

2020 Yakutat Set Gillnet Fishery Management Plan

by

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April 2020

Alaska Department of Fish and Game

Division of Commercial Fisheries



Symbols and Abbreviations

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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, χ^2 , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient (multiple)	R
milliliter	mL	west	W	correlation coefficient (simple)	r
millimeter	mm	copyright	©	covariance	cov
		corporate suffixes:		degree (angular)	$^\circ$
Weights and measures (English)		Company	Co.	degrees of freedom	df
cubic feet per second	ft ³ /s	Corporation	Corp.	expected value	E
foot	ft	Incorporated	Inc.	greater than	>
gallon	gal	Limited	Ltd.	greater than or equal to	\geq
inch	in	District of Columbia	D.C.	harvest per unit effort	HPUE
mile	mi	et alii (and others)	et al.	less than	<
nautical mile	nmi	et cetera (and so forth)	etc.	less than or equal to	\leq
ounce	oz	exempli gratia (for example)	e.g.	logarithm (natural)	ln
pound	lb	Federal Information Code	FIC	logarithm (base 10)	log
quart	qt	id est (that is)	i.e.	logarithm (specify base)	log ₂ , etc.
yard	yd	latitude or longitude	lat or long	minute (angular)	'
		monetary symbols (U.S.)	\$, ¢	not significant	NS
Time and temperature		months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	H_0
day	d	registered trademark	®	percent	%
degrees Celsius	°C	trademark	™	probability	P
degrees Fahrenheit	°F	United States (adjective)	U.S.	probability of a type I error (rejection of the null hypothesis when true)	α
degrees kelvin	K	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	β
hour	h	U.S.C.	United States Code	second (angular)	"
minute	min	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
second	s			standard error	SE
Physics and chemistry				variance	
all atomic symbols				population sample	Var
alternating current	AC			sample	var
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				

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2020 YAKUTAT SET GILLNET FISHERY MANAGEMENT PLAN

by

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	ii
LIST OF FIGURES.....	ii
ABSTRACT.....	1
INTRODUCTION.....	1
2020 SALMON RUN EXPECTATIONS.....	2
Sockeye Salmon.....	2
Alsek River.....	2
East River.....	2
Akwe River.....	2
Italio River.....	2
Situk-Ahrnklin Inlet.....	2
Coho Salmon.....	3
Situk-Ahrnklin Inlet.....	3
Tsiu/Tsivat River.....	3
Chinook salmon.....	3
Alsek River.....	3
Situk-Ahrnklin River.....	3
Fishery Management.....	3
2020 SUMMER MANAGEMENT PLAN.....	4
Alsek River.....	4
East Alsek River.....	5
Akwe River.....	6
New Italio River.....	6
Dangerous River.....	6
Situk-Ahrnklin Inlet.....	6
Yakutat Bay and Manby Shore Outside Fisheries.....	8
Manby Shore Inside Fishery.....	9
Yakataga District.....	9
2020 FALL MANAGEMENT PLAN.....	9
Yakutat District.....	10
Yakataga District.....	10
REFERENCES CITED.....	11
FISHERY CONTACTS.....	11
TABLES AND FIGURES.....	13

LIST OF TABLES

Table	Page
1. Yakutat Management Area commercial set gillnet fisheries 2020 opening dates.	14
2. Yakutat Management Area salmon escapement goals.	14

LIST OF FIGURES

Figure	Page
1. Yakutat Management Area statistical reporting areas.	15

ABSTRACT

This management plan provides an overview of the expected salmon runs, spawning escapement goals, harvest projections, and management measures to be used during the 2020 Yakutat commercial set gillnet fisheries. The Yakutat set gillnet fishing season and fishing periods will open by regulation as described in 5 AAC 30.310 and 5 AAC 30.320, or by emergency order. The Alsek River will open June 7, Dangerous River and Yakutat Bay will open June 14, Situk-Ahrnklin Inlet, and Manby Shore Outside Waters will open June 21. All Yakutat District fisheries will be opened by Sunday, June 28, except for the East Alsek, Akwe, and Italio rivers which will open by emergency order when desired sockeye salmon escapement levels can be documented. The Yakutat District coho salmon (*Oncorhynchus kisutch*) fisheries will also open by emergency order. Set gillnet fisheries are managed by adjusting fishing times and areas in response to inseason assessments of run strength. Management strategies will focus on sockeye (*Oncorhynchus nerka*) and Chinook salmon (*Oncorhynchus tshawytscha*) in June and July. Following the first Sunday in August, fall fishing periods will go into effect and the management emphasis will transition to coho salmon. No formal preseason forecasting exists for the Yakutat salmon runs except Situk River Chinook salmon. Canada provides numerical forecasts for Alsek River sockeye and Chinook salmon. The 2020 Situk River Chinook salmon preseason forecast is for a total run size of 850 large fish. Continued poor productivity of these stocks warrants conservative fishery management in 2020. Returns are expected to be below average to above average for sockeye and coho salmon.

Key words: Yakutat, Yakutat Management Area (YMA), commercial set gillnet, fishing seasons, fishing periods, Chinook, sockeye, coho, pink and chum salmon, Biological Escapement Goals (BEGs), Sustainable Escapement Goals (SEGs), fishery management plan, preseason run expectations, forecasts, 2020.

INTRODUCTION

This management plan provides an overview of the expected salmon run outlooks, spawning escapement goals, harvest projections, and management measures to be used during the 2020 Yakutat commercial set gillnet fisheries.

The Yakutat Management Area (YMA) encompasses the waters of Alaska between Cape Suckling and Cape Fairweather. The area is divided into two fishing districts: the Yakutat District between Cape Fairweather and Icy Cape, and Yakutat District between Icy Cape and Cape Suckling. All species of salmon are harvested in the Yakutat area, with coho, pink (*Oncorhynchus gorbuscha*), sockeye, Chinook and chum (*Oncorhynchus keta*) in order of total harvest.

Set gillnet gear is the only net gear permitted in the Yakutat area. A power and hand troll fishery also occurs and is managed by the Alaska Department of Fish and Game (ADF&G) office in Sitka. Approximately 143 commercial set gillnet limited entry permits are renewed annually and up to 115 permits have been actively fished in the past 10 years. Set gillnet permit holders in the Yakutat area do not have registered sites and may fish in any open fishing area. They may move between fishing areas during the season if not more than one area is fished concurrently.

There are 25 unique set gillnet fisheries in the YMA, although only about half of the available fisheries have been actively fished in recent history (Figure 1). Most of these fisheries target sockeye salmon from June through July and coho salmon in August and September. Historically, Humpback Creek supported a commercial pink salmon fishery but there has been no reported harvest since 1996. With boom and bust returns, fishermen target other species of higher commercial value. The Situk-Ahrnklin Inlet is the most productive fishery in the YMA and normally supports the largest concentration of fishing effort (up to 90 permits). Set gillnet fisheries in the Yakutat District predominantly harvest coho salmon. The primary fisheries for coho salmon occur in the Situk and Tsiu rivers. The commercial fishing effort on the Tsiu River has declined due to dramatic geological changes that decreased the fishable area.

There are no directed set gillnet fisheries for Chinook salmon in the YMA. Chinook salmon are harvested incidentally in the sockeye salmon set gillnet fisheries. The Alsek River, Manby Shore Outside Waters and Yakutat Bay fisheries are the principle harvesters of Chinook salmon.

2020 SALMON RUN EXPECTATIONS

The department does not produce formal salmon run forecasts in the YMA except for Situk River Chinook salmon. Area managers prepare harvest projections or harvest outlooks for the other major fisheries in the YMA. Outlooks are more qualitative with reference to brood year escapements, trends in the commercial harvest, rearing conditions, and information on year class strength, and should not be considered official department forecasts. Fisheries and Oceans, Canada (FOC) provides numerical forecasts for Alsek and Klukshu rivers sockeye and Chinook salmon. Yakutat Area salmon runs are expected to be average to above average for 2020.

SOCKEYE SALMON

Alsek River

The overall Alsek River drainage sockeye salmon run is expected to be 65,200 fish; below the recent 10-year average run size estimate of 71,700 sockeye salmon. Principal contributing brood years will be 2015 (Klukshu River escapement of 11,200 sockeye salmon) and 2016 (Klukshu River escapement of 7,391 sockeye salmon); the 10-year average Klukshu River sockeye salmon escapement is approximately 16,500 fish. A run of this size could lead to a harvest of 9,000–14,000 fish.

East River

The 2016 parent year sockeye salmon commercial harvest was 8,800 fish with a peak escapement count of 19,200 sockeye salmon. A normal run this year could lead to a harvest of 4,000–8,000 fish.

Akwe River

The 2015 parent year sockeye salmon commercial harvest was 2,700 fish with a subsistence harvest of 30 fish. The peak escapement count observed during an aerial survey was 1,370 fish. The Akwe River has had below average sockeye salmon escapements since 2014. The fishery will not open until desired levels of escapement are observed.

Italio River

The 2015 and 2016 parent-year escapements were 8,000 and 4,400 fish respectively. It is unlikely there will be a directed sockeye salmon fishery in the Italio River until adequate escapement levels are observed.

Situk-Ahrnklin Inlet

The Situk River 2016 parent year sockeye salmon commercial harvest was 32,800 with an escapement of 55,500 sockeye salmon which was over the mid-point for the BEG range of 30,000–70,000 fish. Based on escapement and recent harvest trends, a harvest of 15,000–20,000 fish with an escapement of approximately 70,000 sockeye salmon is expected for 2020. Sockeye salmon harvest and escapement may be affected by Chinook salmon conservation measures.

COHO SALMON

Situk-Ahrnklin Inlet

The Situk River 2016 parent year coho salmon commercial harvest was 130,200 with an escapement was 6,117 coho salmon near the mid-point of the BEG range of 3,300–9,800 fish. Based on escapement and recent harvest trends, a harvest of 60,000–90,000 fish is possible for the Situk-Ahrnklin Inlet in 2020.

Tsiu/Tsivat River

The 2016 parent year coho salmon commercial harvest was 11,200 fish and the 2017 commercial harvest was 500 fish. The 2016 parent-year escapement was 31,000 coho salmon and above the BEG range of 10,000–29,000 fish. If there is any effort, a harvest of over 10,000 coho salmon may be possible in 2020.

Kaliakh River

The Kaliakh River has not had an aerial survey since 1998 and prior to 2018 had not been fished since 2010. In 2018 and 2019, there were a commercial harvest of 5,856 and 22,838 fish. A harvest of 5,000–10,000 salmon is possible in 2020.

Areawide

Parent-year escapements were below average to average in most systems. Based on recent trends in the fishery, coho salmon runs are expected to be average to above average in 2020. The areawide set gillnet harvest is expected to be 90,000–140,000 coho salmon. How effort is distributed throughout the area will largely determine how many coho salmon are harvested.

CHINOOK SALMON

Alsek River

The Klukshu River preseason forecast is for an escapement of 1,170 Chinook salmon through the weir. Expanding the Klukshu River forecast to the Alsek River drainage there is a preseason forecast of 4,680 Chinook salmon. Which is 80% of the recent 10-year average and near the upper bound of the BEG range of 3,500–5,300 fish.

Situk-Ahrnklin River

The 2020 Situk River Chinook salmon preseason forecast is for a total run of 850 large (3-ocean age and older) fish. If the run comes back as projected, the Situk River Chinook salmon BEG escapement goal of 450–1,050 large Chinook salmon will be achieved. Commercial, sport, and subsistence Chinook salmon fisheries in the Situk River will remain closed until Chinook salmon escapement has been attained.

FISHERY MANAGEMENT

Set gillnet fisheries in the Yakutat area are managed by adjusting fishing time and area in response to inseason assessments of run strength. During periods of poor production, managers often must curtail or even close fisheries to allow enough fish to the spawning grounds. Inseason assessment methods include both fishery performance in terms of catch per unit effort (CPUE), and spawning escapement information. In the glacial systems, fishery performance data is utilized for management because poor visibility prevents the accurate observation of spawning escapements.

Formal escapement goals have been established for many major index areas and salmon species in the YMA (Table 1). Ground and aerial surveys are conducted annually on several drainages to monitor escapement and assure escapement goals are achieved. Fishing areas can be expected to open by regulation as described in 5 AAC 30.310 and 5 AAC 30.320, or by emergency order (Table 2).

The Alsek and Situk rivers Chinook salmon stocks are two of the six Pacific Salmon Treaty (treaty) indicator stocks in Southeast Alaska (SEAK). The SEAK Transboundary River (TBR), and Northern British Columbia Chinook salmon stocks are experiencing unprecedented levels of poor production. This has led to ADF&G to restrict the retention of Chinook salmon throughout SEAK. The Alsek River and Situk River Chinook salmon stocks were two of the four wild indicator stocks that achieved BEG in 2019. The 2020 Chinook salmon forecasts indicate returns to SEAK systems, may be below average. Management actions are being taken across all Southeast Alaska fisheries, including sport, commercial, personal use, and subsistence, to reduce harvest of wild Chinook salmon.

2020 SUMMER MANAGEMENT PLAN

This management plan concentrates on the major fisheries in the YMA. Information on areas that are fished only occasionally are available from the Yakutat Area management biologists listed at the end of this report. Most Yakutat gillnet openings for sockeye salmon are generally from 6:00 a.m., Sundays, through 6:00 p.m., Tuesdays, except for the Alsek River which opens from 12:01 p.m., Sundays, through 12:00 noon, Mondays, unless extensions are announced. The Alsek River will open on the first Sunday in June (June 7) and Yakutat Bay and Dangerous River will open on the second Sunday in June (June 14) and the Situk-Ahrnklin Inlet, and Manby Shore Outside Waters will open on the third Sunday in June (June 21). By the fourth Sunday in June (June 28), all fisheries in the Yakutat District will be open with the exceptions of the East Alsek, Akwe and the Italo rivers, which will open by emergency order (Table 1).

ALSEK RIVER

U.S. Alsek River commercial salmon landings have averaged approximately 7,800 sockeye, 160 coho, and 130 Chinook salmon annually from 2015 to 2019. Canada's subsistence and sport harvest has averaged approximately 60 Chinook, 640 sockeye, and a small number of coho salmon during the same period. The 2019 harvest of 79 Chinook salmon was the lowest harvest since 1990. The 2019, Alsek River sockeye salmon harvest of 9,800 fish was below the 10-year average harvest.

Canada's subsistence fishery will be open in 2020 unless run size estimates indicate the escapement goal will not be achieved. Subsistence and sport fisheries in the Alaska portion of the river are relatively minor, harvesting about 190 salmon annually.

A large and variable proportion of the drainage-wide escapements of Alsek River sockeye salmon stocks are enumerated at a counting weir on the Klukshu River operated by FOC. Since the Alsek River sockeye salmon escapement goal was eliminated, the health of the Alsek River drainage has been based on the Klukshu River weir counts. The Klukshu River sockeye salmon BEG is 7,500–11,000 and has been achieved in six of last ten year (2010–2019). Based on a stock-recruit model, the preseason forecast for 2020 is 15,000 fish, less than the recent 10-year average run size of 16,500 fish. Principal contributing brood years will be 2015 (Klukshu River escapement of 11,400 sockeye salmon) and 2016 (Klukshu River escapement of 7,400 sockeye salmon).

Chinook salmon returns to the Klukshu River have been variable with signs of poor productivity in recent years. The Klukshu River Chinook salmon BEG range is 800–1,200 fish and Alsek River drainage Chinook salmon BEG range is 3,500–5,300 fish. Escapement has been achieved in seven of the last ten years (2010–2019) for the Klukshu River and Alsek River drainage. The Klukshu River brood year escapements in 2015 and 2016 were 1,400 and 650 Chinook salmon, respectively. Based on these primary brood year escapements, the preseason forecast for 2020 is 1,170 Klukshu River Chinook salmon; below the recent 10-year average of approximately 1,460 fish but within the BEG range. The Alsek River drainage preseason forecast is approximately 4,680 Chinook salmon, which is the expansion of the Klukshu River preseason forecast. The Alsek River drainage preseason forecast is less than the recent 10-year average run size of 4,886 Chinook salmon.

The U.S. commercial Alsek River sockeye salmon fishery traditionally opens for a 24-hour period at noon on the first Sunday in June (June 7; SW 24). Historically, inseason management decisions have been made by monitoring fishery performance data and comparing it to historical CPUE for a given opening to adjust time and area openings. Parent-year escapement information and harvest trends are also considered when determining the weekly fishing periods. Based on uncertainties with forecasts and escapement goals not continuously being achieved for Klukshu River sockeye and Chinook salmon. In 2020, the Alsek River commercial set gillnet fishery restrictions will be reducing fishing time to 12 hours during the initial opening on June 7 and possibly again on June 14 and implementing a six-inch maximum mesh size restriction through July 19. Restrictions are to facilitate Chinook salmon escapement but still allow a directed sockeye salmon fishery. The department will be requesting that all live and healthy Chinook salmon caught be released. The length of the fishing period will be subject to change or closure depending on fishery performance.

The Alsek River surf fishing area will be open during the same periods as the inriver fishery. The surf fishing area includes the shoreline three-quarters of a mile each side of the river mouth seaward to the outermost bar at mean low tide.

Beginning in mid-August, management of the set gillnet fishery will be based on the run strength of coho salmon. Inseason management will be based on evaluation of fishery harvest trends, fishing effort, and CPUE relative to historical levels, similar to the management plan for sockeye salmon. Recent years have seen a decline in fishing effort during the coho salmon season on the Alsek River, primarily due to economic struggles and lack of aircraft to transport fish to town. It is anticipated that there will be minimal to no fishing effort for coho salmon in 2020.

EAST ALSEK RIVER

The East Alsek River is located on the Alsek River flood plain approximately 49 nautical miles (nmi) southeast of Yakutat. In 2018, the combined East Alsek-Doame Rivers BEG range of 13,000–26,000 was eliminated and replaced with a SEG range of 9,000–24,000 sockeye salmon. The escapement goal is based on the dominant East Alsek River sockeye salmon run and simplifies management of the set gillnet fishery. Escapement will be closely monitored throughout the run and the East Alsek River will open by emergency order when the lower bound of the SEG range is attained. The length of weekly openings will be dependent on sockeye salmon run strength, but could be from 12:01 p.m., Sunday, through 12:00 p.m., Wednesday, until closed by emergency order. The East Alsek River surf will be open for the same fishing periods as the East Alsek River. The sockeye salmon management will be until September.

AKWE RIVER

The Akwe River is a glacial river system located about 30 nmi south of Yakutat. The lower 6 nmi of the river are wide and shallow and flow parallel to the beach before entering the ocean. The Akwe River had a BEG range of 600–1,500 sockeye salmon but BEG was eliminated in 2006 as a result of the inability to adequately assess escapement. In recent years there has been reduced harvest because of closures due to low escapement. There were closures during the sockeye salmon fishery in 2018–2019.

The sockeye salmon run to the Akwe River is expected to be average in 2020 based on parent-year fishery performance and escapement. In the 2015 parent-year there was a harvest of 2,700 sockeye salmon and a peak escapement count of 3,000 fish.

In 2020, the sockeye salmon fishery will not open until adequate levels of spawning abundance is observed. If a commercial fishery is announced, inseason management will be based on fishery performance and index escapement counts. Reductions in the normal 1.5-day weekly fishing period may be necessary to ensure adequate escapement. The Akwe River fishery will take place upstream of regulatory markers located approximately 500 yards upstream from the confluence of the New Italo River to the upper markers located about 1.7 nmi downstream from the westernmost extent of the sand dunes, about 3 river miles.

NEW ITALIO RIVER

In the winter of 1986–1987 the Italo changed course to empty into the Akwe River near its outlet into the Gulf of Alaska. This new course became what is called the “New” Italo River and supports a run of sockeye and coho salmon. Determination of Akwe or Italo run strengths based on fishing success in the junction area is not possible. Therefore, to protect New Italo River stocks, fishing is closed to set gillnets from the mouth to 500 yards upstream from the confluence of the New Italo River.

The Italo River sockeye salmon fishery has not been open since 1987. The Italo had an escapement goal of 2,500–7,000 sockeye salmon, but in 2002 the escapement goal was eliminated. The department has continued to conduct aerial surveys of the New Italo River and based on those surveys the sockeye salmon stocks appear to be rebuilding. Aerial surveys will be conducted throughout the 2020 season to monitor run strength and fishery may open by emergency if adequate escapement is observed.

DANGEROUS RIVER

The Dangerous River will open downstream from the Dangerous River Bridge on June 14. Weekly openings will be from 6:00 a.m., Sunday, through 6:00 p.m., Tuesday, until closed by emergency order. Harvest data and fishing effort for this system have been sporadic in the last 10 years, with less than three permits fishing a year (2015–2019). Marine waters adjacent to the river mouth will be open for the same fishing periods as the Dangerous River. An improved boat launch was completed in 2019 at the Dangerous River bridge and may increase fishing effort in 2020.

SITUK-AHRNKLIN INLET

The Situk-Ahrnklin Inlet is located approximately 6 miles by road from Yakutat and is the oldest and historically most productive fishery in the YMA. The fishery occurs primarily in the inlet, although some fishing occurs in the surf area. Sockeye salmon make up the majority of the harvest

during the summer. Situk-Ahrnklin Inlet recent 10-year average harvests are 49,800 sockeye, 61,100 pink and 200 chum salmon. The Situk-Ahrnklin Inlet Chinook salmon commercial fishery has been closed since 2010 due to poor productivity and low escapements.

The 2015 sockeye salmon parent-year escapement was 55,500 fish; above the mid-point of the BEG range of 30,000–70,000 fish. The recent trends and return-per-spawner data indicates that the 2020 Situk River sockeye salmon run could approach 90,000 fish. A mid-range escapement of 50,000 could leave approximately 40,000 fish available for harvest. The Situk-Ahrnklin Inlet will open by regulation on June 21, for a 60-hour period (2.5 days). Fishing periods will be based on fishery performance and escapement through the Situk River weir. Escapements of sockeye salmon through the weir serve as an inseason indicator of run strength. Adjustment to the Situk-Ahrnklin Inlet commercial set gillnet fisheries may be made on the basis of these counts. A run timing model will be used to estimate the total Situk River sockeye salmon run after several weeks of harvest and escapement data are available.

The Chinook salmon commercial, subsistence, and sport fisheries in the Situk River drainage are managed under the guidelines of the *Situk-Ahrnklin Inlet and Lost River King Salmon Fisheries Management Plan* (5 AAC 30.365) to achieve a BEG range of 450–1,050 large Chinook salmon. The Division of Sport Fish provides a preseason Chinook salmon forecast which is used to trigger sections within the management plan. The 2020 preseason forecast for the Situk River Chinook is 850 large (3-ocean age and older) fish with a standard error of 607 fish.

Given the uncertainty with the Chinook salmon forecast and erratic returns. Chinook salmon conservation management has been implemented since 2010, but the Situk River BEG has been only achieved in four previous ten years. The management measures anticipated by the department for Chinook salmon conservation during the sockeye salmon fishery in 2020 include:

- a) The regulation closure around the mouth of the Situk River will be enlarged to encompass the area of high Chinook salmon abundance. Commercial and subsistence fisheries will be prohibited within the regulation markers located at southeast end of Johnson Slough (59°26.27' N. latitude, 139°32.62' W. longitude) to a regulation marker directly across the Inlet on Black Sand Spit (59°25.77' N. latitude, 139°33.18' W. longitude) to a regulation marker westward along the beach of Black Sand Spit (59°26.49' N. latitude, 139°35.01' W. longitude) to a regulation marker west of the Yakutat Seafoods buying station (59°26.72' N. latitude, 139°34.61' W. longitude).
- b) Chinook salmon may not be sold or retained in the commercial fishery for personal use. Dead Chinook salmon may be delivered to the buying stations at the time of sockeye salmon delivery for distribution to the Yakutat Senior Center and those in the community who are blind, disabled, or 65 years of age or older.
- c) The department requests that permit holders closely attend their gear and release all live, healthy Chinook salmon. The department has no regulatory authority to enforce this measure, but the alternative may be a closure of the sockeye salmon fishery.
- d) Chinook salmon subsistence fishing will be closed until the Chinook salmon BEG is attained. All subsistence permit holders in the Situk-Ahrnklin Inlet must closely attend their gear at all times when it is being used to take salmon (5 AAC 01.670(c)).

The pink salmon management options for maximizing harvest are limited due to the overlap in run timing with sockeye and coho salmon. In 1995, ADF&G established a BEG ranges for even- and odd-year returns of 42,000–105,000 fish and 54,000–200,000 fish, respectively (Clark 1995). Pink

salmon have been counted annually at the Situk River weir since 1976 and more sporadically during boat surveys. Weir counts do not capture full escapements in all years because the weir is removed before the pink salmon run peaks in late August–early September (Piston and Heintz 2011). In 2012, ADF&G adopted a lower bound sustainable escapement goal (SEG) of 33,000 pink salmon counted at the weir through August 5 in an effort to provide a consistent early season index of abundance and to maintain a goal for fisheries management (Piston and Heintz 2011). In practice, however, the escapement goal has not been useful for management, because pink salmon escapement changes too dramatically in early August for weir counts to provide a meaningful indication of overall abundance. In January 2018, the escapement goal review committee eliminated the Situk River pink salmon escapement goal, given the limited utility of available escapement information and the low harvest rates on this stock.

Steelhead kelts occasionally accumulate in the Situk River prior to emigrating to the ocean during the early part sockeye management. When the emigration is late, there is a potential for the Situk River set gillnet fishery to incidentally harvest emigrating steelhead kelts. The rate of emigration of steelhead kelts often increases following periods of heavy rainfall. If a major emigration is expected to occur during a scheduled gillnet fishing period, the opening may be delayed to reduce the incidental harvest of steelhead kelts. Alternately, steelhead kelts may be held upstream from the weir for release during a commercial fishery closure.

LOST RIVER

In the winter of 1998–1999, the Lost River changed course to discharge into the Situk/Ahrnklin Inlet instead of the Gulf of Alaska and continues to flow into the Situk/Ahrnklin Inlet today. Lost River stocks have since been harvested incidentally in the Situk-Ahrnklin set gillnet fishery. The Lost River sockeye salmon escapement goal was eliminated in 2018 because survey methods were not standardized; the survey type (aerial, foot, boat), area (Tawah Creek, Ophir Creek, or Summit Lake, or combinations of multiple areas), and timing varied considerably over the decades. Prior to 2018, the Lost River was managed to achieve a lower bound SEG of 1,000 sockeye salmon and the goal was not been attained 2010–2019. Although the sockeye salmon SEG was eliminated, the department continues to monitor and take actions to protect Lost River salmon stocks.

Since 1999, an area 100–500 yards on either side of the mouth of the Lost River has been closed to commercial fishing to conserve Lost River sockeye and coho salmon (5 AAC 30.350(a)(7)). The area closed to commercial fishing by regulation (5 AAC 30.350 (a)(7)) will be enlarged to the 500 yards during the sockeye management and will remain in effect through coho salmon management period. The intent of this closure is to protect Lost River sockeye salmon stocks while providing for a normal fishery in the Situk-Ahrnklin Inlet.

The sockeye salmon 2015 and 2016 parent-year escapements were 373 and 449 fish respectively. Based on parent-year escapement and recent low productivity Lost River sockeye returns in 2020 are expected to be below average.

YAKUTAT BAY AND MANBY SHORE OUTSIDE FISHERIES

Two separate set gillnet fisheries occur in Yakutat Bay. The Yakutat Bay fishery occurs in the ocean waters of Yakutat Bay south of 59°40' N. latitude and will open on June 14 for 2.5 days. The Manby Shore Outside fishery encompasses the ocean waters of Yakutat Bay north of 59°40' N. latitude and will open June 21 for 2.5 days.

Both the Yakutat Bay and Manby Shore Outside fisheries harvest mixed stocks of sockeye salmon. Tag recovery data collected in 1987 indicated that a major portion of the Yakutat Bay sockeye salmon harvest was of Situk River origin. Due the high contribution of Situk River sockeye salmon to the Yakutat Bay and Manby Shore Outside fisheries, both fisheries will be managed with consideration of Situk River sockeye salmon escapement from the third week in June through the third week of July. The weekly fishing period will be limited to a maximum of 4.5 days due to the mixed stock nature of the ocean fisheries and the potentially adverse impact on weaker local area stocks.

MANBY SHORE INSIDE FISHERY

The Manby Shore Inside Waters fishery will open on June 28 in streams along the northern shore of Yakutat Bay. Management of the Manby Shore Inside fisheries (waters upstream of the mean high tide line) will be based on the abundance of local stocks. Sockeye salmon are primarily harvested from Manby and Sudden streams. A 2.5-day weekly fishing period can be expected during the initial opening period scheduled for June 28. Additional fishing periods will depend on fishery performance.

YAKATAGA DISTRICT

The Yakataga District is not expected to be open during the sockeye salmon season in 2020. It will open by emergency order in early August based on coho salmon escapement.

2020 FALL MANAGEMENT PLAN

The fall fishing season generally begins on the first Sunday of August. At that time, the regulatory weekly fishing period changes in most areas to 12:01 p.m. opening and 12:00 noon closing times. During the fall, set gillnet fishing occurs in both the Yakutat and Yakataga districts. In the Yakutat District, the fall coho salmon fishery occurs primarily in the same areas as the summer sockeye salmon fishery. In the Yakataga District, there are areas where only coho salmon fishing takes place.

Overall catches and escapements of coho salmon in the YMA were below to above average in the parent year (2016). The 2016 Situk River peak escapement count of 6,100 coho salmon fell within the BEG range of 3,300–9,800 fish. The 2016 Tsiu River peak escapement count of 31,000 coho salmon exceeded the SEG range of 10,000–29,000 fish. The 2016 Tawah Creek peak escapement count of 746 fish was below the coho salmon SEG of 1,400–4,200. The 2020 coho salmon run is expected to be average to above average areawide.

A potential concern regarding Yakutat area coho salmon is based on both climatic and geological effects. The land is rising away from the water table due to some of the highest rates of isostatic rebound in the world. These factors dramatically affect freshwater rearing habitat for coho salmon. Forest Highway 10 crosses many streams, tributaries of the Situk and Ahrnklin rivers, and of Seal Creek. At least five of these streams, although listed in the Anadromous Waters Catalog as important for both spawning and rearing of coho salmon, no longer exist. These streams have not had stream flows for almost ten years. It is possible that these events will negatively impact coho salmon production in the Yakutat area.

YAKUTAT DISTRICT

Fall fishing will begin on Sunday, August 2 in the Yakutat District, except in the Dry Bay area where the Alsek River will be managed for sockeye until the end of SW 34 (August 22) and the East Alsek River will be managed for sockeye salmon through September. The initial fishing periods for coho management can be expected to be from 12:01 p.m., Sunday, through 12:00 noon, Wednesday. Inseason management of all Yakutat District fall fisheries will be based on fishery performance data and coho salmon escapement surveys.

BEGs were developed for seven Yakutat area coho salmon streams in 1994, based on stock recruit analyses that contained several untested assumptions, including expansion factors for peak survey counts. Three of the systems have supported only minimal commercial fisheries in recent years and are no longer consistently surveyed for coho salmon escapements. The BEGs for Kaliakh, East Alsek, and Akwe rivers have been eliminated and currently only three systems have escapement goals for coho salmon, one of which is in the Yakataga District. The two coho salmon stocks in the Yakutat District that have escapement goals are the Situk River with a BEG of 3,300–9,800 fish and the Tawah Creek with a SEG of 1,400–4,200 fish.

Fishing time and area adjustments will be made for each river as needed. A closed area can be expected in the Yahtse River to protect schools of milling coho salmon at tributary mouths. The actual closed water area will be based on inseason observations of coho schooling behavior, which is related to river flow conditions. Several small coho streams are located along the forelands west of the Yahtse River to Cape Yakataga. Most of these streams have very small numbers of spawning coho and cannot support inriver set gillnet fisheries. The area from the Yahtse River to Cape Yakataga will remain closed until harvestable surpluses are evident.

YAKATAGA DISTRICT

The major fisheries in the Yakataga District target coho salmon on the Kaliakh and Tsiu rivers and are located about 79 nmi northwest of Yakutat. The Tsiu River is the more productive of the two rivers with recent harvests averaging 11,400 coho salmon. The Kaliakh River had only minor effort in 2004 and in 2006–2010 and moderate effort in 2018–2019. The Kaliakh River has not been surveyed since 2007. The Tsiu River recorded minor effort in 2004 and supported more normal fisheries from 2005 through 2013. Fishing effort has substantially declined the last five years due to changes in the river with fewer areas to fish and minimal air transportation. The parent-year (2016) escapement count of 31,000 coho salmon exceeded the BEG range of 10,000–29,000 fish. The current Tsiu River coho salmon escapement goal was met or exceeded in every year since 1973, except for years when survey effort was curtailed by inclement weather. The escapement goal review committee recently recommended maintaining the current escapement goal of 10,000–29,000 coho salmon counted on a peak aerial survey but recommended reclassifying the goal from a BEG to an SEG based on percentiles of historical survey counts.

The 2020 coho salmon returns are expected to be average to above average in both the Tsiu and Kaliakh rivers. The Tsiu River will open by emergency order and opening dates and fishing periods will be determined from observed escapements above and below the regulatory markers. Due to either extremely low water levels or major geological changes in the Tsiu River, the regulatory markers have been moved annually to ensure adequate escapement before opening the commercial fishery. In 2013, dramatic geological changes occurred altering existing channels and creating new channels which altered coho salmon migratory patterns. One of the overflow channels from the

Tsivat River cut across the sand flats inland of the Tsiu River and became a major tributary and new migration route for coho salmon. At the 2018 Alaska Board of Fisheries Southeast and Yakutat Finfish meeting, the department submitted a proposal to move the regulatory markers to a location that better reflected the current topography. The board amended 5 AAC 30.350(a)(12) and the new closed waters on the Tsiu/Tsivat rivers are north of 60°5.34' N. lat., and west of 143°3.66' W. long.

The Kaliakh River will open on August 2. Weekly fishing periods will be 72-hours that can be spread over the week, starting no earlier than 9:00 a.m., Sunday. Market conditions and weather will determine whether the Yakataga District is fished in 2020. The area is remote, and fish must be flown to Yakutat for processing at a high expense or boated to Cordova. It is possible that it will be economically unfeasible to fish the district.

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TABLES AND FIGURES

Table 1.–Yakutat Management Area commercial set gillnet fisheries 2020 opening dates.

Yakutat District	
Area	Opening Date
Alsek River	7 June
Dangerous River	14 June
Yakutat Bay (south of 59°40' N. lat.)	14 June
Manby Shore Ocean	21 June
Situk-Ahrnklin Inlet	21 June
Lost River	by Emergency Order
East Alsek River	by Emergency Order
Akwe River	28 June or by Emergency Order
Manby Shore Inside	28 June
Remainder of the Yakutat District	28 June
Italio River	by Emergency Order
Yakataga District	
Area	Opening Date
All areas	by Emergency Order
Kaliakh River	2 August
Tsiu River	by Emergency Order

Table 2.–Yakutat Management Area salmon escapement goals.

Species	System	Escapement Goal	Goal Type	Year Established	Assessment Method
Chinook	Klukshu (Alsek) River ^{a,b}	800–1,200	BEG	2013	Weir
	Alsek River (total) ^b	3,500–5,300	BEG	2013	Expansion
	Situk River	450–1,050	BEG	2003	Weir
Sockeye	East Alsek River	9,000–24,000	SEG	2018	HS, IE
	Klukshu (Alsek) River	7,500–11,000	BEG	2013	Weir
	Situk River	30,000–70,000	BEG	2003	Weir
Coho	Tawah Creek (Lost River)	1,400–4,200	SEG	2015	BS, IE
	Situk River	3,300–9,800	BEG	1994	BS, IE
	Tsiu/Tsivat Rivers	10,000–29,000	SEG	2018	AS, IE

Note: (BEG) biological escapement goal, (SEG) sustainable escapement goal, (HS) helicopter survey, (AS) aerial survey, (BS) boat survey (IE) index escapement.

^a Chinook salmon goals for Klukshu and Alsek rivers are for all fish; Situk River is for large fish (≥ 660 mm mid eye to fork length, or fish age 1.3 and older).

^b Escapement to the Alsek River is calculated through expansion of the Klukshu River inriver run by a factor of 4.0 and subtraction of any inriver harvests above the weir and in Dry Bay in the lower Alsek River.

