Regional Information Report No. 1J22-15

Stikine River and Andrew Creek Chinook Salmon Stock Status and Action Plan, 2022

By

Paul G. Salomone

Kristin R. Courtney

Grant T. Hagerman

Patrick A. Fowler

and

Philip J. Richards

June 2022

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

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

REGIONAL INFORMATION REPORT NO. 1J22-15

STIKINE RIVER AND ANDREW CREEK CHINOOK SALMON STOCK STATUS AND ACTION PLAN, 2022

By
Paul G. Salomone
Alaska Department of Fish and Game, Division of Commercial Fisheries, Petersburg

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

Phillip J. Richards and Kristin R. Courtney
Alaska Department of Fish and Game, Division of Commercial Fisheries, Douglas

and

Patrick A. Fowler
Alaska Department of Fish and Game, Division of Sport Fish, Petersburg

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

June 2022

The Regional Information Report Series was established in 1987 and was redefined in 2007 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as area management plans, budgetary information, staff comments and opinions to Alaska Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric, and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at: http://www.adfg.alaska.gov/sf/publications/.

Product names used in this publication are included for completeness and do not constitute product endorsement. The Alaska Department of Fish and Game does not endorse or recommend any specific company or their products.

Paul G. Salomone,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
16 Sing Lee Alley, Petersburg, Alaska

Grant T. Hagerman,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
304 Lake Street, Room 103, Sitka, Alaska

Phillip J. Richards and Kristin R. Courtney,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
802 3rd St., Douglas, Alaska

and

Patrick A. Fowler
Alaska Department of Fish and Game, Division of Sport Fish,
PO Box 667, Petersburg, Alaska

This document should be cited as follows:
Salomone, P G., K. Courtney, G. T. Hagerman, P. A. Fowler, and P. J. Richards. 2022. Stikine River and Andrew Creek Chinook salmon stock status and action plan, 2021. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J22-15, Douglas.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:
ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526
U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203
Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:
(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648,
(Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:
ADF&G, Division of Sport Fish, Research and Technical Services, 333 Raspberry Rd, Anchorage AK 99518 (907) 267-2375

TABLE OF CONTENTS

Page

LIST OF TABLES ii

LIST OF FIGURES ii

ABSTRACT 1

INTRODUCTION 1

STOCK ASSESSMENT BACKGROUND 2

Stikine River 2

- Escapement 3
- Harvest 3

Andrew Creek 4

- Escapement 4
- Harvest 5

ESCAPEMENT GOAL EVALUATION 5

Stikine River 5

Andrew Creek 5

Escapement Goal Recommendation 6

STOCK OF CONCERN RECOMMENDATION 6

Outlook 6

HABITAT ASSESSMENT 6

Stikine River 6

Andrew Creek 7

FISHERY MANAGEMENT OVERVIEW AND BACKGROUND 7

Pacific Salmon Treaty 7

Sport Fisheries 8

- Past Sport Fishery Management Actions 9

Commercial Fisheries 10

- Drift Gillnet Fisheries 10
- Troll Fisheries 11
- Purse Seine Fishery 11
- Past Commercial Fishery Management Actions 12
  - Drift Gillnet Fisheries 12
  - Purse Seine Fishery 14
  - Troll Fisheries 14

Subsistence and Personal Use Fisheries 14

ACTION PLAN MANAGEMENT OPTIONS FOR ADDRESSING STOCK OF CONCERN 15

Action Plan Goal 15

Action Plan Alternatives 15

- Action #1–Sport Fishery 15
- Action #2–Commercial Fisheries 16

TABLE OF CONTENTS (Continued)

Page

Action #3–Subsistence Fisheries 17

CONDITIONS FOR REDUCING MANAGEMENT RESTRICTIONS OR DELISTING A STOCK OF CONCERN 17

RESEARCH PLAN 18

Past and Current Research Projects for the Stikine River and Andrew Creek 18

REFERENCES CITED 19

LIST OF TABLES

Table **Page**

1. Stikine River large Chinook salmon terminal (District 8) harvest, escapement, and terminal run size and Little Tahltan River and Andrew Creek Chinook salmon escapements, 1979–2020. 21
2. Stikine River large[a] Chinook salmon escapement and harvest rate estimates, 2011–2020. Includes all SEAK harvest of Stikine River Chinook salmon. 22

LIST OF FIGURES

Figure **Page**

1. Map of Stikine River Chinook salmon coded wire tag Recoveries in SEAK fisheries, 1979, 1982–1986, and 2003–2020. 23
2. Map of the Stikine River watershed and primary Chinook salmon spawning tributaries. 24
3. Map of Southeast Alaska commercial purse seine fishing areas. 25
4. Map of traditional commercial drift gillnet fishing areas in Southeast Alaska. 26
5. Map of Southeast Alaska commercial troll fishing and Big Six management areas, Cape Suckling to Dixon Entrance. 27
6. Map of spring commercial troll fishing areas in Southeast Alaska. 28
7. Map depicting sport fishery regulations and boundaries to protect Stikine River and Andrew Creek Chinook salmon 29

ABSTRACT

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 Stikine River and Andrew Creek stocks of Chinook salmon (*Oncorhynchus tshawytscha*) be designated as stocks of "management concern." 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." Escapements of Stikine River Chinook salmon have fallen below the lower bound of the existing BEG (14,000 to 28,000 fish) each of the last 5 years (2016 to 2020). Since 2016, the department has implemented conservative management measures that have been effective in reducing the harvest of Stikine River Chinook salmon. Andrew Creek is a tributary to the Stikine River located entirely within Alaska. Chinook salmon escapements to Andrew Creek have been below the BEG (650 to 1,500 fish) in 4 of the previous 5 years. It is assumed actions that have reduced the harvest of Stikine River Chinook salmon have also reduced harvest of Andrew Creek Chinook salmon.

Key words: Chinook salmon, *Oncorhynchus tshawytscha,* Stikine River, Andrew Creek, 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 Stikine River and Andrew Creek stocks of Chinook salmon *Oncorhynchus tshawytscha* will be referred to as Stikine River Chinook salmon and Andrew Creek Chinook salmon, respectively.

In October 2020, the department recommended that the board designate Stikine River and Andrew Creek Chinook salmon as stocks of "management concern" at the 2021 cycle regulatory meeting for the Southeast Alaska (SEAK) and Yakutat Management Area. The Stikine River escapement goal was established for fish that spawn entirely in Canada. Andrew Creek is a major Chinook salmon producing tributary to the Stikine River located entirely within Alaska. Andrew Creek and Stikine River Chinook salmon are genetically distinct and are designated as separate stocks. The stock of concern recommendations were based on guidelines established in the SSFP, which describes a management concern 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 established escapement goal whether it be a sustainable escapement goal (SEG), biological escapement goal (BEG), or optimal escapement goal (OEG), or other specified management objective. Chronic inability is further 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." Stikine River Chinook salmon escapements were below the lower bound of the BEG range of 14,000 to 28,000 large fish (Chinook salmon ≥ 660 mm mid eye to tail fork length; primarily fish age 1.3 and older) for the past 5 consecutive years (2016 to 2020). Andrew Creek Chinook salmon escapements were below the lower bound of the BEG range of 650 to 1,500 large fish for 4 out of the past 5 years (2016, 2017, 2018, and 2020). In 2019, the Andrew Creek Chinook salmon escapement of 698 fish was within the escapement goal range.

The Stikine River originates in Canada and 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 treaty agreement was finalized in 2018 and implemented in 2019 and will

be in effect through 2028. Stikine River and Andrew Creek Chinook salmon runs are managed as an aggregate due to their close proximity and similar terminal migration routes and run timing, with Andrew Creek fish arriving slightly later than Stikine River fish.

Poor production and declines of Chinook salmon runs over at least the past decade have been well documented throughout much of the species' range (ADFG 2013). Declines in 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 stems from factors in the ocean. This idea is supported by information produced through the department's SEAK Chinook salmon stock assessment program, which includes estimating both freshwater and marine survival rates for 4 wild Chinook 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 Chinook salmon stocks found elsewhere along the coast. Freshwater survival rates of these 4 SEAK Chinook 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 action plan provides the department's assessment of Stikine River and Andrew Creek Chinook salmon 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 Chinook salmon escapement goals in these systems. The plan outlines board directed management actions for sport, commercial, and personal use fisheries, as well as research projects for these stocks. Criteria that must be met for future removal of the stock of concern designation are also described.

STOCK ASSESSMENT BACKGROUND

STIKINE RIVER

The Stikine River is a glacial, transboundary river system that supports an outside rearing stock of Chinook salmon (i.e., the ocean phase is spent in waters outside of SEAK). The Stikine River originates in British Columbia and drains over 52,000 km^2 (~20,000 mi^2) (Bigelow et al. 1995), much of which is inaccessible to anadromous fish because of natural barriers. The lower portion of the Stikine River flows approximately 56 km (~35 mi) through Alaska, and the Alaska portion of the drainage represents only 2% of the total drainage (Beak Consultants Limited 1981). The Stikine River enters the ocean in District 8, at the easternmost extreme of Sumner Straits and Frederick Sound, near Wrangell and Petersburg, Alaska (Figure 1). Stikine River Chinook salmon spawn entirely in Canada and are managed through provisions of Chapter 1 of the PST. The department manages Stikine River Chinook salmon in accordance with the PST and as required by the *United States-Canada Salmon Management Plan* (5 AAC 33.361). Per the PST, annual run size and terminal harvest estimates of Stikine River Chinook salmon are developed from inriver escapement surveys, mark–recapture projects, and genetic stock identification analyses. Stikine River Chinook salmon begin to enter SEAK waters in late March/early April; reach District 8 in late April/early May, and the run continues through mid-July. Per the PST, the Chinook salmon accounting period is through statistical week (SW) 29 (approximately mid-July) in the District 8 terminal area.

The Stikine River Chinook salmon run is 1 of 4 SEAK Chinook salmon stocks for which a full stock assessment program is conducted annually. Full stock assessment programs include coded-wire-tagging of juveniles, which, in combination with adult monitoring and sampling programs, provides estimates of smolt abundance, parr to smolt overwinter survival rates, marine survival rates (smolt-adult), total annual run size (escapement plus harvest by age), and total return, along with estimates of harvest (calendar year) and exploitation (brood year) rates. Coded-wire-tagging of juvenile Stikine River Chinook salmon (1978–1981 and 2000 to present) is conducted jointly by the department and Fisheries and Oceans Canada (DFO).

Escapement

The Stikine River is 1 of 11 Chinook salmon indicator stocks in SEAK that are monitored annually to estimate escapements of large fish. Total escapement was estimated using mark–recapture techniques from 1996 to present. In all prior years, Stikine River Chinook salmon escapements were estimated from expanded peak aerial survey index counts or expanded Chinook salmon counts at the Little Tahltan River weir (the Little Tahltan River is a Canadian tributary of the Stikine River). Since 1996, Stikine River Chinook salmon escapements averaged 24,450 large fish; however, the recent 10-average escapement of 15,000 fish and recent 5-year average escapement of 10,000 fish are substantially lower than the long-term average, and escapements have been below the BEG range for 5 consecutive years since 2016 (Table 1).

From 1996 to 2020, Chinook salmon escapements at the Little Tahltan weir averaged 6,200 large fish and represented 1% to 34% of the total Stikine River Chinook salmon escapement. Over the past 10 years, Chinook salmon escapement at the Little Tahltan weir averaged only 900 fish (an average 6% of the total Stikine River Chinook salmon escapement), and escapements have been below the Canadian Little Tahltan River escapement goal of 2,700 to 5,300 large fish for 14 consecutive years.

Harvest

Wild Chinook salmon juveniles (smolt 1978, and parr 1979–1981) were coded-wire-tagged from 1978 to 1981 and smolt from 2000 to present. Coded wire tag (CWT) recoveries of adult Stikine River Chinook salmon show that they are harvested throughout SEAK in commercial and sport fisheries during their spawning migration in late winter and spring (March to June), though most of the fish enter SEAK waters through Chatham and Sumner Straits (Figure 1). Small numbers are also harvested in federally managed subsistence fisheries in the freshwaters of the U.S. portion of the Stikine River. In addition, Stikine River Chinook salmon are harvested in Canadian inriver commercial, recreational (sport), and First Nation food (subsistence) fisheries.

Beginning in 2005, in years when a surplus of Stikine River Chinook salmon production existed, directed Chinook salmon fisheries were allowed in the marine waters in District 8 near Petersburg and Wrangell. Directed commercial and liberalized sport fisheries were implemented between 2005 and 2009; directed subsistence fishing for Chinook salmon under state regulations is prohibited in SEAK. Limited directed Chinook salmon fisheries also occurred in District 8 in 2011, 2012, 2015, and 2016. Total harvest rates during these years averaged about 50%, whereas harvest rates in other years averaged about 20%, and most of that harvest occurred in the late winter and spring commercial troll fisheries (mid-March through June), District 8 terminal fisheries (commercial drift gillnet and sport fisheries), and in Canadian inriver fisheries (commercial gillnet, recreation, and First Nations food fisheries). Due to conservation concerns, District 8 terminal and

spring troll fisheries were restricted from 2016 to 2020, and the harvest rate was reduced to less than 1% in 2018, 1% in 2019, and 2% in 2020 (Table 2).

Over the recent 10-year period from 2011 to 2020, the harvest rate on Stikine River Chinook salmon in all Alaska fisheries combined averaged 14% (range 0-24%; Table 2). Average harvest rates by fishery during that period were 6% in commercial troll, 4% in commercial net (drift gillnet and purse seine), and 4% in sport fisheries. Commercial troll fisheries are divided into winter, spring, and summer fishing periods and, until recently, most commercial troll harvest of Stikine River Chinook salmon occurred in the spring fishery. Management measures implemented in recent years to reduce harvest of Stikine River Chinook salmon included closing the spring troll fishery and not allowing retention of Chinook salmon in District 8 during the summer troll opening. Harvest in the sport fishery occurs primarily from May through July. Since 2017, however, retention of Chinook salmon in the District 8 sport fishery has been prohibited from April 1 through July 14.

The terminal subsistence harvest accounts for the smallest percentage of the total U.S. harvest of Stikine River Chinook salmon. The annual subsistence harvest averaged only 31 large Chinook salmon over the past 10 years (2011–2020) and 16 large Chinook salmon over the past 5 years (2016–2020; Table 1).

ANDREW CREEK

Andrew Creek is a clearwater tributary that flows into the lower Stikine River near the upper limit of tidal influence (Figure 2). The drainage, which includes 2 main tributaries, is located entirely within Alaska and covers about 200 km^2 (~77 mi^2). Only a small portion of the north fork of Andrew Creek is accessible to salmon, and most Chinook salmon spawn in the south fork. A weir was operated at Andrew Creek from 1976 to 1984 and in 1997 and 1998 to provide measures of escapement and to provide brood stock for hatcheries. Standardized foot and aerial surveys to count Chinook salmon have been conducted annually since 1985, and escapement estimates are developed annually from expanded foot or aerial surveys.

Andrew Creek Chinook salmon are genetically and behaviorally different from Stikine River Chinook salmon. Andrew Creek Chinook salmon predominately rear in inside waters of SEAK, while Stikine River Chinook salmon predominately rear in waters outside of SEAK (Richards et al. 2018). Run timing is also slightly later for Andrew Creek Chinook salmon (Courtney et al. *In prep*) and is expected to be similar to that observed for the Unuk River Chinook salmon run, which is also an inside-rearing stock. It could be expected that approximately 75% of Andrew Creek Chinook salmon will have passed through terminal marine fisheries and entered freshwater by July 14. Andrew Creek Chinook salmon are believed to enter the Stikine River primarily through Sumner Strait; however, since Andrew Creek Chinook salmon are primarily inside rearing, their migration route is not as well defined as Stikine River fish, which migrate from the Gulf of Alaska. Andrew Creek Chinook salmon are the broodstock for most hatchery-produced Chinook salmon in SEAK.

Escapement

Andrew Creek Chinook salmon escapement estimates are germane to large spawners and are based on expanded foot or aerial survey counts. An expansion factor of 1.95 is used to account for fish not observed during surveys. This expansion factor was developed based on the relationship between 5 years of paired weir and survey counts (Clark et al. 1998).

Since 1996, escapements averaged 1,150 large fish; however, the recent 10-year average escapement of 690 fish and the recent 5-year average escapement of 480 fish are substantially lower than the long-term average. From 1996 to 2015, Andrew Creek escapements met or exceeded the BEG range in all years except 1997, 1999, and 2012. From 2016 to 2020, Andrew Creek escapements failed to achieve the lower bound of the BEG in 4 of 5 years, despite restrictive actions taken since 2017 to reduce Chinook salmon harvest in sport and commercial fisheries (Table 1).

Harvest

Andrew Creek Chinook salmon are harvested in various commercial and sport fisheries throughout SEAK. Directed Stikine River Chinook salmon fisheries occurred in District 8 from 2005 to 2009, and in 2011, 2012, 2015, and 2016. Presumably, these directed fisheries increased harvest rates on Andrew Creek Chinook salmon; however, since these fish are not coded-wire-tagged it was not possible to generate estimates of harvest. Also, since Andrew Creek is a significant source of Chinook salmon broodstock in SEAK hatcheries, genetic stock identification methods cannot be used to distinguish wild Andrew Creek Chinook salmon from hatchery Chinook salmon produced from Andrew Creek broodstock. Instead, when sample sizes are adequate, researchers have used genetics to distinguish Andrew Creek Chinook salmon (wild and hatchery stocks combined) from other stocks in mixed stock harvests; estimated contributions of Andrew Creek origin hatchery fish (based on CWT recoveries) are then subtracted and the remainder by default are wild Andrew Creek Chinook salmon. Although this is a novel approach to estimating harvest, it is data limited and requires robust fishery sampling rates to be viable.

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.

STIKINE RIVER

In 1999, ADF&G established a BEG range of 14,000 to 28,000 large Chinook salmon for the Stikine River based on a spawner-recruit analysis by Bernard et al. (2000). The goal was reviewed by the Pacific Salmon Commission's (PSC) Chinook Technical Committee in 1999 and subsequently agreed to by the PSC. Several drainagewide or index goals previously developed by the U.S. and Canada under the PST were based on limited available data and professional judgement.

ANDREW CREEK

In 1985, ADF&G established an escapement goal of 750 large fish. The current BEG range of 650 to 1,500 large spawners was established in 1998, based on a stock-recruit analysis by Clark et al. (1998).

ESCAPEMENT GOAL RECOMMENDATION

The department has reviewed salmon escapement goals every 3 years prior to the Southeast and Yakutat board meeting and recommended no changes to the Stikine River Chinook salmon escapement goal since 2000 (Bernard et al. 2000) or the Andrew Creek Chinook salmon escapement goal since 1998 (Clark et al. 1998).

STOCK OF CONCERN RECOMMENDATION

Conservative management actions have been taken each year since the 2016 fishing season to reduce harvests of Stikine River Chinook salmon and pass fish to escapement. These actions have certainly also reduced harvest of Andrew Creek Chinook salmon, due to their close proximity and overlap in run timing. While these efforts have been successful in reducing harvest rates, Chinook salmon production has fallen to such low levels that escapements have been below the Stikine River BEG in 5 of the past 5 years and below the Andrew Creek BEG in 4 of the past 5 years. Therefore, during the October 2020 board work session, the department recommended that the board designate Stikine River and Andrew Creek Chinook salmon runs as stocks of management concern.

OUTLOOK

The department produces preseason forecasts for the total Situk, Chilkat, Taku, Stikine, and Unuk River Chinook salmon runs by December 1 of each year. The Stikine River Chinook salmon forecast uses sibling models in which the 2018 and 2019 estimated total returns from brood years 2015 and 2016 were used to predict the returns of age-5 (BY2016) and age-6 (BY2015) fish in 2021. The forecast uses the relationships observed in Stikine River Chinook salmon age classes and returns over the most recent 9 years. The 2021 Stikine River forecast is for a total run of 9,900 large fish, which is below the lower bound of the BEG range of 14,000 to 28,000 large spawners. Due to limited stock assessment data, run forecasts are not produced for Andrew Creek Chinook salmon.

HABITAT ASSESSMENT

STIKINE RIVER

The Stikine River drainage is the largest transboundary system in British Columbia and SEAK, covering an area of about 52,000 km^2; however, only around 15,000 km^2 are accessible to anadromous fish due to a large canyon that creates a natural barrier upstream of the confluence of the Tuya and Stikine Rivers. The mouth of the Stikine River is located near the communities of Wrangell and Petersburg in SEAK. The Stikine River has many clear water tributaries, though the drainage is predominately glacially influenced. Major anadromous tributaries of the Stikine River include the Tahltan, Tuya, Chutine, Scud, Porcupine, and Iskut Rivers. Most of the accessible Chinook salmon spawning habitat in the Stikine River drainage is in the Tahltan River and its tributaries, though major spawning populations are present in the Chutine and Iskut rivers. The upper portion of the Stikine River drainage is road accessible via the Telegraph Creek Road and the Stewart Cassiar Highway (Figure 2).

In 2014, a landslide occurred on the lower Tahltan River, a major Stikine River tributary that supports the largest population of Chinook salmon in the Canadian portion of the drainage. The

landslide created a partial impediment to fish movement during high flows but did not completely prevent upstream fish passage. DFO took steps to modify the slide so that the obstruction might be cleared during a high-water event. Unfortunately, from 2017 to 2019, the region experienced a series of drier than usual conditions and low precipitation that did not provide enough flow to move the debris downriver; however, the low flows allowed for unimpeded fish passage. In 2020, high water flows succeeded in moving a substantial portion of slide debris downriver, which improved conditions for fish passage.

ANDREW CREEK

Andrew Creek Chinook salmon spawn entirely within the U.S. portion of the Stikine River watershed and this population is genetically distinct from Stikine River Chinook salmon. The Andrew Creek watershed is generally intact with no serious habitat issues.

FISHERY MANAGEMENT OVERVIEW AND BACKGROUND

PACIFIC SALMON TREATY

Stikine River Chinook salmon are managed through provisions of Chapter 1 of the Pacific Salmon Treaty. The department manages the Stikine River Chinook salmon run in accordance with the PST and as required by the *United States-Canada Salmon Management Plan* (5 AAC 33.361). Per the PST, annual run size and terminal harvest estimates of Stikine River Chinook salmon are developed from inriver escapement surveys, mark–recapture projects, and genetic stock identification (GSI) analysis. The PST directs both countries to take actions necessary to ensure that escapement goals are achieved. Paragraph 4 of Chapter 1 outlines steps to be taken by both countries if escapement goals are not achieved in 3 consecutive years. Management actions in Canadian fisheries and Alaska District 8 terminal fisheries are reviewed prior to the season and resultant harvest and escapement are reviewed postseason by the Transboundary Rivers (TBR) Panel. Early season management actions are predicated on preseason forecasts of run size and are evaluated and then adjusted weekly based on inseason projections of terminal run size. Management actions are outlined in annual, bilateral PSC Transboundary Technical Committee (TTC) management plans (TTC 2020) developed prior to each fishing season. It should be noted that District 8 has an additional layer of management regulation developed through the board process in the *District 8 King Salmon Management Plan* (5 AAC 33.368) and the *Stikine River King Salmon Management Plan* (5 AAC 47.057), which provide additional guidance to the department.

The preseason forecast serves as the principal run size estimate until inseason run projections become available (typically by SW 21 in mid-May). Inseason projections are generated by the Stikine Chinook Management Model (SCMM), or a mark–recapture estimate, or a combination of these 2 methods. On average (1996–2019), approximately 25% of the run has passed the Kakwan Point stock assessment site in the lower Stikine River by May 25. An inseason run estimate before May 25 may be adopted if agreed to bilaterally. Weekly mark–recapture estimates are typically available by SW 22. If available, mark–recapture estimates are used as the principal run size estimator or used in concert with the SCMM in assessing weekly run sizes. Catch performance of the Canadian lower Stikine River commercial fishery, in conjunction with daily water levels, are monitored and can also be used, in part, to assess run size. From 2005 to 2016, the average of the mark–recapture and SCMM estimates was deemed to be the most reliable predictor of terminal

run size and was the principal method used to predict terminal run size after SW 22. From 2017 to 2019, only the SCMM was used to predict terminal run size because insufficient mark–recapture data were available inseason.

From 2017 to 2020, preseason forecasts indicated the Stikine River Chinook salmon runs would be within (2017) or below the escapement goal range (2018–2020). As a result, the Canadian inriver Chinook salmon assessment fishery was not operated, and further restrictions were enacted in the Canadian fisheries. Restrictions included delaying the start of the commercial fishery by up to 2 weeks, nonretention of Chinook salmon in commercial and recreational fisheries, mesh size restrictions in the commercial fishery, and voluntary reduction in the First Nation's food fishery. In U.S. District 8 fisheries, additional management actions included area, time, and mesh restrictions in the commercial drift gillnet fishery, nonretention of Chinook salmon in the sport fishery through mid-July, nonretention of Chinook salmon in commercial troll fisheries through mid-July and closure of the federally managed Chinook salmon subsistence fishery. In addition, management measures outlined in the 2018 Unuk River king salmon action plan (Lum and Fair 2018) to reduce harvest of Chinook salmon in commercial and sport fisheries in southern SEAK further served to reduce harvest of Stikine River Chinook salmon.

Actions taken in U.S. fisheries per the PST to conserve Canadian origin stocks will also benefit Andrew Creek Chinook salmon, which overlap in run timing with Stikine River Chinook salmon. Beginning in 2016, Chinook salmon harvests declined substantially; however, despite a progression of increasing restrictions, escapements have followed a similar declining trend. In the 5 years from 2016 to 2020, Chinook salmon escapement goals (Stikine River and Andrew Creek) were achieved only at Andrew Creek and only in 2019, although the escapement in that year was near the lower bound of the escapement goal range.

SPORT FISHERIES

Stikine River and Andrew Creek Chinook salmon contribute to the mixed stock marine sport fishery in the vicinity of Petersburg and Wrangell, and to a lesser extent in other areas of SEAK (Table 2, Figure 1). The sport fishery for Chinook salmon primarily occurs between May and mid-July with some effort continuing throughout the year. The District 8 marine sport fishery is managed in accordance with the PST, the *Stikine River King Salmon Management Plan* (5 AAC 47.057) and the *Southeast Alaska King Salmon Management Plan* (5 AAC 47.055). In years when the Stikine River preseason forecast indicates an allowable catch will be available, additional sport fishing opportunity is provided as prescribed by the *Stikine River King Salmon Management Plan*. In years when the preseason forecast indicates no allowable catch will be available, but the BEG is expected to be achieved, the regional Chinook salmon regulations as prescribed by the *Southeast Alaska King Salmon Management Plan* are enacted. In years when the BEG is not expected to be achieved, restrictive action is taken in the sport fishery to achieve escapement goals. Management action may change according to inseason projections.

The Crystal Lake Hatchery produces Chinook salmon which provide sport fishing opportunity largely in the Blind Slough/Wrangell Narrows Terminal Harvest Area (THA), near Petersburg. A smaller remote release was also recently established in District 8 at City Creek, near Petersburg, where adult returns first occurred in 2017. Since 2017, the City Creek release site has been managed to provide sport fish opportunity while minimizing interception of wild stock Chinook salmon.

The sport harvest of Stikine River Chinook salmon is estimated by sampling marine sport harvest for genetic tissue samples and CWTs. Since 2005, GSI analysis has been used in most years to estimate the harvest of Stikine River Chinook salmon in the District 8 sport fishery. In 2018 and 2020, however, very low harvests of Chinook salmon resulted in insufficient sample sizes to use this method. In those years, the sport harvest of Stikine River Chinook salmon was instead estimated by subtracting the contribution of Alaska hatchery-produced Chinook salmon (determined from CWT analysis) from the total estimated sport harvest; the remaining harvest of wild fish was then assumed to consist entirely of Stikine River Chinook salmon. This method results in the most conservative estimate, since not all of the wild fish are Stikine River Chinook salmon. Outside of District 8, CWT recoveries of tagged Stikine River Chinook salmon are expanded to estimate sport harvest.

Past Sport Fishery Management Actions

Management actions taken in the sport fishery to reduce the harvest of Stikine River and Andrew Creek Chinook salmon were taken each year 2016 to 2020. Detailed actions are included below.

2016

The Stikine River preseason forecast was for a terminal run of 33,900 large Chinook salmon, which allowed for increased sport fishing opportunity within the marine waters of District 8 beginning May 1, 2016 in accordance with the *Stikine River King Salmon Management Plan*. Inseason run projections later indicated Stikine River Chinook salmon abundance was lower than forecasted and an allowable catch was no longer available. Sport fishing regulations returned to the regionwide bag and possession limits, effective June 2, 2016.

2017

The Stikine River preseason forecast was for a terminal run of 18,300 large Chinook salmon. While the run was forecasted to be within the escapement goal range, restrictive actions were implemented due to the uncertainty associated with preseason forecasts and the failure to meet the Stikine River Chinook salmon escapement goal in 2016. An EO was issued to reduce harvest of Stikine River Chinook salmon while continuing to provide limited sport fishing opportunity in District 8 by establishing a bag and possession limit of 1 Chinook salmon, 28 inches or greater in length. Inseason run projections later indicated that the terminal run would likely fall below the lower bound of the escapement goal range. Management actions were adjusted to further restrict the sport fishery by closing the majority of District 8 to fishing for Chinook salmon, effective May 25, 2017. The resulting sport harvest of large Stikine River Chinook salmon in District 8 was reduced by approximately 68% (139 fish) when compared to the estimated harvest in 2016 (438 fish), when no restrictive actions were taken.

2018

The Stikine River preseason forecast was for a terminal run of 6,900 large Chinook salmon, indicating the escapement goal would not be met. Restrictive action was implemented in the sport fishery to prohibit retention of Chinook salmon in District 8 and a small portion of District 7 between April 1 and July 14. Additional regionwide actions were implemented to protect wild SEAK Chinook salmon including prohibiting the retention of Chinook salmon in the majority of the Petersburg/Wrangell management area (Districts 6, 7, 8 10, and portions of Districts 5 and 9; Figure 7) between April 1 and June 14. Limited sport fishing opportunity was provided for Alaska hatchery-produced Chinook salmon in the City Creek release site between June 1

and July 31; the bag and possession limit was set at 1 Chinook salmon, any size, and fishing area was reduced to a very limited area immediately adjacent to the City Creek release site. These actions reduced the sport harvest of Stikine River Chinook salmon to 12 fish (Table 1).

2019

The Stikine River preseason forecast was for a terminal run of 8,250 large Chinook salmon, indicating the escapement goal would not be met. Restrictive action was implemented in the sport fishery to prohibit retention of Chinook salmon in District 8 and a portion of District 7 between April 1 and July 14. Additional regionwide actions were implemented to protect wild SEAK Chinook salmon including prohibiting the retention of Chinook salmon in the majority of the Petersburg/Wrangell management area (Districts 6, 7, 8 10, and portions of Districts 5 and 9; Figure 7) between April 1 and June 14. Because a larger run of hatchery Chinook salmon was expected at the City Creek release site in 2019, the area boundaries were expanded to allow marine sport trolling, but the opening date was delayed until June 15 to avoid interception of Stikine River and Andrew Creek Chinook salmon. Total sport harvest of Stikine River Chinook salmon during 2019 was estimated to be 2 fish.

2020

The Stikine River preseason forecast for large Chinook salmon indicated the escapement goal would not be met. Restrictive action was again implemented in the sport fishery to prohibit the retention of Chinook salmon in District 8 and a portion of District 7 between April 1 and July 14, and retention of Chinook salmon was prohibited in the majority of the Petersburg/Wrangell management area (Figure 7) between April 1 and June 14. The opening date in the City Creek release site was delayed until June 15, and area boundaries and bag and possession limits were identical to those used in 2019. Total sport harvest of Stikine River Chinook salmon during 2020 was estimated to be 93 fish. Due to insufficient genetic samples, CWT methods were used to apportion the harvest within District 8, resulting in 100% of harvest being attributed to Stikine River Chinook salmon—the actual percentage of Stikine River Chinook salmon in the sport harvest was likely much lower.

COMMERCIAL FISHERIES

Drift Gillnet Fisheries

Drift gillnet fisheries occur in marine waters adjacent to Prince of Wales and Zarembo Islands in District 6, and in waters offshore of the saltwater terminus of the Stikine River in District 8. Waters open to commercial drift gillnet fishing in District 6 include Sections 6-A (Sumner Strait), 6-B, 6-C, and a portion of 6-D (Clarence Strait). The District 8 commercial drift gillnet fishery occurs in Sections 8-A and 8-B in waters immediately adjacent to the Stikine River delta (Figure 4). Management of the District 6 and 8 fisheries is interrelated due to their close proximity and the similar migration patterns of some of the salmon stocks harvested in both areas. Salmon stocks of Stikine River origin are harvested in District 8 and to a lesser degree in District 6. Management of Chinook salmon in District 8 and sockeye salmon (*O. nerka)* in Districts 6 and 8 is conducted in accordance with the PST. Chinook salmon have the earliest run timing, and early-season management in District 8 (May and first 2 weeks of June) is based on Stikine River Chinook salmon abundance. In June, as the Chinook salmon run begins to wane, management emphasis shifts to sockeye salmon. Since 2017, directed sockeye salmon fishing in District 8 has been delayed until the bulk of the Stikine River Chinook salmon run has passed through the district. On

average, about 90% of the Chinook salmon run has passed through District 8 by SW 25, 95% by SW 26, and 98% by SW 27 (approximately late June). Area, time, and mesh size restrictions were used in District 8 to reduce harvest of Stikine River Chinook salmon. In District 6, time and mesh size restrictions were implemented.

Troll Fisheries

The commercial troll fishery in SEAK (Figure 5) 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 Chinook salmon, with a guideline harvest range of 43,000−47,000 non-Alaska hatchery-produced fish, plus the number of Alaska hatchery-produced Chinook salmon harvested during the winter fishery. Under provisions of the 2018 Unuk River king salmon action plan, 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 Alaskan hatchery-produced Chinook and chum salmon (*O. keta)*, but are now limited to outer coastal areas or near hatcheries, hatchery release sites, and in areas of low wild SEAK Chinook salmon abundance (Figure 6). Terminal area fisheries occur adjacent to hatcheries or at remote release sites. Most of the annual troll Chinook 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 Chinook salmon harvest is divided into 2 retention periods. The first retention period targets 70% of the remaining annual troll Chinook 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 Chinook salmon retention period, which typically occurs in mid-August, and follows any closure of the troll fishery for coho salmon (*O. kisutch)* conservation.

Management decisions that potentially result in the reduction of commercially troll caught Stikine River and Andrew Creek Chinook salmon include fishery closures, delayed fishery openings, and reduced area. The closure of the late winter troll fishery in mid-March is designed to reduce harvest of early-run wild Chinook salmon from all SEAK systems. Both CWT and GSI analyses show these stocks are encountered at increasing rates in the inside waters beginning in late March and early April. Directed spring troll Chinook salmon fisheries in May and June are closed to help reduced harvest of these stocks during the peak migration period. Implementing nonretention during the first summer troll fishery opening in areas adjacent to Chinook salmon spawning systems reduces troll harvest on those stocks.

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 3). Although the areas specified above are designated purse seine fishing areas, specific open areas and fishing times are established inseason by EO.

Chinook salmon are not targeted in traditional purse seine fisheries but are harvested incidentally. Chinook salmon less than 28 inches may be retained but not sold. Chinook salmon greater than 28 inches may be only retained during periods established by EO. Purse seine fisheries can occur in lower Clarence Strait (District 2), Ernest Sound (District 7), and Frederick Sound (District 10) in early July and northern Chatham Strait (District 12) and eastern Icy Strait (District 14) in mid- to late July, near or after Stikine River and Andrew Creek Chinook salmon runs have passed through those areas. Regionwide Chinook salmon retention periods typically do not begin until mid- to late July (SWs 29 to 30) but have been delayed further in recent years to reduce harvest of Unuk River and Chickamin River Chinook salmon, which have later run timing.

Past Commercial Fishery Management Actions

Commercial salmon fisheries are coordinated regionally by gear type and are opened and closed by EO. Fishery managers adjust time and area and, in some situations, impose gear stipulations for regularly scheduled openings in response to harvestable surpluses and conservation concerns. Below is an outline of significant management measures taken in the commercial net and troll fisheries that reduced harvest of Stikine River and Andrew Creek Chinook salmon from 2016 to 2020.

Drift Gillnet Fisheries

District 6 Drift Gillnet Fishery

The District 6 drift gillnet fishery is managed under provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Rivers Panel, as directed by Chapter 1 of the Pacific Salmon Treaty (TTC 2020). In addition, District 6 is managed in accordance with the McDonald Lake sockeye salmon action plan (Walker et al. 2018) for SWs 29–31. Management measures aimed at reducing harvest of Chinook salmon were taken in 2018–2020:

2016–2017

No specific actions taken.

2018

Delayed the start of the District 6 drift gillnet fishery by 1 week until SW 25 (June 17). Fishing time was restricted to 2 days in SW 25. A maximum gillnet mesh size restriction of 6 inches was implemented through SW 27 (the first week of July).

2019

Delayed the start of the District 6 drift gillnet fishery by 1 week until SW 25 (June 16). Fishing time was restricted to 2 days during SW 25. A maximum gillnet mesh size restriction of 6 inches was implemented through SW 27 (the first week of July).

2020

Delayed the start of the District 6 drift gillnet fishery by 1 week until SW 26 (June 21). A maximum gillnet mesh size restriction of 6 inches was implemented through SW 28.

District 8 Drift Gillnet Fishery

The District 8 drift gillnet fishery is managed under provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Rivers Panel, as directed by Chapter 1 of the Pacific Salmon Treaty (TTC 2020). Regulatory management plans developed through the board process are in effect concurrently with TTC plans. Management measures to reduce harvest of Chinook salmon were taken in 2016–2020:

2016

The directed Chinook salmon fishery was open for 1 day per week for the first 3 weeks of the fishery (SW 19, SW 20, and SW 21) The fishery was then closed after inseason run size projections fell below levels that would provide for an Alaska allowable catch of Stikine River Chinook salmon. These actions resulted in an estimated harvest of 1,060 large Stikine River Chinook salmon.

2017

The start of the sockeye salmon fishery was delayed 1 week to SW 26 (June 25), area open to fishing was restricted, and fishing time was restricted to 3 days. In SW 27, open area was restricted, and fishing was open 4 days. In SW 28, because inseason run projections increased, fishing was permitted in a larger area. In SW 29 the inseason run projection decreased and fishing area was again reduced. A maximum gillnet mesh size restriction of 6 inches was implemented through SW 29. These actions resulted in an estimated harvest of 19 large Stikine River Chinook salmon.

2018

The start of the sockeye salmon fishery was delayed 3 weeks until SW 27 (first week in July), area open to fishing was restricted, and fishing time was restricted to 3 days. In SW 28, fishing time remained at 3 days and open area was further reduced. In SW 29, fishing time was 4 days and area restrictions were again reduced. A maximum gillnet mesh size restriction of 6 inches was implemented through SW 29. These actions resulted in an estimated harvest of 5 large Stikine River Chinook salmon.

2019

The start of the sockeye salmon fishery was delayed by 2 weeks until SW 26, with area restrictions implemented and fishing time restricted to 2 days. In SW 27, open area increased and fishing time remained at 2 days. Fishing time and area remained unchanged in SW 28 and SW 29. A maximum gillnet mesh size restriction of 6 inches was implemented through SW 29. These actions resulted in an estimated harvest of 112 large Stikine River Chinook salmon.

2020

The start of the sockeye salmon fishery was delayed by 2 weeks until SW 27, with large area restrictions and fishing time restricted to 3 days. In SW 28, area remained unchanged, but fishing time decreased to 2 days. In SW 29, open area increased and fishing time remained at 2 days. A maximum gillnet mesh size restriction of 6 inches was implemented through SW 29. These actions resulted in an estimated harvest of 62 large Stikine River Chinook salmon.

Purse Seine Fishery

The purse seine fishery in southern SEAK begins in THA fisheries in early to mid-June, and traditional common property fisheries typically do not begin until early to late July (SW 28). Outside of the THAs, commercial purse seine fishing generally begins in Section 7-A (upper Ernest Sound), which is not in the migratory path of Stikine River Chinook salmon. Purse seine gear is not permitted in District 8, and seine openings in District 6 do not usually occur until late July/early August—after Stikine River and Andrew Creek Chinook salmon have migrated through the area. Management measures taken in 2018–2020 included:

- Hatchery THA openings were delayed from June 1 to June 15.
- The purse seine fishery was closed to retention of Chinook salmon throughout the season in 2018, through SW 29 in 2019, and through SW 31 in 2020.

Troll Fisheries

The commercial troll fishery was managed in accordance with the 2018 Unuk River king salmon action plan. The broadscale regional provisions of this action plan also reduced harvest of Stikine River and Andrew Creek stocks. The troll fishery in District 8 was also managed under provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Rivers Panel as directed by Chapter 1 of the Pacific Salmon Treaty (TTC 2020). Management measures provided within, and supplementary to, the 2018 Unuk River king salmon action plan and under provisions of TTC management plans (TTC 2020) included:

2018–2020

- 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 Chinook salmon fisheries in SEAK were reduced to portions of District 1, and the outer coast in Districts 3, 13, and 183. All other districts remained closed through June 30.
- All THA openings in central SEAK were delayed until June 1.
- Hatchery chum salmon fishery openings in Districts 9, 10, 12, and 14 were delayed until June 15 and closed to retention of Chinook salmon.
- District 8 was closed to retention of Chinook salmon during the first summer troll Chinook salmon retention period in July.

SUBSISTENCE AND PERSONAL USE FISHERIES

There are no state-managed subsistence salmon fisheries, and no personal use salmon fisheries for the fresh waters of either the Stikine River or Andrew Creek. The Federal Subsistence Board has made a positive customary and traditional use finding for all fish on federal public lands for all residents of Southeast Alaska and the Yakutat Area, including the Stikine River. Upwards of 100 federal permits are issued on an annual basis for subsistence fishing in the Stikine River, where sockeye salmon are the targeted species, although the regulations allow harvest of Chinook and coho salmon. The permit is a household permit, and only 1 permit per household is issued. The program is administered by the U.S. Forest Service and there has been no directed Chinook salmon subsistence fishery since 2016. There has been minimal incidental harvest of Chinook salmon during the sockeye salmon fishery (average 16 fish per year). Chinook salmon caught incidentally

during permitted subsistence fishing are legal to retain. From 2017 to 2020, fishing was delayed until July 21 to allow most of the Chinook salmon run to pass through the area.

ACTION PLAN MANAGEMENT OPTIONS FOR ADDRESSING STOCK OF CONCERN

ACTION PLAN GOAL

The primary goal of this plan is to rebuild Stikine River and Andrew Creek Chinook salmon runs to consistently achieve escapements within the escapement goal range and to consistently provide harvestable yield.

ACTION PLAN ALTERNATIVES

Draft action plans were presented to the Board of Fisheries at the March 2022 Southeast Alaska and Yakutat Finfish and Shellfish meeting in Anchorage. The draft plans contained different options for each of the fisheries: commercial, sport, personal use, and subsistence. The board chose the options for each fishery that was the least restrictive but gave the department direction to apply more restrictive measures where and/or when appropriate. The board also gave the department direction to relax measures where and/or when the department determined there was opportunity to do so. The following actions for each fishery were the least restrictive actions presented in the draft action plan in Record Comment 7.

Action #1–Sport Fishery

Objective: Reduce the sport harvest of Stikine River and Andrew Creek Chinook salmon.

Background: The department has used EO authority to reduce the harvest of Stikine River and Andrew Creek Chinook salmon by reducing bag and possession limits, restricting fishing time and area, and prohibiting the retention of Chinook salmon. Restrictive action was taken in the sport fishery during 2017, and more restrictive regulations were applied in 2018 and continued through 2020. Apart from the City Creek release site, where Alaska hatchery-produced Chinook salmon return, the waters adjacent to the Stikine River and Andrew Creek (District 8 and a portion of District 7) have been closed to retention of Chinook salmon from April 1 through July 14 (Figure 7). This action protects Stikine River Chinook salmon throughout the time period when these fish would be available for harvest in terminal marine fisheries.

In addition to the action in the terminal area, regionwide action implemented annually since 2018 to protect SEAK wild stock Chinook salmon has prohibited the retention of Chinook salmon in the majority of the Petersburg/Wrangell management area (Figure 7) area between April 1 and June 14. Collectively, these actions dramatically reduced the annual harvest of Stikine River Chinook salmon in the SEAK sport fishery to an annual average of only 36 fish over the last 3 years (2018–2020). These actions are expected to have a similar reduction in harvest of Andrew Creek Chinook salmon.

Specific Action to Implement the Objective: Use EO authority to restrict the Chinook salmon sport fishery while providing opportunity to harvest Alaska hatchery Chinook salmon at the City Creek release site.

1. **In waters adjacent to the Stikine River:** Retention of Chinook salmon is prohibited from April 1 through July 14. Includes the waters of District 8 as described in 5 AAC 47.057(d)

and a portion of District 7 in the waters of Eastern Passage west of a line from a point on Wrangell Island at 56°22.19' N lat, 132°11.75' W long to a point on the mainland shore at 56°22.76' N lat, 132°10.62' W long (Figure 7).

2. **In most marine waters within the Petersburg/Wrangell management area:** Retention of Chinook salmon is prohibited from April 1 through June 14. Includes the waters of District 5 north of line between Point Baker and a point on the shore of Kuiu Island at 56° 20.80' N lat, 133° 50.87' W long, District 6, District 7 excluding the waters of Eastern Passage west of a line from a point on Wrangell Island at 56°22.19' N lat, 132°11.75' W long to a point on the mainland shore at 56°22.76' N lat, 132°10.62' W long, District 9 north of line between Point Ellis and Patterson Point, and District 10 as described in 5 AAC 33.200.
3. **In the City Creek release site:** Between June 15 and July 14 the bag and possession limit is 1 Chinook salmon of any size. The area boundaries are described as the marine waters adjacent to City Creek between a point on the Mitkof Island shore, at 56°47.83' N. lat., 132°51.57' W long to 56°48.30' N lat, 132°51.50' W long to 56°49.77' N lat, 132°55.78' W long and back to the Mitkof Island shore at Hungry Point (56°49.36' N lat, 132°56.38' W long), and includes the freshwaters of City Creek.
4. **Remainder of Petersburg/Wrangell management area:** Regional Chinook salmon regulations established under the *Southeast Alaska King Salmon Management Plan* apply.

Action #2–Commercial Fisheries

Specific Action to Implement the Objective: Manage per the PST and take management actions that reduced the commercial harvest of Stikine River/Andrew Creek Chinook salmon.

1. Drift Gillnet Fisheries
   Continue to manage the District 6 and 8 drift gillnet fisheries according to provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Rivers Panel, as directed by Chapter 1 of the Pacific Salmon Treaty. Management actions per the annual management plan include but are not limited to: delay start of District 8 drift gillnet fishery for at least 2 weeks and delay the start of the District 6 drift gillnet fishery up to 1 week; implement area restrictions in District 8 near the mouth of the Stikine River through SW 28; and restrict mesh size to a maximum of 6 inches through SW 28 in District 6 and through SW 29 in District 8.
2. Troll Fisheries
   Implement broadscale regional troll fishery provisions outlined in the 2018 Unuk River king salmon action plan that also benefit both Stikine River and Andrew Creek Chinook salmon. The actions taken that conserved these stocks under the 2018 Unuk River king salmon action plan from 2018 to 2020 include:
   - Notwithstanding any remaining portion of the seasonal guideline harvest level, the winter troll fishery will close by EO in all waters of SEAK on March 15, 6 weeks prior to the regulatory closing date.
   - Spring troll Chinook salmon fisheries will be limited to outer coastal areas near hatchery or hatchery release sites in Districts 1, 3, 13, and 183—all other waters of the region will be closed.
   - Hatchery-produced chum salmon fishery openings in Districts 9 and 10 will be delayed until June 15 and closed to the retention of Chinook salmon.

- Continue to manage the troll fishery in District 8 fisheries according to provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Rivers Panel, as directed by Chapter 1 of the Pacific Salmon Treaty. Management actions taken in the District 8 troll fishery will include closing the waters of District 8 to Chinook salmon retention and possession during the first general summer troll Chinook salmon retention period.

3. Purse Seine Fishery
   Continue to implement nonretention of Chinook salmon until at least the third week of July in traditional fisheries and in THAs that do not have hatchery Chinook salmon runs.
4. Terminal Harvest Area Fisheries
   Continue to delay the start of the Anita Bay THA from May 1 to June 1.

Action #3–Subsistence Fisheries

No board action recommended. The subsistence fishery is managed under provisions of annual management plans produced by the Transboundary Technical Committee and approved by the Transboundary Rivers Panel, as directed by Chapter 1 of the Pacific Salmon Treaty. In addition, the subsistence fishery is federally managed by the USFS; therefore, the board has no jurisdiction over the fishery. Department management staff recommend actions to the USFS based on stock status and preseason expectations of allowable catch. If there is no allowable catch, the department recommends closure of the directed subsistence Chinook salmon fishery.

CONDITIONS FOR REDUCING MANAGEMENT RESTRICTIONS OR DELISTING A STOCK OF CONCERN

1. If the lower bound of the biological escapement goal range is met or exceeded in 3 consecutive years or is met in 4 out of 6 consecutive years, the department may recommend removing the Stikine River and/or Andrew Creek Chinook salmon runs 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 escapement goal is met.
3. In the event the upper bound of the biological escapement goal range is exceeded in 2 consecutive years, management restrictions may be relaxed or set aside.
4. Should the TTC determine that a harvestable surplus of Stikine River Chinook salmon is available, directed Chinook salmon fisheries in District 8 may occur pursuant to the annual TBR management plan under provisions of the PST. Before implementing directed fisheries, Andrew Creek Chinook salmon run size and escapement would have to be considered.

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.

RESEARCH PLAN

PAST AND CURRENT RESEARCH PROJECTS FOR THE STIKINE RIVER AND ANDREW CREEK

The department has conducted extensive research and monitoring projects on Stikine River Chinook salmon, beginning with mark recapture studies in 1996 and coded-wire-tagging studies implemented in 2000 through the present. Stikine River Chinook salmon is an escapement and exploitation rate indicator stock recognized by the Pacific Salmon Commission and the Chinook Technical Committee. PST obligations include producing the full suite of stock assessment data for Stikine River Chinook salmon: smolt production, marine survival, harvest (calendar year) and exploitation (brood year) rates, and estimates of escapement, as well as the age-sex-length composition of those escapements. The Andrew Creek Chinook salmon run is 1 of the 11 indicator stocks used by the department to monitor Chinook salmon runs in SEAK. The following research programs have been and are being conducted to gather detailed information about Stikine River and Andrew Creek Chinook salmon:

1. Stikine River and Andrew Creek Chinook salmon are part of the coastwide Chinook salmon genetic baseline (Seeb et al. 2007).
2. Standardized aerial and foot escapement surveys on Andrew Creek have been conducted annually since the 1970s (Richards and Frost 2018).
3. Mark–recapture studies to estimate total inriver abundance of Stikine River Chinook salmon began in 1996 and continue to present (Jaecks et al. 2016).
4. Age, sex, and length composition, CWT, and escapement sampling are conducted annually (Richards and Frost 2018; Jaecks 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 and various studies designed to estimate catch, harvest, and fishing effort and biological parameters such as age, sex, and size (Jaenicke et al. 2015; Buettner et al. 2017).
6. Radiotelemetry studies were conducted in 1997, 2005, 2015 and 2016 to assess migration behavior and spawning distribution of Stikine River Chinook salmon (Richards et al. 2008; Courtney *In prep*).
7. In 2013, the department conducted interviews with Wrangell and Petersburg residents on their local traditional knowledge (LTK) of Stikine River Chinook salmon, through funding from the Chinook Salmon Research Initiative. LTK was defined as knowledge that had either developed as a result of personal observation or that which was both local and intergenerational (Ream and Merriam 2017).
8. In 2003–2004, the department documented the historical and contemporary harvests of salmon in the Wrangell area, including on the Stikine River. This study also included ecological observations, historical changes, and interactions between subsistence, commercial, and sport fishers (Paige et al. 2009).

REFERENCES CITED

ADFG (Alaska Department of Fish and Game). 2013. Chinook salmon stock assessment and research plan. Alaska Department of Fish and Game Special Publication No. 13-01, Anchorage.

Beak Consultants Limited. 1981. Preliminary analysis of the potential impact of hydroelectric development of the Stikine River system on biological resources of the Stikine River estuary. Report for the British Columbia Hydro and Power Authority. Richmond, British Columbia, Canada.

Bigelow, B. B., B. J. Bailey, M. M. Hiner, M. F. Schellekens, and K. R. Linn. 1995. Water resources data Alaska water year 1994. U. S. Geological Survey Water Data Report AK-94-1, Anchorage.

Bernard, D. R., S. A. McPherson, K. A. Pahlke, and P. Etherton. 2000. Optimal production of chinook salmon from the Stikine River. Alaska Department of Fish and Game, Fishery Manuscript No. 00-1, Anchorage.

Buettner, A. R., A. M. Reynolds, and J. R. Rice. 2017. Operational Plan: Southeast Alaska and Yakutat salmon commercial port sampling 2016–2019. Alaska Department of Fish and Game, Regional Operational Plan ROP.CF.1J.2017.01, Douglas.

Clark, J. H., S. A. McPherson, and D. M. Gaudet. 1998. Biological escapement goal for Andrew Creek Chinook salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 5J98-08, Juneau.

Courtney, K. R., P. Richards, J. Williams, R. Peterson, and J. Mackenzie-Grieve. *In prep*. Tagging response, landslide passage, distribution and migration behavior of Stikine River Chinook salmon 2015–2016. Alaska Department of Fish and Game, Fishery Data Series, Anchorage.

Fried, S. M. 1994. Pacific Salmon spawning escapement goals for the Prince William Sound, Cook Inlet, and Bristol Bay areas of Alaska. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Special Publication No. 8, Juneau.

Jaecks, T., S. J. H. Power, P. Richards, and I. Boyce. 2016. Spawning escapement of Chinook salmon in the Stikine River, 2016–2018. Alaska Department of Fish and Game, Regional Operational Plan ROP.SF.1J.2016.08, Anchorage.

Jaenicke, M. J., D. Tersteeg, and S. J. H. Power. 2015. Southeast Alaska marine boat sport fishery harvest studies, 2015–2016. Alaska Department of Fish and Game, Regional Operational Plan SF.1J.2015.06, Anchorage.

Jaenicke, M., D. Tersteeg, and S. J. H. Power. 2017. Operational Plan Amendment: Southeast Alaska marine boat sport fishery harvest studies, 2015–2017. Alaska Department of Fish and Game, Regional Operational Plan SF.1J.2017.02, Anchorage.

Lum, J. L., and L. Fair. 2018. Unuk River king salmon stock status and action plan, 2018. Alaska Department of Fish and Game, Regional Information Report No. 1J18-04, Douglas.

Paige, A.W., S. Churchill, N. Ratner, M. Turek, and P. Coiley-Kenner. 2009. Local knowledge, harvest patterns, and community use of salmon in Wrangell, Alaska. Department of Fish and Game Division of Subsistence, Technical Paper No. 323, Juneau.

Ream, J. T., and J. Merriam. 2017. Local and Traditional Knowledge of Stikine River Chinook Salmon; a Local Perspective on a Vital Commercial, Sport, and Subsistence Fish. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 430, Anchorage.

Richards, P. J., K. A. Pahlke, J. A. Der Hovanisian, J. L. Weller, and P. Etherton. 2008. Abundance and distribution of the Chinook salmon escapement on the Stikine River in 2005, and production of fish from brood year 1998. Alaska Department of Fish and Game, Fishery Data Series No. 08-33 Anchorage.

Richards, P., J. Williams, S. J. H. Power, I. Boyce, A. Foos, and B. Huebschwerlen. 2018. Migration, tagging response, and distribution of Chinook salmon returning to the Taku River, 2018. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan ROP.SF.1J.2018.06, Anchorage.

REFERENCES CITED (Continued)

Richards, P., N. Frost, and R. Peterson. 2018. Escapements of Chinook salmon in Southeast Alaska and transboundary rivers in 2018. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan No. SF.1J.2018.09, Juneau.

Seeb, L. W., A. Antonovich, M. A. Banks, T. D. Beacham, M. R. Bellinger, S. M. Blankenship, M. R. Campbell, N. A. Decovich, J. C. Garza, C. M. Guthrie III, T. A. Lundrigan, P. Moran, S. R. Narum, J. J. Stephenson, K. J. Supernault, D. J. Teel, W. D. Templin, J. K. Wenburg, S. F. Young, and C. T. Smith. 2007. Development of a standardized DNA database for Chinook salmon. Fisheries 32:540–552., DOI: 10.1577/1548-8446(2007)32[540:DOASDD]2.0.CO;2.

TTC (Transboundary Technical Committee). 2020. Salmon management and enhancement plans for the Stikine, Taku, and Alsek Rivers, 2020. Pacific Salmon Commission Report TCTR (20)-1, Vancouver.

Walker, S., T. Thynes, D. Gray, K. S. Reppert, A. W. Piston, and S. C. Heinl. 2018. McDonald Lake sockeye salmon stock status and action plan 2018. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J18-03, Douglas.

Table 1.–Stikine River large Chinook salmon terminal (District 8) harvest, escapement, and terminal run size and Little Tahltan River and Andrew Creek Chinook salmon escapements, 1979–2020.

	Harvest						Stikine	Stikine	Little	Andrew Creek
Year	Troll	Gillnet	Sport	Subsis-tence	Total U.S.	Total Canada	Escape-ment	Terminal Run Size	Tahltan Weir	Escape-ment
1979	384	39	1,759	–	2,182	1,636	–	–	–	327
1980	519	334	2,498	–	3,351	2,367	–	–	–	282
1981	565	252	2,022	–	2,839	1,617	–	–	–	536
1982	721	1,001	2,929	–	4,651	2,568	–	–	–	672
1983	978	24	2,634	–	3,636	1,456	–	–	–	366
1984	1,025	10	2,171	–	3,206	726	–	–	–	389
1985	2,803	15	2,953	–	5,771	1,203	–	–	3,114	624
1986	2,434	44	2,475	–	4,953	2,056	–	–	2,891	1,381
1987	2,310	63	1,834	–	4,207	2,528	–	–	4,783	1,537
1988	1,162	103	2,440	–	3,705	2,833	–	–	7,292	1,100
1989	1,660	198	2,776	–	4,634	3,018	–	–	4,715	1,034
1990	1,604	208	4,283	–	6,095	2,610	–	–	4,392	1,295
1991	1,204	581	3,657	–	5,442	1,807	–	–	4,506	780
1992	224	475	3,322	–	4,021	2,635	–	–	6,627	1,517
1993	335	707	4,227	–	5,269	2,757	–	–	11,437	2,067
1994	375	1,210	2,140	–	3,725	2,303	–	–	6,373	1,115
1995	346	605	1,218	–	2,169	2,001	–	–	3,072	669
1996	283	783	2,464	–	3,530	2,931	28,787	–	4,821	653
1997	311	1,736	3,475	–	5,522	4,701	26,808	–	5,547	571
1998	119	129	1,438	–	1,686	2,354	25,779	–	4,873	950
1999	437	564	3,668	–	4,669	3,935	19,781	–	4,733	1,180
2000	525	604	2,581	–	3,710	4,245	26,056	–	6,631	1,346
2001	680	6	2,263	–	2,949	3,517	63,129	–	9,730	2,055
2002	983	21	3,077	–	4,081	3,438	50,455	57,480	7,476	1,708
2003	1,426	84	3,252	–	4,762	2,866	47,015	53,776	6,492	1,160
2004	2,767	4,522	2,310	–	9,599	4,048	48,490	62,137	16,381	2,991
2005	2,969	21,233	3,665	15	27,882	20,049	39,836	87,767	7,253	1,979
2006	1,418	17,259	3,346	37	22,060	15,776	24,405	62,241	3,860	2,124
2007	1,574	7,057	2,218	36	10,885	10,510	14,559	35,954	562	1,736
2008	951	4,905	1,453	26	7,335	7,932	18,352	33,619	2,663	981
2009	188	244	887	31	1,350	2,146	12,972	16,468	2,245	628
2010	427	238	586	53	1,303	3,164	15,148	19,615	1,057	1,205
2011	463	970	648	61	2,142	3,141	14,511	19,794	1,058	936
2012	506	1,209	591	46	2,353	5,210	22,332	29,895	720	587
2013	434	455	636	41	1,566	3,370	16,784	21,720	878	920
2014[a]	677	204	697	44	1,622	3,327	24,374	29,323	169	1,261
2015	306	379	781	34	1,500	4,258	21,597	27,355	450	796
2016	190	1,060	438	20	1,707	3,235	10,554	15,496	921	402
2017	35	19	139	14	207	603	7,335	8,145	428	349
2018	0	5	12	22	39	165	8,603	8,807	453	482
2019	0	112	2	19	133	333	13,817	14,283	536	698
2020	0	62	93	6	161	389	9,753	10,303	347	470
Averages										
2011–20	261	448	404	31	1,143	2,403	14,966	18,501	596	690
2016–20	45	252	137	16	449	945	10,012	11,384	537	480

[a] In 2014, Stikine River escapement was adjusted for estimated mortality that occurred at the Tahltan landslide.

Table 2.–Stikine River large[a] Chinook salmon escapement and harvest rate estimates, 2011–2020. Includes all SEAK harvest of Stikine River Chinook salmon.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2016-20	2011-20
Escapement[b]	14,511	22,332	16,784	24,374	21,597	10,554	7,335	8,603	13,817	9,753	10,012	14,966
Total Harvest	8,744	10,765	7,240	7,072	7,761	6,114	1,858	204	790	1,010	1,995	5,156
Total Run	23,255	33,097	24,024	31,446	29,358	16,668	9,193	8,807	14,607	10,763	12,008	20,122
Harvest Rates												
Troll Winter	0.02	0.05	0.04	0.00	0.02	0.02	0.04	0.00	0.01	0.00	0.01	0.02
Troll Spring	0.05	0.04	0.01	0.05	0.04	0.02	0.03	0.00	0.00	0.02	0.01	0.03
Troll Summer R1[c]	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00
Troll Summer R2[c]	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Total Troll	0.12	0.09	0.06	0.05	0.05	0.05	0.08	0.00	0.02	0.02	0.03	0.06
Sport Non-terminal	0.03	0.01	0.03	0.00	0.02	0.03	0.04	0.00	0.00	0.00	0.01	0.02
Sport Terminal District 8	0.03	0.02	0.03	0.02	0.03	0.03	0.02	0.00	0.00	0.01	0.01	0.02
Total Sport	0.06	0.02	0.06	0.02	0.04	0.06	0.06	0.00	0.00	0.01	0.03	0.04
Subsistence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gillnet Non-terminal	0.02	0.01	0.02	0.04	0.01	0.01	0.00	0.00	0.01	0.02	0.01	0.02
Gillnet District 8 Terminal	0.04	0.04	0.02	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.02	0.02
Total Gillnet	0.06	0.05	0.04	0.04	0.02	0.07	0.00	0.00	0.01	0.03	0.03	0.04
Net Other	0.01	0.01	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Total U.S.	0.24	0.17	0.16	0.12	0.12	0.17	0.14	0.00	0.03	0.06	0.09	0.14
Total Canada	0.14	0.16	0.14	0.11	0.15	0.19	0.07	0.02	0.02	0.04	0.08	0.12
Total	0.38	0.33	0.30	0.22	0.26	0.37	0.20	0.02	0.05	0.09	0.17	0.26

Note: Gray cells indicate the escapement for a given year was below the lower bound of the BEG.

[a] Harvest estimates in District 8 are germane to large (≥660mm MEF), harvest outside of District 8 is germane to large (age ≥1.2) as determined by CWT recoveries.

[b] The BEG range for the Stikine River is 14,000 to 28,000 large Chinook salmon.

[c] Troll Summer R1 (retention period 1) occurs in July of the current year; Troll Summer R2 (retention period 2) occurs from August through September of the prior year.

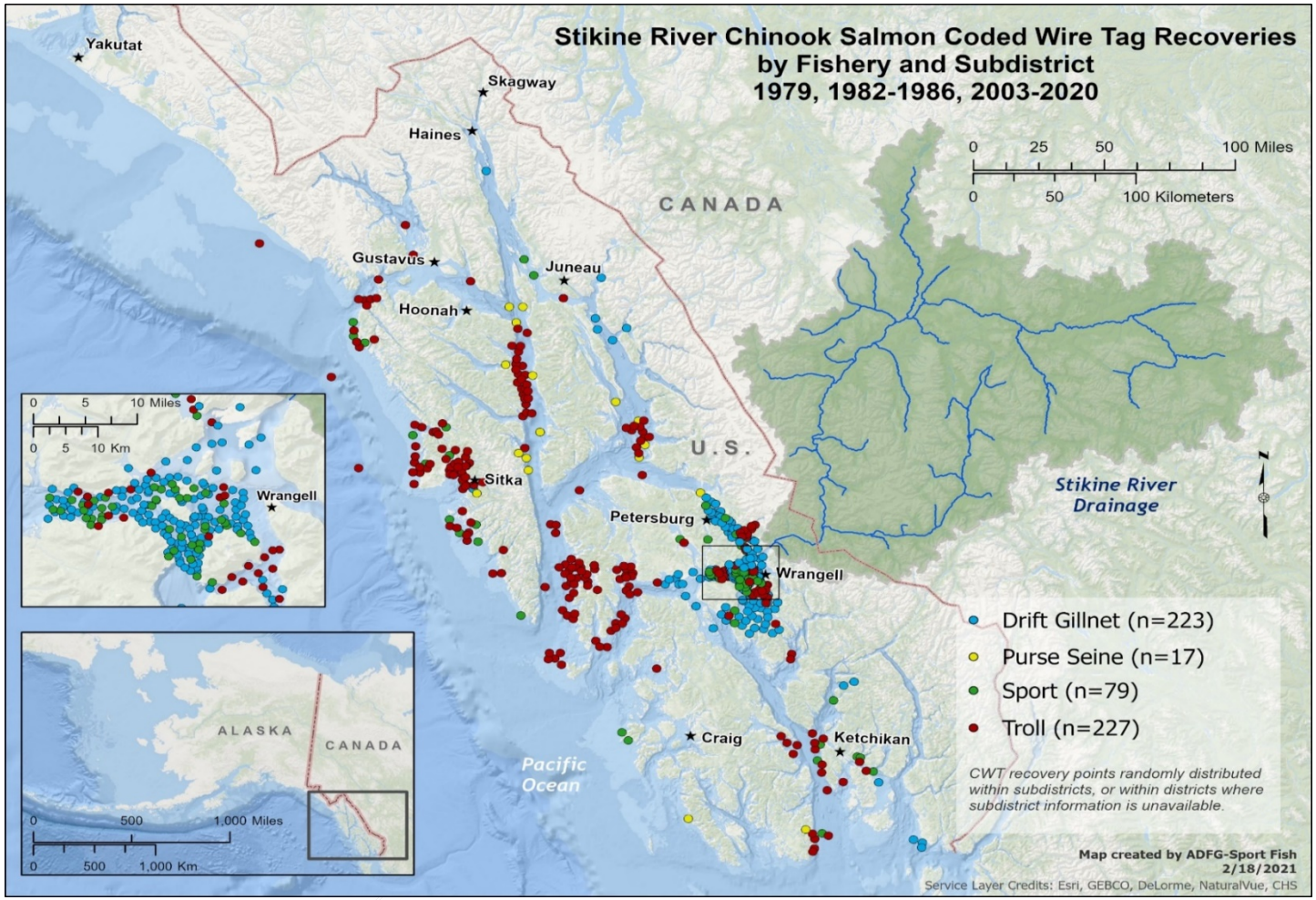

Figure 1.–Map of Stikine River Chinook salmon coded wire tag Recoveries in SEAK fisheries, 1979, 1982–1986, and 2003–2020.

Note: Tag recoveries were for the entire years which included recoveries in winter and spring troll fisheries as well as directed fisheries in District 8. Large scale directed Chinook salmon fisheries have not occurred in District 8 since 2008, the winter troll fishery has been restricted since 2018, and spring troll fisheries have largely been closed since 2018. This map is intended to show where Stikine River Chinook salmon were harvested over the course of the year in absence of large-scale fishery restrictions.

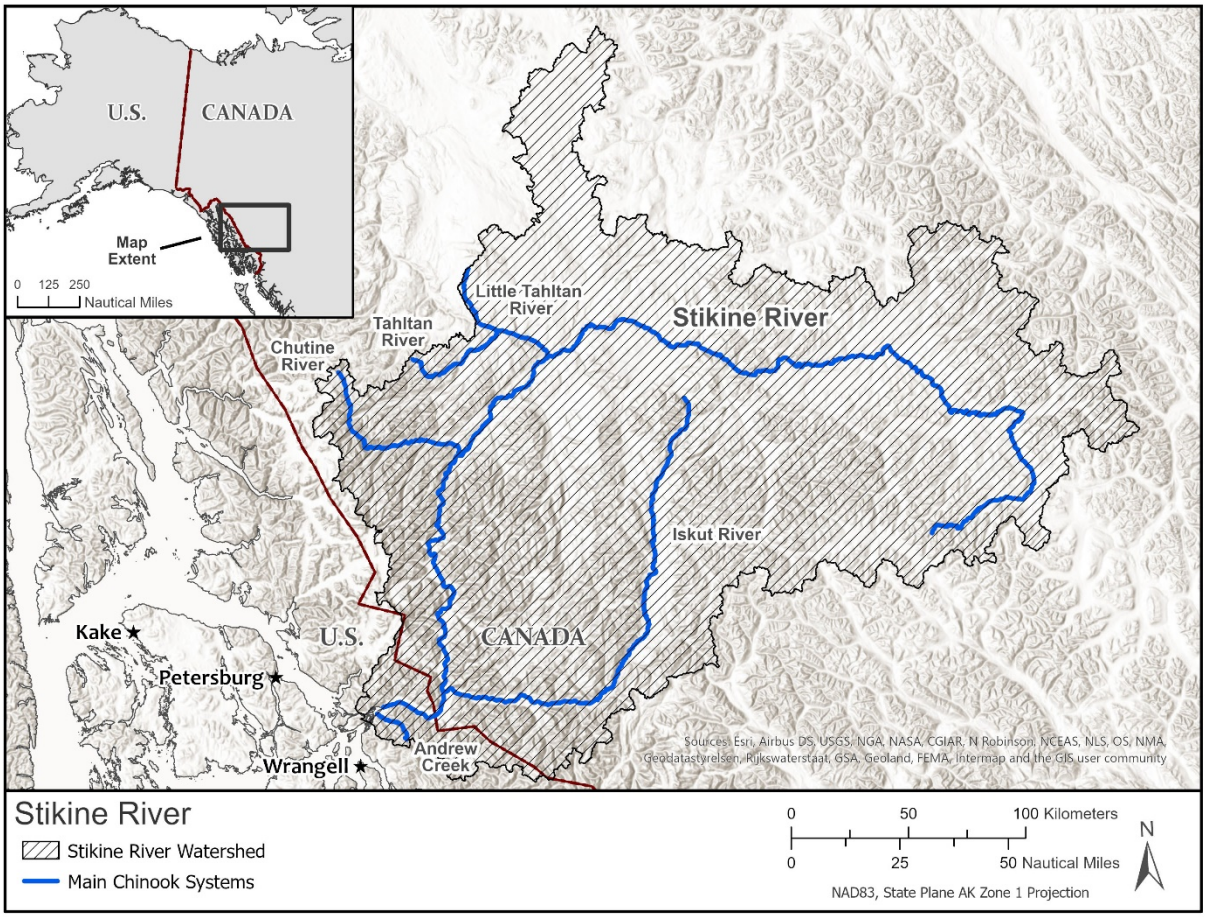

Figure 2.–Map of the Stikine River watershed and primary Chinook salmon spawning tributaries.

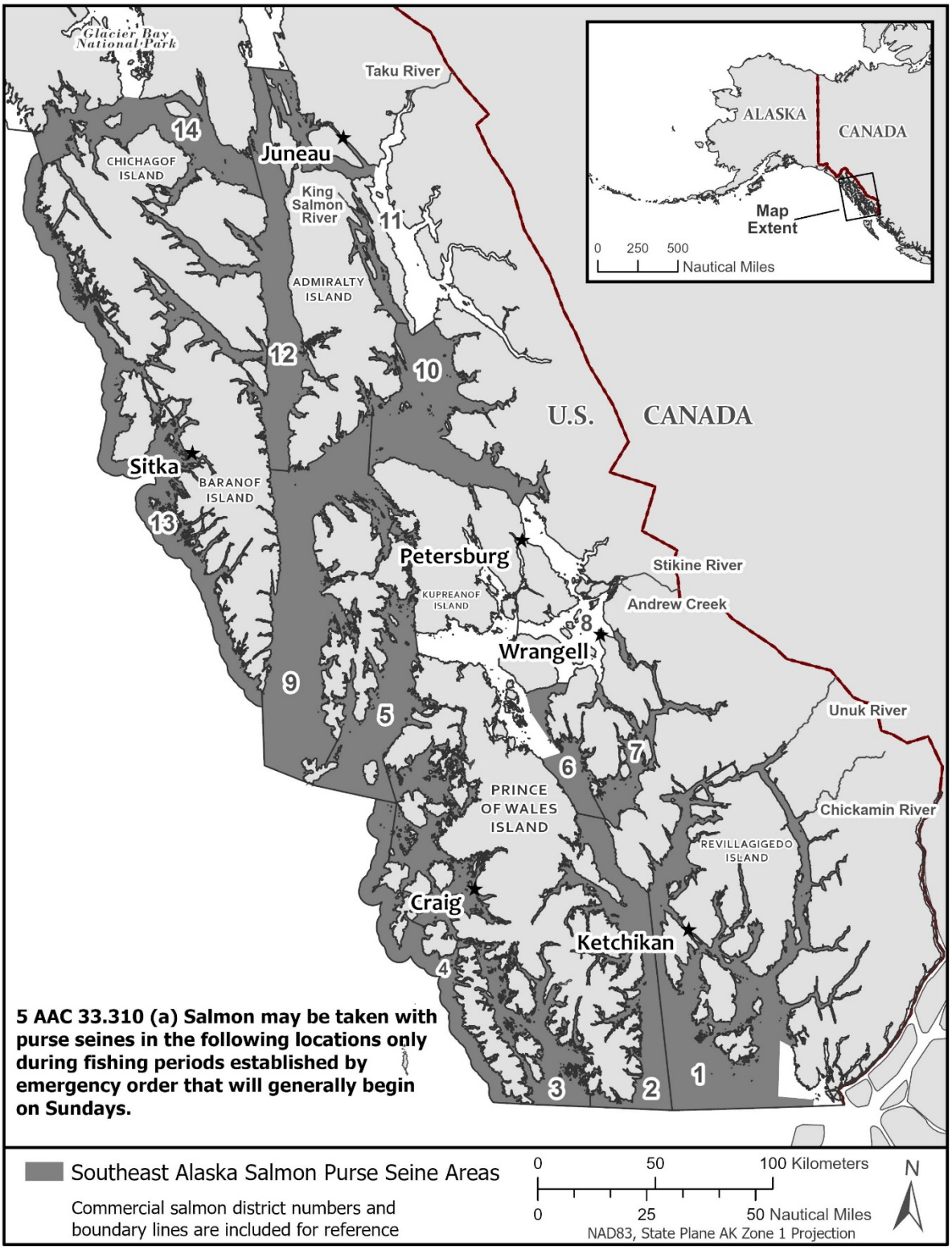

Figure 3.–Map of Southeast Alaska commercial purse seine fishing areas.

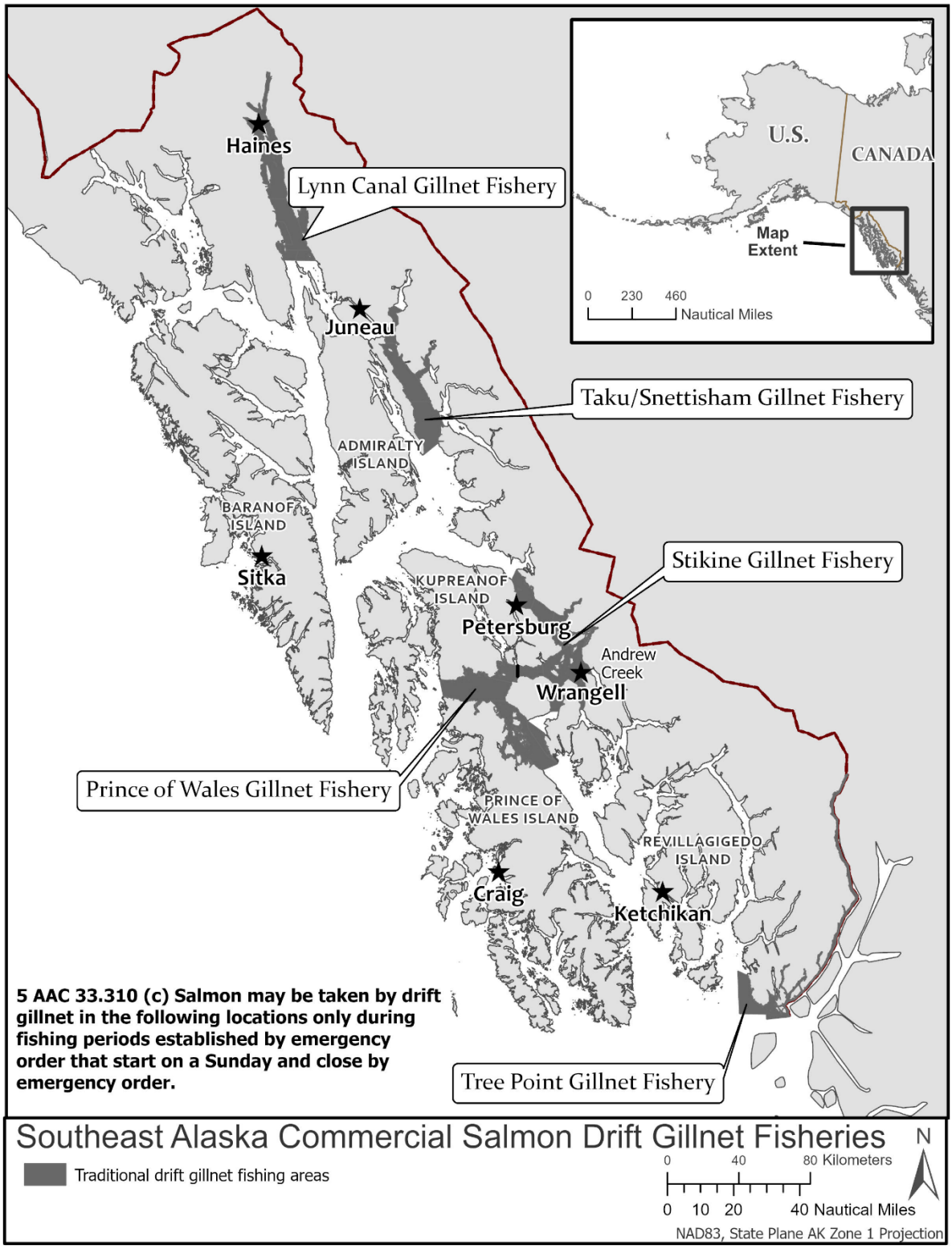

Figure 4.–Map of traditional commercial drift gillnet fishing areas in Southeast Alaska.

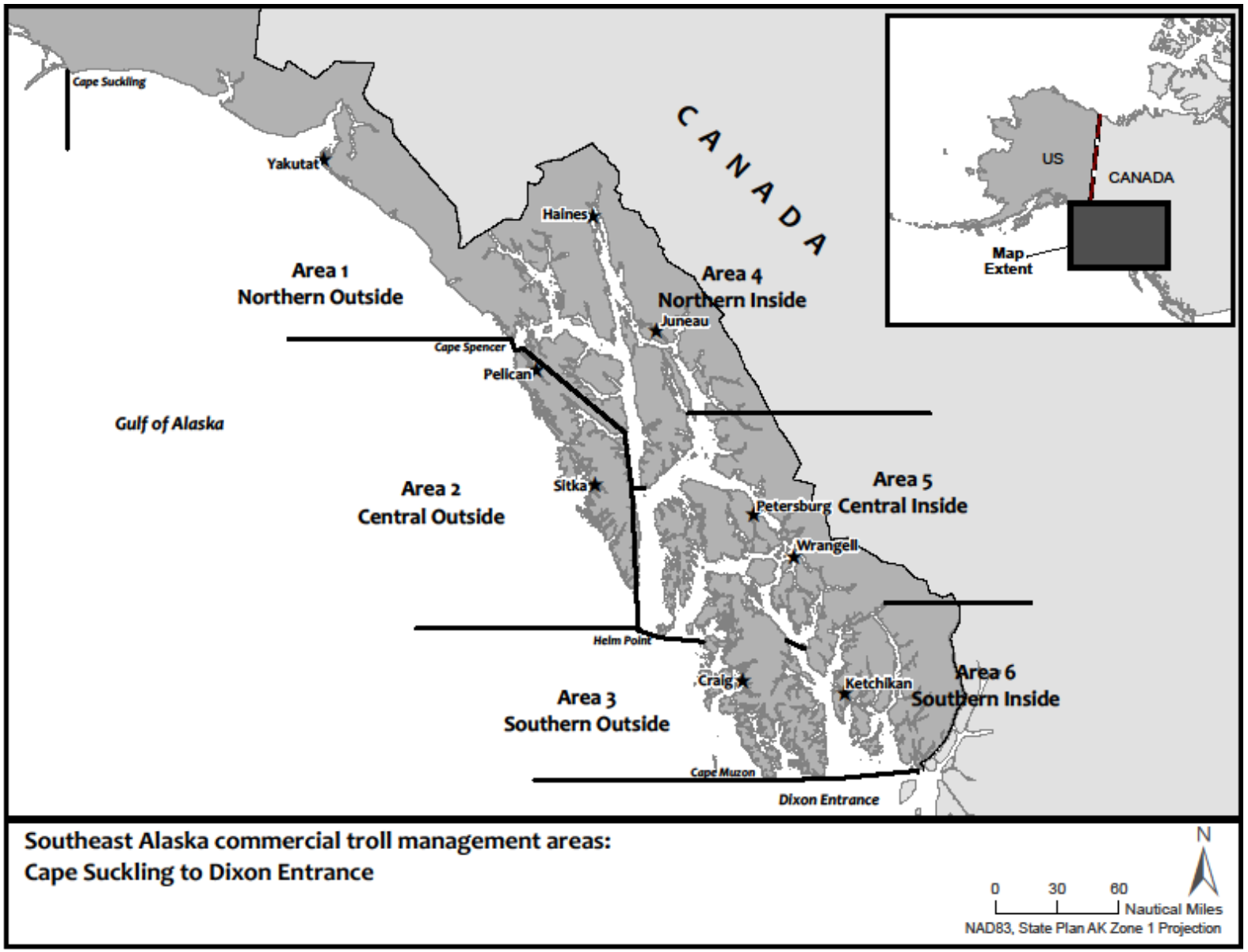

Figure 5.–Map of Southeast Alaska commercial troll fishing and Big Six management areas, Cape Suckling to Dixon Entrance.

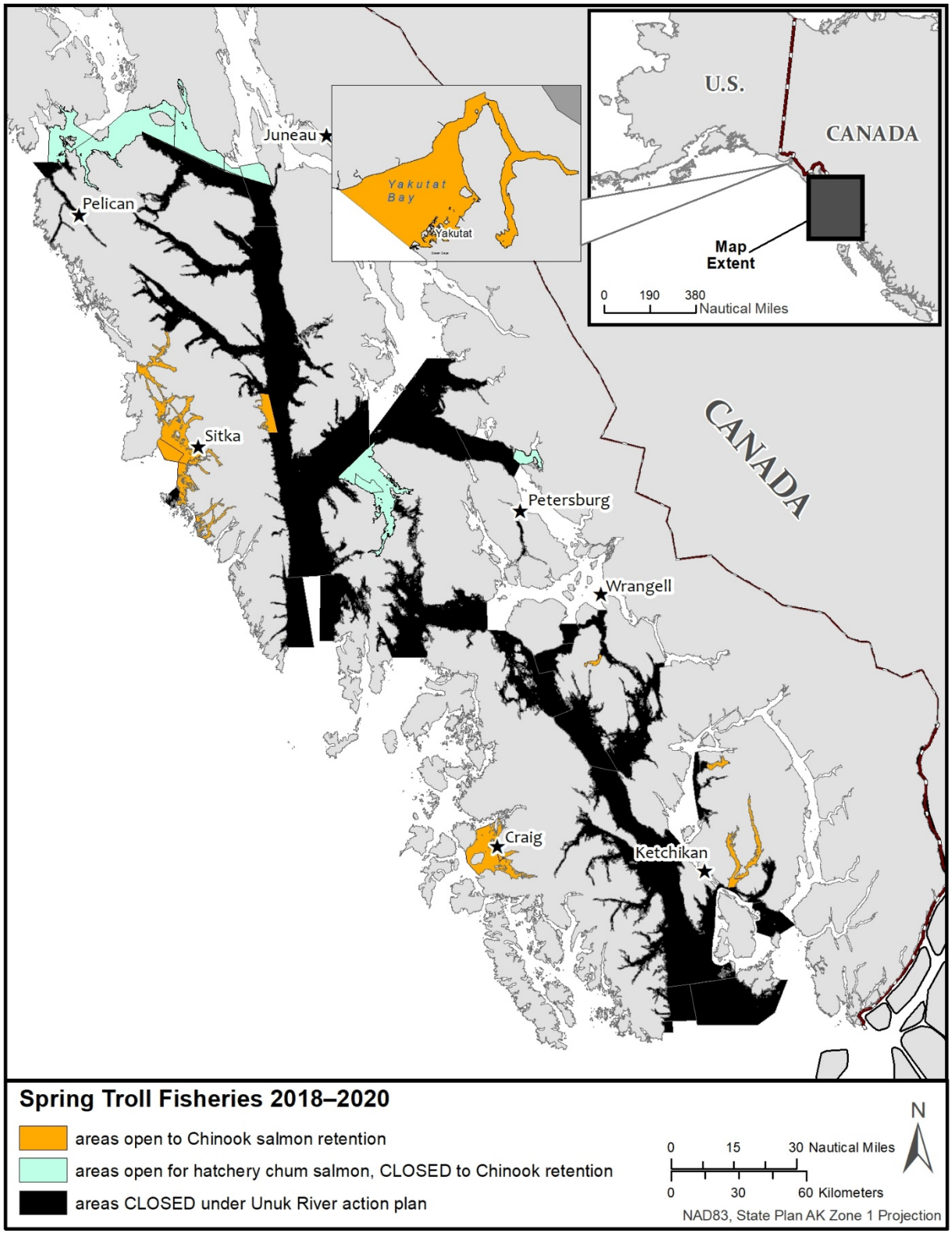

Figure 6.–Map of spring commercial troll fishing areas in Southeast Alaska.

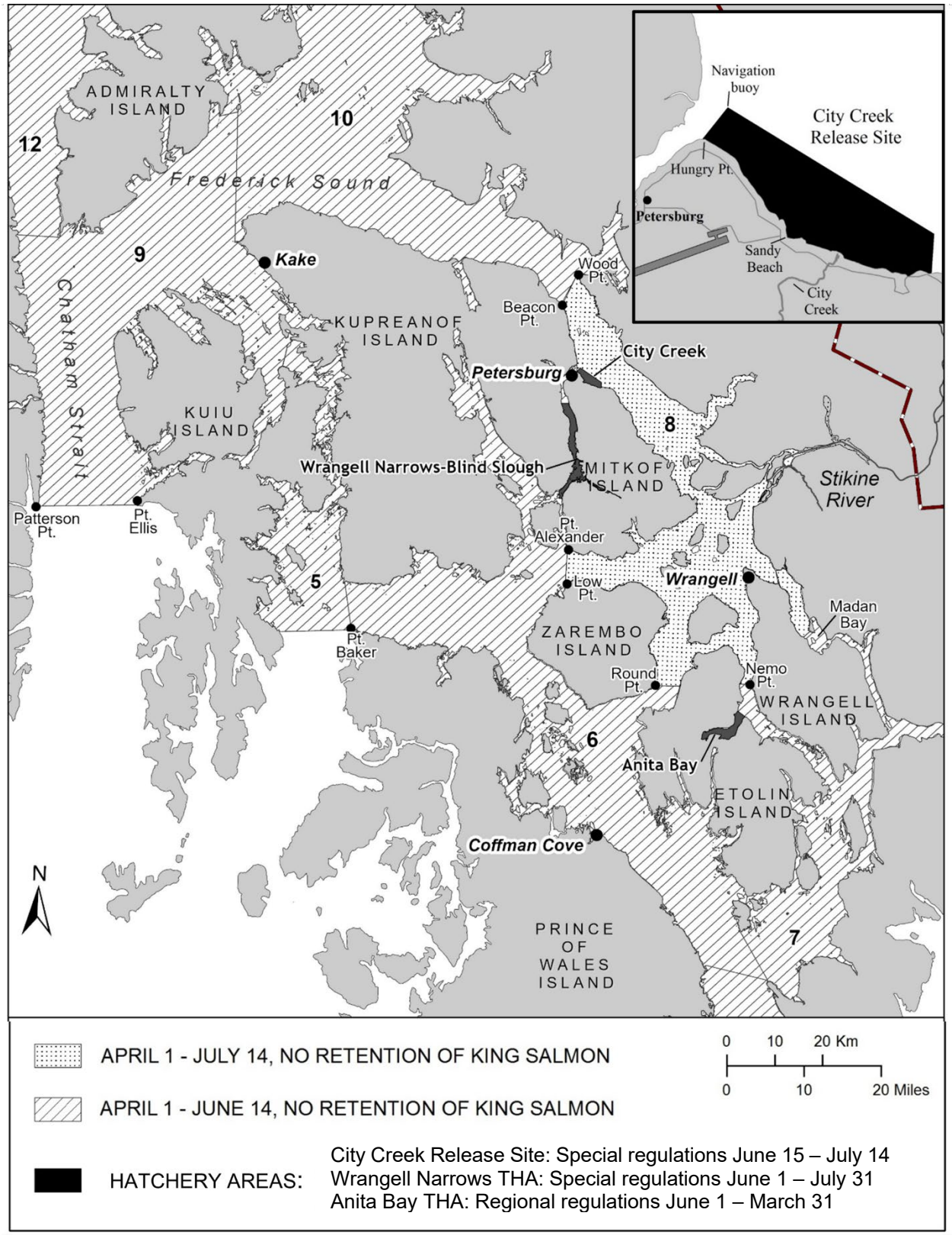

Figure 7.–Map depicting sport fishery regulations and boundaries to protect Stikine River and Andrew Creek Chinook salmon.