Regional Operational Plan SF.1J.2015.10

Haines Marine Boat Sport Fishery Creel Survey and Skagway Marine Boat Sport Fishery Harvest Sampling, 2015

by

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and

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May 2015

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

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HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY AND SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING, 2015

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SIGNATURE/TITLE PAGE

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Approval

Title	Name	Signature	Date
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Research Coordinator	Jeff Nichols		5-10-15
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ABSTRACT

Marine boat sport anglers target Chinook salmon (*Oncorhynchus tshawytscha*) in waters near Haines from early May through late June. Due to forecasted low Chilkat River Chinook salmon abundance, Chilkat Inlet, the primary Haines area fishing site, will be closed to Chinook salmon retention in 2015. Biweekly angler effort, catch, and harvest of Chinook salmon by marine boat sport anglers in Chilkoot Inlet and returning to the Haines Small Boat Harbor will be estimated using an onsite creel survey from May 11 through June 28, 2015. Harvest sampling will be used to estimate the age, sex, length, and maturity composition of the Chinook salmon harvest, and adipose fins will be inspected to recover heads with coded wire tags. Contributions of hatchery and wild coded wire tagged stocks and the wild mature component of the harvest will be estimated.

Marine boat sport anglers target Chinook salmon in waters near Skagway from late May through the end of August. The Chinook salmon harvest by anglers returning to the Skagway small boat harbor will be sampled from May 26 to August 31, 2015. Harvest sampling will be used to estimate the age, sex, length, and maturity composition of the Chinook salmon harvest, and adipose fins will be inspected to recover heads with coded wire tags. Contributions of hatchery and wild coded wire tagged stocks will be estimated.

Key words: Creel survey, angler effort and harvest, age composition, length-at-age, boat sport fishery, coded wire tag, hatchery, Chinook salmon, *Oncorhynchus tshawytscha* , Haines, Skagway, Chilkat River, Lynn Canal.

PURPOSE

The purpose of this study is to estimate Chinook salmon harvest from the Haines marine boat sport fishery and to estimate Chinook salmon stock composition from the Skagway marine boat sport fishery harvest.

Chilkat River Chinook salmon are a Pacific Salmon Commission (PSC) indicator stock that contributes to management of the Southeast Alaska sport fishery allocation in accordance with the Pacific Salmon Treaty (PST). Estimating Chilkat River Chinook salmon harvest in the Haines marine boat sport fishery is important for run reconstruction and for identifying important exploitation areas. Data obtained from this project includes angler effort, Chinook salmon catch and harvest, age, sex, and length composition of the harvest, and contributions of coded wire tagged stocks, both wild and hatchery origin.

Stocks of Chinook salmon harvested by Skagway sport anglers are composed of hatchery-origin fish that were released as smolts in Pullen Creek and other wild and hatchery-origin stocks rearing in Taiya Inlet. Sampling harvested Chinook salmon in Taiya Inlet provides age and maturity data, as well as stock composition data through recovery of coded wire tags (CWT) implanted in several wild and hatchery-origin stocks. Stock composition, age, and maturity data are used to manage the Taiya Inlet marine boat sport fishery. In June and July of some years, Chinook salmon bag and annual limits have been liberalized in Taiya Inlet to allow harvest of hatchery-origin fish in excess of broodstock needs. After July, bag limits typically revert to Southeast Alaska regional regulations to avoid overharvest of rearing Chinook salmon stocks from throughout Southeast Alaska.

BACKGROUND

HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY

The spring marine boat sport fishery near Haines primarily targets Chinook salmon (*Oncorhynchus tshawytscha*) returning to the Chilkat River, along with rearing and hatchery-origin Chinook salmon in Chilkoot Inlet (Figure 1). Directed management for Chilkat River Chinook salmon was developed when the number of spawning salmon, observed in index streams,

declined sharply in 1985 and 1986. This decline corresponded with relatively large estimated sport harvests (Table 1). These concerns prompted restrictions on the sport fishery beginning in 1987. In 1989, the Haines King Salmon Derby was suspended because of conservation concerns. Restrictions increased during the ensuing few years until the fishery was closed in 1991 and 1992. The fishery was reopened in 1993 and the Haines King Salmon Derby was reinstated in 1995.

The Lynn Canal and Chilkat River King Salmon Fishery Management Plan (5 AAC 33.384) specifies a Chinook salmon inriver abundance goal range of 1,850–3,600 large (age-1.3 and older) fish. If the preseason forecast for inriver abundance is below the goal range, commercial and sport fishing restrictions go into effect in Chilkat Inlet. In 2008, the preseason inriver abundance forecast was below the lower end of the goal range, so Chilkat Inlet was closed to retention of Chinook salmon in May and June, and the Haines Sportsman's Association cancelled the Haines King Salmon Derby. The 2008 Haines creel survey documented that Chinook salmon effort and harvest were the lowest in the creel survey's history (Table 1). Chinook salmon-directed effort in 2008 was 14% of the average for the previous 15 years 1993–2007 and harvest was 10% of 15-yr average.

The 2015 preseason forecast is for Chilkat River Chinook salmon inriver abundance to be less than the lower bound of the goal range, so Chilkat Inlet and Chilkat River commercial, sport, and subsistence fisheries will be restricted (Figure 1). Retention of Chinook salmon by anglers in Chilkat Inlet, north of Seduction Point, will be prohibited April 15-July 15. This action closes the primary harvest area for the May/June Chinook salmon sport fishery. The Haines Sportsman's Association cancelled the 2015 Haines King Salmon Derby. Chinook salmon retention will be allowed in the remainder of District 15 with a bag and possession limit of 1 king salmon 28 inches or greater in length.

The Haines small boat harbor is the primary access site for the remaining available king salmon sport harvest area east of the Chilkat Peninsula (Figure 1). A creel survey will be conducted at that port to obtain postseason estimates of angler effort, Chinook salmon catch and harvest rates (CPUE and HPUE, respectively), number, and age composition of harvested Chinook salmon (Tables 1–3). The creel survey will sample harvested Chinook salmon for coded wire tags (CWTs) to estimate the contribution of Alaska hatchery, Chilkat River wild, and other CWT-marked stocks in the Haines area (Table 4).

Creel survey estimates will be used for Chilkat River salmon management and research. The Alaska Board of Fisheries (BOF) allocated 20% of the combined commercial troll and sport U.S.-Canada PST allocation of Chinook salmon to the Southeast Alaska sport fishery. To track the harvest of PST fish, it is desirable to conduct harvest studies in all areas of the region where a substantial portion of the Chinook salmon harvest occurs. This increases precision in harvest estimates, which aids management of the sport fishery allocation. Sampling the sport harvest of Chinook salmon near Haines for CWTs will document hatchery contributions necessary for PST catch reporting. Chinook salmon produced by Southeast Alaska hatcheries, except for a base period catch of 850 fish, do not count against the PST allocation.

SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING

The marine boat sport fishery based in the Skagway Small Boat Harbor (Figure 2) targets Chinook salmon in Taiya Inlet from late May through early September (Tables 5 and 6). Since 1998, hatchery-raised Chinook salmon smolts have been released in Taiya Inlet to enhance marine sport fishing opportunity (Table 7). Samples from the Skagway marine boat sport harvest have been used to estimate the contribution of CWT-marked stocks to the Skagway-based Chinook salmon

harvest, as estimated by the Alaska Department of Fish and Game's (ADF&G) Statewide Harvest Survey (SWHS, Table 8). Because final SWHS estimates for 2014 are not available yet, harvest and SE estimates from 2013 are used as surrogates in Table 8. Stock composition, maturity, and age composition data (Tables 9–11) are used by ADF&G area management staff to decide when Chinook salmon bag, size, and annual limits can be liberalized in Taiya Inlet to increase exploitation of hatchery stocks without overharvesting wild stocks. In some years, large numbers of immature wild Chilkat River Chinook salmon have been harvested in the Taiya Inlet sport fishery (Chapell 2009, 2010, 2012, 2013a, 2013b, 2014*, in prep;* Elliott and Chapell *in prep*). Historic Skagway sampling data shows that the immaturity rate increases in August, indicating an influx of rearing "feeders" into Taiya Inlet (Table 11). The high immaturity rate has been the basis for ending liberal Chinook salmon harvest regulations on July 31 each year in this area.

Effort data have also been collected during Skagway harvest sampling. The recent 5-year average Chinook salmon HPUE is made available to the public for use in trip planning.

OBJECTIVES

HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY

PRIMARY OBJECTIVES

Research objectives include the following:

1) Estimate the annual coded wire tagged Chinook salmon stock (hatchery and wild) contributions to the Haines marine boat sport fishery, such that estimates are within 35% of the true values 80% of time.

SECONDARY OBJECTIVES

Tasks for the season include the following:

1) Estimate the total Chinook salmon harvest in the May–June Haines marine boat sport fishery.

2) Estimate the harvest of wild, mature Chinook salmon in the May–June Haines marine boat sport fishery.

3) Estimate the age composition of Chinook salmon harvested in the May–June Haines marine boat sport fishery.

4) Sample the May–June Haines marine boat sport fishery consistently and provide 5-year average estimates of effort and Chinook salmon HPUE to the public.

5) Collect 10 Chinook salmon genetic samples from the Haines marine boat sport fishery harvest for the ADF&G Gene Conservation Laboratory at a rate that is proportional to harvest throughout the season.Skagway Marine Boat Sport Fishery Harvest Sampling

SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING

PRIMARY OBJECTIVES

Research objectives include the following:

1) Estimate the annual coded wire tagged Chinook salmon stock (hatchery and wild) contributions to the Skagway marine boat sport fishery, such that estimates are within 35% of the true values 80% of time.

SECONDARY OBJECTIVES

Tasks for the season include the following:

1) Estimate the biweekly age and maturity composition of Chinook salmon harvested in the Skagway marine sport fishery from Memorial Day through August.

2) Sample the Skagway marine boat sport fishery consistently from Memorial Day through August and provide 5-year average weekly estimates of large (≥28 in TL) Chinook salmon HPUE to the public.

3) Collect 20 Chinook salmon genetic samples from the Skagway marine boat sport fishery for the ADF&G Gene Conservation Laboratory at a rate that is proportional to harvest throughout the season.

METHODS

HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY

The harvest of Chinook salmon in the spring marine boat fishery near Haines will be monitored from May 11 to June 28, 2015. Essentially all (99%) of the wild mature Chinook salmon harvested in the marine boat sport fishery near Haines are expected to be harvested within this time period.

A stratified, multi-stage, direct expansion creel survey will be used to estimate the harvest of Chinook salmon in the Haines marine boat sport fishery. Given the closure of Chilkat Inlet to king salmon retention in 2015, the Haines small boat harbor will be the only access site sampled (Figure 1). Strata are defined by weeks, by time of day (TOD, either morning or evening), and by type of day (WeWd, either weekend or weekday).

The number of all large (≥28 in TL) Chinook salmon harvested and the number of wild mature Chinook salmon harvested will be estimated with the precision that can be obtained through the sampling design. With Chilkat Inlet closed to sport fishing, it is assumed that the total catches will be about 10-15% of average, similar to 2008 (the last instance of a similar closure), so estimates will be less precise than average. A difference from the 2008 sampling design is that only 1 dock will be sampled, which may improve estimate precision over 2008 results.

Earlier surveys indicated that anglers tended to exit the sport fishery in increasing numbers from about 0700 to 1700 hours; thereafter a steady decline occurs until about twilight. Based on past observation, we assume very few boat parties exit the fisheries prior to 0800 hours or after civil twilight. Thus, each fishing day is defined as starting at 0800 hours and ending at civil twilight.

With effort expected to be 10% of average for the Haines sport fishery, 1 technician can adequately sample the single access site in 2015. The sampling design is as follows:

Small Boat Harbor: 2-Stage (Days, Boating Parties) Direct Expansion

a) Will be sampled from May 11 to June 28, encompassing over 97% of the Haines area harvest in an average year. Temporal strata are weeks.

b) Has TOD stratification where mornings last from 0800 hours to 2 hours before midday (shift length = 5:04 to 5:55 [hr:min]) and evenings last from 2 hours before midday to civil twilight (shift length = 9:05 to 9:56). The longer evening periods increase the precision of the estimates because anglers tend to return to the dock in increasing numbers during the afternoon and evening.

Primary sampling units are days and secondary sampling units are boat parties. Cochran (1977) describes this standard 2-stage direct expansion sampling design. It is anticipated (from past experiences) that almost all boats in a sampling period will be sampled. Random selections were used to determine primary units to sample in each stratum. There are 14 unique strata at the Small Boat Harbor: 7 weeks x 2 TOD (Table 12). Each week, 2 of 7 morning periods and 3 of 7 evening periods will be sampled. Formulas for a 2-stage direct expansion survey in Bernard et al. (1998) will be used to estimate harvests of mature (wild and hatchery) Chinook salmon. We assume that maturity status will be accurately obtained for all harvested fish. Contributions of mature hatchery fish (recent Lynn Canal releases are noted in Table 7) will be estimated using methods described in Bernard and Clark (1996). The difference between the estimated harvests of mature fish and mature hatchery fish is the harvest of wild, mature Chinook salmon bound for the Chilkat River, as

no other rivers in Lynn Canal contain natural runs of Chinook salmon. Estimates of effort and harvest of all Chinook salmon are simply accomplished by repeating computational procedures without regard to adipose fin status.

ADF&G Division of Sport Fish (DSF) staff will sample all Chinook salmon encountered in the sport harvest for age, sex, length, maturity, harvest statistical area, adipose fin status, and to collect heads from adipose-finclipped fish. The overall age composition of the harvest will be estimated by weighting age composition estimates for each weekly stratum by the stratum harvest.

At the request of the ADF&G Gene Conservation Laboratory in Anchorage, we will collect 10 axillary process samples from large (≥28 in TL) Chinook salmon harvested in the Haines marine sport fishery. The schedule will allocate samples throughout the survey based on the biweekly proportion of harvest encountered in 2008, the year with a similar area fishing closure in Chilkat Inlet (Table 13). If an interim sample goal is not met due to lack of encountered harvest, samples will be taken the following biweek to catch up to the schedule.

SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING

The Skagway creel sampling staff includes 1 part-time DSF technician budgeted for sampling 16 hours per week. The sampling schedule of 4 hours per day will be maintained from May 26 through August 31 to ensure proportional sampling.

Sampling days in Skagway will be scheduled Monday–Thursday to maximize the number of Chinook salmon encountered. Most fishing effort in Taiya Inlet is by sport charter operations, which focus primarily on cruise ship passengers for clients. Because peak cruise ship dockings occur Monday through Thursday, sampling 4 hours per day during this time period should ensure encountering the highest amount of sport effort, and therefore harvest possible. Occasionally high winds in Taiya Inlet prevent sport fishing effort; sampling scheduled for inclement weather days will be shifted to Friday or Saturday if necessary. During the week of the Pat Moore Memorial Game Fish Derby, at least one sample day will be on a derby day. In recent years, this derby has been scheduled for 4 days (Thursday–Sunday) in mid-July.

At the request of the ADF&G Gene Conservation Laboratory in Anchorage, we will collect axillary process samples from 20 large (≥28 in TL) Chinook salmon in the Skagway marine boat sport fishery. The sample allocation schedule will match the historic weekly proportion of large Chinook salmon sampled in Skagway (Table 14).

DATA COLLECTION

HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY

During each sample period, **all sport fishing boats returning to the harbor will be counted and their type classified as charter (guided) or private (unguided)**. As many of these boat-parties as possible will be interviewed. Not interviewing some parties when busy is acceptable, as long as accurate counts of the total number of returning sport fishing parties are maintained. Additionally, in the event that some parties are not interviewed, samplers will ensure that interviewed parties are never selected because they have or do not have fish, or do or do not want to be interviewed. Data collected during each interview will include number of rods fished, hours fished, trip type (charter or private), number of days in trip, location fished, target species (salmon, Pacific halibut), and number of fish kept and/or released by species.

The entire Chinook salmon catch of each interviewed party will be inspected. Chinook salmon will be classified as either "large"(≥28 in TL) or "small" (<28 in TL). In general, small Chinook salmon may not be retained, but small Chinook salmon are often caught and released in moderate numbers. Chinook salmon will be classified as mature or immature using criteria listed in Appendix B. At the beginning of the season, the project biologist will ensure that all technicians are expert at determining maturity status. Chinook salmon will be classified as adipose finclipped or not adipose finclipped. Chinook salmon inspected for maturity and adipose fin status will be classified as "sampled"; Chinook salmon not inspected will be classified as "not sampled", but this should happen rarely. Tallies of the number of fish of each species caught and released, and for Chinook salmon, each size-maturity-adipose fin status combination, will be recorded along with the party data on the **Port Sampling Interview Version 1.0** mark-sense form. The effort and Chinook salmon sampling results from each sample period will be summarized daily and submitted by each Monday at 0830 hours.

Sex, maturity, and length data will be collected from each sampled Chinook salmon according to standard procedures (ADF&G *unpublished*[1]), and recorded on **Alternate Age-Weight Length version 1.1 (AWL)** mark-sense forms. Sex will be determined from observing external secondary characteristics unless there is an opportunity to observe the gonads. Maturity will be categorized using criteria in Appendix B. Length will be measured to the nearest 5 mm MEF. Age-weight-length (AWL) data recording procedures are outlined in detail in the annual Haines Marine Creel Technician Manual (Appendix A).

A scale sample from each Chinook salmon will be collected and attached to gum cards labeled with the AWL form number, and the gum card will be taped to the AWL form. Five scales will be removed from the *left* side of each sampled fish (right side if left-side scales are regenerated), along a line 2 to 4 scale rows above the lateral line between the posterior insertion of the dorsal fin and anterior insertion of the anal fin. The preferred scale will be collected first, followed by the second

[1] ADF&G. *Unpublished*. Length, sex, and scale sampling procedure for sampling using the ADF&G adult salmon age-length mark-sense form, version 2.1. Alaska Department of Fish and Game, Division of Commercial Fisheries, Douglas, Alaska.

scale 1 inch to the left, the third 1 inch to the right, the fourth ½ inch to the left, and the fifth scale ½inch to the right in relation to the preferred scale. The fourth and fifth scales are also collected 2 rows above where the first three were selected. Regenerated scales will be discarded and new scales will be collected. All the scales from 1 Chinook salmon will be cleaned and carefully placed on the gum card in 1 column (i.e., scales from fish #1 on the AWL form will be placed over 1, 11, 21, 31, and below 31 on the gum card). All scales will be moistened and mounted upright (posterior side down) with the rough side out (outer side of the fish). After mounting, the scales will be secured to the card with pressure to ensure adhesion. Space will be left at the top middle portion of the card, so that a label can later be affixed. Scale cards will be kept as dry as possible, to prevent gum from running and obscuring the scale ridges. Gum cards will be thoroughly labeled, including the last names of each sampler. A triacetate impression of the scales (30 seconds at 3,500 lb/in^2, at a temperature of 97°C) will be used for age determination. Scales will be read for age using procedures in Olsen (1992).

Heads from adipose-finclipped fish will be collected and identified with a uniquely numbered cinch strap around the jaw. The cinch strap number will be recorded on the AWL form. Detailed information about each adipose-finclipped fish will be recorded on a Coded Wire Tag Recovery Sampling Form supplied by the ADF&G Division of Commercial Fish (DCF) Mark, Age, and Tag Laboratory (Tag Lab).

An axillary process sample will be taken from the first *x* large (≥28 in TL) fish encountered during each Haines creel stratum, where *x* is the stratum sample size derived from the distribution of fish encountered in the creel program in 2008 (Table 14). The axillary process sample vial number will be recorded on the AWL form, as detailed in the annual Haines Marine Creel Technician Manual (Appendix A).

SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING

During each Skagway Small Boat Harbor sample day, the Chinook salmon catch from as many sport fishing parties as possible will be sampled. When multiple parties are landing at the same time, it will be acceptable to not sample the catch of some parties. For parties that are sampled, the **Version 1.0** mark-sense form will be used. The effort and Chinook salmon sampling results from each sample period will be summarized daily and submitted by each Monday at 0830 hours. The entire party's catch must be sampled. Catch will not be selected for sampling based on fish size or adipose fin status.

Interview data collected from each sampled party will include the number of rods fished, hours fished, trip type (charter or private), primary area of Chinook salmon harvest, target species (salmon, Pacific halibut, other), and the number of fish kept and released by species. Chinook salmon catch and harvest will be classified as large (≥28 in TL) or small (<28 inches TL). Small Chinook salmon are frequently caught and released. The retention of small Chinook salmon has been allowed for limited times in some years in Taiya Inlet by Emergency Order. Effort, catch, and harvest data will be recorded onsite in a waterproof paper notebook and entered daily into an

Excel®[2] spreadsheet, as shown in the annual Skagway Marine Creel Technician Manual (Appendix C).

Harvested Chinook salmon will be sampled for sex, maturity, length, and scales as described under Haines creel sampling, and data will be recorded on **Alternate Age-Weight Length (AWL) version 1.1** mark-sense forms. The AWL form number will be recorded on the gum card and the gum card will be taped to the AWL form. If a Chinook salmon has a clipped adipose fin, the head will be taken, a cinch strap will be attached around the jaw, and the cinch strap number will be recorded on the AWL form. An axillary process sample will be taken from the first *x* large (≥28 in TL) fish encountered during each stat week, where *x* is the weekly sample size derived from the historic time distribution of fish encountered in the creel program (Table 14). The axillary process sample vial number will be recorded on the AWL form. All data recording procedures are detailed in the annual Skagway Marine Creel Technician Manual (Appendix C).

DATA REDUCTION

Both Haines and Skagway creel technicians will check and summarize their data before turning it in to the Haines office each Monday morning by 0830 hours. Data checks to be done in the field or shortly after sampling include ensuring that all information on the mark-sense forms is complete and accurate (e.g., species codes, maturity status, angler type, catch-release status of fish caught, counts and types of boat parties that were not interviewed, etc.). The mark-sense interview and AWL sampling data forms will be error-checked again in the Haines office, then sent to marine harvest study staff in Douglas for scanning and data file creation. After scanning is complete and the original forms are returned to Haines, final editing will be done to eliminate transcription errors and to assure that data are complete and accurate. Analysis of the Haines creel survey interview data will be done using SAS® 9.3. The Skagway creel survey interview data will be entered and collated in Excel AWL data files, and will be analyzed in Excel. After analysis, SAS data files, Skagway interview data, and AWL data from both project sites will be archived on the Haines area office network hard drive at S:\Sport Fish\Data archive\Haines marine creel survey\2015 and at S:\Sport Fish\Data archive\Skagway marine creel survey\2015.

The Tag Lab in Juneau is the clearinghouse for all information on CWTs. Heads from adipose-finclipped Chinook salmon encountered in Haines and Skagway will be sent to the Tag Lab, where any tags present will be recovered and decoded. The tag codes and sampling data from each head will be entered into the Tag Lab database. In conjunction with DCF personnel, sport sampling effort and estimated harvest will be entered into a Tag Lab database so hatchery contribution estimates can be generated directly.

Douglas DSF staff will read Chinook salmon scales collected in Haines and Skagway and record the ages on the corresponding Alternate AWL mark sense version 1.1 forms. The scale reader will forward the forms to marine harvest study staff in Douglas for scanning. Marine harvest study staff will send electronic files and the original AWL forms to Haines DSF staff for error-checking, editing, and data analysis. The scale gum cards and acetates will be logged and stored in the Region 1 age-sex-length data archives, located in the Douglas office.

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

A final, edited electronic copy of the Haines creel survey interview and AWL data, along with a data map, will be sent to Research and Technical Services (RTS) in Anchorage for archiving when the run year 2015 Chilkat Chinook salmon escapement and production report is submitted for publication. The data map will include a description of all electronic files contained in the data archive, and details of where hard copies of any associated data are to be archived, if not in RTS.

Before October 15, axillary process samples collected in Haines and Skagway will be shipped to the ADF&G Gene Conservation Laboratory in Anchorage. Once scale samples from the Haines and Skagway projects have been aged, AWL data from genetically sampled fish will be forwarded to the Gene Conservation Laboratory in the format that they request.

DATA ANALYSIS

HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY

Equations for estimation of harvest, catch, and effort in the creel survey are those for a 2-stage direct expansion (access point, completed trip interview) survey, as detailed in Bernard et al. (1998). Post stratification of the sampling data will be used to estimate effort and harvest by chartered and unchartered anglers (estimates for chartered and unchartered anglers will, however, not be summed to estimate statistics for all anglers). In the rare event (it has not happened since the survey started in 1984) where angler status is not determined, status of the anglers not interviewed (boat parties) will be estimated (prorated) using the information from other interviews.

The harvest (large [≥28 in TL] and small [<28 inches TL] Chinook salmon calculated separately) in each stratum ($\hat{H}_h$) will be estimated as (Bernard et al. 1998: equation 2.1):

$$\hat{H}_h = D_h \hat{\bar{H}}_h \qquad [1]$$

$$\hat{\bar{H}}_h = \frac{\sum_{i=1}^{d_h} \hat{H}_{hi}}{d_h} \qquad [2]$$

$$\hat{H}_{hi} = M_{hi} \frac{\sum_{j=1}^{m_{hi}} h_{hij}}{m_{hi}} \qquad [3]$$

where h_{hij} = harvest on boat j, sampling day (period) i, stratum h; m_{hi} = number of boat parties interviewed on day i; M_{hi} = number of boat-parties completing trips on day i; d_h = number of days (morning/evening periods) sampled in stratum h; and D_h = number of days in stratum h.

The variance of the harvest by stratum will be estimated as (Bernard et al. 1998: equation 2.5):

$$\text{var}\left[\hat{H}_h\right] = (1 - f_{1h}) D_h{}^2 \frac{\sum_{i=1}^{d_h} (\hat{H}_{hi} - \hat{\bar{H}}_h)^2}{d_h (d_h - 1)} + D_h \sum_{i=1}^{d_h} M_{hi}{}^2 (1 - f_{2hi}) \frac{\sum_{j=1}^{m_{hi}} (h_{hij} - \bar{h}_{hi})^2}{d_h m_{hi} (m_{hi} - 1)} \qquad [4]$$

where f_{1h} = sampling fraction for periods and f_{2hi} = sampling fraction for boat parties. Catch and effort is estimated similarly, substituting C and E for H in equations 1–4. Total harvests for the season are the sums across strata $\sum H_h$ and $\sum V[H_h]$.

The stock contribution (r_{ij}) of a CWT-tagged release group j to a fishery stratum h is estimated as:

$$\hat{r}_{hj} = \hat{H}_h \left[\frac{m_{hj}}{\lambda_h n_h} \right] \theta_j^{-1} \qquad [5]$$

where H_h = total harvest in fishery stratum h, n_h = number of fish inspected for adipose clips, m_{hj} = number of CWTs from release group j found in the stratum, $\lambda_h = (a'_h\ t'_h)/(a_h\ t_h)$ is the decoding rate for CWTs from recovered salmon, and θ_j = fraction of the cohort tagged with code(s) of interest. See Bernard and Clark (1996) for further details.

Because H_h is estimated with error in sport fisheries, unbiased estimates of the variance of $\hat{r}_{hj}$ will be obtained using the appropriate large-sample equations in Table 2 of Bernard and Clark (1996), including the covariance between estimated harvests of cohorts within strata. The total harvest for one or more cohorts is obtained by summing the $\hat{r}_{hj}'s$ across all sampled strata.

Sport CWT recovery data will be obtained from Tag Lab reports and summarized by biweek and location (e.g., Chilkoot Inlet versus Chilkat Inlet harbors). Within a location, CWTs of interest may be recovered in only a few sampling strata (e.g., morning/evening periods, or derby strata) that define the temporal strata (e.g., biweek). Assuming that the harvests of fish with CWTs of interest are independent of sampling strata within location and temporal strata, harvests and sampling information will be totaled over the spatial-temporal strata to estimate contributions. This allows comparisons between published biweekly harvest (H) and the CWT data. Estimates will also be totaled across locations and time.

The difference between the estimated harvests of mature fish H and mature hatchery fish r is the harvest of wild, mature Chinook salmon bound for the Chilkat River. The variance of this difference will be estimated as the sum of the variances of H and r.

Application of the formula to estimating harvests of mature Chinook salmon assumes that maturity status is accurately obtained for all harvested fish sampled during interviews. Previous experience suggests that maturity status can be determined on nearly all harvested fish sampled. If an occasional boat party (≤1 in 20, or ≤5%) has fish with undetermined maturity status, interview information for that boat party will be ignored (in estimating harvest of mature salmon) and the expansions (by sample period) will be made from harvests by the remaining boat parties and the total number of boat parties counted. However, the incidence of a significant proportion of boat parties having fish with undetermined maturity status could create a source of bias in survey estimates. Thus, if the overall proportion of boat parties having fish with undetermined maturity status exceeds 5%, harvests of mature Chinook salmon ($\hat{C}$) in each temporal strata will be estimated as the product of the estimate for all Chinook salmon harvested without respect for

maturity status (*H* or *r* in the equations above) and the overall proportion of the harvest with a determinate maturity status that are mature fish:

$$\hat{C} = \hat{H}\hat{p} \qquad [6]$$

$$\text{var}[\hat{C}] = \hat{H}^2 \text{V}[\hat{p}] + \hat{p}^2 \hat{\text{V}}[\hat{H}] - \hat{\text{V}}[\hat{H}] \text{V}[\hat{p}] \qquad [7]$$

where $\hat{p}$ is the estimated proportion of fish with determined maturity status that are mature, and *H* (or *r*) is harvest.

To estimate harvests inseason, point estimates will be made on a *daily basis for each stratum sampled* by totaling the harvest of mature Chinook salmon sampled (minus fish with adipose clips) and expanding up for boat parties not sampled (including any boat parties with fish of unknown maturity status). Forms to summarize the raw data are included with the annual Haines Marine Creel Technician Manual (Appendix A). At the end of each biweek, the calculated daily harvests in a stratum will be totaled and expanded up by the total number of days in the stratum using the electronic spreadsheet supplied by the project leader. This information will be used to keep area managers informed about the progress of the fishery. Final estimates for the season will incorporate the data from decoded CWTs.

Age composition of the sample fish ($\hat{p}_{\text{a},h}$) will be estimated by biweekly period:

$$\hat{p}_{\text{a},h} = \frac{n_a}{n} \qquad [8]$$

$$\text{var}[\hat{p}_{a,h}] = \frac{\hat{p}_{\text{a},h}(1 - \hat{p}_{\text{a},h})}{n - 1} \qquad [9]$$

where $\hat{p}_{a,h}$ is the proportion with estimated age *a* in stratum *h*, *n* is the number successfully aged, and n_a is the subset of *n* having estimated age *a*. A chi-square test will also be used to determine if differences can be detected ($\alpha = 0.10$) by biweekly period. Because sampling is not proportional across strata, the estimate for the whole fishery is:

$$\hat{p}_a = \frac{\sum_h \hat{H}_h \hat{p}_{a,h}}{\sum_h \hat{H}_h} \qquad [10]$$

where *h* denotes a (time) stratum and the estimated harvests supply appropriate 'weights' for the different stratum sizes. Variance is estimated:

$$\operatorname{var}\left[\hat{p}_a\right] \approx \sum_h \frac{\left(\hat{p}_{a,h}\left(\sum_i \hat{H}_h\right) - \left(\sum_i \hat{p}_{a,i}\hat{H}_h\right)\right)^2}{\left(\sum_i \hat{H}_h\right)^4} \operatorname{var}\left[\hat{H}_h\right] + \sum_h \frac{\hat{H}_h^{\,2}}{\left(\sum_i \hat{H}_h\right)^2} \operatorname{var}\left[\hat{p}_{a,h}\right] \qquad [11]$$

where $\hat{p}_{a,h}$ is the proportion with estimated age *a* in stratum *h*, and variance is an approximation resulting from a second order Taylor's series expansion around the expected values of the parameter estimates and estimated values for the expected values (Mood et al. 1974, p. 181).

SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING

The contribution of CWT-tagged Chinook salmon stocks to the Skagway marine boat sport fishery will be calculated as in equation 5 above for a single annual stratum, using SWHS estimates for *H*. The biweekly age composition of the Chinook salmon harvest will be calculated using equations 8 and 9. Chi-square test will be used to determine if differences can be detected ($\alpha = 0.10$) by biweekly period. Maturity rates of harvested Chinook salmon will be calculated biweekly using equations 8–11 with chi-square tests to determine if differences can be detected ($\alpha = 0.10$).

SCHEDULE AND DELIVERABLES

HAINES MARINE BOAT SPORT FISHERY CREEL SURVEY

Field activities will be initiated in 2015 on May 11 and conclude on June 28 in accordance with the sampling schedule (Tables 12 and 13). Weekly summaries of HPUE and (biweekly) harvest estimates will be produced to generate 5-year averages for distribution in sport fishing reports for distribution by recorded telephone message, web pages, and newspaper articles.

Data editing and analysis activities will be done on a weekly basis. Mark-sense marine interview forms will be processed at the end of the sampling season and forwarded to DSF staff in Douglas for scanning by September 15.

Final error correction and reduction of the on-site marine survey data will be completed by October 15. Final estimates of harvest and hatchery contributions for the survey will be produced by December 15. Marine sport fishery sampling data from the Haines site will be reported to the Tag Lab by February 15, 2016.

Age-weight-length forms will be edited weekly and forwarded to DSF staff in Douglas by September 30. Douglas DSF staff will read scales from Chinook salmon by January 31 of the following year, so age composition and length-at-age estimates of the Chinook salmon harvest will be produced by February 15, 2016.

Report writing will be initiated and this activity will terminate with the submission of a draft ADF&G Fisheries Data Series Report on June 15, 2017.

SKAGWAY MARINE BOAT SPORT FISHERY HARVEST SAMPLING

Field activities will be initiated as early as May 26 and will conclude by the end of August. Effort, catch and harvest data will be emailed weekly to Haines DSF staff.

Age-weight-length forms will be completed daily and shipped monthly to Haines DSF staff. Age-weight-length forms will be error-checked and forwarded to DSF staff in Douglas for scale aging by September 30. Douglas DSF staff will read scales from Chinook salmon by January 31, 2016. Age composition and length-at-age estimates for Chinook salmon will be produced by February 15, 2016.

Marine sport fishery sampling data from the Skagway site will be reported to the Tag Lab by February 15, 2016. Final estimates of CWT-tagged stock contributions to the 2015 Skagway marine boat sport fishery will be produced when final SWHS estimates are published, probably by September 30, 2016.

Taiya Inlet fishery management actions in 2015 and supporting data will be submitted by April 1, 2016 to DSF regional management staff for inclusion in an ADF&G DSF Area Management Report.

TABLES AND FIGURES

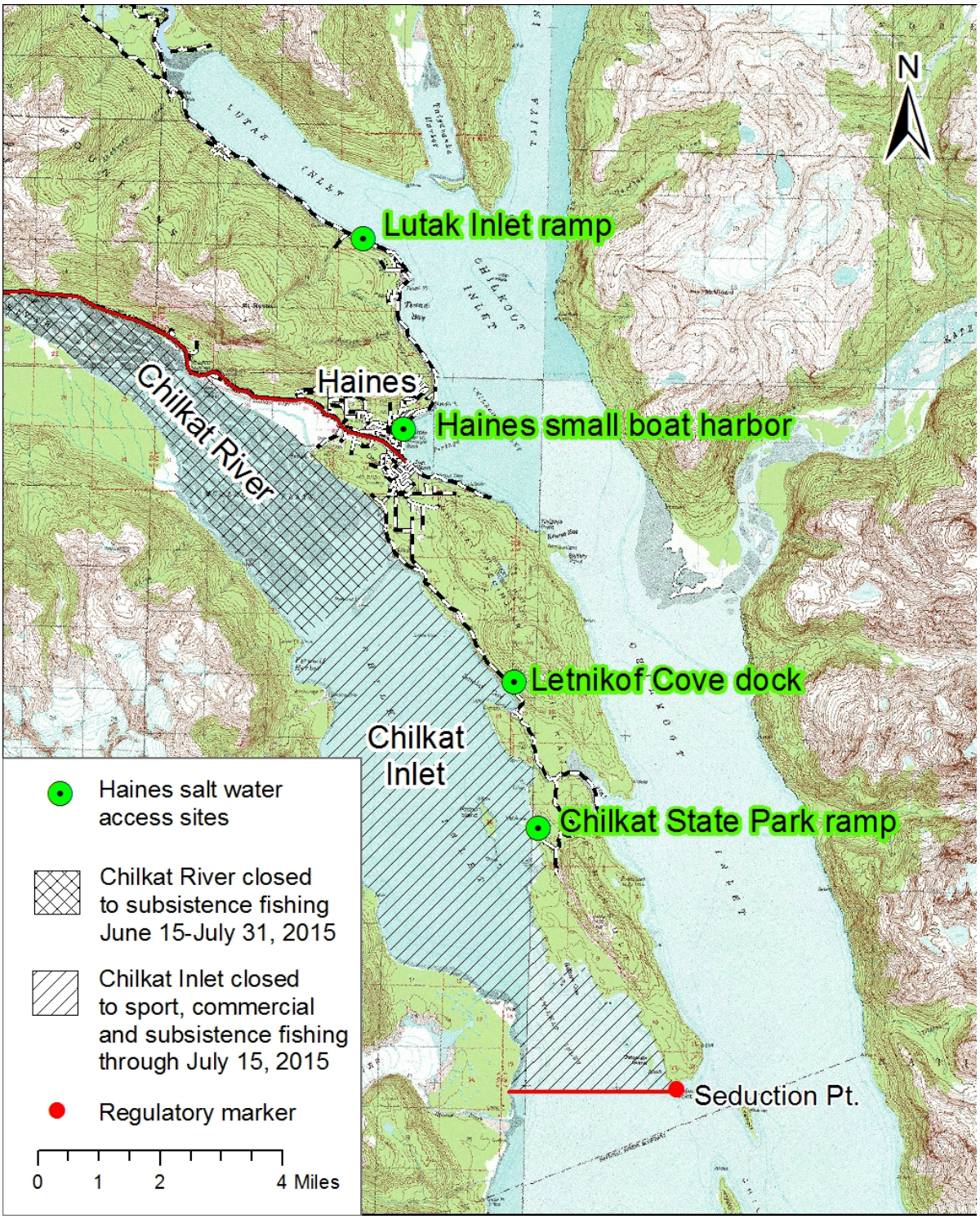

Figure 1.–Map of the Haines area in Southeast Alaska showing marine boat access sites and fishing closure areas to conserve Chilkat River Chinook salmon in 2015.

Table 1.–Estimated angler effort, and large (□28 in TL) Chinook salmon catch and harvest in the Haines marine boat sport fishery for comparable sample periods, 1984–2013.

		Effort				Large Chinook salmon			
Year	Survey dates	Angler-hours	SE	Salmon-hours	SE	Catch	SE	Harvest	SE
1984[a]	5/06–6/30	10,253	–[b]	9,855	–[b]	1,072	–[b]	1,072	–[b]
1985[c]	4/15–7/15	21,598	–[b]	20,582	–[b]	1,705	–[b]	1,696	–[b]
1986[d]	4/14–7/13	33,857	–[b]	32,533	–[b]	1,659	–[b]	1,638	–[b]
1987[e]	4/20–7/12	26,621	2,557	22,848	2,191	1,094	189	1,094	189
1988[f]	4/11–7/10	36,222	3,553	32,723	3,476	505	103	481	101
1989[g]	4/24–6/25	10,526	999	9,363	922	237	42	235	42
1990[h]	4/23–6/21	–[h]	–[h]	11,972	1,169	248	60	241	57
1991				Sport fishery closed					
1992				Sport fishery closed					
1993[i]	4/26–7/18	11,919	1,559	9,069	1,479	349	63	314	55
1994[j]	5/09–7/03	9,726	723	7,682	597	269	41	220	32
1995[k]	5/08–7/02	9,457	501	8,606	483	255	42	228	41
1996[l]	5/06–6/30	10,082	880	9,596	866	367	43	354	41
1997[m]	5/12–6/29	9,439	861	8,758	697	381	46	381	46
1998[n]	5/11–6/28	8,200	811	7,546	747	222	60	215	56
1999[o]	5/10–6/27	6,206	736	6,097	734	184	24	184	24
2000[p]	5/08–6/25	4,428	607	4,043	532	103	34	49	12
2001[q]	5/07–6/24	5,299	815	5,107	804	199	32	185	26
2002[r]	5/06–6/30	7,770	636	7,566	634	343	40	337	40
2003[s]	5/07–6/29	10,651	648	10,055	578	405	40	404	40
2004[t]	5/10–6/27	12,761	744	12,518	744	413	46	403	44
2005[u]	5/09–6/26	12,641	1,239	12,287	1,216	260	31	252	31
2006[v]	5/08–6/24	8,172	610	7,869	558	176	15	165	13
2007[w]	5/07–6/25	7,411	725	7,223	690	285	43	285	43
2008[xy]	5/05–6/22	1,211	177	1,132	167	27	11	27	11
2009[z]	5/04–6/21	7,405	534	7,267	520	145	12	143	12
2010[aa]	5/10–6/27	7,983	523	7,901	510	222	25	219	25
2011[ab]	5/9–6/26	8,734	478	8,592	471	217	16	217	16
2012[ac]	5/7–6/24	7,423	498	7,403	496	229	33	217	33
2013[ad]	5/6–6/23	7,097	599	7,041	596	129	28	123	28
2014[ae]	5/5–6/22	6,798	363	6,737	360	230	31	228	30

-continued-

Table 1.–Page 2 of 2.

[a] From Neimark (1985).
[b] Estimates of variance were not provided until 1987.
[c] From Mecum and Suchanek (1986).
[d] From Mecum and Suchanek (1987).
[e] From Bingham et al. (1988).
[f] From Suchanek and Bingham (1989).
[g] From Suchanek and Bingham (1990).
[h] From Suchanek and Bingham (1991); no estimate of the total angler effort and harvest was provided.
[i] From Ericksen (1994).
[j] From Ericksen (1995).
[k] From Ericksen (1996).
[l] From Ericksen (1997).
[m] From Ericksen (1998).
[n] From Ericksen (1999).
[o] From Ericksen (2000).
[p] From Ericksen (2001).
[q] From Ericksen {Ericksen, 2002 #1691} (2002).
[r] From Ericksen (2003).
[s] From Ericksen (2004).
[t] From Ericksen (2005).
[u] From Ericksen and Chapell (2006).
[v] From Chapell (2009).
[w] From Chapell (2010).
[x] From Chapell (2012).
[y] Chilkat Inlet was closed to Chinook salmon retention and the Haines King Salmon Derby was cancelled.
[z] From Chapell (2013a).
[aa] From Chapell (2013b)
[ab] From Chapell (2014)
[ac] From Chapell (*in prep*)
[ad] From Elliott and Chapell (*in prep a*)
[ad] From Elliott and Chapell (*in prep b*)

Table 2.–Estimated sport harvest of wild mature Chinook salmon in the Haines marine boat fishery and abundance of large (≥age-1.3) Chinook salmon in the Chilkat River, 1991–2014.

	Sport harvest		Chilkat River abundance	
Year	Wild mature Chinook	Standard error	Large (≥age-1.3) Chinook	Standard error
1991	Sport fishery closed		5,897[a]	1,005
1992	Sport fishery closed		5,284[b]	949
1993	252[c]	46	4,472[d]	851
1994[e]	190	29	6,795	1,057
1995[f]	193	35	3,790	805
1996[g]	257	29	4,920	751
1997[h]	311	41	8,100	1,193
1998[i]	153	51	3,675	565
1999[j]	82	11	2,271	408
2000[k]	27	8	2,035	334
2001[l]	126	20	4,517	722
2002[m]	272	37	4,051	429
2003[n]	285	27	5,657	690
2004[o]	269	29	3,422	456
2005[p]	165	26	3,366	555
2006[q]	86	9	3,027	437
2007[r]	177	33	1,442	278
2008[s,t]	5	2	2,905	544
2009[u]	80	10	4,429	747
2010[v]	121	19	1,815	226
2011[w]	174	13	2,688	318
2012[x]	153	50	1,744	266
2013[y]	74	26	1,730	338
2014[z]	197	30	1,534	307

[a] From Johnson et al. (1992).
[b] From Johnson et al. (1993).
[c] From Ericksen (1994).
[d] From Johnson (1994).
[e] From Ericksen (1995).
[f] From Ericksen (1996).
[g] From Ericksen (1997).
[h] From Ericksen (1998).
[i] From Ericksen (1999).
[j] From Ericksen (2000).
[k] From Ericksen (2001).
[l] From Ericksen (2002).
[m] From Ericksen (2003).
[n] From Ericksen (2004).
[o] From Ericksen (2005).
[p] From Ericksen and Chapell (2006).
[q] From Chapell (2009).
[r] From Chapell (2010).
[s] From Chapell (2012).
[t] Chilkat Inlet was closed to Chinook salmon retention in 2008.
[u] From Chapell (2013a).
[v] From Chapell (2013b).
[w] From Chapell (2014).
[x] From Chapell (*in prep*).
[y] From Elliott and Chapell (*in prep a*).
[z] From Elliott and Chapell (*in prep b*).

Table 3.–Estimated age composition and mean length-at-age (MEF in mm) of harvested Chinook salmon in the Haines marine sport fishery by harbor location, May 5–June 22, 2014.

		Brood year and age					
		2010 1.2	2009 1.3	2008 1.4	2007 1.5	Total aged	Total sampled[a]
LETNIKOF COVE							
Females	Sample size	1	30	22	1	54	56
	Mean length	600	761	868	1,040		
	SD (length)	0	61	39	0		
Males	Sample size	5	35	11	0	51	56
	Mean length	639	735	866	-		
	SD (length)	21	59	40	-		
Combined	Sample size	6	65	33	1	105	112
	Harvest-weighted %	0.06	0.62	0.31	0.01		
	SE (%)	0.02	0.05	0.05	0.01		
	Mean length	633	747	867	1,040		
	SD (length)	25	61	39	0		
SMALL BOAT HARBOR							
Females	Sample size	0	0	0	0	0	0
	Mean length	-	-	-	-		
	SD (length)	-	-	-	-		
Males	Sample size	0	1	0	0	1	1
	Mean length	-	760	-	-		
	SD (length)	-	0	-	-		
Combined	Sample size	0	1	0	0	1	1
	Harvest-weighted %	0.0	100.0	0.0	0.0		
	SE (%)	0.0	0.0	0.0	0.0		
	Mean length	-	760	-	-		
	SD (length)	-	0	-	-		

[a] Includes fish that were not assigned a valid age.

Table 4.–Contribution estimate (r) of coded wire tagged Chinook salmon to the Haines marine sport fishery, May 5–June 22, 2014, along with statistics used for computing estimates.

Agency	Release site	Tag code	Brood year	Marked fraction $\hat{\theta}$	Harvest		Sampled	Adipose clip	Heads collected	Tags detected	Tags decoded	Tags	Contribution	
					N	SE	*n*	*a*	*a′*	*t*	*t′*	*m*	*r*	SE
DIPAC	Auke Bay 111-50	42664	2009	0.1021								1	20	19
DIPAC	Fish Cr 111-50	42667	2009	0.1386	228	871	113	7	7	7	7	1	14	14
ADFG	Chilkat River wild	41789, 41545	2008	0.0765								2	52	37
ADFG	Chilkat River wild	42664, 42667	2009	0.0605								3	99	57
Total												7	185	72

Note: Contribution estimates for Chilkat River fish are preliminary until returns from all brood years are complete and marked fractions have been published in a Fishery Data Series report.

[a] DIPAC: Douglas Island Pink and Chum, Inc.

[b] ADFG: Alaska Department of Fish and Game

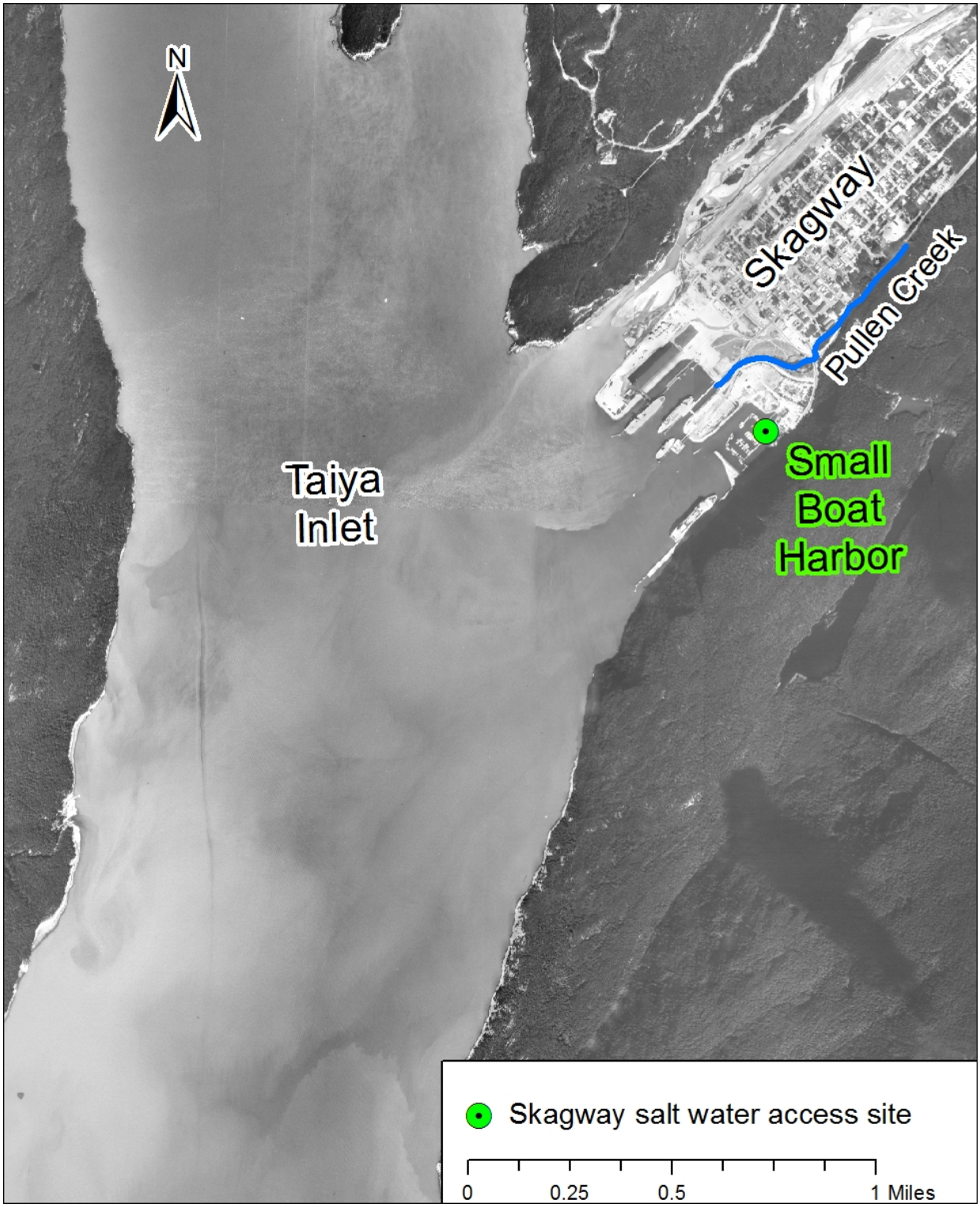

Figure 2.–Map of the Skagway area in Southeast Alaska showing the location of Skagway small boat harbor and Pullen Creek.

Table 5.–Statewide Harvest Survey (SWHS) annual estimates of Skagway (Area F1) marine sport effort, and large (≥28 in TL) and small (<28 in TL) Chinook salmon catch and harvest, 1999–2013.

	Angler	Small Chinook salmon					Large Chinook salmon				
Year	-days	Catch	SE	Harvest	SE	Released	Catch	SE	Harvest	SE	Released
1999	6,156	1,505	336	219	79	1,286	705	227	396	99	309
2000	8,463	1,203	246	434	92	769	725	159	634	152	91
2001	4,833	2,145	708	381	86	1,764	865	298	417	83	448
2002	4,747	2,413	853	410	85	2,003	867	250	473	96	394
2003	5,236	1,585	352	331	110	1,254	1,055	275	434	182	621
2004	5,976	1,227	332	331	113	896	796	189	653	164	143
2005	4,456	1,615	438	290	86	1,325	647	173	468	134	179
2006	4,156	1,792	532	331	105	1,461	674	274	434	149	240
2007	3,826	1,163	298	335	116	828	502	126	439	119	63
2008	2,717	939	315	0	0	939	776	190	372	91	404
2009	4,398	729	213	0	0	729	782	233	450	188	332
2010	4,441	899	403	0	0	899	647	324	494	206	153
2011	4,565	1,768	774	0	0	1,768	615	284	492	273	123
2012	4,901	615	147	0	0	615	393	153	362	153	31
2013	4,568	811	282	0	0	811	558	148	408	106	150
Average	4,896	1,361	462	210	76	1,172	707	228	485	154	252

Table 6.–Annual summary of Chinook salmon-directed marine sport effort (salmon-h) surveyed, and large (≥28 in TL) and small (<28 in TL) harvest sampled at Skagway Boat Harbor, 2001–2014.

	Salmon-h	Catch		Harvest		Salmon-h per large	Examined		Ad-clips	
Year	Surveyed	Small	Large	Small	Large	caught	Small	Large	Small	Large
2001	ND	ND	ND	ND	ND	ND	169	63	12	6
2002	ND	ND	ND	ND	ND	ND	84	94	12	17
2003	ND	ND	ND	ND	ND	ND	109	142	16	45
2004	1,243	362	128	28	104	10	23	104	0	33
2005	2,084	326	153	53	134	14	32	110	9	31
2006	1,403	159	57	52	48	25	51	42	4	9
2007	1,261	118	44	43	38	29	39	34	5	5
2008	1,686	155	85	0	55	20	0	51	0	4
2009	2,224	461	97	0	89	23	0	83	0	8
2010	1,468	277	78	0	73	19	0	55	0	11
2011	1,685	246	42	6	42	40	0	42	0	6
2012	2,017	312	81	0	70	25	0	69	0	3
2013	1,936	209	84	0	79	23	0	75	0	12
2014	2,669	472	47	0	44	57	0	41	0	4
Average	1,789	282	81	17	71	26	36	75	4	15

Table 7.–Number of hatchery-raised Chinook salmon smolt coded wire tagged, total number released into Taiya Inlet, Southeast Alaska, and marked fraction (theta), 1996–2014.

Tag code	Brood year	Release year	Facility	Total tagged	Total released	Marked fraction $\hat{\theta}$
040117	1996	1998	Burro Creek	7,423	15,956	0.47
044727	1996	1998	Jerry Myers	8,355	8,631	0.97
-	1997	1999	Burro Creek	0	16,424	0.00
040244	1997	1999	Jerry Myers	1,856	1,856	1.00
040161	1998	2000	Macaulay	8,187	26,753	0.30
040245	1998	2000	Macaulay	9,773	32,524	0.30
040246	1998	2000	Macaulay	9,677	32,341	0.30
040393	1999	2001	Macaulay	29,746	32,123	0.93
040554	2000	2002	Macaulay	27,835	95,386	0.29
040394	2001	2003	Macaulay	30,781	58,793	0.52
040934	2002	2004	Macaulay	31,288	128,688	0.24
041117	2003	2005	Macaulay	28,179	219,620	0.13
041227	2004	2006	Macaulay	28,440	68,002	0.42
041457	2005	2007	Macaulay	34,107	168,135	0.20
041562	2006	2008	Macaulay	30,416	51,945	0.59
041973	2007	2009	Macaulay	31,004	276,262	0.11
042282	2008	2010	Macaulay	32,497	258,000	0.13
042668	2009	2011	Macaulay	25,494	128,619	0.20
042466	2010	2012	Macaulay	20,834	74,936	0.28
042467	2010	2012	Macaulay	20,589	119,667	0.17
043075	2011	2013	Macaulay	10,375	50,100	0.21
No broodstock	2012	2014			No release	

Table 8.–Contribution estimate (r) of coded wire tagged Chinook salmon to the Skagway marine boat sport fishery, May 27–August 28, 2014, along with statistics used for computing estimates.

Agency	Release site	Tag code	Brood year	Marked fraction $\hat{\theta}$	SWHS annual harvest estimate N	SWHS annual harvest estimate SE	Sampled *n*	Ad-clips *a*	Heads collected *a'*	Tags detected *t*	Tags decoded *t'*	Tags *m*	Contribution *r*	Contribution SE
ADFG	Chilkat River	41991, 42089	2009	0.08								2	238	173
DIPAC	Pullen Creek	042282	2008	0.13	400	106	44	4	4	4	4	1	72	72
DIPAC	Pullen Creek	042467	2010	0.17								1	53	52
Total												4	363	195

Table 9.–Summary of king salmon regulations by emergency order (EO) in Taiya Inlet and Pullen Creek, 1998–2014.

Year	EO number	Effective dates	Area	King salmon bag and possession limit[a]
1998	1-11-98	6/19 to 8/31	Pullen Cr	2 ≥ 28 in. and 2 < 28 in. (AKS)
			Skagway R	4 ≥ 28 in. and 4 < 28 in. (AKS)
1998	1-12-98	6/19 to 8/31	Taiya Inlet	2 ≥ 28 in. and 2 < 28 in. (AKS)
1999	1-09-99	6/11 to 8/31	Pullen Cr	2 ≥ 28 in. and 2 < 28 in. (AKS)
			Skagway R	4 ≥ 28 in. and 4 < 28 in. (AKS)
1999	1-10-99	6/11 to 8/31	Taiya Inlet	2 ≥ 28 in. and 2 < 28 in. (AKS)
2000	1-11-00	6/10 to 8/31	Taiya Inlet	1 ≥ 28 in. and 2 < 28 in. (AKS)
2001	1-11-01	6/13 to 8/31	Taiya Inlet	1 ≥ 28 in. and 1 < 28 in. (AKS)
2001	1-26-01	8/21 to 9/15	Pullen Cr	6 ≥ 28 in. and 6 < 28 in. (AKS)
2002	1-11-02	6/13 to 8/31	Taiya Inlet	2 ≥ 28 in. and 1 < 28 in. (NGR)
				1 ≥ 28 in. and 1 < 28 in. (NR and GR)
2003	1-12-03	6/10 to 7/31	Taiya Inlet	2 any size (AKS)
2003	1-33-03	8/05 to 9/14	Pullen Cr[b]	10 any size (AKS)
2004	1-KS-F-08-04	6/07 to 7/31	Taiya Inlet	2 any size (AKS)
2005	1-KS-F-08-05	6/06 to 7/31	Taiya Inlet[c]	3 any size (AKS)
2006	1-KS-F-07-06	6/05 to 7/31	Taiya Inlet	3 any size (AKS)
2007	1-KS-F-07-07	6/04 to 7/31	Taiya Inlet[d]	3 any size (AKS)
2007	1-KS-F-17-07	8/25 to 9/14	Pullen Cr	10 any size (AKS)
2008	1-KS-F-22-08	7/16 to 7/31	Taiya Inlet	2 ≥ 28 in. (AKS)
2008	1-KS-F-22-08	7/16 to 7/31	Between SGY docks	no retention
2008	1-KS-F-27-08	8/02 to 9/14	Pullen Cr	4 any size (AKS)
2008	1-KS-F-28-08	8/21 to 9/15	Between SGY docks	2 ≥ 28 in. (AKS)
2009	1-KS-F-10-09	6/6 to 7/31	Taiya Inlet	3 ≥ 28 in. (AKS)
2009	1-KS-F-16-09	7/1 to 8/30	Between SGY docks	no retention
2009	1-KS-F-22-09	8/4 to 9/14	Pullen Cr	4 any size (AKS)

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Table 9. Page 2 of 2.

Year	EO number	Effective dates	Area	King salmon bag and possession limit[a]
2010	1-KS-F-11-10	6/5 to 7/31	Taiya Inlet	3 ≥ 28 in. (AKS)
2010	1-KS-F-18-10	7/22 to 8/29	Between SGY docks	no retention
2011	1-KS-F-19-11	7/1 to 8/26	Between SGY docks	no retention
2011	1-KS-F-25-11	8/9 to 9/14	Pullen Cr	4 any size (AKS)
2012	1-KS-F-18-12	7/1 to 8/26	Between SGY docks	no retention
2013	1-KS-F-11-13	6/26 to 8/6	Between SGY docks	no retention
2013	1-KS-F-23-13	8/1 to 9/14	Pullen Cr	4 any size (AKS)
2014	1-KS-F-14-14	6/26 to 8/24	Between SGY docks	no retention

[a] AKS: all licensed king stamp holders; NGR: non-guided residents; NR: nonresidents; GR: guided residents.

[b] Area enlarged from above broodstock weir to all of Pullen Creek as of 8/14 by subsequent EO.

[c] Time for the fishing closure in salt water at the mouth of Pullen Creek was extended to 8/31 by subsequent EO.

[d] The area of the fishing closure in salt water at the mouth of Pullen Creek was enlarged by subsequent EO.

Table 10.–Number of Chinook salmon sampled and age composition in the Skagway marine boat sport fishery, by biweek, 2014.

Biweek	2010 1.2	2009 1.3	2008 1.4	Not aged	Total aged	Total sampled
11	1	5	1	0	7	7
12	1	3	1	0	5	5
13	3	9	1	2	13	15
14	1	1	0	0	2	2
15	3	4	1	2	8	10
16	1	3	0	0	4	4
17		1	0	0	1	1
Total	10	26	4	4	40	44

Note: Scales without fresh water age determination were omitted.

Table 11.–Chinook salmon maturity in the Skagway marine boat sport fishery, 2000–2014.

Biweek	Number sampled	Immature	Immature proportion	SE (proportion)
12	82	40	0.49	0.06
13	155	60	0.39	0.04
14	240	109	0.45	0.03
15	262	114	0.44	0.03
16	261	171	0.66	0.03
17	222	179	0.81	0.03
18	125	114	0.91	0.03
Average			0.58	0.04

Table 12.–Haines marine creel survey sampling schedule at Haines small boat harbor, 2015.

Stratum	Date	Morning	Evening
1[a]	11-May		
1	12-May		X
1	13-May		
1	14-May		X
1	15-May	X	
1	16-May		X
1	17-May	X	
2[b]	18-May		
2	19-May	A	X
2	20-May	X	
2	21-May		
2	22-May		X
2	23-May	X	
2	24-May		X
3[c]	25-May	X	
3	26-May		X
3	27-May	A	X
3	28-May	X	
3	29-May		
3	30-May		X
3	31-May		
4[d]	1-Jun	X	
4	2-Jun	X	
4	3-Jun		
4	4-Jun		X
4	5-Jun		X
4	6-Jun		
4	7-Jun	A	X
5[e]	8-Jun		
5	9-Jun		X
5	10-Jun		X
5	11-Jun	X	
5	12-Jun		X
5	13-Jun	X	
5	14-Jun		

-continued-

Table 12.–Page 2 of 2.

Stratum	Date	Morning	Evening
6[f]	15-Jun		
6	16-Jun		X
6	17-Jun		
6	18-Jun	X	
6	19-Jun		X
6	20-Jun	A	X
6	21-Jun	X	
7[g]	22-Jun		
7	23-Jun		X
7	24-Jun	X	
7	25-Jun	X	
7	26-Jun	A	X
7	27-Jun		X
7	28-Jun		

Note: Sampling units belonging to the same stratum are outlined.

Note: Periods start and end 2 hours before midday. Midday is ½ the time between 0800 hours and civil twilight. Technicians employ a calendar detailing all sample times.

[a] the schedule for Stratum 1 includes a start time (08:00), midday time (13:13), end time (22:26) and shift length (5:13 morning; 9:13 evening).

[b] the schedule for Stratum 2 includes a start time (08:00), midday time (13:24), end time (22:47) and shift length (5:24 morning; 9:23 evening).

[c] the schedule for Stratum 3 includes a start time (08:00), midday time (13:34), end time (23:08) and shift length (5:34 morning; 9:34 evening).

[d] the schedule for Stratum 4 includes a start time (08:00), midday time (13:44), end time (23:27), and shift length (5:44 morning; 9:43 evening).

[e] the schedule for Stratum 5 includes a start time (08:00), midday time (13:51), end time (23:42) and shift length (5:51 morning; 9:51 evening).

[f] the schedule for Stratum 6 includes a start time (08:00), midday time (13:55), end time (23:50) and shift length (5:55 morning; 9:55 evening.)

[g] the schedule for Stratum 7 includes a start time (08:00), midday time (13:55), end time (23:51) and shift length (5:56 morning; 9:55 evening).

Table 13.–Estimated proportion of large (≥28 in TL) Chinook salmon harvest estimates by Haines marine creel survey biweekly stratum, 1998–2007 and 2009–2014.

	Haines creel survey biweekly stratum				
Survey year	Biweek 1	Biweek 2 nonderby	Biweek 3 Derby	Biweek 4	Biweek 5
1998[a]	0.04	0.03	0.21	0.58	0.13
1999[b]	0.05	0.14	0.27	0.48	0.07
2000[c]	0.12	0.00	0.43	0.35	0.10
2001[d]	0.01	0.16	0.30	0.45	0.08
2002[e]	0.01	0.09	0.53	0.32	0.05
2003[f]	0.04	0.24	0.38	0.32	0.03
2004[g]	0.08	0.33	0.40	0.18	0.00
2005[h]	0.07	0.16	0.46	0.23	0.07
2006[i]	0.05	0.08	0.43	0.35	0.08
2007[j]	0.06	0.23	0.28	0.43	0.00
2008[k]	0.00	0.07	0.18	0.36	0.39
2009[l]	0.01	0.00	0.31	0.56	0.12
2010[m]	0.05	0.14	0.28	0.45	0.07
2011[n]	0.00	0.17	0.42	0.34	0.07
2012[o]	0.11	0.03	0.33	0.38	0.17
2013[p]	0.00	0.00	0.29	0.61	0.10
2014[q]	0.00	0.12	0.21	0.48	0.19
Average proportion (excludes 2008)	0.04	0.12	0.35	0.41	0.08
2015 stratum start date	11-May	25-May	25-May	7-Jun	20-Jun
2015 stratum start date	24-May	6-Jun	6-Jun	19-Jun	28-Jun
Samples scheduled in 2015	0	1	2	3	4

[a] From Ericksen (1999).
[b] From Ericksen (2000).
[c] From Ericksen (2001).
[d] From Ericksen (2002).
[e] From Ericksen (2003).
[f] From Ericksen (2004).
[g] From Ericksen (2005).
[I] From Chapell (2009).
[j] From Chapell (2010).
[k] From Chapell (2012).
[l] From Chapell (2013a).
[m] From Chapell (2013b).
[n] From Chapell (2014).
[o] From Chapell (*in prep*).
[p] From Elliott and Chapell (*in prep a*).
[q] From Elliott and Chapell (*in prep b*).

Table 14.–Number of large (≥615 mm MEF) Chinook salmon sampled in the Skagway marine boat sport fishery, 2003–2014, and the 2015 genetic sampling schedule.

Stat week	2015 week start	2015 week end	Large sampled through 2014	Weekly proportion	2015 sample size
22	26-May	1-June	3	<0.01	0
23	2-June	8-June	20	0.02	0
24	9-June	15-June	46	0.04	1
25	16-June	22-June	30	0.03	0
26	23-June	29-June	98	0.09	2
27	30-June	6-July	92	0.09	2
28	7-July	13-July	91	0.09	2
29	14-July	20-July	124	0.12	2
30	21-July	27-July	81	0.08	1
31	28-July	3-August	101	0.09	2
32	4-August	10-August	103	0.10	2
33	11-August	17-August	147	0.14	3
34	18-August	24-August	42	0.04	1
35	25-August	31-August	92	0.09	2
Total					20

Note: 615 mm MEF length is a surrogate for 28 in TL using the conversion formulas: in TL = 0.039 x mm TL, and mm TL = (1.120 x mm MEF) + 21.328 (Pahlke 1988).

RESPONSIBILITIES

Richard Chapell, Fishery Biologist III, Lead Biologist

Duties: Designs overall study plan, and writes operational plan with assistance by project biologist. Supervises overall project and coordinates final data analyses in conjunction with biometrician. Authors report.

Sarah Power, Biometrician II

Duties: Assists with operational planning, data analysis, and report writing as required. Reviews report.

Greg Watchers, Fish & Wildlife Technician

Duties: Conduct Haines creel survey as schedule dictates, review mark-sense forms for accuracy, and provide data summaries on a weekly basis.

Aaron Thomas, Fish & Wildlife Technician

Duties: Conduct Skagway catch sampling 4 days per week, 4 hours per day, review mark-sense forms for accuracy, provide summaries of effort, catch, harvest, and sampling data on a weekly basis.

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APPENDIX A: 2015 HAINES MARINE CREEL TECHNICIAN MANUAL

INTRODUCTION

The Alaska Department of Fish and Game adopted an escapement goal range of 1,750–3,500 large (≥age-1.3) Chinook salmon for the Chilkat River. The escapement goal range forms the basis for the Lynn Canal and Chilkat River King Salmon Management Plan (5 AAC 33.384) that was adopted into regulation by the Alaska Board of Fisheries in 2003. This management plan directs how commercial, sport, and subsistence fisheries will be operated in Chilkat Inlet depending on the annual Chilkat River king salmon run.

The 2015 Chilkat River king salmon run is forecast to be below the escapement goal range. Chilkat Inlet will be closed to retention of king salmon by sport anglers April 15-July 15. Subsistence and commercial fisheries in Chilkat Inlet will also be closed for that time. Due to the closure, the creel survey will target only the Haines small boat harbor in 2015.

The creel survey information that you collect will be used to estimate the marine harvest of Chinook salmon, contributions of various coded-wire tagged (CWT) stocks to the sport fishery, and total return for Chilkat River Chinook salmon runs. This survey will also estimate angler effort and catch rates. Data from this study will be essential when we update the escapement goal range for Chilkat River Chinook salmon.

Check the sampling schedule so that any problems or personal conflicts can be addressed prior to the beginning of the sampling season. If you do have any questions about the schedule, manual, or the sampling program, be sure to ask the project biologist. If you have any suggestions for improving this manual or the sampling program, please let the project biologist know. Information on the study design and the purpose of the Haines king salmon harvest study is in the operational plan. You are not required to comprehend the statistical analysis in that plan, but you should understand the survey design and rationale. During slow times on the docks, periodically review this manual, the operational plan, and sport fishing regulations.

DUTIES

Your duties are as follows:

1. Interview sport boat anglers at specific locations according to the sampling schedule and record catch and fishing effort information from these interviews.
2. Collect biological information such as king salmon lengths, scale samples and maturity data, and heads from adipose-clipped king salmon.
3. Provide information to anglers on local sport fishing regulations.
4. **CAREFULLY EDIT ALL DATA FORMS**.
5. Complete time sheets on a biweekly basis.
6. Assist in the office or in the field on miscellaneous projects as needed.
7. Summarize data on a weekly basis and submit summary no later than 8:30 Monday morning.

EQUIPMENT NEEDED

Make sure you have the following equipment:

Clipboard	Data forms:
Measuring tapes	-Port Sampling Interview (mark-sense)
Tweezers	-Alternate Age Weight Length (mark sense)
Pencils	-Coded Wire Tag (CWT) sampling
Gum cards and wax paper	Data worksheets:
Scotch tape	-Raw king salmon sampling data
Calculator	-Daily creel data summary
Knife	Map with fishing area and statistical area codes (Figure 1)
Fish head bags	Sport fishing 2014 regulation summary booklets
Head cinch straps	"Uses of Creel Survey" information handouts
Garbage bags	
Paper towels	
File box	

You will be provided with an ADF&G cap. Please wear it while you are working so people can readily identify you as an ADF&G employee. You may use a state vehicle while doing creel surveys. Remember to always fasten your seat belt and follow traffic regulations and standard operating procedures.

HAINES AREA KING SALMON REGULATIONS

Chilkat Inlet north the latitude of a marker at Seduction Point, will be closed to king salmon retention from April 15 through July 15 (Figure A2). For the remainder of the Haines and Skagway area, the bag & possession limit for all anglers is 1 king salmon 28 inches or more in length. There is no annual limit for resident anglers. The nonresident annual limit is 6 king salmon 28 inches or more in length. Nonresident anglers must record all king salmon harvested on the back of their fishing license or on a King Salmon Catch Record for nonresident anglers under age 16. King Salmon Catch Record cards are available at license vendors or through Fish and Game representatives and offices.

Anglers fishing for king salmon in Alaska are required to purchase and possess a sport fishing license and a king salmon stamp for the fees listed below:

Table A1.–Sport fishing license and king salmon stamp fees.

	Alaska & Yukon	Other non-Alaska residents					
	residents	1-day	3-day	7-day	14-day	1-year	Military
Sport fish license	$24.00	$20.00	$35.00	$55.00	$80.00	$145.00	$24.00
King salmon stamp	$10.00	$10.00	$20.00	$30.00	$50.00	$100.00	$20.00

Since 2005, Yukon Territory residents have been able to purchase an Alaska non-resident sport fishing license, and a king salmon tag, for the same fee that Alaska residents pay. Yukon residents are required to comply with non-resident restrictions, such as annual king salmon limits.

SPORT FISHING VIOLATIONS

It is not your responsibility to actively search for sport fishing regulation violations. If you do notice violations, your best course of action is to **document what has occurred and immediately notify the Alaska Wildlife Troopers in Haines (766-2533) or Juneau (465-4005)**. Details about what happened, when it happened, who was involved, and identifying information such as boat numbers or license plate numbers are essential for making a case. Contact the project leader at the Haines ADF&G office (766-3638), so we can coordinate enforcement action.

The most frequent problem in the past has been anglers bringing in undersized kings less than 28 inches total length. Refer to the diagram in the **Port Sampling Interview Form** section for the correct way to measure total length, from the tip of the snout to the tip of tail.

TIME SHEETS

You must fill out a time sheet on the 16th and the 1st of each month using a computer at the Haines office. Ask our administrative support staff or project biologists for help. The 2-week pay periods cover the 1st through the 15th and the 16th through the last day of each month. If your time sheet is not turned in on time, you won't get paid on time.

For each day you work, record your start and end times. If you start your shift after 12:00 noon, you will be entitled to receive "swing" shift differential. For holidays, just record the hours you worked. If you take annual or sick leave, record the number of hours and the code on your time sheet. If you work past midnight record an end time 23:59 that day and a start time 00:01 the following day.

EVALUATION

Because creel survey staff works without immediate supervision, project biologists evaluate your performance largely based on how you collect and record creel survey data. **Data must be thoroughly edited before you turn it in.** We need each week's data and catch rate summary by **8:30 am Monday morning**. If you anticipate an unavoidable delay, submit your data via voice mail at 766-3638 on Sunday night. Feel free to call or stop by during office hours ask project biologists any questions you have.

END OF SEASON

Please turn in your sampling gear at the end of the season. You also need to fill out a "Seasonal Acknowledgment of Responsibility" form which gives the date you need to tell us whether you are returning for another season (forms available at the office). It is important that you leave a forwarding address and phone number, so that you can be notified of any changes in your job scheduling or duties.

DATA RECORDING ON MARK-SENSE FORMS

Use a number 2 lead pencil to record all data on mark-sense data forms. Fill the bubbles completely, but do not use so much lead that portions of the mark rub off. While you are on the docks, just write in the numbers and then fill in the bubbles during slack periods, so you can do a thorough job. Handle the mark-sense forms carefully; wrinkled or torn forms may not feed through

the scanner. To avoid mutilating wet forms, pad the teeth of your clipboard with duct tape. If the forms are wrinkled from being wet then dried rapidly, they can be flattened by the scanner operators. Be careful about erasing while the mark-sense forms are wet. Rather than tearing the form by erasing, it is better to mark "delete interview" and use a new line. **Please erase all stray pencil marks completely. If the form has multiple eraser marks, transcribe data onto a fresh form.**

Record creel survey interview data on **Port Sampling Interview Ver. 1.1** mark-sense forms (Figure B3). Record biological sampling data from king salmon, and occasional halibut lengths, on **Alternate Age Weight Length Ver. 1.1** mark-sense forms (Figure B4). Record data from adipose finclipped king salmon on **Coded Wire Tag Sampling Form**s (Figure B5). Specific instructions for use of these forms, as well as examples of completed forms, are below.

ANGLER INTERVIEWS

Only interview boat parties that have completed their trips. If a party comes in to gas up or grab a sandwich, don't interview the party. If the party is coming in for lunch or to take at least a half hour break, then do interview the party as a completed trip. Charter boats at the dock to drop off one party and take out another should be interviewed as a completed trip. If a party has been on a multi-day trip, record information from all days of the trip with the following exception: if the party could have been interviewed in another port (e.g., Juneau, Hoonah, Gustavus) on a prior day, don't include the data from those days when it could have been previously sampled. Sample parties for boat-based marine fishing only.

The following procedure for angler interviews is a guide; each interview will be unique.

- Contact all parties of potential sport anglers coming in to the dock or launch ramp. Commercial fishing boats can be used for sport fishing.
- Identify yourself and that you are working for ADF&G.
- Ask the party if they have been sport fishing and if so, would they mind answering some questions about their trip. If they refuse, then verify that they were sport fishing and record an interview number with no other information.
- Ask if the fishing trip was a charter or a private trip. Charter boats have a Sport Fishing Guide Vessel (green and yellow) decal on each side of their boat.
- Ask about fishing effort: where they fished, what they targeted, how many rods they fished, and how long they fished, not including time spent traveling and setting up rods.
    - The general fishing areas codes are shown in the Figure B1 map. If the party fished multiple areas, break out the effort and catch by area on separate lines.
    - Target species can be: salmon using trolling gear, bottom fish, halibut, rock fish, lingcod, or other fish using spin-cast/fly-fishing gear. If the party had multiple targets, break out the effort and catch by target on separate lines. Do not document effort on species not listed (i.e., crab or shrimp).
- Detailed interview data recording instructions are in the **PORT SAMPLING INTERVIEW FORM** section.
- Ask the party how many fish of each species they caught and kept, and how many they caught and released. Do not record strikes or fish that got off the line by themselves as "released".

ANGLER INTERVIEWS (CONTINUED)

- If the party brought back king salmon, then sample each king salmon in the party's catch for:
    - Missing adipose fin. If the adipose fin is missing, take the head and attach a cinch strap.
    - Maturity.
    - Length, sex, and scale samples.
- Detailed king salmon sampling and data recording instructions are in the **AGE WEIGHT LENGTH FORM** section.
- If time permits, ask non-resident anglers if they recorded their king salmon harvested on the back of their license.
- If time permits, measure the total length of halibut, lingcod, and rockfish. Key out rockfish species.
- If many boats converge on the dock at once and you don't have time for a full interview of each party, you must at least ask **EVERY** party if they have been sport fishing. If they have, then record an interview number without any interview information. The sampling design requires that every party who has fished and returned has at least been counted.
- After the interview is over, thank the fishing party for their time and the information they have provided.
- Be careful not to volunteer too much information about good or bad fishing spots. **All information collected is confidential and not to be discussed with other anglers.** Charter boat operators do not like their clients being told by an "authority" that they went to a lousy fishing spot. You can share general information on fishing hot spots or techniques. However, data from a particular party or boat are considered confidential and cannot be shared.

If anglers have questions about the creel survey, you can give them a **USES OF CREEL SURVEY INFORMATION** sheet, found later in this manual. This information may help them understand that the information they provide is 766-3638.

PORT SAMPLING INTERVIEW FORM

Record data for each boat party interviewed. Up to 4 interviews can be recorded on the front of the form, and 5 more on the back. Write number or letter codes in the blank provided and then fill in the bubbles.

Header fields:

Port – Haines.

Name – Write your name and the harbor name.

Page – Page numbering starts at 1 for each sampling period. If more than nine interview lines are used in a sampling period then go on to page 2.

Year, Month, Day – Record only the 2 digits of the year (i.e. "13" for 2013). Leading zeros are required for Month and Day. Leading zeros are optional in the Interview Number, Area, Rods Fishing, Hours Fished, and Tens/Ones fields.

Survey Area – F2 = Haines. This field only needs to be filled out for the first form each week.

Site – 081 = Haines. This field only needs to be filled out for the first form each week.

Sub-Location – Leave blank.

Harbor – Record code as follows:

01 = Letnikof Dock

03 = Small Boat Harbor

Variable (1st line) – Code the weather conditions when you arrive as follows:

0 = Terrible - heavy rain or wind or both

1 = Average - cloudy, light rain, or clear but somewhat breezy

2 = Outstanding - little wind, sunshine.

Variable (2nd and 3rd lines) – Leave blank.

Period Start/End – Record actual start and end times of your sampling period in military time. Please adhere to the scheduled start and end times exactly.

Counted – Record (on first page of sampling period only) the number of boats that came into the dock that were sport fishing during your shift.

Interviewed – Record (on first page of sampling period only) the number of sport fishing boats that you interviewed. This will be the same as counted unless you were too busy to interview all parties, or someone refused to be interviewed.

Interview Lines:

Delete interview – Fill in this column if there has been a mistake and the interview line needs to be deleted. Also mark this column in if there were zero interviews during a sampling period. If this column is not marked and there are no interviews, the scanner will not read the header information.

Interview number – Begin at 1 each sampling period and assign an interview number to each boat party interviewed. One interview can use more than one line if the party targeted more than one species (i.e., halibut and salmon), changed areas during the trip, or changed the number of anglers part way through the trip. Record the interview number on every line used. If no angler effort or

PORT SAMPLING INTERVIEW FORM

catch information is obtained for whatever reason (lack of time, just counted the boat party and didn't interview, uncooperative, etc.) just record the interview number.

Continue – Leave blank unless there are more than eight species and kept/released combinations, in which case you would mark "Y" (this has never occurred in past years). On the following line, only fill in the species boxes, not the effort information. Do **not** mark this column if the interview takes more than one line due to the party targeting multiple species, fishing multiple areas, or changing number of anglers.

Multi-day Trip/Number of Days – If the fishing trip lasted more than 1 day, then mark "Y" and the numbers of days. Otherwise, leave blank.

Class (User Group)

C = Charter (guided) trip

P = Private trip

Species Targeted

SA = Salmon

BF = Bottomfish (includes halibut, rockfish, and lingcod)

OT 5 = Spincasting or Flyfishing

VAR – 5 if Species Targeted = OT. Otherwise, leave blank.

Statistical Area – Use the last column to record **number of anglers** in the boat.

Interview Area – Record the area fished using codes on Figure 1 map.

Num Rods/Anglers – Record **number of rods** fished, **not** the number of people in the boat.

Hours Fished and the next column to the right for ¼ hours – Time fished, rounded to ¼ hr. Do not include travel time or setup time. If less than 1 hr fished, write "0" Hours Fished and mark the appropriate fraction of an hour in the following column. Do not include hours spent pursuing crab or shrimp.

Charter CFEC Number – For **charter** fishing trips only, record the **5-digit Saltwater Logbook number**. Also write the name and AK number of the charter boat in the right page margin. This helps us track and verify the accuracy of the logbook program.

VAR 1–3 – Leave blank.

VAR 4–5 – Record the time of each interview to the nearest hour in military time (i.e. 2 pm = 14).

Tens/Ones – For each species, record the number of fish kept or released. For numbers larger than five, mark two bubbles in the same column ("5" + "2" = 7).

Species – Record the species code using Table A2 below:

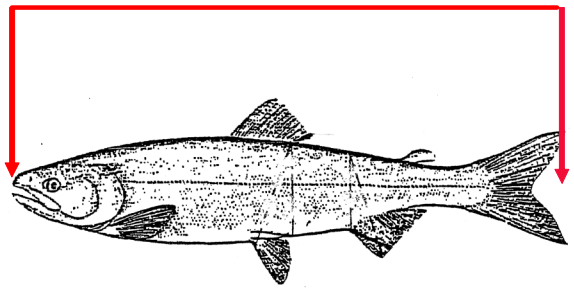
PORT SAMPLING INTERVIEW FORM

Table A2.–King salmon codes indicate size, maturity, and ad-clip status. See Appendix B for criteria and photos for evaluating maturity.

Large king salmon (total length ≥28 in.)		
KS 3	Mature	adipose fin not clipped
KS 4	Immature	adipose fin not clipped
KS 5	Unknown maturity	adipose fin not clipped
KS 6	Mature	adipose fin clipped
KS 7	Immature	adipose fin clipped
KS 8	Unknown maturity	adipose fin clipped

Small king salmon (total length <28 in.)		
SK 3	Mature	adipose fin not clipped
SK 4	Immature	adipose fin not clipped
SK 5	Unknown maturity	adipose fin not clipped
SK 6	Mature	adipose fin clipped
SK 7	Immature	adipose fin clipped
SK 8	Unknown maturity	adipose fin clipped

Total length measurement to determine large (KS) or small (SK) species code. Total length also determines if a king can be legally harvested.



PORT SAMPLING INTERVIEW FORM

Table A3.–Rockfish codes. Use rockfish identification book provided.

Pelagic rockfish		
Code	Species	
RF 8	Dusky Rockfish	
RF 9	Black Rockfish	
OT 10	Other pelagic rockfish	Yellowtail, Widow, Blue etc.

Nonpelagic rockfish, includes demersal and slope species		
Code	Species	Demersal or slope
RF 1	Quillback Rockfish	demersal
RF 2	Copper Rockfish	demersal
RF 3	Yelloweye Rockfish	demersal
RF 4	China Rockfish	demersal
RF 5	Tiger Rockfish	demersal
RF 6	Canary Rockfish	demersal
RF 7	Rosethorne	demersal
OT 9	Unknown demersal	
RF 10	Silvergrey Rockfish	slope
RF 11	Rougheye Rockfish	slope
RF 12	Shortraker	slope
RF 13	Bocaccio	slope
RF 14	Pacific ocean perch	slope
RF 15	Redbanded	slope
OT 11	Other slope	Redstripe, Harlequin, Aurora etc.

PORT SAMPLING INTERVIEW FORM

Table A4.–Other fish and codes for port sampling interview form.

Code	Species	Letters to write in box
OS 1	Silver (coho) salmon	SS
OS 2	Pink (humpy) salmon	PS
OS 3	Chum (dog) salmon	CS
OS 4	Red (sockeye) salmon	RS
HA 1	Halibut brought back whole	HA
HA 2	Halibut-cleaned at sea	HA
OT 5	Dolly Varden	DV
OT 6	Cutthroat Trout	CT
OT 7	Lingcod	LC
OT 8	Steelhead	SH
OT 1	Dungeness Crab	DC
OT 2	King Crab	KC
OT 3	Shrimp	SP
OT 4	Tanner Crab	TC

Disposition

Kept/Released

K – Fish was kept.

R – Fish was released. “Released” means the angler landed the fish and intentionally released it. If a king salmon was released, ask the angler to classify it as legal (KS) or sub-legal (SK), and leave the maturity/adipose clip code blank.

Sampled/Not sampled

S – You examined the king salmon to see if the adipose fin was clipped.

N – You did not examine the king for adipose-clip status.

Fill in as many blocks as necessary to tally the number of each species kept and released on a trip. For salmon identification, look for clues on the tail of the fish (Figure B2). If there are more than 8 species caught in one area (this would be very unusual), fill in "Y" in the continue column and continue the data from that area on the next line.

PORT SAMPLING INTERVIEW FORM

Example port sampling interview form:

The example below matches port sampling interview form in Figure A3:

The sampling took place on May 16, 2007 at the Letnikof Dock from 0800 to 1430 hours with average weather conditions. Three boats came in and were interviewed during the period:

- Boat 1 (pleasure boat) 4 anglers fished for salmon with 3 rods for 4.0 hours in Area 1 and kept 3 kings (2 mature and 1 immature king, all were sampled for adipose clips and maturity) and released 1 small king and 1 large king (Interview time = 10:00).
- Boat 2 (pleasure boat) 4 anglers fished for salmon with 4 rods for 0.5 hours in Area 1 and caught 1 king but while the creel tech was interviewing boat 1, the anglers had filleted the king salmon and discarded the carcass, so adipose clip and maturity were not known (not sampled) however the sampler saw the fillets verifying that they did catch a king salmon (Interview time = 10:00).
- Boat 3 (charter boat) 4 anglers fished for salmon with 4 rods for 1.0 hours and caught 2 Dolly Varden in Area 2 and then fished for halibut in Area 3 with 4 rods for 2.5 hours and kept 2 halibut (Interview time = 11:00).

CODED WIRE TAG (CWT) SAMPLING FORM

Sample king salmon for sex, maturity, mid-eye to fork length (MEF), and scales. Take total lengths from halibut, rockfish and lingcod as time allows. Use a separate **Age Weight Length** (AWL) form for each species. Sample only king salmon encountered during creel survey interviews, not adipose-clipped kings voluntarily brought to you. The object of creel sampling is to get a random sample from the fishery.

Record a maximum 9 fish per AWL form. Do not use the back side of the AWL form. To match scale cards and AWL forms, do not use the 10th column on the scale card.

Place 5 scales from the preferred area on the left side of each king salmon in 1 column of the scale card. One scale card will match one AWL form. Mount scales onto gum cards as shown on the example AWL form (Figure A4) and tape it to the front of the AWL form. Mount all the scales oriented the same way (i.e. cuticles all facing down). Label the gum cards as shown in the Figure A4. Refer to Figure 1 for the Stat. Code on the scale card. Use wax paper sheets as the backing for the gum card to keep damp cards from sticking together. Line by line instructions for completing the AWL forms follow:

Header fields:

Name – Sampler's name and harbor sampled.

Fishery – Usually "Haines marine sport". Add "Derby entry" or "Non-derby entry" on derby days (May 25, 26, 27; June 1, 2). "Subsistence" if kings were harvested by subsistence gillnet.

Page – Leave blank.

Year, Month, Day – Record only the last digit of the year (i.e. "13" for 2013). Use leading zeros on month and day. Note that these fields are additive. For example, 6 is recorded by filling "0" in the "Tens" row and both "5" and "1" in the "Ones" row (5 + 1 = 6).

Survey Area, Site, Sublocation, and Period -- Leave blank.

Species – 410 = king salmon.

Next header field – 1 = Letnikof Dock

3 = Small Boat Harbor

Last 3 header fields – Leave blank.

Biological Information lines:

Fish # – Matches column used on scale card. The 5 scales from fish number 1 are mounted in the spaces in the 1st column, covering the numbers 1, 11, 21, 31, and the space below 31. Scales from fish number 2 are mounted in the spaces in the 2nd column over the numbers 2, 12, 22, 32, and below 32, etc.

Record maximum 9 fish per AWL form. Do not use the back side.

Sex – Mark "M" or "F" for king salmon if sex was determined, but leave blank if sex was not determined. Do not guess on the sex of king salmon.

CODED WIRE TAG (CWT) SAMPLING FORM

Status – Record the maturity of every king salmon sampled using these codes:

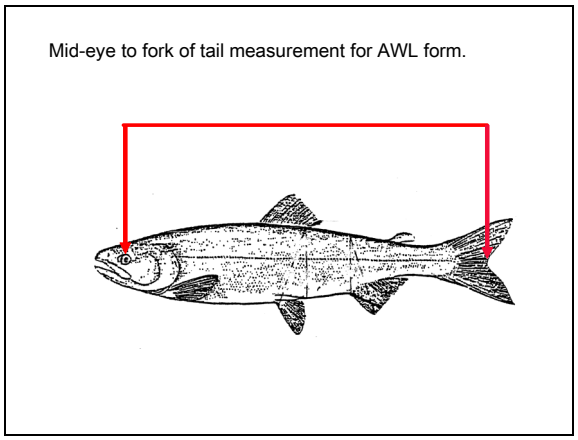
1 = Mature (spring or summer spawner)

2 = Immature (rearing fish; unlikely to spawn in 2013)

3 = Unknown.

Length –

Measure king salmon from mid-eye to fork of tail (MEF), to the nearest 5 mm. Measure the length while keeping the tape as straight as possible; do **not** measure around the curve of the fish.



Note that the MEF measurement is different than the total length (also called legal length) that is used classify king salmon as greater or less than 28 inches.

For halibut, lingcod, and rockfish measure from tip of snout to tip of tail (total length). Not all of the groundfish have a fork in tail. Make certain that you are measuring in a straight plane—do **not** measure the curve of the fish.

Tag Number – Write the number of the **cinch strap** attached to the head taken from an adipose-clipped king salmon. Fill in the bubbles for the last 5 digits of this number.

Weight/Variable – If you collect a **genetic** sample, record the **vial number** here. Fill in bubbles for the last 3 digits. Sometimes the vials are not in numerical order, so verify the vial number before you write it down.

Rest of fields – Leave blank.

Example AWL form:

The data below is shown in Figure A4.

During Interview 1, 3 king salmon were sampled: Fish 1 = male, mature, 1,020 mm MEF); Fish 2 = female, immature, 850 mm MEF, adipose fin clipped, cinch strap 662358 attached to the collected head; Fish 3 = mature, female, 790 mm. Genetic samples were not collected from these fish.

CODED WIRE TAG (CWT) SAMPLING FORM

All king salmon must be checked for missing adipose fins. If the adipose fin is clipped, sample as other creel survey fish, collect the head, attach a cinch strap through the mouth and out the operculum, then fill out a CWT sampling form. Anglers may bring you heads from other adipose-clipped fish, and you will need to fill out a CWT sampling form for these fish, too. Heads should be placed in individual bags and kept frozen until you bring them in to the office. Freeze the head in a position where the strap number is visible.

If an angler wants to keep the head on to make a cast of the fish, attach a cinch strap, fill out a CWT sampling form, and arrange to collect the head later from the taxidermist. Record as much information as possible, especially the angler's name and address and where they will have the fish mounted. Stress to the angler that it is his or her obligation to ultimately provide the head to ADF&G.

There may be other circumstances in which you are unable to collect the head from an adipose-clipped king salmon, such as the fish being headed and gutted before returning to the harbor, but you see the adipose fin area was left intact. In this case, fill out a CWT sampling form and tape a cinch strap to the form.

In addition to adipose-clipped fish, there might be a king or coho salmon that has been Floy tagged by the National Marine Fisheries Service (NMFS) or a halibut tagged by the International Pacific Halibut Commission (IPHC). If you encounter fish with any of these tags, fill out a CWT form with all applicable information (including the tag number) but do not collect the head or put on a cinch strap. Return the forms with information about these types of tags to creel project biologists.

Line by line instructions for the CWT sampling form:

Interviewer Information:

Sample Number – Leave blank.

Source – Sport.

Survey Site – Haines.

Sample Type –

Random – the fish is randomly sampled during the creel survey.

Select – the fish is voluntarily brought in by an angler from a sampled fishery (Haines).

Voluntary – the fish was taken in an unsampled fishery (Hoonah, for example)

or if the fish was taken before or after the Haines creel survey .

Sampler – Your last name.

Name of Place Sampled – If sample type is Random, this is the harbor you are sampling. Leave blank if the sample is Select or Voluntary.

Date Sampled – Date you interviewed the angler. Leave blank for Select or Voluntary samples.

Stratification Information:

Sport Harvest Code – For Random samples only: MB (for Marine Boat). Otherwise, leave blank.

Fishing Site Code – Always blank.

CODED WIRE TAG (CWT) SAMPLING FORM

Angler Information:

Name & Mailing Address – If more than one angler in a particular party caught an adipose-clipped fish, complete a separate form for each person. Try to determine only one contact person per boat.

Catch Information:

Date Caught – Date the fish was caught. Select or Voluntary recoveries caught on different days must be recorded on separate forms.

Water Type – Was the fish caught in salt water or fresh water? (Fresh water is closed to king salmon sport fishing.)

Name of Place Fished – Where fish was caught. Be specific.

Area Information – Refer to Figure 1 for statistical area code (five digits) where fish was caught.

Anadromous Stream # – Fresh water is closed to sport fishing for king salmon, so you should not encounter dead kings taken in fresh water. However, if you do, write the stream name in pencil and flag the form; and the Project Leader will complete this field.

Sampling Information: Leave blank.

Head Recovery Information:

Head Number – Number of cinch strap attached to fish head. Use cinch straps in order.

Species Code –410 = king salmon, greater than 28 inches total length (**tip of snout to tip of tail**), or greater than 615 mm MEF (mid-eye to fork of tail);

411 = "jack", king salmon less than 28 inches total length, or 615 mm or less MEF.

Length – **Mid-eye to fork of tail**, to the nearest 5 mm. Note that this measurement is different than that used for the species code. If an angler gives you a length measurement for a Select fish, ask them what type of measurement they made and note on form if they measured total length.

Clip Status –	"Good"	the adipose fin looks to be cleanly sliced off and healed;
	"???"	uncertain whether the adipose fin was clipped or not;
	"Unkn"	you did not check the adipose fin;
	"No Ad Clip"	the adipose fin is present (but you would have no reason to take a head from such a fish).

Chinook Flesh Color – For king salmon only, circle the appropriate flesh color if observed. For other fish, leave blank.

Example CWT sampling form:

The data below is recorded in a sample CWT sampling form (Figure A5).

During a creel survey interview, there was one adipose-clipped king in the party's catch. The interviewer took the head and attached cinch strap 662358. The king was caught by J. Q. Public in Chilkat Inlet, was longer than 28 inches (tip of snout to tip of tail), had red flesh, and measured 830 mm MEF.

HAINES CREEL SUMMARY FORMS

HAINES MARINE CREEL WEEKLY SUMMARY DATA

In order to get an up-to-date estimate of how the sport fishery is going, you will calculate weekly summaries of your data. This summary will help you respond to questions, and the creel project leader will use the summaries to estimate weekly total harvests of king salmon ≥28" in length.

Several worksheets are attached for calculating the data summaries. If you find a better system for tabulating weekly catches, you needn't use the Raw Data worksheet or the Daily Creel Summary worksheet, but you *must* complete the **Haines Marine Creel Weekly Summary Data** worksheet. It is a good idea to sum your data after each day's sampling then summarize all days at the end of the week. The weekly summary is due at 8:30 on Monday morning.

Haines Marine Creel Daily King Salmon Sampling Data

Use a daily form to summarize data for **each sampling period**. This form helps you to calculate the king salmon effort, catch, and harvest for each boat party. Summing the data gives you the total sampled effort, catch, and harvest for the period if there were no interviews with unsampled king salmon and if there were no king salmon of unknown maturity.

Each line corresponds to 1 boat party (i.e., 1 interview) on the Marine Interview form. Record the number of rods fished per boat and the number of hours fished per boat; effort is the product of the rods times hours. For each boat party, group their king salmon catch by size, whether they were sampled or not, by their maturity, and by the adipose-clip status.

You may want to use a separate form to record halibut effort, catch and harvest.

Haines Marine Creel Daily Expansion Worksheet

Use this form to make an expanded estimate of the total period harvest of mature king salmon >28" with adipose fins if any of the following are true:

there were any boat parties not interviewed,

or if any king salmon kept were not sampled during the period,

or the maturity status of any king salmon >28" kept is unknown,

or you need to write down your calculations to estimate total harvest during the sample period.

If you did not miss any interviews *and* you sampled all the harvested king salmon *and* you determined the maturity of all the king salmon you sampled, then the estimate will be the sum of all your interviews during the period. Whether you use this form or not, be sure you understand (and can apply) the mechanics of estimating TOTAL harvest in a period as described on the form. These totals will be used by the Project Leader to estimate weekly statistics and to project the next week's harvest.

Haines Marine Creel Weekly Summary Data

This form must be completed **each week**. Each line on this form corresponds to one sampling period. Sum the data from all the week's sampling periods to calculate the HPUE of large (≥28 in TL) king salmon and halibut. This information is used by the Project Leader to estimate the total weekly harvests at Haines.

HAINES MARINE CREEL DAILY KING SALMON SAMPLING DATA

Sampler _____ Date _____

Harbor _____ Starting Time _____

Rods fishing	Hours fished	Effort (rods*hrs)	Kings 28 inches and greater								Kings less than 28 inches released
			Kept but not sampled	Kept and sampled						Released	
				Mature		Immature		Unknown			
				No ad-clip	ad-clip	No ad-clip	Ad-clip	No ad-clip	Ad-clip		
Total											

HAINES MARINE CREEL DAILY EXPANSION WORKSHEET

Sampler _____ Date of Sample _____

Sample Location _____ Time of Sample _____

(1) Number of sport fishing boat-parties returning to dock _____

(2) Number of sport fishing boat-parties interviewed (see below) _____

Exclude boat-parties that have KS >28"
with an adipose fin and UNKNOWN maturity
status and/or KS that were not sampled!
*Include **All** other SF boat-parties interviewed!*

(3) Number of mature KS >28" with adipose fins that
were sampled from boat-parties interviewed in (2) above _____

(4) **Expanded number of mature KS >28" with adipose fins harvested for the sample period** *[(4) = (3) * (1)/(2)]* _____

This number is entered in column 6 of the
Haines Marine Weekly Summary Data form.

(5) Number of boat-parties that have KS > 28"
with an adipose fin and UNKNOWN maturity status _____

(Keep the project leader aware of this
number as the season proceeds).

(6) Repeat these procedures similarly to estimate:

- **Total mature KS with ad clips _____**
- **Total immature KS >28" w/o ad clips _____**
- **Total immature KS >28" w/ ad clips _____**

(7) Summarize (sum or expand) the sampling data to estimate**:**

- **Total KS >28" released _____**
- **Total KS <28" released _____**
- **Total salmon effort during sample period _____**
- **Total halibut effort _____**
- **Total halibut kept _____**
- **Total halibut released _____**
-

(8) Record information from **(4)**, **(6)** and **(7)** on the Weekly Summary Data form.

HAINES MARINE CREEL WEEKLY SUMMARY DATA

Sampler _____ Date _____ Stat week_____

Date	Start time	Harbor	Est. Salmon effort	Kings ≥28 inches total length						Est. Kings <28 inches released	Est. Halibut effort	Est. Halibut kept	Est. Halibut released
				Est. total Kings caught	Mature		Immature		Est. Total Kings released				
					No ad-clip*	Ad-clip	No ad-clip	Ad-clip					

* *This number is calculated as (4) from the Haines Marine Daily Harvest Summary Worksheet.*

(A) Total Salmon Effort _____

(B) Total Kings ≥28" Caught (Kept & Released) _____

(C) King Salmon ≥28 in TL CPUE (B)/(A) _____

(D) Total Halibut Effort _____

(E) Total Halibut Caught (Kept & Released) _____

(F) Halibut CPUE (E)/(D) _____

GENETIC SAMPLING INSTRUCTIONS

I. General information

The purpose of this project is to estimate the origins of legal size king salmon harvested in the Haines sport fishery during the 2015 fishing season. We will use axillary process ("spine", see photo on next page) tissue from individual fish sampled from this fishery to determine its genetic characteristics at several genetic markers. This information, along with scale samples and lengths, will provide a profile of the populations of fish contributing to this fishery, which can be used to estimate the stock composition of the harvest. The genetic sampling schedule is proportional to historic harvest, based on samples collected in 2008, a year when Chilkat Inlet was closed to king salmon retention.

II. Sampling schedule

Sample legal size (≥28 inches total length) king salmon from the sport fishery. Sample goals are as follows:

Survey stratum	Biweek 1	Biweek 2	Biweek 3	Biweek 4	
2015 stratum start date	11-May	25-May	7-Jun	20-Jun	
2015 stratum end date	24-May	6-Jun	19-Jun	28-Jun	Total
Samples scheduled in 2015	0	3	3	4	10

Collect a genetic sample from the first legal size king salmon you encounter each stratum until you reach the stratum goal. If you fall behind the sample schedule, take additional samples the following stratum to catch up.

III. Tissue sampling

A. Sampling supplies provided

- Dog toe nail clippers -for sampling axillary process "spine"
- Vials and caps -tubes for holding fin clip
- Vial rack - to hold tubes while sampling
- Squirt bottle -plastic "goose neck" bottle for filling cryovials with ethanol
- Large bottle -bulk ethanol for filling cryovials prior to sampling

B. General set up

To ensure that the axillary process tissues are kept fresh it is important to work quickly. Have your sampling area and supplies organized **before** you begin sampling the fish.

GENETIC SAMPLING INSTRUCTIONS

C. Tissue sampling

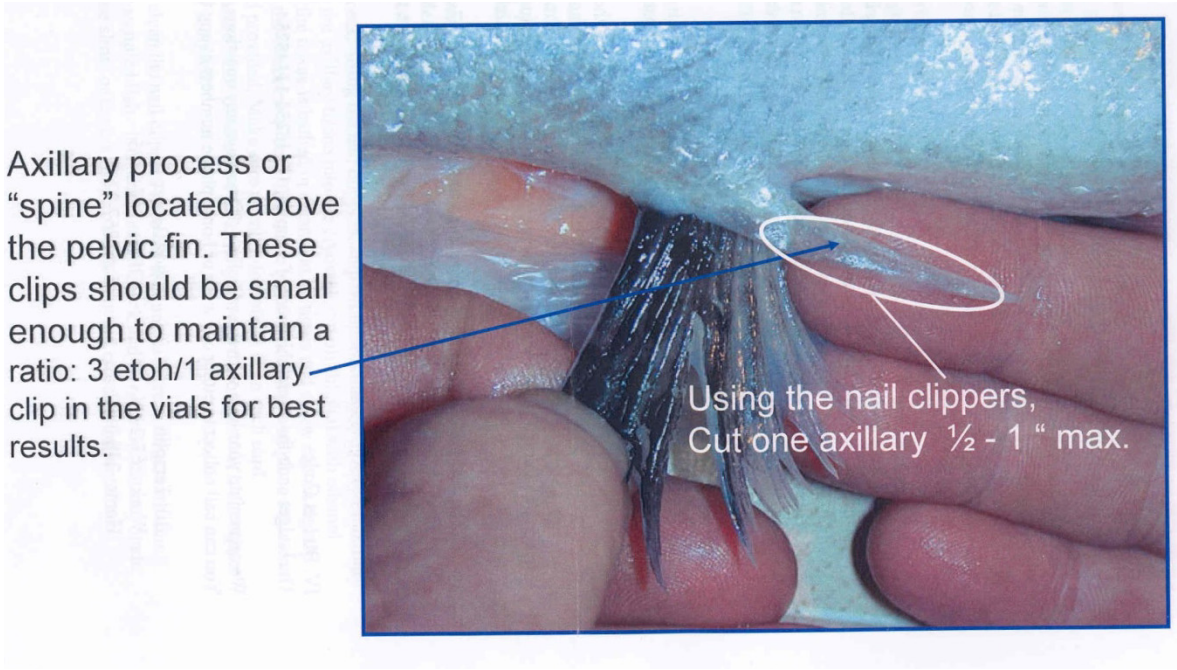
Set up your sampling rack with cryovials for the fish that you anticipate to sampling each period. Partially fill each cryovial with the ethanol prior to sampling the axillary process. For each fish sampled,

- Using the nail clippers, snip off approximately ½" – 1" of axillary tissue. Avoiding excess water or slime, place the axillary tissue into the cryovial. Top off the vial with ethanol so the tissue is bathed in ethanol, and the screw cap on tightly.
- Record the genetic vial number in the "Weight/Variable" column on the AWL form.
- Record sex, maturity, and length data on the AWL form as detailed in the AWL sampling section.

There is no need to clean the nail clippers between fish unless there is tissue remaining from the previously sampled fish. It is sufficient to rinse the cutting blade periodically to reduce slime or tissue to avoid cross contamination.

D. Sample storage

While you are sampling, avoid direct sun or rain and keep samples as cool as possible at all times. Make sure that the axillary tissue is covered with the ethanol so that the tissue is bathed in ethanol at all times. After sampling, the tissues must be kept in a cool and dry location and in an upright position. Refrigeration is not necessary when sampling with ethanol.



USES OF CREEL SURVEY INFORMATION

You requested information about why you were questioned about your fishing trip when you returned to the dock. The purpose of the interview may not be obvious to you and you may feel that these surveys are a waste of money. This handout summarizes some of the uses of this interview information, so anglers can understand their role in the management of sport fisheries.

The Alaska Department of Fish and Game conducts sport fish harvest survey programs in a variety of saltwater and freshwater fisheries throughout Southeast Alaska. These programs are designed to sample a random group of fishermen so harvest and other statistics for an entire fishery can be estimated. Often creel technicians will not be stationed at the busiest docks, because if they only sampled there, they would not interview the "random sample" of fishermen necessary to estimate total harvest.

Uses of information gathered by these programs are many. Of immediate concern to Haines fishermen, the fishery is being monitored as part of a long-term research project to determine optimal harvest levels for the Chilkat River Chinook salmon stock. Information gathered on catch rates help biologists monitor the health of the fishery so steps can be taken to improve fishing. Creel survey information is also provided to the State of Alaska's Board of Fisheries and the International Pacific Halibut Commission during their consideration of proposed changes to sport fishing regulations. Also, the value of enhancement efforts such as stocking programs and hatcheries can be evaluated. Information gathered is also used in planning to formulate management goals based on what most anglers are interested in catching.

In addition, as part of the U.S.-Canada Pacific Salmon Treaty, catches of king salmon by sport fishermen, commercial fishermen, and subsistence users are being monitored closely in an attempt to rebuild depleted runs of king salmon. Scales taken from king salmon harvested by sport fishermen can be used to determine age and origin of these fish. Heads from adipose fin clipped king and coho salmon contain tiny tags that identify the exactly where the fish originated.

By becoming aware of the potential uses of the creel survey information, you will recognize that although it may be somewhat of a "bother" to be interviewed on the dock or at the stream, it is time well spent. Creel survey personnel are trying to get the best information possible, so please help them by answering their questions. They are also good sources of information on where fish are being caught as well as sport fishing regulations.

GUIDED SPORT FISHING CHARTER HALIBUT PERMITS

Commercial halibut harvest, including that by guided charter anglers, is regulated by the federal government. Refer questions about the implementation of Charter Halibut Permits for sport charter businesses and vessels to the following NOAA/NMFS contacts:

Questions about Charter Halibut Permits
NOAA Fisheries (NMFS),
Restricted Access Management (RAM)
1-800-304-4846 (press 2) or 907-586-7344, Fax 907-586-7354
Email: ram.alaska@noaa.gov
Website: http://www.alaskafisheries.noaa.gov/sustainablefisheries/halibut/sport.htm

Questions about Regulations
NOAA Fisheries (NMFS),
Sustainable Fisheries Division
1-800-304-4846 (press 3) or 907-586-7228
Website: www.alaskafisheries.noaa.gov

Questions about Enforcement
NOAA Office of Law Enforcement
Alaska Region
PO Box 21767 709 W. 9th Street, Room M09C Juneau, AK 99802-1767
907-586-7225

Questions about Harvests
Alaska Department of Fish and Game, Division of Sport Fish
Email: sf1web@fishgame.state.ak.us
907-465-4270, 907-465-4180
Website: http://www.sf.adfg.state.ak.us/statewide/
1255 W. 8th Street
P.O. Box 115525
Juneau, AK 99811-5526

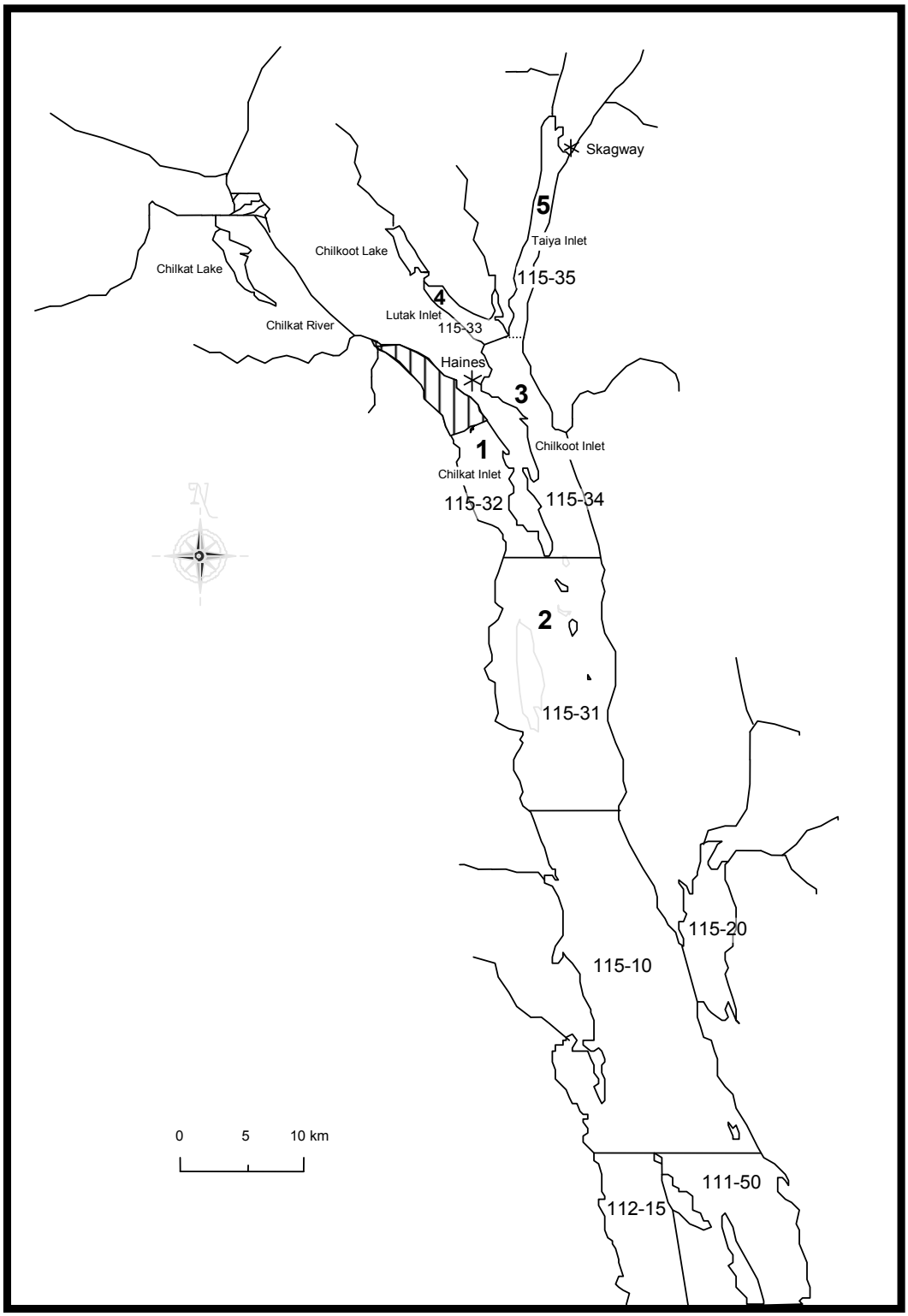


Figure A1.–Map of upper Lynn Canal showing Haines marine harvest survey fishing area codes (single-digit in **bold**) and statistical area codes (115-XX).

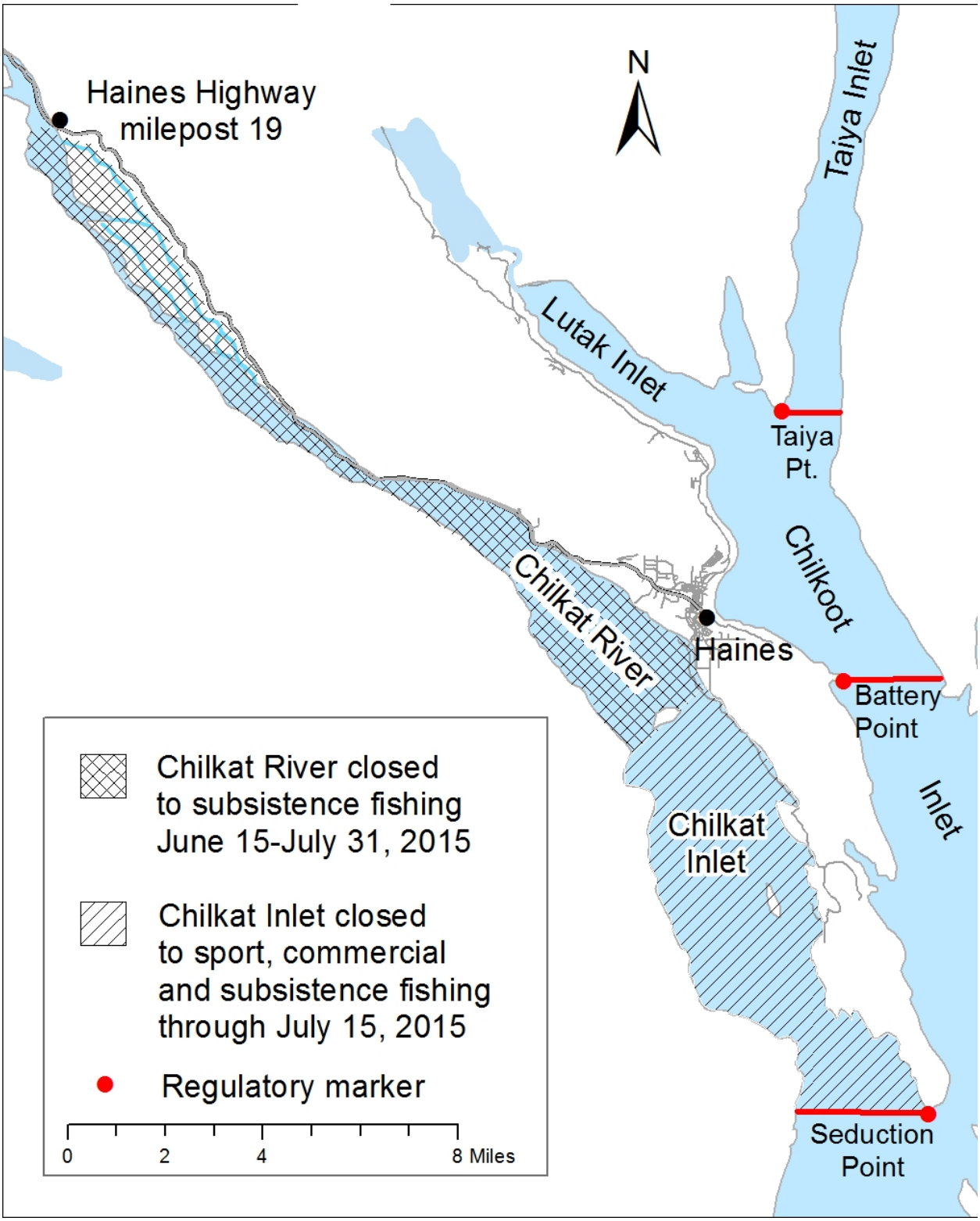


Figure A2.–Map of the Haines area showing Chilkat Inlet area closed to king salmon fishing from April 15 to July 15.

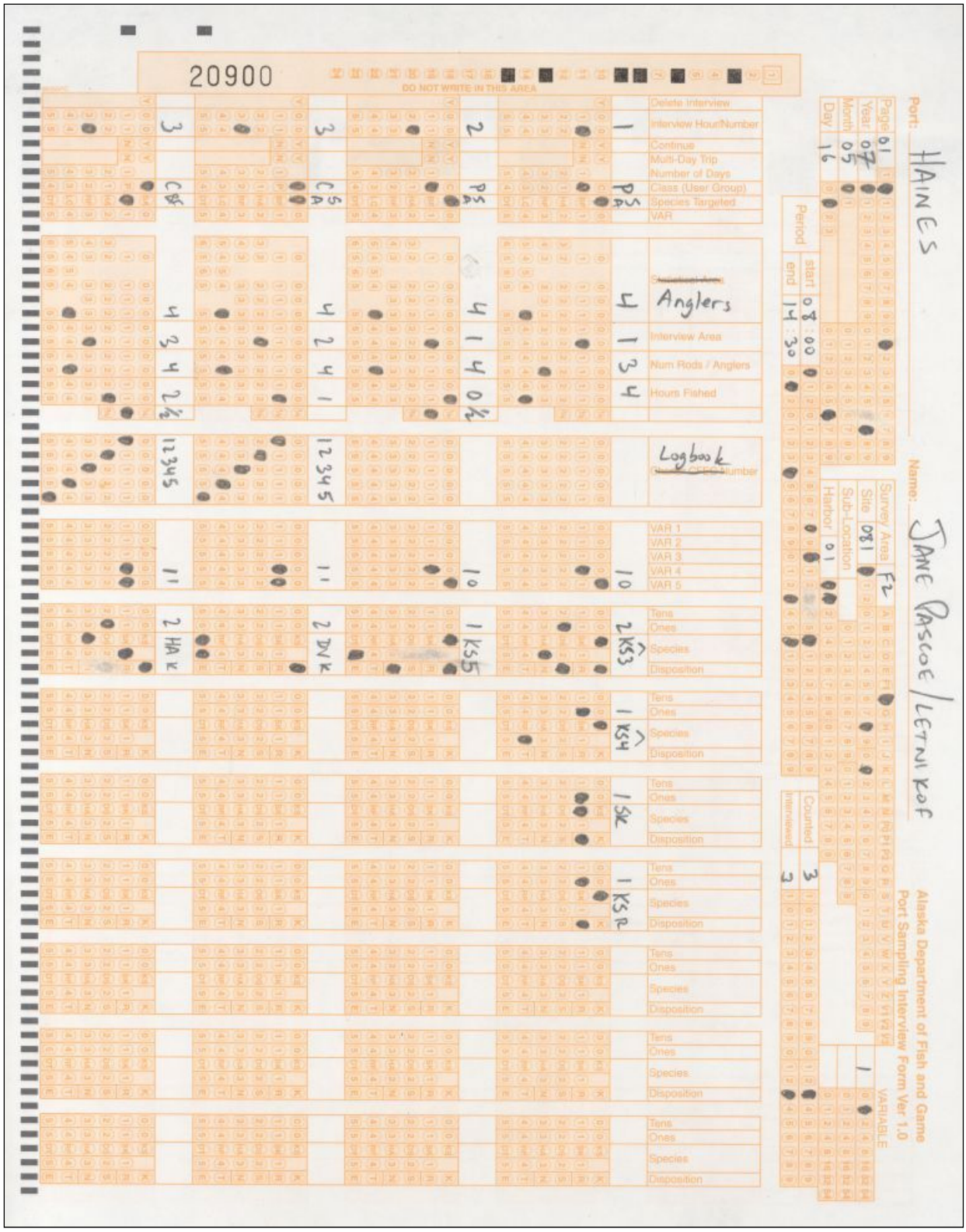


Figure A3.–Port sampling interview form example.

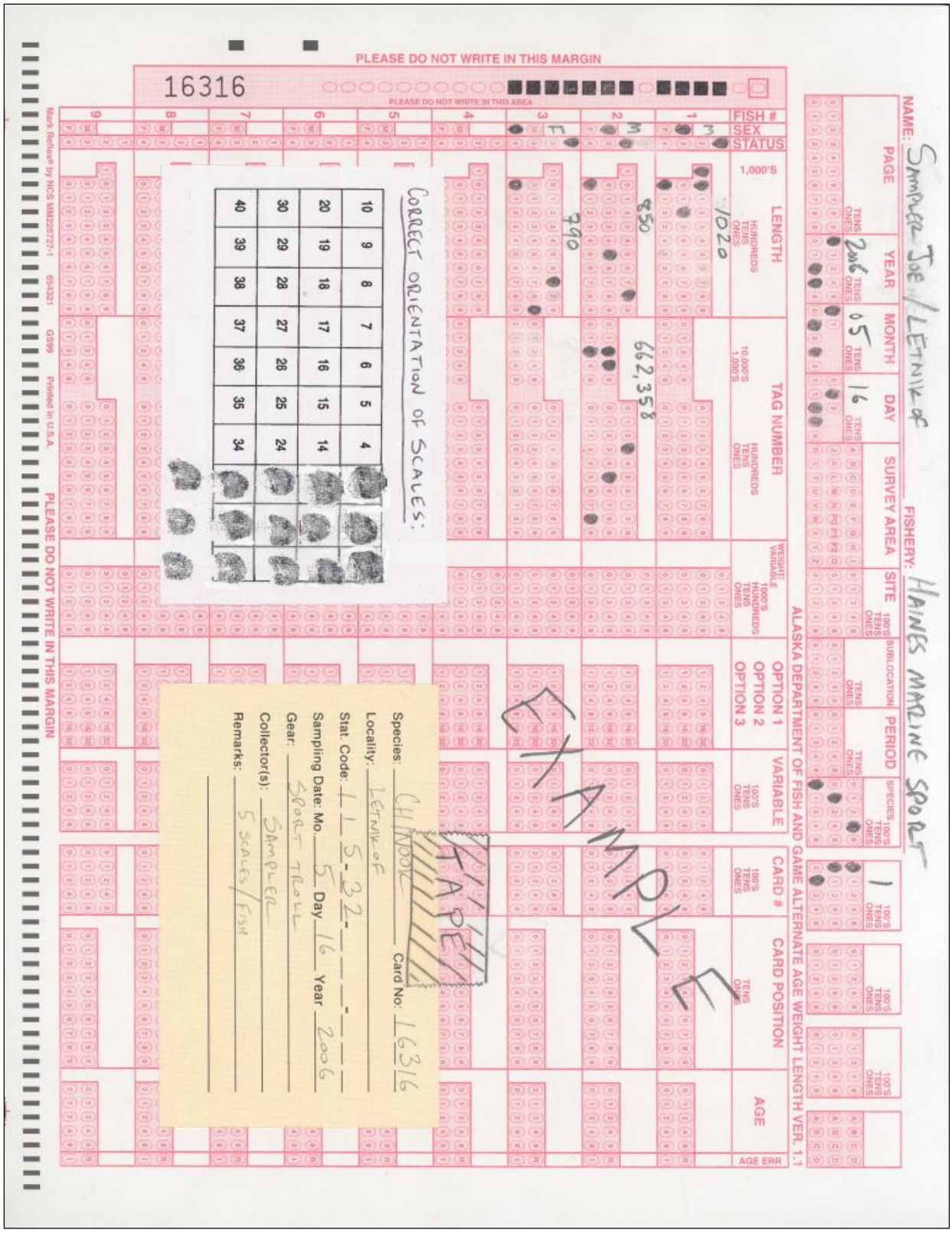


Figure A4.–Alternate age weight length form example.

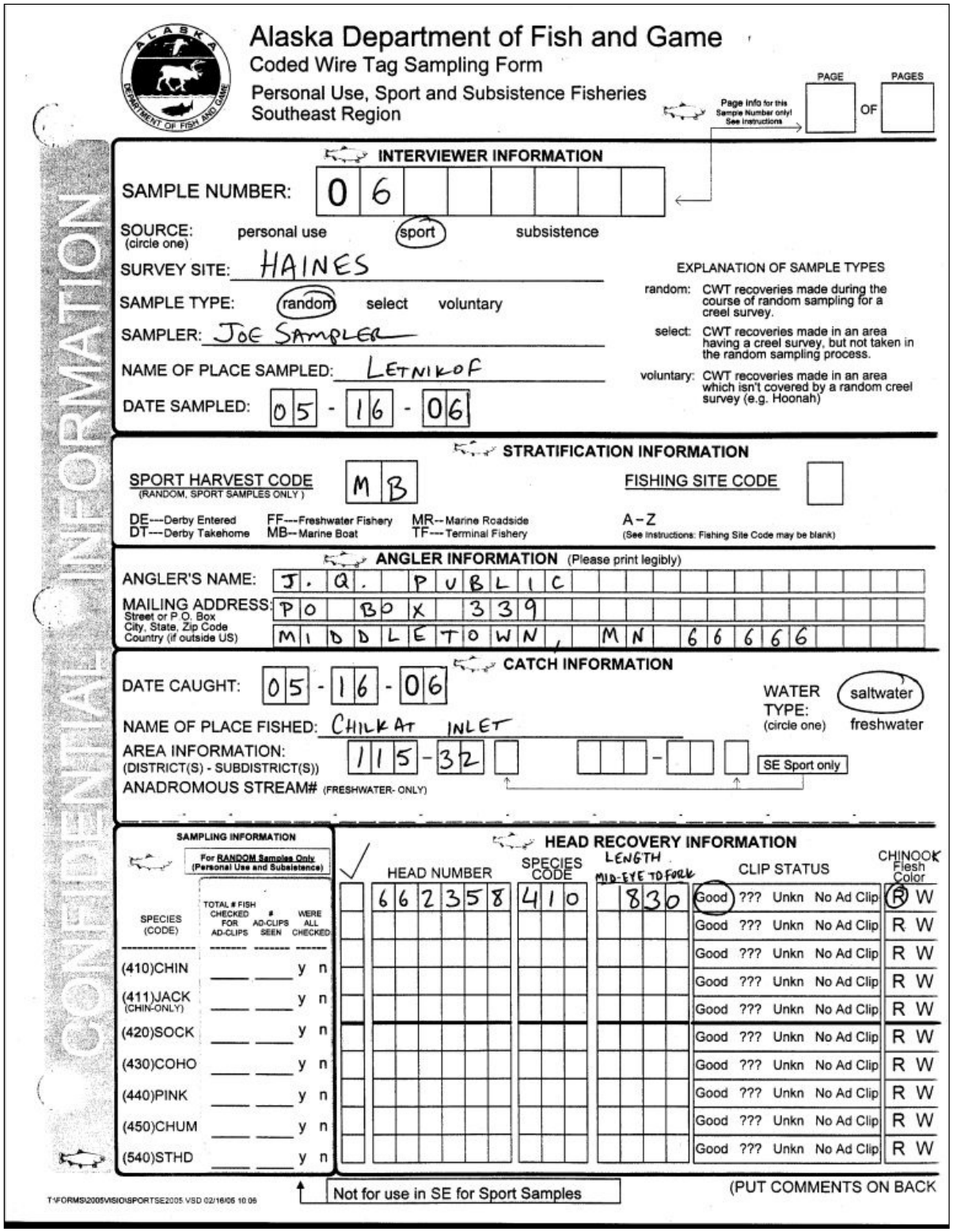
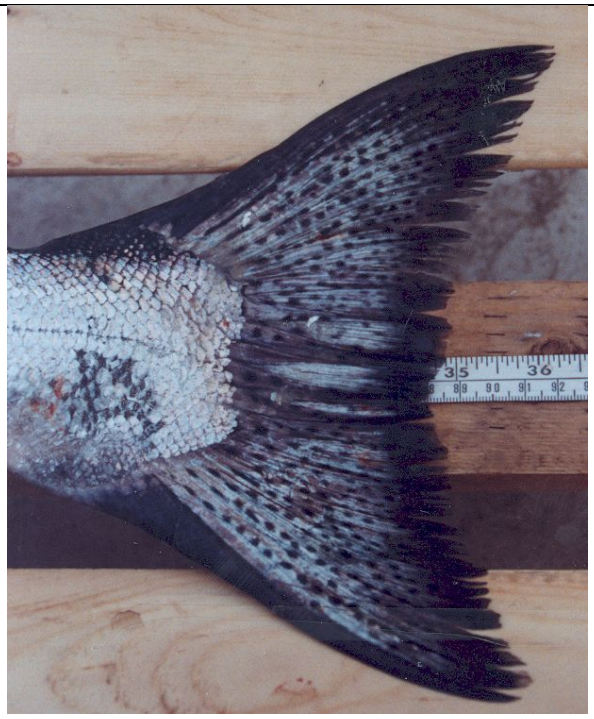


Figure A5.–Coded wire tag sampling form example.

APPENDIX B: SALMON SPECIES IDENTIFICATION AND CHINOOK SALMON MATURITY EVALUATION

SALMON SPECIES IDENTIFICATION AND MATURITY EVALUATION

Chum – some silver streaks on tail



King – numerous tail spots

Sockeye – no marks on tail

Coho – silver streaks and some spots on tail

Figure B1.–Tail comparison photos for salmon species identification.

SALMON SPECIES IDENTIFICATION AND MATURITY EVALUATION

Chum

No spots

Large iris

Narrow peduncle

19–26 gill rakers per arch

Sockeye

No spots

Bright red flesh

Blue back

30–40 gill rakers per arch

King

Irregular spots on back and both lobes of tail

Black gums

Immature (top)

Scales easily removed

White lower operculum

Mature (bottom)

Scales well attached

Dark lower operculum

Figure B2.–Photos for salmon species identification and king salmon maturity assessment.

SALMON SPECIES IDENTIFICATION AND MATURITY EVALUATION

EVALUATION OF CHINOOK SALMON MATURITY

Mature (spring and summer spawner)
Fish is sexually maturing in April, May, June, or July during its final year of life.

A) Scales are difficult to remove with tweezers. In general:

1) scales won't flake off with knife, and

2) scales are not missing.

B) Reproductive tract is well developed. In general:

1) female - individual eggs are greater than 4.0 mm in diameter, or

2) male - gonads are large, easily located in body cavity.

C) Fish is darker in color, especially on lower operculum. Fish seen in June or July are generally very dark.

Immature (fall spawner)
Fish will not spawn this year, or fish will not enter freshwater to spawn until at least September.

A) Scales are easily removed with tweezers. In general:

1) scales flake off easily using a knife, and

2) scales are often missing from landing the fish.

B) Reproductive tract is not well developed. In general:

1) female - eggs small, less than 4.0 mm in diameter (BB size), or

2) male - gonads are not easily located in the body cavity.

C) Fish are silver in color - fish is lighter in color than spring spawners.

See photos in Figure B2 for examples of mature and immature king salmon.

APPENDIX C: 2015 SKAGWAY MARINE HARVEST SAMPLING TECHNICIAN MANUAL

2015 SKAGWAY MARINE HARVEST SAMPLING TECHNICIAN MANUAL

INTRODUCTION

The purpose of the Skagway creel survey is to estimate the harvest of hatchery and wild king salmon in Taiya Inlet. Most wild and hatchery-reared king salmon smolt return to their natal waters or release site as adults 2 to 4 years after being released (Table C1).

Table C1. –Number of hatchery coded wire tagged Chinook salmon recently (since 1996) released into Lynn Canal by brood year, along with total release numbers and tagging percentage.

Tag code	Brood year	Release year	Facility	Total tagged	Total released	Marked fraction
	1996	1998	Burro Creek	7,423	15,956	0.47
	1996	1998	Jerry Myers	8,355	8,631	0.97
	1997	1999	Burro Creek	0	16,424	0.00
	1997	1999	Jerry Myers	1,856	1,856	1.00
	1998	2000	DIPAC	27,637	91,618	0.30
	1999	2001	DIPAC	29,746	32,123	0.93
	2000	2002	DIPAC	27,835	95,386	0.29
040394	2001	2003	DIPAC	30,781	58,793	0.52
040934	2002	2004	DIPAC	31,288	128,688	0.24
041117	2003	2005	DIPAC	28,179	219,620	0.13
041227	2004	2006	DIPAC	28,440	68,002	0.42
041457	2005	2007	DIPAC	34,107	168,135	0.20
041562	2006	2008	DIPAC	30,416	51,945	0.59
041973	2007	2009	DIPAC	31,004	276,262	0.11
042282	2008	2010	DIPAC	32,497	258,000	0.13
042668	2009	2011	DIPAC	25,494	128,619	0.20
042466	2010	2012	DIPAC	20,834	74,936	0.28
042467	2010	2012	DIPAC	20,589	119,667	0.17
043075	2011	2013	DIPAC	10,375	50,100	0.21
	2012	2014	DIPAC	No release	0	

You will sample king salmon in the fishery for missing adipose fins and maturity information. There are photos at the end of this manual to help you with salmon species identification and king salmon maturity. If you have any questions about the manual or the sampling program, contact Richard Chapell by phone or email. If you have any suggestions for improving the manual or sampling program, please let us know.

Contact information:

Richard Chapell 766-3638 (w) 303-7204 (cell) richard.chapell@alaska.gov

SKAGWAY AREA KING SALMON REGULATIONS.

The bag & possession limit for all anglers is 1 king salmon 28 inches or more in length. There is no annual limit for resident anglers. The nonresident annual limit is 6 king salmon 28 inches or more in length. Nonresident anglers must record all king salmon harvested on the back of their fishing license or on a King Salmon Catch Record for nonresident anglers under age 16. King Salmon Catch Record cards are available at license vendors or through Fish and Game representatives and offices.

Anglers fishing for king salmon throughout the state are required to purchase and possess a sport fishing license and a king salmon stamp. These can be picked up at any sporting goods store for the fees listed in Table C2.

Table C2. –Sport fishing license and king salmon stamp fees.

	Alaska & Yukon	Other Non-Residents				
	Residents	1-day	3-day	7-day	14-day	1-year
Sport fish license	$24.00	$20.00	$35.00	$55.00	$80.00	$145.00
King salmon stamp	$10.00	$10.00	$20.00	$30.00	$50.00	$100.00

Yukon Territory residents may buy an Alaska nonresident sport fishing license and a king salmon tag for the same annual fee that Alaska residents pay. **Yukon residents are required to comply with nonresident restrictions, such as annual king salmon limits and recording harvested kings on the back of the sport fish license.**

2015 SKAGWAY MARINE HARVEST SAMPLING TECHNICIAN MANUAL

DUTIES

Your general duties are as follows:

1. Interview sport boat anglers at the Skagway small boat harbor.
2. Collect biological information (sex, maturity, length, adipose fin status, and scale samples) from the king salmon harvest and collect heads from king salmon that are missing their adipose fin.
3. Provide information to anglers on local sport fishing regulations.
4. **Carefully edit all data forms**.
5. Email sampling summaries to Rich as soon as you have completed sampling that week, but no later than 8:30 the following Monday morning.
6. Send collected king salmon heads to the Tag Lab in Juneau **weekly**.
7. Send collected biological data (AWL forms and scale samples) to Haines office monthly.
8. Email a completed time sheet on the 15th and last day of each month.

Because creel survey staff works without immediate supervision, we evaluate your performance largely through your completed data forms. We need weekly catch and effort data on time for in-season management. If difficulties in submitting data are anticipated, leave a voice mail including the weekly data at (907) 766-3638 on Sunday night or by 8:30 am Monday morning with catch rate summary information from the spreadsheet.

TIME SHEETS

For each day you work, record your start and end times. For holidays, just record the hours you work. If you take any annual or sick leave, record the number of hours on your time sheet.

You must fill out a time sheet and email it to the Haines office twice per month on the day following the end of the pay period. The pay periods run from the 1st through the 15th and from the 16th through the last day of each month. If this form is not turned in on time, you will not get paid on time.

END OF SEASON

Please turn in your sampling gear at the end of the season. You may also need to fill out a "Seasonal Acknowledgment of Responsibility" form which gives the date by which you are required to respond as to whether you are returning for another season (forms available at the office). It is important that you leave a forwarding address and phone number so that you can be notified of any changes in your job schedule or duties.

EQUIPMENT NEEDED

Make sure you have the following equipment:

Clipboard	File box
Measuring tapes	Data forms:
Tweezers	-Skagway interview
Pencils	-Skagway daily sampling summary
Gum cards and wax paper	-Alternate age weight length (mark sense)
Scotch tape	-Coded wire tag (CWT) sampling
Calculator	District/Sub-District map for CWT sampling
Knife	Handouts:
Fish head bags	"Uses of Creel Survey"
Head cinch straps	Other handouts
Garbage bags	Sport fishing regulations
Paper towels	Genetic sampling kit
Cell phone	

You have been provided with an ADF&G cap. Please wear it while you are working so that people can readily identify you as an ADF&G employee.

CHOOSING CREEL SURVEY DAYS

Interview sport boat anglers at the Skagway small boat harbor 2 days per week from May 25 to August 30. Choose sampling days to maximize the number of Chinook salmon encountered. High winds frequently keep sport fishing boats in the harbor, reducing the fishing effort and harvest on those days. On days when you can predict fishing effort will be low, shift your sampling effort to a subsequent day. Cruise ships provide most of the clients on charter boats in Taiya Inlet, and the peak in cruise ship dockings in Skagway occurs from Monday through Thursday, so Monday and Wednesday will be the primary sampling days. If windy weather keeps boats from leaving the harbor on either of those days, shift sampling effort from Monday to Tuesday, or from Wednesday to Thursday. There is considerable cruise ship traffic on Friday, so Friday could be a fallback sampling day if conditions prevent productive sampling on earlier days of the week.

ANGLER INTERVIEW FORMAT

The sampling design used for the surveys requires that only anglers who have completed their trips be interviewed. If someone comes in for a quick (less than 15 minutes) stop with the intention of going right back out, don't interview that boat as a completed trip. If the people are coming in for lunch or to take at least a half hour break, then go ahead and interview the boat as a completed trip. Charter boats that drop off a boat party and take out another should also be interviewed as a completed trip. If boats have been on multi-day trips, record information from all days of the trip with the following exception: if the boat could have been interviewed in Haines or Juneau on a prior day, don't include the data from those days when it could have been sampled then (I don't anticipate this will happen).

The following format for angler interviews is provided only as a guide and of course each interview will be unique. In conjunction with your interview, you may want to give anglers an information sheet on creel surveys. This summary may help people understand that they are providing important data for fishery management. Remember that you are sampling marine harvest only; interviews with freshwater anglers are unnecessary.

1. Contact boat parties of potential anglers coming in to the docks. Commercial fishing boats are sometimes also used for sport fishing.
2. Identify yourself and your affiliation with ADF&G.
3. Ask the party if they have been sport fishing and if they would mind if you sampled their catch.
4. Your primary goal is to sample as many king salmon as possible to see if the adipose fin is missing (adipose-clipped), which indicates the fish has a coded wire tag (CWT) in its head. Keep track of how many king salmon you examined by size class (**Large** = 28 inches or longer, **Small** = less than 28 inches, as measured from **snout to tip of tail**, Figure C1) and number of large and small fish missing adipose fins. If a king salmon is missing its adipose fin, collect the head, with angler consent, and fill out a CWT sampling form.
5. Your second priority is to sample all king salmon for length, sex, maturity, and scales. Whenever possible, sample <u>all</u> the fish in a party's bag. Measure the king salmon's length from the **middle of the eye to the fork of the tail (MEF)** in mm (Figure C1) while keeping the tape as straight as possible; do not measure around the curve of the fish.
6. Your third priority is to interview boat parties to find out the type (charter or private), what their target species was (salmon or halibut), how many anglers were aboard, how many rods were fishing, how long they fished, and the number of fish they kept and released by species. Do not record strikes or fish that got off the line by themselves as "released" fish.
7. Charter boats should have a current year sticker on the green and yellow Sport Fishing Guide Vessel decal on each side of their boat. For each charter trip interview, record the saltwater logbook number, the boat's name, the boat's AK number, and whether you personally saw and counted (verified) the fish kept from that trip.
8. After the interview is over, thank the fishing party for their time and the information.
9. Do not volunteer too much information about good or bad fishing spots, especially when the trip was a charter. Charter boat operators do not like their clients being told by an "authority" that they went to a lousy fishing area. Information of a general nature on fishing hot spots or techniques can be given to the public; however, data from a particular party or boat are considered confidential and cannot be given out. If a party wants additional information, tell them to call the Sport Fish office in Haines at 766-3638.

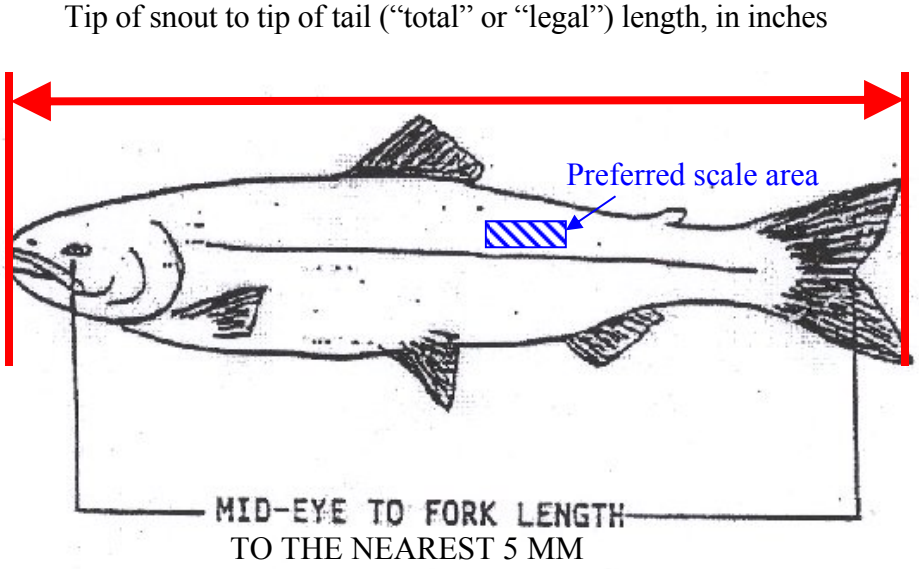


Figure C1.–Total length and mid-eye to fork (MEF) length measurements, and the preferred scale area.

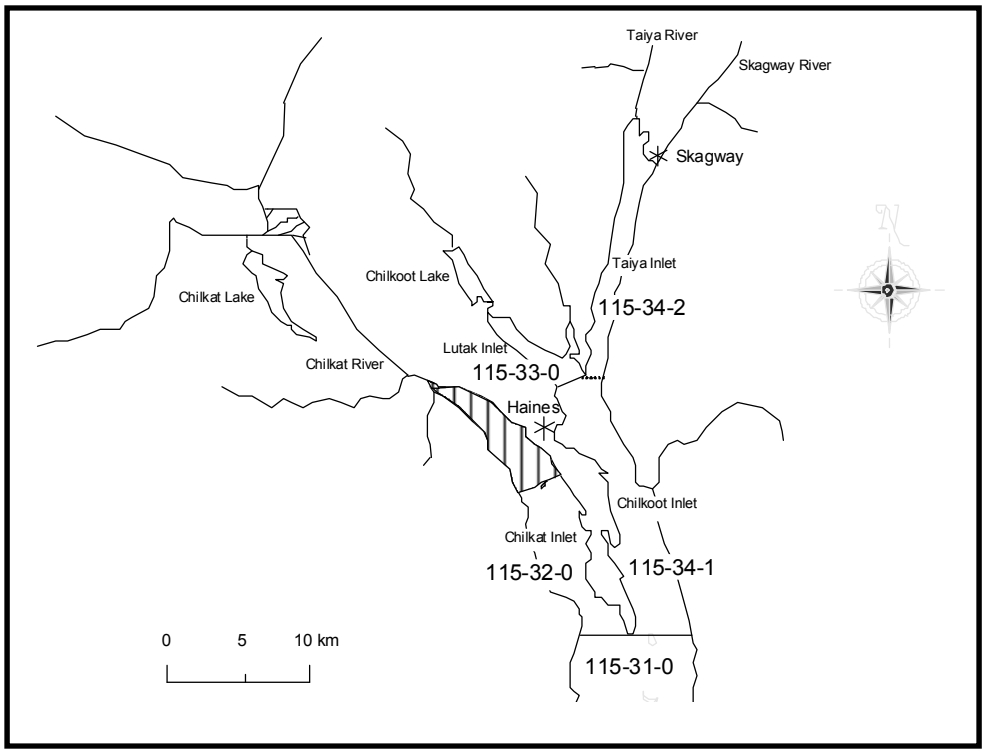


Figure C2.–Map of upper Lynn Canal showing statistical area codes.

SPORT FISHING VIOLATIONS

It is not your responsibility to be actively searching for sport fishing regulation violations. If you do notice violations, your **best course of action is to document what has occurred and immediately notify the Alaska Wildlife Troopers in Haines (766-2533) or Juneau (465-4005)**. Details that can make a case are what happened, when it happened, who did it, and identifying details such as boat or car license numbers. Also contact Rich at the Haines Fish and Game office (766-3638) so we can coordinate enforcement action. In the past, most problems have been with anglers bringing in undersized kings. Refer to Figure C1 for the correct way to measure legal length, which is the total length of the fish from tip of snout to tip of tail, not fork length.

GUIDED SPORT FISHING CHARTER HALIBUT PERMITS

Commercial halibut harvest, including that by guided charter anglers, is regulated by the federal government. Refer questions about the implementation of Charter Halibut Permits for sport charter businesses and vessels to the following NOAA/NMFS contacts:

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Email: ram.alaska@noaa.gov
Website: http://www.alaskafisheries.noaa.gov/sustainablefisheries/halibut/sport.htm

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Website: www.alaskafisheries.noaa.gov

Questions about Enforcement
NOAA Office of Law Enforcement
Alaska Region
PO Box 21767 709 W. 9th Street, Room M09C Juneau, AK 99802-1767
907-586-7225

Questions about Harvests
Alaska Department of Fish and Game, Division of Sport Fish
Email: sf1web@fishgame.state.ak.us
907-465-4270, 907-465-4180
Website: http://www.sf.adfg.state.ak.us/statewide/
1255 W. 8th Street
P.O. Box 115525
Juneau, AK 99811-5526

SKAGWAY CREEL SURVEY INTERVIEW FORM

Data can be recorded in a notebook or on paper forms while you are on the dock. For each sampling day, complete one Excel spreadsheet. Email the previous week's forms before 8:30 each Monday morning to richard.chapell@alaska.gov.

Interview Number: Number the boat parties you interview, starting with 1 each day.

Class: Charter boats are identified by green and yellow decals on both sides of the boat.

Charter trips only:
Record the boat's saltwater Logbook Number. You can read the Boat Name on the stern and the boat's AK Number on the hull near the bow (starts with "AK").

Target: What was the primary target of rod & reel fishing effort? S = Salmon, H = Halibut, O = Other. If the party had different targets at different times, use the same interview number on the next line and record the second target effort and catch data there.

Interview Time: The time of day you interviewed the party.

Anglers on Board: How many anglers were on board? We ask this so we can figure out how often anglers fill their bag limits. Note that the captain and crew members on charter trips may not retain any fish while clients are on board.

Rods Fished: How many rods were fished? Anglers could have shared rods.

Hours Fished: How many hours did those rods fish?

Rod-Hours Effort: Multiply Rods Fished times Hours Fished for this measure of fishing effort. The Excel spreadsheet will calculate this automatically.

For all the king salmon that you count and sample, categorize them by large (total length 28 inches or longer) and small (less than 28 inches, only allowed when special regulations are in effect in Taiya Inlet, announced by a news release).

King Salmon ≥ 28 inches total length (large):

Kept: How many large kings the party brought to the dock.

Verified: For charter trips only, mark "V" if you saw all the large kings kept, and mark "N" if the party reported a larger catch than you saw.

Released: How many large kings the party intentionally let go.

Adipose-Clips: Number Sampled: Number of large kings you inspected for a clipped adipose fin.

Number Adipose-Clips: Number of large kings that had clipped adipose fins.

King Salmon < 28 inches total length (small):

For each party, collect the same data for small kings as for large kings.

Halibut, and Other Fish Species:

As with kings, count how many fish the party kept, how many they released, and for charter trips, whether you verified the number of kept fish with you own eyes. If the party caught more than one of the Other Fish Species, use the same interview number and record the other fish species data on the next line.

Sample king salmon for sex, maturity, mid-eye to fork length (MEF), and scales. Take total lengths from halibut, rockfish and lingcod as time allows. Use a separate **Age Weight Length** (AWL) form for each species. Sample only king salmon encountered during creel survey interviews, not adipose-clipped kings voluntarily brought to you. The object of creel sampling is to get a random sample from the fishery.

Use number 2 lead pencil to record data on the forms. Fill the bubbles completely, but do not use so much lead that marks rub off. I recommend that while you are on the docks you just write in the numbers and then fill in the bubbles during slack periods when you can take the time to do a thorough job. Handle the forms carefully; if you mutilate them they may not feed through scanner. To avoid mutilation of wet forms, you can pad the teeth of your clipboard with duct tape. Forms that are crinkled from being wet and then dried rapidly can be flattened by the scanner. Be careful about erasing while the forms are wet; it would be better to use a new line instead. If the form is too messy, transcribe data onto a new form. Please erase all stray pencil marks from the form.

Record a maximum 9 fish per AWL form. Do not use the back side of the AWL form. To match scale cards and AWL forms, do not use the 10^{th} column on the scale card.

Line by line instructions for completing the AWL form follow:

Header fields:

Name – Sampler's name and harbor sampled.

Fishery – Usually "Skagway marine boat sport". Add "Derby entry" or "Non-derby entry" on derby days (check Pat Moore Memorial Derby dates, usually second weekend of July).

Page – Leave blank.

Year, Month, Day – Record only the last digit of the year (i.e. "13" for 2013). Use leading zeros on month and day. Note that these fields are additive. For example, 6 is recorded by filling "0" in the "Tens" row and both "5" and "1" in the "Ones" row (5 + 1 = 6).

Survey Area, Site, Sublocation, and Period -- Leave blank.

Species – 410 = king salmon.

Next header field – 1 = Skagway Harbor

Last 3 header fields – Leave blank.

Biological Information lines:

Fish # – Matches column used on scale card.

Sex – Mark "M" or "F" for king salmon if sex was determined. If you don't have visual confirmation, e.g. if the fish was not processed on the dock, or can't make an informed decision about sex, leave the field blank.

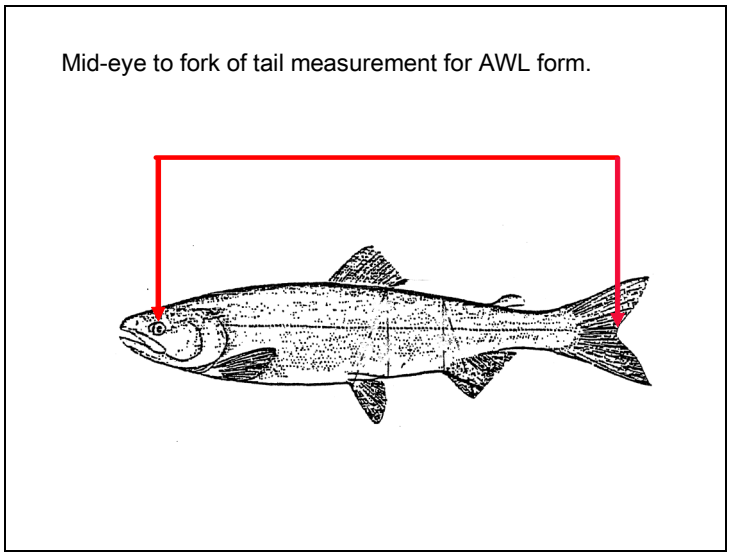
Status – Refer to Appendix B for criteria for evaluating maturity. Record the maturity of every king salmon sampled using the codes below:

1 = Mature (spring or summer spawner)

2 = Immature (rearing fish; unlikely to spawn in 2013)

3 = Unknown.

Length – Measure king salmon from mid-eye to fork of tail (MEF), to the nearest 5 mm. Measure the length while keeping the tape as straight as possible; do **not** measure around the curve of the fish.



Note that the MEF measurement is different than the total length (also called legal length) that is used classify king salmon as greater or less than 28 inches.

For halibut, lingcod, and rockfish measure from tip of snout to tip of tail (total length). Not all of the groundfish have a fork in tail. Make certain that you are measuring in a straight plane—do **not** measure the curve of the fish.

Tag Number – Write the number of the **cinch strap** attached to the head taken from an **adipose-clipped** king salmon. Fill in the bubbles for the last 5 digits of this number.

Weight/Variable – If you collect a **genetic** sample, record the **vial number** here. Fill in bubbles for the last 3 digits. Sometimes the vials are not in numerical order, so verify the vial number before you write it down.

Rest of fields – Leave blank.

Status – Use these codes below to record the maturity of every king salmon sampled. See Appendix B for maturity evaluation criteria and comparative photos.

1 = Mature (Spring/summer spawner)

2 = Immature (rearing fish; unlikely to spawn)

3 = Unknown.

Length – Measured from **middle of the eye to fork of tail**, to the nearest 5 mm (Figure C1).

Tag Number – Write the 6-digit cinch strap number used on the head from any adipose-clipped king salmon. Fill in the bubbles for the last 5 digits of this number.

Variable – If you took an axillary process sample from a fish, write the full vial number and fill in bubbles for the last 3 digits of the vial number.

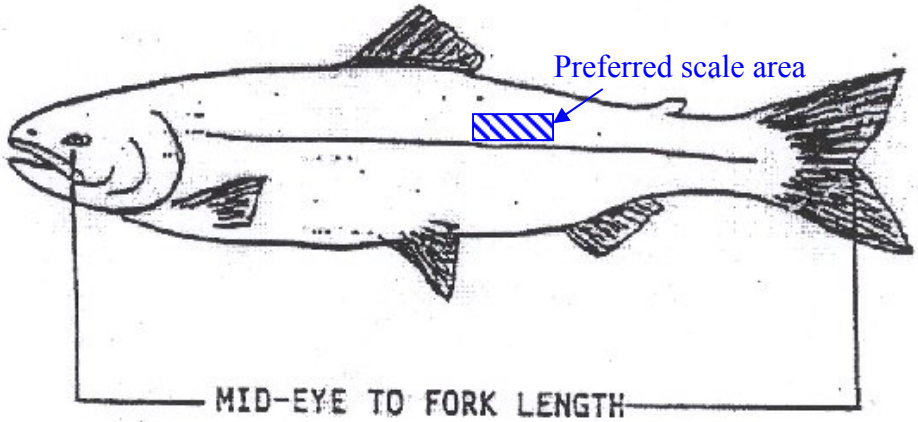
Rest of fields – Leave blank.

Example data is shown on the AWL form in Figure C4: Scales and lengths were taken from kings with tip of snout to fork of tail lengths of 1020 mm (mature male), 850 mm (immature male, adipose-clipped and given cinch strap # 201438), and 790 mm (mature female). Axillary process samples were clipped from these fish and put in vials 8, 9 and 10.

SCALE SAMPLE COLLECTION

Remove 5 scales from the preferred area on the left side of each king salmon in one column of the scale card. The preferred area is the shaded rectangle in the illustration below. Mount the 5 scales from fish number 1 in the spaces in the 1st column, covering the numbers 1, 11, 21, 31, and the space below 31. Scales from fish number 2 are mounted in the spaces in the 2nd column over the numbers 2, 12, 22, 32, and below 32, etc. Moisten the scales and before pressing them onto the scale card. Mount all the scales oriented the same way (i.e. cuticles all facing down). Label the gum cards as shown in the Figure C4.

Tape the scale card to the front of the AWL form. One scale card will matched to one AWL form. Refer to Figure C2 for the Stat. Code on the scale card. Use wax paper sheets as the backing for the gum card to keep damp cards from sticking together.



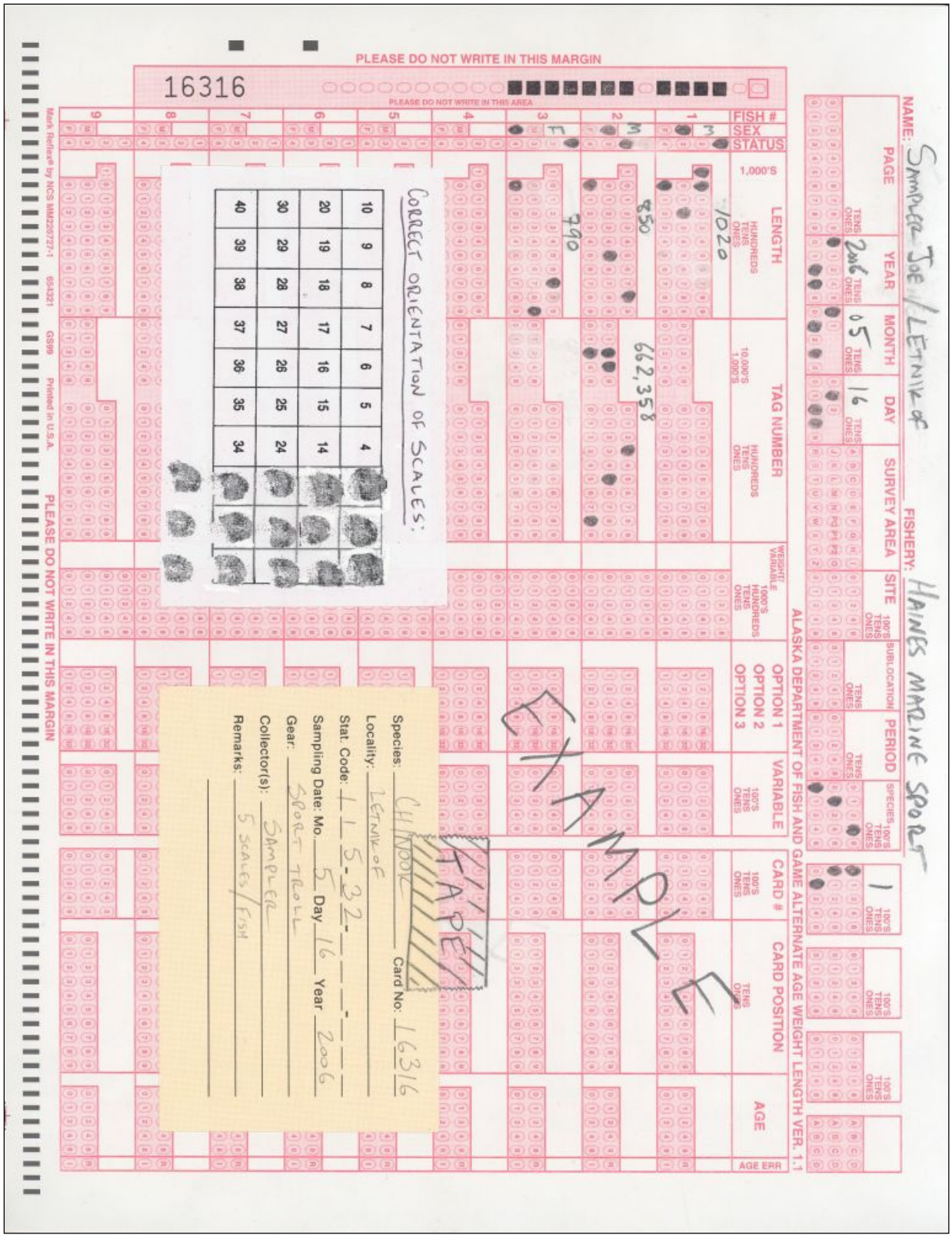


Figure C4.–Age weight length form example.

GENETIC SAMPLING INSTRUCTIONS

I. General information

The purpose of this project is to estimate the origins of legal size king salmon harvested in the Skagway sport fishery during the 2015 fishing season. We will use axillary process ("spine", Figure C5) tissue from individual fish sampled from this fishery to determine its genetic characteristics at several genetic markers. This information, along with scale samples and lengths, will provide a profile of the populations of fish contributing to this fishery, which can be used to estimate the stock composition of the harvest. The genetic sampling schedule is proportional to historic harvest, based on samples collected in 2000–2014.

II. Sampling schedule

Sample legal size (≥28 inches total length) king salmon from the sport fishery. Sample goals are as follows:

Stat week	2015 week start	2015 week end	2015 sample size
22	26-May	1-June	0
23	2-June	8-June	0
24	9-June	15-June	1
25	16-June	22-June	0
26	23-June	29-June	2
27	30-June	6-July	2
28	7-July	13-July	2
29	14-July	20-July	2
30	21-July	27-July	1
31	28-July	3-August	2
32	4-August	10-August	2
33	11-August	17-August	3
34	18-August	24-August	1
35	25-August	31-August	2
Total			20

Collect a genetic sample from the first legal size king salmon you encounter each stat week until you reach the weekly goal. If you fall behind the weekly sample goals, take additional samples the following week to catch up.

GENETIC SAMPLING INSTRUCTIONS

III. Tissue sampling

A. Sampling supplies provided

- Dog toe nail clippers -for sampling axillary process "spine"
- Vials and caps -tubes for holding fin clip
- Vial rack - to hold tubes while sampling
- Squirt bottle -plastic "goose neck" bottle for filling cryovials with ethanol
- Large bottle -bulk ethanol for filling cryovials prior to sampling

B. General set up

To ensure that the axillary process tissues are kept fresh it is important to work quickly. Have your sampling area and supplies organized before you begin sampling the fish.

C. Tissue sampling

Set up your sampling rack with the cryovial for the fish that you anticipate to sampling each sampling. Partially fill each cryovial with the ethanol provided prior to sampling. For each fish sampled,

- Using the nail clippers, snip off approximately ½" – 1" of axillary tissue. Avoiding excess water or slime, place the axillary tissue into the cryovial. Top off the vial with ethanol so the tissue is bathed in ethanol, and the screw cap on tightly.
- Record the genetic vial number in the “Weight/Variable” column on the AWL form.
- Record sex, maturity, and length data on the AWL form as detailed in the AWL sampling section.

There is no need to clean the nail clippers between fish unless there is tissue remaining from the previously sampled fish. It is sufficient to rinse the cutting blade periodically to reduce slime or tissue to avoid cross contamination.

D. Sample storage

While you are sampling, avoid direct sun or rain and keep samples as cool as possible at all times. Make sure that the axillary tissue is covered with the ethanol so that the tissue is being bathed in ethanol at all times. After sampling, the tissues must be kept in a cool and dry location and in an upright position. Refrigeration is not necessary when sampling with ethanol.

GENETIC SAMPLING INSTRUCTIONS

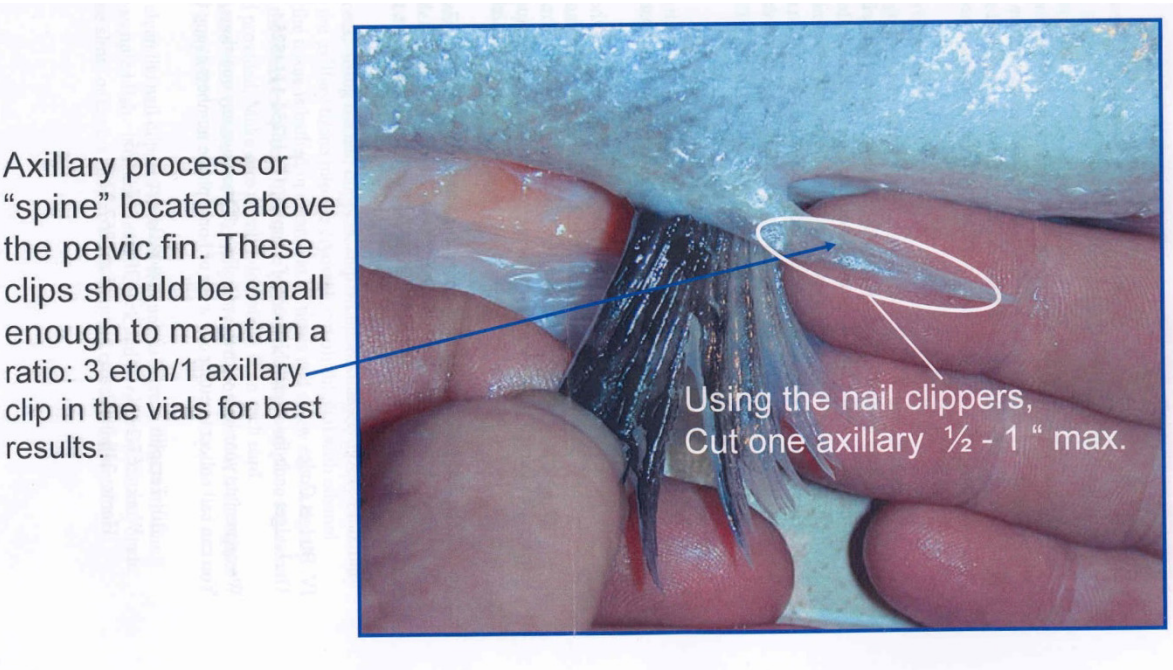


Figure C5.–Instructions for axillary process sampling.

CODED WIRE TAG (CWT) SAMPLING FORM

All harvested king salmon must be checked for missing adipose fins. If you find an adipose-clipped fish, measure the MEF length, take the head, attach a cinch strap around the jaw, and fill out a CWT sampling form. Heads should be placed in individual bags and frozen in a position where the strap number is visible. Thoroughly frozen heads should be shipped weekly to the Mark, Tag, and Age Laboratory (Tag Lab) in Juneau by Wings of Alaska.

If an angler doesn't want to surrender the head of an adipose-clipped fish, attach a cinch strap to the jaw and fill out a CWT recovery form with as much information as possible. Make arrangements to collect the head after the angler has the fish mounted. Stress to the angler the importance of Fish and Game ultimately collecting the head.

There may be other circumstances in which you were unable to collect the head from an adipose-clipped king salmon, such as a king being headed and gutted before returning to the harbor, but the adipose fin area was left intact. In these cases, fill out a CWT sampling form and attach the cinch strap that you would have used to the CWT sampling form.

In addition to adipose-clipped fish, there might be a king or coho salmon which has been Floy tagged by the National Marine Fisheries Service (NMFS) or a halibut tagged by the International Pacific Halibut Commission (IPHC). If you encounter fish with any of these tags, fill out a CWT form with all applicable information (including the tag number) but do not collect the head or put on a cinch strap. Return the forms with information about these types of tags to me.

Line by line instructions for completing CWT sampling form:

Interviewer Information:

Sample Number – Wait to assign a sample number until you are ready to make a weekly shipment of heads to the Tag Lab in Juneau (see next section).

Source – Sport.

Survey Site – Skagway.

Sample Type –

Random - the fish is randomly sampled by you during the creel survey.

Select - the fish is voluntarily brought in by an angler from a sampled fishery (Skagway).

Voluntary - the fish was taken in an unsampled fishery (Hoonah, for example)

or if the fish was taken when there was no creel survey in Skagway (before you start creel survey in June and after your last day of sampling in August).

Sampler – Your last name.

Name of Place Sampled – If sample type is Random, this is the harbor you are sampling. Leave blank if the sample is Select or Voluntary.

Date Sampled – Date you interviewed the angler. Leave blank for Select or Voluntary samples.

Stratification Information:

Sport Harvest Code – For Random samples only: MB (for Marine Boat). Otherwise, leave blank.

Fishing Site Code – Always blank.

CODED WIRE TAG (CWT) SAMPLING FORM

Angler Information:

Name & Mailing Address – If more than one angler in a particular party caught an adipose-clipped fish, complete a separate form for each person. Try to determine only one contact person per boat.

Catch Information:

Date Caught – Date the fish was caught. Select or Voluntary recoveries caught on different days must be recorded on separate forms.

Water Type – Was the fish caught in salt water or fresh water? (Except when specifically allowed by Emergency Order, fresh waters are closed to king salmon sport fishing.)

Name of Place Fished – Where fish was caught. Be specific.

Area Information – Usually "113-34-2" and "saltwater" for Taiya Inlet. Refer to Figure C2 for other codes.

Anadromous Stream # – Fresh water is closed to sport fishing for king salmon. However, anglers may have caught and released king salmon while targeting another species. Write the stream name in pencil and flag the form; and the project leader will complete this field.

Sampling Information:

Leave blank.

Head Recovery Information:

Head Number – Number of cinch strap attached to fish head. Use cinch straps in order.

Species Code –410 = king salmon, greater than 28 inches total length (**tip of snout to tip of tail**);

411 = "jack", king salmon less than 28 inches total length.

Fork Length – **Middle of eye to fork of tail**, to the nearest 5 mm. If an angler gives you a length measurement for a Select fish, ask them what type of measurement they made and note on form if they measured total length.

Clip Status – "Good" if the adipose fin looks to be cleanly sliced off and healed;

"???" if the adipose fin clip is questionable;

"Unkn" (Unknown) if you did not check the adipose fin.

King Flesh Color – For king salmon only, circle the appropriate flesh color.

Example CWT Sampling Form:

Example data is shown in Figure C6. An adipose finclipped king was sampled randomly during the creel survey and cinch strap #201438 was placed in its head. The king was caught by J.Q. Public in Taiya Inlet, and was immature, had red flesh, and a tip of snout to fork length of 850 mm.

CODED WIRE TAG (CWT) SAMPLING FORM

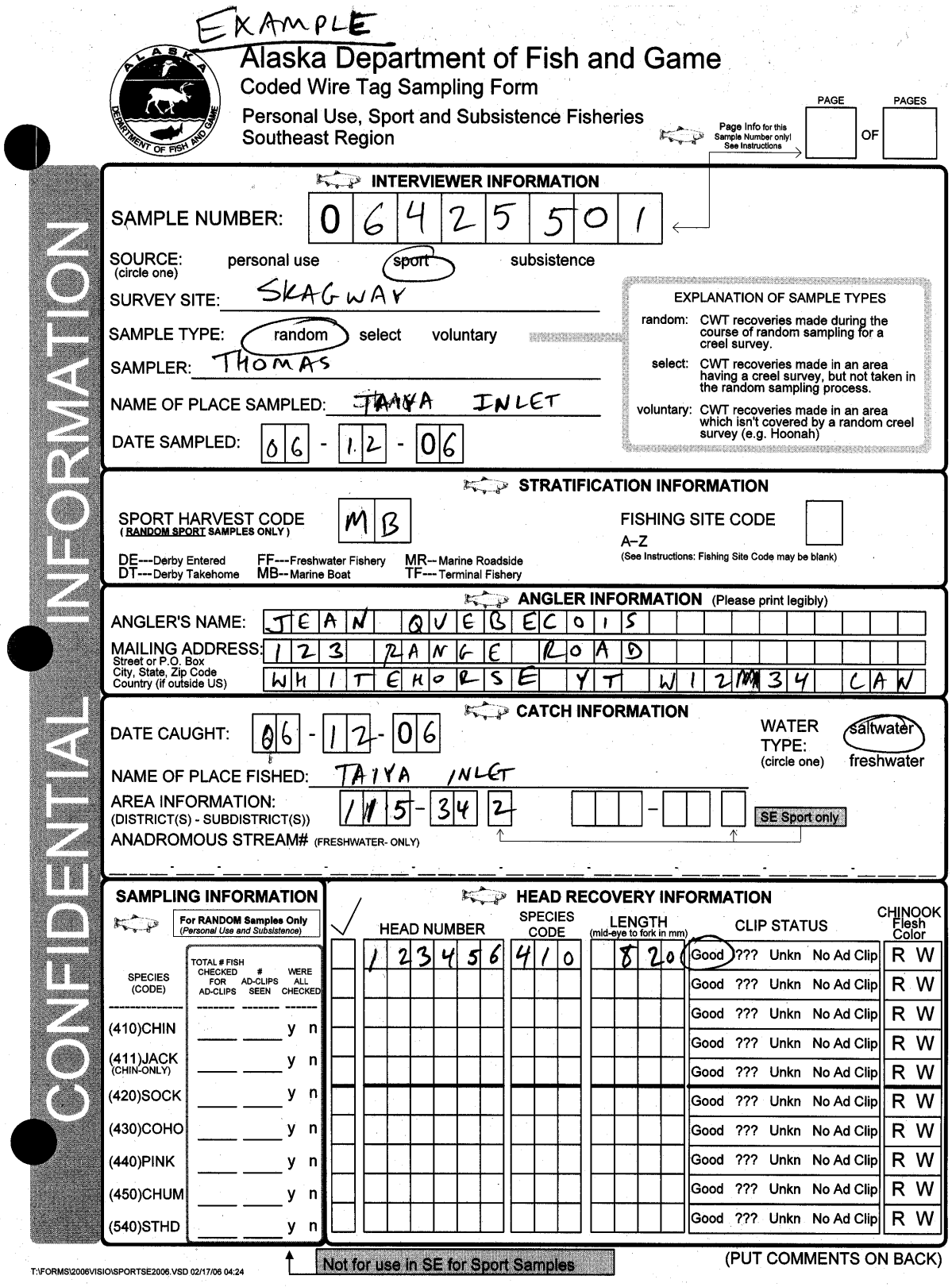


Figure C6.–Coded wire tag sampling form example.

CWT HEAD SHIPMENT FORM

Assignment of sample numbers:

Assign one number for each CWT sampling form you complete. Use sample numbers sequentially and record the numbers you use for each weekly shipment so you know where to resume numbering the next week. See example in Figure C7.

Shipment summary form:

Source: "Sport"

Survey Site: "Skagway"

Heads recovered from statistical week: Refer to the calendar in the head shipment folder for the statistical week number when the ad-clipped fish were caught.

Beginning sample #: The first sample number used on the CWT forms associated with heads in this shipment.

Ending sample #: The last sample number on the CWT forms associated with heads in this shipment.

Dates recovered: First and last dates that the heads in this shipment were caught.

# of heads listed on sampling forms: Should be the number of heads in this shipment. As you box up heads for shipment, fill in the check box for each head on its CWT sample form.

# of heads shipped without data (Figure C8): Put a cinch strap on every head you collect and record whatever information you have about the fish it came from on a CWT sampling form. If you have incomplete information about the fish, keep track of the head number so you can send updated sampling information when available to the Tag Lab.

# of heads not shipped: If you sampled an adipose-clipped fish but could not collect the head or lost the head, count it here and list the head number in area B, "heads not shipped". If you recover the head at a later time, send it in and it will be matched to the cinch strap number that you previously reported on a CWT sampling form.

Packaging heads for shipment:

Put all heads (still in their individual head bags and thoroughly frozen) in a sturdy garbage bag, tie it shut, place the bag in a sturdy cardboard box, tape the box shut, and stick an address label on the box. Take the box to Wings of Alaska to go on their next flight to Juneau, preferably within a few hours. Call or email the Tag Lab, to let Detlef Buettner or Kristeen Brooks knows the approximate arrival time of the shipment:

Detlef Buettner, (907) 465-3496, detlef.buettner@alaska.gov

Kristeen Brooks, (907) 465-3483, kristeen.brooks@alaska.gov

Charge the shipment cost to a credit card number that Wings of Alaska will have on file for this purpose only. **Get paper receipts** for the freight shipment and credit card charge and mail the receipts at the end of each month to the Haines ADF&G office. Stamped envelopes are provided in your file box for this purpose.

CWT HEAD SHIPMENT FORM

2006 ASSIGNMENT OF SAMPLE NUMBERS

Survey Site: Skagway

(for Skagway sport)

Keep this for your own use - do not send in to Tag Lab!

(If your survey site or sample type differs from what is listed above, please contact Anna Sharp at the Tag Lab 465-3483 for a different set of sample numbers)

REMEMBER to give the SAME sample number to multiple page samples!

Beginning Sample#	Ending Sample#	Initials	Shipment date
06 425501	0642550 3	AT	6/19/06

EXAMPLE

KEEP FROZEN

HOLD FOR PICKUP

SHIP TO ▶ ALASKA DEPARTMENT OF FISH AND GAME
COMMERCIAL FISHERIES DIVISION
MARK, TAG AND AGE LAB
P.O. BOX 25526, 10107 BENTWOOD PLACE
JUNEAU, ALASKA 99802-5526

CALL 465-3483 UPON ARRIVAL

CWT FISH HEADS

KEEP FROZEN

F:\alsharp\EXCEL\SAMP#-SP.XLS Page 1

Figure C7.–Sample number tracking sheet example and CWT head shipping label.

CWT HEAD SHIPMENT FORM

EXAMPLE

ALASKA DEPARTMENT OF FISH AND GAME

SHIPMENT SUMMARY FORM

CODED WIRE TAG HEADS

(PLEASE INCLUDE COMPLETED FORM WITH CWT SHIPMENT)

SOURCE: (CIRCLE ALL INCLUDED) COMMERCIAL PNP (SPORT) PERS. USE SUBSISTENCE RACK ESCAPEMENT JUVENILE

SURVEY SITE (S): SKAGWAY

BEGINNING SAMPLE # 06425501

HEADS RECOVERED FROM STATISTICAL WEEK # 24

ENDING SAMPLE # 06425503

DATES RECOVERED: 6 / 12 (MONTH / DAY) - 6 / 15 (MONTH / DAY) / 2006 (YEAR)

1		2		3		4
3	+	0	−	0	=	3
# OF HEADS LISTED ON SAMPLING FORMS		# OF HEADS SHIPPED WITHOUT DATA (SEE "A" BELOW)		# OF HEADS NOT SHIPPED (SEE "B" BELOW)		ACTUAL COUNT OF HEADS BOXED FOR SHIPMENT

A

HEADS SHIPPED WITHOUT DATA

(IF SAMPLING FORM LOST, GENERATE NEW ONE)

CWT HEAD NUMBER* *(SIX DIGITS)	DATA ALREADY SENT?	OTHER, EXPLAIN BELOW

B

HEADS NOT SHIPPED

CWT HEAD NUMBER* *(SIX DIGITS)	HEAD WITH PROCESSOR	HEAD LOST	OTHER, EXPLAIN BELOW

COMMENTS: *(USE BACK OF FORM IF NECESSARY)*

DATE SHIPPED: 6/18/06 FORM COMPLETED BY: AARON THOMAS

T:\FORMS\2006\VISIO\SSSUMMARY2006.VSD 01/04/06 01:21

Figure C8.–CWT head shipment summary form example.