RC6 Report to the Alaska Board of Fisheries

DRAFT–Northern Southeast Alaska King Salmon Stock Status and Action Plan, 2021

(Note: This draft was amended 12-20-21 to include portions of Districts 9 and 13 in options A, B, and C for sport fish management actions and figures 5, 6, and 7 were updated to reflect these changes.)

by

Grant T. Hagerman

David K. Harris

Jeffrey T. Williams

Daniel J. Teske

Brian W. Elliott

Nicole L. Zeiser

and

Richard S. Chapell

December 2021

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

Symbols and Abbreviations

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Measures (fisheries)

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

Mathematics, statistics

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

REPORT TO THE ALASKA BOARD OF FISHERIES

DRAFT–NORTHERN SOUTHEAST ALASKA KING SALMON STOCK STATUS AND ACTION PLAN, 2021

By

Grant Hagerman
Alaska Department of Fish and Game, Division of Commercial Fisheries, Sitka

David Harris
Alaska Department of Fish and Game, Division of Commercial Fisheries, Douglas

Jeff Williams and Dan Teske
Alaska Department of Fish and Game, Division of Sport Fish, Douglas

Nicole Zeiser
Alaska Department of Fish and Game, Division of Commercial Fisheries, Haines

and

Brian Elliott and Richard Chapell
Alaska Department of Fish and Game, Division of Sport Fish, Haines

Alaska Department of Fish and Game
Divisions of Sport Fish and Commercial Fisheries, Publications Section
802 3rd, Douglas, Alaska, 99824-0020

December 2021

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This document should be cited as:
Hagerman, G. T., D. K. Harris, J. T. Williams, D. J. Teske, B. W. Elliott, N. L. Zeiser, and R. S. Chapell. 2021 DRAFT-Northern Southeast Alaska King Salmon Stock Status and Action Plan, 2021. Alaska Department of Fish and Game, Regional Information Report No. 1J21-XX, Douglas, Alaska.

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ABSTRACT

Escapements of king salmon have fallen below the lower bound of the current BEG range for Chilkat River in 3 of the past 5 years, for King Salmon River in 4 of the past 5 years, and for the Taku River in 5 of the past 5 years, including the 2020 escapement estimates. In response to guidelines established in the *Policy for the management of sustainable salmon fisheries* (SSFP), the Alaska Department of Fish and Game (department) recommended that the Chilkat and King Salmon River king salmon (*Oncorhynchus tshawytscha*) stocks be designated as stocks of "management concern" in 2017 followed by approval from the Alaska Board of Fisheries at the 2018 Southeast and Yakutat Finfish and Shellfish meeting. In October 2020, the department recommended the continuation of stock of management concern status for the Chilkat and King Salmon Rivers and to add the Taku River king salmon stock at the regulatory board meeting for the Southeast Alaska and Yakutat Management Area 2021 board cycle. A "management concern" is defined as "a concern arising from a chronic inability, despite use of specific management measures, to maintain escapements for a salmon stock within the bounds of the SEG [sustainable escapement goal], BEG [biological escapement goal], OEG [optimum escapement goal], or other specified management objectives for the fishery." Since 2012, escapements of king salmon have been below the lower bound of the BEG range in 6 years for the Chilkat River and 7 years for the King Salmon and Taku Rivers. Taku River escapements have been below the lower bound of the BEG range in 5 of the last 5 years. Since 2012, the department has implemented conservative management measures to reduce the harvest of the Chilkat River stock of king salmon and increase escapement. Through these measures, and from actions taken to reduce the harvest of the Taku River stock of king salmon, by extension, harvest on the stock of king salmon from the King Salmon River may likewise have been reduced. Although these management actions have been effective at reducing overall harvest rates, the runs have been so poor that consistent achievement of BEGs has been problematic.

Key words: king salmon, *Oncorhynchus tshawytscha,* Chilkat River, King Salmon River, Taku River, Southeast Alaska, stock of concern, fishing, sustainable salmon fisheries policy, Alaska Board of Fisheries.

INTRODUCTION

The *Policy for the management of sustainable salmon fisheries* (SSFP; 5 AAC 39.222) directs the Alaska Department of Fish and Game (department) to provide the Alaska Board of Fisheries (board) with reports on the status of salmon stocks and identify any salmon stocks that present a concern related to yield, management, or conservation during regularly scheduled board meetings. Herein, the Chilkat, King Salmon, and Taku Rivers stocks of king salmon *Oncorhynchus tshawytscha* will be referred to as Chilkat River king salmon, King Salmon River king salmon, and Taku River king salmon.

In January 2018, the board designated king salmon stocks from the Chilkat and King Salmon Rivers as stocks of management concern. Subsequently, the department developed the 2018 Chilkat and King Salmon Rivers king salmon action plan (Lum and Fair 2018a). In October 2020, the department recommended to continue to designate king salmon stocks from the Chilkat and King Salmon Rivers and add the Taku River king salmon stock as stocks of management concern at the regulatory board meeting for the Southeast Alaska (SEAK) and Yakutat Management Area 2021 board cycle. The stock of concern recommendations were based on guidelines established in the SSFP. The SSFP states that a management concern is "a concern arising from a chronic inability, despite use of specific management measures, to maintain escapements for a salmon stock within the bounds" of the established escapement goal whether it be a sustainable escapement goal (SEG), biological escapement goal (BEG), optimal escapement goal (OEG), or other specified management objective. Chronic inability is defined in the SSFP as the "continuing or anticipated inability to meet escapement thresholds over a 4-to-5-year period, which is approximately the generation time of most salmon species." Escapements of king salmon in the Chilkat River were below the lower bound of the BEG range of 1,750 to 3,500 fish in 6 out of 9 years from 2012 to 2020 (Tables 1 and 2); escapements of king salmon in the King Salmon River were below the lower bound of the BEG range of 120 to 240 fish in 7 out of 9 years from 2012 to

2020 (Table 3); and escapements of king salmon to the Taku River were below the lower bound of the BEG range of 19,000 to 36,000 fish in 7 out of 9 years from 2012 to 2020 and in the previous 5 consecutive years from 2016 to 2020 (Table 4). It is important to note that while escapements for these 3 king salmon stocks have consistently failed to achieve the lower bound of their escapement goal ranges, harvest rates have declined significantly over the past 3 years through conservative management actions.

The Taku River originates in Canada and approximately 10% of the drainage is in Alaska. Management of shared fishery stocks is conducted on a cooperative basis under the auspices of the Pacific Salmon Treaty (PST) negotiated between the 2 countries; the latest agreement was finalized in 2018 and implemented in 2019, and will be in effect through 2028.

Poor production and declines of king salmon runs over at least the past decade have been well documented throughout much of the species' range (ADFG 2013). Below average survival rates and abundance of SEAK stocks have persisted since 2007. Although freshwater factors may be contributing to these declines, the wide geographic scope of the effect suggests poor production primarily stems from factors in the ocean. This idea is supported by information produced through the department's SEAK king salmon stock assessment program, which includes estimating both freshwater and marine survival rates for 4 wild king salmon stocks originating in the Chilkat, Taku, Stikine, and Unuk Rivers. The long times series of detailed stock assessment information available for these stocks, including survival rates, is unique to the SEAK program, and is not available for wild king salmon stocks found elsewhere along the coast. Freshwater survival rates of these 4 SEAK king salmon indicator stocks have fluctuated similarly over time and do not show long-term trends; however, marine survival rates for these same stocks have severely declined and are currently far below prior long-term averages.

This draft action plan provides the department's assessment of the stocks of king salmon from the Chilkat, King Salmon, and Taku Rivers as stocks of management concern, summarizes historical assessments of annual run sizes, and describes the existing regulations and emergency order (EO) authority that the department follows to manage for escapement goals. Options are then presented for potential management actions for sport, commercial, personal use, and subsistence fisheries, and research projects for these king salmon stocks. Because of similar migration routes through Icy Strait and Chatham Strait, management actions for these 3 king salmon stocks in the mixed stock fisheries that occur in Chatham Strait and Icy Strait (sport, troll, and purse seine) overlap and affect one another. Consequently, the Taku River has been included with the Chilkat and King Salmon Rivers in this northern southeast plan.

This action plan is being presented to the board and public in draft form for discussion and consideration at the 2022 board meeting on Southeast and Yakutat Finfish and Shellfish. If the board chooses to adopt the Taku River king salmon stock as a stock of concern and/or any other management actions for the Chilkat and King Salmon Rivers king salmon, then after the 2022 board meeting the department will finalize this report and include descriptions of any management measures or recommendations from the board related to the Chilkat River, King Salmon River, and/or Taku River king salmon stocks. The final action plan will be published in the ADF&G Regional Informational Report series after the board meeting and, until that time, the department will continue to manage commercial, sport, subsistence, and personal use fisheries per provisions of the PST and the 2018 action plans for the Unuk, Chilkat, and King Salmon Rivers (Lum and Fair 2018a; Lum and Fair 2018b).

STOCK ASSESSMENT BACKGROUND

CHILKAT RIVER

The Chilkat River is a glacial system that empties into Chilkat Inlet in northern Lynn Canal, near Haines (Figure 1) that supports the fifth largest stock of king salmon in SEAK. Chilkat River king salmon predominantly rear in the inside waters of SEAK (Pahlke 2008). Among the 11 SEAK king salmon stocks that are monitored for escapement, the Chilkat River is 1 of 4 stocks for which a full stock assessment is performed annually by the department. This includes coded-wire-tagging (CWT) juveniles and smolt, and in combination with adult sampling programs provides estimates of smolt abundance, parr to smolt survival rates, marine survival rates, and total run size along with harvest (calendar year) and exploitation (brood year) rates. Coded-wire-tagging of juvenile Chilkat River king salmon was conducted from 1988 to 1990 and at relatively high tag rates (8–10%) since 1999. Estimates of escapement are germane to age-1.3 and older fish, hereto referred to as "large" fish (king salmon ≥ 660 mm mideye to tail fork length; primarily fish age 1.3 and older) and are based on mark-recapture (MR) estimates conducted annually since 1991.

Escapement

Since 1991, estimated escapements of large king salmon to the Chilkat River have averaged 3,344 fish; during the most recent 10-year period (2011–2020) escapements have averaged 1,873 fish and during the most recent 5-year period (2016–2020) escapements have averaged 1,727 king salmon (Tables 1 and 2). The recent 10-year average is 46% and the recent 5-year average is 42% of the 1991 to 2010 average. Over the last 10 years, king salmon escapements to the Chilkat River were within the BEG range in only 4 years (2011, 2015, 2019, and 2020).

Harvest

Chilkat River king salmon are harvested directly in a small terminal marine sport fishery in Chilkat Inlet, but otherwise are harvested in mixed stock sport fisheries, commercial drift gillnet (Lynn Canal) and commercial troll (primarily in northern SEAK) fisheries. This stock is also harvested incidentally in sockeye salmon (*O. nerka*) subsistence fisheries in Chilkat Inlet and the Chilkat River. Lynn Canal fisheries that harvest Chilkat River king salmon stocks are managed according to the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384) to achieve escapements within the BEG range. CWT recovery information shows calendar year harvest rates on Chilkat River king salmon have historically been low, averaging 26% from 2005 to 2015. However, harvest rates were reduced to an average of 13% from 2016 to 2020 after additional conservative management actions were implemented. Management actions outlined in the 2018 Chilkat and King Salmon Rivers king salmon action plan, further served to reduce harvest of Chilkat River king salmon in the commercial, sport, and subsistence fisheries in Lynn Canal. As a result of these additional restrictions, the 2018 to 2020 harvest rates for Chilkat River king salmon averaged 9%. Over the most recent 10-year period (2011–2020), the SEAK sport fishery accounted for 41% of the harvest, followed by commercial net (37%), commercial troll (15%), and local subsistence (7%). Since the inception of the action plan, Chilkat River king salmon harvests from all SEAK fisheries have averaged 123 fish annually.

Harvests of Chilkat River king salmon in the SEAK sport fishery occur primarily from May through August. The estimated sport harvest of this stock averaged 214 fish between 2011 and 2020 with a range of 0 fish in 2019 to 449 fish in 2014, as estimated using CWT recovery information (Table 2). Most of this harvest (96%) occurred in the Northern Inside area (Districts

9 through 12, and 15) while the remaining occurred in the Northern Outside area (Districts 13, 14, and 16 through 18; Figure 4). No harvests were identified in the Southern Inside and Outside areas (Districts 1 through 8).

Harvests of Chilkat River king salmon in SEAK commercial net and troll fisheries averaged 272 fish from 2011 to 2020 (Table 2), most of which occurred in the net fishery (193 fish). Since 2018, the average commercial harvest has been reduced to 75 fish. Management actions implemented in the 2019 and 2020 District 15 drift gillnet fishery exceeded the restrictions outlined in the 2018 Chilkat and King Salmon Rivers king salmon action plan and as a result, estimated harvest rates were at an all-time low of 4% in 2019 and 2% in 2020 (Table 1). Commercial troll fisheries also harvest this stock, most of which occurs in the spring troll fishery, and averaged 79 fish from 2011 to 2020 (Table 2).

Chilkat River king salmon are harvested in a subsistence fishery that operates in the terminal area of Chilkat Inlet and in the Chilkat River. Subsistence harvest represents the smallest percentage (7%) of overall harvest, averaging 38 fish since 2011 (Table 2).

KING SALMON RIVER

The King Salmon River is a clearwater system located about 30 km (19 mi) south of Juneau on Admiralty Island. This river has the only documented island stock of king salmon in SEAK (Mecum and Kissner 1989). This stock does not support directed fisheries but presumably is harvested incidentally in SEAK marine waters in sport and commercial fisheries. Harvest estimates of the King Salmon River king salmon are not available because the stock contribution in marine fisheries has not been determined.

Escapement

The King Salmon River king salmon stock is 1 of 11 king salmon indicator stocks in SEAK, each of which are monitored annually for escapement of large fish. Escapements are based on weir counts from 1983 to 1992, expanded index counts using helicopter or foot surveys from 1971 to 1982 and 1993 to 2011, and foot surveys from 2012 to 2020. Ten years of concurrent weir and index count data were used to estimate a survey expansion factor of 1.52. Information gathered at the weir indicate the peak run timing for this stock occurs about mid-July, with all fish in the river by about July 31 (Josephson et al. 1993).

Since 1975, king salmon escapements in the King Salmon River have averaged 157 fish. Escapements during the recent 10-year period (2011–2020) averaged 95 king salmon and the recent 5-year period (2016–2020) averaged 78 king salmon (Table 3). King salmon escapements to the King Salmon River over the last 5 years, including the 2020 estimate, have been below the lower bound of the BEG in every year except 2016 (Table 3).

Harvest

Harvest of King Salmon River king salmon has never been quantified. No historical coded-wire-tagging has occurred and use of genetic stock identification (GSI) is not realistic given the low magnitude of production and resulting insufficient representation in any mixed stock fishery. However, King Salmon River king salmon were used as a source of broodstock for fish released from several hatcheries in SEAK in the 1970s and 1980s. Information from those hatchery releases and resulting CWT recoveries indicates a portion of the King Salmon River stock rears in SEAK (inside rearing). As a result, this stock presumably has harvest rates similar to other SEAK king

salmon stocks (e.g., Chilkat River) having inside rearing behavior. At one time, King Salmon River king salmon was used as an escapement indicator stock by the Chinook Technical Committee (CTC) of the Pacific Salmon Commission (PSC). Overall productivity of the stock was monitored annually and harvest rates on king salmon released at nearby Crystal Lake, which used Andrew Creek king salmon as brood stock, served as a surrogate in this process and since 2011 harvest rates of these king salmon have averaged 46%.

TAKU RIVER

The Taku River is a transboundary glacial system that supports an outside rearing stock of king salmon. The Taku River originates in British Columbia and drains over 17,000 square kilometers before its terminus at Taku Inlet, approximately 40 km northeast of Juneau. The Taku River king salmon run spawns entirely in Canada and is managed through provisions of Chapter 1 of the PST.

Escapement

The Taku River stock of king salmon is 1 of 11 king salmon indicator stocks in SEAK, each of which are annually monitored for escapement of large fish. Coded-wire-tagging of wild king salmon smolt occurred from 1976 to 1981 and from 1993 to present. Total escapement was estimated using MR studies conducted 1989 to 1990, 1995 to 1997, 1999 to 2010, and 2014 to 2020. In all other years, escapements were estimated from expanded peak aerial survey index counts. Since 1989, escapements averaged 36,400 large fish; however, the recent 10-year average escapement of 15,330 fish and the recent 5-year average of 10,360 fish are substantially lower and have been below the escapement goal range for 5 consecutive years (Table 4).

Harvest

Taku River king salmon are harvested in marine waters in mixed stock sport fisheries, primarily in District 11 as well as in Icy Strait, Chatham Strait, and Lynn Canal (Figure 5); in the late winter and spring commercial troll fisheries primarily in the northern and central outside areas (Figures 10 and 11); and in commercial drift gillnet fisheries in District 11 and 15 (Figures 4, 8, and 9). This stock is also harvested in the Taku River: incidentally in sockeye salmon personal use fisheries, and in Canadian commercial gillnet, assessment, recreational, and First Nation's food, social, and ceremonial (FSC) fisheries (Figure 3). Information from CWT recovery and GSI indicates the recent 10-year average (2011–2020) harvest rate on Taku River king salmon is 19% (Table 4).

In 2005, 2006, 2009, and 2012, surplus production was identified for Taku River king salmon allowing directed commercial and liberalized sport fisheries in terminal marine waters in District 11 and in the Canadian inriver commercial, recreational and FSC fisheries. Total harvest rates during these years averaged 40%. With the 2017 preseason forecast below the escapement goal range, conservation measures were enacted in the U.S. and Canada that reduced the harvest rate to 12%. As a result of further restrictions included in the 2018 Chilkat and King Salmon Rivers king salmon action plan intended to conserve King Salmon and Chilkat Rivers king salmon, along with further restrictions in U.S. and Canadian fisheries due to low run size, the 2018 to 2020 harvest rate for Taku River king salmon has averaged 3% (Table 4).

Harvests of Taku River king salmon in the SEAK sport fishery occur primarily during the spring as mature adults return to spawn. The estimated sport harvest of this stock averaged 575 fish from 2011 to 2016. The average annual sport harvest from 2017 to 2020 was reduced to 62 fish as

restrictions were implemented following preseason forecasts below the escapement goal range as well as restrictions to conserve King Salmon and Chilkat Rivers king salmon.

Harvests of Taku River king salmon in SEAK commercial fisheries have historically been highest in the troll fisheries (except in years when run strength provided for directed District 11 gillnet and liberalized sport fisheries). From 2011 to 2016, total troll harvests averaged 2,431 Taku River king salmon annually, and with conservation measures in place from 2017 through 2020, the annual troll harvest has averaged 171 fish. Commercial gillnet fishery harvests, predominantly from District 11, averaged 414 fish annually from 2011 to 2016, and with conservation measures in place from 2017 through 2020, the annual gillnet harvest has averaged 213 fish.

Taku River king salmon are incidentally harvested in a sockeye salmon personal use fishery that operates in the U.S. portion of the Taku River during the month of July. Beginning in 2017, opening of this fishery has been delayed up to 2 weeks to avoid the later portion of the historical king salmon run. The 2011 to 2016 average personal use harvest was 30 fish and the average harvest from 2017 to 2020 was 10 fish.

Canadian inriver harvests of Taku River king salmon averaged 2,255 fish from 2011 to 2016 and 90 fish from 2017 to 2020. From 2011 to 2016, the commercial fishery average harvest was 1,211 fish, and with restrictions in place, harvest was reduced to 246 fish in 2017. Since 2018, retention of king salmon in the commercial fishery has been prohibited and no harvest has been reported. In years without a directed king salmon fishery under the PST, treaty language provides for a 1,400 fish assessment fishery to determine run strength inseason. This fishery has not taken place since 2016. Recreational fishery harvests were reported as 105 fish annually between 1995 and 2015, 10 fish in 2016, and since 2017, annual regulations have stipulated nonretention of king salmon in recreational fisheries. First Nation's FSC fishery harvest averaged 96 fish from 2011 to 2016. While not restricted by regulation, FSC fishermen have been asked to focus their harvests on sockeye and coho (*O. kisutch*) salmon, and the FSC harvest of king salmon since 2017 has averaged 29 fish (Table 5).

ESCAPEMENT GOAL EVALUATION

The *Policy for Statewide Salmon Escapement Goals* (SSEGP; 5 AAC 39.223), adopted by the board in 2001, established the formal process for setting escapement goals. Prior to this the department followed its *Salmon Escapement Goal Policy* adopted in 1992 that established a formal process to set, evaluate, and modify existing escapement goals (Fried 1994). The SSEGP and the SSFP require the department to report on salmon stock status and escapement goals to the board on a regular basis, document and review existing salmon escapement goals, establish goals for stocks for which escapement can be reliably measured, and prepare scientific analyses with supporting data when goals are created, modified, or recommended for elimination.

CHILKAT RIVER

From 1975 to 1992, aerial survey counts were conducted each year on 2 small, clear-water tributaries within the Chilkat River watershed to index king salmon escapement. In 1981, the department established an escapement goal of 2,000 large fish, based on the assumed fraction of the escapement represented by survey counts. However, MR and radiotelemetry studies conducted in 1991 and 1992 indicated the survey counts were not representative of the actual drainage-wide escapement so the surveys were discontinued in favor of annual MR studies designed to estimate abundance of large and non-large (age-1.2 fish) king salmon in the Chilkat River drainage. The

inriver stock assessment program (1991–2003) coupled with marine catch sampling of the drift gillnet fisheries in Lynn Canal and Taku Inlet, the commercial troll, and the sport fishery near Haines and Juneau, provided the information necessary to perform stock-recruit analyses in 2003 and develop the BEG range of 1,750 to 3,500 large king salmon (Ericksen and McPherson 2004). The department adopted the BEG following the 2003 board meeting on Southeast and Yakutat Finfish and Shellfish. Additionally, the board adopted the *Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384) and an inriver goal of 1,850 to 3,600 large king salmon to account for harvest in the inriver subsistence fishery. Finally, the Chilkat River king salmon BEG was adopted by the PSC CTC in 2004 (CTC 2005).

KING SALMON RIVER

In 1981, the department established a peak index escapement goal of 200 large king salmon, based on maximum survey counts of 200 spawners in 1957 and 211 spawners in 1973. In the mid-1980s, the goal was revised to 250 large spawners as enumerated through a weir across the lower river.

An escapement goal range for King Salmon River king salmon was developed in 1997 with information on escapement, age composition, and harvests collected from 1991 to 1997 (McPherson and Clark 2001). Ten years of weir operations (1983–1992) provided the basis for estimating total escapement and age composition in other years. From 1971 to 1997, annual foot and aerial surveys were conducted to count peak numbers of large spawners. Large spawner abundance from 1971 to 1982 and 1993 to 1997 was estimated by using the average fraction counted from 1983 to 1992 (67.5%). The inriver return for each brood year was estimated from the estimated number of large spawners each year coupled with age composition data. The number of jacks (age-1.2 fish) from 1971 to 1982 and 1993 to 1995 was estimated by using the average percent of jacks (22%) for the 1979 to 1986 broods (known from weir counts). Harvests were estimated from exploitation rates from nearby Crystal Lake Hatchery, applied to the estimated inriver returns of wild king salmon estimated for King Salmon River. From these data, total returns were calculated for 21 brood years (1971–1991) allowing spawner-recruit analysis and development of the BEG range of 120 to 240 large king salmon (McPherson and Clark 2001).

TAKU RIVER

In 1981, ADF&G established an index goal of 9,000 fish in the Nakina River, the largest king salmon producing tributary in the Taku River, based on the highest historical survey observed in 1952. The first system-wide goals were expressed in about 1985 as a range from 25,600 (U.S. estimate) to 30,000 (Canadian estimate) fish, and both estimates were based on professional judgment. In 1991, the PSC Transboundary Technical Committee (TTC) revisited the goal and recommended on an index goal of 13,200 fish counted in aerial surveys which was adopted by the parties and implemented in 1992 (PSC 1992). This goal, and all prior king salmon goals in the Taku River, were indices of escapement and based on limited data. By 1999, ADF&G and Canada Department of Fisheries and Oceans (DFO) cooperatively developed a new escapement goal range of 30,000 to 55,000 large spawners (not an index) in an analysis of adult and smolt production, which was reviewed and approved by the PSC CTC (CTC 1999), PSC TTC, ADF&G, DFO, and the Pacific Scientific Advice and Review Committee (McPherson et al. 2000). Then in 2009, the current biological escapement goal range of 19,000 to 36,000 large king salmon was established based on a spawner-recruit analysis and accepted both domestically by the board and bilaterally by the PSC (McPherson et al. 2009).

ESCAPEMENT GOAL RECOMMENDATION

The department has reviewed salmon escapement goals for these systems every 3 years prior to the Southeast and Yakutat board meeting and recommended no changes to the Chilkat River since adoption in 2003, King Salmon River since adoption in 2003, or Taku River king salmon escapement goals since adoption in 1997 and 2010 (Geiger and McPherson 2004; DerHovanisian and Geiger 2005; Der Hovanisian et al. 2011; Heinl et al. 2014; Heinl et al. *In press;* McPherson et al. 2010).

STOCK OF CONCERN RECOMMENDATION

Escapements of king salmon have fallen below the lower bound of the current BEG range for Chilkat River in 3 of the past 5 years, for King Salmon River in 4 of the past 5 years, and for the Taku River in 5 of the past 5 years, including the 2020 escapement estimates. Recent inseason management actions implemented in the sport, commercial, subsistence and personal use fisheries since 2012 have been effective at reducing harvest rates. In October 2017, the department recommended that the board designate Chilkat River and King Salmon River stocks in northern SEAK and the Unuk River stock in southern SEAK as stocks of management concern at the regulatory board meeting for Southeast and Yakutat in January 2018. In October 2020, the department recommended the board continue with these designations and add king salmon stocks from the Taku River in northern SEAK, the Stikine River and Andrew Creek in central SEAK, and the Chickamin River in southern SEAK.

OUTLOOK

By December each year, the department produces preseason forecasts of total run for Situk, Chilkat, and Unuk Rivers and terminal run forecasts for Taku and Stikine Rivers in SEAK.

The preseason forecast for the total run of Chilkat River king salmon in 2021 is 1,500 large fish, which, even with no harvest, is below the lower bound of the escapement goal range of 1,750 to 3,500 large fish.

The preseason forecast for the terminal run of Taku River large king salmon in 2021 is 10,300 fish, which, even with no harvest, is below the lower bound of the escapement goal range of 19,000 to 36,000 large fish.

The department does not produce preseason forecasts for the other 6 indicator stocks in the region, including the King Salmon River and Andrew Creek stocks, due to a lack of sibling model information and harvest contributions. However, continued poor king salmon production throughout SEAK is expected to continue into the near future.

HABITAT ASSESSMENT

CHILKAT RIVER

The Chilkat River is a mainland glacial system that originates in British Columbia, Canada that traverses rugged mountainous terrain and terminates in the Chilkat Inlet in northern Lynn Canal (Figure 1). The main channels and major tributaries comprise approximately 600 km of fluvial habitat in a watershed covering about 1,600 square kilometers (618 square miles; Bugliosi 1988). The Chilkat River is typically the fifth largest producer of king salmon (McPherson et al. 2003),

the second largest producer of coho salmon, and the largest producer of sockeye salmon in SEAK (Eggers et al. 2010).

Unlike most other large mainland watersheds in SEAK, the Chilkat River watershed has significant road access and proximity to a population center and associated infrastructure. As such, the risk of negative anthropomorphic impacts is higher in the Chilkat River mainstem drainage than in other remote salmon producing watersheds on the mainland of SEAK. The watershed contains over 300 km of roads, a large portion of which are near the Chilkat River mainstem, including some major tributaries used by king salmon for spawning, rearing, or migration. The roads cross several anadromous tributaries of the Chilkat River, which have the potential to obstruct or hinder fish passage, although king salmon are likely the least impacted salmonid given their preferred habitat and the location of such crossings. The ongoing Haines Highway Reconstruction project between mileposts 3.9 and 25.0 involves the largest modification of riparian and wetland habitat immediately adjacent to the mainstem Chilkat River. This project follows the Chilkat River for approximately 35 km and crosses 106 culverts. The highway embankment along the Chilkat River was conceptually designed for erosion and depth of scour protection. Following an initial environmental assessment released in 2013, a final revised environmental assessment was prepared in response to public input (ADOT 2016). Ultimately, a finding of "no significant impact" from this project was the official agency determination summarized below:

> (1) Due to the proposed conservation measures, short-term impacts from construction activities would be temporary and minimal.
>
> (2) The avoidance, minimization, and mitigation measures outlined in Section 4 of this document would, at least, offset the quality and quantity of essential fish habitat and, consequently, the overall effects would not be adverse.

Approximately 382,300 cubic meters of gravel were mined from the river near the Haines airport runway during the winter of 1990–91 for construction of the Haines airport. Otherwise, no mining activities within the Chilkat River mainstem currently exist. No instream mining of gravel material is planned for the Haines Highway project.

Iron, gold, copper, platinum, and palladium deposits exist within the Chilkat River watershed. Placer mining is ongoing in the Porcupine Creek mining district. Exploration of a volcanogenic massive sulfide deposit is underway in a tributary of the Klehini River, but mining permit applications have not been submitted.

The Haines State Forest includes the sub-basins of some of the major tributaries to the Chilkat River. About 15% of the state forest is dedicated to timber harvest, which has occurred since the 1960s. The annual allowable harvest is 5.88 million board feet. Timber operations on state lands follow *Standards and Guidelines* and *Best Management Practices* established in the Forest Resources Practices Act (FRPA), which are designed to minimize impacts on fish habitat. While historical timber extraction/harvest in the watershed potentially occurred in less restrictive settings, all planned timber harvest in future years will be guided by the FRPA and as such, should have minimal impacts on anadromous fish.

A 162 km^2 portion of the Alaska Chilkat Bald Eagle Preserve (CBEP, ADNR 2002) surrounds the Chilkat River and its tributaries upstream of Haines Highway milepost 8 and contains the drainage's waterways and riparian lowlands. These lands and waters provide essential habitat for

king salmon juvenile rearing, emigrating smolt corridors, immigrating adult corridors, and spawning areas. Two of the purposes of the CBEP, as described in the CBEP Management Plan (September 2002), are directly related to Chilkat River king salmon:

- *protect and sustain the natural spawning and rearing areas of the Chilkat River system in perpetuity; and*
- *maintain water quality and necessary water quantity.*

The management guidelines in the CBEP Management Plan require that proposed activities in the preserve that may affect water quality, fish or game habitat disturbance, or stream modification will include department review.

KING SALMON RIVER

The habitat in the King Salmon River watershed is considered pristine being within the Admiralty Island National Monument and the Kootznoowoo Wilderness Area, both of which provide habitat protection. There are no freshwater or riparian habitat related concerns identified for this stock and there have been no documented timber or mining activities in the watershed. This island watershed drains an area of approximately 108 km^2 and contains 95 km of stream habitat of which about 11 km is designated anadromous (Figure 2).

TAKU RIVER

The Taku River originates in British Columbia and drains over 17,000 km^2 before its terminus in Taku Inlet, with almost all the drainage accessible to anadromous salmon. The 2 main tributaries are the Nakina and Inklin Rivers. The Inklin River drains a larger area and is comprised of several large tributaries that provide king salmon spawning and rearing habitat. Most of the tributaries are clear or slightly occluded by glacial flour, especially in the lower Nakina, Sheslay and Kowatua Rivers. Escapement is monitored in 5 spawning tributaries: the Nakina, Nahlin, Dudidontu and Kowatua Rivers and Tatsatua Creek (Figure 3). Although road access once existed in the far upper reaches of the Sheslay River to allow access to the Muddy Lake mine, that road has been decommissioned and the Taku River is the only major river on the Pacific coast of North America that lacks road access to any of its tributaries. Mining activities have occurred in various areas in the Canadian portions of the drainage and exploratory work is ongoing in the Sheslay River drainage, among others. In the lower river, the Tulsequah Chief, Big Bull, and Polaris mine operations near the U.S./Canada border appear dormant and abandoned. The Tulsequah Chief mine site continues releasing small amounts of acid mine drainage into the Tulsequah River about 10 km upstream of the confluence with the Taku River.

FISHERY MANAGEMENT OVERVIEW AND BACKGROUND

PACIFIC SALMON TREATY

Taku River king salmon are managed through provisions of Chapter 1 of the PST. The department manages the Taku River stock of king salmon in accordance with the PST and as required by the *United States-Canada Salmon Management Plan* (5 AAC 33.361). Per the treaty, annual terminal run size and terminal harvest estimates of the Taku River stock are developed bilaterally from inriver escapement surveys, MR projects, and GSI analyses. The PST directs both countries to take actions necessary to ensure that escapement objectives are achieved. Paragraph 4 of Chapter 1 outlines steps to be taken by both countries if the escapement goal is not achieved in 3 consecutive years. Management plans in Canadian and Alaska terminal fisheries are reviewed prior to the

season and resultant harvest and escapement are reviewed postseason by the Transboundary River Panel. Management actions are predicated on preseason forecasts of terminal run abundance and are evaluated weekly based on inseason estimates of run size. Management actions in the U.S. terminal District 11 and Canadian Taku River fisheries are agreed-to annually prior to the season and included in the PSC TTC Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek Rivers (e.g., TCTR (20)-01) and the Southeast Alaska Drift Gillnet Management Plan developed prior to each fishing season.

The preseason forecast serves as the principal run size estimator until inseason run projections become available (typically by statistical week [SW] 21). Inseason projections are generated by a MR estimate between an inriver tangle net capture and marking near the Wright River and fish wheels operated at Canyon Island for event 1 on the U.S. portion of the river, and the recapture event 2 in the Canadian assessment fishery above the U.S./Canada border (Figure 3). If available, inseason MR estimates are used as the principal run size estimator. If insufficient data are available to develop a valid MR estimate, the preseason forecast is utilized to inform management decisions until sufficient data to generate an estimate of run size are obtained.

In 2016, the preseason forecast suggested the Taku River king salmon run would meet the escapement goal; as a result, the inriver king salmon assessment fishery in Canada, designed to operate as a recapture event for the stock assessment project, operated in SWs 19–23. However, inseason MR results indicated the run would be insufficient to achieve the escapement goal so the last 2 weeks of the assessment fishery in SWs 24–25 were cancelled. In addition, area and gear restrictions were imposed in the first week of the District 11 directed sockeye salmon commercial drift gillnet fishery in SW 26 to conserve Taku River king salmon.

From 2017 to 2020, preseason forecasts indicated the annual Taku River king salmon runs would be below the escapement goal range triggering management actions in U.S. and Canadian fisheries per the PST. These included delaying the start of the commercial fishery by up to 2 weeks, nonretention in commercial and recreational fisheries, mesh size restrictions in the commercial fishery, and voluntary reduction in the FSC fishery. In addition, the inriver king salmon assessment fishery conducted in Canada as part of the MR program did not operate. In SEAK, additional management actions included time, area, and mesh size restrictions in the District 11 commercial drift gillnet fishery, nonretention of king salmon in the sport fishery through the end of June, nonretention of king salmon in commercial troll fisheries through mid-July, and delayed openings of the Taku River personal use sockeye salmon fishery by up to 2 weeks.

SPORT FISHERIES

Chilkat River

A May and June marine sport fishery in Chilkat and Chilkoot Inlets near Haines harvests a variety of king salmon stocks including those returning to the Chilkat River. The king salmon bag limits and the Chilkat Inlet terminal area provisions pertaining to sport fishing are set according to the preseason forecast of Chilkat River king salmon abundance, or inseason data when available, following provisions in the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan*. The plan specifies an inriver abundance goal range of 1,850 to 3,500 large king salmon and prescribes sport regulations based on the projected inriver run of Chilkat River king salmon. When the preseason forecast of inriver abundance is below the goal range (< 1,850 large fish) the plan specifies that sport fishing for king salmon is closed in Chilkat Inlet as follows: north of a department regulatory marker

located immediately north of Seduction Point through June 30; and north of a line extending from a department regulatory marker located approximately 1 mile south of Anchorage Point to a department regulatory marker directly north of the Letnikof Cove boat ramp, through July 15; and in the remainder of Chilkat Inlet north of Seduction Point, from July 1 to 15 the bag and possession limit is 1 king salmon. When the preseason forecast is within the goal range (1,850–3,500 large fish) the plan specifies that Chilkat Inlet is closed to sport fishing for king salmon north of a line extending from a department marker located approximately 1 mile south of Anchorage Point to a department regulatory marker directly north of the Letnikof Cove boat ramp from April 15 to July 15. When the preseason forecast is above the upper bound of the BEG (>3,500 large fish), bag and possession limits may be increased in Chilkat Inlet. King salmon sport fishing is closed in northern Chilkat Inlet near the mouth of the Chilkat River from April 15 to July 15 to conserve milling king salmon (5 AAC 47.021(c)).

King Salmon River

King Salmon River king salmon are harvested incidentally in SEAK marine waters. While there is no CWT information available for the King Salmon River stock of king salmon, harvest of Taku, Chilkat and Stikine Rivers and Andrew Creek stocks of king salmon can serve as indicators for when and where King Salmon River fish are harvested since the King Salmon River is geographically close to these systems and likely share partial overlap of patterns in migration timing and rearing. The PSC CTC formerly used King Salmon River king salmon as an indicator stock in coastwide escapement and production monitoring and during that time exploitation rates observed in nearby Crystal Lake hatchery king salmon, minus any terminal harvests, were used as surrogate values (CTC 2013). Crystal Lake Hatchery uses Andrew Creek as a brood source, and like the King Salmon River stock, both stocks are inside rearing, centrally located, and are available to harvest as rearing and mature fish in SEAK. The Juneau area marine boat sport fishery targets king salmon primarily from April to June, with continued effort the remainder of the year. In recent years, the bulk of the Juneau area harvests have consisted of Alaska hatchery fish released from nearby Macaulay Salmon Hatchery; however, harvest of Taku River king salmon can be substantial and in larger runs can make up the bulk of the harvest. Chilkat River king salmon are also harvested, primarily in early spring, as mature run fish and as immature rearing fish in the late summer and winter months. Regulations for the Juneau area sport fishery are set by EO as directed by the *Southeast Alaska King Salmon Management Plan* (5 AAC 47.055), special provisions for District 11 (5 AAC 47.021[e]), and when the Macaulay Salmon Hatchery broodstock needs are met, the designated terminal harvest area (THA) in Juneau may be liberalized.

Taku River

The king salmon sport fishery in the saltwater near the Taku River is managed based on whether an allowable catch is available as outlined in Chapter 2 of the PST. These special provisions for the waters of District 11 prescribe sport regulations based on the preseason forecast and inseason projections of total terminal run relative to the Taku River escapement goal of 19,000 to 36,000 large fish. During years when an allowable catch is available, sport fishing regulations are liberalized with increased bag, possession and annual limits, and the use of 2 rods allowed. During years with no allowable catch, upper Taku Inlet is closed from April 16 to June 14, bag and possession limits may be reduced, and additional time and/or area closures in terminal areas or migration corridors may be implemented. Typically, the designated hatchery sport harvest area (DHSHA) around Macaulay Salmon Hatchery and remote release sites in Auke Bay is open June

1 to August 31, with a bag and possession limit of 4 fish of any size, which does not count towards the nonresident annual limit. If lack of hatchery broodstock concerns arise, the (DHSHA) opening may be delayed, or a sport fishing closure may be implemented near the hatchery.

Past Sport Fishery Management Actions

The commissioner or an authorized designee may, by EO, change bag and possession limits and annual limits, and alter methods and means in sport fisheries (5 AAC 75.003). These changes may not reduce the allocation of harvest amongst other user groups. An EO may not supersede provisions for increasing or decreasing bag and possession limits or change methods and means specified in regulatory management plans established by the board. The commissioner or an authorized designee may decrease sport fishery bag and possession limits and annual limits and restrict methods and means of harvest by EO when the total escapement of a species of anadromous fish is projected to be less than the escapement goal for that species listed in management plans adopted by the board or established by the department.

Extensive management actions that were taken in all fisheries to protect Chilkat, King Salmon, and Taku Rivers king salmon stocks prior to 2018 are described in the 2018 Chilkat and King Salmon Rivers king salmon action plan. The Taku River was not listed as a stock of concern (SOC) in 2018, but restrictive management actions were implemented in all fisheries to meet escapement in these rivers as is mandated by the PST. Management actions taken to protect king salmon returning to the Chilkat and Taku Rivers likely protected King Salmon River king salmon (Figure 3). Below is an outline of the management measures implemented in the sport fishery to reduce harvest and increase escapement of king salmon stocks from the Chilkat and Taku Rivers and, by default, the King Salmon River in 2018 to 2020.

Chilkat River

2018

- The preseason total run forecast of 928 large king salmon was below the BEG range. Through EO, closed entire Chilkat Inlet to king salmon sport fishing April 1 through June 30.
- In Section 15-A, Lynn Canal north of the latitude of Sherman Rock, king salmon retention prohibited April 1 through December 31 (EO 1-KS-R-02-18).
- In waters of District 11, District 12, Sections 14-B, 14-C, 15-B, and 15-C, king salmon retention was prohibited April 1 through June 14.

2019

- The preseason total run forecast of 1,000 large king salmon was below the BEG range. Through EO, closed entire Chilkat Inlet to king salmon sport fishing April 1 through June 30.
- In Section 15-A, Lynn Canal north of the latitude of Sherman Rock, king salmon retention was prohibited April 1 through December 31 (EO 1-KS-R-03-19).
- In waters of District 11, District 12, Sections 14-B, 14-C, 15-B, and 15-C, king salmon retention was prohibited April 1 through June 14.

2020

- The preseason total run forecast of 1,550 large king salmon was below the BEG range. Through EO, closed entire Chilkat Inlet to king salmon sport fishing April 1 through July 15.
- In Section 15-A, Lynn Canal north of the latitude of Sherman Rock, king salmon retention was prohibited April 1 through December 31 (EO 1-KS-R-6-20). In addition, in waters of District 11, District 12, Sections 14-B, 14-C, 15-B, and 15-C, king salmon retention was prohibited April 1 through June 14.

Taku and King Salmon Rivers

2018

- The preseason forecast of 4,700 large king salmon indicated that even with zero harvest of Taku River king salmon it was unlikely the BEG would be achieved.
- To reduce harvest, sport fishing for king salmon in most marine waters in the Juneau Area (the northern portion of District 9, District 10, Sections 11-A, 11-B, 11-C, District 12, southeast portion of Section 13-C, Sections 14-B and 14-C, and District 15 south of the latitude of Sherman Rock) was restricted: the retention of king salmon was prohibited April 1 through June 14.
- The waters of Seymour Canal near King Salmon River (Section 11-D) were closed to king salmon fishing from April 1 through June 30 (EO 1-KS-R-02-18).

2019

- The preseason forecast of 9,050 large king salmon indicated that even with zero harvest of Taku River king salmon it was unlikely the BEG would be achieved.
- To reduce harvest, sport fishing for king salmon in most marine waters in the Juneau Area (the northern portion of District 9, District 10, Sections 11-A, 11-B, 11-C, District 12, southeast portion of Section 13-C, Sections 14-B and 14-C, and District 15 south of the latitude of Sherman Rock) was restricted: the retention of king salmon was prohibited April 1 through June 14.
- The waters of Seymour Canal near King Salmon River (Section 11-D) were closed to king salmon fishing from April 1 through June 30 (EO 1-KS-R-03-19).

2020

- The preseason forecast of 12,400 large king salmon indicated that even with zero harvest of Taku River king salmon it was unlikely the BEG would be achieved. To reduce harvest, sport fishing for king salmon in most marine waters in the Juneau Area (the waters of District 9 north of a line from Patterson Point to Point Ellis, District 10, Sections 11-A, 11-B, 11-C, District 12, Portion of Section 13-C southeast of a line between Nismeni Point and a point on the Chichagof Island shoreline at 57°35.59' N lat, 135°22.33' W long, Sections 14-B and 14-C, and District 15 south of the latitude of Sherman Rock) were restricted: the retention of king salmon was prohibited April 1 through June 14.
- The waters of Seymour Canal near King Salmon River (Section 11-D) were closed to king salmon fishing from April 1 through June 30 (EO 1-KS-R-06-20). Inseason information indicated that the return of Taku River king salmon was poor and an additional 2-week nonretention period (June 15 through June 30) was implemented in the marine waters of Taku Inlet north of a line from Point Bishop to Point Greely to reduce harvest (EO 1-KS-R-17-20).

COMMERCIAL FISHERIES

Drift Gillnet Fisheries

Chilkat River

Run timing of Chilkat River king salmon coincides with the beginning of Lynn Canal (District 15) drift gillnet fisheries and sockeye salmon stocks returning to Chilkoot Lake, Chilkat River mainstem, and Chilkat Lake as well as hatchery-produced chum (*O. keta*), salmon returning to the Boat Harbor and Amalga Harbor remote release sites. Management actions to reduce harvest of Chilkat River king salmon in the District 15 drift gillnet fishery have included reduced time and area, night closures, and mesh size restrictions. Limiting the duration of weekly openings throughout Lynn Canal (Sections 15-A and 15-C) reduces commercial fishing opportunity for other targeted species that can have economic impacts on the commercial fishing fleet. Night closures minimize the catch of smaller, feeder king salmon that are rearing in Lynn Canal and exhibit diurnal vertical migration behavior. Restricting maximum allowable mesh size reduces the harvest of mature king salmon while allowing opportunity to harvest other species such as sockeye and chum salmon.

King Salmon River

Rearing areas, returning adult migration routes, and run timing for King Salmon River king salmon are unknown but conservative management actions in District 11 and District 15 drift gillnet fisheries to conserve Taku and Chilkat Rivers stocks of king salmon likely help minimize impacts on King Salmon River king salmon.

Taku River

Taku River king salmon, along with king salmon stocks from the Situk, Alsek and Stikine Rivers, rear outside of SEAK and returning adults begin to arrive in SEAK waters by mid-March. The District 11 commercial drift gillnet fishery opens on the third Sunday in June and by this time, on average, over 80% of the Taku River king salmon run has entered the river. Restrictions designed to minimize the harvest of Taku River king salmon are most effective in the initial weeks of the drift gillnet season. Restrictions in time, area, and gear are the most restrictive at the start of the District 11 drift gillnet season and are progressively reduced through SW 29, the end of the PST accounting period for Taku River king salmon. Restrictions in the District 11 commercial drift gillnet areas designed to minimize the harvest of Taku River king salmon also reduces the incidental harvest of King Salmon River king salmon.

Troll Fisheries

The commercial troll fishery in Southeast Alaska (Figure 10) occurs in State of Alaska waters and in the Federal Exclusive Economic Zone (EEZ) east of the longitude of Cape Suckling (5 AAC 29.010 and 5 AAC 29.020). All other waters of Alaska are closed to commercial trolling.

There are 3 commercial troll seasons in SEAK; winter, spring, and summer. The winter troll fishery is managed for a guideline harvest level (GHL) of 45,000 non-Alaska hatchery-produced king salmon, with a guideline harvest range of 43,000−47,000 non-Alaska hatchery-produced fish, plus the number of Alaska hatchery-produced king salmon harvested during the winter fishery. Under provisions of the 2018 Unuk River king salmon action plan (Lum and Fair 2018b) the winter troll fishery is conducted from October 11 through March 15, closing earlier than the allowable April 30 regulatory timeframe. Also provided in the action plan, following the closure of the winter troll

fishery and prior to June 30, spring troll fisheries may open by EO to target Alaska hatchery-produced king and chum salmon but are now limited to outer coastal areas or near hatcheries, hatchery release sites, and in areas of low wild SEAK king salmon abundance (Figure 11). Terminal area fisheries occur adjacent to hatcheries or at remote release sites. Most of the annual troll king salmon harvest is taken during the general summer troll fishery beginning July 1 when salmon may be taken throughout most of SEAK, including the outside waters of the EEZ. The summer troll king salmon harvest is divided into 2 retention periods. The first retention period targets 70% of the remaining annual troll king salmon allocation, after winter and spring troll non-Alaska hatchery-produced harvests are subtracted. Following the first retention period, any remaining portion of the annual troll allocation is harvested in a second king salmon retention period, which typically occurs in mid-August, and follows any closure of the troll fishery for coho salmon conservation.

Commercial troll fishery management decisions that potentially result in the lowered harvests of Chilkat, Taku, and King Salmon Rivers stocks of king salmon include reduced time (closures, delayed openings) and area. Both CWT and GSI analysis indicate SEAK wild king salmon stocks are encountered at increasing rates in SEAK fisheries beginning in late March and early April. Closures of the late winter troll fishery from mid-March through April, and spring troll fisheries in May and June, are designed to reduce the harvests of these fish during the peak migration period. Additional actions such as delaying the spring troll directed chum fishery until mid-June and limiting the area open to the summer troll fishery in July (e.g., in northern Chilkat Inlet to protect Chilkat River king salmon) further reduces harvests of SEAK wild king salmon.

Purse Seine Fishery

Regulations allow purse seine fishing in Districts 1 (Sections 1-C, 1-D, 1-E, and 1-F only), 2, 3, 4, 5, 6 (Sections 6-C and 6-D only), 7, 9, 10, 11 (Sections 11-A and 11-D only), 12, 13, and 14. Purse seine fishing is also allowed in hatchery THAs at Neets Bay, Kendrick Bay, Anita Bay, Southeast Cove, Thomas Bay, Deep Inlet, and Hidden Falls (Figure 12). Although the areas specified above are designated purse seine fishing areas, specific open areas and fishing times are established inseason by EO.

King salmon are not targeted in traditional purse seine fisheries but are harvested incidentally. King salmon less than 28 inches may be retained but not sold. King salmon greater than 28 inches may be retained only during periods established by EO. Purse seine fisheries can occur in northern Chatham Strait (District 12) and eastern Icy Strait (District 14) beginning in late June and early July, Frederick Sound (District 10) in early July, near the end or after the king salmon runs to Chilkat, Taku, and King Salmon Rivers have migrated through. Regionwide, king salmon retention periods typically do not begin until the third or fourth week of July (SWs 30 or 31).

Past Commercial Fishery Management Actions

Commercial salmon fisheries are coordinated regionally by gear type and are opened and closed by EO. Fishery managers have adjusted time and area (all fisheries), implemented gear stipulations (drift gillnet), and enacted nonretention (troll and seine fisheries) by EO in response to conservation concerns. Management actions taken in the District 11 drift gillnet fishery (Figure 8) to protect king salmon returning to the Taku River have provided protection to King Salmon River king salmon given the proximity of the 2 rivers (Figure 4). Extensive management actions were taken in all fisheries prior to 2018 and were included in the 2018 Chilkat and King Salmon Rivers

king salmon action plan. Below is an outline of significant additional management measures beyond those outlined in the 2018 action plan in the commercial net and troll fisheries (Figures 8–11) that further reduced harvests of king salmon returning to the Chilkat and King Salmon Rivers and, by default, to the Taku River from 2018 to 2020.

Drift Gillnet Fisheries

District 15 Drift Gillnet

Since 2018, the District 15 drift gillnet fishery has been managed by implementing and/or exceeding conservation measures outlined in the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384) and the 2018 Chilkat and King Salmon Rivers king salmon action plan. Additional Management measures taken in 2019 and 2020 are summarized below.

2018

- In Section 15-A fishing time was limited to 2 days and area was limited to the eastern shoreline from Eldred Rock Light to the latitude of Sherman Rock during the first 5 weeks of the fishery (SWs 25–29).
- In Section 15-C fishing time was limited to 2 days and area was limited to the "postage stamp" (small area in the southeastern portion of Section 15-C as depicted in Figure 9 opened to target hatchery chum salmon returning to Amalga Harbor) the first week of the fishery (SW 25), area was limited to south of the latitude of Vanderbilt Reef Light in SW 26, area was limited to south of a line at 58°37.05′ N lat in SWs 27 and 28, and area was limited to south of the latitude of Point Bridget in SW 29. Fishing time extensions were limited to the postage stamp in SWs 26–29.
- In Section 15-C, a 6-inch maximum mesh size restriction and night closures were implemented during the first 4 weeks (SWs 25–28) of the fishery.
- In the outside waters of the Boat Harbor THA, fishing time was limited to 2 days/week during the first 2 weeks (SWs 25 and 26), 4 days in SW 27, and 6 days in SW 28. The inside waters of the Boat Harbor THA were opened 7 days/week during the first 5 weeks (SWs 25–29) of the fishery.
- In the outside waters of the Boat Harbor THA, open area was reduced from within 2.0 nautical miles (nmi) to within 1.0 nmi of the western shoreline and the north boundary was restricted to south of Danger Point in weeks 4 and 5 (SWs 28 and 29) of the fishery.
- In the outside waters of the Boat Harbor THA, a 6-inch maximum mesh size restriction was implemented during the first 4 weeks (SWs 25–28) of the fishery.

2019

- In Section 15-A fishing time was limited to 2 days and area was limited to the eastern shoreline from Eldred Rock Light to the latitude of Sherman Rock during the first 5 weeks of the fishery (SWs 25–29).
- A 6-inch maximum mesh size restriction was implemented in all areas of District 15, excluding the Boat Harbor THA, during the first 5 weeks (SWs 25–29) of the fishery.
- In Section 15-C (excluding the Boat Harbor THA), night closures were implemented in the first 4 weeks (SWs 25–28) of the fishery.

- In the outside waters of the Boat Harbor THA, fishing time was limited to 2 days/week and area was reduced to within 1.0 nmi of the western shoreline in the first 3 weeks (SWs 25–27).
- In the outside waters of the Boat Harbor THA, fishing time was limited to 2 days during week 4 (SW 28) and 4 days in week 5 (SW 29) of the fishery.
- In the outside waters of the Boat Harbor THA, a 6-inch maximum mesh restriction was implemented during the first 4 weeks (SWs 25–28).
- In the outside waters of the Boat Harbor THA, night closures were implemented during the first 2 weeks (SWs 25 and 26).

2020

- In Section 15-A fishing time was limited to 2 days/week and area was limited to the eastern shoreline from Eldred Rock Light to the latitude of Sherman Rock during the first 5 weeks of the fishery (SWs 26–30).
- A 6-inch maximum mesh restriction was implemented in all areas of District 15, excluding the Boat Harbor THA, during the first 5 weeks (SWs 26–30) of the fishery.
- In Section 15-C (excluding the Boat Harbor THA), night closures were implemented for the first 4 weeks (SWs 26–29) of the fishery.
- In the outside waters of the Boat Harbor THA, fishing time was limited to 2 days/week and area was limited to within 1.0 nmi of the western shoreline during the first 3 weeks (SWs 26–28) of the fishery.
- In the outside waters of the Boat Harbor THA, fishing time was limited to 4 days in weeks 4 and 5 (SWs 29 and 30) of the fishery.
- In the outside waters of the Boat Harbor THA, a 6-inch maximum mesh restriction was implemented during the first 3 weeks (SWs 26–28) of the fishery.
- In the outside waters of the Boat Harbor THA, night closures were implemented for the first 3 weeks (SWs 26–28) of the fishery.

District 11 Drift Gillnet

The District 11 drift gillnet fishery was managed in accordance with the 2018 Chilkat and King Salmon Rivers king salmon action plan and under provisions of annual management plans produced by the TTC and approved by the Transboundary Panel, as directed by Chapter 1 of the Pacific Salmon Treaty (TTC 2020). Management measures taken in District 11 from 2018 to 2020 included:

- Reduced time and area through SW 29.
- During SWs 25 and 26, open area was limited to the SE portion of Taku Inlet, with the north line of the open area shifted north incrementally through SW 29 (Figure 8).
- Open time was held to 2 days/week through SW 28.
- A 6-inch maximum mesh size restriction was implemented during the first 3 weeks of the fishery.

Purse Seine

The purse seine fishery in Northern Southeast Alaska begins in terminal harvest area fisheries in mid to late June and traditional common property fisheries typically do not begin in earnest until mid to late July (SW 28). Northern Southeast Inside pink salmon fisheries were largely closed

from 2018 to 2020 due to poor pink salmon runs. Management measures taken in the 2018 to 2020 regionwide purse seine fishery included:

- The purse seine fishery was closed to retention of king salmon throughout the 2018 season; through SW 29 in 2019; and through SW 31 in 2020.

Troll Fishery

The broadscale regional troll fishery provisions of the 2018 Unuk River king salmon action plan superseded most conservation restrictions adopted under the 2018 Chilkat and King Salmon Rivers king salmon action plan, however, the conservation measures implemented in 2017 would have taken precedence, had Unuk River king salmon been delisted as a stock of management concern. In addition, the troll fishery is managed per Chapter 3 of the PST and requires that SEAK fisheries are managed to achieve escapement objectives for SEAK and Transboundary River (TBR) stocks. In addition, the troll fisheries are managed pursuant to the *United States-Canada Salmon Management Plan* (5 AAC 33.361) and the *Policy for the management of sustainable salmon fisheries* (5 AAC 39.222), whereas impacts of fishing on salmon escapement are assessed and considered in management decisions, and necessary conservation restrictions may be imposed in order to achieve escapement, rebuild, or in some other way conserve a specific salmon stock or group of stocks. The combination of actions taken under provisions of the 2018 action plans from 2018 to 2020 were as follows:

2018

- Notwithstanding any remaining portion of the seasonal guideline harvest level, the winter troll fishery closed by EO in all waters of SEAK on March 15, 6 weeks prior to the regulatory closure.
- Beginning May 1, spring troll king salmon fisheries in northern SEAK were reduced to portions of the outer coast located in Districts 13 and 183, with all other districts remaining closed through June 30.
- The Districts 9, 10, 12, and 14 enhanced chum salmon fishery openings were delayed until June 15 and closed to the retention of king salmon.
- Lynn Canal/Chilkat Inlet in Section 15-A north of the latitude of Sherman Rock was closed to commercial trolling from July 1 to December 31.

2019–2020

- The winter troll fishery closed by EO in all waters of SEAK on March 15, 6 weeks prior to the regulatory closure.
- Beginning May 1, spring troll king salmon fisheries in northern SEAK were reduced to portions of the outer coast located in Districts 13 and 183, with all other districts remaining closed through June 30.
- All THA openings in northern Southeast were delayed until June 1.
- The Districts 9, 10, 12, and 14 enhanced chum salmon fishery openings were delayed until June 15 and closed to the retention of king salmon.
- Lynn Canal/Chilkat Inlet in Section 15-A north of the latitude of Sherman Rock was closed to commercial trolling from July 1 to December 31.

SUBSISTENCE FISHERIES

There is a customary and traditional use finding for salmon in all waters of the Chilkat River and Chilkat Inlet north of the latitude of Glacier Point (Figure 13). The amount reasonably necessary for salmon in all of District 15 is 7,174–10,414 salmon. Traditionally, this subsistence fishery targets early run sockeye salmon; however, king salmon are harvested incidentally. The possession limit for king salmon is 2 fish.

The King Salmon River and nearby drainages are located within the Juneau Nonsubsistence Area (5 AAC 99.015(a0(2)) and there are no customary and traditional use findings in the marine waters of Seymour Canal, therefore there are no subsistence fisheries on this stock.

The Taku River and its tributaries are located within the Juneau Nonsubsistence Area (5 AAC 99.015(a0(2)), therefore there are no subsistence fisheries on this stock.

Past Subsistence Fisheries Management Actions

The Chilkat Inlet and Chilkat River subsistence fishery was managed by exceeding conservation measures of the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* and followed management actions outlined in the 2018 Chilkat and King Salmon Rivers king salmon action plan in 2018 through 2020. Since 2018, the department has been requesting that all live king salmon be released immediately. No additional management actions were taken.

PERSONAL USE FISHERIES

A personal use sockeye salmon fishery occurs in the U.S. waters of the Taku River. Up to 2 incidentally caught king salmon may be retained while personal use fishing for sockeye salmon. The season opens by regulation July 1 to July 31. Reported harvests indicate most of the king salmon harvest occurs in the first 10 days of the fishery. Taku River personal use salmon fisheries are managed under provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Panel, as directed by Chapter 1 of the Pacific Salmon Treaty. Since 2017 the start of the fishery has been delayed by up to 2 weeks by EO to reduce the incidental harvest of Taku River king salmon.

There are no personal use fisheries that target King Salmon River salmon.

Past Personal Use Fisheries Management Actions

2017

- Season dates were adjusted to July 10 through August 9 by EO.

2018

- Season dates were adjusted to July 16 through August 15 by EO.

2019

- Season dates were adjusted to July 15 through August 14 by EO.

2020

- Season dates were adjusted to July 13 through August 12 by EO.

ACTION PLAN MANAGEMENT OPTIONS FOR ADDRESSING STOCKS OF CONCERN

ACTION PLAN GOAL

The primary goal of this action plan is to rebuild king salmon runs in the Chilkat, King Salmon, and Taku Rivers to consistently achieve escapement goals while providing historical levels of fishing opportunity.

ACTION PLAN ALTERNATIVES

Potential management actions and the benefits and detriments described below are intended to reflect only those related to the goal of rebuilding king salmon runs to levels that achieve the current BEG for stocks from the Chilkat, King Salmon, and Taku Rivers. The King Salmon River king salmon stock is a small, unique island population that current genetic analysis of fishery harvest samples cannot discern due to its very small contribution to the harvest. The King Salmon River stock is combined with other king salmon stocks infrequently encountered as a reporting group in the GSI analysis of annual fishery harvests. Conservative management actions taken to reduce harvest of king salmon from the Chilkat, Taku, and Stikine Rivers are assumed to reduce harvest of King Salmon River king salmon, due to proximity of these stocks and common migration corridors and rearing areas. Any board directed action will be considered the minimum action to be taken unless the conditions for reducing management restrictions or delisting a stock of concern as described in subsequent section are met. The department may have to increase management actions due to previously unaccounted for changes in fishing patterns, increases in effort, and/or new stock assessment data.

ACTION #1—SPORT FISHERY

Objective: Reduce the sport harvest of Chilkat River, King Salmon River, and Taku River king salmon.

Background: The department used EO authority to restrict time and area, reduce bag and possession limits and close areas since 2018 to reduce Chilkat River and Taku River (and thus, by default, the King Salmon River) king salmon harvest under board direction given in the 2018 Chilkat and King Salmon Rivers king salmon action plan. The Taku River was not listed as a SOC and restrictive management actions were implemented in all fisheries to meet escapement as is mandated in the PST. Despite closures to the terminal sport fisheries near the Chilkat, King Salmon, and Taku Rivers in 2016 through 2020, escapements failed to meet the escapement goals in the Chilkat River in 2016 through 2018, in the King Salmon River in 2017 through 2020, and in the Taku River in 2016 through 2020 (Tables 1, 2, 3, and 4).

Conservation measures taken in 2018 through 2020 under the 2018 Chilkat and King Salmon Rivers king salmon action plan reduced harvest of king salmon stocks from the Chilkat, King Salmon, and Taku Rivers. Prior to the action plan, in 2008 to 2017 the average sport fishery harvest of Chilkat River king salmon was 250 fish in all SEAK, while in 2018 to 2020 the SEAK sport fishery harvest averaged 48 Chilkat River king salmon, as estimated by CWT recoveries. CWT recoveries indicate that a significant portion of Chilkat River king salmon rear primarily in the inside waters of northern SEAK, so harvest reduction actions under the action plan were focused in those waters. Similarly, King Salmon River stocks appear to rear in inside waters, thus restrictive measures applied to Chilkat and Taku river stocks should have reduced harvest. Based on CWT recoveries in District 11 sport fisheries, about 90% of Taku River king salmon were harvested

from April 15 to June 30 from 2000 to 2017, with over 80% of the fish on average past the fish wheels on Taku River by June 15. Conservative management actions around Juneau in the spring of 2018, 2019, and 2020 reduced sport harvest. Harvest in 2018 through 2020 has ranged from 2% to 25% of the prior 5-year (2013–2017) average harvest of 443 fish. District 11 terminal sport harvest of large Taku River king salmon was 9 fish in 2018, 94 fish in 2019, and 112 fish in 2020. Spring and early summer closures around the King Salmon River estuary (Section 11D) also provided protection for King Salmon River king salmon.

Option A—Status Quo

Use department EO authority to implement conservative king salmon regulations in Districts 9, 10, 11, 12, 13, 14, and 15 that are essentially identical to those implemented in 2018 to 2020 under the guidance of the 2018 Chilkat and King Salmon Rivers action plan. In 2018 through 2020, nonretention of king salmon and closures to king salmon fishing were started on April 1, 2 weeks earlier than Action #2: Sport Fishery in the 2018 Chilkat and King Salmon Rivers king salmon action plan. Regional king salmon regulations established under the *Southeast Alaska King Salmon Management Plan* (5 AAC 47.055) would apply in the restricted areas during the remainder of the year when fishing is allowed. The proposed closure boundaries for Option A in the respective districts and sections for the management options discussed below are depicted in Figure 5.

Specific Actions to Implement the Objective: Implement closures and nonretention periods inseason in the Haines, Skagway, and Juneau areas as follows:

District 15: Chilkat Inlet closed to king salmon fishing April 1 to July 15, and retention of king salmon prohibited July 16 to December 31; remainder of Section 15-A, retention of king salmon prohibited April 1 to December 31; Sections 15-B and 15-C, retention of king salmon prohibited April 1 to June 14.

District 14: Sections 14-B and 14-C, retention of king salmon prohibited April 1 through June 14. Inclusion of these sections expand the inside waters nonretention area in Action #2: Sport Fishery in the 2018 Chilkat and King Salmon Rivers king salmon action plan.

District 13: in the waters of Section 13-C southeast of a line from Nismeni Point to a point on the Chichagof Island shoreline at 57°35.59' N. lat., 135°22.33' W. long., retention of king salmon prohibited April 1 through June 14.

District 12: Retention of king salmon prohibited April 1 through June 14. The inclusion of section 12-A increases the inside waters nonretention area more than Action #2: Sport Fishery in the 2018 Chilkat and King Salmon Rivers king salmon action plan.

District 11: Sections 11-A, 11-B and 11-C retention of king salmon prohibited April 1 through June 14; Section 11-D closed to king salmon fishing April 1 through June 30. The marine waters of Taku Inlet north of a line from Point Bishop to Point Greely, retention of king salmon prohibited April 1 through June 30.

District 10: Retention of king salmon prohibited April 1 to June 14. Including District 10 expands the inside waters nonretention area in Action #2: Sport Fishery in the 2018 Chilkat and King Salmon Rivers king salmon action plan.

District 9: waters of District 9 north of line between Point Ellis and Patterson Point, retention of king salmon prohibited April 1 through June 14.

DHSHA near Juneau: If the surplus hatchery king salmon return to the Macaulay Hatchery is in excess of broodstock needs, the DHSHA near Juneau will be liberalized with a bag and possession limit of 2 king salmon any size, no annual limit from June 1 through August 31. The June 1 DHSHA fishing start date is 2 weeks earlier than Action #2: Sport Fishery in the 2018 Chilkat and King Salmon Rivers king salmon action plan.

Benefits: The proposed dates and areas of nonretention provide protection to Chilkat, King Salmon, and Taku Rivers, and other SEAK wild stock king salmon populations while allowing sport fishing opportunity for Alaska hatchery produced king salmon. These management actions successfully reduced harvest of wild stock king salmon in the sport fishery between 2018 and 2020.

Detriments: Reduction in sport fishing opportunity and economic impacts on the charter fleet would continue. The king salmon fishery has been restricted throughout the majority of the Haines/Skagway and Juneau management areas and during the historical peak timing of the fishery. Opportunity to harvest king salmon has been limited to periods of lower catch rates and within areas where Alaska hatchery-produced king salmon are available.

Option B—Further Reduce Time and Area Open to King Salmon Sport Fishing

Further reduce king salmon sport fishing time and area in Districts 9, 10, 11, 12, 13, 15, and the eastern sections of District 14. The proposed closure boundaries for Option B in the respective districts and sections for the management options discussed below are depicted in Figure 6.

Specific Actions to Implement the Objective:

District 15: Chilkat Inlet closed to king salmon fishing April 1 through July 15, and retention of king salmon prohibited July 16 through December 31; remainder of Section 15-A, retention of king salmon prohibited April 1 through December 31; Sections 15-B and 15-C, retention of king salmon prohibited April 1 through June 14 and August 1 through September 14.

District 14: Sections 14-B and 14-C: king salmon bag and possession limit of 1 fish ≥ 28 inches in length, nonresident annual limit of 3 fish ≥ 28 inches in length, January 1 to December 31; retention of king salmon prohibited from April 1 through June 14.\

District 13: in the waters of Section 13-C southeast of a line from Nismeni Point to a point on the Chichagof Island shoreline at 57°35.59' N. lat., 135°22.33' W. long., retention of king salmon prohibited April 1 through June 14.

District 12: Retention of king salmon prohibited April 1 through June 14. In addition, in Section 12-B, retention of king salmon prohibited August 1 through September 15.

District 11: King salmon bag and possession limit of 1 fish ≥ 28 inches in length, nonresident annual limit of 3 fish ≥ 28 inches in length, January 1 through December 31; Sections 11-A, 11-B, and 11-C, retention of king salmon prohibited April 1 through June 14, Upper Taku Inlet

retention of king salmon prohibited April 1 through June 30; Section 11-D closed to king salmon fishing April 1 through July 31.

District 10: Retention of king salmon prohibited April 1 through June 14.

District 9: waters of District 9 north of line between Point Ellis and Patterson Point, retention of king salmon prohibited April 1 through June 14.

Designated Hatchery Sport Harvest area near Juneau: If the surplus hatchery king salmon return to the Macaulay Salmon Hatchery is in excess of broodstock needs, the DHSHA near Juneau will be liberalized with a bag and possession limit of 2 king salmon any size, no nonresident annual limit, June 1 through August 31. The June 1 DHSHA fishing start date is 2 weeks earlier than Action #2: Sport Fishery in the 2018 Chilkat and King Salmon Rivers king salmon action plan.

Benefits: The proposed dates and areas of nonretention provide protection to Chilkat, King Salmon, and Taku Rivers, and other SEAK wild stock king salmon populations while allowing sport fishing opportunity for Alaska hatchery produced king salmon. These management actions successfully reduced harvest of wild stock king salmon in the sport fishery from 2018 through 2020.

Detriments: Reduction in sport fishing opportunity and economic impacts on the charter fleet would continue. The king salmon fishery has been restricted throughout the majority of the Haines/Skagway and Juneau management areas and during the historical peak timing of the fishery. Opportunity to harvest king salmon has been limited to periods of lower catch rates and within areas where Alaska hatchery produced king salmon are available.

Option C—Further Reduce Time and Area Open to King Salmon Sport Fishing

In addition to actions prescribed in Option B, implement the following actions to further reduce king salmon sport fishing time and area in Districts 9, 10, 11, 12, 13, 15, and the eastern sections of District 14. The proposed closure boundaries for Option C in the respective districts and sections for the management options discussed below are depicted in Figure 7.

Specific Actions to Implement the Objective:

District 15: Chilkat Inlet closed to king salmon fishing April 1 through July 15, and retention of king salmon prohibited July 16 through December 31; remainder of Section 15-A, retention of king salmon prohibited April 1 through December 31; Sections 15-B and 15-C, retention of king salmon prohibited April 1 through July 15 and August 1 through September 15.

District 14: Sections 14-B and 14-C, King salmon bag and possession limit of 1 fish ≥ 28 inches in length, nonresident annual limit of 3 fish ≥ 28 inches in length, January 1 through December 31. Retention of king salmon prohibited April 1through July 15.

District 13: in the waters of Section 13-C southeast of a line from Nismeni Point to a point on the Chichagof Island shoreline at 57°35.59' N. lat., 135°22.33' W. long., retention of king salmon prohibited April 1 through July 15.

District 12: Retention of king salmon prohibited April 1 through July 15. In addition, in Section 12-B, retention of king salmon prohibited August 1 through September 15.

District 11: King salmon bag and possession limit of 1 fish ≥ 28 inches in length, nonresident annual limit of 3 fish ≥ 28 inches in length, January 1 through December 31; Sections 11-A, 11-B and 11-C closed to retention of king salmon April 1 through July 15. Section 11-D closed to king salmon fishing April 1 through July 15. Section 11-A outside of THAs retention of king salmon prohibited April 1through December 31.

District 10: King salmon bag and possession limit of 1 fish ≥ 28 inches in length, nonresident annual limit of 3 fish ≥ 28 inches in length, January 1 through December 31; retention of king salmon prohibited from April 1 through July 15.

District 9: waters of District 9 north of line between Point Ellis and Patterson Point, retention of king salmon prohibited April 1 through July 15.

Designated Hatchery Sport Harvest Area near Juneau: If the surplus hatchery king salmon return to the Macaulay Salmon Hatchery is in excess of broodstock needs, the DHSHA near Juneau will be liberalized with a bag and possession limit of 2 king salmon any size, no nonresident annual limit, July 1 through August 31.

Benefits: The proposed dates and areas of nonretention provide protection to Chilkat, King Salmon, and Taku Rivers, and other SEAK wild stock king salmon populations while allowing sport fishing opportunity for Alaska hatchery produced king salmon. These management actions successfully reduced harvest of wild stock king salmon in the sport fishery between 2018 and 2020.

Detriments: Reduction in sport fishing opportunity and economic impacts on the charter fleet would continue. The king salmon fishery has been restricted throughout the majority of the Haines/Skagway and Juneau management areas and during the historical peak timing of the fishery. Opportunity to harvest king salmon has been limited to periods of lower catch rates and within areas where Alaska hatchery-produced king salmon are available.

ACTION #2—COMMERCIAL FISHERIES

Objective: Reduce the commercial harvest rate of Chilkat, King Salmon, and Taku Rivers king salmon.

Option A–Status Quo

Specific Actions to Implement the Objective:

Continue to manage per the 2018 action plans and continue to manage the District 11 fisheries per annual management plans produced by the TTC under provisions of the PST.

Drift Gillnet Fisheries

District 15

- Continue to manage the District 15 drift gillnet fishery per the 2018 Chilkat and King Salmon Rivers king salmon action plan.

District 11

- Continue to manage the District 11 drift gillnet fishery per the 2018 Chilkat and King Salmon Rivers king salmon action plan and under provisions of annual management plans produced by the TTC and approved by the Transboundary Panel, as directed by Chapter 1 of the PST. Management actions per the annual management plan include but are not limited to reduced time and area open in Taku Inlet through SW 29 in the District 11 drift gillnet fishery; restrict the fishery to 2 days per week through SW 28; close Taku Inlet north and west of the latitude of Point Greely and 134°07.5′ W longitude through SW 26, north of Cooper Point in SW 27, and Jaw Point in SWs 28–29; and implement a 6-inch maximum mesh size restriction through at least SW 27.

Troll Fisheries

- Continue to manage the troll fishery per the 2018 Chilkat and King Salmon Rivers king salmon action plan, the 2018 Unuk River king salmon action plan, and provisions of the PST.

Purse Seine Fishery

- Continue to implement nonretention of king salmon until at least the third week of July in traditional purse seine fishery and in THAs that do not have hatchery-produce king salmon runs.

Benefits: These management actions were approved by the board in 2018 and have been effective in reducing harvest rates of Chilkat and Taku Rivers king salmon and presumably King Salmon River king salmon. Management actions in the District 11 fisheries are reviewed annually by the PSC through the Transboundary Panel. These actions are enacted by EO authority, the user groups are accustomed to these actions, and they have been effective in reducing harvest rates on these stocks. District 11 fisheries will continue to be managed under provisions of the PST. If the Taku River king salmon stock were to quickly rebound, Alaska fisheries could react in a timely manner to exploit harvest opportunity in District 11.

Detriments: The ability of the fleet to harvest early runs of Taku and Chilkat Rivers sockeye salmon will continue to be reduced. The troll gear group will continue to lose opportunity, especially in the winter and spring troll fisheries. Issues with the 2018 action plans would persist and additional management actions that further reduced king salmon harvest rates would not be included in the plan, though would likely still be implemented.

Option B–Modify 2018 Action Plan

Specific Actions to Implement the Objective:

Clarify management actions and remove unneeded actions listed in the 2018 Chilkat and King Salmon Rivers king salmon action plan, include actions for the troll fishery listed in the 2018 Unuk River king salmon action plan, include select additional actions taken from 2018 to 2020, and continue to manage the District 11 fisheries per annual management plans produced by the TTC under provisions of the PST.

Drift Gillnet Fisheries

District 15

- Using EO authority, reduce the open area in northern Chilkat Inlet through SW 29 by implementing and exceeding conservation measures of the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384) and the 2018 Chilkat and King Salmon Rivers king salmon action plan by closing the area north of Eldred Rock Lighthouse.
- In Section 15-A, using EO authority:
    - Close waters on the east side of upper Lynn Canal south of Eldred Rock through SW 29.
    - Implement a 6-inch maximum mesh size restriction in Section 15-A through SW 27.
- In Sections 15-A and 15-C (excluding inside waters of the Boat Harbor THA), using EO authority, implement night closures between 10:00 p.m. and 4:00 a.m. through SW 28.
- In Section 15-C, using EO authority:
    - Limit time and area open to 2 days/week in the postage stamp through SW 26.
    - Limit time and area open to 2 days/week in the area south of the latitude of Vanderbilt Reef which encompasses the postage stamp through SW 27.
    - Impose 6-inch maximum mesh size restriction through SW 27.
- In the outside waters of the Boat Harbor THA, using EO authority:
    - Limit time to 2 days/week through SW 27.
- Inside waters of Boat Harbor THA (west of marker) would continue to be open by regulation 7 days/week in first through fourth week of the season.

District 11

- Continue to manage the District 11 drift gillnet fishery per the 2018 Chilkat and King Salmon Rivers king salmon action plan and under provisions of annual management plans produced by the TTC and approved by the Transboundary Panel, as directed by Chapter 1 of the PST. Additional actions to Option A would be taken using EO authority and may include but are not limited to:
    - Reduce open area in Taku Inlet through SW 29.
    - Close Taku Inlet north and west of a line from Point Greely to 134°07.05′ W long through SW26 and north of Point Greely, Cooper Point or Jaw Point for SW 27 through SW 29.
    - Close Section 11-C through SW 29.
    - Implement night closures between 10:00 p.m. and 4:00 a.m. through SW 27 in District 11.
    - Impose 6-inch maximum mesh size restriction through SW 27.

Troll Fishery

- Using EO authority, close the winter troll fishery in all waters of Southeast and Yakutat beginning March 16, with Section 15-A in Lynn Canal/Chilkat Inlet north of the latitude of Sherman Rock remaining closed to commercial trolling through December 31.
- Using EO authority, beginning May 1 and through June 30, reduce spring troll king salmon fisheries in northern Southeast to areas of the outer coast near hatcheries, hatchery release sites, or areas with low proportion harvest of wild SEAK king salmon located in Districts 113 and 183, with all other districts remaining closed.
- Using EO authority, delay opening all THAs in northern SEAK until June 1.

- Using EO authority, delay the Districts 109, 110, 112, and 114 enhanced chum salmon fishery openings until June 15 and close to the retention of king salmon.

Purse Seine Fishery

- Using EO authority, implement nonretention of king salmon until at least the third week of July in traditional fisheries and in THAs that do not have hatchery king salmon runs.

Benefits: Benefits would be the same as Option A with unforeseen complications with language in the 2018 action plans clarified. Management actions in troll fishery that affect northern stocks would be included.

Detriments: Same as Option A.

Option C–Increase Management Actions

Specific Action to Implement the Objective:

In addition to actions prescribed in Option B, implement the following actions to further reduce harvest rates.

Drift Gillnet Fisheries

District 15

- In Section 15-A, using EO authority:
  - Delay opening by 2 weeks beyond initial regulatory opening date.
  - Reduce open area in northern Chilkat Inlet through SW 29 by implementing and exceeding conservation measures of the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384) and the 2018 Chilkat and King Salmon Rivers king salmon action plan by closing the western half of Section 15-A.
  - Through SW 29, impose 6-inch maximum mesh size restriction.
- In Sections, 15-A and 15-C (including outside waters of the Boat Harbor THA), using EO authority implement night closures between 10:00 p.m. and 4:00 a.m. through SW 29.
- In Section 15-C, using EO authority:
  - Delay opening of Section 15-C by 1 week beyond initial regulatory opening date.
  - Through SW 27, implement 6-inch maximum mesh size restriction.
  - Through SW 28, limit time and area open to 2 days/week in the postage stamp area.
- In the outside waters of the Boat Harbor THA, using EO authority:
  - Through SW 27, limit fishing time to 2 days/week and restrict open area to within 1.0 nmi of western shoreline.
  - Through SW 27, implement a 6-inch maximum mesh size restriction.
- Inside waters of the Boat Harbor THA would remain unrestricted (open 7 days a week with no mesh restrictions or night closures).

District 11

- Additional actions for the conservation of Taku River king salmon will be vetted through the TTC and the TBR Panel and will be included in the annual management plan. Additional actions would be taken by using EO authority and may include but are not limited to:
  - Delay opening the District 11 drift gillnet fishery by 1 week.

- Reduce area open to the drift gillnet fishery in Taku Inlet by closing Taku Inlet north of the latitude of Point Greely and west of 134° 7.0′ W. longitude through SW 26 and north of Point Greely, Cooper Point or Jaw Point through SW 29.
- Implement 6-inch maximum mesh size restriction through SW 27.
- Do not open Section 11-C to drift gillnetting.
- Reduce drift gillnet fishing time in Subdistrict 111-31.
- Implement night closures between 10:00 p.m. and 4:00 a.m. in all of District 11.

Purse Seine Fishery

- Using EO authority, implement nonretention of king salmon in traditional fisheries and in THAs that do not have hatchery king salmon returns until at least the third week in July regionwide and through SW 31 in Districts 9–12 and 14.

Troll Fishery

- Using EO authority, close northern SEAK spring troll fisheries.

Benefits: These management actions can be accomplished through EO authority and include additional actions to the 2018 Chilkat and King Salmon Rivers king salmon action plan that were implemented in 2019 and 2020 drift gillnet fisheries. The District 11 drift gillnet fishery would continue to be managed under provisions of the PST. Any action taken for Taku and Chilkat Rivers king salmon will benefit King Salmon River king salmon.

Detriments: There would be further reduced opportunity for sockeye salmon and hatchery king and chum salmon harvest.

ACTION #3–SUBSISTENCE FISHERY

Objective: Reduce the subsistence harvest of Chilkat River king salmon.

Option A–Status Quo

Specific Action to Implement the Objective:

Continue to manage the subsistence fishery per the 2018 Chilkat and King Salmon Rivers king salmon action plan and in accordance with the subsistence preference at AS 16.05.258.

Option B–Modify 2018 Action Plan

Specific Action to Implement the Objective:

Clarify the following language in the 2018 Chilkat and King Salmon Rivers king salmon action plan.

- Using EO authority, reduce time and area open to subsistence fishing in Chilkat Inlet and in the Chilkat River through SW 29 by implementing and exceeding conservation measures of the *Lynn Canal and Chilkat River King Salmon Fishery Management Plan* (5 AAC 33.384) and the 2018 Chilkat and King Salmon Rivers king salmon action plan by implementing the following:
  - Open Chilkat River to subsistence fishing from June 1 through June 14.
  - Close Chilkat River to subsistence fishing from June 15 to July 31, except for the portion of the river between Haines Highway mile 19 and the Wells Bridge—this section opens 4 days/week.
  - Close Chilkat Inlet to subsistence fishing through SW 29.

Benefits: Same as Option A with clarity added to the effective period of management actions.

Detriments: Same as Option A.

Option C–Further Reduced Time and Area

Specific Action to Implement the Objective:

In addition to the actions in the 2018 Chilkat and King Salmon Rivers king salmon action plan and the clarifying language provided in Option B, increase restrictions as follows.

- Using EO authority, close Chilkat River to subsistence fishing through third Saturday of June.
- Using EO authority, close Chilkat River to subsistence fishing from third Saturday of June to July 31, except for the portion of the river between Haines Highway mile 19 and the Wells Bridge; this section may open only 3 days/week.
- Using EO authority, close Chilkat Inlet to subsistence fishing through July 31.
- Via subsistence permit restriction, impose 6-inch maximum mesh size restriction for Chilkat River through July 31.

Benefits: Potentially reduces king salmon harvest.

Detriments: Subsistence opportunity for sockeye salmon would be reduced as the subsistence fishery has traditionally been open 7 days/week from June 1 to September 30 with no mesh size restrictions.

ACTION #4 – PERSONAL USE FISHERY

Objective: Reduce the personal use harvest of Taku River king salmon.

Option A–Status Quo

Specific Action to Implement the Objective:

Continue to implement the following management actions that began in 2017.

- Manage per the annual bilateral Transboundary River Management Plan of the PST. Actions taken to reduce incidental harvest of king salmon include delaying the month-long personal use fishery by up to 2 weeks, opening on a Monday.

Benefits: Management actions are reviewed annually by the PSC through the Transboundary Panel. They can be accomplished by EO authority, the user groups are accustomed to the actions, and they have been effective in reducing harvest rates of Taku River king salmon. If the Taku River king salmon stock were to quickly rebound, Alaska fisheries would not forgo harvest opportunity in District 11.

Detriments: Reduced personal use opportunity for those who target early season sockeye salmon.

CONDITIONS FOR REDUCING RESTRICTIONS OR DELISTING A STOCK OF CONCERN

1. If the lower bound of the BEG range is met or exceeded in 3 consecutive years or is met in 4 out of 6 consecutive years, the department will recommend removing the stock as a stock of "management concern" at the first Southeast and Yakutat board meeting after this condition is met.

2. Management measures could be relaxed in specific areas or during specific time periods if updated stock composition and harvest data indicates areas and/or times where and/or when restrictions are no longer needed to ensure the BEG is met.
3. In the event the lower bound of the BEG range is met or exceeded in 2 consecutive years, management restrictions may be relaxed or set aside.
4. Should the TTC determine that a harvestable surplus of Taku River king salmon is available, directed king salmon fisheries in District 11 may occur pursuant to the annual Transboundary River management plan under provisions of the PST.

Stock status, action plan performance (including information on harvest rate, distribution, and timing in commercial fisheries), and escapement goal review will be updated in a report to the board at the 2025 Southeast and Yakutat meeting.

2021/2022 ALASKA BOARD OF FISHERIES REGULATORY PROPOSALS AFFECTING CHILKAT, KING SALMON, AND TAKU RIVERS STOCKS OF KING SALMON

- Proposal 80–Amend regulation to address payback provisions when the State of Alaska king salmon fisheries exceed Alaska's annual king salmon all-gear harvest ceiling.
- Proposal 81–Allocate any Alaska all gear-allocation king salmon remaining after September 1 to the commercial troll fishery.
- Proposal 82–Amend the *Southeast Alaska King Salmon Management Plan* to align with the provisions of the 2019–2028 PST annex.
- Proposal 83–Amend the *Southeast Alaska King Salmon Management Plan* to manage for an average sport harvest of 20% of the sport/troll allocation with commensurate regulations addressing sport fishery overages in the commercial troll fishery.
- Proposal 84–Amend the *Southeast Alaska King Salmon Management Plan* to ensure no closure of the resident king salmon fishery due to allocation concerns.
- Proposal 85–Amend the *Southeast Alaska King Salmon Management Plan* to manage for a resident priority by implementing closed periods and reducing bag limits for nonresidents.
- Proposal 86 –Amend the *Southeast Alaska King Salmon Management Plan* to manage for a resident priority by implementing closed periods and reducing bag limits for nonresidents.
- Proposal 87–Make numerous changes to management of commercial troll and sport fisheries for king salmon in Southeast Alaska.
- Proposal 88–Amend the Southeast Alaska King Salmon Management Plan to manage for a sliding sport allocation between 16 and 24 percent with commensurate commercial troll fishery allocation modification under commercial regulation.
- Proposal 89–Allow the use of 2 additional fishing lines during periods of king salmon nonretention in all of the Southeast-Yakutat area if there is more than 1 CFEC power troll permit holder on board the vessel.

- Proposal 90–Change trigger from an annual abundance index (AI) number to a District 13 early-winter power troll CPUE tier.
- Proposal 91–Reallocate the annual troll harvest allocation between the winter, spring, and summer troll fisheries.
- Proposal 92–Allow retention of king salmon greater than 26 inches in hatchery terminal harvest areas by commercial trollers.
- Proposal 93–Amend the *Southeast Alaska King Salmon Management Plan* by reducing the maximum nonresident annual limit to 3 king salmon.
- Proposal 94–Amend the *Southeast Alaska King Salmon Management Plan* to manage for a resident priority by implementing specific closed periods and reducing annual limits for nonresidents.
- Proposal 95–Amend the *Southeast Alaska King Salmon Management Plan* to provide for inseason liberalization of management measures when the sport fish allocation will not be met.
- Proposal 103–Modify net gear allocation guidelines to further consider potential effect of hatchery-produced salmon on wild-stock salmon and wild-stock salmon management.
- Proposal 111–Change the maximum drift gillnet mesh size during periods established by emergency order from 6 inches to 6 and one-eight inches.
- Proposal 113–Change the maximum mesh size during periods established by emergency order from 6 inches to a range of 5¼ to 6 inches and define dates in Districts 6, 8, and 11 when the mesh size will be implemented.
- Proposal 114–Allow the use of fishing rods in conjunction with downriggers by hand trollers.
- Proposal 115–Modify the start date of the winter troll fishery.
- Proposal 116–Require retention of king salmon caught during periods of nonretention to be retained if they are deemed too injured to be released and set price at 1 dollar for selling retained fish.
- Proposal 122–Remove sunset date so regulation remains in effect.
- Proposal 123–Remove the sunset date so regulation remains in effect and change effective end date of the plan from July 22 to July 15.
- Proposal 124–Establish additional guidelines for the department to manage the District 12 purse seine fishery north of Point Marsden.
- Proposal 125–Issue subsistence fishing permits for king salmon in Southeast Alaska.
- Proposal 128–Allow use of set gillnets in all Southeast Alaska area subsistence salmon fisheries.
- Proposal 135–Allow permits to be issued for the personal use taking of king and coho salmon.
- Proposal 138–Create salmon personal use fisheries in marine waters of the Juneau Management Area.

- Proposal 139–Modify where personal use fishing can occur in the Taku River to include all of Section 11-B and remove dates when the fishery can occur.
- Proposal 140–Add section 11-B as a personal use salmon fishing area when the area is closed to the commercial drift gillnet fishery.
- Proposal 141–Add section 11-B as a personal use salmon fishing area when the area is closed to the commercial drift gillnet fishery.

CURRENT RESEARCH PROJECTS

CHILKAT RIVER KING SALMON

The department has conducted extensive research and monitoring projects on Chilkat River king salmon. From 1975 to 1992, aerial survey counts were conducted on 2 small clear-water tributaries; however, radiotelemetry and MR studies conducted in 1991 and 1992 showed that these tributary survey counts were not representative of escapement in the entire drainage and the surveys were discontinued. Escapement estimates of large adults since 1991 have been based on MR experiments that provide precise estimates. King salmon juvenile coded-wire tagging began in 1999 with a relatively high mark fraction, averaging 8% to 10%. The Chilkat River stock of king salmon is an escapement and exploitation rate indicator stock of the Chinook Technical Committee of the Pacific Salmon Commission. Obligations in the Pacific Salmon Treaty include producing the full suite of stock assessment data for Chilkat River king salmon, including smolt production, overwinter and marine survival, harvest and exploitation rates, estimates of escapement, and escapement age-sex-length composition. The Chilkat River king salmon run is 1 of the 11 indicator stocks used by the department to monitor king salmon runs in SEAK. The following research programs have been and are being conducted to gather detailed information about Chilkat River king salmon:

1. Chilkat River king salmon are part of the coastwide king salmon genetic baseline (Seeb et al. 2007); however, identifying these fish in mixed stock fisheries has been convoluted because this stock has been used as a source of brood stock for hatchery releases in the upper Lynn Canal. Those releases and that issue no longer exist.
2. MR studies to estimate total escapement of Chilkat River king salmon began in 1991 and continue to present (Elliott 2018).
3. CWT studies, 1988 to 1990 have been conducted annually since 1999 (Elliott and Peterson 2020).
4. Age, sex, and length composition of escapements have been conducted annually since 1991 (Elliott 2018).
5. Marine harvest sampling of commercial and sport fisheries is conducted by the department annually throughout SEAK. These programs include CWT and genetic sampling and various studies designed to estimate catch, harvest, fishing effort, and biological parameters such as age, sex, and size (Reynolds-Manney et al. 2020; Jaenicke et al. 2019).

KING SALMON RIVER KING SALMON

The department has conducted annual assessments of king salmon escapement in the King Salmon River since 1971, which included foot or helicopter counts from 1971 to 1982, adult weir counts from 1983 to 1992 (McPherson and Clark 2001), foot and helicopter counts from 1993 to 2011, and finally standardized foot surveys since 2012. The following research programs have been and are being conducted to gather detailed information about King Salmon River king salmon:

1. King Salmon River king salmon are part of the coastwide king salmon genetic baseline (Seeb et al. 2007).
2. Standardized aerial and foot escapement surveys have been conducted annually since the 1970s (Richards and Frost 2018).
3. Age, sex, and length composition, CWT and escapement sampling have been conducted annually since 2003 (Richards et al. 2018).
4. The current marine harvest sampling of commercial and sport catch cannot account for the harvest of King Salmon River king salmon.

TAKU RIVER KING SALMON

The department has conducted extensive research and monitoring projects on Taku River king salmon. From 1973 to 2020, standardized aerial survey counts were conducted on 5 clearwater tributaries in the upper Taku River drainage. Radiotelemetry studies were conducted in 1989 and 1990, and 2015 to 2020. Wild smolt were CWTed from 1976 to 1981, and from 1993 to present. Total escapement was estimated from MR studies conducted in 1989 and 1990, 1995 to 1997, 1999 to 2010, and 2014 to 2020. In all other years, escapements were estimated from expanded helicopter survey index counts. The Taku River king salmon stock is an escapement and exploitation rate indicator stock of the Chinook Technical Committee of the Pacific Salmon Commission. Requirements in the PST include producing the full suite of stock assessment data, including smolt production, marine survival, harvest and exploitation rates, estimates of escapement, and escapement age-sex-length composition. The following research programs have been and are being conducted to gather detailed information about Taku River king salmon:

1. Taku River king salmon are part of the coastwide king salmon genetic baseline (Seeb et al. 2007).
2. MR studies to estimate total escapement of Taku River king salmon were conducted in 1989 and 1990, 1995 to 1997, 1999 to 2010, and have been conducted annually since 2014 (Williams et al. 2016)
3. CWT studies were conducted 1976 to 1981 and annually since 1993 (Williams et al. 2016).
4. Age, sex, and length composition of escapements have been conducted annually since 1991 (Williams et al. 2016).
5. Marine harvest sampling of commercial and sport fisheries is conducted by the department annually throughout SEAK. These programs include CWT and genetic sampling with 20% minimum sample rate goal and various studies designed to estimate catch, harvest, and fishing effort and biological parameters such as age, sex, and size (Reynolds-Manney et al. 2020; Jaenicke et al. 2019).

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TABLES AND FIGURES

Table 1.–Escapement, harvest, total run, and harvest rate by fishery of large (≥ age 5) king salmon in the Chilkat River, 2011–2020. Harvests include some age 4 fish.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[d]	5-year Average[e]	10-year Average[f]
Escapement[a]	2,674	1,723	1,719	1,529	2,452	1,380	1,173	873	2,028	3,180	1,727	1,873
Harvest	1,094	1,032	398	1,090	706	323	239	196	87	79	185	524
Total Run	3,768	2,755	2,117	2,619	3,158	1,703	1,412	1,069	2,115	3,259	1,912	2,397
Harvest Rate:												
Troll Winter	0.03	0.04	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.01	0.01
Troll Spring	0.03	0.05	0.02	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.01	0.02
Troll Summer R1[b]	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Troll Summer R2[b]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Troll All	0.06	0.10	0.02	0.00	0.03	0.02	0.07	0.00	0.00	0.00	0.02	0.03
Sport Early[c]	0.08	0.11	0.07	0.14	0.09	0.00	0.09	0.12	0.00	0.00	0.04	0.07
Sport Late[c]	0.01	0.04	0.00	0.03	0.00	0.16	0.00	0.00	0.00	0.00	0.03	0.02
Sport All	0.09	0.15	0.07	0.17	0.09	0.16	0.09	0.12	0.00	0.00	0.07	0.09
Net All	0.11	0.10	0.07	0.21	0.10	0.00	0.01	0.06	0.04	0.02	0.03	0.07
Subsistence All	0.03	0.03	0.03	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
U.S. All	0.29	0.37	0.19	0.42	0.22	0.19	0.17	0.18	0.04	0.02	0.12	0.21
Canada All	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.29	0.37	0.19	0.42	0.22	0.19	0.17	0.18	0.04	0.02	0.12	0.21

[a] The BEG range for Chilkat River king salmon is 1,750 to 3,500 large fish. Gray cells in this row indicate escapements below the lower bound of the BEG.
[b] Troll Summer retention period 1 (R1) occurs in July; Troll Summer R2 occurs from August through September.
[c] Sport Early occurs April through July of the current year; Sport Late occurs in August of the prior year.
[d] Preliminary estimates.
[e] 2016 to 2020.
[f] 2011 to 2020.

Table 2.–Escapement, harvest, and total run of large (≥ age 5) king salmon in the Chilkat River, 2011–2020. Harvests include some age 4 fish.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[d]	5-year Average[e]	10-year Average[f]
Escapement[a]	2,674	1,723	1,719	1,529	2,452	1,380	1,173	873	2,028	3,180	1,727	1,873
Harvest	1,094	1,032	398	1,090	706	323	239	196	87	79	185	524
Total Run	3,784	2,774	2,117	2,631	3,187	1,726	1,412	1,077	2,115	3,259	1,918	2,408
Number of fish harvested by fishery												
Troll Winter	124	113	0	0	0	34	58	0	0	0	18	33
Troll Spring	119	150	40	0	57	0	45	0	0	0	9	41
Troll Summer R1[b]	0	0	0	0	42	0	0	0	0	0	0	4
Troll Summer R2[b]	0	0	0	0	0	0	0	0	0	10	2	1
Troll All	243	263	40	0	100	34	102	0	0	10	29	79
Sport Early[c]	304	307	141	360	290	0	125	127	0	0	50	165
Sport Late[c]	19	99	0	90	0	272	0	0	0	10	56	49
Sport All	323	405	141	449	290	272	125	127	0	10	107	214
Net All	415	268	152	561	301	7	11	69	87	59	47	193
Subsistence All	114	96	65	79	15	10	0	0	0	0	2	38
U.S. All	1,094	1,032	398	1,090	706	323	239	196	87	79	185	524
Canada All	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,094	1,032	398	1,090	706	323	239	196	87	79	185	524

[a] The BEG range for Chilkat River king salmon is 1,750 to 3,500 large fish. Gray cells in this row indicate escapements below the lower bound of the BEG.
[b] Troll Summer retention period 1 (R1) occurs in July; Troll Summer R2 occurs from August through September.
[c] Sport Early occurs April through July of the current year; Sport Late occurs in August of the prior year.
[d] Preliminary estimates.
[e] 2016 to 2020.
[f] 2011 to 2020.

Table 3.–Escapement of large (≥ age 5) king salmon in the King Salmon River, 2011–2020.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	5-year Average[b]	10-year Average[c]
Escapement[a]	192	155	94	68	50	149	85	30	27	100	78	95

[a] The BEG range for King Salmon River king salmon is 120 to 240 large king salmon. Gray cells in this row indicate escapements below the lower bound of the BEG.
[b] 2016 to 2020.
[c] 2011 to 2020.

Table 4.–Escapement, harvest, and total run of large (≥ age 5) king salmon in the Taku River, 2011–2020. Harvests include some age 4 fish.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[c]	5-year Average[d]	10-year Average[e]
Escapement[a]	19,672	16,713	18,002	23,532	23,567	9,177	8,214	7,271	11,558	15,593	10,363	15,330
Harvest	8,051	8,526	3,191	5,886	4,944	3,938	1,122	58	420	582	1,224	3,672
Total Run	27,723	25,239	21,193	29,418	28,511	13,115	9,336	7,329	11,978	16,175	11,587	19,002
Harvest Rate:												
Troll Winter	0.00	0.09	0.03	0.01	0.01	0.01	0.05				0.01	0.02
Troll Spring	0.13	0.08	0.06	0.06	0.02	0.10	0.01				0.03	0.06
Troll Summer R1[b]					0.01							0.00
Troll Summer R2[b]					0.01							0.00
Troll All	0.13	0.16	0.09	0.07	0.05	0.11	0.06				0.04	0.08
Sport NW					0.01							0.01
Sport Term D11	0.02	0.03	0.01	0.03	0.02	0.05	0.00	0.00	0.01	0.01	0.02	0.02
Sport All	0.02	0.03	0.01	0.03	0.03	0.05	0.00	0.00	0.01	0.01	0.02	0.02
Net Outside							0.01		0.02	0.00	0.01	0.00
Net Term D11	0.02	0.03	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02
Net All	0.02	0.03	0.02	0.02	0.01	0.01	0.03	0.01			0.02	0.02
Canada Comm	0.08	0.08	0.03	0.04	0.03	0.04	0.03				0.01	0.04
Canada Assessment	0.02	0.03		0.04	0.05	0.08					0.02	0.03
Canada Sport	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00
Canada Aboriginal	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Canada All	0.12	0.12	0.03	0.08	0.09	0.12	0.03	0.00	0.00	0.01	0.03	0.07
Total	0.29	0.34	0.15	0.20	0.17	0.30	0.12	0.01	0.04	0.04	0.11	0.19

[a] The BEG range for Taku River king salmon is 19,000 to 36,000 large fish. Gray cells in this row indicate escapements below the lower bound of the BEG.
[b] Troll Summer retention period 1 (R1) occurs in July; Troll Summer R2 occurs from August through September.
[c] Preliminary estimates.
[d] 2016 to 2020.
[e] 2011 to 2020.

Table 5.–Harvest by fishery of large (≥ age 5) Taku River king salmon, 2011–2020. Harvests include some age 4 fish.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2011–2016 Average[b]	2017–2020 Average[c]
Troll Winter	129	2155	573	293	417	180	463	0	0	0	625	116
Troll Spring	3,506	2,009	1,233	1,801	521	1,304	106	0	0	113	1,729	55
Troll Summer R1[a]	0	0	0	0	271	0	0	0	0	0	45	0
Troll Summer R2[a]	0	0	0	0	196	0	0	0	0	0	33	0
Troll All	3,635	4,164	1,806	2,094	1,405	1,484	569	0	0	113	2,431	171
Sport NW	0	0	0	0	308	0	0	0	0	0	51	0
Sport Terminal D111	573	695	271	810	463	635	34	9	94	112	575	62
Sport All	573	695	271	810	771	635	34	9	94	112	626	62
outside D111 gillnet	0	0	0	0	0	0	125	0	181	59	0	91
D111 gillnet	518	668	356	489	292	159	143	31	124	189	414	122
Net All	518	668	356	489	292	159	268	31	305	248	414	213
Personal Use	48	34	20	21	29	30	1	11	11	15	30	10
U.S. All	4,774	5,561	2,453	3,414	2,497	2,308	872	51	410	488	3,501	455
Canada Commercial	2,342	1,930	579	1,041	868	508	246	0	0	0	1,211	62
Canada Assessment	680	863	0	1,230	1,357	1,021	0	0	0	0	859	0
Canada Recreational	105	105	105	105	105	10	0	0	0	0	89	0
Canada FSC	150	67	54	96	117	91	4	7	10	94	96	29
Canada All	3,277	2,965	738	2,472	2,447	1,630	250	7	10	94	2,255	90
Total	8,051	8,526	3,191	5,886	4,944	3,938	1,122	58	420	582	5,756	546

[a] Troll Summer retention period (R1) occurs in July; Troll Summer (R2) occurs from August through September.

[b] Before significant management actions 2011–2016.

[c] After significant management actions 2017–2020.

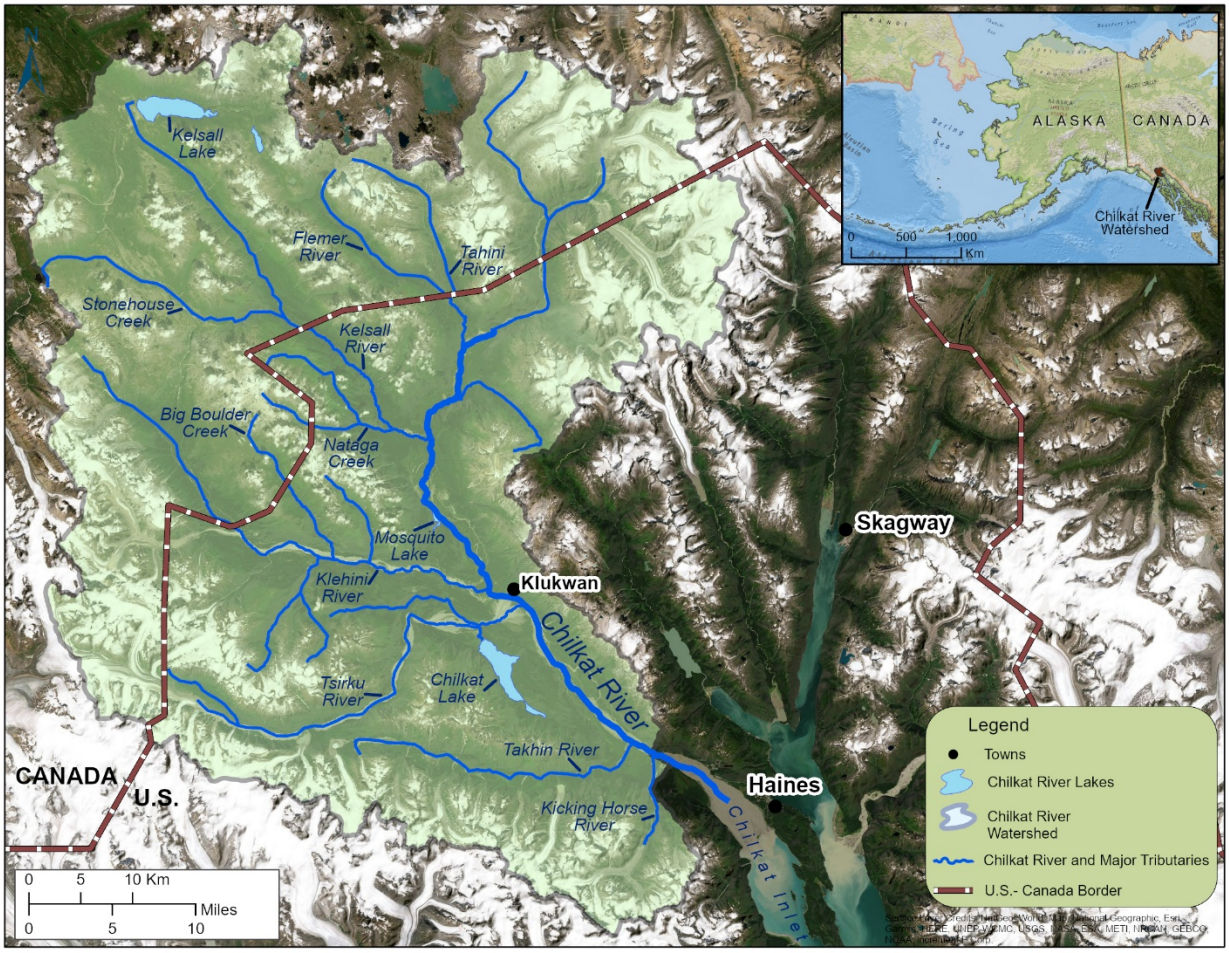

Figure 1.–Map of the Chilkat River watershed and primary king salmon spawning tributaries, including the Kelsall, Tahini, and Klehini Rivers.

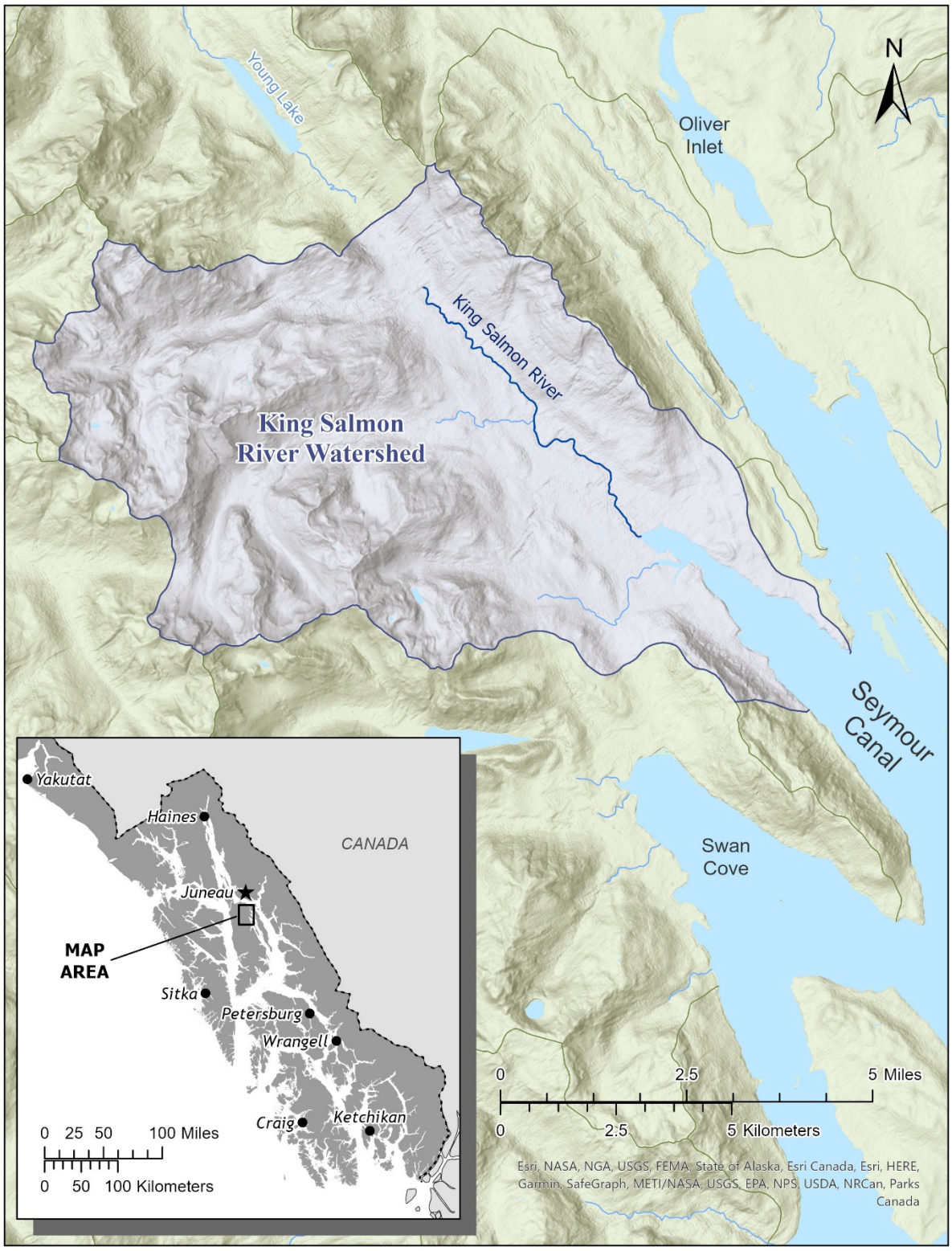

Figure 2.–Map of the King Salmon River watershed.

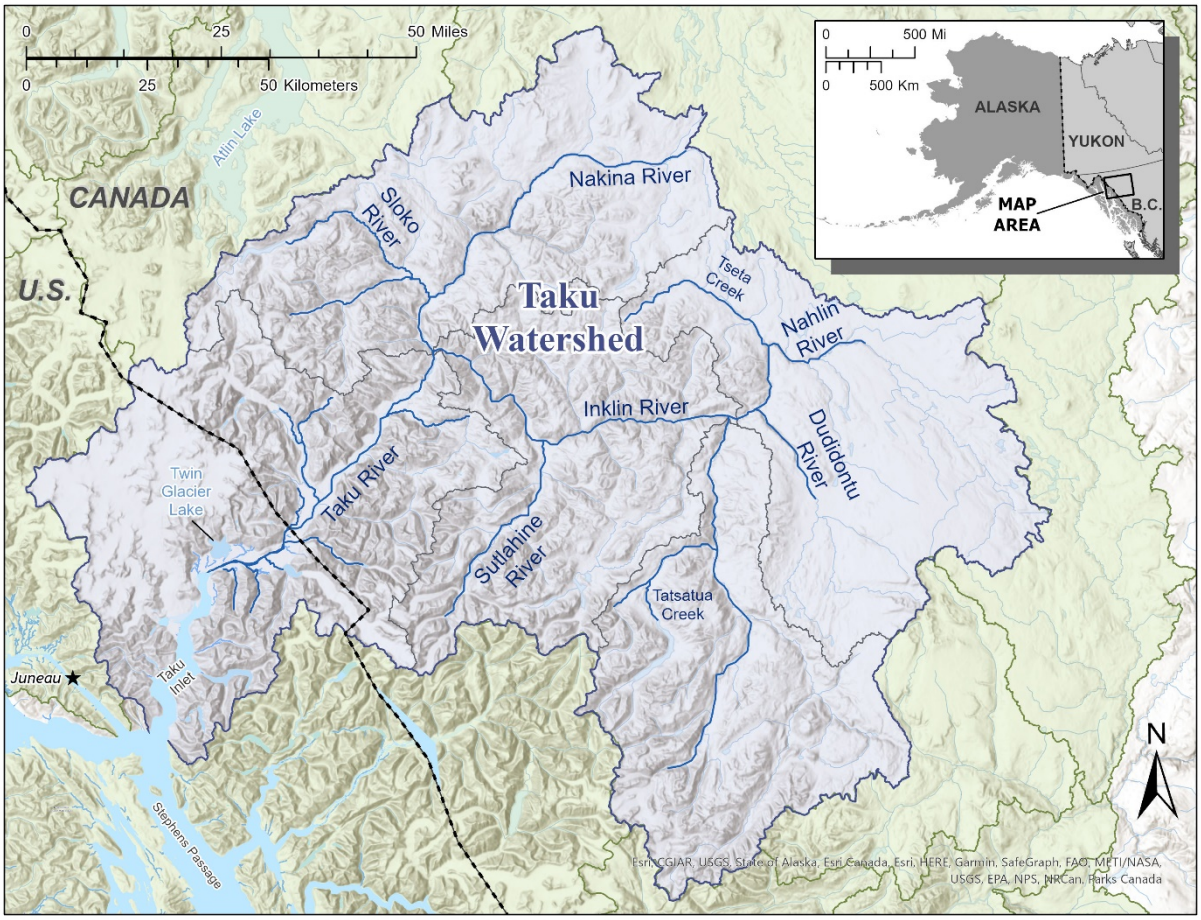

Figure 3.–Map of the Taku River watershed including the primary spawning tributaries in the Nakina, Nahlin, Dudidontu, and Kowatua Rivers and Tatsatua Creek.

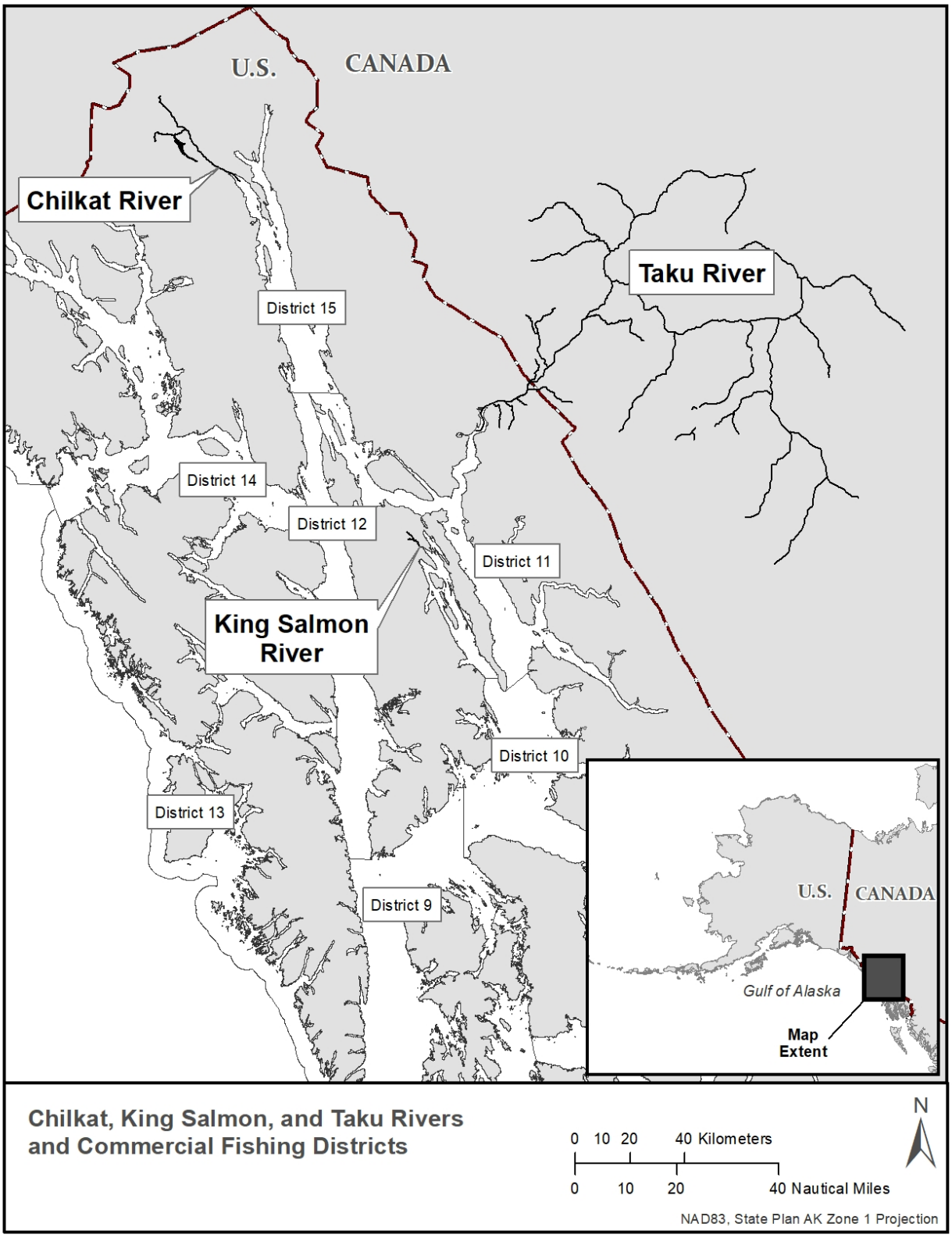

Figure 4.–Map showing the locations of Chilkat, King Salmon, and Taku Rivers and nearby fishing districts.

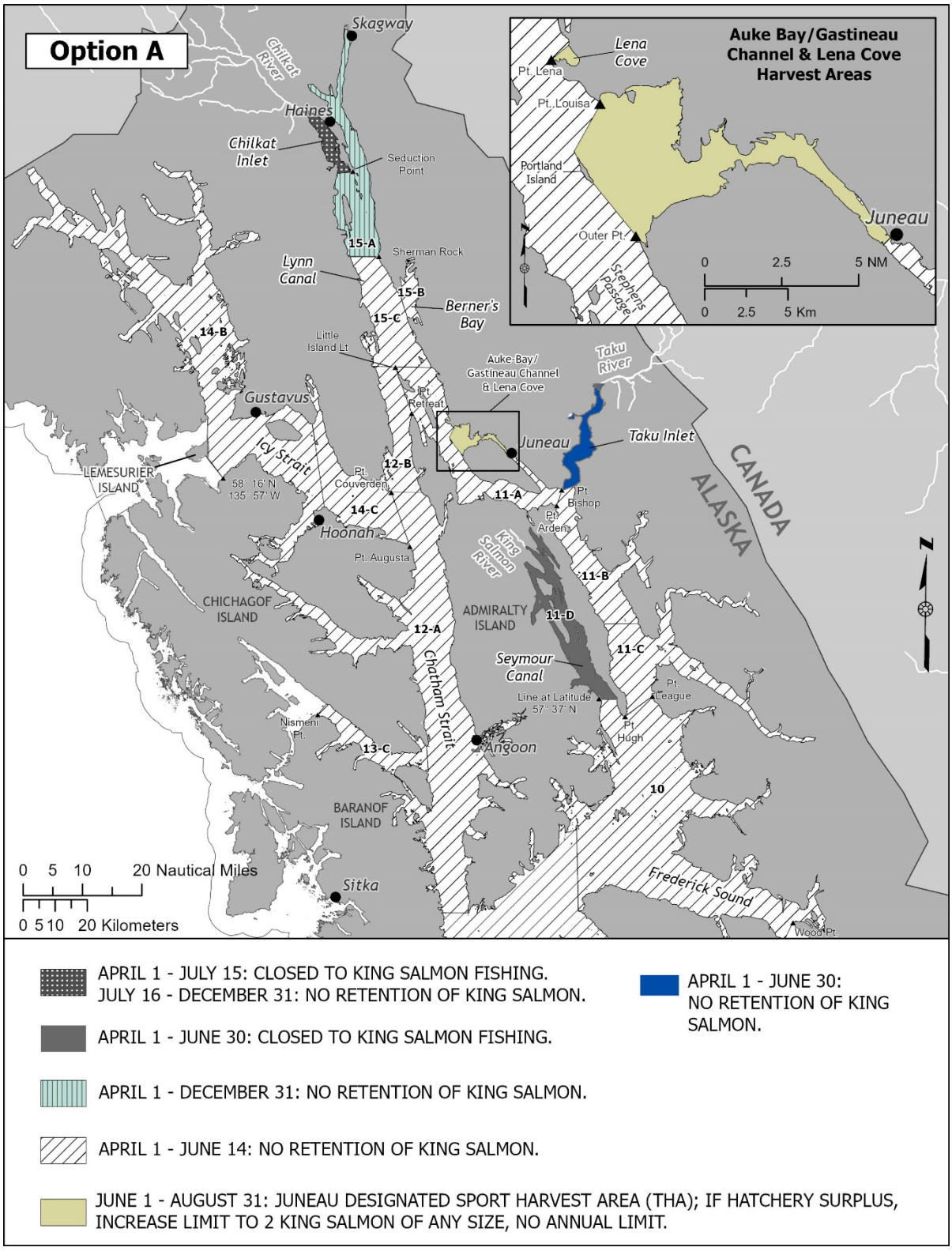

Figure 5.–Map of northern Southeast Alaska showing the sport fishing management areas and proposed areas closed to sport fishing under Option A.

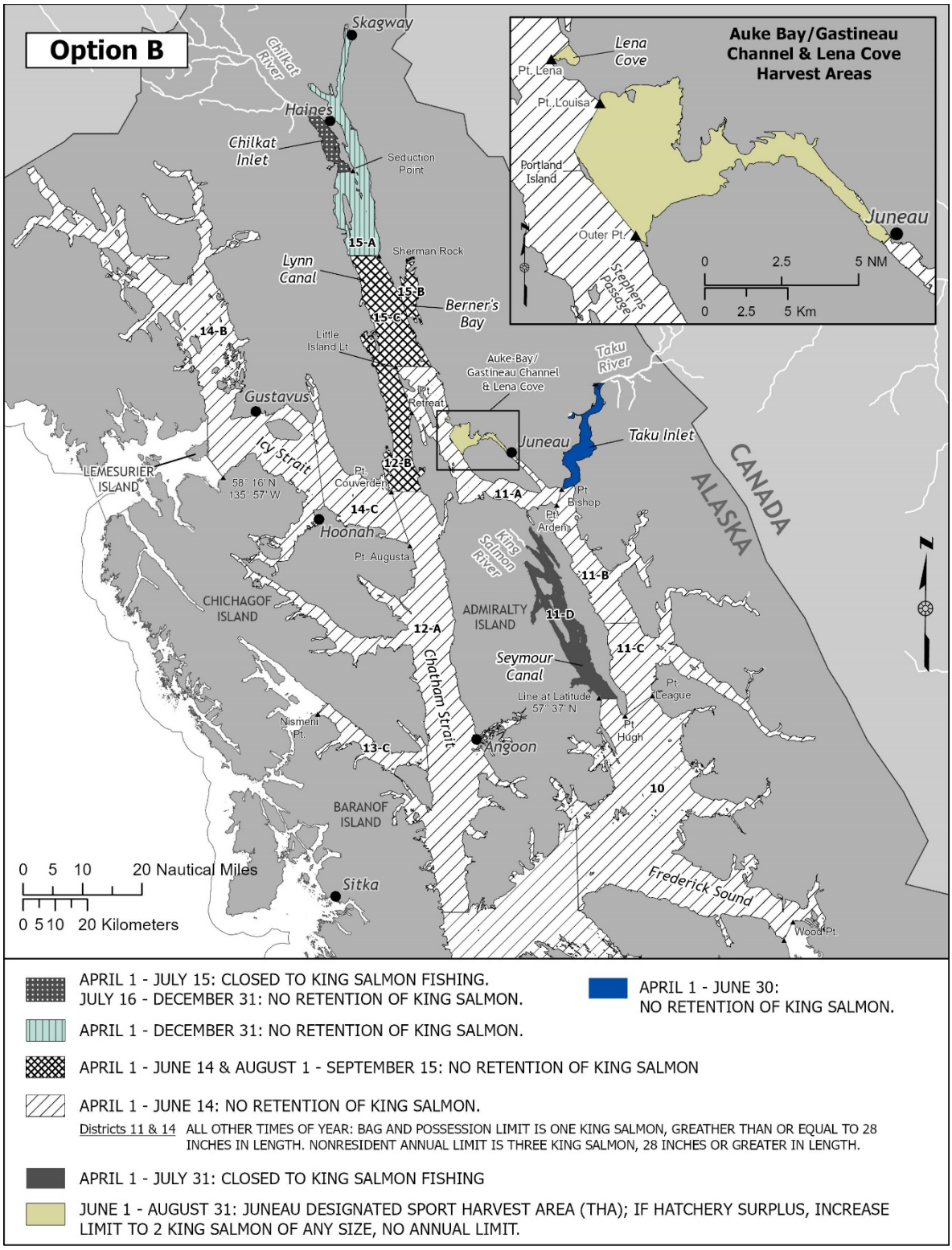

Figure 6.–Map of northern Southeast Alaska showing the sport fishing management areas and proposed areas closed to sport fishing under Option B.

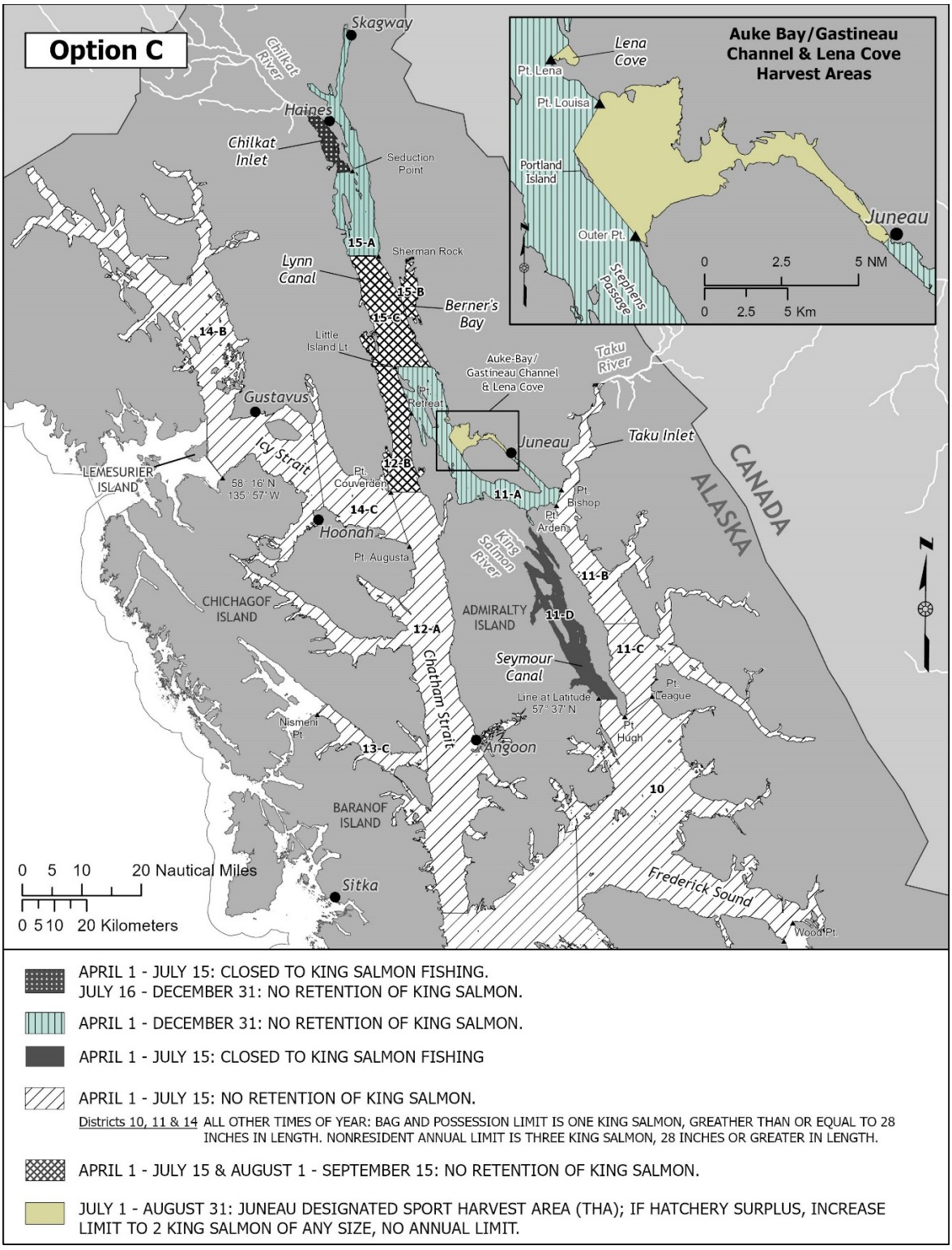

Figure 7.–Map of northern Southeast Alaska showing the sport fishing management areas and proposed areas closed to sport fishing under Option C.

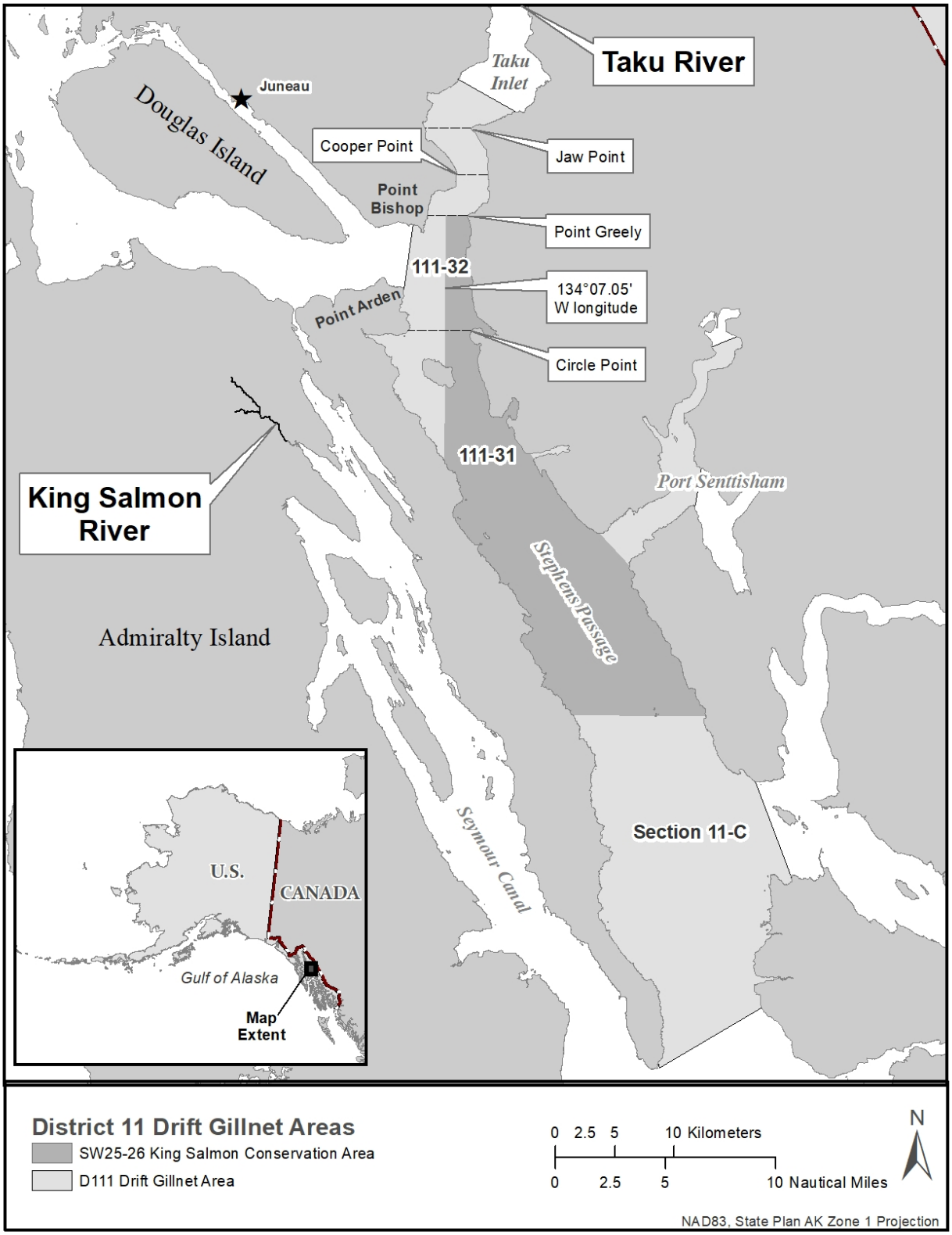

Figure 8.–Map of District 11 commercial drift gillnet fishing areas.

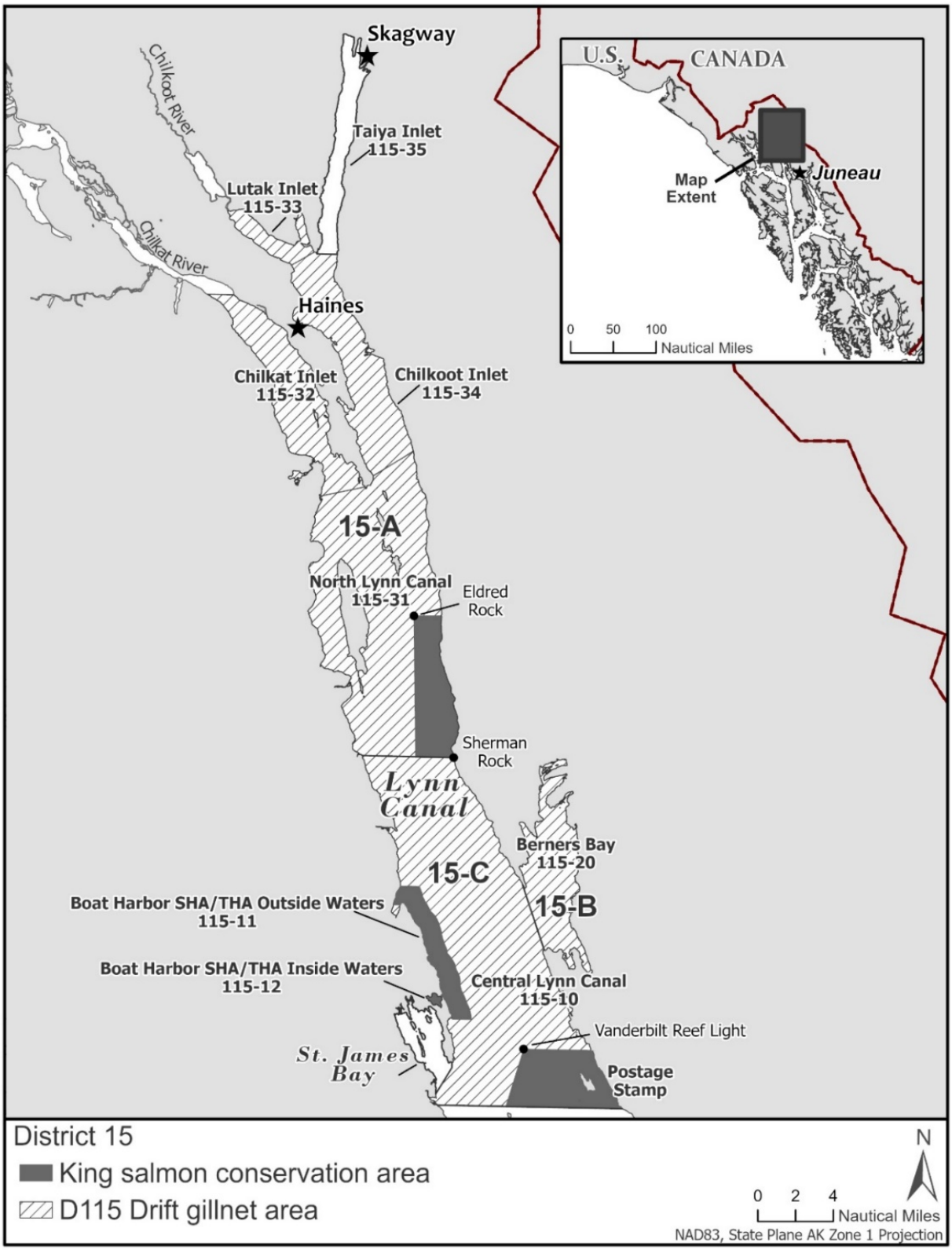

Figure 9.–Map of District 15 commercial drift gillnet fishing areas.

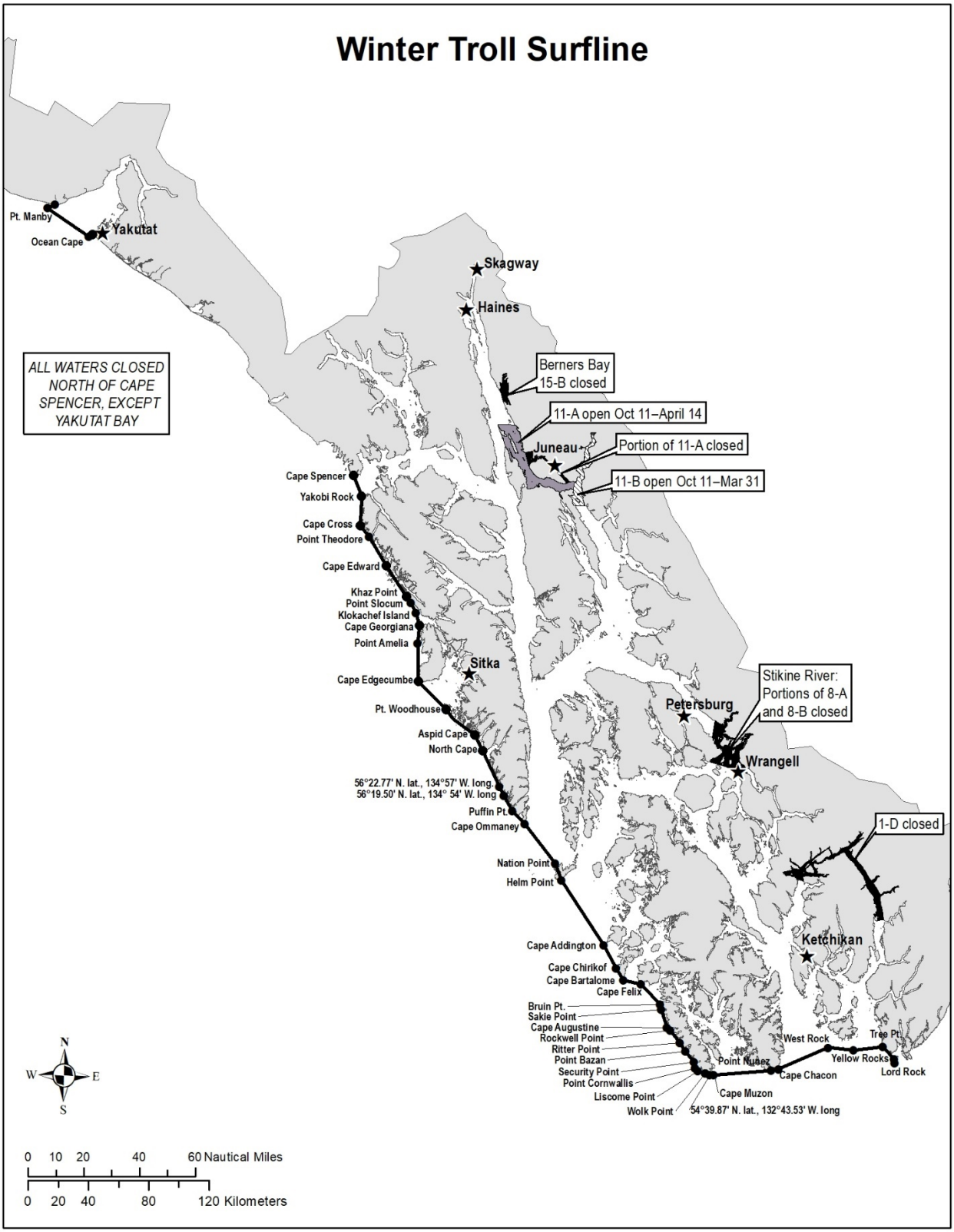

Figure 10.–Map of Southeast Alaska commercial winter troll fishing boundaries, Cape Suckling to Dixon Entrance.

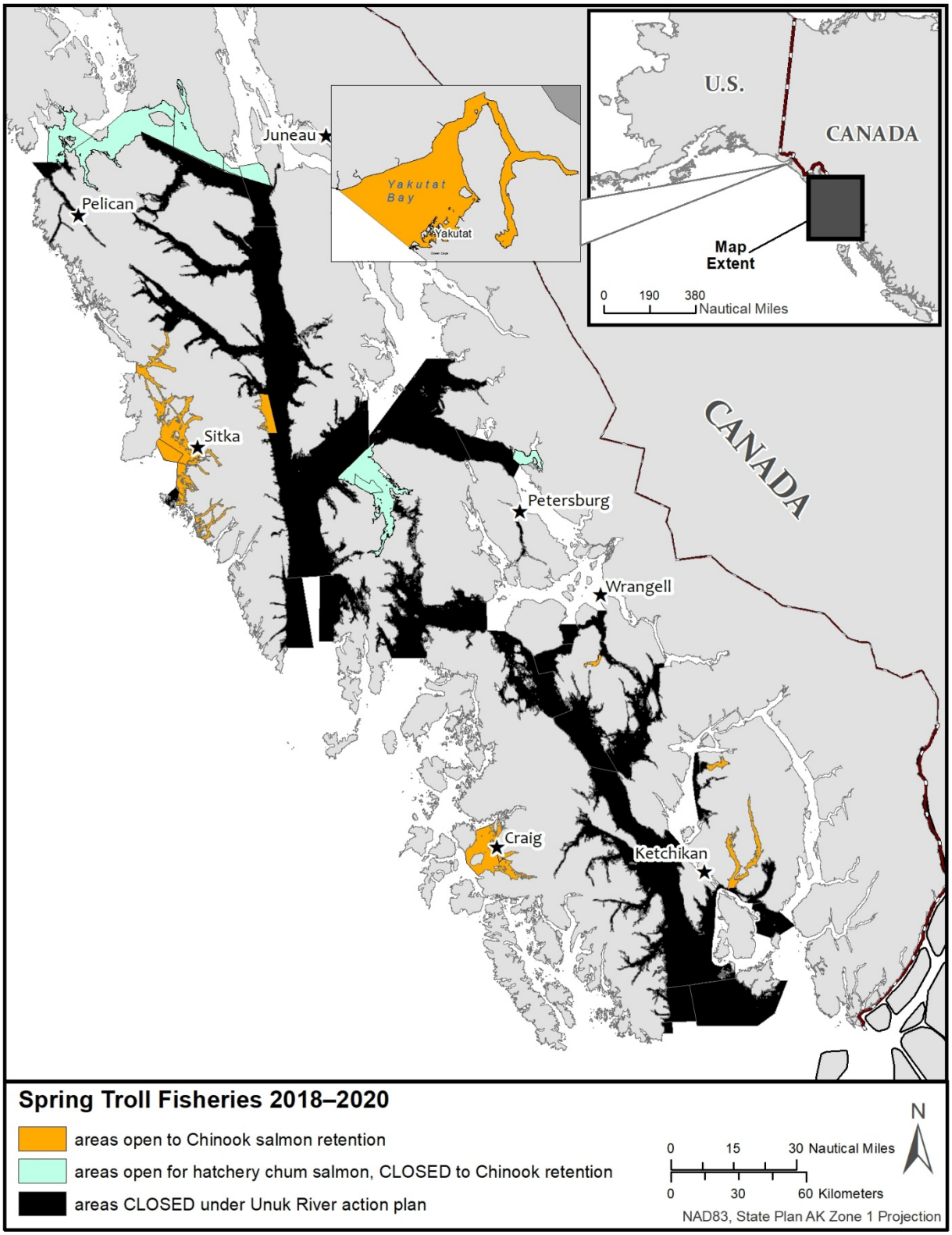

Figure 11.–Map of Southeast Alaska commercial spring troll fishing areas.

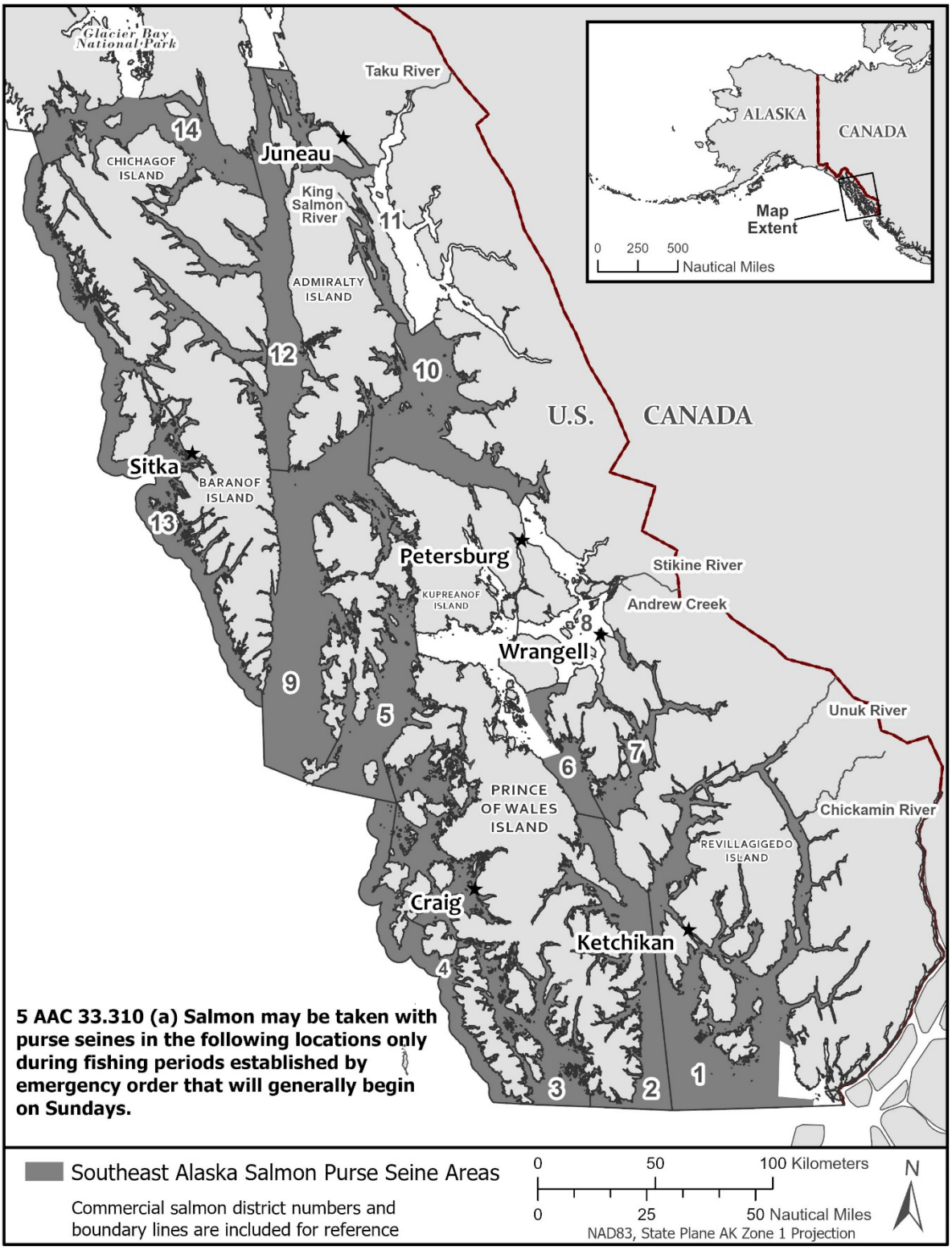

Figure 12.–Map of Southeast Alaska commercial purse seine fishing areas.

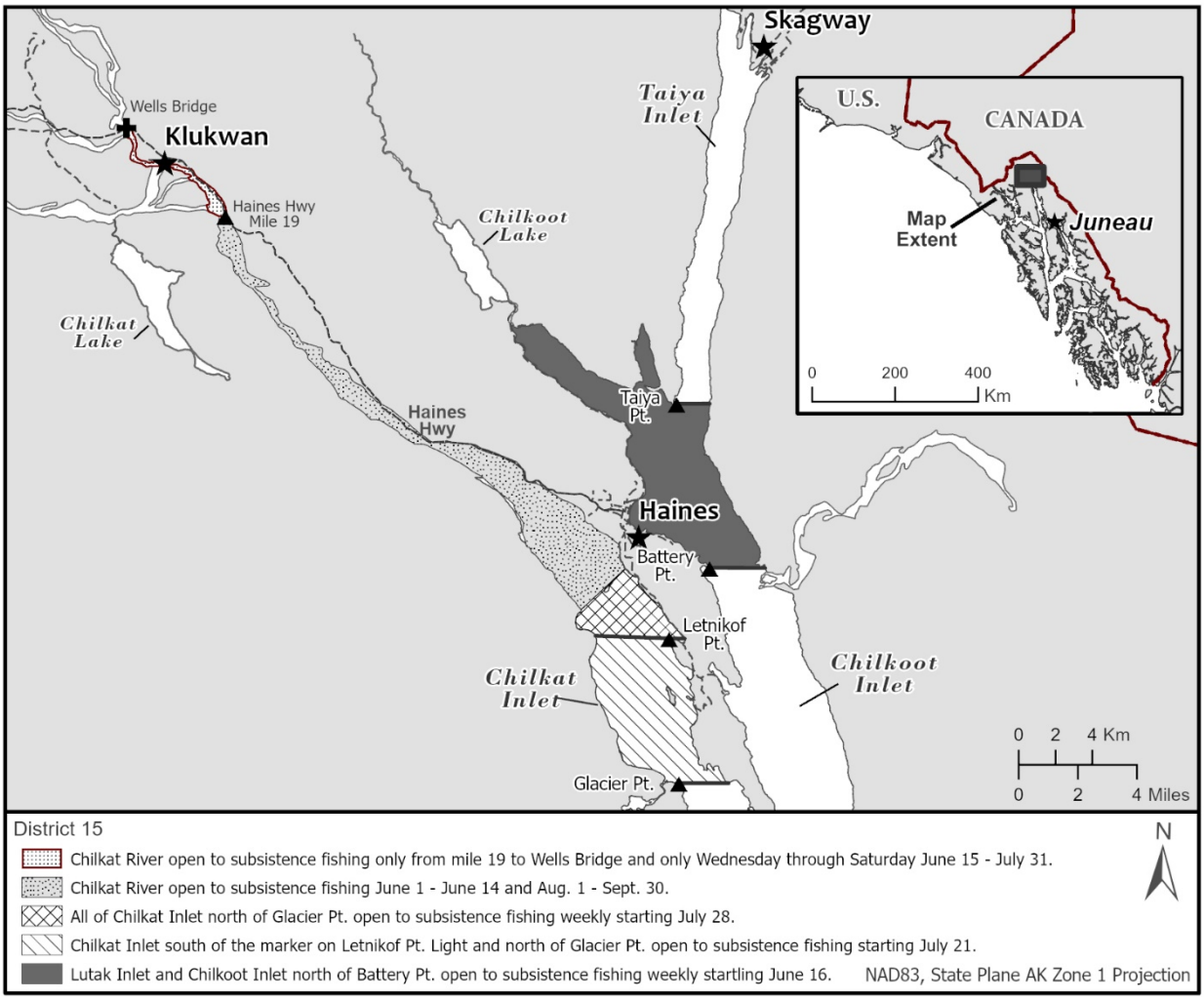

Figure 13.–Map of the Chilkat River and Inlet subsistence fishing areas (shaded area).