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2021 Yakutat Set Gillnet Fishery Management Plan

by

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April 2021

Alaska Department of Fish and Game

Division of Commercial Fisheries



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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	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient	
		corporate suffixes:		(simple)	r
Weights and measures (English)		Company	Co.	covariance	cov
cubic feet per second	ft ³ /s	Corporation	Corp.	degree (angular)	°
foot	ft	Incorporated	Inc.	degrees of freedom	df
gallon	gal	Limited	Ltd.	expected value	E
inch	in	District of Columbia	D.C.	greater than	>
mile	mi	et alii (and others)	et al.	greater than or equal to	≥
nautical mile	nmi	et cetera (and so forth)	etc.	harvest per unit effort	HPUE
ounce	oz	exempli gratia		less than	<
pound	lb	(for example)	e.g.	less than or equal to	≤
quart	qt	Federal Information Code	FIC	logarithm (natural)	ln
yard	yd	id est (that is)	i.e.	logarithm (base 10)	log
		latitude or longitude	lat or long	logarithm (specify base)	log ₂ , etc.
Time and temperature		monetary symbols		minute (angular)	'
day	d	(U.S.)	\$, ¢	not significant	NS
degrees Celsius	°C	months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	H ₀
degrees Fahrenheit	°F	registered trademark	®	percent	%
degrees kelvin	K	trademark	™	probability	P
hour	h	United States (adjective)	U.S.	probability of a type I error	
minute	min	United States of America (noun)	USA	(rejection of the null hypothesis when true)	α
second	s	U.S.C.	United States Code	probability of a type II error	
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	(acceptance of the null hypothesis when false)	β
Physics and chemistry				second (angular)	"
all atomic symbols				standard deviation	SD
alternating current	AC			standard error	SE
ampere	A			variance	
calorie	cal			population	Var
direct current	DC			sample	var
hertz	Hz				
horsepower	hp				
hydrogen ion activity	pH				
(negative log of)					
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

REGIONAL INFORMANTION REPORT 1J21-08

2021 YAKUTAT SET GILLNET FISHERY MANAGEMENT PLAN

by

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ABSTRACT

This management plan provides an overview of the expected salmon runs, spawning escapement goals, harvest projections, and management measures for the 2021 Yakutat commercial set gillnet fisheries. The Yakutat set gillnet 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 6, Dangerous River and Yakutat Bay will open June 13, Situk-Ahrnklin Inlet, and Manby Shore Outside Waters will open June 20. All Yakutat District fisheries will be opened by Sunday, June 27, except for the East Alsek, Akwe, and Italo Rivers which will open by emergency order when desired sockeye salmon escapement levels are observed. The Yakutat District coho salmon (*Oncorhynchus kisutch*) fisheries will also open by emergency order. Set gillnet fisheries are managed by adjusting fishing time and area in response to inseason assessments of run strength. Management emphasis will focus on sockeye (*Oncorhynchus nerka*) and Chinook salmon (*Oncorhynchus tshawytscha*) in June and July, and transition to coho salmon beginning the first Sunday in August. The Alaska Department of Fish and Game develops formal preseason forecasts for only the Situk River Chinook salmon run and is forecasting a total run of 1,550 large (3-ocean age and older) fish. Canada develops preseason forecasts for Alsek River sockeye and Chinook salmon runs. Continued poor productivity of Chinook salmon and sockeye salmon stocks warrants conservative fishery management during June and July. Other Yakutat sockeye and coho salmon runs are expected to be average to above average based on parent year harvests and escapements.

Keywords: Yakutat, Yakutat Management Area (YMA), Yakataga District, 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 salmon run outlooks, spawning escapement goals, harvest projections, and expected management measures to be used during the 2021 Yakutat commercial set gillnet fisheries. Average, unless defined otherwise, refers to the most recent 10-year average (2011–2020). Harvest, escapement, and run forecasts and outlooks, unless otherwise indicated, are in numbers of fish.

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 Yakataga District between Icy Cape and Cape Suckling. All species of salmon are harvested in the Yakutat area, with coho *Oncorhynchus kisutch*, pink *O. gorbuscha*, sockeye *O. nerka*, Chinook *O. tshawytscha* and chum *O. keta*) in order of total harvest.

Set gillnet gear is the only net gear permitted and the set gillnet fishery is the primary commercial salmon fishery in the Yakutat area. A troll fishery also occurs and is managed by the Alaska Department of Fish and Game (ADF&G) office in Sitka. Approximately 140 commercial set gillnet limited entry permits are renewed annually and up to 111 permits have been actively fished in the past 10 years. Set gillnet permit holders do not have registered sites; they may fish in any open fishing area and may move between fishing areas during the season but only one area may be fished at a time.

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 directed harvest since 1996. With the high variability of the pink salmon run and low commercial value of pink salmon, fishermen targeted 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 Yakataga District predominantly harvest

coho salmon. The primary fisheries for coho salmon occur in the Situk, Tsiu and Kaliakh Rivers. The commercial fishing effort on the Tsiu River has declined in recent years 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.

2021 SALMON RUN EXPECTATIONS

The department only produces annual run forecasts for Situk River Chinook salmon in the YMA. Harvest projections or outlooks are produced by the Yakutat Area Management Biologist and are included in this management plan. 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. Canada Department of Fisheries and Oceans (DFO) produces run forecasts for Alsek and Klukshu Rivers sockeye and Chinook salmon. Overall, Yakutat Area salmon runs are expected to be average to above average for 2021.

SOCKEYE SALMON

Alsek River

The Alsek River sockeye salmon run is expected to be 44,000 fish; below the recent average run size estimate of 47,300 sockeye salmon. Principal contributing brood years are 2016 (Klukshu River escapement of 7,391 sockeye salmon) and 2017 (Klukshu River escapement of 3,711 sockeye salmon); the average Klukshu River sockeye salmon escapement is approximately 10,700 fish. The expected harvest from a run of this size is 3,000–6,000 fish.

East River

The East River escapement is expected to be average to above average, the 2017 parent year sockeye salmon commercial harvest was 14,200 fish with a peak escapement count of 22,500 sockeye salmon, both were above average. The fishery will open once the lower bound of the SEG is observed. If the run comes back as expected this year it could lead to a harvest of 5,000–8,000 fish.

Akwe River

The Akwe River sockeye salmon escapement is expected to be below average for 2021. The 2016 parent year sockeye salmon commercial harvest was 500 fish and the peak escapement count was 1,370 fish, both were below average. The fishery will not open until desired levels of escapement are observed.

Italio River

The sockeye salmon run is expected to be below average 2021. Even though the parent-year escapements in 2016 of 4,400 fish and in 2017 of 3,600 fish and both were above the average, recent Italio River sockeye salmon escapements have been below average. It is unlikely there will be a directed sockeye salmon fishery in the Italio River 2021 unless adequate escapement levels are observed.

Situk-Ahrnclin Inlet

The Situk River 2017 parent year sockeye salmon commercial harvest was 51,100 fish with the escapement of 91,100 sockeye salmon exceeding the upper end of the BEG range of 30,000–70,000 fish. Based on this strong parent year 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 2021. Higher harvest levels could be achieved depending on management actions needed to conserve to Situk River Chinook salmon. Sockeye salmon harvest and escapement may be affected by Chinook salmon conservation measures.

COHO SALMON

Situk-Ahrnclin Inlet

The Situk River 2018 parent year coho salmon commercial harvest was 84,972 fish with the escapement of 6,198 fish 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 is possible for the Situk-Ahrnclin Inlet in 2021.

Tsiu/Tsivat River

The 2018 parent year coho salmon commercial harvest was 2,077 fish with the escapement of 48,600 fish exceeding the SEG range of 10,000–29,000 fish. If there is any effort, a harvest of over 30,000 coho salmon may be possible in the Tsiu River in 2021.

Kaliakh River

The Kaliakh River has not had an aerial survey since 1998 and prior to 2018 had not been fished since 2010. In 2019, 22,800 coho salmon and in 2020, 10,300 coho salmon were commercially harvested. If there is once again effort, a harvest of 5,000–10,000 coho salmon may be possible in the Kaliakh River in 2021.

Areawide

Parent-year escapements were 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 2021. The areawide set gillnet harvest is expected to be 90,000–140,000 coho salmon. Effort distribution and corresponding harvest throughout the region will be dependent on coho salmon abundance in individual fishing areas.

CHINOOK SALMON

Alsek River

The Klukshu River preseason forecast is for an escapement of 1,000 Chinook salmon through the weir. Expanding the Klukshu River forecast to the Alsek River drainage there is a preseason forecast of 4,000 Chinook salmon. Which is 90% of average and below the mid-point of the BEG range of 3,500–5,300 fish.

Situk-Ahrnclin River

The 2021 Situk River Chinook salmon total run forecast is 1,550 large (3-ocean age and older) fish. If the run comes back as forecasted, the Situk River Chinook salmon BEG escapement goal of 450–1,050 large Chinook salmon will be exceeded if no harvest occurs. Commercial, sport, and

subsistence Chinook salmon fisheries in the Situk River will remain closed unless the inseason escapement projections indicate the mid-point of the BEG range for Chinook salmon will be attained.

FISHERY MANAGEMENT

Set gillnet fisheries in the YMA 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 reach the spawning grounds. Inseason assessment methods include fishery performance in terms of catch per unit effort (CPUE), and spawning escapement information. In glacial systems, fishery performance data is utilized for management because poor visibility prevents accurate observations of escapements. Formal escapement goals have been established for many major index systems 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 are 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 the department to restrict the retention of Chinook salmon throughout SEAK. Alsek River and Situk River Chinook salmon stocks were two of the SEAK wild indicator stocks that achieved their BEGs in 2020. The 2021 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.

2021 SUMMER MANAGEMENT PLAN

This management plan provides information for 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 openings for sockeye salmon are generally from 6:00 a.m., Sunday, through 6:00 p.m., Tuesday, except for the Alsek River which opens from 12:01 p.m., Sunday, through 12:00 noon, Monday, unless extensions are announced. The Alsek River will open on the first Sunday in June (June 6), Yakutat Bay and Dangerous River will open on the second Sunday in June (June 13), and the Situk-Ahrnklin Inlet, and Manby Shore Outside Waters will open on the third Sunday in June (June 20). By the fourth Sunday in June (June 27), all fisheries in the Yakutat District will be open with the exceptions of the East Alsek, Akwe and the Italio rivers, which will open by emergency order (Table 1).

ALSEK RIVER

The Alsek River set gillnet fishery average harvest from 2011–2020 is 12,500 sockeye, 350 Chinook, and 300 coho salmon. Canada's subsistence and sport harvest has averaged approximately 40 Chinook, 900 sockeye and a small number of coho salmon during the same period. The 2020 Alsek River Chinook salmon harvest of about 180 Chinook salmon and sockeye salmon harvest of about 2,500 were below average harvests.

Canada's subsistence fishery will be open in 2021 unless run size estimates indicate the escapement goal will not be achieved. U.S. subsistence harvests are relatively minor, harvesting about 200 salmon annually.

A variable proportion of the drainage-wide escapement of Alsek River sockeye salmon stocks are enumerated at a counting weir on the Klukshu River operated by DFO. Alsek River sockeye salmon are managed for an escapement goal range of 24,000 to 33,500 fish per the treaty despite the department no longer having a formal escapement for Alsek River sockeye salmon. Alsek River escapement is based on the Klukshu River weir counts. The Klukshu River sockeye salmon BEG of 7,500–11,000 fish has been achieved in five of the past ten years (2011–2020). Based on a stock-recruit model, the preseason forecast for 2021 is 10,000 fish, less than the average run size of 10,800 fish. Principal contributing brood years are 2016 (Klukshu River escapement of 7,400 sockeye salmon) and 2017 (Klukshu River escapement of 3,700 sockeye salmon).

Klukshu River sockeye salmon escapements were below the lower bound of the BEG range of 7,500 to 11,000 fish from 2016 to 2018 and in 2020. In response the department recommended the board designate the Klukshu River sockeye salmon run as a stock of management concern. A draft action plan proposing management actions has for the Board of Fisheries (board) to consider at the next board meeting in the winter 2021/22 has been developed. Expected management actions will not change this upcoming season.

Chinook salmon returns to the Klukshu River have been variable with signs of poor productivity. 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 seven of the last ten years (2011–2020) for both the Klukshu River and the Alsek River drainage. The Klukshu River Chinook salmon escapements for the 2016 were 650 fish and in 2017 were 440 fish. Based on these primary brood year escapements, the preseason run forecast for 2021 is 1,000 Klukshu River Chinook salmon; below the average of 1,100 fish but within the BEG range. The Alsek River drainage preseason run forecast is approximately 4,000 Chinook salmon, which is the expansion of the Klukshu River preseason forecast. The Alsek River drainage preseason run forecast is 4,000 fish; less than the average run size of 4,500 Chinook salmon.

The Alsek River set gillnet sockeye salmon fishery traditionally opens for a 24-hour period at noon on the first Sunday in June (June 6; SW 24). The length of the sockeye salmon weekly fishing periods will be subject to extensions or closure depending on fishery performance. Inseason management decisions are made by monitoring fishery performance data and comparing it to historical CPUE for the current statistical week. Additional fish time may be granted if the CPUE is high enough above historical levels. Time and area may be adjusted for subsequent weeks based on comparisons of current year's CPUE to historic CPUE levels. Preseason run size forecasts are also considered when determining the weekly fishing periods, especially early in the season. Based on uncertainties with forecasts and escapement goals not continuously being achieved for Klukshu River sockeye and Chinook salmon, management restrictions are again expected in 2021. A six-inch maximum mesh size restriction will be implemented through July 18 and the department will request that all live and healthy Chinook salmon caught be released. Restrictions in fishing time will be taken if inseason information warrants action.

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 of sockeye salmon. Recent years have seen a decline in fishing effort during the coho salmon season on the Alsek River, mainly due to economic struggles (low prices and high cost of processing fish) 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 2021.

EAST ALSEK RIVER

The East Alsek River is located on the Alsek River flood plain approximately 56 miles (90 km) southeast of Yakutat. In 2018, the combined East Alsek-Doame Rivers BEG range of 13,000–26,000 fish was eliminated by the escapement goal review committee and replaced with a SEG range of 9,000–24,000 sockeye salmon for only the East Alsek River. Basing the escapement goal on the just the dominant East Alsek River sockeye salmon run simplifies management of the set gillnet fishery in this area. 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. If the fishery is opened, weekly openings are expected to be from 12:01 p.m., Sunday, through 12:00 p.m., Wednesday. The East Alsek River surf fishing area would be open for the same time periods as the East Alsek River. The East Alsek River will be managed for sockeye salmon abundance until September.

AKWE RIVER

The Akwe River is a glacial river system located about 35 miles south of Yakutat. The lower 7 miles 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 2018 and 2019, there were closures during the sockeye salmon fishery due to low escapement.

The sockeye salmon run to the Akwe River is expected to be below average in 2021 given the poor performance of recent runs. The 2016 parent-year harvest of 500 sockeye salmon and a peak escapement count of 1,370 fish were both above average; however, escapement has been below average and no harvest occurred during the prior 3 years.

In 2021, the sockeye salmon fishery will not open until an adequate level of escapement is observed. If a commercial fishery is announced, subsequent fishing time will be based on fishery performance and observations of escapement. 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 2.5 miles downstream from the westernmost extent of the sand dunes, about 3.5 river miles.

NEW ITALIO RIVER

In the winter of 1986/87, the Italo River 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 runs of sockeye and coho salmon. Determination of either Akwe or Italo Rivers run strengths based on fishery performance below the confluence is not possible. Therefore, to protect

New Italo River stocks, the set gillnet fishery will be closed from the mouth of the Akwe River to 500 yards upstream from the confluence.

The Italo River sockeye salmon fishery has not been open since 1987. The Italo River had an escapement goal of 2,500–7,000 sockeye salmon, but in 2002 the escapement review committee eliminated the escapement goal because directed no longer occurs and reliable survey information. 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 stable at new levels. Aerial surveys will be conducted throughout the 2021 season to monitor run strength. The set gillnet fishery may open if adequate escapement is observed.

DANGEROUS RIVER

The Dangerous River will open downstream of the Dangerous River Bridge on June 13. Weekly openings will be from 6:00 a.m., Sunday, through 6:00 p.m., Tuesday, until closed by emergency order. Fishing effort and corresponding harvest data for this system has been sporadic during the last 10 years and during the last five years (2016–2020), less than three permits fished a year. Marine waters adjacent to the river mouth will be open for the same fishing periods as the Dangerous River. An improved boat launch completed in 2019 at the Dangerous River bridge may increase fishing effort in 2021.

SITUK-AHRNKLIN INLET

The Situk-Ahrnklin Inlet is located approximately 9 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 typically comprise the majority of the harvest during the summer season. The Situk-Ahrnklin Inlet Chinook salmon commercial fishery has been closed since 2010 due to poor productivity and low escapements. Overall, harvests have averaged 51 Chinook, 40,700 sockeye, 95,700 coho, 44,400 pink and 180 chum salmon over the prior 10 years (2011–2020).

The 2017 sockeye salmon parent-year escapement was 91,100 fish; above the upper bound of the BEG range of 30,000–70,000 fish. Based on this strong parent year 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 2021. The Situk-Ahrnklin Inlet will open by regulation on June 20, for a 60-hour period (2.5 days). Fishing periods will be based on escapement through the Situk River weir. Escapements of sockeye salmon through the weir serve as the primary inseason indicator of run strength and adjustments 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.

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 annually develops a Chinook salmon run size forecast which is used to set various management actions per the management plan. The 2021 Situk River Chinook preseason run forecast for the is 1,550 large (3-ocean age and older) fish with a standard error of 950 fish.

Situk River Chinook salmon runs in recent years have been erratic. In response, management restrictions in all fisheries have been implemented since 2010. Despite these restrictions, the Situk River BEG has only been achieved in five (2013, 2014, 2017, 2019, 2020) since 2011. Expected management measures in 2021 for Chinook salmon conservation during the sockeye salmon fishery include:

- a) The regulatory 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 lat, 139°32.62' W long) to a regulation marker directly across the Inlet on Black Sand Spit (59°25.77' N lat, 139°33.18' W long) to a regulation marker westward along the beach of Black Sand Spit (59°26.49' N lat, 139°35.01' W long) to a regulation marker west of the Yakutat Seafoods buying station (59°26.72' N lat, 139°34.61' W long).
- b) Chinook salmon may not be sold or retained for personal use in the commercial fishery. 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) Retention of Chinook salmon in the subsistence fishery will be prohibited until the Situk River Chinook salmon BEG is attained. All subsistence permit holders in the Situk-Ahrnklin Inlet must closely always attend their gear when it is being used to take salmon (5 AAC 01.670(c)).

The Situk River pink salmon run has traditionally supported the largest pink salmon harvest in the YMA. The Pink salmon have been counted annually at the Situk River weir since 1976 and more sporadically during boat surveys. 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). However, 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, the escapement goal was useful for management, because pink salmon escapement changed 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.

Pink salmon harvest in 2021 is expected to be minimal. In recent years, the low value of pink salmon has provided little economic incentive to target pink salmon. In addition, pink salmon management options for maximizing harvest are limited due to the overlap in run timing with sockeye and coho salmon.

Steelhead kelts occasionally accumulate in the Situk River prior to emigrating to the ocean during the early part sockeye salmon fishery. 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 catch 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 1998/99, the Lost River changed course to discharge into the Situk/Ahrnklin Inlet instead of the Gulf of Alaska. As a result, Lost River stocks have since been harvested incidentally in the Situk-Ahrnklin set gillnet fishery since 1999. The escapement goal review committee eliminated the Lost River sockeye salmon escapement goal in 2018. The sockeye goal was eliminated 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 the SEG lower bound of 1,000 sockeye salmon. Although the sockeye salmon SEG was eliminated, the department continues to monitor and take actions to protect Lost River salmon stocks. However, more than 1,000 sockeye salmon have not been observed in the Lost River during the past 10 years (2011–2020).

An area closure around the mouth of the Lost River have been implemented to reduce harvest of Lost River salmon stocks since 1999. The area closure includes an area from 100 to 500 yards on either side of the mouth of the Lost River. The regulatory closure (5 AAC 30.350 (a)(7)) will be enlarged to the 500 yards for the duration of the season. The intent of this closure is to protect Lost River sockeye salmon stocks while providing for normal weekly fishing periods in the Situk-Ahrnklin Inlet for Situk River salmon stocks.

Sockeye salmon parent-year escapements were 449 in 2016 and 450 fish in 2017. Based on parent-year escapement and recent low productivity, the 2021 Lost River sockeye salmon run is 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 lat and will open June 13 for 2.5 days. The Manby Shore Outside fishery encompasses the ocean waters of Yakutat Bay north of 59°40' N lat and will open June 20 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 June 27 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 per week fishing period can be expected during the

initial opening period scheduled for June 27. 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 2021. Openings are not expected to occur until early August and will be based on observations of coho salmon escapement.

2021 FALL MANAGEMENT PLAN

The fall fishing season generally begins the first Sunday of August. At that time, the regulatory weekly fishing period change in most areas to 12:01 p.m. opening and 12:00 noon closing times. During the fall season, 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, coho salmon fishing is the only fishery that takes place.

Overall harvest and escapements of coho salmon in the YMA were average in the primary parent year (2017). The 2017 Situk River peak escapement count of 4,100 coho salmon fell within the BEG range of 3,300–9,800 fish. There was no observed peak escapement count for coho salmon in the Tsiu River for 2017. But given the productivity of this system it is highly likely this system met or exceeded the SEG range of 10,000–29,000 fish. The 2017 Tawah Creek peak escapement count of 1,455 fish was above the lower bound of the coho salmon SEG of 1,400–4,200. The 2021 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 for coho salmon will generally begin Sunday, August 2. Sockeye management will continue in the East Alsek River through September and in the Alsek until the end of SW 34 (August 21). The initial fishing periods for coho management are 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. Closed areas can be expected in the Yahtse River to protect schools of milling coho salmon at tributary mouths. Actual closed areas will be based on inseason observations of coho salmon schooling behavior, which is related to river flow conditions. Several small coho salmon 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 125 miles northwest of Yakutat. The Tsiu River recorded minor effort in 2004 and supported a more normal fishery from 2005 through 2013. Fishing effort has substantially declined on the Tsiu River the last five years due to changes in the river with fewer areas to fish and minimal air transportation. The Tsiu River has a 5-year average (2016–2020) harvest of 3,400 coho salmon and the Kaliakh River has 3-year average (2018–2020) harvest of 13,000 coho salmon. The Kaliakh River had only minor effort in 2004 and 2006–2010, and moderate effort in 2018–2020. Escapement surveys of the Kaliakh River have not been conducted since 2007. The Tsiu River parent-year (2017) escapement was not observed but is expected to have met or exceeded SEG 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 surveys were curtailed by inclement weather.

The 2021 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 Tsiu 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/Tsiu 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 may 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 2021. The area is remote, and fish must be flown to Yakutat for processing at a high expense or boated to Cordova.

REFERENCES CITED

- Clark, J. H. 1995. Biological escapement goals for even and odd-year pink salmon returning to the Situk River and to Humpy Creek near Yakutat, Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J95-08, Juneau.
- Piston, A. W., and S. C. Heinl. 2011. Pink salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No.11-18, Anchorage.
- TTC (Transboundary Technical Committee). 2019. Salmon management and enhancement plans for the Stikine, Taku, and Alsek rivers, 2019. Pacific Salmon Commission Report TCTR (19)-3, Vancouver. Canada.

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TABLES AND FIGURES

Table 1.–Yakutat Management Area commercial set gillnet fisheries 2021 opening dates.

Area	Opening Date
<u>Yakutat District</u>	
Alsek River	6 June
Dangerous River	13 June
Yakutat Bay (south of 59°40' N. lat.)	13 June
Manby Shore Ocean	20 June
Situk-Ahrnklin Inlet	20 June
Lost River	by Emergency Order
East Alsek River	by Emergency Order
Akwe River	27 June or by Emergency Order
Manby Shore Inside	27 June
Remainder of the Yakutat District	27 June
Italio River	by Emergency Order
<u>Yakataga District</u>	
All areas	by Emergency Order
Kaliakh River	1 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 River ^{a,b,d} (Alsek)	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 River (Alsek)	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.

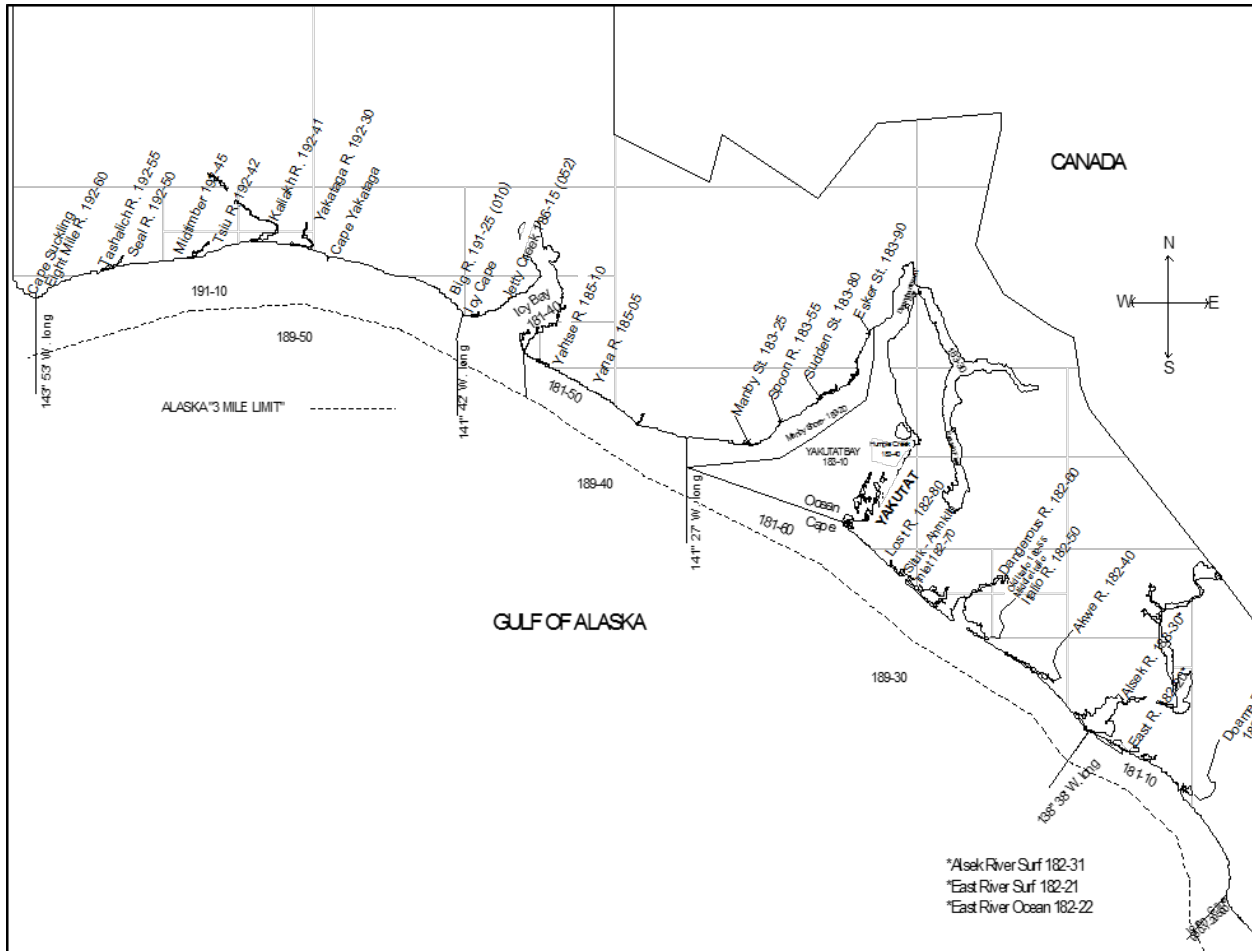


Figure 1.—Yakutat Management Area statistical reporting areas.