

Regional Operational Plan No. ROP.SF.1J.2023.06

**Operational Plan: Situk River Chinook Salmon Creel
Survey, 2023-2024**

by

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and

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May 2023

Alaska Department of Fish and Game

Divisions of Sport Fish and 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	e.g.	less than	<
pound	lb	(for example)		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 (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

REGIONAL OPERATIONAL PLAN NO. ROP.SF.1J.2023.06

**OPERATIONAL PLAN: SITUK RIVER CHINOOK SALMON CREEL
SURVEY, 2023-2024**

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May 2023

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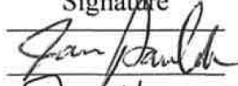
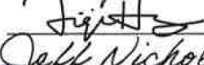
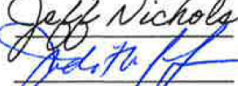
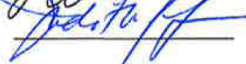
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ABSTRACT

The purpose of this project is to determine Chinook salmon *Oncorhynchus tshawytscha* harvest by sport anglers on the Situk River and the age components of that harvest. Additionally, sockeye salmon *Oncorhynchus nerka* harvest will be determined and various methods of angler use patterns for both species will be recorded. Creel sampling techniques will be used to collect catch, harvest, effort and biological information from the Situk River for this purpose. This information is used to manage for the Chinook salmon biological escapement goal for the Situk River as per the Situk-Ahrnklin and Lost River Chinook salmon Management Plan, along with achieving the Situk River sockeye salmon biological escapement goal. Inriver abundance for both Situk River Chinook and sockeye is obtained from another project with a fish weir, and escapement is calculated by subtracting the above-weir sport harvest estimate of this project from that weir count. Additionally, the Chinook salmon age component information of the harvest gathered here is required for yearly stock assessment models to predict the following years run and set preseason management regulations.

Keywords: Chinook salmon, *Oncorhynchus tshawytscha*, sockeye salmon, *Oncorhynchus nerka*, Situk River, Southeast Alaska, Yakutat, creel survey, effort, harvest, catch, scale aging

PURPOSE

Creel sampling techniques will be used to estimate the Chinook salmon *Oncorhynchus tshawytscha* harvest by sport anglers on the Situk River, and the age composition of that harvest. Additionally, sockeye salmon *Oncorhynchus nerka* harvest will be estimated, and various angler use patterns will be recorded. A weir will be used to enumerate the Chinook salmon inriver run (separately funded project), and escapement will be calculated by subtracting the above-weir sport harvest from the weir count. This information will be used for management of sport and commercial fisheries to ensure the Chinook salmon biological escapement goal (BEG) is achieved per the Situk-Ahrnklin Inlet and Lost River King salmon Management Plan (5AAC 30.365), along with the Situk River sockeye salmon biological escapement goal. Additionally, the Chinook salmon age composition information collected by this project will be used in stock assessment models to predict the following year's run, upon which preseason management regulations will be set.

BACKGROUND

The Situk River is located approximately 10 km east of Yakutat, Alaska and flows into the Gulf of Alaska (Figure 1). It is 35.2 km long and drains 3 lakes that have a combined surface area of 17,000 ha. The Situk River supports sport fisheries for salmon *Oncorhynchus* spp., steelhead *O. mykiss* and Dolly Varden *Salvelinus malma* in addition to commercial and subsistence fisheries for salmonids. The majority of freshwater angling effort for Chinook salmon *O. tshawytscha* in the Yakutat vicinity occurs in the Situk River. Since 1999, Chinook salmon harvest and age data gathered with a creel survey on the Situk River are used for inseason harvest management and cohort analyses. This document details plans for the Chinook salmon creel survey at primary exit locations for sport anglers on the Situk River during the 2023 and 2024 field seasons (June and July).

Since 1995, the total run of large Chinook salmon (ocean-age-3 or older) to the Situk River has declined to very low abundance levels (Figure 2). The 1996 to 2003 average run size of Chinook of all ages was greater than 6,500 fish, and a historic high of 18,045 fish occurred in 1995 (Pahlke 2007). Since 2003, the average total run size of Chinook of all ages has been <2,500 fish (Pahlke 2007). Likewise, estimates of sport angler harvests of Chinook salmon declined from over 1,816

in 1998 to 332 in 2005 (Alaska Sport Fishing Survey¹: SWHS, hereafter), although historically sport harvest has been highly variable since 1976 (Pahlke 2007). Restrictions have been in place for the Situk River Chinook salmon sport fisheries for all years since 2005.

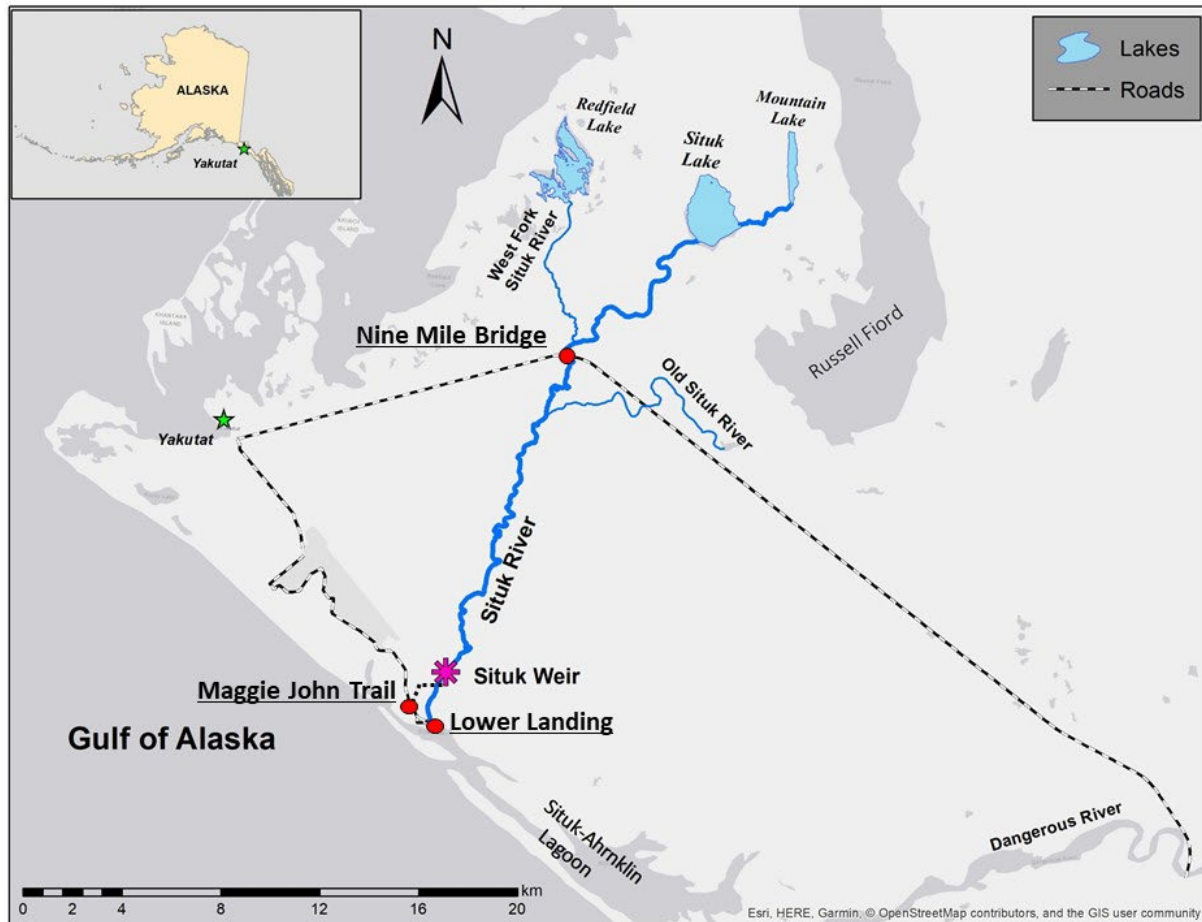


Figure 1.—Map of the Situk River drainage and location of the Situk weir and the three access sites of the Situk River creel survey, near Yakutat in Southeast Alaska.

Since 2005, the data from this project has shown few fish harvested in highly restricted or closed sport fishery seasons. From 2006 through 2008, the Chinook salmon sport fishery was closed to retention of fish ≥ 20 inches in length by emergency order, and no large Chinook were harvested. In 2009, 3 fish were sport harvested during a restricted season. In 2010, a small number ($N=32$, $SE=20$) of Chinook salmon ≤ 28 inches were harvested in a restricted season. In 2012 all sport angling for adult Chinook salmon was closed, there was no fish ≥ 28 ” reported as harvested, and 27 “jacks” (Chinook < 20 inches) were harvested. In 2013 all sport angling for Chinook salmon over 20 inches was again closed until July 16 when escapement goals were met. After that date, approximately 35 large Chinook (≥ 28 inches) were harvested. In 2014 through 2019 all Chinook salmon angling was closed by emergency order.

¹ The annual statewide mail survey of licensed sport anglers in Alaska conducted by ADF&G, Division of Sport Fish. Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK are available from: <http://www.adfg.alaska.gov/sf/sportfishingsurvey/>.

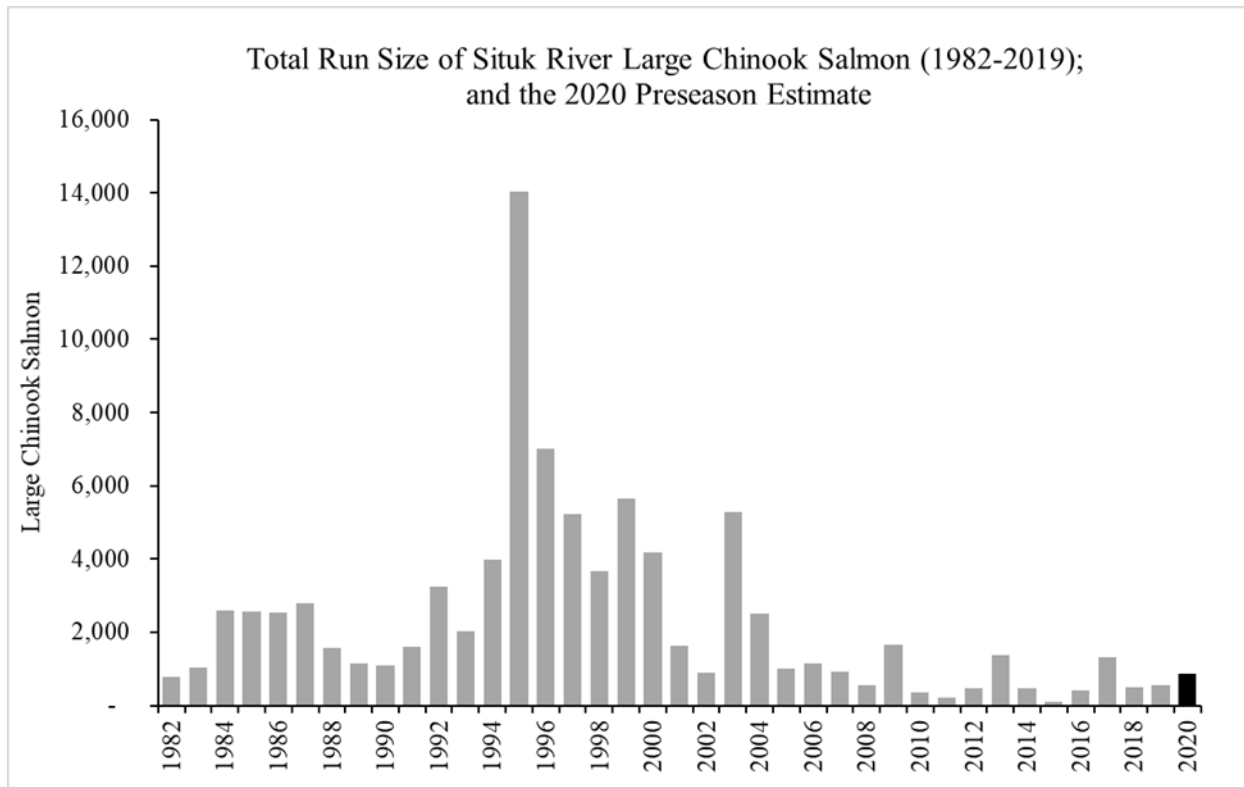


Figure 2.—Total run of large (ocean-age-3 or older) Chinook salmon on the Situk River 1982–2020, and the 2021 forecast (black bar).

Commercial fishery harvest has also declined since 2003, but the small subsistence catch remained stable up until 2011; subsistence take has since been closed yearly since 2011 for conservation purposes. Commercial harvest was limited to no sale of Chinook salmon from 2006 through 2009, but the subsistence fishery operated normally; together these fisheries typically harvest 250–400 fish. In 2010 the commercial fishery was closed and the subsistence fishery was closed later than the other fisheries, and 140 fish were taken as subsistence catch. In 2011 and 2012 no net fisheries (commercial or subsistence) were open to Chinook, and an area of the inlet was closed entirely for all net fishing; 94 fish were still reported in 2011, and 32 in 2012, in incidental harvests during sockeye salmon *O. nerka* openers. In 2013, 387 fish were harvested in restricted openings of the net fisheries (subsistence and commercial). For 2014 through 2022 no net fisheries were open for Chinook salmon to start the season; very small numbers of Chinook salmon were reported to be harvested incidentally during sockeye salmon openers.

The Situk River Chinook salmon sport fishery is managed inseason and may be altered by emergency order to achieve a BEG of 450 to 1,050 large (age-.3+) Chinook salmon (McPherson et al. 2005). The inriver run of Chinook salmon is counted on the Situk River at a weir 2.5 km from salt water by the Division of Commercial Fisheries (DCF). Average weir counts of Chinook salmon from past years are used to predict daily weir counts prior to the potential sport harvest above the weir. The weir is also used to collect scales from Chinook salmon to estimate the proportion that is ocean-age 3+ for stock-recruit analysis and BEG assessment. Sport harvest (when the sport fishery is open) above the weir must be removed from the weir counts to calculate daily escapement and determine if the BEG will be met.

In addition to inseason management, a preseason forecast of the total run is made each year. The preseason estimate allows the Alaska Department of Fish and Game (ADF&G) to plan for fisheries that target Chinook salmon on the Situk River. The 2023 preseason run estimate of 450 ocean-age 3+ fish (SE = 140) suggests that an open sport fishery is most likely not possible during the season. Sport fisheries for Chinook salmon will be closed in 2023 until weir counts are sufficient to indicate at least 750 large fish will escape the fisheries.

Since 1999, the Division of Sport Fish (DSF) has conducted a creel survey to calculate an inseason sport harvest estimate of all Chinook salmon taken below and above the weir. Weekly sport harvest estimates from above the weir are calculated and subtracted from weir counts (inriver run) to estimate escapement. Inseason management decisions for Situk River fisheries are based on the resulting escapement calculation and its progress towards attaining the BEG. In addition, creel survey scale samples are used to reconstruct age-size composition as part of the calculation of the preseason run estimate, noted above.

This project has used a single sampler to collect harvest information at the Lower Landing boat ramp, traditionally the most popular access point on the river. Expansion factors have then been used to expand estimates to assess total harvest (see Data Analysis section). In recent years evidence has been gathered that shows significantly more angler effort has been shifting to the Nine Mile Bridge and Maggie John Trail access points, potentially changing the relationship between the expansion factors and total harvest. In 2021 and 2022 this project will continue with a second sampler to survey harvest at these additional access points and assess harvest more directly for comparison to the expansion factor method.

Several other tasks are accomplished by this project. The creel survey also provides an inseason estimate of Chinook salmon harvested below the weir. Additionally, a sockeye salmon (*Oncorhynchus nerka*) sport harvest estimate is calculated that can be subtracted from weir counts of sockeye salmon to assess daily escapement, and the proportions of each species harvested by guided or unguided anglers are estimated. Angler residency, effort, and catch are also estimated for both species. The creel samplers also provide departmental presence on the river and information to the angling public and others.

OBJECTIVES

1. To provide 2023 and 2024 inseason estimates of the number of Chinook salmon harvested by anglers exiting the Situk River access locations such that, by the end of the season, the resulting estimate of total escapement is within 25% of the true value 95% of the time.
2. To estimate the age composition of Chinook salmon harvested by the sport fishery in the Situk River in 2023 and 2024 above and below the weir, such that the proportion of fish ocean-age-3 or older is within 0.15 of the true value 90% of the time.

SECONDARY OBJECTIVES

1. Estimate the harvest of sockeye salmon above and below the weir by anglers exiting the Situk River access locations.
2. Estimate the total angler effort and catch of Chinook and sockeye salmon by anglers exiting the Situk River access locations from 10 June through 31 July 2023 and 2024 from 1000 to 2300 hours.
3. Estimate the proportions of guided versus unguided trips, type of access used by the angler, residency status of the angler (resident or nonresident), and in the event that the angler is guided, the guide's logbook number.
4. Collect angler observations on in-river king salmon distribution and movement.

METHODS

OBJECTIVE 1, SECONDARY OBJECTIVES 1, 2 AND 3: INSEASON HARVEST, CATCH, AND EFFORT

Chinook and sockeye salmon angling on the Situk River originates via three access points. These points are the Lower Landing, Maggie John Trail, and the bridge at Nine Mile of Forest Highway 10 (Figure 1). Anglers do float trips from the Nine Mile Bridge downstream to the Lower Landing, boat upstream from the Lower Landing then return, or hike in from all three access points. A stratified two-stage "direct expansion" survey of anglers exiting the Situk River will be used to estimate angler effort, as well as Chinook and sockeye salmon catch and harvest.

The sampling schedule used since 2006 will remain in place during 2023 and 2024 and includes two shifts: 10:00-16:30 and 16:30-23:00. The two-stage survey design has "days" within each location/time of day (TOD) stratum as primary sampling units and "anglers within days" as secondary sampling units. Once a "day" is selected for sampling within each location/TOD stratum, the entire sampling period will be covered. All anglers exiting the Situk River fishery at the three access points between the start and stop hours defining each period will either be counted or interviewed on each sampled "day". An attempt will be made to interview all individuals exiting the fishery for effort, catch, harvest, and any Chinook salmon observational information (nearly every exiting angler has been interviewed in past surveys). All individuals seen leaving the fishery who are not interviewed will also be counted.

Large Chinook salmon are defined as those ≥ 28 inches TL, and Chinook salmon less than 28 inches are primarily males that have spent 1 or 2 years in the ocean. Situk River is managed for escapement of large Chinook ≥ 28 inches; however, the ocean-age-2 (20.1–27.9 inches), and ocean-age-1 (≤ 20 inches) fish will also be recorded in the survey.

Sampling Methodology for Lower Landing

One technician is employed to sample the Lower Landing access point. Plots of angler effort, catch, and harvest of Chinook salmon from 1999 showed clear differences in effort and CPUE and HPUE between TOD strata for both guided and unguided anglers at the Lower Landing access point. There was little evidence of a significant type-of-day (i.e., weekday/ weekend) effect for guided anglers and mild evidence for type-of-day effects for unguided anglers around the 4th of

July (near the peak of the Chinook salmon fishery). Thus, a TOD stratified design (Bernard et al. 1998) has and will continue to be used.

The logistics of scheduling a single-technician survey necessitate a tradeoff between unbiased estimates and precision (Bernard et al. 1998). Since 2000, equal sampling effort has been allocated between mid- and late-day strata. Because the mid-day stratum has had slightly greater harvest on average, it was sampled systematically, every third day, with a random starting day. Sampling of the late-day stratum was constrained to preserve back-to-back days off for the technician (as required under the State labor contract), which led to sampling 2 consecutive days with 4 days in between (“quasi”-systematic sampling). The 2023 sampling schedule is presented in Appendix A1. Table 1 shows the summary of stratification structure for the Lower Landing.

Table 1.–Summary of stratification structure and sampling characteristics for the 2023 & 2024 Situk River Chinook salmon creel surveys at Lower Landing, June 10–July 31.

Stratum	Time of day	Number of days	Days sampled	Sampling method ^a
Mid-day	1000–1630	53	18	SYS
Late-day	1630–2300	53	18	q-SYS

^a SYS = systematic sampling, q-SYS = “quasi” systematic sampling.

Expansion Factor Methodology for Entire River Harvest

The creel survey at Lower Landing captures a large fraction, but not 100%, of the Chinook and sockeye salmon harvest. Additional fish are harvested before 10 June by anglers exiting at Nine Mile Bridge and those that use Maggie John Trail, as well as before and after the hours of the survey at Lower Landing. Comparison of SWHS and creel survey estimates from 2001 to 2021 indicate that the Chinook harvest estimates from the SWHS are approximately 1.178 times greater than the estimates produced from the creel survey (Figure 3). The fitted relationship in Figure 3 was obtained using a linear regression model through origin. When there is a need to obtain inseason estimates of Chinook salmon harvest above the weir for projecting escapement, the creel survey harvest will be expanded upward by a factor of 1.178. The standard error of this expansion factor was estimated to be 0.317 using empirical bootstrap for the linear regression. Since 2010, a second technician has been added to the creel survey. This enables us to survey all three angler exiting sites. A new linear relationship was evaluated between the historical sockeye salmon creel estimates from all three exiting sites and the SWHS harvest estimates from 2010 to 2020 (Figure 4). The expansion factor between SWHS harvest and the creel survey harvest was estimated to be 1.068 with a standard error of 0.083. This standard error was derived using empirical bootstrap for linear regression. Similar to Chinook salmon, the inseason projection of sockeye salmon harvest will be derived by expanding the creel survey harvest upward by a factor of 1.068. The estimates from the new expansion method will be compared with the old ones.

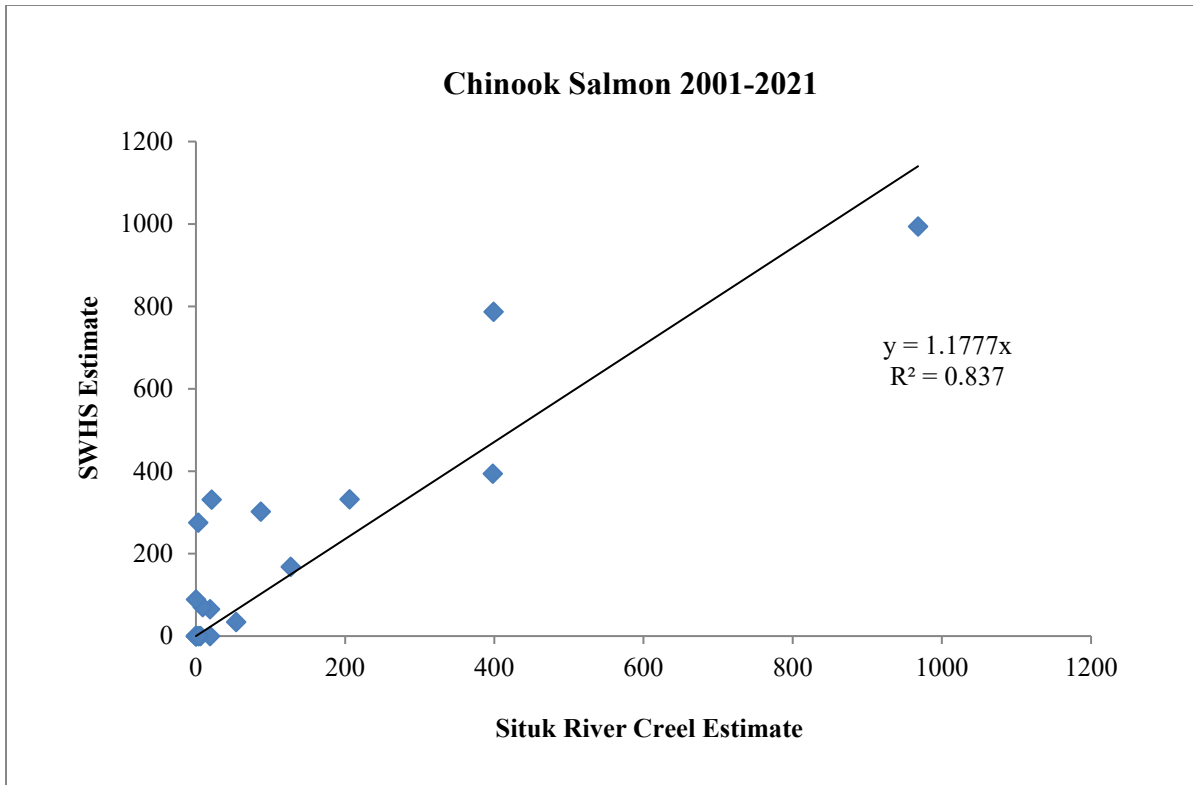


Figure 3.—Situk River Creel survey harvest estimates versus Statewide Harvest Survey estimates for Chinook salmon (all sizes from Lower Landing), for both above and below the weir, 2001–2021.

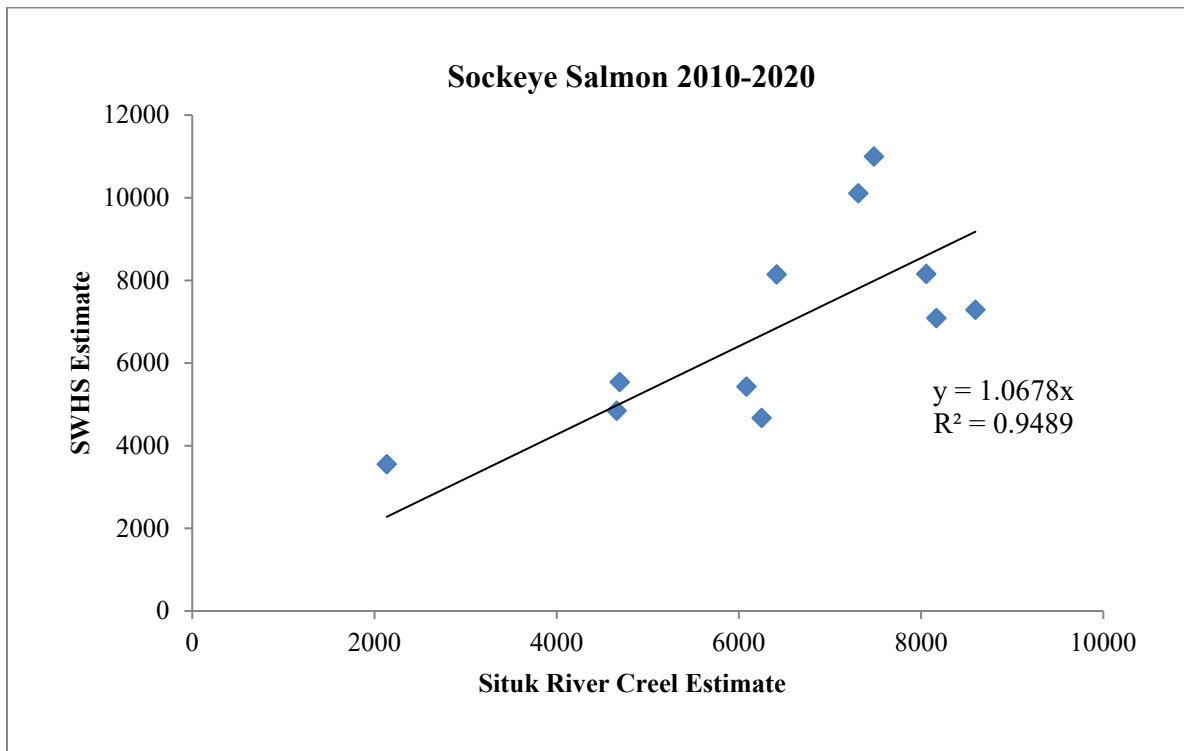


Figure 4.—Situk River Creel survey harvest estimates versus Statewide Harvest Survey estimates for sockeye salmon, for both above and below the weir, 2010–2020.

Past performance of the creel survey with respect to the precision of the resulting end-of-the-season estimate of escapement is detailed in Table 2.

The coefficient of variation of the harvest of large Chinook above the weir is very stable at 43–48%, translating to 5–30% relative precision (RP) for the resulting estimates of escapement. Hypothetically this would have resulted in meeting the current Objective 1 criterion. Note that the RP of the escapement estimate is closely tied to the estimated harvest of large Chinook above the weir: higher harvests cause greater uncertainty in the escapement². There was no harvest of large Chinook salmon in 2006 through 2008 because the Situk River was closed to the harvest of large Chinook salmon (≥ 20 inches), and in 2009 one fish was sampled in a largely restricted season; the fishery was again closed to the harvest of Chinook salmon ≥ 20 inches in 2010–2012. Since 2012, Chinook salmon sport fisheries have been very limited, resulting in no large fish (≥ 28 inches) harvested, except in 2021.

Sampling Methodology for Other Locations

Similar to methodology used in 2010 through 2022, two samplers will be used in 2023 and 2024 utilizing similar sampling schedule and general method, but the samplers will rotate between Lower Landing, the Nine Mile Bridge and Maggie John Trailhead. The rotation schedule will be to systematically sample the Nine Mile Bridge and Maggie John Trailhead locations every other day (except scheduled days off) after randomly selecting which area will be sampled on the first day. Alternating two samplers between locations will be employed in 2023 and 2024 to introduce some diversity and boost the morale of sampling personnel. This change preserves the systematic nature of the sampling design. The resulting estimate of harvest from those locations will be added to the estimate from the Lower Landing to create an entire-river harvest estimate. The entire-river estimate using two samplers will be used to evaluate the new linear relationship between creel survey estimates and the SWHS estimates. The results from the new expansion methods will be compared to the results from the old one. Table 3 shows the summary of stratification structure for the Nine Mile Bridge and Maggie John Trailhead access points.

Table 2.–Summary of stratification structure and sampling characteristics for the 2023 and 2024 Situk River Chinook salmon creel surveys at Nine Mile Bridge and Maggie John Trailhead, June 10–July 31.

Location ^a	TOD ^b stratum	Time of day	Number of days	Sampling method for days	Days sampled
MJT	Mid-day	1000–1630	53	SYS ^c	9
	Late-day	1630–2300	53	SYS	9
NMB	Mid-day	1000–1630	53	SYS	9
	Late-day	1630–2300	53	SYS	9

^a MJT = Maggie John Trailhead, NMB = Nine Mile Bridge.

^b TOD = time of day.

^c SYS = systematic sampling.

² During high harvest years, the amount of uncertainty could probably be reduced somewhat by analyzing the harvest age composition data inseason, enabling current-year estimates of the proportion of large fish, rather than relying on the multi-year average, as has been done above.

Table 3.—Hypothetical end-of-season estimates of sport harvest above the weir, escapement, and relative precision (RP, $\alpha = 0.05$) of large Chinook salmon in the Situk River, 2000–2005.

Year	Creel, all Chinook above/ below	CV	Creel, Expanded to SWHS	CV	All Chinook above only	CV	Large Chinook above only	CV	Inriver run (weir count)	Escapement	CV	RP	Harvest rate of large fish above the weir
2000	1,176	0.13	1,505	0.17	759	0.24	493	0.43	2,518	2,025	0.11	21%	0.20
2001	405	0.23	518	0.26	261	0.31	170	0.47	696	526	0.15	30%	0.24
2002	129	0.26	165	0.29	83	0.33	54	0.48	1,024	970	0.03	5%	0.05
2003	1,050	0.11	1,344	0.16	677	0.24	440	0.43	2,615	2,175	0.09	17%	0.17
2004	396	0.10	507	0.15	255	0.23	166	0.43	798	632	0.11	22%	0.21
2005	210	0.16	269	0.20	135	0.26	88	0.44	613	525	0.07	15%	0.14

Note: Creel estimates of all Chinook salmon above and below the weir are spatially/temporally expanded by a factor of 1.28 (SE = 0.15) derived from a comparison with the Statewide Harvest Survey for 2000–2005, multiplied by 0.50 (SD = 0.09) to convert to harvest above the weir, and multiplied by 0.65 (SD = 0.24) to convert to large Chinook salmon only.

Note: The Chinook salmon sport fishery has been closed, for some or all days of the seasons, to retention of fish ≥ 20 inches in all years since 2006.

OBJECTIVE 2; AGE COMPOSITION OF CHINOOK SALMON

Age, sex, and length composition of the harvest in the Situk River sport fishery will be estimated from sampling the harvest of all interviewed anglers during the creel survey.

Assuming that age, sex, and length composition does not vary between the TOD strata, the data collected can be treated as a simple random sample. Accordingly, a sample of 35 fish is needed to meet the Objective 2 criterion for a binomial proportion, assuming 15% scale regeneration (Cochran 1977). We expect that the objective criterion for age composition will be met in 2023 and 2024 unless inseason management actions cause a restriction in the daily bag limit. The projected Chinook salmon run of 450 large fish for 2023 suggests a sport fishery won't happen if the forecast is realized. Small sample sizes in the event of a restricted fishery do not present a problem because correspondingly few fish are harvested, and the harvest then represents a very small fraction of the total run. The age composition of fish passing the weir is estimated by the DCF by sampling fish at the Situk weir.

DATA COLLECTION

During each sampling period, the technicians will record the number of anglers who have completed their fishing trips in the identified area. If possible, every angler completing a fishing trip during the sampling period will be interviewed. If not interviewed however, a counted angler will be identified by recording a valid interview number without additional interview information.

Data to be recorded during each interview will include the following, which is further described in Appendix A2:

- time of interview;
- the number of Chinook and sockeye salmon kept;
- the number of Chinook and sockeye salmon released;
- angler effort to the nearest 0.25 hour;
- whether Chinook and sockeye salmon were caught above or below the ADF&G weir;
- whether Chinook salmon harvested or released were ≤ 20 in (small), >20 in and <28 in (medium), or ≥ 28 in (large) TL;
- whether the trip was guided or unguided;
- what type of access was used by the angler;
- residency status of the angler, resident or nonresident;
- in the event that the angler is guided, the guide's logbook number;
- any in-river observations of king salmon presence, location, and abundance.

Data are to be recorded for individual anglers, and not pooled into a single interview for a "fishing party". Field data will be entered onto the Situk River Creel Survey Form (Appendix A3), and then transferred to a custom Excel^{®3} spreadsheet for final editing and analysis.

Each Chinook salmon observed (all size groups included) will be "sampled" by measuring the mid-eye to fork (MEF) length, and recording the sex of the fish. Four scales will be sampled near the preferred area on each Chinook salmon at a point on a diagonal line from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin, 2 rows above the lateral line (Welanders 1940). If the scales in the preferred location cannot be obtained, another set of scales will be taken

³ This and subsequent product names are included for a complete description of the process and do not constitute product endorsement.

from as close to the preferred scale area as possible. However, scales will only be taken from the area bounded dorsally by the fourth row of scales above the lateral line, ventrally by the lateral line, and between lines drawn vertically from the posterior insertion of the dorsal fin and the anterior insertion of the anal fin. If no scales are available in the preferred area on the left side of the fish, scales will be collected from the preferred area on the right side of the fish. Scales will then be mounted on gum cards and sex and lengths in millimeters (MEF) of Chinook salmon recorded on Alternate Age-Weight-Length (AWL) mark-sense forms and coded wire tag (CWT) sampling forms (see Appendices 4–7). Gum cards will be taped to mark-sense forms and sent to the scale aging laboratory in Douglas. Scale impressions will then be made in cellulose acetates (Clutter and Whitesel 1956) and ages will be determined from patterns of circuli according to objective criteria developed by the DCF scale-aging group (Olsen 1992).

All harvested Chinook salmon will be checked for adipose fin clips (a standard procedure in Southeast Alaska to provide information on straying in systems which have no juvenile coded-wire-tagging component). In addition, any incidental steelhead harvested by anglers will be checked for an adipose fin clip as well. If an adipose-clipped fish is found, the head will be collected, a cinch strap inserted, and a CWT sampling form filled out. Adipose-clipped sockeye salmon may also be found in angler's catches. When possible, heads will be collected, a cinch strap inserted, and a CWT form filled out (this is not a priority duty). This form will be filled out by the crew leader for the Yakutat marine harvest study project (separately funded) from information collected at the time of interview.

If an angler comes in with a trophy-sized Chinook salmon with an adipose fin clip and prefers to keep it intact, then as much information as possible will be recorded, such as name and address of the person, and where they are going to have it mounted. The importance of eventually obtaining the head will be stressed, and, if possible, permission to retrieve it from the taxidermist will be obtained; thus a CWT recovery form will be filled out (Appendices A6-A7) and a cinch-strap inserted (to permit identification if retrieving the head from the taxidermist).

DATA REDUCTION

The technician will first check the data forms and then turn them in to the area office on a weekly basis. The project leader or technician will then enter the completed Situk River creel data into a custom Excel[®] spreadsheet. This electronic data file will then be rechecked for obvious mistakes and omissions before processing to estimate angler effort, catch, and harvest. Chinook salmon scales will be pressed onto acetates, and then read by DSF personnel. Ages will be recorded onto the matching Alternate AWL mark-sense forms and the forms will be submitted to marine harvest study staff in Douglas for opscan reading, and then returned to the project leader in Yakutat for editing and data analysis.

A final, edited copy of the data, along with a data map, will be sent with the final report to Research and Technical Services (RTS, DSF Anchorage) electronically for archiving. The data map will include a description of all electronic files contained in the data archive, all data fields and details of where hard copies of any associated data are to be archived, if not with RTS. The original hard copies of the data forms will be logged and stored in the Yakutat ADF&G DSF office, and scale gum cards and acetates will be logged and stored in the Region 1 scale data archives, located in the Douglas regional office.

DATA ANALYSIS

EFFORT, CATCH AND HARVEST

Angler effort (in hours), harvest, and catch of Chinook and sockeye salmon in each stratum will be estimated using procedures for a stratified two-stage sample survey (Cochran 1977) where "days" (mid- or late-day periods) are first stage sampling units and "anglers" are second stage sampling units. Location and TOD will be considered their own strata. First, the mean harvest (or catch or effort) is obtained over all anglers interviewed within each sampled day and location:

$$\bar{n}_{hi} = \frac{\sum_{j=1}^{m_{hi}} n_{hij}}{m_{hi}} \quad (1)$$

where n_{hij} is the number of fish harvested (or caught, etc.) by interviewed person j during sampled day i for location/TOD stratum h , and m_{hi} is the number of people interviewed during each day. This estimate is then expanded by the number of people (counted) who exit the site during the day (M_{hi}) to estimate a total for each sampled day:

$$\hat{N}_{hi} = M_{hi} \bar{n}_{hi} \quad (2)$$

The mean harvest over all days sampled within each stratum h is then estimated:

$$\bar{\hat{N}}_h = \frac{\sum_{i=1}^{d_h} \hat{N}_{hi}}{d_h} \quad (3)$$

where d_h is the number of days sampled in each stratum. Finally, this estimate is expanded by the number of days in the stratum (D_h) to estimate a total for each stratum:

$$\hat{N}_h = D_h \bar{\hat{N}}_h \quad (4)$$

Estimates of catch and angler effort will be obtained similarly by substituting the appropriate statistics (catch or effort) into equations (1) through (4), above. Similar substitutions will be obtained to estimate residency, guided versus unguided trips, and type of access used by the angler.

The variance of the stratum estimates is estimated:

$$\hat{V}[\hat{N}_h] = (1 - f_{1h}) D_h^2 \frac{S_{1h}^2}{d_h} + \frac{D_h}{d_h'} \sum_{i=1}^{d_h'} \hat{V}[\hat{N}_{hi}] \quad (5)$$

where $f_{1h} = d_h / D_h$ is the sample fraction for "days", S_{1h}^2 is sample variance among "days", and d_h' is the number of days in which s_{2hi}^2 (see below) are estimable (i.e., when at least 2 people are interviewed or the number interviewed equals the number counted). The among-day sample variance for days selected systematically for sampling (the mid-day stratum for all locations and late-day stratum for Maggie John Trailhead and Nine Mile Bridge) is estimated using an approximation proposed by Wolter (1985):

$$S_{1h}^2 \approx \frac{\sum_{i=2}^{d_h} (\hat{N}_{hi} - \hat{N}_{h(i-1)})^2}{2(d_h - 1)} \quad (6)$$

The among-angler variance component (usually 0 in this survey because all anglers exiting the fishery are interviewed) is estimated by:

$$\hat{V}[\hat{N}_{hi}] = \left(1 - \frac{m_{hi}}{M_{hi}}\right) M_{hi}^2 \frac{s_{2hi}^2}{m_{hi}} \quad (7)$$

where s_{2hi}^2 is the among-angler sample variance:

$$s_{2hi}^2 = \frac{\sum_{j=1}^{m_{hi}} (n_{hij} - \bar{n}_{hi})^2}{m_{hi} - 1} \quad (8)$$

Sampling in the late-day stratum at Lower Landing is “quasi”-systematic, i.e., it has irregular sampling intervals between sampling days. However if 2 consecutive days are considered as a single sampling unit (see sampling schedule in Appendix A1), then sampling becomes systematic with respect to the new 2-day sampling units. In this case equations (2) – (8) can still be used for the late-day stratum at Lower Landing with the appropriate substitutions. For example, n_{hij} becomes the number of fish harvested (or caught, etc.) by interviewed person j during sampled 2-day period i for late-day stratum; the number of days sampled, d_h , becomes the number of 2-day units sampled; the total for each sampled day, \hat{N}_{hi} , becomes the total for each 2-day sampling unit; the number of days in the stratum, D_h , becomes the number of 2-day units in the late-day stratum; etc.

Variances of the stratum estimates of catch by species and angler effort will be obtained similarly, by substituting the appropriate catch and effort statistics into equations (5) through (8), above.

Estimates of angler effort, catch, and harvest by species and their variances across all strata, or select combinations of strata, will be obtained by summing the individual stratum estimates (assuming independence). Similarly, total estimates of above and below the weir catch and harvest across the TOD strata will be obtained by summing the individual stratum estimates. Standard errors of the stratum and total estimates are obtained by taking the square root of the variance estimate.

Expanded Chinook salmon harvest estimates for inseason escapement projections will be obtained by multiplying \hat{N} by an expansion factor ($\hat{E} = 1.18$, $SE = 0.32$, Figure 3) to account for harvest outside the framework of the creel survey design.:

$$\hat{H}_{EXP} = \hat{N}\hat{E} \quad (9)$$

where the variance is calculated by Goodman’s (1960) formula:

$$\hat{V}[\hat{H}_{EXP}] = \hat{N}^2 \hat{V}[\hat{E}] + \hat{E}^2 \hat{V}[\hat{N}] - \hat{V}[\hat{E}] \hat{V}[\hat{N}] \quad (10)$$

Similarly expanded sockeye salmon harvest will be obtained by multiplying sockeye salmon creel harvest estimate by its own expansion factor to account for harvest outside the survey framework.

AGE COMPOSITION OF CHINOOK SALMON

The age composition of the harvested Chinook salmon will be estimated as follows:

$$\hat{p}_z = \frac{n_z}{n_a} \quad (11)$$

$$\hat{V}[\hat{p}_z] = \left(1 - \frac{n_a}{\hat{N}}\right) \frac{\hat{p}_z(1 - \hat{p}_z)}{n_a - 1} \quad (12)$$

where \hat{p}_z is the estimated proportion of Chinook salmon in age category z , n_a is the number of sampled fish classified by age, n_z is the subset of n_a belonging to category z .

Harvests by age are estimated by multiplying \hat{p}_z by the appropriate harvest estimate from the SWHS:

$$\hat{H}_z = \hat{H} \hat{p}_z \quad (13)$$

$$\hat{V}[\hat{H}_z] = \hat{H}^2 \hat{V}[\hat{p}_z] + \hat{p}_z^2 \hat{V}[\hat{H}] - \hat{V}[\hat{p}_z] \hat{V}[\hat{H}] \quad (14)$$

where the variance follows Goodman (1960).

All age composition estimates will be conducted separately for fish harvested above and below the weir.

SCHEDULE AND DELIVERABLES

Field activities will be initiated shortly before the creel survey begins 10 June 2023/2024 and will conclude on 31 July 2023/2024.

Final estimates will be completed by November 2023/2024 and incorporated into a Fishery Data Series report for the years 2023 to 2024 to be drafted in 2024.

RESPONSIBILITIES

Jason Pawluk, Project Leader. Supervises project personnel. Writes operational plan in conjunction with biometrician, including objectives, study design, and sampling schedule. Performs and coordinates data analyses in conjunction with biometrician. Lead author for final report.

Jiaqi Huang, Biometrician. Provides input in sampling design and allocation, designs scheduling procedures and incorporates into operational plan. Provides procedures for calculation of harvest estimates and confidence intervals. Assists in report writing. Also reviews operational plan and final report.

Vacant, Fishery Technician III. Conducts creel surveys as schedule dictates.

Vacant, Fishery Technician II. Conducts creel surveys as schedule dictates.

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APPENDIX A: FORMS AND INSTRUCTIONS

Appendix A1.–Sampling schedule example for the 2023 and 2024 Situk River Chinook salmon creel surveys.

Date	Mid-Day (1000-1630 hours)	Late Day (1630-2300 hours)	Sampler 1 is Blue Sampler 2 is Yellow		Date	Mid-Day (1000-1630 hours)	Late Day (1630-2300 hours)	Sampler 1 is Blue Sampler 2 is Yellow		Date	Mid-Day (1000-1630 hours)	Late Day (1630-2300 hours)	Sampler 1 is Blue Sampler 2 is Yellow	
					23-Jun		X	9	LL	13-Jul	x		9	LL
					24-Jun		x	LL	MJ	14-Jul	OFF	OFF	OFF	OFF
					25-Jun	x		9	LL	15-Jul	OFF	OFF	OFF	OFF
					26-Jun	OFF	OFF	OFF	OFF	16-Jul	x		LL	MJ
					27-Jun	OFF	OFF	OFF	OFF	17-Jul		x	9	LL
					28-Jun	x		LL	MJ	18-Jul		x	LL	MJ
					29-Jun		X	9	LL	19-Jul	x		9	LL
					30-Jun		x	LL	MJ	20-Jul	OFF	OFF	OFF	OFF
					1-Jul	x		9	LL	21-Jul	OFF	OFF	OFF	OFF
10-Jun	x		LL	MJ	2-Jul	OFF	OFF	OFF	OFF	22-Jul	x		LL	MJ
11-Jun		x	9	LL	3-Jul	OFF	OFF	OFF	OFF	23-Jul		x	9	LL
12-Jun		x	LL	MJ	4-Jul	x		LL	MJ	24-Jul		x	LL	MJ
13-Jun	x		9	LL	5-Jul		X	9	LL	25-Jul	x		9	LL
14-Jun	OFF	OFF	OFF	OFF	6-Jul		x	LL	MJ	26-Jul	OFF	OFF	OFF	OFF
15-Jun	OFF	OFF	OFF	OFF	7-Jul	x		9	LL	27-Jul	OFF	OFF	OFF	OFF
16-Jun	x		LL	MJ	8-Jul	OFF	OFF	OFF	OFF	28-Jul	x		LL	MJ
17-Jun		x	9	LL	9-Jul	OFF	OFF	OFF	OFF	29-Jul		x	9	LL
18-Jun		x	LL	MJ	10-Jul	x		LL	MJ	30-Jul		x	LL	MJ
19-Jun	x		9	LL	11-Jul		X	9	LL	31-Jul	x		9	LL
20-Jun	OFF	OFF	OFF	OFF	12-Jul		x	LL	MJ					
21-Jun	OFF	OFF	OFF	OFF										
22-Jun	x		LL	MJ										

Note: Lower landing (LL) is surveyed on every sampling day (“x”), and secondary areas (9 mile Bridge (9) or Maggie John trail (MJ)) alternate as designated every sampling day. Use mid or late stratum for all areas as indicated. Color codes (Blue or Yellow) depict which sample works at which site.

Appendix A2.–Instructions for completing the Situk River creel survey form during the 2023 and 2024 Situk River Chinook salmon creel survey.

Date and period - **Today's date and period number 2 or 3. (2 for mid-day and 3 for late-day)**

Interview Number - **Start with number one (1) at the beginning of each sampling period (day) and number consecutively.**

Time of Interview – Record the time the interview started in military time.

Guided? Ask if the person was guided today. Mark a Y for yes, N for no.

Resident? Is the person an Alaska state resident? Mark a Y for yes, N for no.

Target Species. What was the person primarily fishing for?

Mark 1 for Chinook

Mark 2 for sockeye

Mark 3 for both

Conveyance? Mark the appropriate box regarding the primary mode of angler access or conveyance (F=Foot, DB=Drift Boat, JB=Jet Boat, MB=Propeller Boat; Please make sure that if it is a motorboat, that you verify if it is a jet (JB) or propeller (MB) motor).

Hours Fished? Mark the actual amount of time spent *fishing*, not walking, traveling, sleeping, etc. Round time to nearest quarter hour in decimals....6.25 hrs or 1.5 hours, etc.

Enter the total number of fish caught and/or kept by species **upstream** of the weir.

Enter the total number of fish caught and/or kept by species **downstream** of the weir.

JK-K= jack king, kept. King salmon harvested less than or equal to **20 inches**.

JK-R= jack king, released. King salmon harvested less than or equal to **20 inches**.

SK-K= small king, kept. King salmon harvested **greater than 20 inches** but less than **28 inches**

SK-R= small king , released. King salmon released **greater than 20 inches** but and less than **28 inches** in length.

KS-K= king salmon, kept. King salmon harvested **28 inches or greater in length**

KS-R= king salmon, released. King salmon released **28 inches or greater in length**

RS-K= sockeye (red) salmon kept, any size.

RS-R= sockeye (red) salmon released, any size.

Please take the effort to stress that "released" means "fair hooked" (in the mouth), and not snagged, broken off, or otherwise not legally harvestable.

Record any in-river observation of Chinook salmon, including presence, location, abundance in **KS Observations/Comments** column.

Appendix A3.—Situk River creel survey form to be used during the 2023 and 2024 Situk River Chinook salmon creel survey.

Date:		Period (2 or 3):						Area/Sampler:													
KS = Greater than 28", SK = 20.1" - 28", JK = 20" or less																					
Interview #	Time of Interview	Guided?	Logbook #	Resident?	Target Species	Conveyance	Hours Fished	Fish Caught Above Weir				Fish Caught Below Weir				KS Observations/Comments					
								JK - K	JK - R	SK - K	SK - R	KS - K	KS - R	RS - K	RS - R		JK - K	JK - R	SK - K	SK - R	KS - K
Conveyance: F = Foot, DB = Drift Boat, MB = Motor, Non- Jet, JB = Jet Boat																					

Appendix A4.—Instructions for completing the Alternate Age-Weight-Length mark-sense forms to be used during the 2023 and 2024 Situk River Chinook salmon creel survey.

MARK-SENSE ALTERNATE AGE-WEIGHT-LENGTH FORM

Biological information recorded on the age-weight-length (AWL) forms will be limited. Lengths and scales will be taken only from Chinook salmon. The object of biological sampling is to get information from a representative sample of fish from the fishery. As there are lines for only 9 fish on the front side of the AWL form, scales from a maximum of 9 Chinook salmon should be placed on each scale card. Only one scale card should match with each AWL form. The 5-digit number on the AWL form will be recorded on the scale card next to "Card Number". Mount scales onto gum cards and tape onto the front of the AWL form. Be sure your scales are mounted correctly with the rough side of the scale up.

Scales should not be taken from adipose-finclipped salmon voluntarily (select fish) brought in by anglers not contacted during the sampling period while leaving the Situk River fishery. Adipose-finclipped Chinook salmon observed during the creel survey should be sampled for age, sex, and length. Any adipose-finclipped steelhead observed during the creel survey should also be sampled for age, sex, and length information with this data recorded on a separate mark-sense form (since each page of the mark-sense form is associated with only one species at a time).

Line by line instructions for use of the AWL forms follow.

HEADER FIELDS:

Fishery and Name Fishery should be filled in as "**Situk River KS Creel**", and you should put your name in the Name blank.

Page

Leave Blank

Year, Month and Day

record using leading zeros on month and day. Note that these are additive binary fields.

Survey Area, Site, and Sublocation

Leave Blank, since forms will be grouped over the season, it can be filled in on the first sheet and repeated for the entire batch.

Period - **Leave Blank**

Species

Chinook = **410**

Steelhead = **540**

(Do Not Fill Out This Form For Sockeye)

Last 4 header fields - **Leave Blank**

BIOLOGICAL INFORMATION LINES:

Sex

Mark "M" or "F" if known, leave blank if uncertain

Length

record length of fish from middle of eye to fork of tail to the nearest 5 millimeters.

Tag Number

record cinch strap number used for adipose fin-clipped Chinook salmon or steelhead if a head was collected. Note the additive fields in the 10,000's and 1,000's columns. If a steelhead is sampled the information should be recorded on a separate form.

Weight Variable- Leave Blank

Rest of fields - Leave Blank

Examples (see AWL form attached):

Example 1: During interview 1, scales and lengths were taken from Chinooks with fork lengths of 820mm (male), 850mm (male, adipose-clipped and given cinch strap #62358), 790mm (female), and 1011mm (female).

Appendix A5.—Filled-out example Alternate Age-Weight-Length mark-sense form to be used during the 2023 and 2024 Situk River Chinook salmon creel survey. Refer to Appendix 4 for details regarding the example.

PLEASE DO NOT WRITE IN THIS MARGIN

108591

PLEASE DO NOT WRITE IN THIS AREA

NAME: <i>Fred Fish</i>		PAGE		YEAR		MONTH		DAY		SURVEY AREA		SITE		PERIOD		ALASKA DEPARTMENT OF FISH AND GAME ALTERNATE AGE WEIGHT LENGTH VER. 1.0			
FISH #		STATUS		LENGTH		TAG NUMBER		WEIGHT		OPTION 1		OPTION 2		OPTION 3		VARIABLE			
1000'S		HUNDREDS		TENS		ONES		HUNDREDS		TENS		ONES		HUNDREDS		TENS		ONES	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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PLEASE DO NOT WRITE IN THIS MARGIN

Appendix A6.—Instructions for filling out coded wire tag sampling forms.

All harvested Chinook and coho salmon need to be checked for adipose clips. If an adipose-clipped fish is found, the head will be collected, a cinch strap inserted, and a coded wire tag (CWT) sampling form filled out. Adipose-clipped pink, chum, and sockeye salmon, and steelhead may also be found in anglers' catches, so heads should be collected and a CWT form will also need to be filled in for these fish (This is not a priority duty, however).

If someone comes in with a trophy, adipose-clipped fish and doesn't want to give you the head, record as much information as possible -- such as name and address of person, and where they are going to have it mounted. Stress the importance of finally getting the head and then try to get permission to retrieve it from the taxidermist, if possible. You should fill out a CWT form and record the cinch tag number on the age-weight-length (AWL) mark-sense form anytime that you see a missing adipose fin on a Chinook salmon, regardless of whether you obtain the head.

Line by line instructions for CWT data forms follow (see the CWT manual from the ADF&G Mark, Tag, and Age Laboratory for further information):

INTERVIEWER INFORMATION:

Sample Number - leave blank (will be filled in at office)

Source - circle "SPORT."

Survey Site - record "Yakutat."

Sample Type - circle "random" if the fish is randomly sampled during a creel survey or CWT sampling, circle "select" if the head is voluntarily brought in by a fisherman, or circle "voluntary" if the fish was taken from an unsampled fishery.

Sampler - record your last name

Name of Place Sampled - use for random heads only. Record "Lower Landing."

Date Sampled - record month and day the fish was sampled for random heads, otherwise for select head, when it was caught.

STRATIFICATION INFORMATION

Sport Harvest Code - record for randomly sampled heads only. Record FF

Fishing Site - Leave blank unless otherwise instructed

ANGLER INFORMATION:

Name & Mailing Address - record name and address of angler.

CATCH INFORMATION:

Date Caught - record month and day that the fish was caught

Water Type - circle freshwater.

Name of Place Fished - record Situk River.”

Area Information (District-Subdistrict) – record “182-70.”

Anadromous Stream# - record “182-70-10100.”

SAMPLING INFORMATION:

Do not use in SE. Note gray box w/ arrow at bottom of page!

HEAD RECOVERY INFORMATION:

Head Number - record 6-digit cinch strap number assigned to head of fish. Hint: check cinch strap number with paperwork. They may not be used in numerical order. It is very important the correct paperwork matches the correct fish head.

Species Code - record appropriate species number: **410** for Chinook (king) salmon >28”, **411** for small (<28”) Chinook salmon, **430** for coho (silver) salmon, **440** for pink (humpy) salmon, **450** for chum (dog) salmon, **420** for sockeye (red) salmon, or **540** for steelhead trout.

Mideye-to-Fork Length - record length from mideye-to-fork of tail to the nearest 5 mm.


Clip Status - circle "Good" if the adipose looks to be cleanly sliced off and healed, circle "???" if the adipose looks like it may have been torn off or looks questionable, or circle "Unkn" if only the head is seen

Chinook Flesh Color - leave blank unless the fish is a Chinook-then circle the appropriate flesh color

IMPORTANT NOTE: It is very important that we account for every fish head this year. We will be shipping heads weekly to the ADF&G Mark, Tag, and Age Laboratory, so there should be plenty of room in the freezers provided. In the odd event, however, that you put a fish head elsewhere - we must know where it is!

If you turn in a form for a fish head that you did not put it in the usual place please note WHERE this head is in the upper right hand corner of the form: e.g. fish head lost by angler at cleaning table, or fish head in Comm Fish freezer.

Appendix A7.-Coded wire tag sampling form example.



Alaska Department of Fish and Game

Coded Wire Tag Sampling Form

Personal Use, Sport and Subsistence Fisheries
Southeast Region

PAGE		PAGES
OF		OF

Page info for this Sample Number only! See instructions

CONFIDENTIAL INFORMATION

INTERVIEWER INFORMATION

SAMPLE NUMBER:

SOURCE: personal use sport subsistence

SURVEY SITE: HAINES

SAMPLE TYPE: random select voluntary

SAMPLER: JOE SAMPLER

NAME OF PLACE SAMPLED: LETNIKOF

DATE SAMPLED: - -

EXPLANATION OF SAMPLE TYPES

random: CWT recoveries made during the course of random sampling for a creel survey.

select: CWT recoveries made in an area having a creel survey, but not taken in the random sampling process.

voluntary: CWT recoveries made in an area which isn't covered by a random creel survey (e.g. Hoonah)

STRATIFICATION INFORMATION

SPORT HARVEST CODE FISHING SITE CODE

DE---Derby Entered FF---Freshwater Fishery MR---Marine Roadside A-Z
DT---Derby Takehome MB---Marine Boat TF---Terminal Fishery (See instructions: Fishing Site Code may be blank)

ANGLER INFORMATION (Please print legibly)

ANGLER'S NAME: J. A. PUBLIC

MAILING ADDRESS: P O BOX 339
City, State, Zip Code
MIDDELETOWN, MN 66666

CATCH INFORMATION

DATE CAUGHT: - -

NAME OF PLACE FISHED: CHILKAT INLET

AREA INFORMATION: 115-32 -

ANADROMOUS STREAM# (FRESHWATER-ONLY)

WATER TYPE: saltwater freshwater

SAMPLING INFORMATION

For RANDOM Samples Only (Personal Use and Subsistence)

SPECIES (CODE)	TOTAL # FISH CHECKED FOR AD-CLIPS	# AD-CLIPS SEEN	WERE ALL CHECKED
(410)CHIN			y n
(411)JACK (CHN-ONLY)			y n
(420)SOCK			y n
(430)COHO			y n
(440)PINK			y n
(450)CHUM			y n
(540)STHD			y n

HEAD RECOVERY INFORMATION

HEAD NUMBER	SPECIES CODE	LENGTH MID-EYE TO FORK	CLIP STATUS	CHINOOK Flesh Color
662358	410	830	Good ??? Unkn No Ad Clip	(R) W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W
			Good ??? Unkn No Ad Clip	R W

Not for use in SE for Sport Samples (PUT COMMENTS ON BACK)

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