obtaining the fish through the use of local catcher–sellers filling subsistence needs. As a result, a portion of the historical subsistence harvest was documented under commercial harvest, with the harvest being primarily used for dog food. Commercial harvests of coho salmon were increasing from an average of 32,000 during 1990–2010, and 107,000 fish during 2011–2019 (Table 4; JTC 2022). The most recent increase in coho salmon commercial harvests included some changes in the markets, changes in the fishery as described, as well as above-average run sizes this past decade prior to 2020. No commercial fishing has been allowed since 2019 due to the low runs of both fall chum and coho salmon.

FACTORS AFFECTING COHO SALMON STOCKS

Coho salmon hatch and remain in fresh water for 1 to 2 years before smolting and migrating to the sea. Once at sea, they spend 1 year growing rapidly before primarily returning as 4-year-old adults to spawn. In fresh water, coho salmon feed on insects, copepods, and small fish (including other salmon species). Although coho salmon are known to eat other salmon species, they do not appear to include a significant portion of their diet. As juveniles, they switch to a diet of small fishes (such as herring, sand lance, and pollock), squid, larval crab, and shrimp. Adult coho salmon tend to eat more fish and squid than juvenile coho salmon. However, invertebrate prey like amphipods, euphausiids, and shrimp are still present in their diet. Coho salmon abundance could potentially be affected by a number of factors affecting the food chain.

Freshwater habitats are critical because so much of their life cycle occurs there, and refuge from predators, an overwintering environment, and availability of prey are important for survival. A lot is unknown about Yukon River coho salmon.

MANAGEMENT REVIEW

OVERVIEW

Management of the Yukon River salmon fishery is complex because of many factors, including difficulties in determining stock-specific abundance and timing, overlapping multi-species salmon runs, increasing efficiency of the fishing fleet, the gauntlet nature of the fisheries, allocation issues between lower and upper river Alaska fisheries, allocation and conservation issues between Alaska and Canada, and the immense size of the drainage (Figure 4). Fisheries within the Yukon River may harvest stocks that are still several weeks and over a thousand miles from their spawning grounds. Because the Yukon River fisheries are largely mixed stock fisheries, some tributary populations may be under- or overexploited in relation to their abundance. It is not possible to manage individual stocks in most areas where commercial and subsistence fisheries occur.

SUMMER SEASON MANAGEMENT REVIEW

2020–2024

After the 2019 season, which was notable for subsistence harvests meeting the Chinook salmon ANS and for having very hot water conditions in some tributaries and observed die-offs of summer chum salmon, the 2020–2024 seasons were marked by low runs and fishing restrictions.

Summer chum runs from 2019 to 2025 were notable for entering the river 7 to 10 days late, with a significant portion of passage occurring at Pilot Station sonar after the season crossover date of July 18. A few commercial openings for summer chum salmon took place in 2020, and there have not been any commercial periods in the summer season from 2021 to 2025. For summer chum salmon, the age composition from the 5.5-inch mesh Lower Yukon test fishery driftnets was 19% age-4 fish in 2020, and 11% age-5 fish in 2021, suggesting very poor survival of summer chum salmon from the 2016 parent year.

In 2020, fishing remained open during the early trickle of the Chinook salmon run; however, by mid-June, it appeared that the first pulse of Chinook and summer chum salmon runs were late, and fishing in most districts was closed or restricted to selective gear types. The summer chum run was a week late, raising concerns among managers about the strength of the run. Despite very conservative management and widespread reports of poor harvests, the early run passage counts at the Eagle sonar project started to indicate that, similar to 2019, fewer Canadian-origin Chinook salmon were arriving at the border than predicted by the Pilot Station sonar genetic estimates. Projections indicated it was unlikely the IMEG at the border would be met, and fishing for salmon in District 5 closed on July 28 and remained closed for the rest of the summer season. Additional closures of 4-inch mesh nets were implemented throughout the drainage to avoid any harvest of Chinook salmon in this gear. This action caused considerable hardship for dog mushers and other subsistence users who rely on 4-inch or smaller mesh to target nonsalmon species. Harvest opportunities for summer chum salmon were limited due to the late and weak run, persistent high water levels, and closures to protect Chinook salmon.

The Chinook and summer chum salmon runs in 2021 and 2022 were both well below average. The summer chum run was below the lower end of the drainagewide escapement goal. Salmon fishing closures started in early June and were in place all season. Commercial, personal use, and subsistence salmon fishing remained closed all summer season. The opportunity to harvest nonsalmon species for subsistence with 4-inch or smaller mesh gillnets remained open. The harvest of summer chum salmon in 2021 was the lowest ever reported in the Yukon River (Table 3). During the closures in the 2021 and 2022 summer season, some Chinook and summer chum salmon were taken incidentally in nonsalmon gear or harvested before or after closures went into place. Harvest totals include fish that were harvested in test fisheries and distributed within nearby communities.

In 2023 and 2024, the Chinook salmon run remained well below average with no harvestable surplus. Summer chum salmon were within the drainagewide escapement goal, and subsistence opportunities with selective gear types were opened through Subdistrict 5-C. Subdistrict 5-D remained closed because summer chum salmon do not migrate that far upriver. Fishing opportunity for summer chum salmon was extended past the traditional start date of fall season management up through Subdistrict 5-C and in the Tanana River. For example, District 1 transitions to fall season management on July 16, but remains open with selective gear types for chum, sockeye, and pink salmon until July 25.

In 2023, nonsalmon subsistence fishing opportunities remained open 24 hours a day, 7 days a week, throughout the entire summer season. In 2024, all gillnet opportunities were closed in each district for a 2-week period that roughly coincided with the first quarter point to the third quarter point of the Chinook salmon run. Fishery participants were asked to release all Chinook salmon alive from selective and nonsalmon gear whenever possible, and to avoid fishing in areas where Chinook salmon could be caught. Pink and sockeye salmon could be retained all season.

Sport fishing for Chinook and summer chum salmon was closed from 2020 to 2024.

2025

Final assessment project and harvest information were not available at the time of publication of this document. A season summary will be published with preliminary information.

The 2025 drainagewide Chinook salmon outlook was for a run size of 58,000 to 88,000 fish. The summer chum salmon outlook was for a run of 550,000 to 1,800,000 fish. Because of the poor projected run sizes, cautious management approaches were developed.

Subsistence fishery closures began on June 1 in the Coastal District and District 1 and progressed upriver based on run timing. During the salmon fishing closures, nonsalmon gear could be used, including hand line, longline, fyke net, dip net, and spear. Gillnets of 4-inch or smaller mesh were restricted to setnets 60 feet in length. When using dip nets, beach seines, and hook-and-line gear, Chinook and summer chum salmon were required to be released alive. Nonsalmon, pink, and sockeye salmon could be retained all season.

All gillnets had to be removed from the water between the projected first and third quarter points of the Chinook salmon run (about 2.5 weeks). This closure was several days longer than in 2024 to further reduce the incidental harvest of Chinook salmon.

Similar to 2020–2024, the summer chum salmon run entered the river about a week late. Inseason projections indicated a run below the lower end of the drainagewide escapement goal. There were no openings with selective gear for summer chum salmon. Although an additional 40,000 summer chum salmon were estimated, based on genetics, to pass Pilot Station sonar during the first 2 weeks of the fall season, the estimated total run remained below 500,000 fish.

FALL SEASON MANAGEMENT REVIEW

The regulatory management plans provide for escapement and subsistence fishing priority above personal use, sport, and commercial fisheries. Management of the Yukon Area fall chum salmon subsistence, personal use, and commercial salmon fisheries follows the *Yukon River Drainage Fall Chum Salmon Management Plan (*5 ACC 01.249). The plan sets the current threshold number of fall chum salmon needed to prosecute a subsistence fishery at 300,000 fish, personal use and sport fishery at 500,000 fish, and a commercial fishery at 550,000 fish, unless an individual escapement goal or priority use needs are met for a specific district or subdistrict. The management plan incorporates the amount of fall chum salmon needed to meet U.S./Canada treaty objectives for border passage and provides guidelines necessary for escapement and prioritized uses. The plan aligns management objectives with the established escapement goals, provides flexibility in managing subsistence harvests when stocks are low, and bolsters salmon escapement as run abundance increases. Additional guidance for fall chum and coho salmon fisheries management includes the *Yukon River fall chum salmon guideline harvest ranges* (5 AAC 05.365) and the *Tanana River Salmon Management Plan* (5 AAC 05.367).

Fall season fishery management decisions are based on the forecast, preseason projection, inseason projection, and available fisheries information of fall chum salmon. Initial management of the fall season is determined by the preseason projection for fall chum salmon in mid-July. The preseason projection is based on the historical relationship between the summer chum and fall chum salmon run sizes. Fall chum salmon, on average, represent approximately 30% of the complete chum salmon run in the Yukon River. Fall chum salmon management transitions to using inseason projections from assessment projects and genetic data (referred to as MSA) in early August.

Because the coho salmon run is smaller than the fall chum salmon run, and timing is later, coho salmon are secondarily harvested during the fall season fisheries. Subsistence and personal use fisheries also harvest coho salmon while targeting fall chum salmon. Coho salmon are primarily harvested incidentally during the fall chum salmon-directed commercial fishery. The *Yukon River Coho Salmon Management Plan (*5 ACC 05.369) allows a coho salmon-directed commercial fishery in the absence of achieving the threshold number of fall chum salmon if a harvestable surplus of coho salmon exists and if a commercial fishery will not have a significant effect on fall chum salmon escapement and allocation. In order to implement a coho-directed commercial fishery, there must be a run size of at least 500,000 fall chum salmon.

2020–2024

Following average fall chum and coho salmon runs in 2018 and 2019, sharp declines in salmon returns were experienced from 2020 to 2024. Due to the poor salmon runs during these years, salmon closures occurred for all fisheries. The minimum drainagewide escapement goal for fall chum salmon was not achieved in the recent 5 years; however, tributary escapement goals have been met sporadically. In 2020 and 2024, only the Delta River, in the Tanana River drainage, achieved its fall chum salmon escapement goal. In 2021 and 2022, none of the 4 tributary goals for fall chum salmon were achieved, but in 2023, 2 U.S. tributary escapement goals were met, showing slight improvement (Table 5). For coho salmon, the Delta Clearwater River escapements remained well below average for all years during 2020–2024 (Table 6). Fall chum and coho salmon subsistence harvest have been below the ANS (89,500–167,900 fall chum and 20,500–51,980 coho salmon) due to a lower harvest level by users and transfer of harvest patterns from subsistence users purchasing salmon from catcher–sellers in 2018 and 2019, and extreme salmon fishing closures during 2020–2024.

In 2020, subsistence salmon fisheries in the Lower Yukon River began the season on the regulatory fishing schedules, but the Yukon Area closed to subsistence and personal use salmon fishing when inseason projections fell below 300,000 fall chum salmon. Based on poor preseason projections and inseason projections developed from assessment projects, directed fall chum salmon subsistence fishing has been largely closed throughout the drainage since 2020, and the use of gillnets has been limited to 4-inch or smaller mesh size. The only directed fall chum salmon subsistence fishing opportunity during this time occurred in 2023, when limited fall chum salmon opportunity opened in the Teedriinjik drainage on September 15 with 6-inch or smaller mesh set gillnets, fish wheels, dip nets, hook and line, and beach seines, because the lower end of the SEG (85,000–234,000) was projected to be met in that system. In 2024, the use of 4-inch or smaller mesh gillnets was reduced from 12:01 AM on Fridays to 11:59 PM on Sundays, drainagewide, starting on August 26, due to much lower returns of both fall chum and coho salmon than expected, and concerns for potential interception of both salmon species in gillnets targeting nonsalmon species for the remainder of the season. Limited coho salmon retention in subsistence fisheries was allowed with selective gears in 2020, 2022, 2023, and 2024, based on inseason run projections. Harvests of both salmon species were very low during this time. The 2020–2024 average of 3,718 fall chum salmon and 1,308 coho salmon harvested in test fishing projects and subsistence fisheries is a marked decline when compared to the 2010–2019 average of 85,090 fall chum salmon and 12,939 coho salmon (Tables 3 and 4).

Recently, summer chum salmon runs have been significantly later than average, and there has been a large number entering the Yukon River at the beginning of the fall season in each of the last 5 seasons. This late abundance has allowed ADF&G to provide limited subsistence salmon fishing opportunities on a harvestable surplus of summer chum salmon between the end of the closed Chinook salmon run and the beginning of the fall chum salmon run. In 2023 and 2024, subsistence fishing for chum salmon with selective gears was open for the first 10 days of the fall season (July 16–July 25) because the preseason projection exceeded 300,000 fall chum salmon, and a harvestable surplus of summer chum salmon made up the majority of chum salmon in the river during this time (confirmed by MSA). Amid almost total closures of directed subsistence salmon fishing since 2020, ADF&G will continue to look for potential opportunities to provide as many subsistence salmon fishing opportunities as possible.

2025

In 2025, the forecast was for 218,000 (range: 114,000–322,000) fall chum salmon (JTC 2025). Because of the poor projected run sizes and record-low primary parent-year escapements for both fall chum and coho salmon, cautious management approaches were developed. Subsistence fishing for fall chum and coho salmon was closed at the beginning of the fall season in each district, based on historic fall chum salmon run timing. Additionally, the use of 4-inch or smaller mesh set gillnets and crewed fish wheels to target nonsalmon was only open from noon on Thursdays until noon on Sundays to avoid intercepting Chinook, chum, and coho salmon. MSA and ASL information indicated improvements in both the fall chum and coho salmon runs. A harvestable surplus of coho salmon was identified, and retention of coho salmon was allowed drainagewide starting August 21 using all currently legal gear types. Final assessment project data and harvest information were not available at the time of publication of this document. A season summary will be published with preliminary information.

NONSALMON HARVEST AND MANAGEMENT REVIEW

On an annual basis, the subsistence harvest of nonsalmon species is documented in the Yukon Area through the postseason subsistence salmon harvest survey (Padilla et al. 2025). Commonly harvested species, such as northern pike, sheefish (inconnu), and whitefish, are reported by households, and then expanded estimates are made based on the methods used in the salmon-focused survey. The harvest of other less widely targeted species (e.g., blackfish, Arctic lamprey, burbot, tomcod) are presented as reported totals. Harvests of nonsalmon species documented on subsistence permits are also reported as totals (Table 15). Traditional harvest of nonsalmon species has been documented in numerous comprehensive surveys conducted by the Division of Subsistence (e.g., Brown et al. 2010; Runfola et al. 2018; Coleman et al. 2025), but these do not capture annual harvest trends through the entire Alaska portion of the Yukon Area.

There are no management plans for the harvest of nonsalmon species, and no annual escapement projects or goals. In a typical year, harvest of nonsalmon species would be open year-round with 4-inch or smaller mesh gear, and other gear types such as hand line, long line, fyke nets, spear, hook and line attached to a rod or a pole, and hook and line through the ice. Dip nets, beach seines, and fish wheels may also be used to harvest nonsalmon, but these gear types are typically limited or restricted during the salmon seasons.

During recent years, with salmon conservation measures and low harvests, there has been some concern that harvests of nonsalmon species will increase. This has not been shown in the annual postseason salmon survey, ADF&G's only metric for estimating annual harvest of nonsalmon species. The average total harvest of nonsalmon species (Arctic grayling, burbot, northern pike, sheefish, and whitefish species) was 59,349 in 2024. The 2020–2024 average harvest of 64,446 fish is approximately 42% lower than the previous 2015–2019 average of 110,192 fish (Table 15). The average harvests of sheefish decreased by 40% from the recent 5 years compared to the previous 5 years, and harvests of whitefish, Arctic grayling, and burbot decreased by 40% to 75%. Northern pike were the only species with an increase in harvest (4%) over the same time periods. It is possible that reduced salmon fishing opportunities have limited the ability of households to harvest nonsalmon while targeting salmon; it may not be worthwhile to expend resources to go out and set gear only for nonsalmon species when salmon fishing is closed. Additionally, the number of dogs and the amount of salmon fed to dogs have decreased in recent years (Padilla et al. 2025). Nonsalmon species are utilized for both human consumption and dog food (Andersen and Scott 2010); however, the number of nonsalmon fish fed to dogs has not been documented annually.

In 2004, the BOF adopted a regulation that allowed the use of gillnets of 4-inch or smaller mesh during salmon closures when all other salmon gillnets and fish wheels were required to be removed from the water (Appendix A1). During times of salmon conservation, to reduce the likelihood of catching salmon incidentally in 4-inch or smaller mesh gillnets, fishery managers have commonly restricted those gillnets to 60 feet or less in length (starting in 2001) and limited them to operating as a setnet (starting in 2023). In 2023, a regulation was adopted that gave fishery managers the option to require that nonsalmon set gillnets be operated within 100 feet of the ordinary high water mark. However, this restriction has not been implemented, and participants have been requested (but not required) to operate their setnets near shore. Additionally, they are commonly encouraged, but not required by emergency order, to use traditional knowledge to set their 4-inch or smaller mesh gillnets in areas where salmon are less likely to be harvested.

In times of salmon conservation, a small number of salmon are incidentally harvested in 4-inch or smaller mesh gillnets. In 2013, and from 2021 to 2024, the total allowable catch of Canadian-origin Chinook salmon was zero fish, based on run size and escapements (Table 11). In each of these years, hundreds of Canadian-origin Chinook salmon were taken in a mix of test fishery projects for assessment and research, either harvested early or late in the season, before and after fishery restrictions, incidentally in nonsalmon gear, or illegally in salmon or nonsalmon gear. Although these numbers of Chinook salmon are small, they are greater than the zero harvestable surplus in low run years. There are often requests to use 6-inch gillnets early in the season, directly after ice-out, to provide an opportunity to harvest sheefish. In recent years, with low Chinook salmon runs, this opportunity has been closed starting June 1. Fishery managers have struggled to balance providing opportunities to harvest thousands of nonsalmon species (Table 15) important for traditional uses and food security, while also reducing the harvest of salmon during very low runs.

In 2020 and 2024, fishing with all gillnets (including 4-inch or smaller mesh) was closed during a portion of the summer season to reduce incidental harvest of Chinook salmon. Additionally, during part of the 2020 summer season, 4-inch or smaller mesh gillnets were only allowed in sloughs and tributaries; this closure of gear on the mainstem Yukon River was enacted to reduce incidental harvest of migrating Chinook salmon. In 2024, starting on August 26 in the fall season, the use of 4-inch or smaller mesh gillnets was restricted to a weekly schedule (open Friday to Sunday) to reduce incidental harvests of fall chum salmon.

There has been increased interest in providing additional fishing opportunities for nonsalmon species. Starting in 2022, the use of 6-inch or smaller mesh gillnets during salmon season closures was allowed in Lake Minchumina and the Tolovana River and Minto Flats area to provide a greater opportunity to harvest larger whitefish and pike in these areas. The precedent for this additional opportunity was based on traditional and local knowledge and permit harvest reports showing that salmon are rarely encountered in these areas of the Tanana River.

In 2025, a new subsistence fishing opportunity for whitefish was opened in the fall season only in designated areas without documented migrating or spawning salmon. These areas were identified using local knowledge shared with management agencies at public meetings and by using the ADF&G Anadromous Waters Catalog. In these designated areas off the mainstem Yukon, Koyukuk, and Tanana Rivers, 6-inch or smaller mesh gillnets, 60 feet or less in length, operated as a setnet near shore were allowed to provide subsistence users opportunity to target large whitefish species (sheefish, humpback and broad whitefish) while avoiding incidental harvest of protected salmon species. A list of open areas in each district was provided in advisory announcements along with corresponding global positioning system (GPS) coordinates and maps.

2025 ALASKA BOARD OF FISHERIES REGULATORY PROPOSALS

At the 2025 Arctic–Yukon–Kuskokwim Alaska Board of Fisheries meeting, the BOF will consider a total of 13 proposals in the Yukon and Tanana River Areas.

Three proposals address the Yukon River drainage subsistence fisheries:

1. Proposal 15 – For 2 years, close fishing in the mainstem Yukon River when fall chum salmon are detected in the Lower Yukon test fishery. Closures remain in place until fall chum salmon run has completed in each district.
2. Proposal 16 – Close all gillnets (including gillnets of 4-inch or smaller mesh) in the mainstem Yukon River when fall chum salmon are detected at the Lower Yukon test fishery in District 1. Closures remain in place until the fall chum salmon run has completed in each district. This closure would continue to be in effect every year until the Canada mainstem IMEG goal (70,000–104,000 fall chum salmon) was met in 4 consecutive seasons.
3. Proposal 17 – Allow set gillnets of 6-inch or smaller mesh, 60 feet or less in length in Hamilton Slough, Anen'eq River (Unuk River), and Ingricuar River from September 1 to September 30.

Ten proposals address sport fisheries in the Tanana River Area.

4. Proposals 18–20 – Repeal the bag limits and/or modify the open season in the Minto Flats northern pike sport fishery.

5. Proposals 21–27 – Modify seasons, bag, possession, and size limits in the Tanana River Area sport fishery. One proposal repeals an ice house registration requirement.

There were no proposals submitted for personal use or commercial fisheries.

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TABLES AND FIGURES

Table 1.–Summary of 2024 salmon escapement counts compared to existing goals.

Stock/location	Assessment method	2024 Escapement	Goal type	Goals	Year established	Primary source
Chinook salmon stock						
E. Fork Andreafsky River	Weir	[a]	SEG	2,100–4,900	2010	Volk et al. (2009)
W. Fork Andreafsky River	Aerial survey	101	SEG	640–1,600	2005	ADF&G (2004)
Anvik River drainage	Aerial survey	594	SEG	1,100–1,700	2005	ADF&G (2004)
Nulato River (forks combined)	Aerial survey	682	SEG	940–1900	2005	ADF&G (2004)
Gisasa River	Weir	Not operated	none	–	–	–
Henshaw River	Weir	Not operated	none	–	–	–
Chena River	Tower/sonar	397	BEG	3,300–5,700	2023	Liller and Savereide (2022)
Salcha River	Tower/sonar	1,525	BEG	3,300–6,500	2001	Evenson (2002)
Canada (upper Yukon River)	Sonar-harvest	24,184[b]	[c]	71,000	2024	JTC (2025)
Summer chum salmon stock						
Yukon drainagewide	Sonar	775,810[b]	BEG	500,000–1,200,000	2016	Hamazaki and Conitz (2015)
E. Fork Andreafsky	Weir	[a]	BEG	>40,000	2010	Fleischman and Evenson (2010)
Anvik River	Sonar	134,740	BEG	350,000–700,000	2005	ADF&G (2004)
Gisasa River	Weir	Not operated	none	–	–	–
Henshaw River	Weir	Not operated	none	–	–	–
Chena River	Tower/sonar	395[a]	none	–	–	–
Salcha River	Tower/sonar	1,238[a]	none	–	–	–
Fall chum salmon stock						
Yukon River drainage	Bayesian	161,100[b]	SEG	300,000–600,000	2010	Fleischman and Borba (2009)
Teedriinjik (Chandalar River)	Sonar	58,457	SEG	85,000–234,000	2019	Liller and Savereide (2018)
Sheenjek River	Sonar	14,320	none	–	–	–
Delta River	Ground surveys	16,880	SEG	7,000–20,000	2019	Liller and Savereide (2018)
Fishing Branch River	Weir/sonar	5,933	IMEG	22,000–49,000	2010	JTC (2010)
Canada (upper Yukon River)	Sonar-harvest	16,174	IMEG	70,000–104,000	2008	JTC (2008)
Porcupine River (Canada Portion)	Sonar-harvest	8,799	none	–	–	–
Coho salmon stock						
Delta Clearwater River	Boat survey	1,455	none	–	–	–

Note: BEG = biological escapement goal; IMEG = interim management escapement goal; SEG = sustainable escapement goal. En dash = no data.

[a] Incomplete count due to late installation, early removal of the project, or high water events.

[b] A statistical model is used to estimate escapement

[c] The Yukon River Panel adopted a border passage objective of 71,000 Chinook salmon in the *Yukon River Salmon Agreement* as of April 1, 2024. The objective will be in place from 2024 to 2030.

Table 2.–Yukon River summer chum salmon commercial and subsistence utilization in numbers of fish, 2004–2024.

Year	Subsistence[a]	Commercial	Personal use[b]	Test fish sales	Sport fish[c]	Yukon Area total
2004	77,934	26,410	231	217	203	104,995
2005	93,259	41,264	152	134	435	135,244
2006	115,078	92,116	262	456	583	208,495
2007	92,926	198,201	184	10	245	291,566
2008	86,514	151,186	138	80	371	238,289
2009	80,539	170,272	308	0	174	251,293
2010	88,373	232,888	319	0	1,183	322,763
2011	96,020	275,161	439	0	294	371,914
2012	126,992	319,575	321	2,412	271	449,571
2013	115,114	485,587	138	2,304	1,423	604,566
2014	86,900	530,644	235	0	374	618,153
2015	83,567	358,856	220	2,494	194	445,331
2016	87,902	525,809	176	380	264	614,531
2017	86,388	556,516	438	1,819	186	645,347
2018	74,482	576,700	515	1,028	200	652,925
2019	63,296	227,089	294	230	36	290,945
2020	41,741	13,955	67	0	1,684	57,447
2021	1,318	0	0	0	0	1,318
2022	6,760	0	0	0	0	6,760
2023	25,866	0	0	0	0	25,866
2024	32,703	0	18	0	–	32,721
Averages						
2010–2019	90,903	408,883	310	1,067	443	501,605
2020–2024	21,678	2,791	17	0	421	24,822

Note: En dash indicates data not available.

[a] Subsistence harvest includes the Coastal District communities of Hooper Bay and Scammon Bay.

[b] The Fairbanks Nonsubsistence Area is the only personal use area in the Yukon River drainage.

[c] Estimated sport fish harvest for all chum salmon (assumes majority of chum caught during summer season) in the Alaska portion of the drainage. A majority of the sport fish harvest occurs in the Tanana River drainage (District 6).

Table 3.–Harvest of Yukon River fall chum salmon, 2004–2024.

	U.S.					Canada				Total harvest
Year	Subsistence [a]	Commercial [b]	Personal use	Test fish sales [c]	Total	Aboriginal	Commercial	Domestic	Total	U.S. plus Canada
2004	62,526	4,110	230	0	66,866	2,385	7,365	0	9,750	76,616
2005	91,534	180,162	133	87	271,916	6,628	11,931	13	18,572	290,488
2006	84,002	174,542	333	0	258,877	7,700	4,096	0	11,796	270,673
2007	101,221	90,677	173	0	192,071	6,721	7,109	0	13,830	205,901
2008	89,357	119,265	181	0	208,803	5,504	4,062	0	9,566	218,369
2009	66,119	25,876	78	0	92,073	1,718	293	0	2,011	94,084
2010	68,645	2,550	3,209	0	74,404	3,601	2,186	0	5,787	80,191
2011	80,202	238,979	347	0	319,528	2,851	5,312	0	8,163	327,691
2012	99,309	289,692	410	166	389,577	3,818	3,205	0	7,023	396,600
2013	113,384	238,051	383	121	351,939	2,783	3,369	18	6,170	358,109
2014	92,529	115,599	278	30	208,436	2,529	2,485	19	5,033	213,469
2015	86,600	191,470	80	50	278,200	1,556	2,862	35	4,453	282,653
2016	84,617	465,511	283	668	551,079	4,005	1,745	0	5,750	556,829
2017	86,139	489,702	626	1,246	577,713	3,312	2,404	0	5,716	583,429
2018	69,207	387,788	505	907	458,407	2,874	1,957	0	4,831	463,238
2019	63,734	268,360	408	275	332,777	2,000	1,728	31	3,759	336,536
2020	5,728	[d]	37	0	5,765	100	[d]	[d]	100	5,865
2021	705	[d]	0	0	705	21	[d]	[d]	21	726
2022	2,794	[d]	0	0	2,794	20	[d]	[d]	20	2,814
2023	6,037	[d]	0	0	6,037	155	[d]	[d]	155	6,192
2024	3,327	[d]	0	0	3,327	0	[d]	[d]	0	3,327
Averages										
2010–2019	84,437	268,770	653	346	354,206	2,933	2,725	10	5,669	359,875
2020–2024	3,718	–	7	0	3,726	59	–	–	59	3,785

Note: En dashes indicate no data available.

[a] Includes test fishery harvest and commercial retained fish (not sold) that were utilized for subsistence. Coastal District harvest information is included even though not all stocks harvested in the Coastal District are bound for the Yukon River.

[b] Includes fish sold in the round and estimated numbers of female salmon commercially harvested for production of salmon roe (see Bergstrom et al. 1992).

[c] Test fishery sales is the number of salmon sold by ADF&G test fisheries.

[d] Commercial or domestic fishery was not conducted, and values are incalculable.

Table 4.–Harvest of Yukon River coho salmon, 2004–2024.

	U.S.						Canada			Total harvest
Year	Subsistence[a]	Commercial[b]	Personal use	Test fish sales[c]	Sport fish	Total	Mainstem	Porcupine	Total	U.S. plus Canada
2004	20,795	20,232	233	0	1,623	42,883	5	175	180	43,063
2005	27,250	58,311	107	0	627	86,295	0	11	11	86,306
2006	19,706	64,942	279	0	1,000	85,927	1	111	112	86,039
2007	19,624	44,575	135	0	597	64,931	2	500	502	65,433
2008	16,855	35,691	50	0	341	52,937	0	200	200	53,137
2009	16,006	8,472	70	0	964	25,512	0	0	0	25,512
2010	13,045	3,750	1,062	0	944	18,801	0	12	12	18,813
2011	12,344	76,303	232	0	463	89,342	0	63	63	89,405
2012	21,533	74,789	100	39	131	96,592	0	10	10	96,602
2013	14,457	66,203	109	1	266	81,036	0	10	10	81,046
2014	17,098	104,692	174	0	1,855	123,819	0	133	133	123,952
2015	18,107	129,700	145	8	593	148,553	0	0	0	148,553
2016	8,815	201,482	266	11	670	211,244	0	0	0	211,244
2017	7,414	138,915	200	63	291	146,883	0	71	71	146,954
2018	8,267	110,590	131	48	544	119,580	0	25	25	119,605
2019	5,818	58,591	68	40	72	64,589	0	0	0	64,589
2020	2,330	[d]	79	–	1,337	3,746	0	0	0	3,746
2021	296	[d]	0	–	13	309	–	–	–	309
2022	1,088	[d]	0	–	63	1,151	–	–	–	1,151
2023	1,399	[d]	0	–	0	1,399	–	–	–	1,399
2024	1,426	[d]	0	–	[e]	1,426	–	–	–	1,426
Averages										
2010–2019	12,690	96,502	249	21	583	110,044	0	32	32	110,076
2020–2024	1,308	–	16	–	353	1,606	0	0	0	1,606

Note: En dashes indicate no data available.

[a] Includes test fishery harvest and commercial retained fish (not sold) that were utilized for subsistence. Coastal District harvest information is included even though not all stocks harvested in the Coastal District are bound for the Yukon River.

[b] Includes fish sold in the round and estimated numbers of female salmon commercially harvested for production of salmon roe (see Bergstrom et al. 1992).

[c] Test fishery sales is the number of salmon sold by ADF&G test fisheries.

[d] Commercial or domestic fishery was not conducted, and values are incalculable.

[e] Data are unavailable.

Table 5.–Fall chum salmon passage or escapement estimates for selected spawning areas in the Yukon River Drainage, 2004–2024.

		Alaska							Canada	
		Tanana River drainage					Porcupine drainage		Canada mainstem	
Year	Yukon River drainagewide escapement estimate[a]	Toklat River[b]	Kantishna River abundance estimate[c]	Delta River[d]	Upper Tanana River abundance estimate[e]	Teedriinjik River[f]	Sheenjek River[g]	Fishing Branch River[h]	Border passage estimate[i]	Spawning escapement estimate
2004	576,800	35,480	76,163	25,073	123,879	169,848	41,600[j]	20,417	163,625[k]	154,080
2005	1,906,000	17,779[l]	107,719	28,132	337,755	526,838	485,886	119,058	451,477	437,498
2006	945,000	–	71,135	14,055	202,669	254,778	175,620	30,954	227,515	220,898
2007	956,500	–	81,843	18,610	320,811	243,805	69,184	32,150	246,317	236,987
2008	639,900	–	–	23,055	–	178,278	50,348	19,086[l]	174,028	167,898
2009	507,900	–	–	13,492	–	–	54,126	25,828	94,739	93,626
2010	507,400	–	–	17,993	–	167,532	24,669[j]	15,413	121,498	117,789
2011	919,300	–	–	23,639	–	298,223	97,976	13,085[l]	211,878	205,566
2012	691,400	–	–	9,377	–	205,791	104,701	22,399	141,567	137,662
2013	854,600	9,161	–	31,955	–	252,710	–	[m]	204,149	200,262
2014	739,400	–	–	32,480	–	221,421	–	[m]	159,846	156,796
2015	542,350	8,422	–	33,401	–	164,486	–	8,351	112,555	108,658
2016	833,700	16,885	–	21,913	–	295,023	–	29,397	148,012	145,267
2017	1,723,000	–	–	48,783	–	509,115	–	48,524	404,989	401,585
2018	653,200	25,587	–	39,641	–	170,356	–	10,151	157,083	154,126
2019	521,250	–	–	51,748	–	116,323	–	18,171	102,625	99,866
2020	183,200	–	–	9,854	–	–	–	4,795	23,512	23,512
2021	93,285	–	–	1,613	–	21,162	–	2,413	23,170	23,170
2022	170,800	7,360	–	5,670	–	67,434	13,956	2,934	22,034	22,034
2023	287,900	–	–	13,366	–	141,120	15,958	11,528	22,090	22,090
2024	161,100	1,779	–	16,880	–	58,457	14,320	5,933	16,174	16,174
Escapement objective[n]	300,000–600,000	15,000–33,000[o]		7,000–20,000	46,000–103,000[o]	85,000–234,000	50,000–104,000[o]	50,000–120,000 22,000–49,000[p]		>80,000 70,000–104,000[q]
Averages										
2010–2019	798,560	15,014	NA	31,093	NA	240,098	75,782	20,686	176,420	172,758
2020–2024	179,257	4,570	NA	9,477	NA	72,043	NA	5,521	21,396	21,396

-continued-

Note: Yukon River mainstem sonar historical estimates were revised in 2016 using selectivity parameters. En dashes indicate no data. NA indicates insufficient data to generate an average.

[a] Escapement estimates are derived from a Bayesian state-space model as posterior medians.

[b] Expanded total abundance estimates for upper Toklat River index area using stream life curve developed with 1987–1993 data. Index area includes Geiger Creek, Sushana River, and mainstem floodplain sloughs from approximately 0.25 mile upstream of the roadhouse, unless otherwise indicated.

[c] Fall chum salmon abundance estimate for the Kantishna River drainage is based on a mark–recapture program operated during 1999–2007.

[d] The population estimate is typically generated from replicate foot surveys and stream life data (area under the curve method).

[e] Fall chum salmon abundance estimate for the upper Tanana River drainage is based on a mark–recapture program operated during 1995–2007. Upper Tanana River consists of that portion upstream of the confluences with the Kantishna River.

[f] Split-beam sonar estimates from 2002 to 2006, DIDSON (dual-frequency identification sonar) since 2007. The project was aborted or did not operate in 2009 and 2020. Sonar counts were expanded to represent the remainder of the run after the project was terminated for the season.

[g] Split-beam sonar estimates from 2002 to 2004 and DIDSON from 2005 to 2012 and 2022. Sonar counts were expanded to represent the remainder of the run after the project was terminated for the season.

[h] Weir counts with expansions through October 25, unless otherwise indicated.

[i] Border passage estimate is based on mark–recapture from 1980 to 2005 and 2006 to present is based on sonar minus harvest from Eagle residents upstream of deployment.

[j] Sonar counts only used 1 bank (right).

[k] Border passage estimates for 1999 to 2004 were revised using a stratified population analysis system (Arnason et al. 1995).

[l] The count is probably low due to issues with apportionment, the length of weir operations, the time of survey, or water level.

[m] Fishing Branch River weir did not operate; estimates based on radiotelemetry resulted in Canada estimates of 25,376 and 7,304 for 2013 and 2014, respectively; and values are incalculable.

[n] Escapement objectives include current drainagewide sustainable escapement goals (SEG) and historical discontinued tributary project biological escapement goals (BEG). Also included are U.S./Canada Yukon River treaty goals along with the current interim management escapement goals (IMEG).

[o] Escapement goals discontinued in 2010 for Toklat River, 2016 for Sheenjek River, and 2019 for Tanana River (upper Tanana plus Toklat).

[p] Interim management escapement goal (IMEG) established for 2008–2010 based on the percentile method and carried forward.

[q] Interim management escapement goal (IMEG) established for 2010 based on brood table of Canadian-origin mainstem stocks (1982–2003).

Table 6.–Coho salmon passage or escapement estimates for selected spawning areas in the Alaska portion of the Yukon River drainage, 2004–2024.

		Nenana River drainage				Upper Tanana River drainage		
Year	Yukon River mainstem sonar estimate[a]	Lost Slough	Nenana mainstem[b]	Wood Creek	Seventeen Mile Slough	Delta Clearwater River[c]	Clearwater Lake and Outlet	Richardson Clearwater River
2004	207,844	220 (h)	450 (h)	840 (h)	3,370 (h)	37,550 (b)	2,925 (b)	8,626 (h)
2005	194,622	430 (h)	325 (h)	1,030 (h)	3,890 (h)	34,293 (b)	2,100 (b)	2,024 (h)
2006	163,889	194 (h)	160 (h)	634 (h)	1,916 (h)	16,748 (b)	4,375 (b)	271 (h)
2007	192,406	63 (h)	520 (h)	605 (h)	1,733 (h)	14,650 (b)	2,075 (b)	553 (h)
2008	145,378	1,342 (h)	1,539 (h)	578 (h)	1,652 (h)	7,500 (b)	1,275 (b)	265 (h)
2009	[d]	410 (h)	–	470 (h)	680 (h)	16,850 (b)	5,450 (b)	155 (h)
2010	177,724	1,110 (h)	280 (h)	340 (h)	720 (h)	5,867 (b)	813 (b)	1,002 (h)
2011	149,533	369 (h)	–	–	912 (h)	6,180 (b)	2,092 (b)	575 (h)
2012	130,734	–	106 (h)	–	405 (h)	5,230 (b)	396 (h)	515 (h)
2013	110,515	721 (h)	–	55 (h)	425 (h)	6,222 (b)	2,221 (h)	647 (h)
2014	283,421	333 (h)	378 (h)	649 (h)	886 (h)	4,285 (b)	434 (h)	1,941 (h)
2015	121,193	242 (h)	1,789 (h)	1,419 (h)	3,890 (h)	19,533 (b)	1,621 (h)	3,742 (h)
2016	168,297	334 (h)	1,680 (h)	1,327 (h)	2,746 (h)	6,767 (b)	1,421 (h)	1,350 (h)
2017	166,320	1,278 (h)	862 (h)	2,025 (h)	1,942 (h)	9,617 (b)	–	–
2018	136,347	1,822 (h)	241 (h)	361 (h)	347 (h)	2,884 (b)	2,465 (h)	976 (h)
2019	86,401	–	749 (h)	184 (h)	424 (h)	2,043 (b)	258 (h)	300 (h)
2020	107,680	28 (h)	206 (h)	231 (h)	507 (h)	2,557 (b)	210 (h)	475 (h)
2021	37,255	126 (h)	104 (h)	226 (h)	213 (h)	913 (b)	130 (h)	17 (h)
2022	92,102	[e] (h)	[e] (h)	[e] (h)	[e] (h)	1,750 (b)	101 (h)	57 (h)
2023	49,697	–	–	–	–	1,794 (b)		
2024	77,664	–	349 (h)	–	–	1,455 (b)	708 (h)	395 (h)
Averages								
2010–2019	153,049	776	761	795	1,270	6,863	1,302	1,228
2020–2024	72,880	77	220	229	360	1,694	287	236

Note: Only peak counts are presented. Denotations of survey methods include: (b) = boat, (f) = fixed wing, and (h) = helicopter. En dashes indicate no data.

[a] The passage estimates for coho salmon are incomplete. The sonar project is terminated prior to the end of the coho salmon run. Yukon River mainstem sonar historical estimates were revised in 2016, using new selectivity parameters.

[b] Index area includes the mainstem Nenana River between the confluences of Lost Slough and the Teklanika River.

[c] Index area is lower 17.5 miles of system surveys conducted generally during October 21–27 (through November 7 in 2018). The previous sustainable escapement goal (SEG) range of 5,200–17,000 was established in January 2004 and discontinued in March 2023.

[d] The Pilot Station sonar project encountered record-low water levels during the fall season, causing difficulties with species apportionment and catchability, and values are incalculable.

[e] Partial surveys, due to military airspace closure, are not comparable to historical indexes.

Table 7.–Alaska harvest of Yukon River Chinook salmon, 2004–2024.

Year	Commercial	Total commercial	Subsistence[a]	Personal use	Test fish sales[b]	Sport fish[c]	Total
2004	56,151	56,151	55,713	201	792	1,513	114,370
2005	32,029	32,029	53,409	138	310	483	86,369
2006	45,829	45,829	48,593	89	817	739	96,067
2007	33,634	33,634	55,174	136	849	960	90,753
2008	4,641 [d,e]	4,641 [d,e]	45,186	126	0	409	50,362
2009	316 [d,e]	316 [d,e]	33,805	127	0	863	35,111
2010	9,897 [d,e]	9,897 [d,e]	44,559	162	0	474	55,092
2011	82 [d,e]	82 [d,e]	40,980	89	0	474	41,625
2012	0 [d]	0 [d]	30,415	71	0	345	30,831
2013	0 [d]	0 [d]	12,533	42	0	166	12,741
2014	0 [d]	0 [d]	3,286	1	0	0	3,287
2015	0 [d]	0 [d]	7,577	5	0	13	7,595
2016	0 [d]	0 [d]	21,612	57	0	20	21,689
2017	168 [d,e]	168 [d,e]	37,412	125	0	18	37,723
2018	0 [d]	0 [d]	31,986	206	0	200	32,392
2019	3,110 [d,e]	3,110 [d,e]	48,377	244	0	38	51,769
2020	0 [d]	0 [d]	21,714	112	0	49	21,875
2021	0 [d]	0 [d]	2,095	0	0	0	2,095
2022	0 [d]	0 [d]	1,764	0	0	0	1,764
2023	0 [d]	0 [d]	1,564	0	0	0	1,564
2024	0 [d]	0 [d]	1,750	0	0	0	1,750
Averages							
2010–2019	1,326	1,326	27,874	100	0	175	29,474
2020–2024	0	0	5,777	22	0	10	5,810

Note: Zero indicates that no harvest or fishery was conducted.

[a] Includes harvest from the Coastal District and test fishery harvest that were utilized for subsistence. Subsistence includes fish commercially caught but not sold, and test fishery catch given to subsistence users.

[b] Includes only test fishery fish that were sold commercially.

[c] Sport fish harvest for the Alaska portion of the Yukon River drainage. Most of this harvest is taken within the Tanana River drainage (see Behr 2015; Wuttig and Baker 2017).

[d] No directed Chinook salmon commercial fishery was conducted.

[e] Chinook salmon sold commercially were incidentally caught in chum salmon-directed commercial fishery.

Table 8.–Yukon River Chinook salmon escapement estimates from sonar projects and selected tributaries, 2004–2024.

	Sonar		Tower or weir			Aerial survey[a]		
Year	Pilot	Eagle[b]	Chena	Salcha	East Fork Andreafsky	West Fork Andreafsky	Anvik[c]	Nulato
2004	200,761	–	9,645	15,761	8,045	1,317	3,625	1,321
2005	259,015	81,529	[d]	6,000	2,239	1,492	2,410	553
2006	228,763	73,691	2,936	10,679	6,463	824	–	1,292
2007	170,246	41,697	3,806	6,425	4,504	976	–	2,583
2008	175,046	38,097	3,210	2,731[d]	4,242	–	–	922
2009	177,796	69,957	5,253	12,774	3,004	1,678	832	2,260
2010	145,088	35,074	2,382	6,135	2,413	858	965	711
2011	148,797	51,271	[d]	[d,e]	5,213	1,173	642	1,401
2012	127,555	34,747	2,219	7,165	2,517	–	722	1,374
2013	136,805	30,725	1,860	5,465	1,998	1,090	941	1,118
2014	163,895	63,462	7,191	[d]	5,949	1,695	1,051	–
2015	146,859	84,015	6,294	6,288[f]	5,474	1,356	2,487	1,564
2016	176,898	72,329	6,665	2,675	2,676	–	–	–
2017	263,014	73,313	4,949 [d]	4,195[d]	2,970	942	1,080	943
2018	161,900	57,959	4,227 [d]	4,053[d]	3,972	455	1,109	870
2019	219,624	45,560	2,018	4,678	5,111	904	1,432	656
2020	162,252	33,550	502	–	–	508	675	459
2021	124,845	31,796	1,417	2,082	1,425	–	–	–
2022	48,439	12,025	366	1,211	–	–	179	60
2023	58,529	14,752[g]	1,069	1,242	194	308	186	300
2024[h]	64,198	24,183[g]	397	1,525	24[d]	101	594	385
5-year average (2020–2024)	91,653	23,261	750	1,515	548	306	409	301
Goal range and type		42,500–55,000 (IMEG)[g]	2,800–5,700 (BEG)	3,300–6,500 (BEG)	2,100–4,900 (SEG)	640–1,600 (SEG)	1,100–1,700 (SEG)	940–1,900 (SEG)

Note: En dash indicates no data. Chena biological escapement goal (BEG) was established in 2001. IMEG = interim management escapement goal; SEG = sustainable escapement goal.

[a] Only surveys that were complete and had a higher rating than fair are included.

[b] Estimated number of Chinook salmon at Eagle sonar. Does not account for harvest above the sonar project.

[c] Standardized for escapement goal review to include the mainstem between the sonar and McDonald Creek. Also includes Beaver, Swift, and Otter Creeks.

[d] Incomplete count, project was not operated or was inoperable for a large portion of the season due to water conditions.

[e] Aerial survey indicated escapement of at least 3,500 Chinook salmon.

[f] Final estimate uses a binomial mixed-effects model to create passage estimates for the period of missed counts prior to the start of tower operations on July 12.

[g] The IMEG of 42,500–55,000 fish applies to 2004 to 2022. In 2023, Alaska and Canada managed the run using different objectives; Alaska used the IMEG range, and Canada managed the run using 55,000 fish as the border passage goal. In 2024, the border passage objective of 71,000 fish was adopted from 2024 to 2030 as part of the *Yukon River Salmon Agreement* as of April 1, 2024.

[h] Preliminary estimate and subject to change.

Table 9.–Pilot Station sonar project estimates with 90% confidence interval (CI), 2004–2024.

Year[a]	Chinook	CI (+/-)	Summer chum[b]	CI (+/-)	Fall chum[b]	CI (+/-)	Coho[c]	CI (+/-)	Pink	CI (+/-)
2004	200,761	12,145	1,344,213	30,363	633,368	36,529	207,844	19,630	399,339	20,531
2005[d]	259,014	42,452	2,570,697	78,867	1,893,688	110,806	194,372	29,319	61,091	11,294
2006	228,763	27,696	3,780,760	155,452	964,238	45,647	163,889	18,167	183,006	23,648
2007	170,246	25,535	1,875,491	74,394	740,195	46,349	192,406	19,259	126,282	22,462
2008	175,046	21,367	1,849,553	68,542	636,525	30,023	145,378	13,885	580,127	86,243
2009[e]	177,796	26,130	1,477,186	69,895	274,227	38,552	240,779	29,211	34,529	12,597
2010	137,899	61,122	1,423,372	89,356	458,103	40,797	177,724	12,489	919,036	639,693
2011	148,797	20,174	2,051,501	77,486	873,877	42,660	149,533	20,770	9,754	2,983
2012	127,555	18,652	2,136,476	79,036	778,158	62,184	130,734	15,795	420,344	59,823
2013	136,805	32,901	2,849,683	114,602	865,295	72,277	110,515	23,297	6,126	6,495
2014	163,895	18,735	2,020,309	98,909	706,630	61,902	283,421	28,112	679,126	59,992
2015	146,859	30,958	1,591,505	98,413	669,483	40,757	121,193	14,614	39,690	12,436
2016	176,898	18,467	1,921,748	80,516	994,760	64,435	168,297	18,403	1,364,849	87,144
2017	263,014	29,110	3,093,735	138,259	1,829,931	89,124	166,320	33,528	166,529	31,240
2018	161,831	24,538	1,612,688	107,348	928,664	55,042	136,347	11,895	689,607	47,967
2019	219,624	20,477	1,402,925	85,902	842,041	37,151	86,401	9,529	42,353	8,893
2020	162,252	18,967	692,602	36,325	262,439	17,810	107,680	6,843	207,942	18,745
2021	124,845	10,831	153,718	16,149	146,197	11,680	37,255	3,881	22,181	5,832
2022	48,439	7,379	463,806	24,817	325,717	19,197	92,102	7,500	158,767	21,735
2023	58,529	14,338	845,988	35,973	370,015	21,643	46,697	7,610	9,735	3,557
2024	64,198	14,093	758,260	39,248	246,665	14,672	77,665	7,268	127,372	20,102
Averages										
2010–2019	168,318		2,010,394		894,694		153,049		433,741	
2020–2024	91,653		582,875		270,207		72,280		105,199	

Note: These values are not escapement or run size estimates.

[a] Estimates for all years were generated with the most current apportionment model.

[b] Reported chum salmon numbers are before July 19 (summer) and after July 18 (fall). These values do not remove genetically fall fish in summer or summer fish in fall season.

[c] Estimate may not include the entire run. From 2008 to present, operations were extended to September 7, instead of the usual end date of August 31.

[d] Estimates include extrapolations from June 10 to June 18 to account for the time before the DIDSON (dual-frequency identification sonar) was deployed.

[e] In 2009, high water levels occurred during the summer season, followed by extremely low water during the fall season; therefore, passage estimates are considered speculative.

Table 10.–Reconstructed drainagewide Yukon River Chinook salmon run size, 1981–2024.

	Canadian-origin		Lower stock		Middle stock		Drainagewide	
Year	Escapement	Total run	Escapement	Total run	Escapement	Total run	Escapement	Total run
1981	106,349	196,799	57,689	71,240	20,737	141,945	184,775	409,984
1982	35,777	162,185	45,469	75,017	49,063	99,512	130,309	336,714
1983	55,250	183,136	46,255	78,662	52,454	133,813	153,959	395,611
1984	68,331	138,298	75,685	127,246	16,940	96,371	160,956	361,915
1985	39,082	158,372	78,680	146,244	50,551	103,653	168,313	408,269
1986	49,804	176,175	124,517	161,616	66,469	84,345	240,790	422,136
1987	33,795	176,108	81,038	117,561	37,617	81,692	152,450	375,361
1988	49,442	160,326	74,394	113,421	36,411	65,319	160,247	339,066
1989	60,545	166,594	50,031	95,758	26,532	56,117	137,108	318,469
1990	85,985	178,126	98,761	135,135	53,738	98,251	238,484	411,512
1991	51,662	141,490	91,248	146,341	27,580	76,332	170,490	364,163
1992	46,024	179,658	37,038	72,572	33,736	79,500	116,798	331,730
1993	55,346	159,529	139,536	183,423	70,145	120,413	265,027	463,365
1994	64,047	192,917	112,147	152,622	92,165	138,830	268,359	484,369
1995	69,485	214,663	82,140	121,861	100,257	156,866	251,882	493,390
1996	76,425	195,905	39,057	76,917	54,095	74,002	169,577	346,824
1997	83,707	199,464	100,328	155,506	99,401	134,908	283,436	489,878
1998	35,520	97,139	55,974	96,706	31,122	51,710	122,616	245,555
1999	47,002	124,131	68,139	129,825	57,866	68,077	173,007	322,033
2000	21,345	53,788	35,405	55,528	17,663	25,193	74,413	134,509
2001	68,219	103,240	86,732	109,411	59,606	70,822	214,557	283,473
2002	48,542	93,774	75,944	93,785	32,107	56,367	156,593	243,926
2003	94,909	172,467	99,065	108,208	57,513	92,293	251,487	372,968
2004	55,433	127,492	74,820	102,292	47,938	81,057	178,191	310,841
2005	69,335	131,682	79,959	100,163	48,527	73,300	197,821	305,145
2006	64,261	126,125	75,780	96,849	33,162	66,457	173,203	289,431
2007	36,229	92,824	67,670	81,746	28,111	60,695	132,010	235,265
2008	33,885	69,577	68,067	79,280	24,784	42,105	126,736	190,962

-continued-

Table 10.–Page 2 of 2.

	Canadian-origin		Lower stock		Middle stock		Drainagewide	
Year	Escapement	Total run	Escapement	Total run	Escapement	Total run	Escapement	Total run
2009	64,971	86,638	77,371	82,073	50,703	63,130	193,045	231,841
2010	32,250	62,767	39,343	50,696	26,283	46,465	97,876	159,928
2011	47,008	70,497	68,020	74,910	33,858	46,834	148,886	192,241
2012	32,328	51,449	42,407	47,574	24,582	38,056	99,317	137,079
2013	28,488	39,617	39,980	42,179	16,776	20,585	85,244	102,381
2014	63,370	65,111	64,282	65,388	44,122	45,102	171,774	175,601
2015	82,695	88,341	63,916	65,138	48,462	51,186	195,073	204,665
2016	69,164	83,796	50,668	54,208	44,285	51,949	164,117	189,953
2017	69,387	99,946	53,104	57,432	68,059	85,742	190,550	243,120
2018	54,595	76,646	46,868	50,164	41,854	51,994	143,317	178,804
2019	42,193	85,148	76,948	85,812	26,826	49,642	145,967	220,602
2020	30,646	52,140	51,012	54,354	21,275	32,323	102,933	138,817
2021	31,509	33,239	40,458	40,792	27,878	28,396	99,845	102,427
2022	12,009	13,360	15,096	15,552	8,241	8,610	35,346	37,522
2023	14,576	15,816	13,552	13,808	9,041	9,668	37,169	39,292
2024	24,184	25,390	20,272	20,715	9,582	10,054	54,038	56,159
Averages								
1981–2024	52,389	116,406	65,565	88,767	41,548	69,765	159,502	274,939
2015–2024	43,096	57,382	43,189	45,798	30,550	37,956	116,836	141,136
2020–2024	22,585	27,989	28,078	29,044	15,203	17,810	65,866	74,843

Note: Chinook salmon total run size and escapement estimates come from an integrated state-space run reconstruction model. The model combines historical data (1981–2024) from various assessment projects that estimate mainstem passage, harvests, tributary escapements, stock proportions, and age composition under a single Bayesian estimation framework. The run reconstruction component of the model reconstructs historical harvest and escapement for 3 Chinook salmon stock aggregates: the lower, middle, and upper (Canada) portions of the Yukon River basin (Conners et al. 2023). All historical run size and escapement estimates are updated annually based on the most recent model output.

Table 11.–Pilot Station sonar Chinook salmon passage and Canadian-origin proportion by strata, 2005–2024.

Year	Strata	Dates	Pilot Station passage	Proportion of run	Canada proportion [a]	Number of Canada fish
2005	Stratum 1	06/04–06/17	91,136	0.35	0.57	51,998
	Stratum 2	06/18–07/03	119,607	0.46	0.43	51,925
	Stratum 3	07/04–08/20	48,271	0.19	0.27	13,231
	Total		259,014	1.00	0.45	117,155
2006	Stratum 1	06/08–06/20	37,986	0.17	0.48	18,317
	Stratum 2	06/21–06/28	96,569	0.42	0.43	41,766
	Stratum 3	06/29–07/03	57,940	0.25	0.36	20,870
	Stratum 4	07/04–07/26	36,268	0.16	0.35	12,789
	Total		228,763	1.00	0.40	93,742
2007	Stratum 1	06/06–06/19	50,083	0.29	0.52	26,207
	Stratum 2	06/20–06/30	62,907	0.37	0.35	21,787
	Stratum 3	07/01–08/16	57,256	0.34	0.20	11,203
	Total		170,246	1.00	0.35	59,197
2008	Stratum 1	06/01–06/23	41,294	0.24	0.48	19,679
	Stratum 2	06/24–06/29	42,554	0.24	0.33	14,157
	Stratum 3	06/30–09/06	91,198	0.52	0.34	30,731
	Total		175,046	1.00	0.37	64,568
2009	Stratum 1	06/09–06/22	34,229	0.19	0.48	16,490
	Stratum 2	06/23–06/29	83,866	0.47	0.35	29,490
	Stratum 3	06/30–07/31	59,701	0.34	0.16	9,335
	Total		177,796	1.00	0.31	55,315
2010	Stratum 1	06/12–06/21	28,885	0.21	0.53	15,281
	Stratum 2	06/22–06/27	45,306	0.33	0.52	23,442
	Stratum 3	06/28–09/05	63,708	0.46	0.27	17,435
	Total		137,899	1.00	0.41	56,159
2011	Stratum 1	06/01–06/18	31,273	0.21	0.55	17,245
	Stratum 2	06/19–06/27	67,686	0.45	0.35	23,663
	Stratum 3	06/28–08/07	49,838	0.33	0.16	7,803
	Total		148,797	1.00	0.33	48,711
2012	Stratum 1	06/10–06/24	31,998	0.25	0.40	12,951
	Stratum 2	06/25–07/02	63,648	0.50	0.44	28,192
	Stratum 3	07/03–07/30	31,909	0.25	0.32	10,318
	Total		127,555	1.00	0.40	51,461
2013	Stratum 1	06/14–06/24	64,830	0.47	0.74	48,244
	Stratum 2	06/25–07/01	26,362	0.19	0.44	11,673
	Stratum 3	07/02–08/02	45,613	0.33	0.18	8,421
	Total		136,805	1.00	0.50	68,337
2014	Stratum 1	06/03–06/14	45,236	0.28	0.50	22,450
	Stratum 2	06/15–06/24	82,146	0.50	0.42	34,198
	Stratum 3	06/25–08/04	36,513	0.22	0.18	6,725
	Total		163,895	1.00	0.39	63,373
2015	Stratum 1	05/30–06/17	30,600	0.21	0.49	15,061
	Stratum 2	06/18–06/26	51,172	0.35	0.37	18,736
	Stratum 3	06/27–08/17	65,087	0.44	0.33	21,352
	Total		146,859	1.00	0.38	55,149

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Year	Strata	Dates	Pilot Station passage	Proportion of run	Canadian proportion [a]	Number of Canadian fish
2016	Stratum 1	05/30–06/14	37,511	0.21	0.52	19,354
	Stratum 2	06/15–06/25	86,622	0.49	0.34	29,678
	Stratum 3	06/26–08/24	52,765	0.30	0.44	22,949
	Total		176,898	1.00	0.41	71,981
2017	Stratum 1	05/31–06/20	110,001	0.42	0.43	47,817
	Stratum 2	06/21–06/25	69,392	0.26	0.40	28,072
	Stratum 3	06/26–08/11	83,621	0.32	0.40	33,346
	Total		263,014	1.00	0.42	109,236
2018	Stratum 1	06/02–06/24	72,545	0.45	0.47	33,967
	Stratum 2	06/25–07/03	57,070	0.35	0.40	22,889
	Stratum 3	07/04–08/05	32,216	0.20	0.28	8,864
	Total		161,831	1.00	0.41	65,720
2019	Stratum 1	06/02–06/23	82,035	0.37	0.56	45,637
	Stratum 2	06/24–06/30	73,551	0.34	0.42	30,563
	Stratum 3	07/01–08/24	64,038	0.29	0.36	22,910
	Total		219,624	1.00	0.45	99,110
2020	Stratum 1	06/07–06/22	34,551	0.21	0.63	21,891
	Stratum 2	06/23–06/29	64,298	0.40	0.48	30,873
	Stratum 3	06/30–07/06	35,047	0.22	0.44	15,453
	Stratum 4	07/07–08/17	28,356	0.17	0.37	10,468
	Total		162,252	1.00	0.48	78,685
2021	Stratum 1	05/31–06/22	44,751	0.36	0.62	27,527
	Stratum 2	06/23–07/06	59,173	0.47	0.54	32,065
	Stratum 3	07/07–08/06	20,921	0.17	0.35	7,409
	Total		124,845	1.00	0.54	67,001
2022	Stratum 1	06/01–06/22	10,491	0.22	0.67	7,022
	Stratum 2	06/23–06/29	18,559	0.38	0.42	7,766
	Stratum 3	06/30–07/27	19,389	0.40	0.35	6,860
	Total		48,439	1.00	0.45	21,648
2023	Stratum 1	06/07–06/26	22,134	0.38	0.44	9,635
	Stratum 2	06/27–07/03	12,373	0.21	0.54	6,690
	Stratum 3	07/04–07/23	24,022	0.41	0.48	11,492
	Total		58,529	1.00	0.48	27,817
2024	Stratum 1	06/05–06/27	26,561	0.41	0.49	13,146
	Stratum 2	06/28–07/06	21,890	0.34	0.46	10,086
	Stratum 3	07/07–07/25	15,747	0.25	0.34	5,392
	Total		64,198	1.00	0.45	28,624
				Average annual proportion of Canadian stock	0.42	
				Minimum annual proportion of Canadian stock	0.31	
				Maximum annual proportion of Canadian stock	0.54	

Note: Average, minimum, and maximum values exclude the most recent year's data.

[a] Total Canadian proportion is weighted with proportion of run.

Table 12.–Estimated run size, escapement, and harvest shares for Canadian-origin Yukon River Chinook salmon, 2005–2024.

	Yukon River Panel goal or IMEG[a]				U.S. share (%) of TAC			Canada share (%) of TAC				Border objective[f]		Objectives exceeded?	
Year	From	To	Border passage[b]	Total Chinook salmon run size[c]	74%	80%	U.S. harvest[d]	20%	26%	Canada harvest	Spawning escapement[e]	Lower end border objective	Upper end border objective	Lower end border objective[g]	Upper end border objective[h]
2005	28,000	28,000	78,962	86,895	43,582	47,116	44,650	11,779	15,313	10,977	31,268	39,779	43,313	39,183	35,649
2006	28,000	28,000	71,388	84,845	42,065	45,476	48,097	11,369	14,780	8,758	27,990	39,369	42,780	32,019	28,608
2007	33,000	43,000	39,698	70,440	20,306	29,952	48,320	5,488	9,734	4,794	17,326	38,488	52,734	1,210	-13,036
2008	45,000	45,000	37,282	62,358	12,845	13,886	25,329	3,472	4,513	3,399	33,630	48,472	49,513	-11,190	-12,231
2009	45,000	45,000	69,575	87,221	31,244	33,777	17,646	8,444	10,977	4,297	65,278	53,444	55,977	16,131	13,598
2010	42,500	55,000	34,470	59,736	3,505	13,789	25,271	947	4,481	2,456	32,009	43,447	59,481	-8,977	-25,011
2011	42,500	55,000	50,901	71,725	12,377	23,380	20,824	3,345	7,599	4,594	46,307	45,845	62,599	5,056	-11,698
2012	42,500	55,000	34,656	48,498	0	4,798	13,842	0	1,559	2,000	32,656	42,500	56,559	-7,844	-21,903
2013	42,500	55,000	30,573	37,177	0	0	6,604	0	0	1,904	28,669	42,500	55,000	-11,927	-24,427
2014	42,500	55,000	63,431	64,886	7,316	17,909	1,455	1,977	5,820	100	63,331	44,477	60,820	18,954	2,611
2015	42,500	55,000	83,674	87,323	23,919	35,858	3,649	6,465	11,654	1,000	82,674	48,965	66,654	34,709	17,020
2016	42,500	55,000	71,567	82,765	20,546	32,212	11,198	5,553	10,469	2,769	68,798	48,053	65,469	23,514	6,098
2017	42,500	55,000	71,815	93,188	28,259	40,551	21,373	7,638	13,179	3,500	68,315	50,138	68,179	21,677	3,636
2018	42,500	55,000	57,264	76,356	15,804	27,085	19,092	4,271	8,803	2,790	54,474	46,771	63,803	10,493	-6,539
2019	42,500	55,000	44,816	72,620	13,039	24,096	27,804	3,524	7,831	2,764	42,052	46,024	62,831	-1,208	-18,015
2020	42,500	55,000	33,330	45,501	0	2,401	12,171	0	780	2,363	30,967	42,500	55,780	-9,170	-22,450
2021	42,500	55,000	31,758	32,972	0	0	1,214	0	0	306	31,452	42,500	55,000	-10,742	-23,242
2022	42,500	55,000	12,023	13,144	0	0	1,121	0	0	65	11,958	42,500	55,000	-30,477	-42,977
2023	42,500	55,000[i]	14,780	15,280	–	–	886	–	–	180	14,576	–	–	NA	NA
2024	71,000	71,000[j]	24,186	25,390	0	0	1,085	0	0	0	24,184	71,000	71,000	-46,814	-46,814
2020–2024 Average			23,215	26,457	0	600	3,295	0	195	583	22,627	49,625	59,195	-24,301	-33,871

Note: The total allowable catch (TAC) can be calculated by adding the 80% U.S. share and 20% Canada share. The TAC range is calculated by subtracting each end of the goal range from the total run; a more detailed explanation is available in JTC (2022). Meeting the interim management escapement goal (IMEG) and providing Canada's share of the TAC is part of the U.S. obligation to meet the harvest share objectives. Border objective is the number of fish that would achieve the goal and the harvest share. En dash means no data, and NA means not available.

[a] The IMEG is not a biologically based escapement goal.

[b] Border passage estimates are the Eagle sonar estimate minus the Alaska harvest from the community of Eagle upstream of the sonar.

[c] Total Canadian-origin run size is equal to Eagle sonar passage. Beginning in 2014, this includes harvests from the Coastal District.

[d] United States harvest estimates are estimated by applying the Canadian-origin genetic stock proportions collected from harvest sampling to the number of fish harvested in Alaska.

[e] Spawning escapement is the border passage estimate minus the Canadian harvest.

[f] Border passage required to meet IMEG and provide 20% and 26% Canadian Harvest share (Lower and Upper objective).

[g] Number of fish additional to the lower end of the *Yukon River Salmon Agreement* (a negative number is the number of fish below the required value).

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[h] Number of fish additional to the upper end of the *Yukon River Salmon Agreement* (a negative number is the number of fish below the required value).

[i] The Yukon River Panel did not agree upon a goal; Alaska used the previous IMEG range Chinook salmon, and DFO in Canada used the upper end of the range (55,000 fish) as the management objective for border passage.

[j] In April of 2024, Canada and Alaska implemented a 7-year run rebuilding target with a border passage objective of 71,000 Chinook salmon.

Table 13.–Yukon River fall chum salmon estimated brood year production and return per spawner estimates, 1974–2024.

				Estimated brood year return								(R)	(R/S)
	(S)	Estimated annual totals		Number of salmon[a]				Proportion				Total brood year return	Return/ spawner
Year	Escapement[b]	Catch	Run	Age 3	Age 4	Age 5	Age 6	Age 3	Age 4	Age 5	Age 6		
1974	681,050	478,875	1,159,925	112,570	648,505	100,042	0	0.13	0.75	0.12	0.00	861,117	1.26
1975	2,355,500	473,062	2,828,562	196,016	1,784,695	67,076	0	0.10	0.87	0.03	0.00	2,047,787	0.87
1976	546,900	339,043	885,943	148,640	641,780	137,901	4,834	0.16	0.69	0.15	0.01	933,155	1.71
1977	733,300	447,918	1,181,218	112,149	1,076,369	193,980	6,372	0.08	0.77	0.14	0.00	1,388,871	1.89
1978	549,000	434,030	983,030	22,187	370,821	107,222	0	0.04	0.74	0.21	0.00	500,230	0.91
1979	1,418,000	615,377	2,033,377	44,539	909,542	307,984	4,294	0.04	0.72	0.24	0.00	1,266,359	0.89
1980	332,700	488,305	821,005	13,680	407,555	203,033	2,867	0.02	0.65	0.32	0.00	627,134	1.88
1981	559,200	677,257	1,236,457	51,333	1,011,244	341,375	9,079	0.04	0.72	0.24	0.01	1,413,031	2.53
1982	241,000	373,175	614,175	12,611	498,283	175,951	780	0.02	0.72	0.26	0.00	687,624	2.85
1983	511,800	525,016	1,036,816	15,304	950,624	232,604	4,047	0.01	0.79	0.19	0.00	1,202,579	2.35
1984	354,550	412,322	766,872	6,688	425,946	163,044	9,148	0.01	0.70	0.27	0.02	604,826	1.71
1985	715,700	515,481	1,231,181	47,445	919,574	305,678	2,625	0.04	0.72	0.24	0.00	1,275,322	1.78
1986	539,800	318,028	857,828	1,457	524,515	343,215	5,668	0.00	0.60	0.39	0.01	874,855	1.62
1987	736,200	406,143	1,142,343	12,173	682,570	345,267	7,720	0.01	0.65	0.33	0.01	1,047,730	1.42
1988	347,600	359,174	706,774	12,236	211,051	161,502	33,889	0.03	0.50	0.39	0.08	418,677	1.20
1989	542,800	545,322	1,088,122	3,266	302,832	417,960 [c]	20,975	0.00	0.41	0.56	0.03	745,033	1.37
1990	499,250	352,264	851,514	682	677,773 [c]	457,289	33,255	0.00	0.58	0.39	0.03	1,168,999	2.34
1991	601,550	439,096	1,040,646	0 [c]	1,131,407	397,974	12,990	0.00	0.73	0.26	0.01	1,542,371	2.56
1992	416,200	149,052	565,252	7,863	698,906	207,097	4,099	0.01	0.76	0.23	0.00	917,965	2.21
1993	381,600	91,135	472,735	9,879	481,053	107,301	3,249	0.02	0.80	0.18	0.01	601,482	1.58
1994	960,050	169,572	1,129,622	4,539	235,976	148,768	2,495	0.01	0.60	0.38	0.01	391,778	0.41
1995	1,156,000	461,534	1,617,534	2,481	265,795	72,367 [c]	418	0.01	0.78	0.21	0.00	341,061	0.30
1996	878,700	261,315	1,140,015	419	172,184 [c]	129,471	8,330	0.00	0.55	0.42	0.03	310,404	0.35
1997	535,600	170,079	705,679	2,495 [c]	242,658	118,916	3,634	0.01	0.66	0.32	0.01	367,704	0.69
1998	279,000	70,857	349,857	438	269,614	59,839	6,310	0.00	0.80	0.18	0.02	336,202	1.21
1999	286,850	131,380	418,230	29,109	719,998	195,715	17,302	0.03	0.75	0.20	0.02	962,124	3.35
2000	220,900	28,642	249,542	9,054	320,339	115,032	0	0.02	0.72	0.26	0.00	444,425	2.01
2001	327,400	45,585	372,985	131,052	2,064,154	721,548	34,820	0.04	0.70	0.24	0.01	2,951,574	9.02

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	(S)	Estimated annual totals		Estimated brood year return								(R)	(R/S)
				Number of salmon[a]				Proportion				Total brood year return	Return/ spawner
Year	Escapement[b]	Catch	Run	Age 3	Age 4	Age 5	Age 6	Age 3	Age 4	Age 5	Age 6		
2002	398,200	27,769	425,969	0	466,428	250,780	15,236	0.00	0.64	0.34	0.02	732,444	1.84
2003	713,300	79,225	792,525	27,697	876,801	477,936	18,106	0.02	0.63	0.34	0.01	1,400,540	1.96
2004	576,800	76,616	653,416	0	362,659	156,268	2,527	0.00	0.70	0.30	0.00	521,453	0.90
2005	1,906,000	290,488	2,196,488	2,438	400,612	92,399	3,921	0.00	0.80	0.19	0.01	499,370	0.26
2006	945,000	270,673	1,215,673	26,998	397,427	362,136	30,595	0.03	0.49	0.44	0.04	817,156	0.86
2007	956,500	205,901	1,162,401	95,238	868,440	189,003 [d]	9,071	0.08	0.75	0.16	0.01	1,161,752	1.21
2008	639,900	218,369	858,269	12,495	856,432 [d]	414,830	9,458	0.01	0.66	0.32	0.01	1,293,214	2.02
2009	507,900	94,084	601,984	11,971 [d]	786,500	425,164	22,653	0.01	0.63	0.34	0.02	1,246,288	2.45
2010	507,400	80,191	587,591	2,297	495,341	246,080	9,176	0.00	0.66	0.33	0.01	752,893	1.48
2011	919,300	327,691	1,246,991	22,906	487,098	182,161	1,789	0.03	0.70	0.26	0.00	693,954	0.75
2012	691,400	396,600	1,088,000	69,172	1,170,062	330,977	5,662	0.04	0.74	0.21	0.00	1,575,874	2.28
2013	854,600	358,098	1,212,698	29,130	1,916,126	319,718	3,204	0.01	0.84	0.14	0.00	2,268,178	2.65
2014	739,400	213,469	952,869	57,537	761,246	125,540	2,548	0.06	0.80	0.13	0.00	946,871	1.28
2015	542,350	282,653	825,003	29,812	658,065	88,931	424	0.04	0.85	0.11	0.00	777,232	1.43
2016	833,700	556,829	1,390,529	7,977	91,869	6,383 [d]	429	0.07	0.86	0.06	0.00	106,657	0.13
2017	1,723,000	583,429	2,306,429	5,717	86,272 [d]	38,324 [d]	2,256	0.04	0.65	0.29	0.02	132,569	0.08
2018	653,200	463,238	1,116,438	932 [d]	132,821 [d]	52,179 [d]	1,847	0.00	0.71	0.28	0.01	187,780	0.29
2019 [e]	521,250	273,536	794,786	2,040 [d]	232,131 [d]	50,388 [d]	2,326 [e]	0.01	0.81	0.18	NA	286,886	~0.55
2020 [f]	183,200	5,865	189,065	7,525 [d]	110,630 [d]	48,263 [f]	NA	NA	NA	NA	NA	166,419	~0.91
2021	93,285	726	94,011	1,561 [d]	NA	NA	NA	NA	NA	NA	NA	NA	NA
2022	170,800	2,814	173,614	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2023	287,900	6,192	294,092	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2024	161,100	3,327	164,427	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average	651,641	286,212	937,853									889,318	1.61
Brood years 1974–2018:													
Average	707,026	317,875	1,024,900	31,392	654,666	224,310	8,402	0.03	0.70	0.26	0.01	918,770	1.65
Even years	557,900	284,279	842,179	23,064	471,197	193,677	8,224	0.03	0.68	0.28	0.01	696,162	1.42
Odd years	862,930	352,998	1,215,927	40,098	846,474	256,336	8,589	0.03	0.72	0.24	0.01	1,151,496	1.88
Minimum	220,900	27,769	249,542	0	86,272	6,383	0	0.00	0.41	0.03	0.00	106,657	0.08
Maximum	2,355,500	677,257	2,828,562	196,016	2,064,154	721,548	34,820	0.16	0.87	0.56	0.08	2,951,574	9.02

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Note: Minimum and maximum indicate the lowest and highest values for each year presented through brood year 2018.

[a] The estimated number of salmon that returned is based upon annual age composition observed in Lower Yukon test fishery gillnets each year, weighted by test fishery catch per unit effort.

[b] Drainagewide escapement back to 1974 is based on Bayesian analysis, which began in 2014.

[c] Based upon expanded test fishery age composition estimates for years in which the test fishery terminated early both in 1994 and 2000.

[d] Combination of Mt. Village test fishery weighted ages with Lower Yukon test fishery to bolster sample sizes.

[e] The brood year return for 3-, 4-, and 5-year fish indicates that production (R/S) from brood year 2019 was approximately 0.55. Recruits are estimated for an incomplete brood year, denoted by shaded values.

[f] The brood year return for 3- and 4-year fish indicates that production (R/S) from brood year 2020 was approximately 0.91. Recruits are estimated for an incomplete brood year, denoted by shaded values.

Table 14.–Index of coho salmon run size minus estimated total Yukon River harvest provides an estimate of escapement upstream of the mainstem Yukon River sonar operated near Pilot Station, 1995–2024.

Year	Coho salmon reconstruction index[a]	Total Yukon harvest	Estimated escapement
1995	190,404	77,787	112,617
1996 [b]	–	–	–
1997	197,883	61,883	136,000
1998	170,251	19,103	151,148
1999	143,457	23,584	119,873
2000	208,918	15,530	193,388
2001	186,751	23,404	163,347
2002	177,767	17,076	160,691
2003	307,672	51,671	256,001
2004	304,908	43,063	261,845
2005	261,574	86,306	175,268
2006	309,275	86,039	223,236
2007	284,304	65,433	218,871
2008	184,121	52,937	131,184
2009 [c]	–	–	–
2010	200,320	18,905	181,415
2011	225,319	89,405	135,914
2012	211,696	96,602	115,094
2013	175,421	81,036	94,385
2014	384,203	123,952	260,251
2015	255,541	148,553	106,988
2016	397,643	211,244	186,399
2017	308,167	146,954	161,213
2018	239,251	119,605	119,646
2019	176,766	64,589	112,177
2020	119,142	3,746	115,396
2021	45,543	330	45,213
2022	101,631	1,151	100,480
2023	64,717	1,399	63,318
2024	89,916	1,426	88,490
Averages			
2010–2019	257,433	110,085	147,348
2020–2024	84,190	1,610	82,579

Note: En dashes indicate no data.

a Does not include escapements to systems downstream of Yukon River mile 123, including the Andreafsky River. A weir counted coho salmon in the East Fork Andreafsky from 1995 to 2005, with escapement ranging from 3,000 to 16,000, with an average of 8,000 fish. Escapement into this system is typically doubled to represent the West Fork contributions.

b Sonar operated in research mode only.

c Pilot Station sonar operations in 2009 were compounded by extremely low water and poor catchability of fall chum salmon, resulting in concerns for overestimation of coho salmon in the drift gillnet apportionment.

Table 15.–Estimated and reported subsistence and personal use harvest of miscellaneous nonsalmon fish species, Yukon Area, 2015–2024.

Reporting groups	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2015–2019 Average	2020–2024 Average
Survey estimates[a]												
Northern pike	20,109	24,580	22,060	20,776	15,703	26,352	9,760	28,833	15,562	17,554	20,646	19,612
Sheefish	12,828	14,451	12,768	11,728	14,838	9,165	4,960	8,738	8,614	7,948	13,323	7,885
Whitefish[b]	79,740	69,578	64,202	57,780	66,074	47,122	17,293	29,284	23,936	28,036	67,475	29,134
Survey reported[c]												
Alaska blackfish	97,586	90,207	109,888	61,896	88,009	30,383	16,669	23,165	16,152	16,351	89,517	20,544
Arctic grayling	1,832	1,518	1,572	1,833	744	228	283	439	249	595	1,500	359
Arctic lamprey [d]	42,237	17,609	19,357	1,027	4	0	0	12	5,452	14,568	16,047	4,006
Burbot	3,364	2,501	2,811	2,975	1,946	812	780	965	601	357	2,719	703
Herring [e]	24,591	15,959	16,508	28,907	12,267	8,032	5,289	5,718	5,342	15,710	19,646	8,018
Tomcod	4,697	5,795	6,741	5,243	10,006	1,872	707	2,658	441	1,819	6,496	1,499
Permit reported												
Arctic grayling	131	62	49	62	104	39	55	37	9	6	82	29
Burbot	23	43	32	69	37	129	90	95	95	61	41	94
Longnose suckers	358	214	179	149	129	189	75	131	148	213	206	151
Northern pike	891	1,190	281	1,156	2,018	2,718	3,559	3,917	2,335	2,523	1,107	3,010
Sheefish	166	70	128	99	173	314	73	67	47	159	127	132
Whitefish[b]	3,771	3,562	2,380	2,547	3,605	6,029	3,083	3,364	2,852	2,110	3,173	3,488
Total harvest of species from survey and permits												
Arctic grayling	1,963	1,580	1,621	1,895	848	267	338	476	258	601	1,581	388
Burbot	3,387	2,544	2,843	3,044	1,983	941	870	1,060	696	418	2,760	797
Northern pike	21,000	25,770	22,341	21,932	17,721	29,070	13,319	32,750	17,897	20,077	21,753	22,623
Sheefish	12,994	14,521	12,896	11,827	15,011	9,479	5,033	8,805	8,661	8,107	13,450	8,017
Whitefish[b]	83,511	73,140	66,582	60,327	69,679	53,151	20,376	32,648	26,788	30,146	70,648	32,622
Total	122,855	117,555	106,283	99,025	105,242	92,908	39,936	75,739	54,300	59,349	110,192	64,446

-continued-

Table 15.–Page 2 of 2.

Note: Due to the nature of the nonsalmon harvest and the timing of the survey, this table includes fish harvest 12 months prior to the survey, for example, 2024 is the harvest from winter 2023 to fall 2024.

[a] Subsistence harvests of northern pike, sheefish, and whitefish from surveyed communities were estimated with methods developed for salmon harvest estimates.

[b] Included various Coregonus species and round whitefish *Prosopium cylindraceum*.

[c] Total number of each species reported by households in surveyed communities. Harvest totals for these species are not expanded to estimate for all households.

[d] Harvest of Arctic lamprey reported in each year occurred from October to December of the previous year. Harvests from 2014 to 2015 included Arctic lamprey reported on postcards. Household surveys were compared to postcards to avoid double-counting.

[e] Reports of smelt were included in herring harvest.

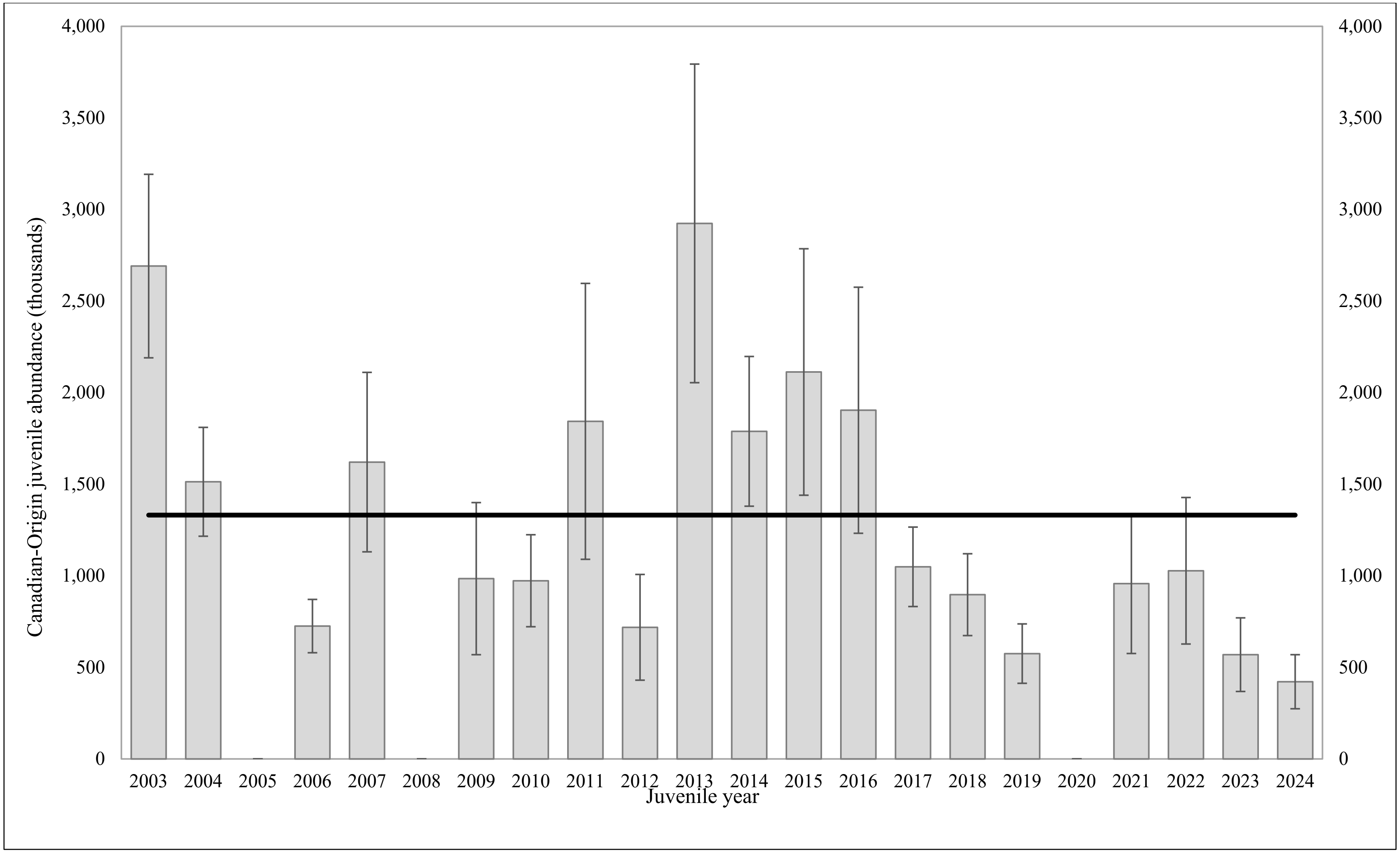

Figure 1.–Juvenile abundance estimates of Canadian-origin Chinook salmon from the Yukon River based on pelagic trawl research surveys in the northern Bering Sea (2003–2024).

Note: Error bars range from 1 deviation above and below the abundance estimates, and the horizontal black line shows the average Canadian-origin juvenile abundance across all years. No surveys occurred in 2008 or 2020, and the survey design in 2005 was inconsistent with other years.

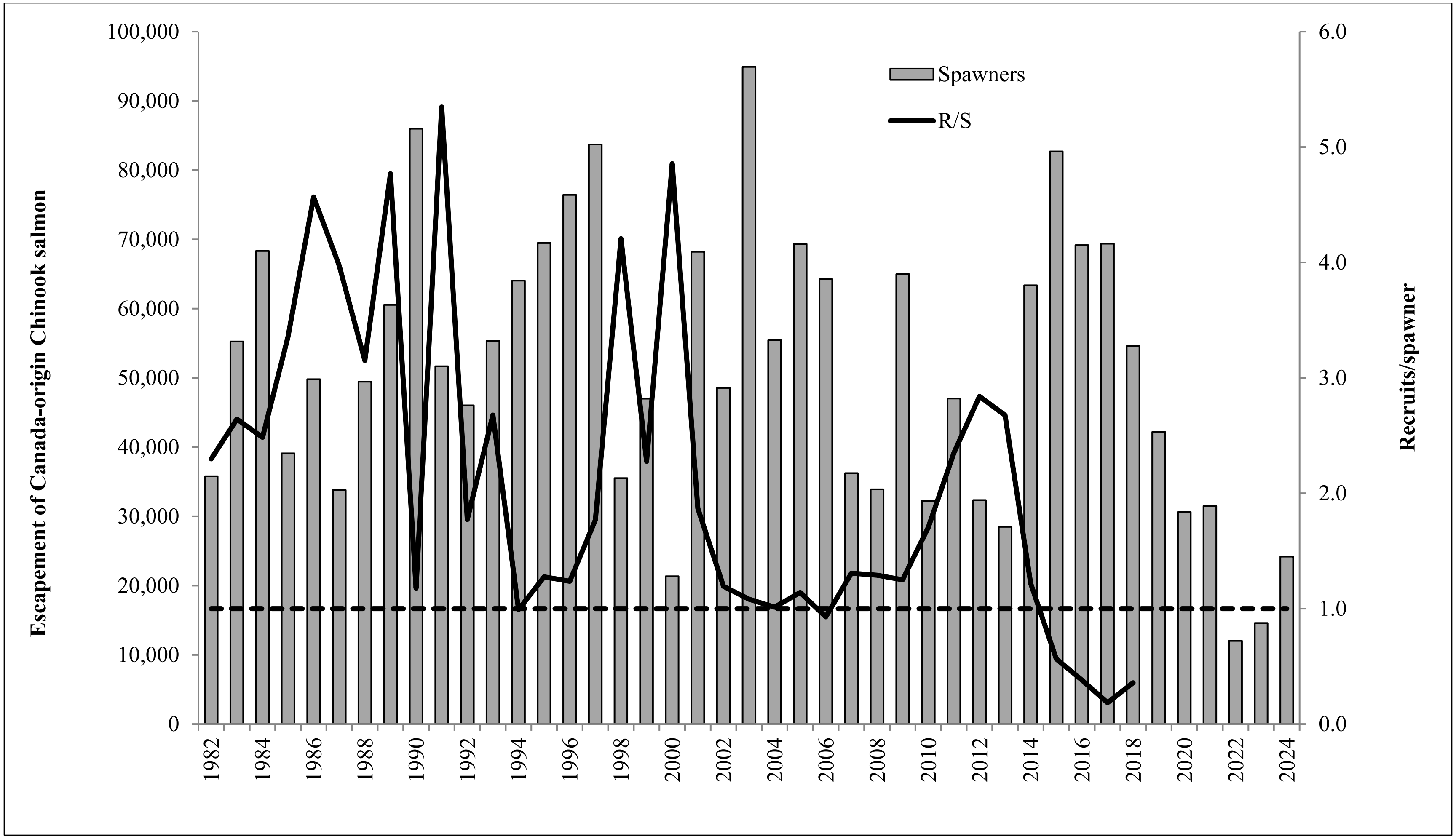

Figure 2.–Total escapement for Canadian-origin Chinook salmon and returns per spawner (R/S) from each brood year with the age-3 through age-6 returns. (Age-7 returns do not change the R/S value considerably because they make up a relatively small proportion of the run).

Note: The dashed line indicates a necessary replacement level of recruits per spawner of 1.

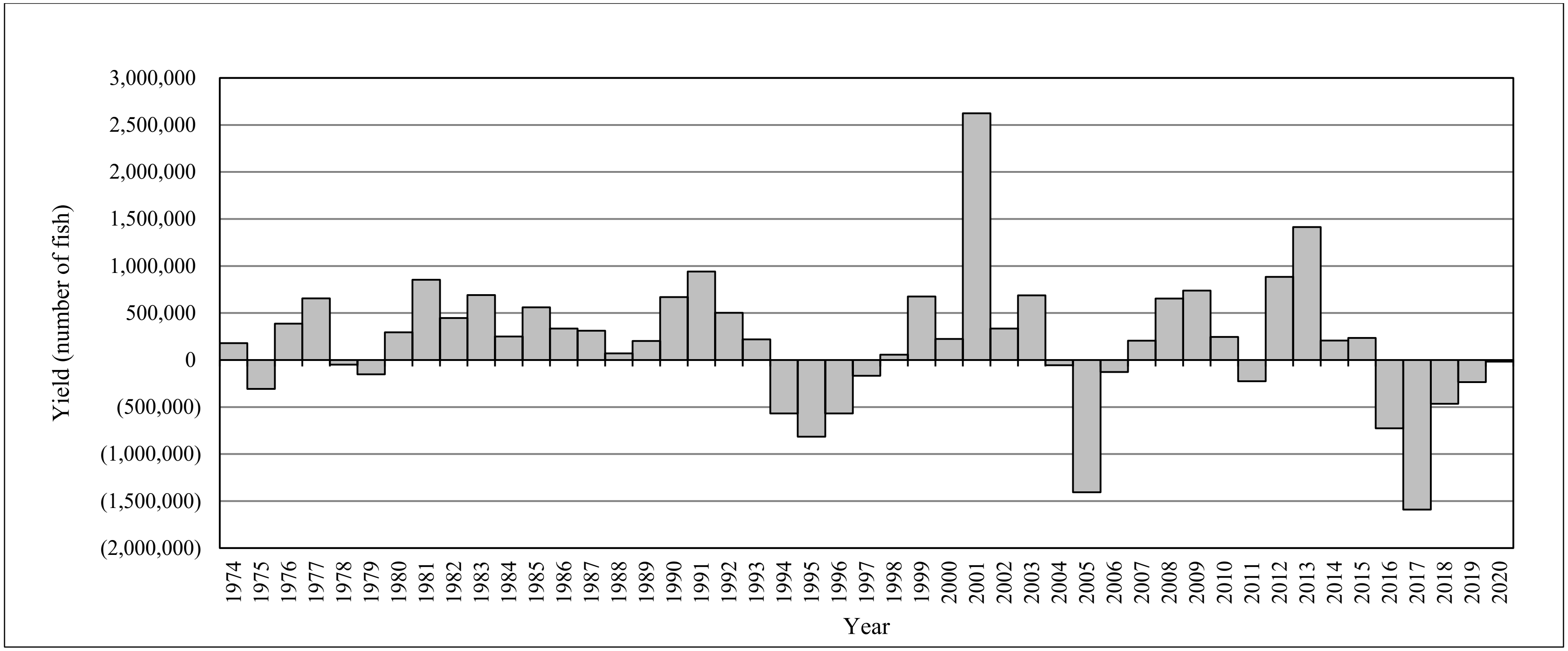

Figure 3.–Yields of fall chum salmon based on parent-year escapements and resulting brood year returns, 1974–2020.

Note: Yields for 2019 and 2020 are preliminary because recruits were estimated for incomplete brood year returns. Yield equals the number of offspring produced (brood year returns for ages 3–6), minus the parent-year escapement number. As an example of yield, in 2005, an escapement of 1.8 million fall chum salmon produced only 497,000 fish.

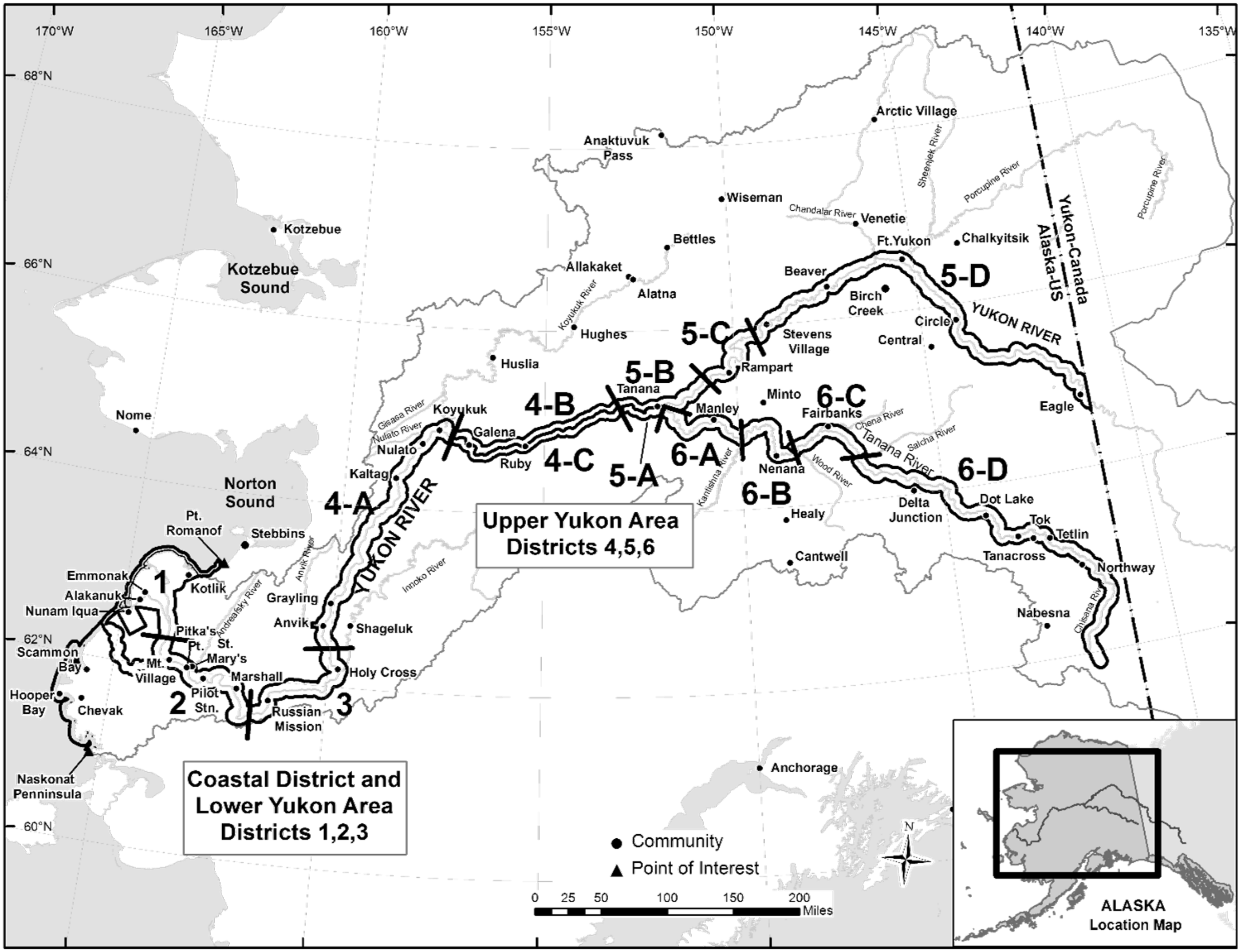

Figure 4.–Alaska portion of the Yukon River drainage showing communities and fishing districts.

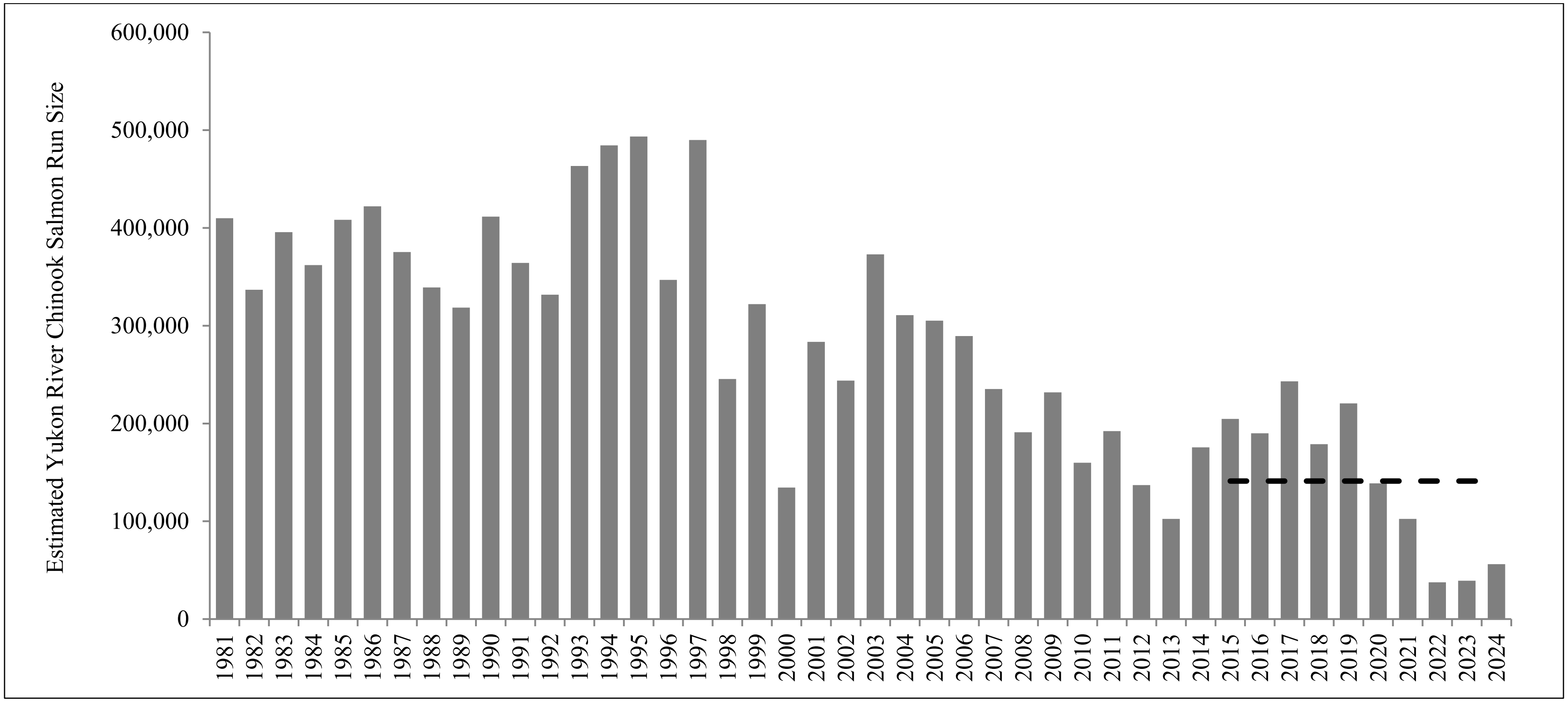

Figure 5.–Estimated Yukon River Chinook salmon run size 1981–2024.

Note: Drainagewide total run for 1981–2024 is the output from an integrated run reconstruction model (Connors et al. 2023). The dashed line is 2015–2024 average run size.

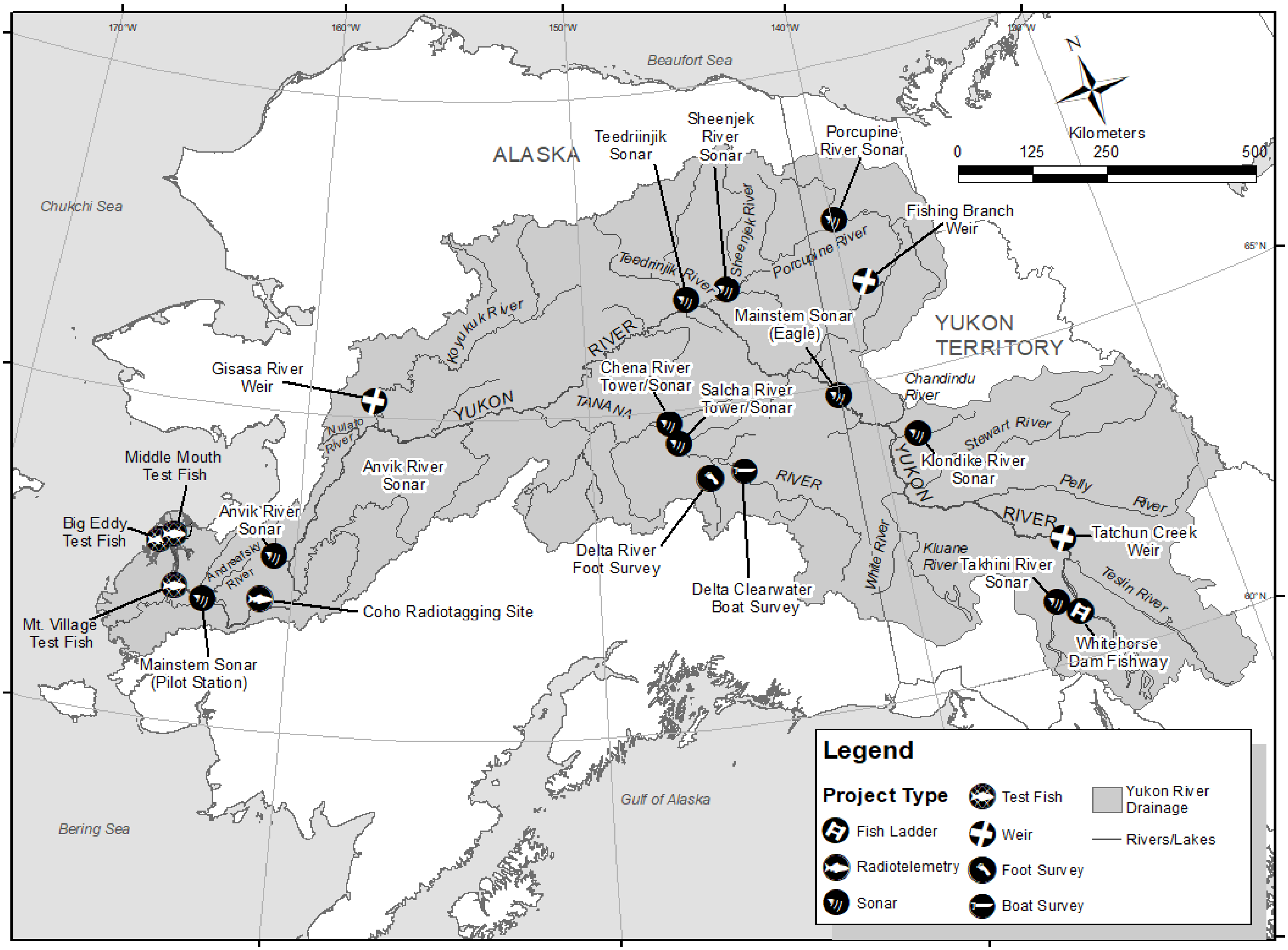

Figure 6.–Map of Yukon Area salmon monitoring projects.

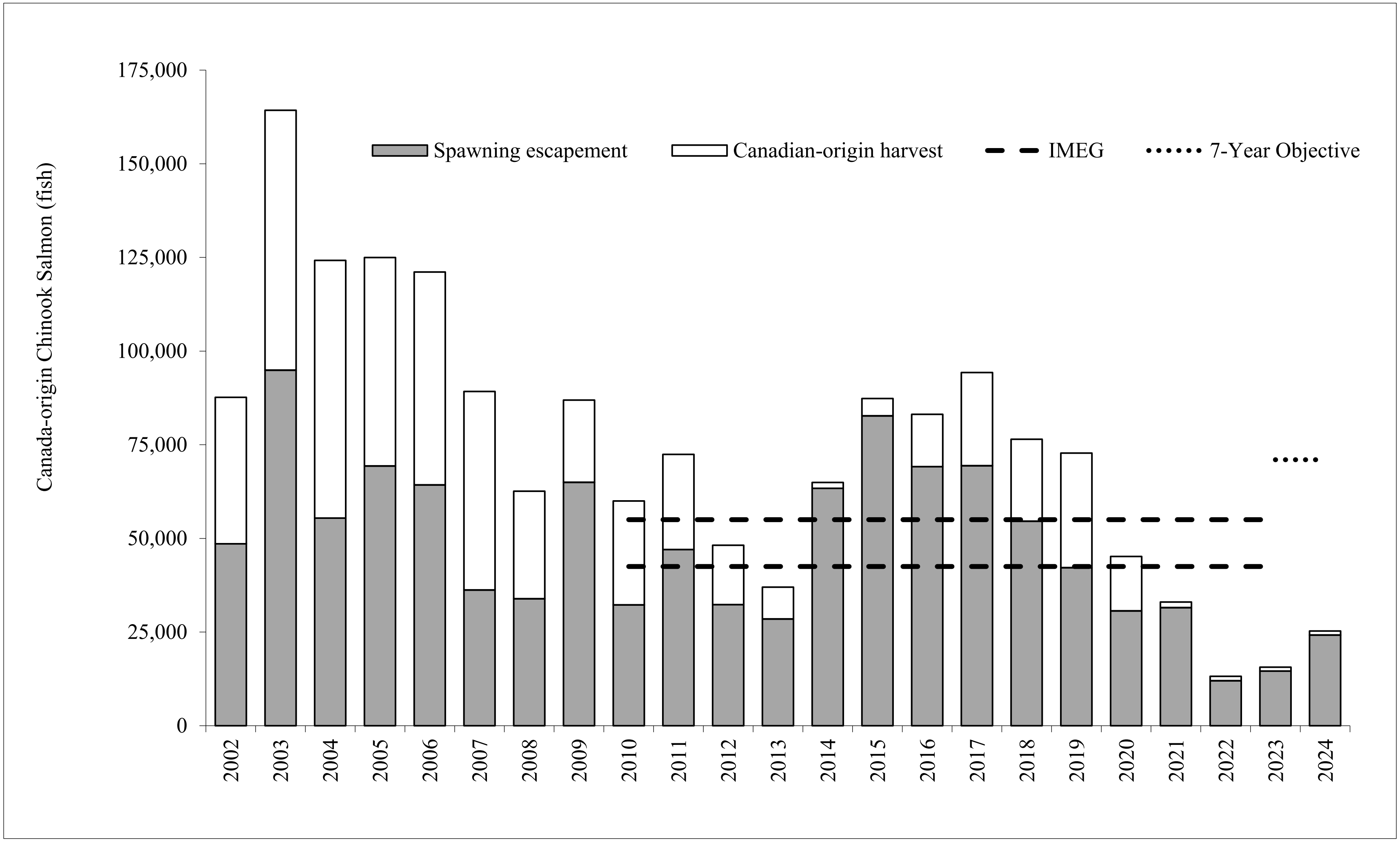

Figure 7.–Spawning escapement and harvest estimates for Canadian-origin Yukon River Chinook salmon, 2002–2024.

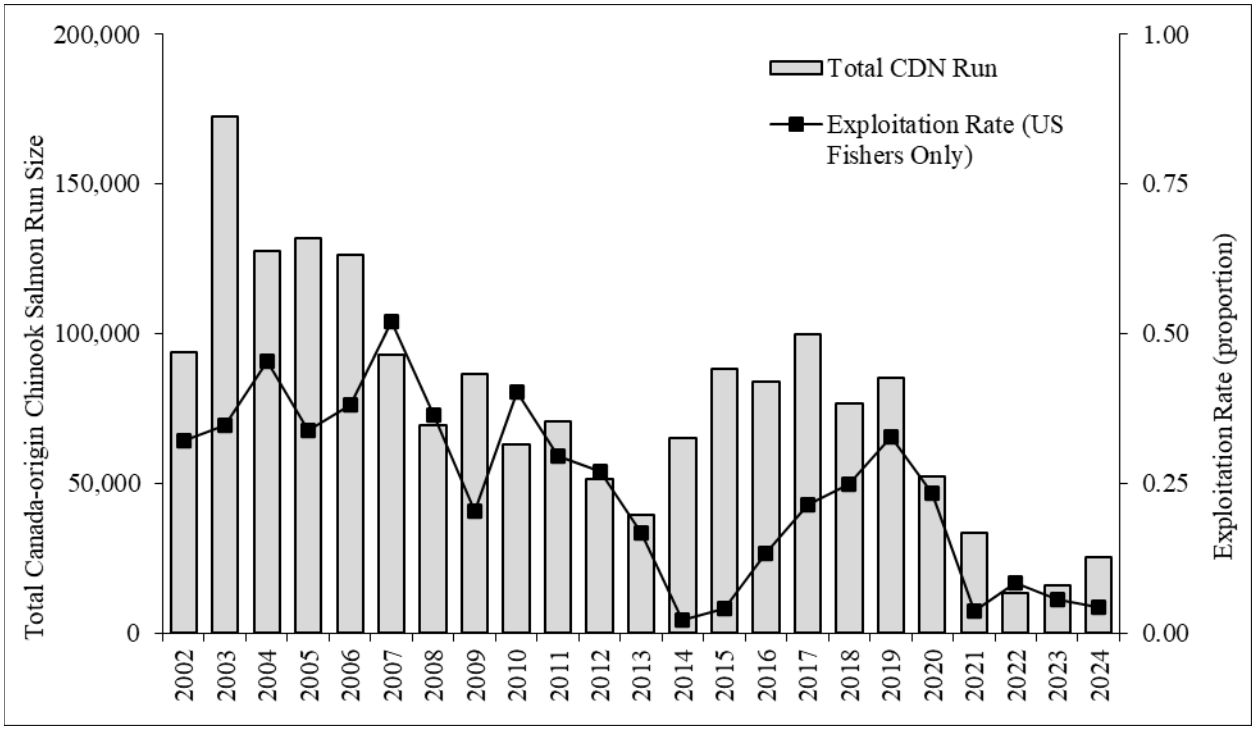

Figure 8.–Total Canadian-origin Yukon River Chinook salmon run size and exploitation rate in U.S. fisheries, 2002–2024 (top), total lower and middle stocks Yukon River Chinook salmon run size and exploitation within Alaska, 2002–2024 (bottom).

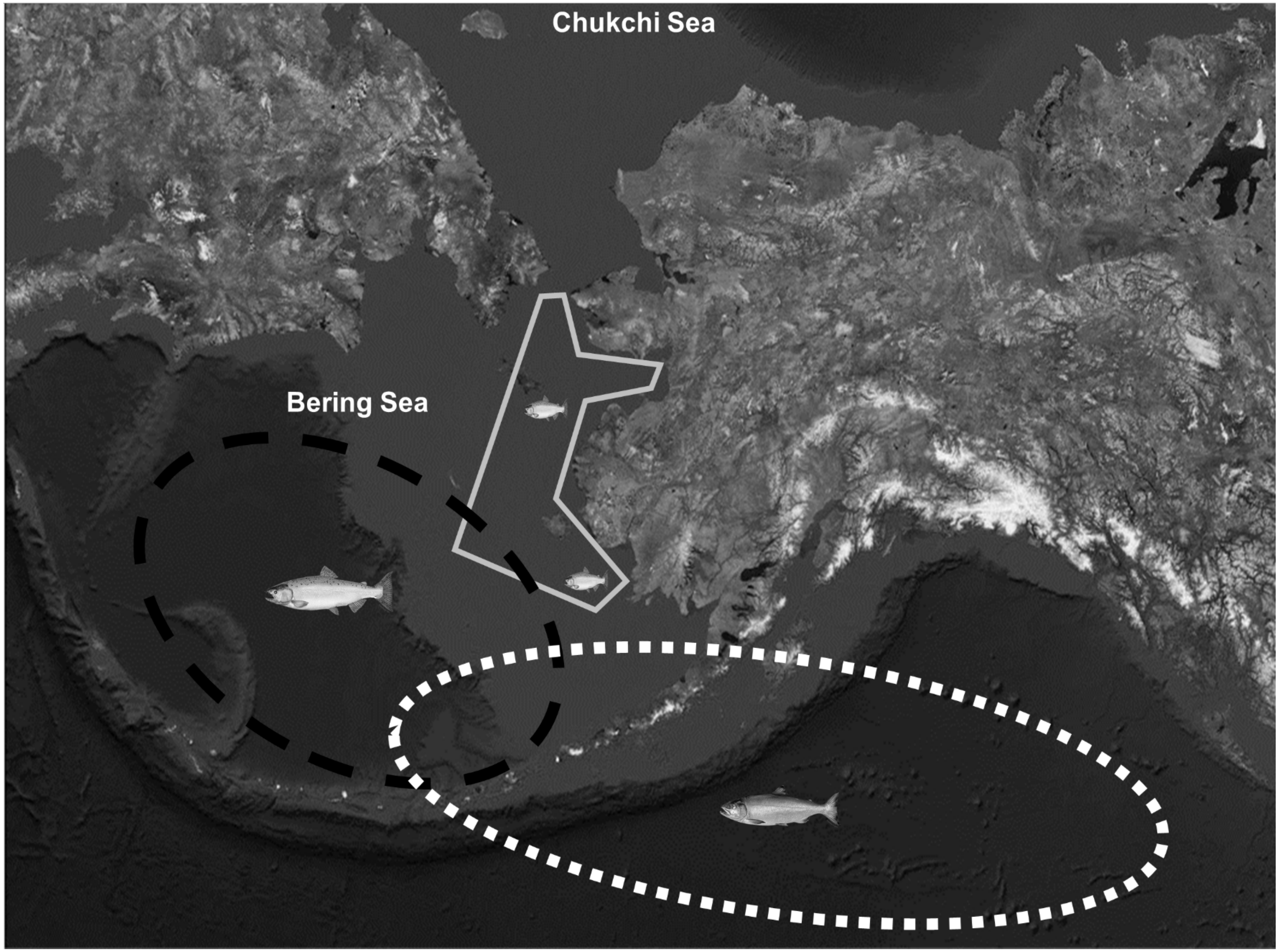

Figure 9.–Marine habitats during juvenile (gray polygon) and immature life stages of Yukon River Chinook (black dashed oval) and chum (white dashed oval) salmon.

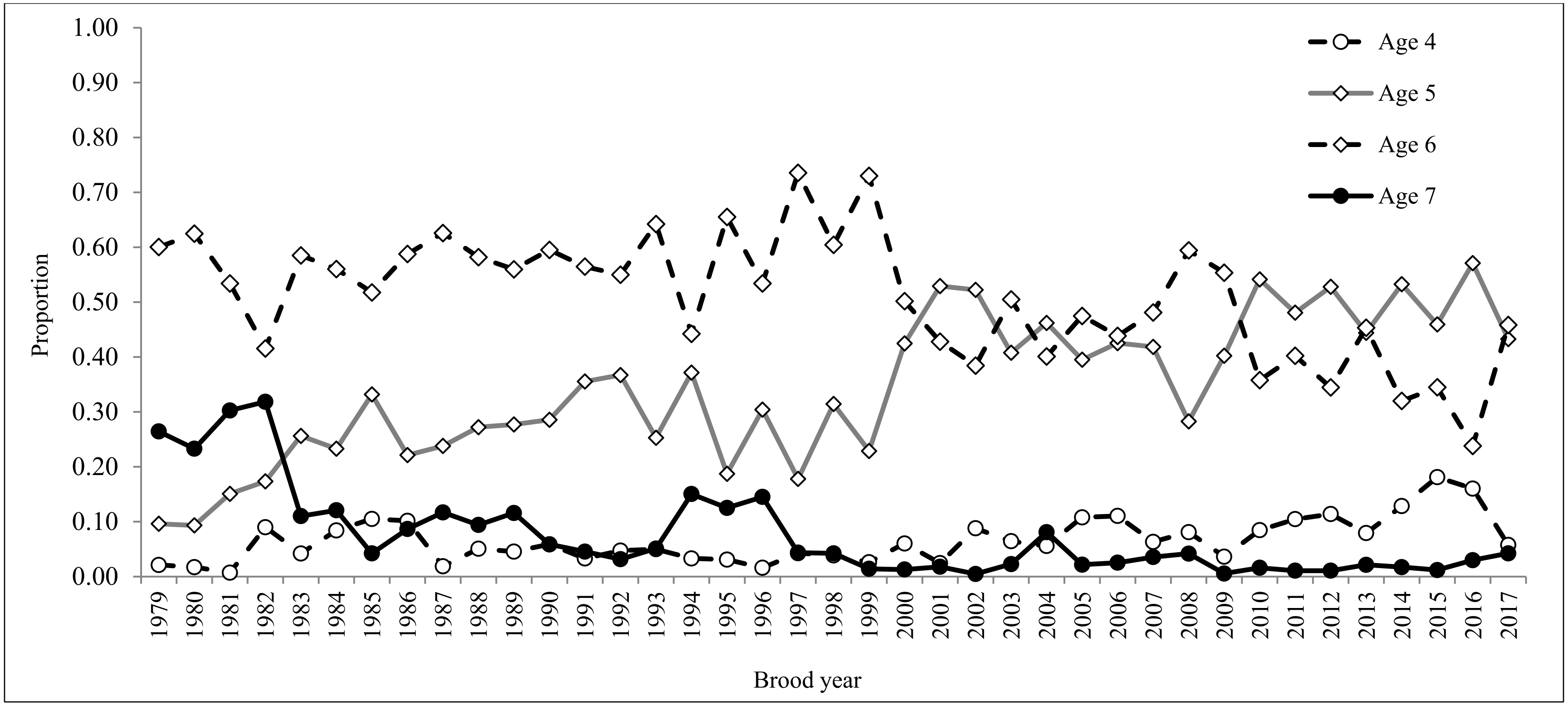

Figure 10.–Chinook salmon proportion-at-age from brood years 1979 to 2017.

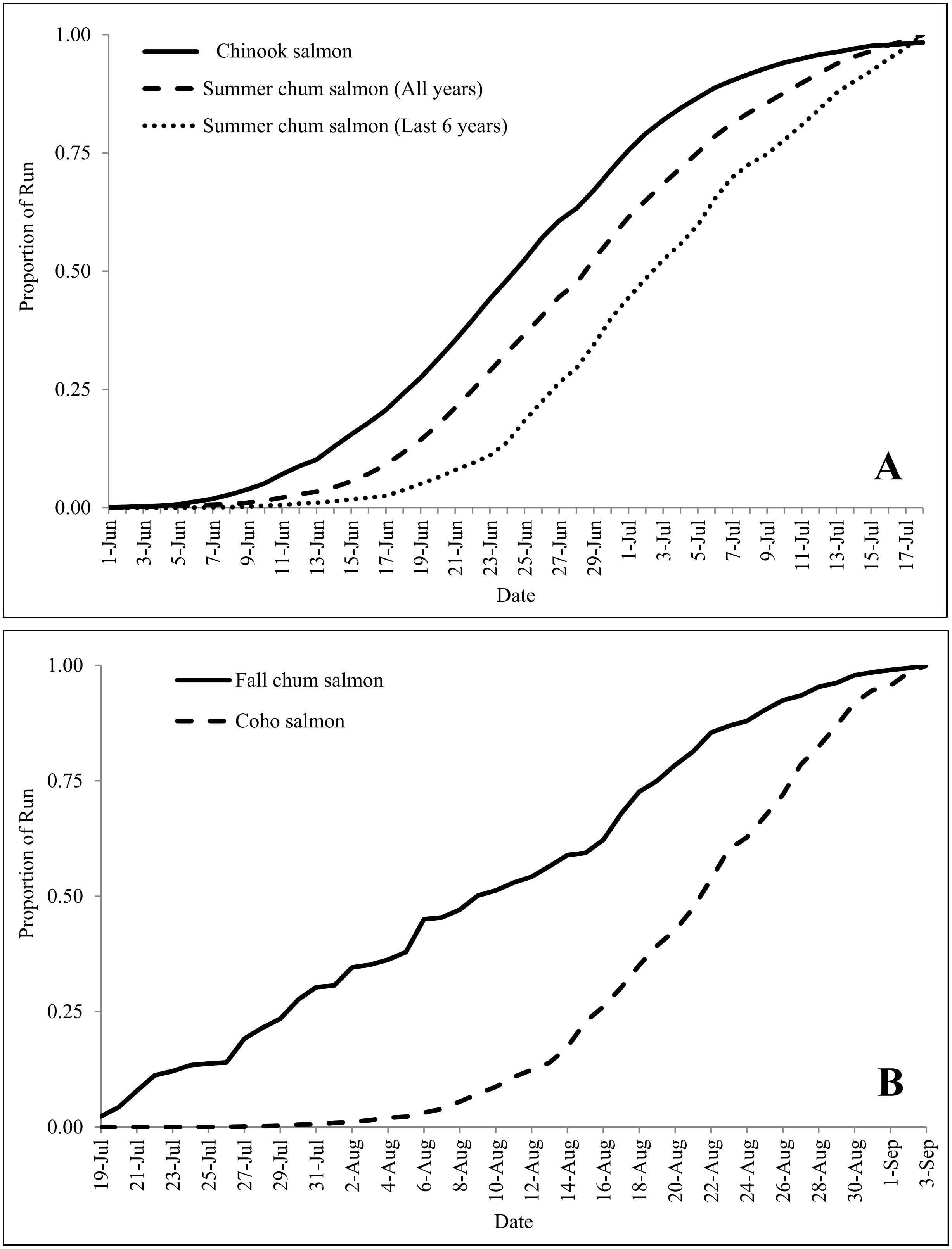

Figure 11.–Cumulative proportion of (A) Chinook and summer chum salmon and (B) fall chum and coho salmon runs past the Yukon River mainstem sonar project near Pilot Station.

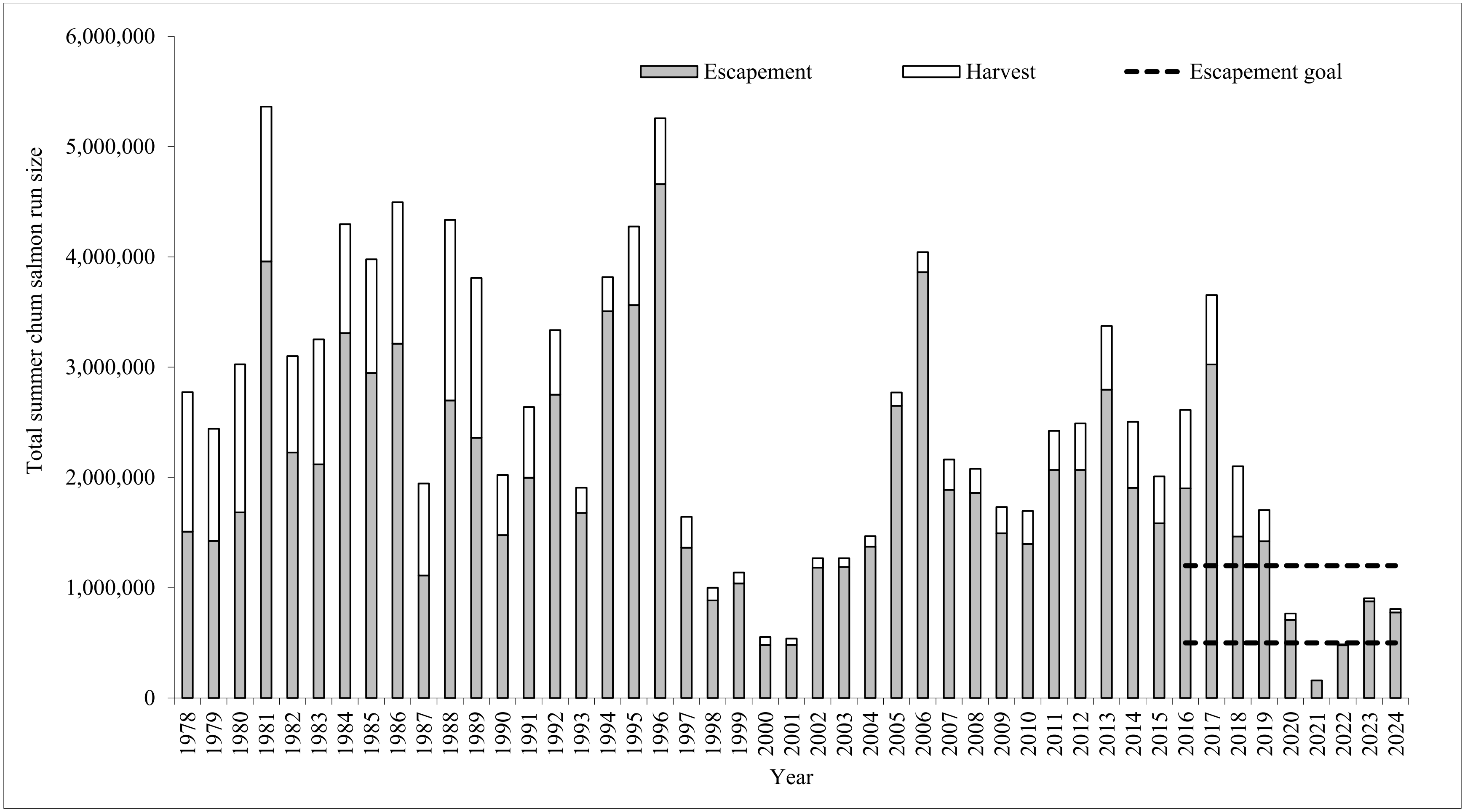

Figure 12.–Total run reconstruction based on estimated harvest and escapement of summer chum salmon, Yukon River drainage, 1978–2024.

Note: Approximate total run size of Yukon River summer chum salmon, by harvest and escapement, compared to the drainagewide escapement goal of 500,000 to 1,200,000 fish, 1978–2024.

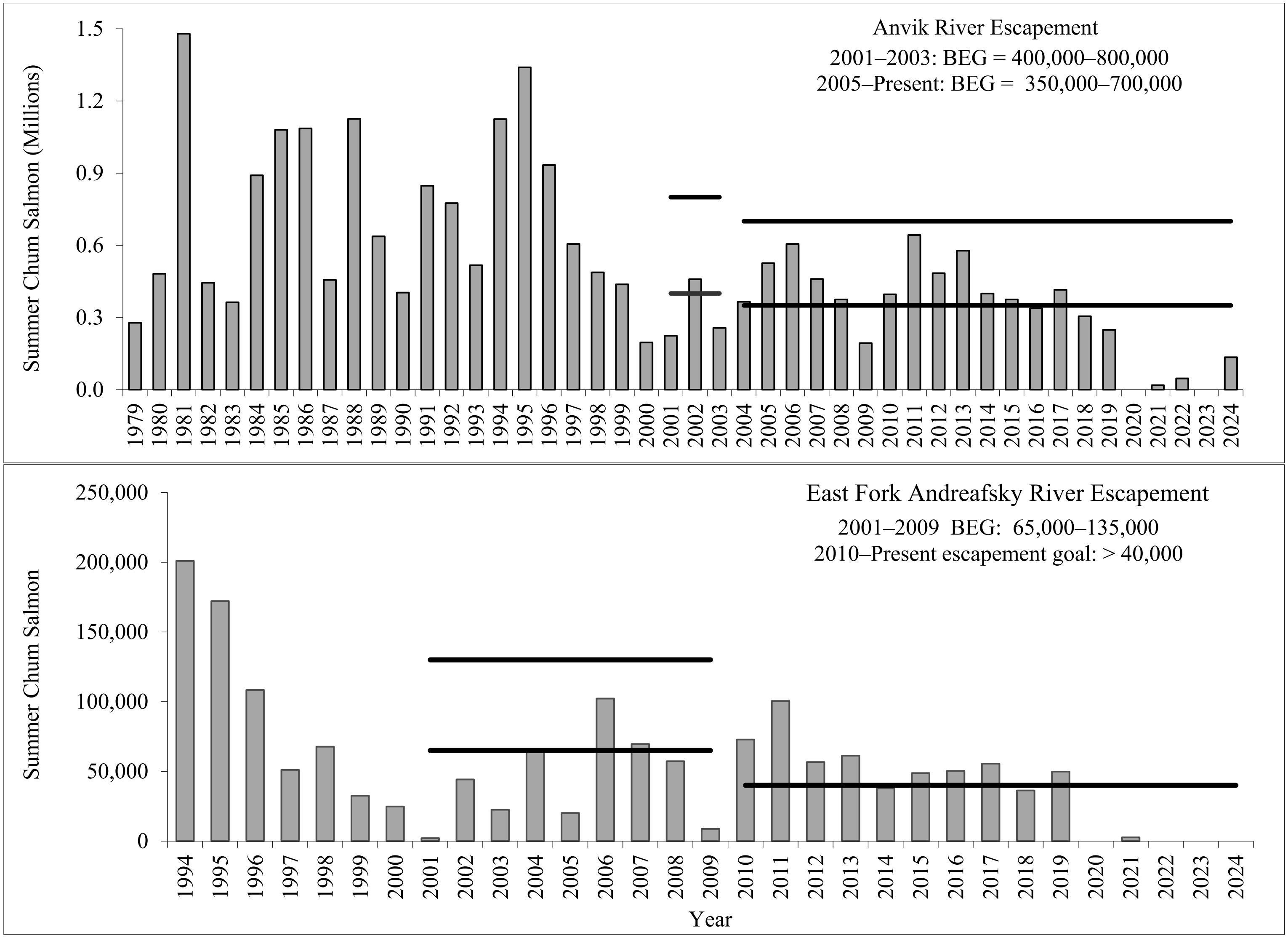

Figure 13.–Anvik River and East Fork Andreafsky River summer chum salmon passage estimates and escapement goals.

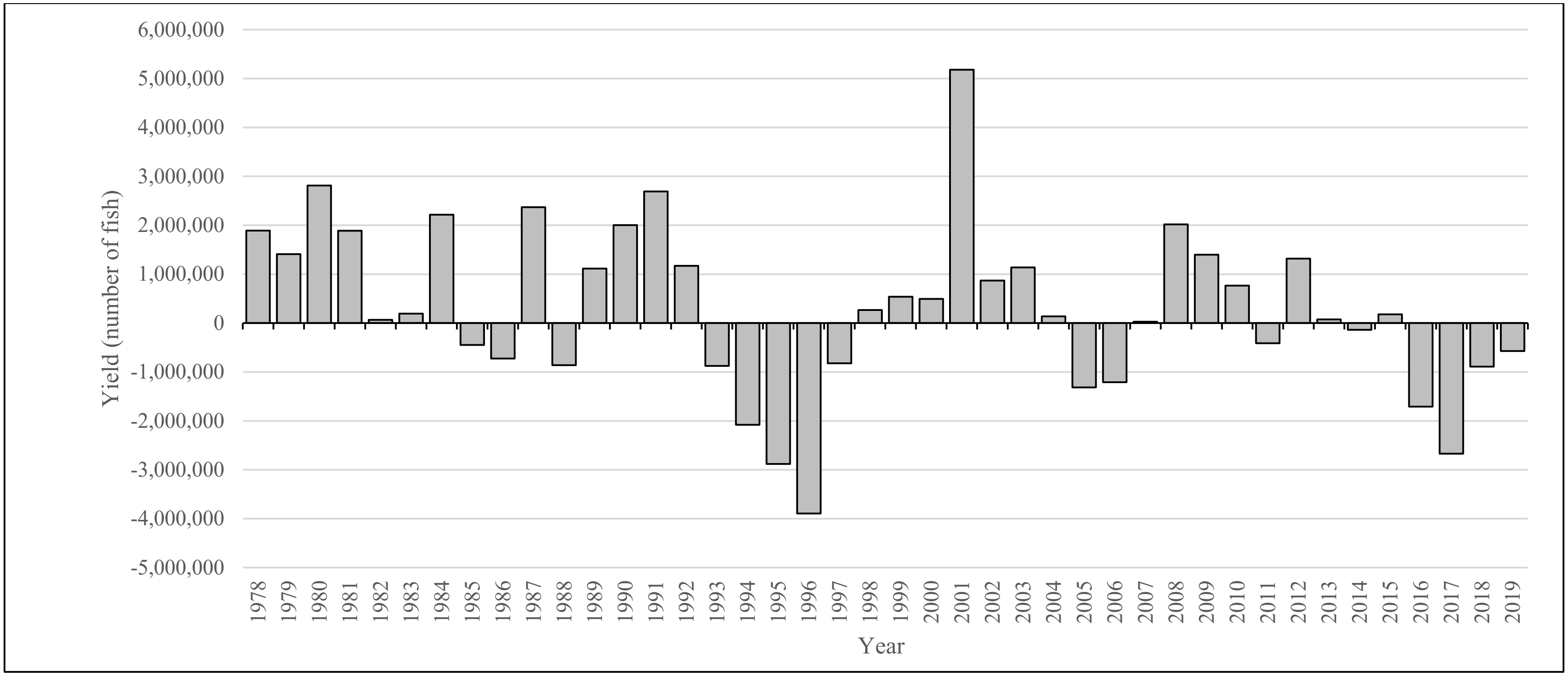

Figure 14.–Yields of summer chum salmon based on parent-year escapements and resulting brood year returns, 1974–2019.

Note: Yield equals the number of offspring produced (brood year returns for ages 3–6), minus the parent-year escapement number. As an example of yield, in 2008, an escapement of 1.8 million summer chum salmon produced 3.8 million fish. Data from 2019 are preliminary because recruits were estimated for incomplete brood year returns.

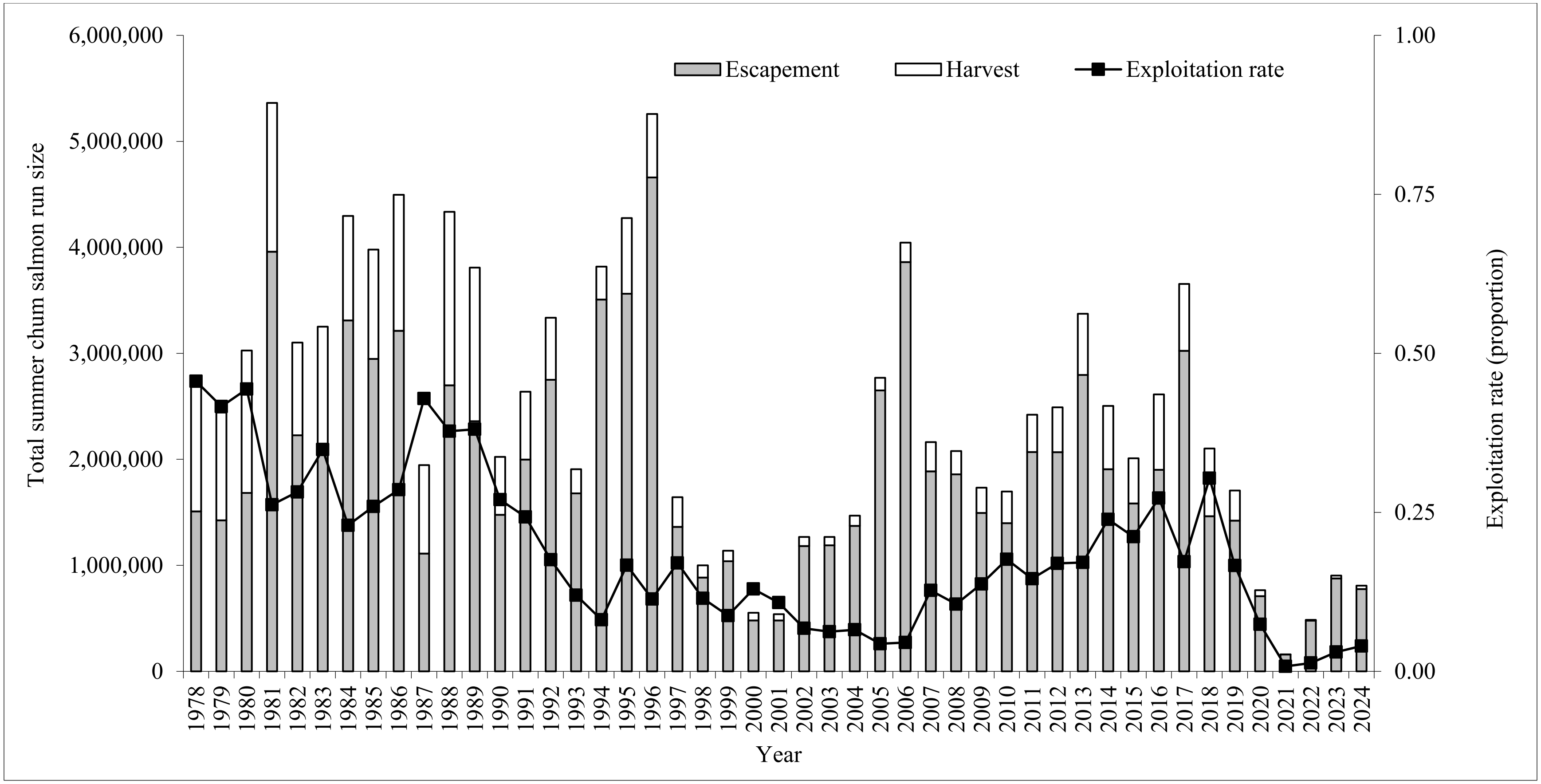

Figure 15.–Estimated summer chum salmon harvest and escapement with exploitation rate, Yukon Area, 1978–2024.

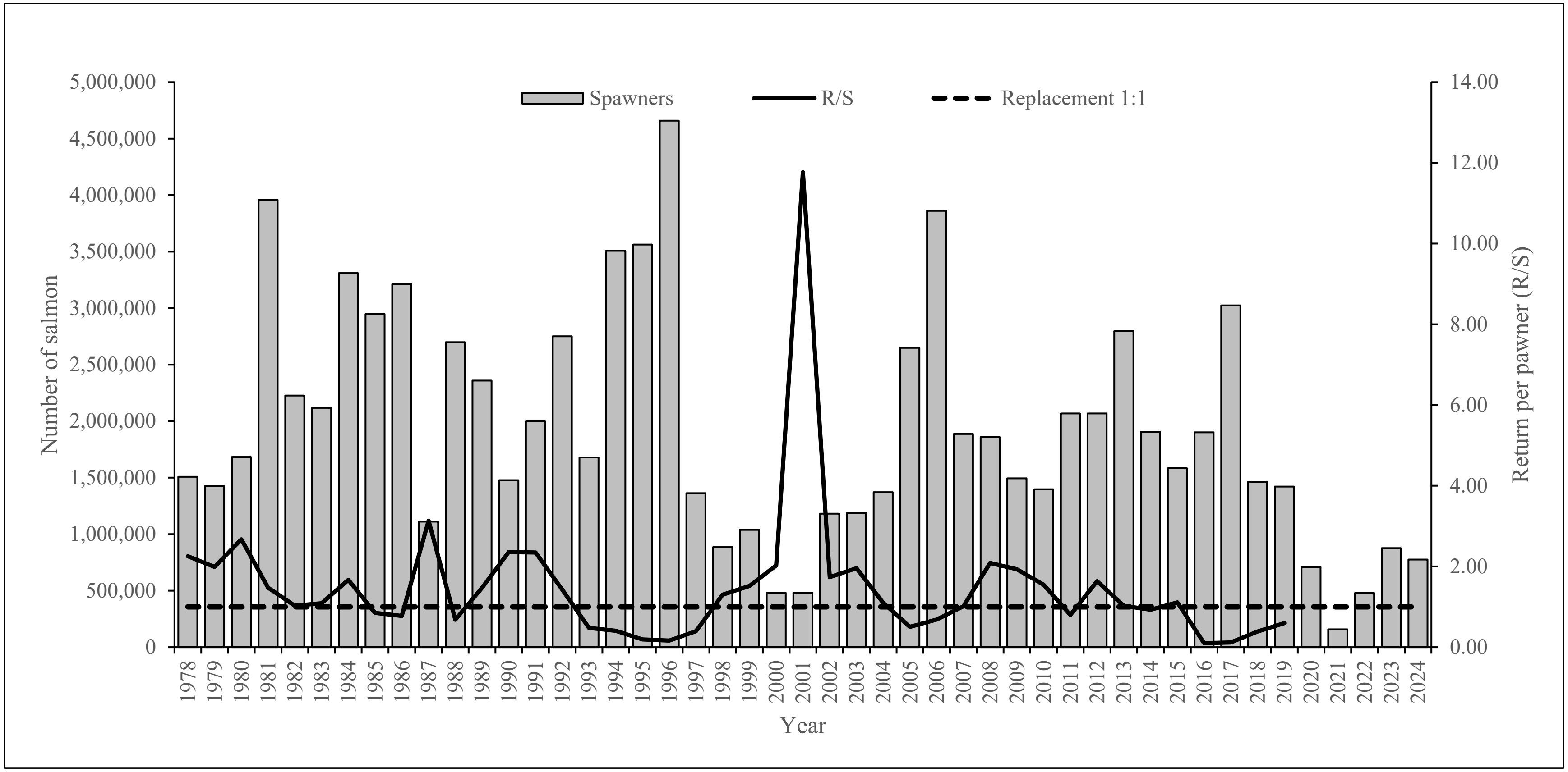

Figure 16.–Summer chum total escapement and returns per spawner (R/S) from each brood year with the age-3 through age-5 returns. (Age-6 returns do not change the R/S value considerably because they make up a relatively small proportion of the run).

Note: The dashed line indicates a necessary replacement level of recruits per spawner of 1.

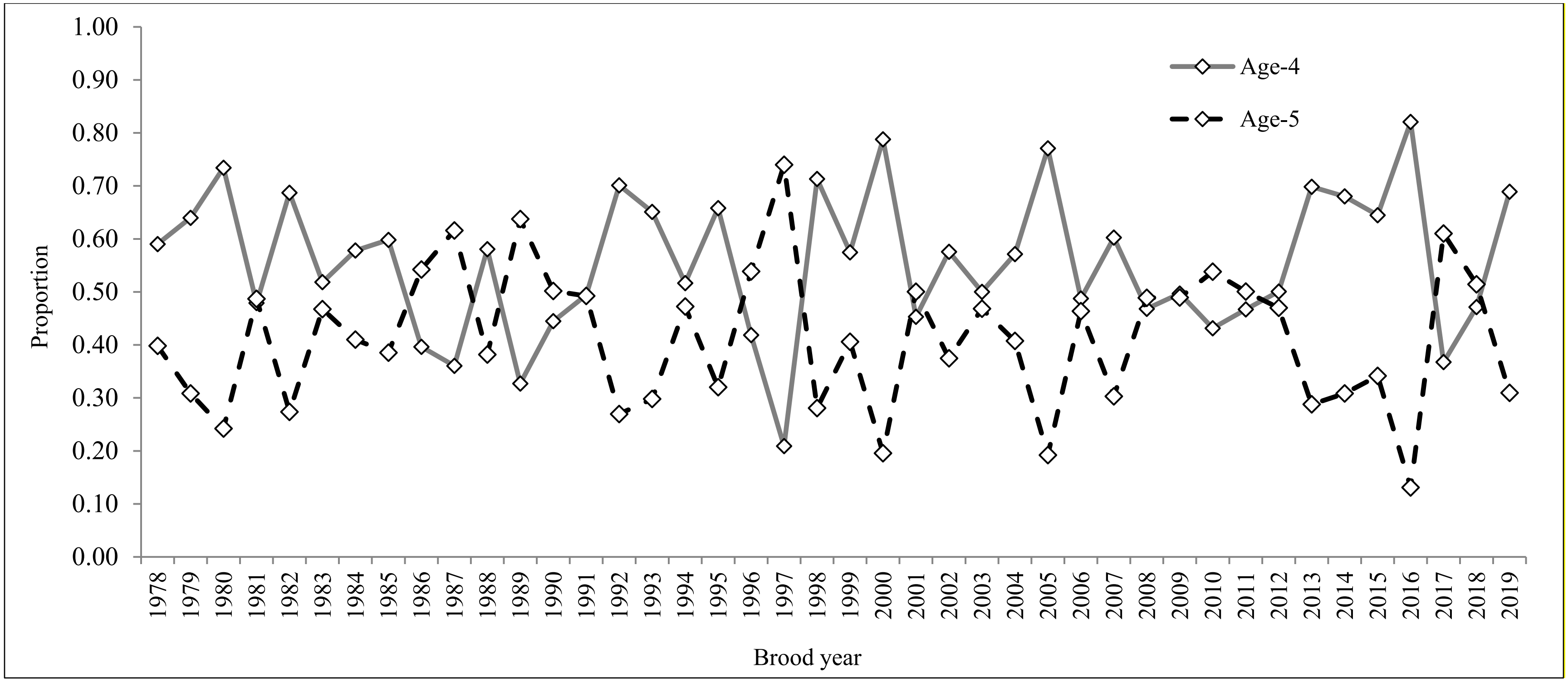

Figure 17.–Summer chum salmon proportion-at-age from brood years, 1978–2019.

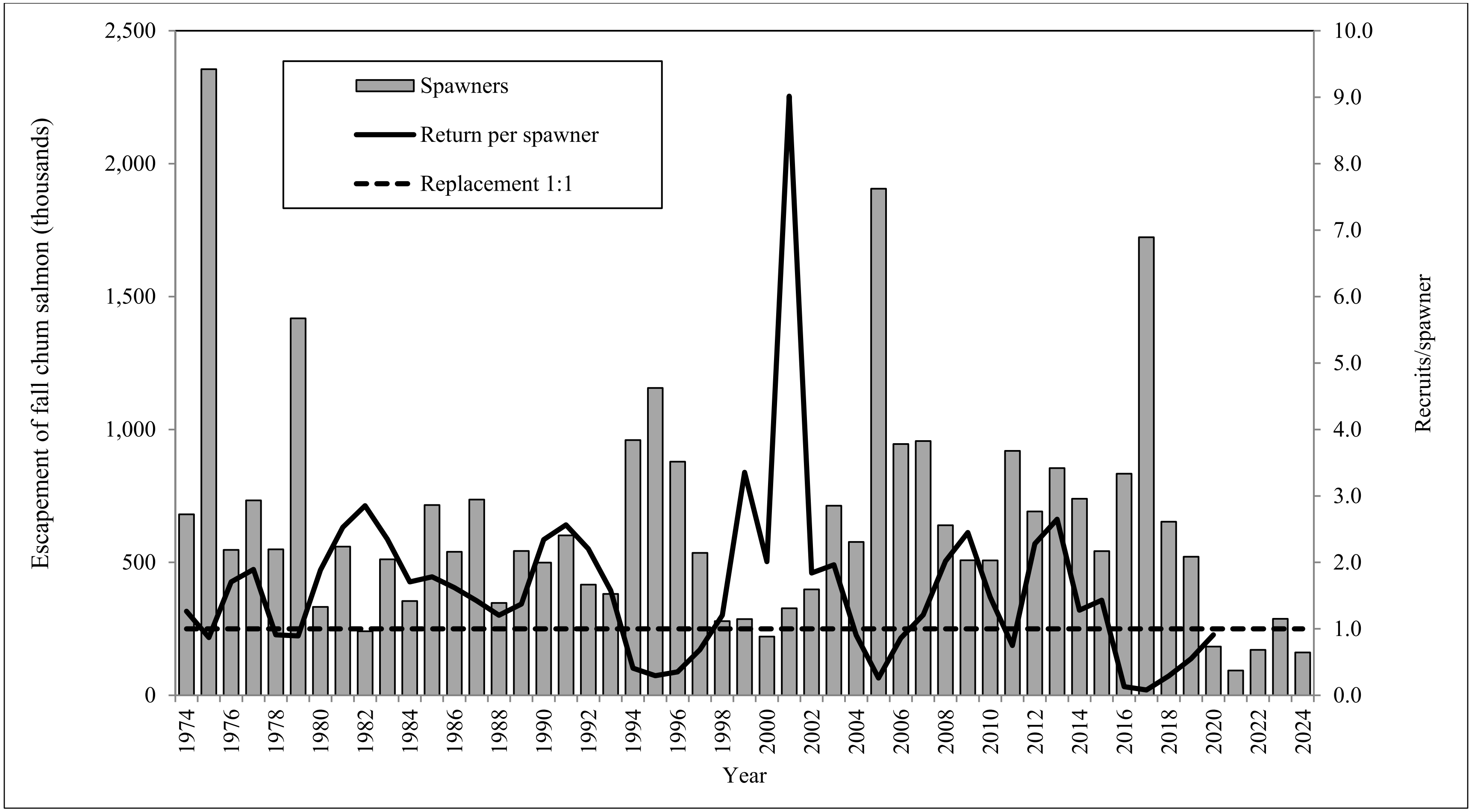

Figure 18.–Estimated historical productivity of Yukon River fall chum salmon, 1974–2024.

Note: Incomplete brood years 2019 and 2020 are estimated.

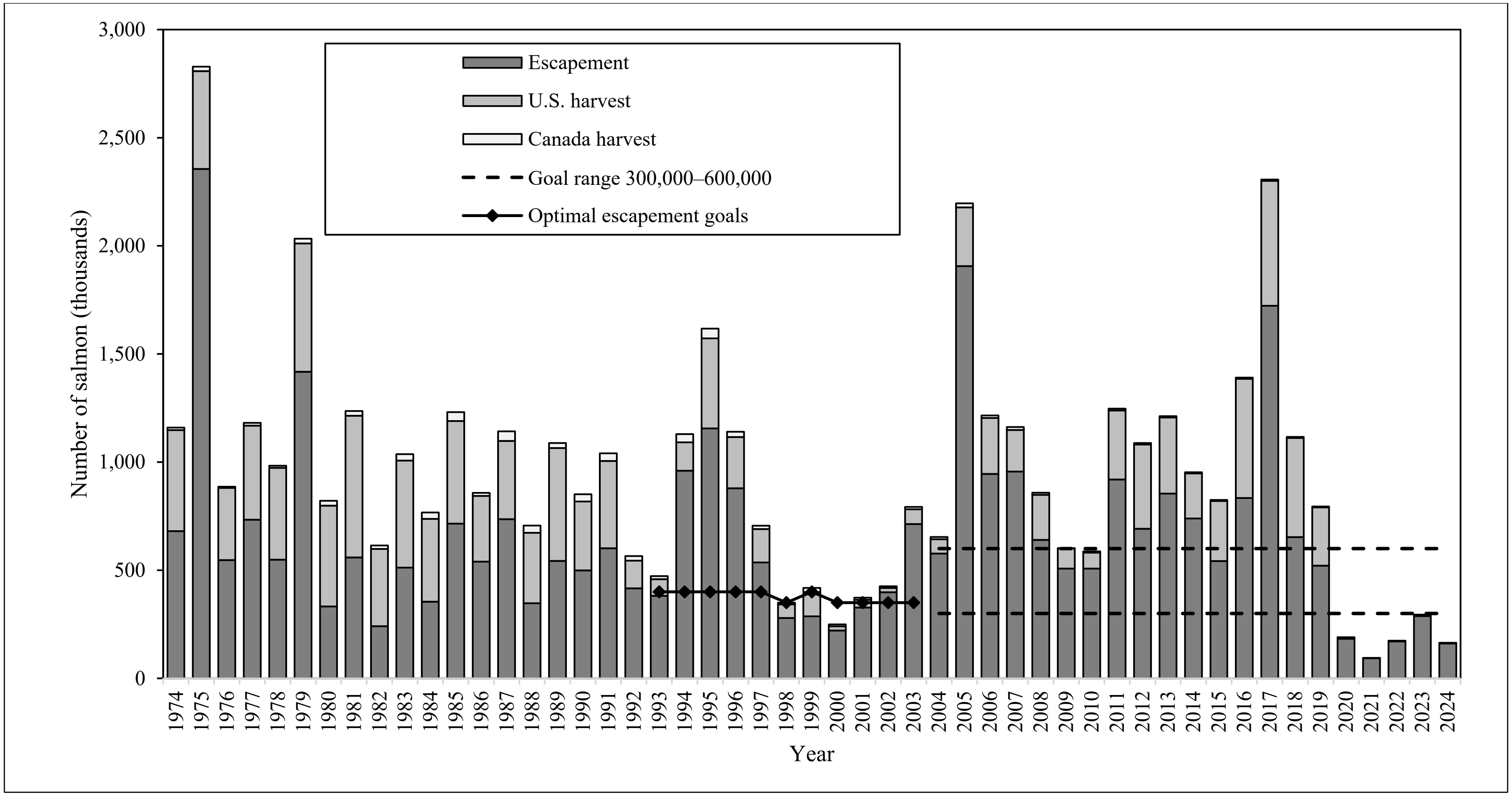

Figure 19.–Total run reconstruction based on estimated harvest and escapement of fall chum salmon, Yukon River drainage, 1974–2024.

Note: The drainagewide escapement goal of 400,000 fall chum salmon was established in 1993. In 1996, an optimal escapement goal of 350,000 fall chum salmon was established in the *Yukon River Fall Chum Salmon Management Plan* and was utilized in 1998, 2000, and 2001. In 2004, a drainagewide escapement goal range of 300,000 to 600,000 fall chum salmon was established.

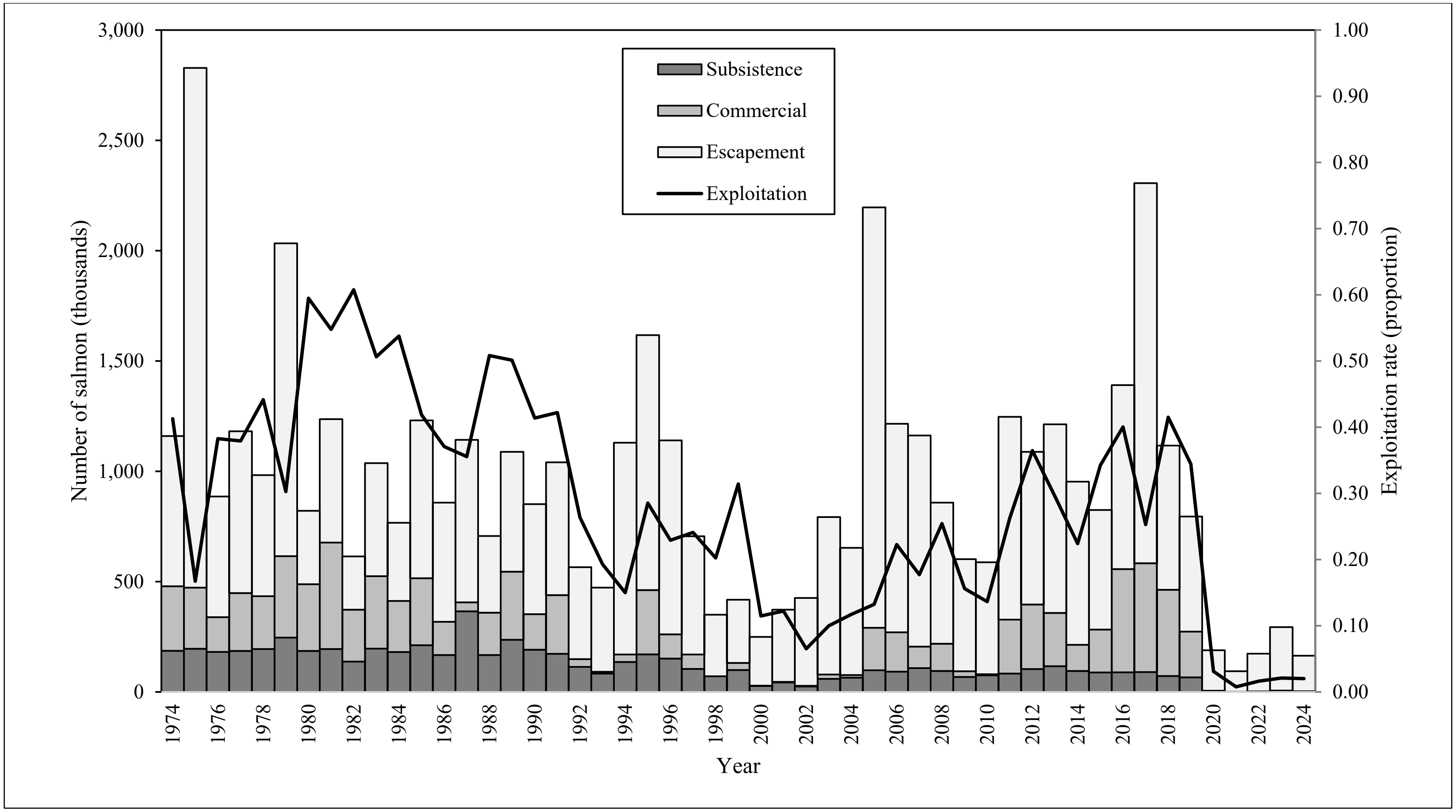

Figure 20.–Estimated fall chum salmon drainagewide harvest and escapement with exploitation rate, Yukon River drainage, 1974–2024.

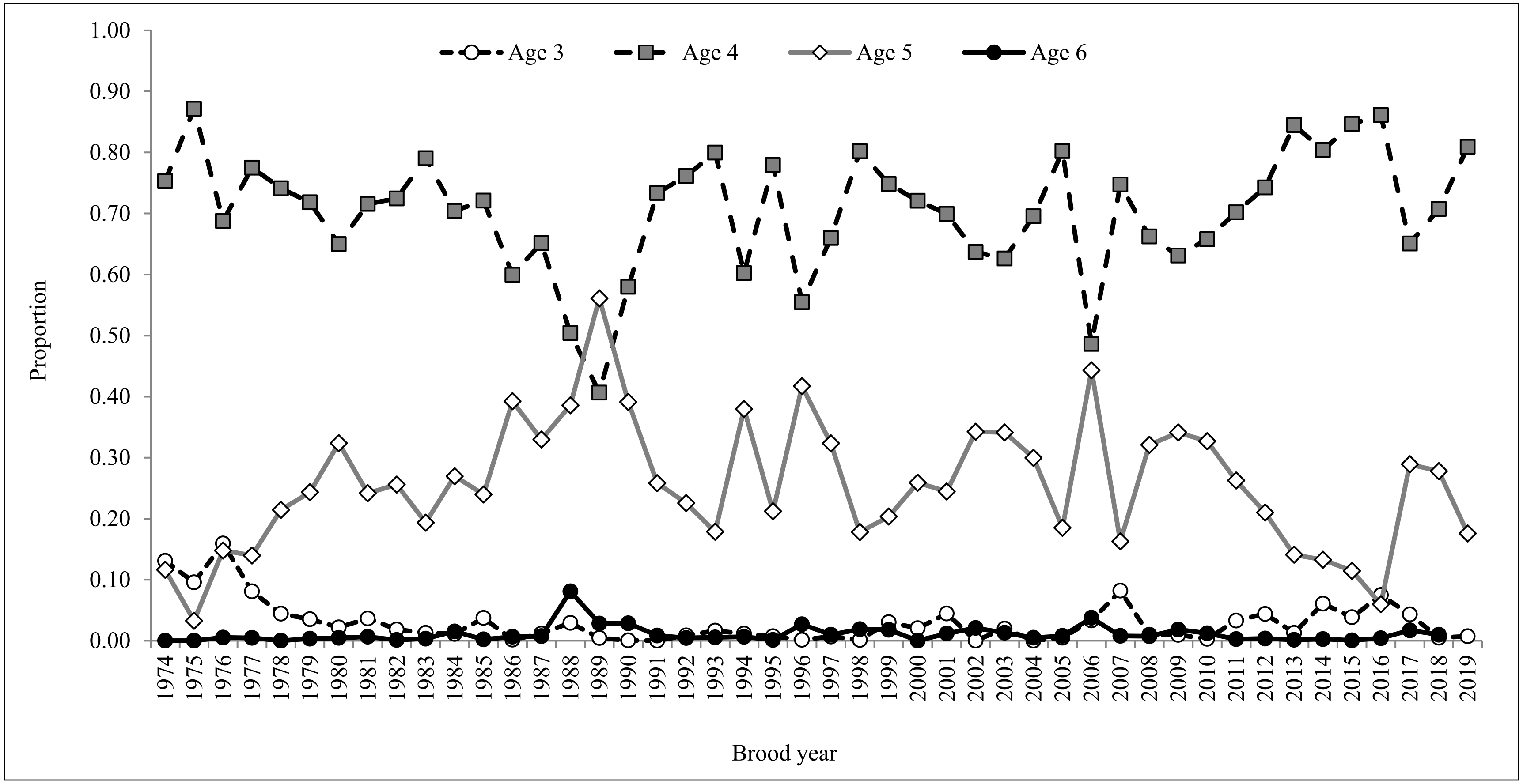

Figure 21.–Fall chum salmon proportion-at-age from brood years, 1974–2019.

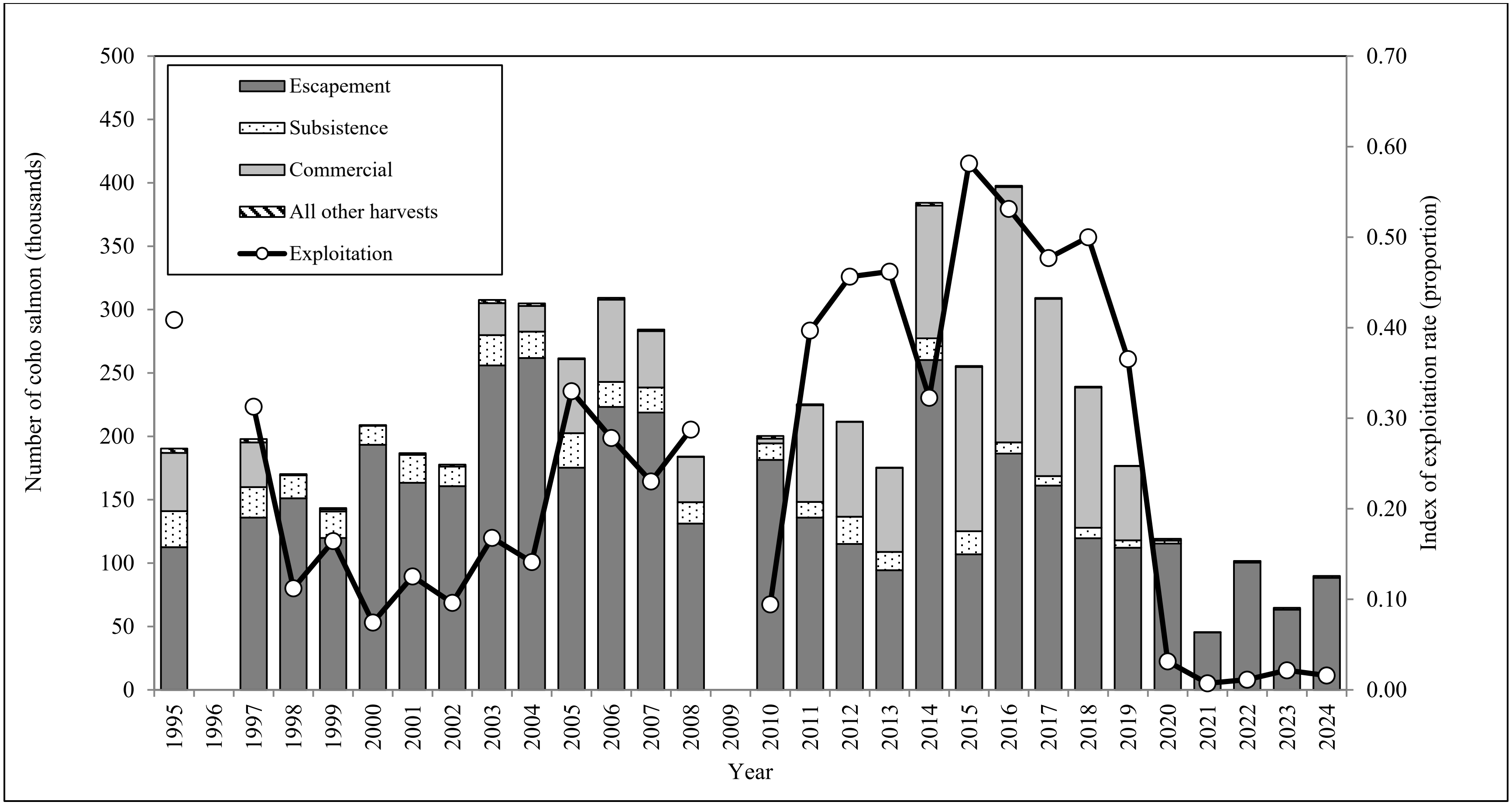

Figure 22.–Index of coho salmon run size, Yukon River drainage, 1995–2024.

APPENDIX A: HISTORY OF YUKON RIVER AREA REGULATORY CHANGES

Regulation Changes Adopted in 2001

In January 2001, after reviewing management action plan options addressing this stock of concern, the Alaska Board of Fisheries (BOF) modified the *Yukon River King Salmon Management Plan*.

The BOF added wording to the plan under section (a) regarding management objectives and data used to manage Chinook salmon fisheries. Additionally, when the projected commercial harvest is 0–67,350 Chinook salmon, the BOF provided the percentage of harvest allocated by district or subdistrict determined from the low end of the established guideline harvest ranges as follows:

Districts 1 and 2:	89.1%
District 3:	2.7%
District 4:	3.3%
Subdistricts 5-B and 5-C:	3.6%
Subdistricts 5-D:	0.4%
District 6:	0.9%

The BOF also adopted a fishing schedule for subsistence salmon fisheries. The schedule is implemented chronologically, consistent with migratory timing as the run progresses upstream. Managers may alter the subsistence schedule by emergency order if preseason or inseason indicators suggest this change is necessary. The subsistence schedule is as follows:

- Coastal District; Koyukuk River drainage; Subdistrict 5-D: 7 days/week
- Districts 1–3: two 36-hour periods/week
- District 4; Subdistricts 5-B and C: two 48-hour periods/week
- Subdistrict 5-A; District 6: two 42-hour periods/week
- Old Minto Area: 5 days/week

The BOF provided the Alaska Department of Fish and Game (ADF&G) with emergency order authority to restrict subsistence gillnets to no greater than 6-inch mesh size for conservation of Chinook salmon.

Management plan changes:

Yukon River Summer Chum Salmon Management Plan: the BOF added wording regarding management objectives and data used to manage summer chum salmon fisheries including a subsistence salmon fishing schedule. Additionally, the BOF set the percentage of harvest allocated by district or subdistrict when the harvestable surplus is in excess of subsistence needs, but below the low end of established commercial guideline harvest ranges. Amendments included 4 trigger ranges to be used to guide salmon management actions.

Fall Chum Management Plan was reauthorized with the removal of the expiration date.

Yukon River fall chum salmon guideline harvest ranges. The range of 5,000 to 40,000 had previously included only Subdistricts 4-B and 4-C, with Subdistrict 4-A not allowed in the fishery. The BOF added Subdistrict 4-A as sharing in the District 4 combined commercial harvest.

The *Toklat River Fall Chum Salmon Rebuilding Management Plan* was reauthorized with the removal of the expiration date.

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Tanana River Salmon Management Plan: The one 42-hour commercial salmon fishing period per week provision was changed to not more than 42 hours fishing per week to provide more management flexibility by allowing periods to be broken up into shorter lengths. Language was also added to clarify that the Tanana River would be managed to achieve spawning escapement goals. The expiration date was also removed.

Yukon River Coho Salmon Management Plan was reauthorized with the removal of the expiration date.

Several proposals were submitted to the BOF for the 2001 meeting. The following is a summary of the adopted proposals:

1. Subsistence fishing gear changes included restricting gillnet mesh size in Birch and Beaver Creeks to target nonsalmon species, dip nets were added as a gear type to be available during times of salmon conservation, and the "livebox" regulation utilized in times of conservation was modified to reduce the holding time from 12 hours to 6 hours maximum for checking the livebox. The BOF provided ADF&G emergency order authority to restrict subsistence gillnets to no greater than 6-inch mesh size for the conservation of Chinook salmon. In addition, use of hook-and-line fishing gear was authorized for subsistence use in the Yukon River drainage downstream from the lower mouth of Paimiut Slough.
2. Beaver and Birch Creeks were removed from waters closed to subsistence fishing. However, gillnets used for subsistence fishing were restricted to those 3 inches or less stretch mesh to protect salmon.
3. The BOF found that individual salmon species were customarily used in the Yukon-Northern Area and established the following corresponding amounts of salmon reasonably necessary for subsistence uses:
    - Chinook salmon: 45,500–66,704
    - summer chum salmon: 83,500–142,192
    - fall chum salmon: 89,500–167,100
    - coho salmon: 20,500–51,980
4. New language was adopted defining the use of Chinook salmon as primarily human food with specific provisions for feeding them to dogs based on unfitness for human consumption. Chinook salmon may be retained for dog food after July 10 in the Koyukuk River drainage, after July 20 in District 6 of the Tanana River drainage, and after August 10 in Subdistrict 5-D, upstream of Circle City. Dried Chinook salmon may not be used for dog food throughout the Yukon River drainage, except that whole fish that are unfit for human consumption, scraps, and fish under 16 inches in length may be fed to dogs.
5. A previous restrictive regulation was repealed which now allows Lower Yukon fishers to subsistence fish in different districts other than the district they are registered to commercial fish.

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6. The BOF added several islands to the descriptions of Subdistricts 5-A (Second, Corbusier, Sixmile, Deet'laa, Swanson, and Blind Islands) and 5-B (Willow I, II, III, Steamboat, and Grant Islands). Additionally, the lower boundary of the Old Minto Area was extended to the downstream end of Upper Tolovana Island.
7. The Black River (lower Yukon) closed area was redefined to be a rectangular box 1 mile south of Black River extending seaward one mile and enclosing the area to 1 mile north of Black River. The closed waters area at the mouth of the Andreafsky River was enlarged and will be denoted by location of ADF&G regulatory markers.
8. Dip nets were added to the list of lawful personal use salmon gear and an exception was made that allowed dip net fishers to operate their gear within less than 200 feet of one another.
9. The BOF authorized the personal use harvest of whitefish and suckers by dip nets and fyke nets (hoop traps) that are strictly monitored through individual permit requirements.

Regulation Changes Adopted in 2002

The BOF provided ADF&G with emergency order authority to suspend the requirement for Districts 1–3 to mark Chinook salmon taken for subsistence uses when there is no commercial fishing season. If there is no commercial fishing season, Chinook salmon taken for subsistence may have the dorsal fin left intact.

Personal use salmon fishing gear changes included adding dip nets as a gear type available during times of salmon conservation. Dip nets were removed as a lawful gear for personal use salmon under general regulations. During times when it is necessary for the conservation of a salmon species, gear limitations, such as gillnet mesh size limits, livebox/live chute requirements on fish wheels, and the use of dip nets will allow for personal use fishing for a more abundant species.

Regulation Changes Adopted in 2003

Managers experienced difficulty maintaining the subsistence fishing schedule in Districts 1, 2, and 3, and Subdistrict 4-A. The difficulties were due in part to subsistence and commercial fishing times being addressed in separate regulations. In March 2003, the BOF addressed 2 Agenda Change Requests (ACRs) regarding the subsistence fishing schedule, specifically whether the schedule can be terminated inseason on the basis of run abundance and, if so, how that would be done based on current regulations. The BOF adopted a change to terminate the subsistence fishing schedule and revert to pre-2001 subsistence fishing regulations when sufficient abundance exists:

> 5 AAC 05.360(e) If inseason run strength indicates a sufficient abundance of king salmon to allow a commercial fishery, subsistence fishing shall revert to the fishing periods specified in 5 AAC 01.210(c)-(h).

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Regulation Changes Adopted in 2004

Several proposals were submitted to the BOF for the 2004 meeting. The following is a summary of the adopted proposals:

1. The BOF increased the permit harvest area for subsistence salmon fishing to include all of Subdistrict 5-C as a means to track resource use changes due to the anticipated completion of the Rampart road construction project and increased mobility of fishers.
2. The BOF adopted a regulation requiring gillnets greater than 4-inch mesh size to be removed from the water and requiring fish wheels to stop rotating during subsistence closures.
3. The BOF increased the subsistence fishing schedule from two 42-hour periods per week to two 48-hour periods per week in Subdistrict 5-A.
4. In Subdistrict 4-A, during times when the commissioner determines that it is necessary for chum salmon conservation, the commissioner may, by emergency order, close the commercial fish wheel fishing season and immediately reopen the season during which set gillnet gear may be used instead of fish wheels.
5. The BOF voted to allow ADF&G to set a weekend schedule day by emergency order and not to set the start date in regulation. This was in response to a proposal to revise the subsistence fishing schedule in Districts 3 and 4 to provide weekend subsistence fishing opportunity for fishers that work.
6. In the Tanana River (District 6) subsistence fishing may be open 24 hours per day after September 30 if the abundance of salmon is adequate.
7. The BOF adopted a proposal to allow subsistence fishing with 3.5-inch or smaller mesh gillnets from November 1 to June 30 in the South and Middle Forks of the Koyukuk River along the Dalton Highway. This proposal was adopted with the amendment to require a subsistence fishing permit in the area.
8. A BOF generated proposal allowing commercial fishing for herring throughout the entire Cape Romanzof herring district was adopted.
9. The BOF modified the *Yukon River Drainage Fall Chum Salmon Management Plan* by aligning the escapement goal threshold with the lower end of the established biological escapement goal (BEG) range of 300,000 to 600,000 fish. Commercial fishing drainage wide will not be allowed until the fall chum salmon run is projected to be 600,000 fish. Elements of the *Toklat River Fall Chum Salmon Rebuilding Management Plan* were incorporated into the *Fall Chum Salmon Plan* which included changing management of the Toklat stock from the optimum escapement goal (OEG) target to the established BEG range of 15,000–33,000 fish.
10. The BOF amended the *Tanana River Salmon Management Plan* to remove the restriction requiring no more than 42 hours of commercial fishing per week after August 15.

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Regulation Changes Adopted in 2007

There were several proposals submitted to the BOF, including requests to change commercial gillnet mesh sizes and depth, commercial harvest allocations, and district boundaries. None of these proposals were adopted. The subsistence marking requirement for Districts 1–3 was changed such that from June 1 to July 15, a person may not possess Chinook salmon taken for subsistence uses unless both tips and lobes of the tail fin have been removed. Marking must be done before the person conceals the salmon from plain view or transfers the salmon from the fishing site. Additionally, a person may not sell or purchase salmon from which both lobes of the tail fin have been removed. Previously, the marking requirement was to remove the dorsal fin.

The BOF passed a proposal that allowed catch-and-release of Chinook salmon in the sport fishery on a portion of the Goodpaster River, downstream from ADF&G regulatory markers located approximately 25 miles upstream from the confluence with the Tanana River. Chinook salmon may not be removed from the water and must be released immediately without further harm. Additionally, in the Goodpaster River drainage from June 1 through August 31, only one unbaited single-hook artificial lure may be used.

Additionally, the BOF modified the *Yukon River Coho Salmon Management Plan* by reducing the threshold required to allow a directed coho salmon commercial fishery from a run size of 625,000 fall chum salmon down to 550,000 fall chum salmon. The closure of the directed coho salmon commercial season was extended to September 10 in Districts 1, 2, and 3, and Subdistrict 4-A was included with the remainder of District 4 to close no later than October 5. The BOF considered but made no changes to harvest allocation.

Regulation Action in 2009

Effective July 1, 2009, due to the conservation concern for Chinook salmon and to provide opportunity for a directed summer chum commercial fishery in Districts 1 and 2, the BOF adopted an emergency regulation specifying that during the commercial summer chum salmon season in Districts 1 through 5; Chinook salmon taken may be retained but not sold. Therefore, fishers could release live Chinook salmon or use them for subsistence purposes. Chinook salmon caught but not sold were to be reported on fish tickets. This emergency regulation was discontinued, effective July 16, because the majority of the Chinook salmon run had passed the lower river districts.

On September 8, 2009, the BOF met and passed an emergency regulation to allow for a directed coho salmon commercial fishery if ADF&G determined that there was a harvestable surplus of coho salmon above escapement needs and those necessary for subsistence uses and that a directed coho salmon commercial fishery would not have a significant impact on escapement or allocation of fall chum salmon.

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Regulation Changes Adopted in 2010

Chinook salmon on the Yukon River were continued as a "Stock of Yield Concern" due to variable run sizes, reduced and eliminated commercial harvest since 2001, and subsistence harvests that were steady until 2007 but were restricted in 2008 and 2009. The BOF adopted several changes to the regulations pertaining to Yukon Area fisheries management in January 2010. The following is a summary of the BOF's actions at that meeting:

1. The *Yukon River Summer Chum Salmon Management Plan* was modified to allow, by emergency order, a commercial harvest up to 50,000 fish if the total run size is between 900,000 and 1,000,000 fish, distributed by district or subdistrict in proportion to the guideline harvest levels.
2. The *Yukon River Fall Chum Salmon Management Plan* was modified by lowering the threshold required to allow a directed fall chum salmon commercial fishery from a run size of 600,000 fall chum salmon to 500,000 fall chum salmon. This modification also changed the threshold in the *Yukon River Coho Salmon Management Plan* from a run size of 550,000 fall chum salmon to 500,000 fall chum salmon in order to conduct a coho salmon directed commercial fishery.
3. The *Yukon River Coho Salmon Management Plan* was modified to allow for late season harvest of coho salmon if ADF&G determines there is a harvestable surplus of coho salmon above escapement needs and those necessary for subsistence uses and that a directed coho salmon commercial fishery will not have a significant impact on escapement or allocation of fall chum salmon.
4. Effective in 2011, the maximum mesh size for subsistence, commercial, and personal use gillnets in the Yukon River Area will be 7.5 inches. Previously mesh size was unrestricted.
5. During times of Chinook salmon conservation, ADF&G now has emergency order authority to prohibit the sale of Chinook salmon during chum salmon directed commercial fishing periods.
6. The *Yukon River King Salmon Management Plan* was amended by adding a new subsection that ADF&G may use emergency order authority to close all salmon fishing in a district or portion of a district if run assessment information indicates an insufficient abundance of Chinook salmon.
7. The subsistence fishing schedule in Subdistrict 4-A was changed to two 48-hour periods per week, regardless of commercial fishing periods.
8. The subsistence fishing schedule in Subdistricts 4-B and 4-C was modified to open from 6:00 PM Sundays until 6:00 PM Fridays when commercial fishing closures last longer than 5 days.
9. The Innoko River subsistence fishing schedule was changed to open 7 days per week.

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Regulation Changes Adopted in 2012

Regulations adopted by the BOF out of cycle in March 2012 allowed ADF&G to open summer chum salmon directed commercial fishing periods in Subdistrict 4-A during time of Chinook salmon conservation with fish wheels only. In addition, fish wheels must be attended at all times during operation, and all Chinook salmon caught in the fish wheels must be released to the water alive immediately.

An emergency regulation was adopted by the BOF on July 17, 2012, to allow ADF&G to open summer chum salmon directed commercial fishing periods in District 6 during times of Chinook salmon conservation with fish wheels only. Fish wheels must be attended at all times during operation, and all Chinook salmon caught in the fish wheels must be released to the water alive immediately. This regulatory change implemented by the BOF was effective only for the 2012 fishing season.

Regulation Changes Adopted in 2013

During the 2013 BOF cycle, numerous regulation changes were adopted pertaining to Chinook salmon in the Yukon River. The following list is a summary of the BOF's actions at that meeting:

1. Require first pulse protection in the *Yukon River Summer Chum Salmon Management Plan* regardless of preseason run forecasts. After initiating the pulse closure, ADF&G may discontinue subsistence fishing closures if inseason run assessment indicates that escapement objectives on specific components of the run and subsistence harvest needs are likely to be met.
2. Prohibit the sale of Chinook salmon from the Yukon River drainage if Chinook salmon escapement goals are not going to be met or subsistence salmon fishing is restricted in more than one district or portion of a district.
3. Allow for a directed chum salmon commercial fishery in Districts 1–3 in the Lower Yukon Area during times of Chinook salmon conservation with 5.5-inch or smaller mesh size gillnets not exceeding 30 meshes in depth.
4. Align Yukon Area subsistence regulations in Districts 1–3 with current management practices by adjusting closures around commercial fishing periods and allowing concurrent subsistence and commercial fishing by emergency order.
5. District 1 boundaries redefined to include coastal waters adjacent to the south mouth of the Yukon River from Chris Point to Black River, which opens Acharon Channel to salmon fishing.
6. Establish times when a commercial gillnet permit holder in the Lower Yukon Area may use dip net and beach seine gear to commercially harvest summer chum salmon during times of Chinook salmon conservation. All Chinook salmon caught in dip net and beach seine gear must immediately be returned to the water alive, except that a dead Chinook salmon may be taken but may not be retained; the dead Chinook salmon must be recorded on a fish ticket and forfeited to the state. Beach seine mesh size is not to exceed 4-inches. Dip net gear specifications are in 5 AAC 39.105(24).

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7. Provide ADF&G with emergency order authority to restrict gear to fish wheels only, require fish wheels to be closely attended, and require the live release of Chinook salmon in District 6 during times necessary to conserve Chinook salmon. Additionally, fish-friendly fish wheel construction specifications were adopted (5 AAC 05.362(j)) to reduce the potential for injury that Chinook salmon may incur while being captured and released.
8. The amounts reasonably necessary (ANS) for subsistence salmon in Yukon Area was reviewed. An ANS range was established for pink salmon (2,100–9,700), no other changes were adopted to the other species-specific ranges.

Regulation Changes Adopted in 2014

Three regulatory changes were adopted by the BOF out of cycle at the March 2014 meeting. One of the regulations adopted was a modification to provide a larger dip net frame for noncircular dip nets in which the width-height dimensions may not exceed 6 feet by 3 feet in the Lower Yukon Area commercial summer chum salmon fishery. All other existing dip net specifications remained unaltered. Also, the BOF adopted a proposal that allows the use of a lead during commercial fish wheel operations. The final proposal adopted by the BOF was the removal of the exception that allows dead Chinook salmon to be taken but not retained in the Yukon Area Districts 1–3 dip net and beach seine commercial summer chum salmon fisheries. This proposal closed the loophole that allowed opportunity to illegally harvest Chinook salmon when commercial fishing, and also clearly ensured that all Chinook salmon are returned immediately to the water alive.

Regulation Changes Adopted in 2015

Two ACRs were accepted and the proposals were carried unanimously by the BOF during the March 2015 BOF meeting. The first proposal modified language to allow drift gillnet subsistence fishing after June 10 in the upper portion of Subdistrict 4-A for the harvest of summer chum salmon by emergency order. This modification gives ADF&G the flexibility to allow for the efficient harvest of chum salmon when the incidental harvest of Chinook salmon is expected to be low.

The second proposal allows fish wheel fishers in the Yukon Area to retain Chinook salmon while fishing for and targeting summer chum salmon. Adoption of this proposal provides ADF&G the flexibility to allow for a small incidental Chinook salmon harvest when justified based on inseason run assessment. Both of these changes in regulations went into effect for the 2015 summer season.

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Regulation Changes Adopted in 2016

The BOF continued the stock of yield concern designation for Yukon River Chinook salmon. Several proposals were submitted to the BOF for the 2016 meeting. The following is a summary of the BOF's actions:

1. Establish a new drainagewide escapement goal for summer chum salmon (500,000–1,200,000) and lower management triggers in the *Yukon River Summer Chum Salmon Management Plan*. Subsistence fishing may occur at projected run sizes above 500,000 fish, up to 50,000 fish may be harvested commercially when the projected run size is more than 650,000 fish but less than 750,000 fish, and a drainagewide commercial fishery may be opened above a projected run size of 750,000 fish. Sport fishing and personal use may be allowed for run sizes above 650,000.
2. Fall chum salmon directed commercial fishing may now occur when the run is projected to be greater than 550,000 fish. The previously used trigger point value was 500,000 fish.
3. Eliminate holding of a salmon caught in fish wheels in liveboxes prior to live release. Fish wheel operators must closely attend their fish wheel while it is in operation and must release specified salmon to the water alive in times of conservation.
4. Established beach seine specifications for subsistence and commercial salmon fishing in the Yukon Area. beach seines used for subsistence and commercial salmon fishing may not exceed 150 fathoms in length, 100 meshes in depth, and 4-inches stretched measure. Beach seines may not be constructed of single-strand or multiple-strand monofilament web.
5. Require the live release of Chinook salmon from subsistence beach seines during times of Chinook salmon conservation for both subsistence and commercial beach seines.
6. Expand the area of allowable subsistence drift gillnet fishing for chum salmon in Subdistrict 4-A by emergency order only from June 10 to August 2.
7. Modify the Yukon Area commercial set gillnet to an aggregate combined total length of 150 fathoms.
8. Allow ADF&G to restrict gillnets in the District 6 commercial fishery to 6-inches or less stretched measure during periods established by emergency order.
9. Establish gillnet specifications for a pink salmon directed commercial fishery in District 1 of the Yukon River from June 15 to July 31 using gillnets that do not exceed 4.75-inches stretched measure. A pink salmon commercial fishery may only occur if a harvestable surplus of pink salmon is sufficient for subsistence use and if chum salmon escapement goals are expected to be achieved.
10. Expand the commercial fishing area in Yukon Area District 1 from its terminus at the Black River to its terminus at Point Romanof, and include marine waters that extend 3 miles outward from any grassland bank.

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11. Modify the dates gillnet gear may be used for subsistence fishing in the South and Middle Forks of the Koyukuk River from August 30 through June 1.
12. Under new regulations, that portion of the Chatanika River from its confluence with Goldstream Creek to a point 3 miles upriver is closed to the subsistence take of northern pike through the ice. No changes to the bag and possession limits were adopted, nor were any size restrictions adopted.
13. In Racetrack Slough off the Koyukuk River and in the sloughs of the Huslia River drainage, from when each river is free of ice through June 15, the offshore end of a set gillnet may not be closer than 20 feet from the opposite bank, unless closed by emergency order.
14. Allow the retention of incidentally caught northern pike in the Yukon Area Subdistrict 6-C personal use area.

Regulation Changes Adopted in 2018

Several proposals were submitted as out of cycle ACR to the BOF for the 2018 statewide meeting. The following is a summary of the BOF's actions:

1. Allowed salmon to be taken by drift gillnets in Subdistricts 4-B and 4-C during subsistence fishing periods. Drift gillnets may not be longer than 150 feet (25 fathoms).
2. Removed the mandatory closure on the first pulse of Chinook salmon in Districts 1 and 2 and directed ADF&G to manage the Chinook salmon run conservatively, and only require first pulse closure in Districts 1 and 2 if the preseason forecast indicates a poor run of Chinook salmon.
3. Specified that if Chinook salmon escapement goals are projected to be met, subsistence fishing is not restricted, and subsistence fishing opportunity for Chinook salmon has been provided within the season, ADF&G may open a commercial salmon fishery (e.g., for summer chum, fall chum, coho, or pink salmon) during which incidentally caught Chinook salmon may be sold.
4. Clarified District 1 boundaries and specified that during the fall commercial fishing season setnets only may be used in the coastal waters of District 1.
5. Removed the October 1 closure date for commercial fishing in District 6 and allows the season to be closed by emergency order.
6. Adopted as an emergency regulation: in Subdistrict 4-A of the Yukon River allow the harvest of chum salmon by drift gillnets after August 2 downstream from Stink Creek. (This took effect during a July emergency petition meeting of the BOF and went into effect prior to the fall 2018 fishing season.)
7. Under new regulations adopted at the 2017 Prince William Sound Finfish Alaska Board of Fisheries Meeting, the previously closed 3-mile portion of the Chatanika River upstream of the confluence with Goldstream Creek was reduced to 1 river mile of closed waters to subsistence fishing of northern pike through the ice. Effective January 2, 2018, subsistence fishing for northern pike through the ice closed on the Chatanika River from the confluence of Goldstream Creek to 1 river mile upstream.

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Regulation Changes Adopted in 2019

Several proposals were submitted to the BOF for the 2019 meeting. The following is a summary of the BOF's actions:

1. The use of hook and line as a legal subsistence gear is extended from Paimiut Slough (near Holy Cross) to the Nulato River (near the community of Nulato); in waters of the Yukon River drainage from the coast to the north bank of the mouth of the Nulato River (including the Nulato River drainage), hook and line may be used year-round as subsistence gear for salmon and nonsalmon species.
2. During times of Chinook salmon conservation, fish wheels must be closely attended, and all Chinook salmon must be immediately released to the water alive by means of a chute, net, or tote, and may not enter any livebox.
3. Added dip nets to the list of legal gear types subsistence fishers may use for salmon. Additionally, during times of Chinook salmon conservation, ADF&G may allow the retention of Chinook salmon from dip nets, beach seines, or fish wheels by emergency order.
4. ADF&G may reduce the 24-hour subsistence fishing closure prior to the start of the commercial fishing season.
5. Removed the requirement to clip both tips (lobes) of the tail of subsistence-taken Chinook salmon in Districts 1–3 when there is no commercial fishery for Chinook salmon. However, if ADF&G anticipates the sale of Chinook salmon, fishers will be required to remove the lobes in order to mark fish and prevent the illegal sale of subsistence-caught Chinook salmon.
6. Modified the maximum amount of gear used in a portion of Subdistrict 5-C. In Subdistrict 5-C, between ADF&G marker near Waldron Creek and Hess Creek, a set gillnet used by an individual for subsistence fishing may not exceed 150 feet in length.
7. Modified the subsistence fishing schedule in Subdistricts 5-A, 5-B, and 5-C. When the fall chum salmon inseason projection, based on the summer chum to fall chum salmon relationship, is for 700,000 or more fish, in Subdistricts 5-A, 5-B and 5-C, subsistence salmon fishing will be open 7 days a week consistent with the migratory timing of the fall chum salmon fishery. Fishing periods may be altered for the conservation of Chinook salmon.
8. Allowed drift gillnets (with a maximum length of 150 feet) for subsistence salmon fishing (Chinook, summer and fall chum, and coho salmon) in all portions of District 4.
9. Allowed ADF&G flexibility in continuing late season fall commercial fishing; ADF&G may close the fall chum and coho salmon commercial seasons by emergency order, instead of by a date set in regulation.
10. Added a size restriction to northern pike which can be kept within the Chatanika River Harvest Area (from an ADF&G marker approximately 1 river mile upstream of the confluence of the Chatanika River and Goldstream Creek to an ADF&G marker at the boundary of the Fairbanks Nonsubsistence Area).

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Regulation Changes Adopted in 2023

Several proposals were submitted to the BOF for the 2023 meeting. The following is a summary of the BOF's actions:

1. Expanded the area where hook-and-line gear is legal year-round for salmon and nonsalmon subsistence fishing above the Nulato River. Hook-and-line gear is legal in the Koyukuk River drainage and Districts 1-5. Closed areas for subsistence fishing with hook and line include the Tanana River drainage, Big Salt River, Hess Creek, Dall River drainage, Birch Creek upstream of the Steese Highway bridge, Fish Creek drainage upstream from the mouth of Bonanza Creek, Bonanza Creek drainage, Kanuti River drainage upstream from a point 5 miles downstream of the state highway crossing, and Jim River drainage.
2. The regulation for subsistence fishing gear was repealed and replaced. Changes included:
    a. Remove the minimum distance required between subsistence gears other than set gillnets and fish wheels.
    b. Add eels sticks as a gear type for lamprey fishing (a traditional gear of the Yukon Area).
    c. Set a 7.5-inch maximum mesh size for gillnet fishing for salmon and nonsalmon.
    d. Set a 6-inch maximum mesh size for gillnet fishing during the fall chum and coho salmon season.
    e. Increase the maximum mesh size to 4-inch for gillnet fishing in portions of Beaver and Birch creeks.
    f. Expand the area where hook-and-line gear is legal year-round for salmon and nonsalmon to include all Yukon River districts, excluding some areas along the road system in the middle and upper Yukon Area and closed waters (see Figure 1). A sport fishing license is no longer required for Alaskan residents in areas where hook and line is legal for subsistence fishing. However, a subsistence permit is still required in Yukon Area permit areas. Managers may still restrict or close salmon fishing with hook and line during times of conservation.
    g. During times of salmon conservation, by emergency order, managers can specify the following:
        i. Any salmon species may be specified for live-release from fishing gear types. Previously only chum and Chinook salmon could be required for live-release.
        ii. Gillnets may be restricted by length, distance from shore (100 feet from ordinary high water mark), and may be required to be operated as a setnet.
        iii. Additional gillnet mesh size options include 4.75-inch or smaller (to target pink salmon) and exactly 7.5 inch (to target Chinook salmon and to conserve chum salmon).

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3. In the Personal Use fishery:
   a. Gillnets have a 6-inch maximum mesh size after August 15 (fall season begins).
   b. Expanded the gear types and operation during times of salmon conservation for the Yukon Area personal use salmon fishery, by emergency order. Any salmon species may be specified for live-release from dipnets and manned fish wheels. Gillnets may be required to be operated as set gillnets within 100 feet from the ordinary high water mark. For Chinook salmon conservation, gillnets may be restricted to4-inch or smaller mesh with a specified length and depth.
4. In commercial fisheries:
   a. Reduced the District 5 maximum mesh size to 6 inches or less for commercial fishing to align with the other Yukon Area districts. During times of salmon conservation, by emergency order, any salmon species may be specified for live-release from human-operated fish wheels, dip nets, and beach seines.
5. Statewide proposals relevant to the Yukon Area:
   a. When fishing under the ice, submerged gillnets remain legal for subsistence, personal use, and commercial fishing, except for the following:
      i. In the Coastal District and Districts 1 and 2, submerged gillnets are illegal during ice-free months for subsistence fishing.
      ii. In Districts 1 and 2, submerged gillnets are illegal during ice-free months for commercial fishing.
      iii. In Districts 3–6, submerged gillnets may be used for subsistence, personal use, and commercial fisheries during ice-free months, however nets must have a visible keg, buoy, or cluster of floats attached to both ends of the net, plus a third in the middle if the net is over 60 feet in length.
   b. Eel sticks added as an allowable gear type for subsistence and commercial gear fisheries for lamprey.
   c. Guide services in Alaska subsistence fisheries may not receive compensation. Compensation for renting gear or transportation to and from sites remains legal.