Regional Operational Plan CF.4K.2017.08

Frazer Lake Fish Pass and Sockeye Salmon Sampling Operational Plan, 2017–2019

by

Darin Ruhl

April 2017

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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Darin Ruhl

Alaska Department of Fish and Game, Division of Commercial Fisheries, Kodiak

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Division of Commercial Fisheries

April 2017

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Darin Ruhl,
Alaska Department of Fish and Game, Division of Commercial Fisheries
351 Research Court, Kodiak, AK 99615, USA

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SIGNATURE PAGE

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Approval

Title	Name	Signature	Date
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Section Supervisor	Kevin Schaberg		4/14/17

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PURPOSE

Frazer Lake, within the Kodiak Management Area, was originally devoid of anadromous fish species due to a 10-meter barrier waterfall. From 1951 to 1971, sockeye salmon *Oncorhynchus nerka* were introduced to Frazer Lake. In 1962, a fish pass was constructed around the barrier fall to allow fish to migrate up into the lake system. Since construction of the fish pass, the Alaska Department of Fish and Game (ADF&G) has annually operated and maintained the fish pass structure to ensure sockeye salmon are able to access Frazer Lake. Additionally, ADF&G enumerates and collects biological data from sockeye salmon smolt and adults. This operational plan is intended to provide the field staff with a reference document for the daily operations of the Frazer Lake fish pass and sockeye salmon smolt and adult operations.

Key words: Frazer, Dog Salmon, Olga Bay, Sockeye Salmon, *Oncorhynchus nerka,* smolt, fish pass, weir

BACKGROUND

Frazer Lake is located on the southern end of Kodiak Island and is the second largest lake within the Kodiak Archipelago (Figure 1). Frazer Lake is 14.2 km long, and 1.6 km wide, with a surface area of 16.1 km^2. Dog Salmon Creek is the outlet of Frazer Lake and drains into Olga Bay. Prior to 1951, Frazer Lake was void of sockeye salmon *Oncorhynchus nerka* because of a 10 m barrier waterfall, which prohibited anadromous fish from entering the lake (Meehan et al. 1965; Russell 1972). Egg, fry, and adult transplants (1951–1971) from sockeye salmon systems on Kodiak Island (Karluk and Red lakes) and the Alaska Peninsula (Becharof Lake) were used to establish a sockeye salmon run to the Frazer system with adults returning for the first time in 1956 (Russell 1972). From 1956 to 1961, returning adults were backpacked around the falls and, in 1962, a fish pass was constructed to allow returning salmon to access the lake environment. A second fish pass was installed in 1979, with the intention of increasing fish passage during peak migration periods.

Conservative fishery management practices built the Frazer Lake run from 25,000 sockeye salmon in 1971 to 645,739 fish in 1985. Blackett (1979) estimated a spawning capacity of 365,000 adults based upon limnological and spawning habitat information. Declines in smolt condition and shifts in zooplankton size and community composition prompted lowering the escapement goal range to 200,000–275,000 adults in 1986 (Kyle et al. 1988). The goal was lowered again to a range of 140,000–200,000 in 1988 (Nelson and Lloyd 2001). The current biological escapement goal range of 75,000–170,000 fish is based on stock-recruit analysis, and has been in place since 2008 (Honnold et al. 2007). A fertilization program was instituted from 1988 to 1992 in response to the declines in smolt size resulting from overescapement.

Sockeye salmon adult enumeration and age, sex, and length (ASL) sampling have been conducted annually at the Frazer Lake since 1956. Since 1985, smolt age, weight, and length (AWL) data and zooplankton density and community composition have been measured annually. Smolt emigration estimates and timing have been obtained inconsistently since 1985.

In 1983, a weir was installed on Dog Salmon Creek, located 0.7 km upstream from lower Olga Bay. The purpose for the Dog Salmon weir was to obtain chum *O. keta*, and pink salmon *O. gorbuscha* escapement counts and more timely sockeye salmon counts.

Discrepancies between sockeye salmon counts through Dog Salmon weir and Frazer fish pass have led to numerous fish pass modifications to expedite fish passage through Frazer fish pass

(Thomsen et al. 2013). Consequently, an engineered water diversion weir, bear exclusion zone (BEZ), and water attractant pipe system was installed in 2014 to increase water flow to the entrance of the fish pass. Additionally, minimizing fish build-up below the fish pass helps accelerate fish movement.

Continuation of the Frazer Lake sockeye salmon run is dependent on unobstructed and timely adult fish passage into Frazer Lake.

OBJECTIVES

The project objectives are to operate the fish pass to allow adult fish passage into Frazer Lake, monitoring adult returns, and to operate the smolt trap, assessing the health of outmigrating sockeye salmon smolt through opportunistic grab sampling using an inclined plane trap. Fulfillment of these objectives supports the development of in-season and long-term management strategies to maximize the production of Frazer Lake's sockeye salmon stock.

CREW OBJECTIVES

1. Estimate the average age, weight, and length (AWL) from the juvenile outmigrating sockeye salmon smolt.
2. Enumerate adult salmon escapement through Frazer fish pass; providing unobstructed and timely adult fish passage to Frazer Lake.
3. Estimate the average age, sex, and length (ASL) from the sockeye salmon escapement into Frazer Lake.

LIMNOLOGY SAMPLING OBJECTIVE

Sampling will be conducted by Kodiak Regional Aquaculture Association (KRAA) staff and analysis will be conducted at the Kodiak Island Limnology Laboratory (KILL) staff following methods in Ruhl (2013).

1. Evaluate water chemistry, nutrients, phytoplankton, and zooplankton samples in Frazer Lake.

TASKS

General

1. Set up camp. Target date 15 May.
2. Collect physical data daily: air temperature, water temperature, water level, percent cloud coverage, wind direction and velocity, and precipitation.

Smolt Monitoring

3. Install an inclined plane smolt trap (Figures 2 and 3) as the primary trapping system to opportunistically capture outmigrating sockeye smolt.
4. Collect AWL data from sockeye salmon smolt throughout the outmigration.

Adult Monitoring

5. Install, operate, and maintain the near shore fish pass continuously until a decision to close the fish pass is made by the project biologist. Target dates: approximately 1 June–15 August.

6. Enumerate adult salmon escapement through the fish pass by species and provide accurate daily escapement reports. Record the number of net-marked and "jack" (400 mm or less) sockeye salmon escaping through the fish pass.
7. Collect representative scales (for age determination), length, and sex from a minimum of 80 adult sockeye salmon three times per week, with a target total of 240 ASL sampled fish per statistical week escaping to Frazer Lake. Ensure representative samples are collected weekly throughout the season.

METHODS

SOCKEYE SALMON SMOLT GRAB SAMPLING

Grab Sampling Study Design

Outmigrating sockeye salmon smolt will be captured for AWL sampling using an inclined plane trap (Figures 2 and 3; Todd 1994). Approximately 30 sockeye salmon smolt will be sampled every 3 days, ~600 for the season, throughout the outmigration. No wings will be added to the trap but the associated supports, live box, platform, and walkway will be installed. Conclusion of trapping must be confirmed with the supervisor.

Smolt Trap Installation Procedures

The inclined plane trap will be installed in Dog Salmon Creek upstream of the 10 m waterfall and the concrete water diversion system (Figures 2 and 3). To capture a representative portion of the outmigrating smolt, position the trap towards the middle of the river where water velocity is great enough to make it difficult for smolt to avoid capture.

Anchor the trap to shore with cables attached to hand-powered cable "come-along" winches fixed to each stream bank. The trap will be secured to an aluminum pipe frame, which will allow the back end of the trap and live box to be adjusted vertically in response to water level fluctuations.

1. Position the inclined plane trap as indicated in Figures 2 and 3.
2. Anchor the trap with cables and "come-along" winches to positions on the stream banks.
3. Use 3.0 m (10′) sections of 5.1 cm (2″) diameter pipe joined by NU-RAIL® fittings as a frame to secure and support the trap.
4. Using a come-a-long winch, secured to the overhead steel pipe cross member, elevate the downstream end of the trap.
5. Install a catch box to the codend of the trap for smolt capture.
6. Install a board walk and work platform leading from the bank to the catch box. Build the board walk using rack master supports and 2″x12′ boards (Figure 3).

Smolt Trap Operation

The trap is used for capturing smolt to collect biological samples (Figure 3). The trap will be operated periodically for the duration of the smolt outmigration.

All fish captured in the trap will be identified by species and enumerated. Proper identification of sockeye salmon smolt is crucial. A helpful source for juvenile salmonid identification is the

'Field Identification of Coastal Salmonids' by Pollard et al. (1997). It is the responsibility of the crew leader to ensure species are properly identified. If in doubt, freeze a sample for later verification or send a digital photograph to the Kodiak office. Only sockeye salmon smolt will be sampled for AWL. Specific procedures for sampling and recording smolt AWL data are provided in Appendix A.

Smolt primarily migrate at night; the trap will be in operation from 2300–0200 hrs on days when samples are to be collected. Keep the traps and wings free of debris to minimize smolt mortality.

1. Monitor the trap every 30 minutes when it is fishing.
2. The trap will be fished periodically (every 3 days) for the duration of the smolt emigration (~20 May until ~1 July) and attention to changes in migration patterns will be monitored and recorded (e.g., rain may trigger a large emigration).
3. Any modifications to the trapping system will be discussed with the project biologist before implementation. If immediate modifications are necessary to avoid major mortality or loss of equipment, the project biologist will be notified as soon as possible.
4. Plastic sheeting may need to be added to the perforated plates to reduce pinning or increase flow into the trap.
5. Smolt will be handled with care, as sockeye salmon smolt are very sensitive to any stress, and mortality can occur through the loss of just a few scales.
6. Use a dip net to remove and release the fish as they are counted.
7. The live-box end of the smolt trap will be raised out of the water when the trap is not fishing to allow for smolt passage.

Smolt Enumeration

All fish entering the trap will be counted by species with handheld tally denominators. Smolt sampling data (including mortality) will be recorded on the *Weekly Smolt Catch Form* (Figure 4).

Age, Weight, Length (AWL) Sampling

To ensure proportional sampling, 30 smolt will be sampled every 3 days to obtain age, weight, and length (AWL; Appendicx A2) data. All smolt will be collected throughout the night and held in the instream live box. On the following morning, 30 sockeye smolt will be randomly selected from the live box and anesthetized using tricaine methanesulfonate (MS-222) prior to being sampled. After being sampled, all smolt will be held in aerated buckets of water until they recover from the anesthetic, and subsequently released downstream from the trap.

Fork length will be recorded to the nearest 1 mm and weight to the nearest 0.1 g. Scales will be removed from the preferred area of each fish following procedures outlined by the International North Pacific Fisheries Commission (INPFC 1963; Appendix A2) and mounted on a microscope slide for age determination. Sample information will be recorded on a *Weekly Smolt Catch Form* (Figure 4) and in a Rite in the Rain log book, both of which are to be kept in a binder at camp until the end of the season. These data will also be entered into a netbook (Appendix A2) and electronic data will be sent bi-weekly to the ADF&G Kodiak office.

Age will be estimated in town from scales viewed with a microfiche reader at 60X magnification and recorded in European notation (Koo 1962) following the criteria established by Mosher

(1968). In addition, the overall health or condition factor of each sampled smolt will be assessed by calculating its body condition factor *K* (Bagenal and Tesch 1978) as

$$K = \frac{W}{L^3} 10^5 ,$$

where

W = weight (g) and L = length (mm).

ADULT SOCKEYE SALMON MONITORING

Many major components of the fish pass are permanently installed and require minimal assembly (Figure 5 and 6). Major assembled components include the aluminum framework and walkway of the lower fish diversion weir below the falls, the BEZ, two steeppasses, cement resting tanks, cement entrance and exit (counting tank) structures, and the cement and stop log portions of the upper water diversion above the falls (Figure 6). Major components needing assembly include panels on the lower fish diversion weir and upper water diversion weir (Figure 6 and 7).

The fish pass nearest to the cabin (old fish pass) will be open and operational for adult salmon passage approximately two days after sockeye salmon are first counted through Dog Salmon weir (around 1 June) and remain open through 15 August. Additional instructions can also be found on the project memory stick provided to the crew leader.

Installing the Lower Fish Diversion Weir

The lower fish diversion weir, located below the falls, directs fish into the BEZ and entrance to the fish pass (Figure 7). The weir needs to be installed prior to arrival of salmon to prevent salmon from being trapped between the weir and the falls. The diversion weir should be inspected daily for holes and cleaned when required.

1. Weir materials (weir panels, aluminum flat stock, and stop sign posts) are located on the stream banks on either side of the permanent walkway. Hardware (L-bolts and nuts) are in the shop.
2. Stage hardware and materials on the BEZ grating and walkway (Figure 7).
3. To prepare for panel installation, clean any debris such as gravel from the gabions; located upstream of the weir on the creek bottom.
4. Place weir panels vertically onto the creek bottom starting on the cabin side of the weir. Align the panels next to each other moving towards the far side of the weir. Special attention should be paid to gaps and the alignment of the weir panels because fish can escape through the diversion weir and become trapped at the base of the falls. Underwater “Aqua scopes” are used to check the alignment panels on the substrate.
5. Secure the panels to the weir I-beam stringers using 3”x3” L-bolts, sandwiching the weir panels with aluminum flat stock bar to prevent movement as you go.
6. After securing all panels check for gaps in between the gabions and panels to ensure the weir is fish tight. Cover gaps with small rock or gravel. ish tight. Cover gaps with small rocks or gravel.

Installing the Upper Water Diversion

The upper water diversion consists of two parts (Figure 6). The near shore (cabin side) portion consists of the water attractant tank wall to prevent fish from returning downstream. The far shore portion consists of vertical I-beams and removable stop logs to alter stream height at the entrance of the fish pass. To increase the water level entering into the fish pass, add stop-logs into slots between I-beams (located on the far bank). To decrease the water level, remove stop logs.

Opening the Fish Pass

The fish pass nearest the cabin is utilized by adult salmon returning to Frazer Lake. The far fish pass is not operational. Once opened, the fish pass will be operated continuously until a decision to close the fish pass is made by the project biologist.

1. Inspect the BEZ and remove any debris from the upwelling area.
2. Remove the three resting tank covers and remove any debris of leftover salmon carcasses.
3. Insert wood drain plugs on the inside of the tanks into drain holes; plugs should fit tightly so that internal tank water pressure holds the plug in place.
4. Replace tank covers.
5. Slowly remove 4″x4″ beams and visqueen blocking water flow into the adult counting tank. Note: if stop-logs are removed rapidly, gravel is deposited into the counting tank.
6. After the water has stabilized, ensure that the steep pass is about ¾ full of water. This volume is necessary to attract sockeye salmon to the entrance tank and promote optimum fish passage. A water level of 1.7-1.9 feet should be maintained on the staff gauge by removing or placing stop-logs at the far end of the water control diversion (top of falls).
7. Inspect the counting tank and fish pass for holes where fish could escape uncounted.
8. Make sure the fish pass entrance is unobstructed and has sufficient water flow.
9. Place a white flash board (a perforated panel covered with a white sign) in front of the sampling trap exit to assist with visibility and species identification.
10. Post and maintain a “Keep off fish pass” sign on the trail between the cabin and the fish pass, as well as the other signs directing visitor traffic to appropriate trails.

Fish Pass Operation

Fish will be counted by field technicians as they migrate upstream through the fish pass and counting tank through the adult sampling trap. The sampling and counting gates will remain closed until crew members are present to count fish through the weir for escapement enumeration or when fish are being collected in the live trap for ASL.

Fish will be visually identified and enumerated by crew members and recorded daily on the *Weekly Salmon Escapement Enumeration Form* (Figure 8). A subset of the adult sockeye salmon passing through the pass will be randomly selected and sampled for ASL data.

1. Monitor the fish pass throughout the day and pass fish once they have built up. Mornings and evenings are typically the best times for fish passage. The crew leader will organize a

schedule. Increase the counting frequency during the peak of the sockeye escapement to minimize migration delays.

2. If you don't have experience identifying fish, your project leader or designee will train you to visually recognize the different salmon species and their swimming patterns. When fish have accumulated in the holding tank take time to visually study them and note differences.
3. Begin counting fish by opening both trap gates and enumerating them as they pass through with handheld tally counters, one for each species. Regulate the gate opening by using a wedge to lock the gate into position. If you open the gate too far, fish will pass through quickly and you will not be able to accurately count and identify them. Monitor escapement quality, including the number of net-marked and "jack" (< 400 mm) sockeye salmon.
4. When counting fish and conducting surveys, wear polarized glasses for greater visual recognition and eye protection from the sun's reflection off of the water.
5. Check your tally denominators prior to counts to ensure they are working properly.
6. When finished counting make sure the counting gates are closed completely.
7. A bear fence will be installed around the holding tank and electrified during non-sampling periods.

Fish Pass Maintenance

The fish pass should be cleaned and checked daily for cover tightness, obstructed or sufficient water flow, and holes. Fix or adjust the pass as necessary. Under no circumstances should obstructive materials be placed in the BEZ or steep passes. Do not let detergents or chemicals enter the fish pass water supply.

1. The BEZ, fish pass, and weirs must be cleaned and inspected daily. Debris build up on the diversion weirs may lead to scouring. Make sure to remove any dead fish observed in the counting tank as soon as possible because dead fish will accumulate in the resting tanks making the end of season task of cleaning extremely unpleasant.
2. Cleaning the BEZ, fish pass, and weir includes getting into the river to remove sticks, logs, leaves, grass, gravel, fish carcasses, and garbage.
3. Throw all debris (except garbage) over the weir, allowing it to flow down river.
4. Inspect the weir to ensure it is fish tight; look for scouring, panels out of place, gaps between panels (greater than a fingers width). Make repairs if needed.
5. Make sure the framework of the weir is sound and secure. If you find any loose or broken parts, repair it immediately.

Age, Sex, Length (ASL) Sampling

Adult sockeye salmon sampling utilizes a trap with two gates located in front of the adult counting tank. A minimum of 80 adult sockeye salmon will be sampled for ASL at a frequency of three times per statistical week for a total of 240 salmon. Field crews should attempt to collect ASL samples on days of medium to high fish abundance at the weir to best represent the age and size composition of the escapement. Fish that are holding in the tank tend to size segregate; where often jacks and larger adults will hold in different areas in relation to the gate. To alleviate initial size bias when opening the trap or counting gate, fish will be allowed to transit for a

period of time (~5-10 minutes) prior to opening the gate to the trap; ideally this will create equilibrium of fish passage. Additionally, it is important to only allow those number of fish needed for the sample into the trap to avoid bias encountered from subsampling using the net (i.e., sample all the fish in the trap). When sampling, counting cannot be conducted.

All scales, when possible, will be collected from the preferred area of each fish (Wattum and Foster 2016; INPFC 1963; Appendix A2). Scales will be mounted on scale "gum" cards and returned to the Kodiak ADF&G office where impressions will be made on cellulose acetate (Clutter and Whitesel 1956). Sex will be determined by observation of external morphological characteristics and length will be determined by measuring the distance from mid-eye to tail fork using a metric ruler, to the nearest millimeter.

ASL data will be recorded in a log book, which will be kept in a binder at camp until the end of the season. This data will also be entered into a netbook and electronic data will be sent bi-weekly to the ADF&G Kodiak office. Details and procedures for adult sampling and entering data are outlined in the Kodiak Management Area sockeye salmon catch and escapement sampling operational plan that is to be published annually.

Fish ages will be determined in town by examining scale impressions for annual growth increments using a microfiche reader fitted with a 60X lens following designation criteria established by Mosher (1968). Ages will be recorded using European notation (Koo 1962), where a decimal separates the number of winters spent in fresh water (after emergence) from the number of winters spent in salt water (e.g., 2.3). The total age of the fish includes an additional year representing the time between egg deposition and emergence of fry.

Closing the Fish Pass

Close the fish pass when instructed by the project biologist (approximately 10 August).

1. Remove the lower fish diversion weirs below the falls. Place all materials in the same location they were found. Tie the panels together with rope to prevent movement during storage.
2. Remove stop-logs from the upper water diversion weir. Stack logs on the far stream bank and store the stop-logs on the far side of the creek.
3. Replace 4″x4″ beams in front of the sampling trap; add visqueen as necessary to stop water flow between beams.
4. Remove all fish from the counting tank and place them above the falls. Make sure to include the fish in the daily escapement count. Netting the fish can be time consuming; allowing the water level to drop assists in netting.
5. Break down the electric bear fence around the holding tank and store in tool shop.
6. Starting at the top of the fish pass, open the resting tanks (one at a time) and remove the wooden plugs. This is done by gently tapping the plugs side to side and pulling outward. When the water level has dropped sufficiently, remove all fish and debris. Record the live and dead fish in the camp log.
7. Replace the resting tank covers and leave the wooden plugs in the lumber shed. All water should be drained from the tanks. All residual materials within the tanks should be removed.

8. Inspect the fish pass and the facility for needed repairs, and list needed materials in the daily log, inventory, and annual report.

ADDITIONAL GUIDELINES AND PROCEDURES

COMMUNICATION

During the smolt season (May and June) required data will be relayed to the project biologist each day at 1:15 PM by satellite phone or Single Side Band (SSB; Appendix B1) radio. During the adult season (July and August) required data will be relayed twice, daily. First, to ADF&G management at 8:20 AM by SSB radio or by satellite phone, then to the project biologist at a time specified prior to commencement of the field season by satellite phone or by SSB radio.

The morning radio communication is an important tool which provides local air charter pilots with the current weather conditions and provides the most recent escapement data to fishery managers who utilize this information to make daily management decisions. The Commercial Fishery Management section also maintains an afternoon radio schedule for their management weirs at 1630 hr (4:30 PM) which is an optional radio communication. If contact to the Kodiak office is necessary at other times, information can be transmitted via the satellite telephone, with the satellite dispatch service, or with the SSB radio.

DATA REPORTING REQUIREMENTS

The crew leader will ensure all field camp reporting requirements are met. Hard copies of data forms and the camp journal will be completed on a daily basis. “Rite in the rain" logbooks will be used for ASL and AWL sampling. After completing a sampling event and upon returning to the cabin, the data will be transferred to the corresponding data forms and entered into the netbook. In preparation for the resupply flights, the activity report and the adult and juvenile scale samples will be properly packaged and clearly labeled with *ADF&G Attn: Darin Ruhl 486-1872*. MAKE SURE TO DOUBLE CHECK DATA BEFORE PASSING THEM ON TO TOWN.

Data reporting requirements can be categorized into three groups:

1. Provide daily: daily smolt samples and adult counts, and daily weather observations.
2. Provide bi weekly: timesheets (Appendix D), bi-weekly crew leader report (Appendix C), smolt scale slides, adult scale cards, smolt AWL and adult ASL data on jump drive provided,
3. Provide seasonally: *Weekly Smolt Catch Summary Form* (Figure 4), *Weekly Salmon Escapement Enumeration Form* (Figure 8), *Daily Physical Observation Form* (Figure 9), completed daily camp activity log book, smolt AWL and adult ASL data log books, and an end of season crew leader report.

Collect climate data at noon each day. These data will include water and air temperatures (^{o}C), stream height (cm), estimated percent cloud cover, and wind direction and velocity (km/hr). Measure stream height with a stream gauge located in the same spot each year (Figure 9).

CAMP OPENING

Upon arrival to the field location, the crew leader will ensure all items necessary for camp opening are in working order, especially communications and first aid materials. Refer to last year’s end of season crew leader report to make sure project needs and repairs can be

accommodated. The semi-permanent bear fence surrounding the cabin and fence charger will be installed and operational within two days of arriving at camp. Ensure 12-V batteries are new and/or fully charged prior to fence installation.

Camp Equipment Check Out and Check In

Items with state identification stickers need to be inventoried yearly. To make this process accurate and prompt requires cooperation from camp personnel. Stickered items remaining at camp must be listed on the closing inventory each year (i.e. outboards, ATVs, refrigerators). Stickered items stored in town must be checked in and out for the season and returned to their proper location (i.e. radios, guns, EPIRBs).

ORDERING FOOD AND SUPPLIES

Field crews will purchase the first round of groceries and commodities prior to leaving Kodiak. Resupply items (e.g., groceries, fuel, mail, etc.) will be sent via chartered float plane on a bi-weekly basis, near the 1st and 15th of each month. Completed timesheets, crew leader reports, scale gum cards, and electronic data should be put on these flights and addressed to the project lead.

All air charter flights will be set up through the Kodiak office. Appropriate information in regard to flight logistics and times will be relayed via the daily radio communications. Small lists can be relayed over the SSB radio or satellite phone; however, these lists should be limited to just a few items. Blank grocery lists will be available in the field so the crew can place orders 2 weeks in advance for preparation of the next supply flight. It should also be remembered that the grocery budget allocates $30/day/person and this allocation will not be exceeded. If it becomes apparent the grocery budget is being surpassed the project leader will notify staff so appropriate reductions can be made.

When planning for the resupply flights it is important to prepare back haul items and maximize the use of the chartered aircraft. Items to send back to town include empty fuel containers, non-burnable trash, biological data, and reports. When items are being backhauled it is important to notify office personnel of the expected items and arrival time. During the bear viewing season some items may be sent as freight with air charter services visiting Frazer.

Alcoholic beverages, personal grooming supplies, newspapers, magazines, and tobacco must be purchased with personal funds. Please purchase as many of these personal items as possible prior to leaving for the field and be sure to set up a slush fund for incidentals before departure.

CAMP CLOSURE

The crew leader will ensure the camp is winterized and all items left at camp will be inventoried. Make sure all stickered items are brought back to town and check in or inventoried. Items to return include all radios (SSB, satellite phone, and VHF's), EPIRB, defibrillator, and the shotgun. Items to include on the inventory list (with state ID #) include the lake skiff and outboard, refrigerator, and the ATV. Include the inventory and project needs and repairs in the crew leader's report.

CAMP POLICIES

- Alcoholic beverages are not to be stored or consumed in areas open to public view. If alcohol is consumed at a camp, the employee must be 21 years of age or older and off work without

any duty scheduled for the remainder of the day. Under no circumstances shall he or she engage in the operation of any State equipment, nor shall he or she return to duty status under the influence of alcohol. The abuse of alcoholic beverages will be grounds for immediate dismissal.

- All employees will be required to act in a professional manner at all times and be especially courteous to the public.
- Injuries must be reported to the project supervisor within 24 hours.
- Loss or damage of equipment must be reported to the project supervisor within 24 hours.

VISITOR/PUBLIC INTERACTION

Many people visit Frazer Lake participating in activities ranging from day-use fishing and bear viewing to extended use through the Kodiak National Wildlife Refuge (KNWR) cabins or as campers. Most of these visitors come by the cabin site because the falls attract bears and provide excellent bear viewing opportunities. Visitors are also interested in seeing the fish exiting the fish pass. Due to this frequent contact, the camp must be kept clean and presentable. The field staff will act in a professional and courteous manner that is helpful to visitors. Visitors must also be informed of boundaries, limitations, and hazards. Be helpful, but remember the primary role of ADF&G staff is to run the adult sockeye salmon research project. KNWR will have personnel available to interact with the public during the peak bear viewing season to limit interruptions to ADF&G staff. Make sure the "keep off weir" sign is posted in a visible location. Under no circumstance should any employee accept gratuities or payment.

If possible, the crew should try to perform routine maintenance on the weir before 9 AM and after 5 PM to limit bear viewing disturbances. When work that may cause bear viewing disturbance is necessary, inform bear viewers of your intentions before proceeding with work. Also try to limit hazing of bears when bear viewers are present but do not sacrifice camp operations or staff safety.

The field crew will not allow media teams into the compound area or engage in interviews without PRIOR consent with the project leader. Failure to adhere to this policy may result in disciplinary action.

Violations

If a violation is observed, try to record the incident by photo or video and write down any pertinent details. Do not approach the person if it seems unsafe to do so. Inform your supervisor and the management team by radio either at next schedule or as soon as possible, depending on the level of the violation.

The use of the five Ws can aid in obtaining sufficient information pertaining to a violation.

1. What is the violation?
2. When did the violation take place?
3. Where did the violation occur?
4. Who is in violation and who are the witnesses?
5. Why was the violation committed?

SAFETY

State of Alaska safety regulations and Standard Operating Procedures (SOPs) must be followed at all times. On-site personnel will exercise extreme caution when considering safety issues. Employees not following state safety regulations may be subject to disciplinary action, including termination. Employees are expected to review, understand and sign the following SOPs before field deployment. Sections of the SOP that are required reading for field personnel include:

111-700	Safety Policies and Standards	111-740	Boating Safety
111-710	Office/Warehouse Safety	111-750	Vehicle Safety
111-720	Field Camp Safety	111-760	Laboratory Safety
111-730	Aircraft Safety for Passengers	111-780	Firearm/Bear Safety

An approved personal flotation device will be worn at all times while boating. A survival kit including matches, VHF radio, flare gun, EPIRB, spare motor parts, and a first aid kit will also be in the boat at all times. A float plan will be filled out and co-workers will be notified of your expected return time. Post the float plan at the cabin and the boat shed prior to departure.

Emergencies

Follow the emergency response flow chart provided in the camp binder or on the zip drive provided to the crew leader with additional emergency information.

In the event of a medical emergency, administer first aid to stabilize the situation. If an injury is life threatening and occurs on the water, immediately notify the US Coast Guard Sector Anchorage at **1-907-428-4200** on the satellite phone. If an injury is life threatening and occurs on land, immediately notify the Alaska State Troopers at **907-486-4121** on the satellite phone. If in doubt notify the US Coast Guard Dispatch first at **907-487-5889**. The US Coast Guard can also be reached on SSB radio frequency 4.125 MHz or on VHF channel 16. See Appendix B for details on how to use satellite phones. A zip drive has been provided to the crew leader with additional emergency information. The USB thumb drive should be in a location easy to access for all crew members (i.e. near SSB or satellite phone).

When contacting the U.S. Coast Guard or troopers, have the following information ready to pass along:

The Frazer Cabin is located at **57°12.1′ N latitude and 154°3′ W longitude**.

- Name and phone number of supervisor,
- General nature of medical emergency,
- Number of patients
- Specific information regarding the patient (name, age, primary complaint, and vital signs),
- Your assessment and treatment,
- Wind and weather conditions, and
- Other information pertinent to a possible medical evacuation.

First Aid and Fire Safety

All crew members not already certified will take a mandatory CPR and First Aid training course prior to going in the field. The crew leader will ensure that a fully stocked first aid kit and fully charged, operable fire extinguishers are in camp and that all personnel know where they are located and how to use them. Make sure smoke and carbon monoxide alarms are installed and operational.

In the event of a fire use the emergency response flow chart and try to contain the fire with water pumps. The camp has a large 2″ and a small 1″ water pump on site.

Firearms

All field camp employees must be able to safely use firearms. A firearm will be provided for camp use. Training on safe handling and shooting of firearms will be conducted for all personnel. Loaded guns (with a round in the chamber of the gun) are prohibited inside camp facilities. **Anyone handling a firearm should always treat it as if it is loaded.** Clean guns frequently. Make certain that firearms are completely unloaded while doing so. Firearms will be stored on site, unloaded, in a location out of sight from the public. Any misuse of firearms will not be tolerated and may be cause for immediate dismissal. Always unload a firearm of all ammunition before boarding a vehicle, vessel, or aircraft.

Garbage

Completely burn garbage to prevent attracting bears and ensure the water pump is primed and ready in case of an emergency. Do not burn during windy or dry weather conditions. Never start fires with fuel. To prevent grass fires keep grass and brush trimmed to at least fifteen inches away from the burn pit. It is best to burn trash early in the morning or late in the evening when the wind is minimal and humidity is high. Never leave a fire unattended. Tin cans should be burned with burnable garbage to eliminate residual food and odors that attract bears. Send in burnt cans and non-burnable items on supply flights. All garbage that is sent to town must be double bagged.

Biodegradable garbage should be placed into a slop bucket (food scraps, etc.) and dumped away from camp in the river downstream of the weir. Do not compost biodegradable food because it attracts bears.

Drinking Water

Stream and lake water may be contaminated with bacteria or harmful parasites. A “Micron” water filter is provided in the camp to filter all drinking water. If filter cartridges are damaged, replace them immediately. If filters are not available, boil your drinking water for at least 10 minutes. Be sure to read the instruction manual with each filter for cleaning and care information.

ALL-TERRAIN VEHICLES

Frazer field camp is furnished with an All-Terrain Vehicle (ATV; 4-wheeler). This is provided to transport materials, supplies, and equipment between the camp and supply planes. They may be used for transportation to and from sites of assigned field duties, such as surveys. They are not intended for personal use or recreational purposes. The ATV and tractor may be accessed and

operated only by trained personnel and will be secured when not in use. Be safety conscious at all times; do not speed or drive recklessly and always wear an ATV helmet.

Unauthorized use of the ATV will result in a notation on your evaluation or your dismissal from employment.

MAINTENANCE

Facility maintenance is an important aspect of camp life; the cabins and fish pass must be kept structurally sound and safe. Refer to last year's end of season crew leader report for a list of needed projects and repairs. Provide a list of materials needed to accomplish the projects and repairs to your project leader. Repairs and maintenance should be scheduled on days when fish passage is slow to keep this work within normal work periods. A USB thumb drive has been provided to the crew leader with equipment manuals and maintenance information.

The generator, outboard motors, and ATV must be kept in good operating condition and require regular maintenance. At the end of each season, equipment should be winterized and tagged with a description of the equipment's condition on the tag.

COMPLIANCE WITH ADF&G REGULATIONS

All employees are responsible for complying with local subsistence, sport fishing, and hunting regulations. Copies of State and Federal regulations will be available to all field camp personnel and kept in camp. Any violation will be recorded on your evaluation and may be cause for immediate dismissal.

SCHEDULE AND DELIVERABLES

The annual schedule of activities for the 2017–2019 fishing seasons are as follows:

Date	Activity
15 May–1 September	Frazer field camp crew on site.
15 May–1 July	Smolt trap installed and operational.
1 June–1 September	Adult fish pass open and operational.
Daily	Daily escapement data are reported during morning radio with ADF&G Kodiak, crew lead collects Daily Weather Observation Data, and writes in the daily camp log book. Crew enumerates adult salmon as is necessary.
Weekly	Crew will collect 200 sockeye adult ASL samples.
Every two weeks	Crew will send in bi-weekly report, timesheets, any smolt/adult scales and electronic data.
Post-season	Crew lead completes a field inventory and end of season report, scale samples aged and reported, escapement data are turned in.

RESPONSIBILITIES

Fisheries Biologist II:	Off-site supervisor responsible for data quality management, logistics, maintaining communication with the field camp, and ensuring the field crew is trained correctly. Supervises project, runs logistics, trains crew, assists in field as necessary.
Fish and Wildlife Technician III:	On-site crew lead; trains and performs duties as assigned by FB II. Field crew; assists with enumeration, data collection, and camp chores.
Fish and Wildlife Technician II:	Field crew member; assists with enumeration and data collection, duties assigned by crew lead, and camp chores.

REFERENCES CITED

Bagenal, T. B. and F. W. Tesch. 1978. Age and growth. pp. 101-136 [*In*] T. Bagenal, editor. Methods for assessment of fish production in fresh waters. IBP Handbook No. 3, third edition. Blackwell Scientific Publications, London.

Blackett, R. F. 1979. Establishment of sockeye (*Oncorhynchus nerka*) and chinook *(O. tshawytscha*) salmon runs at Frazer Lake, Kodiak Island, Alaska. Journal of Fisheries Research Board of Canada 36:1265-1277.

Carlson, R. S., L. G. Coggins Jr, and C. O. Swanton. 1998. A simplified stratified design for mark-recapture estimation of salmon smolt abundance. Alaska Fishery Research Bulletin. 5(2) 88-102.

Clutter, R., and L. Whitesel. 1956. Collection and interpretation of sockeye salmon scales. International Pacific Salmon Fisheries Commission, Bulletin 9, New Westminster, British Columbia, Canada.

Honnold, S. G., M. J. Witteveen, M. B. Foster, I. Vining, and J. J. Hasbrouck. 2007. Review of escapement goals for salmon stocks in the Kodiak Management Area, Alaska. Alaska Department of Fish and Game, Fishery Manuscript No. 07-10, Anchorage.

International North Pacific Fisheries Commission. 1963. Annual Report 1961, Vancouver, British Columbia.

Koo, T. S. Y. 1962 Age designation in salmon. Pages 37-48 [*In*] T.S.Y. Koo, editor. Studies of Alaska red salmon. University of Washington Publications in Fisheries, New Series, Volume I, Seattle.

Kyle, G. B., J. P. Koenings, and B.M. Barrett. 1988. Density-dependent, trophic level responses to an introduced run of sockeye salmon (*Oncorhynchus nerka*) at Frazer Lake, Kodiak Island, Alaska. Canadian Journal of Fisheries and Aquatic Sciences 45:856-867.

Nelson, P. A., and D. S. Lloyd. 2001. Escapement goals for Pacific salmon in the Kodiak, Chignik, and Alaska Peninsula/Aleutian Islands Areas of Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K01-66, Kodiak.

Meehan, W. R., M. F. Eaton and J. A. Gohr. 1965. Frazer Lake system spawning ground surveys, 1964. Alaska Department of Fish and Game, Division of Commercial Fisheries, Informational Leaflet 72, Juneau.

Mosher, K. H. 1968. Photographic atlas of sockeye salmon scales. Bureau of the U.S. Fish and Wildlife Service. Fishery Bulletin 67(2):243-280.

Pollard, W. R., G. F. Hartman, C. Groot, and P. Edgell. 1997. Field Identification of Coastal Juvenile Salmonids. Harbour Publishing. Madeira Park, BC Canada.

Ruhl, D. C. 2013. Westward Region limnology and Kodiak Island laboratory analysis operational plan. Alaska Department of Fish and Game, Division of Commercial Fisheries. Regional Operational Plan CF.4K.2013.01, Kodiak.

Russell, P. A. 1972. Frazer Lake sockeye salmon investigations, 1970. Alaska Department of Fish and Game, Division of Commercial Fisheries, Informational Leaflet 159, Juneau.

Thompson, S. K. 1987. Sample size for estimating multinomial proportions. The American Statistician 41(1):42-46.

Thomsen, S. M., M. Loewen, J. Estrada, and T. Woldstad. 2013. Frazer Lake fish pass: 2012 season and historical review. Alaska Department of Fish and Game, Fishery Management Report No. 13-32, Anchorage.

Todd, G. L. 1994. A lightweight inclined – plane trap for sampling smolt in rivers. Alaska Fishery Research Bulletin 1(2):179-186.

Wattum, M. L., and M. B. Foster. 2016. Kodiak Management Area sockeye salmon catch and escapement sampling operational plan, 2016. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Operational Plan ROP.CF.4K.2016.09, Kodiak.

FIGURES

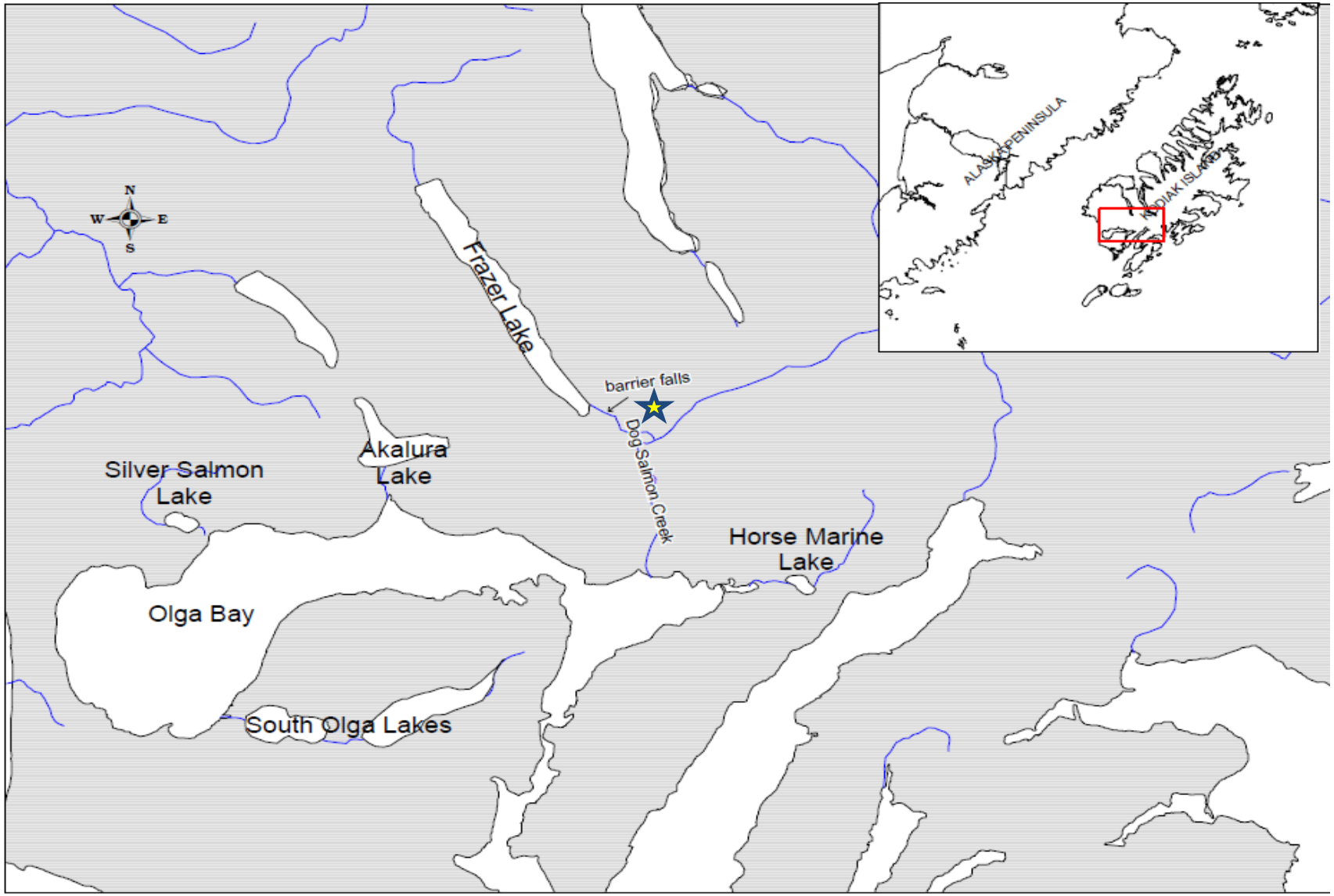

Figure 1.–Location of Frazer Lake on Kodiak Island, Dog Salmon Creek, camp compound (star), and the barrier falls.

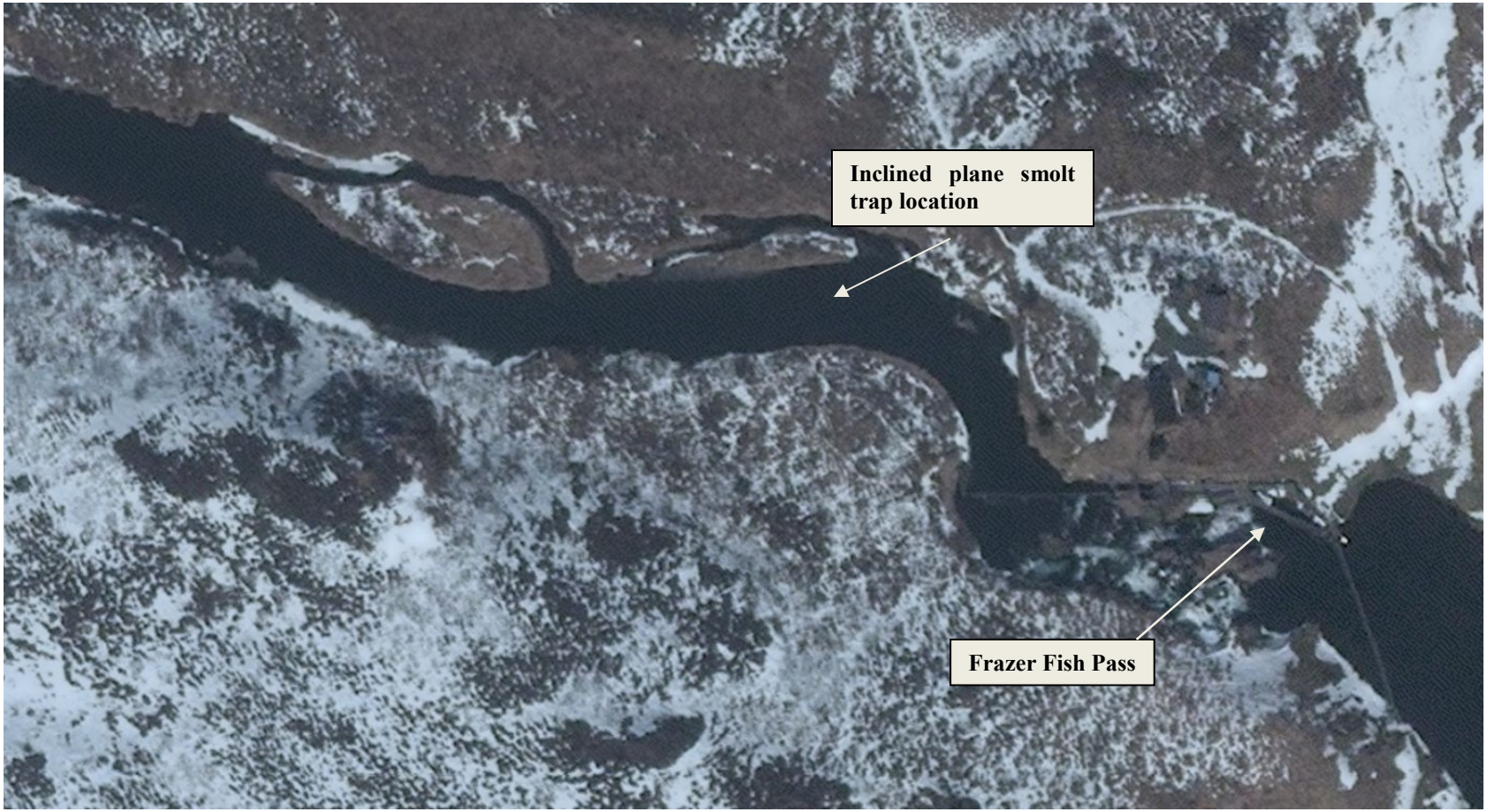

Figure 2.–Dog Salmon River smolt trap placement.

Figure 3.–Inclined plane smolt trap configuration and board walk.

WEEKLY SMOLT CATCH SUMMARY FORM

PROJECT: **Frazer Lake** YEAR: _____ LOCATION: _____

DATE[1]	NUMBER OF SMOLT									COMMENTS[7]
	CATCH[2]			SAMPLED[4]		MARKED AND RECOVERED[5]				
	DAILY	CUM	MORTS[3]	DAILY	CUM	MARKED RELEASES	DAILY CATCH[6]	CUM	MARKED MORTS	

Figure 4.–Weekly smolt catch form.

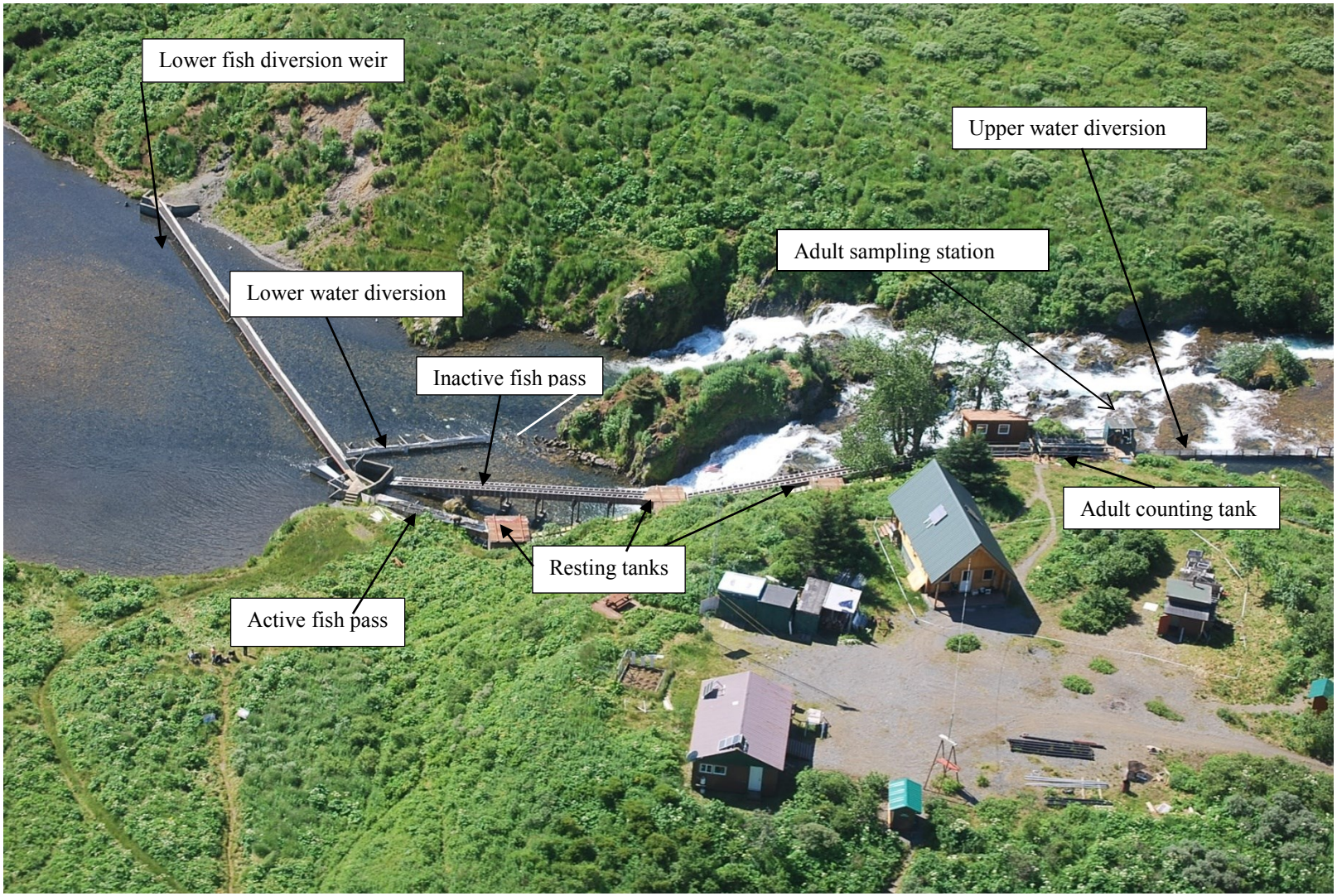

Figure 5.–Frazer fish pass component locations.

Figure 6.–Frazer fish pass upper water diversion weir and holding tank for water attractant pipe system.

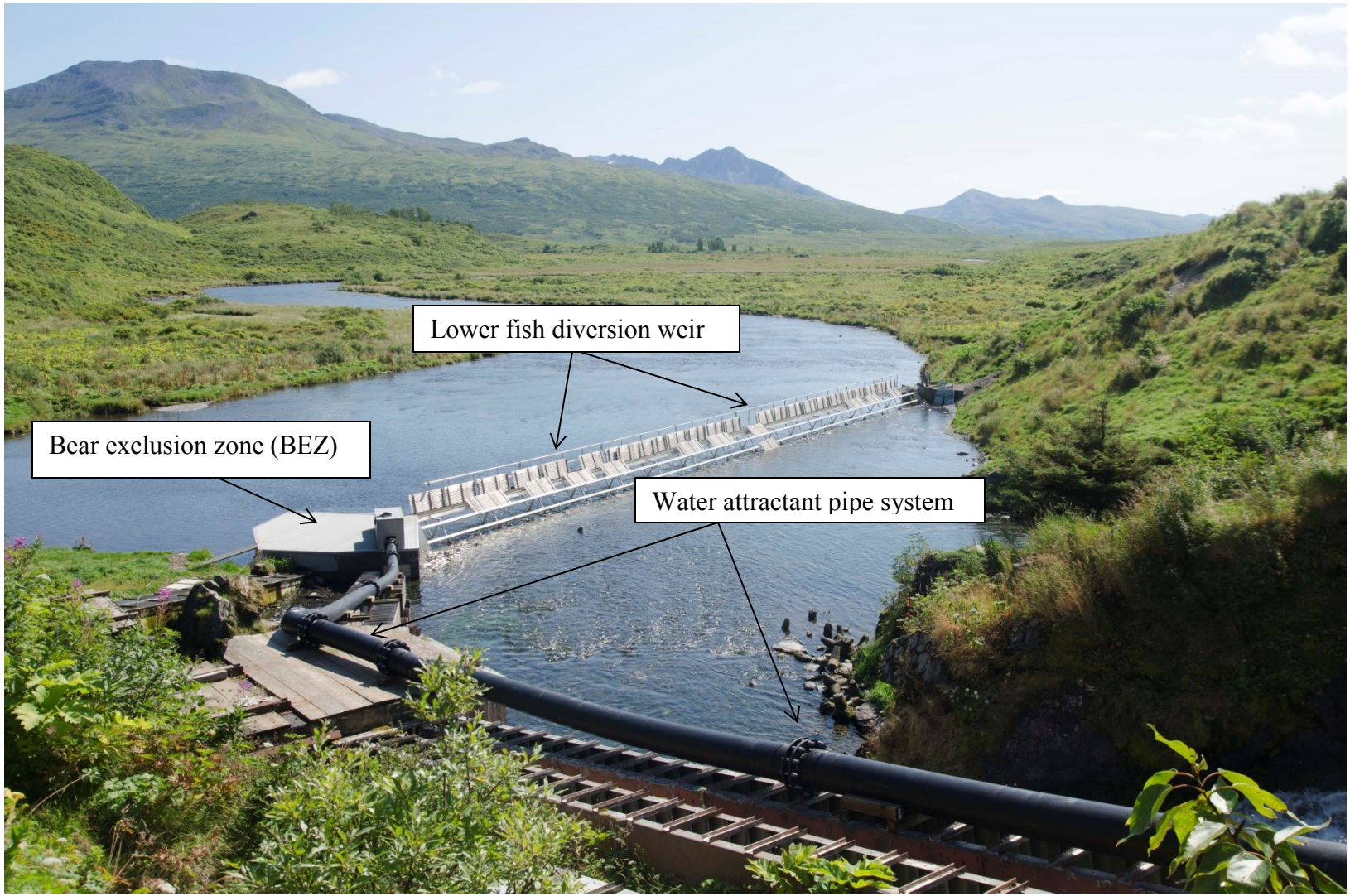

Figure 7.–View of the Frazer fish pass, water attractant pipe system, bear exclusion zone, and lower fish diversion weir prior to panel installation.

ALASKA DEPARTMENT OF FISH AND GAME KODIAK MANAGEMENT AREA
WEEKLY SALMON WEIR CAMP REPORT FOR YEAR:

Location: Personnel: Weekly Report no:

Daily Total Salmon Escapement							Additional Comments:
Date	Sockeye	Chinook	Pink	Jack #	Jack %	Sampled Reds	
Sun. D							
C							
Mon. D							
C							
Tue. D							
C							
Wed. D							
C							
Thur. D							
C							
Fri. D							
C							
Sat. D							
C							
Total for week							

Note: D represents daily and C represents cumulative.

Figure 8.–Weekly salmon escapement enumeration form.

DAILY PHYSICAL OBSERVATION FORM

PROJECT: _____ YEAR: _____ page_____ of _____

DATE	TIME	TEMPERATURE		CLOUD COVER		VISIBILITY	WIND		STREAM	COMMENTS
		AIR (^{O}C)	WATER (^{O}C)	(%)	Ceiling	(mi)	DIRECTION	VEL. (MPH)	(cm)	

Figure 9.–Daily physical observation form.

APPENDIX A. SAMPLING PROCEDURES

Appendix A1.–Statistical sampling weeks and associated calendar dates.

Week	Calendar Dates	Week	Calendar Dates
10	1-Mar – 7-Mar	28	5-Jul – 11-Jul
11	8-Mar – 14-Mar	29	12-Jul – 18-Jul
12	15-Mar – 21-Mar	30	19-Jul – 25-Jul
13	22-Mar – 28-Mar	31	26-Jul – 1-Aug
14	29-Mar – 4-Apr	32	2-Aug – 8-Aug
15	5-Apr – 11-Apr	33	9-Aug – 15-Aug
16	12-Apr – 18-Apr	34	16-Aug – 22-Aug
17	19-Apr – 25-Apr	35	23-Aug – 29-Aug
18	26-Apr – 2-May	36	30-Aug – 5-Sep
19	3-May – 9-May	37	6-Sep – 12-Sep
20	10-May – 16-May	38	13-Sep – 19-Sep
21	17-May – 23-May	39	20-Sep – 26-Sep
22	24-May – 30-May	40	27-Sep – 3-Oct
23	31-May – 6-Jun	41	4-Oct – 10-Oct
24	7-Jun – 13-Jun	42	11-Oct – 17-Oct
25	14-Jun – 20-Jun	43	18-Oct – 24-Oct
26	21-Jun – 27-Jun	44	25-Oct – 31-Oct
27	28-Jun – 4-Jul	45	1-Nov – 7-Nov

Smolt Sampling Procedures

Label Slides

The left portion of each slide should be labeled prior to sampling using a fine point permanent marker with the slide number, species, area sampled, sample date, and fish numbers of the sample (Figure 1).

Slide number

Write the number of the slide.

Species

Write out completely (e.g., Sockeye).

Area sampled

Write the area where the fish were collected.

Sample date

The sampling day is the 24-hour period from noon of the first day to noon the following day, and is identified by the calendar date corresponding to noon on the first day.

Fish numbers

Fish should be sequentially numbered, beginning with 1 each time fish are sampled (sampling event). By starting with 1 each sampling event, it is possible to track how many fish have been sampled during each sampling event. Five fish are placed on each slide.

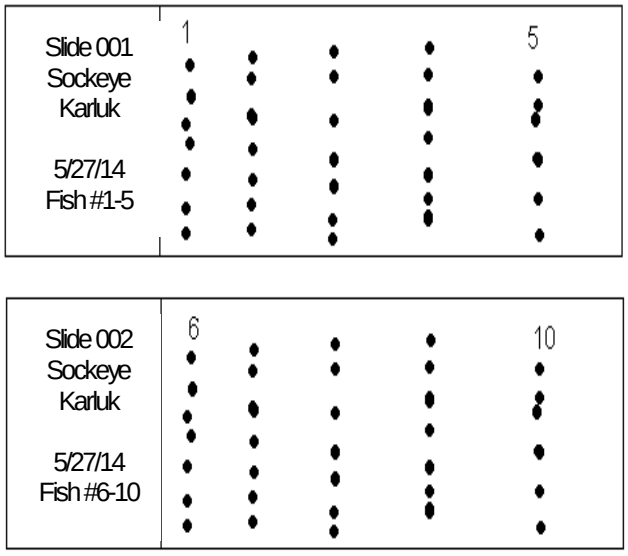

Figure 1.–Properly labeled smolt slide.

-continued-

Sample ASAP

Sample smolt as soon as possible after they are captured.

Mix anesthetizing solution

Wearing latex gloves and goggles to prevent direct exposure to the anesthetic, dissolve a small amount (approximately of 1 g) of FINQUEL® (MS-222; Material Safety Data Sheet is in Appendix A3) and baking soda in about 2 L of cold water in a dish pan. The amount of anesthetic needed will vary slightly depending on the water temperature, freshness of the chemical, and size of the smolt. If 1 g of FINQUEL® is not anesthetizing the smolt, additional anesthetic should be added in very small increments. The concentration of the solution should be such that it immobilizes the fish in 2–3 minutes.

Set up recovery bucket

Set up an additional bucket of water to be used as a recovery bucket. This bucket should be filled with fresh water, aerated, and covered to avoid stress on the fish.

Transport smolt to sampling area

Transport smolt, using clean 5-gallon buckets, to the sampling area. Buckets containing smolt should be filled with fresh water, aerated, and covered to avoid stress on the fish. Fish can be placed into the bucket using a dip net, or by dipping the bucket into the live box.

Anesthetize smolt a few at a time

Place 1–3 smolt in the anesthetic solution until they become subdued to a point where they have decreased responsiveness, but can still ventilate their gills. They will often experience a loss of equilibrium.

Lightly dry preferred area

Immediately after the fish is anesthetized, carefully remove it from the dish pan and gently pat dry with a paper towel.

Sample smolt

Place the fish flat on its right side to sample the left side. Quickly and carefully take length (on a smolt sampling board, in millimeters) and weight measurements (on a calibrated tared scale, to the tenth of a gram), and remove 5–10 scales from the preferred area of the smolt using a scalpel (Figure 2). The preferred scales are located on a line between the posterior insertion of the dorsal fin and the anterior insertion of the anal fin, slightly above the lateral line (Figure 2). If scales are not present in this area then scales should be taken from the secondary location, which is the same area on the right side of the fish.

-continued-

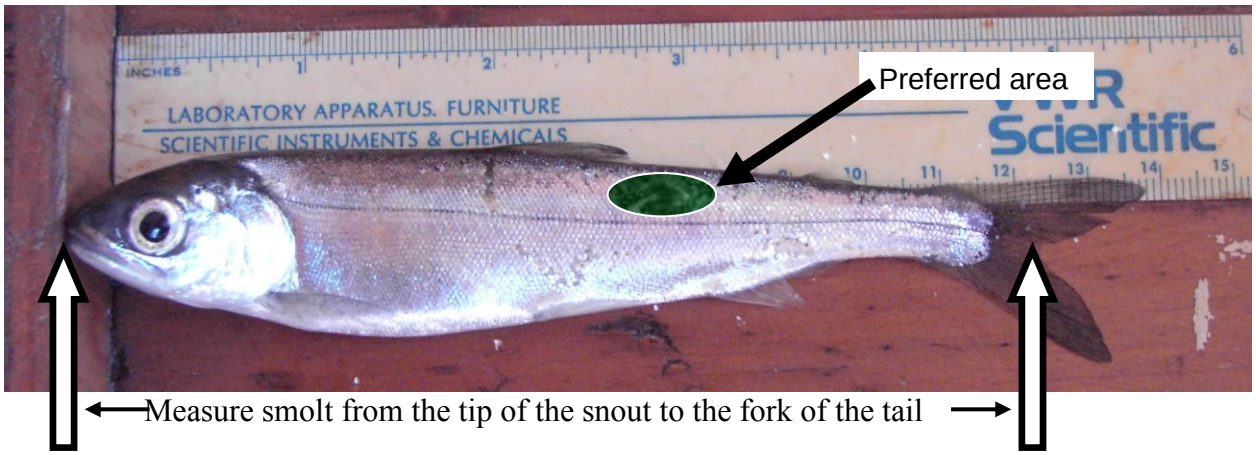

Figure 2.–Smolt with proper length measurement and preferred area highlighted.

Move smolt to recovery bucket

Transfer sampled smolt from the sampling station to the recovery bucket. It is important to sample as quickly as possible and immediately place smolt into the recovery bucket to prevent mortality.

Align scales on slide

Using a dissecting probe, line up and spread out the scales on the slide **under the correct fish number** (Figure 1).

Clean sampling supplies

Wipe off the scalpel and dissecting probe to remove scales and slime before another smolt is sampled.

Continue sampling

Continue sampling smolt until sampling goals are met, or all available smolt have been sampled. The water in all buckets (holding, recovery, and anesthetizing) may need to be refreshed if sampling is taking a long time, and the fish seem more distressed than before, or are not recovering.

Release smolt

Once the sampled fish have recovered and are swimming normally in the recovery bucket, they should be released downstream of the trapping location. If there is any mortality during sampling, this must be recorded on the appropriate sampling forms.

-continued-

Adult Sampling Procedures

Position Salmon

Place the salmon on its right side (the head should facing toward the left).

Measure the length

Adult salmon length is measured from mid-eye to tail fork because the shape of the salmon's snout changes as it approaches sexual maturity. Slide the fish in place so that the middle of the eye is in line with the edge of the meter stick and hold the head in place with your left hand. Flatten and spread the tail against the board with your right hand. Read and record the mid-eye to tail fork length to the nearest millimeter. Please look at Figure 3.

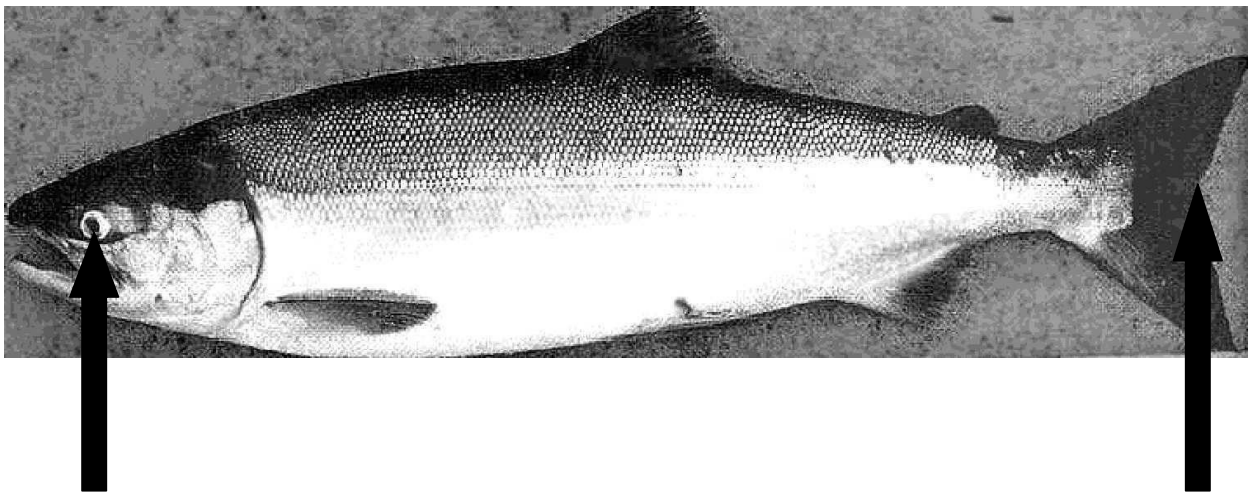

Figure 3.–Measuring fish length from mid-eye to tail fork.

Sex

The determination of the sex of the fish is typically done by examining external characteristics of the salmon.

Remove the preferred scale and place on scale card

The preferred scale is located 2 rows up from the lateral line, on a diagonal from the insertion (posterior) of the dorsal fin toward the origin of the anal fin (Figure 4). Samplers should be careful to make sure that the scale is not flipped over before it is placed on the scale card. The preferred scale should be properly placed on a labeled scale (gum) card (Figures 4 and 5). Scale cards should be labeled as soon as possible. If sampling commercial catch, write the date the fish were caught on the card instead of the sampling date.

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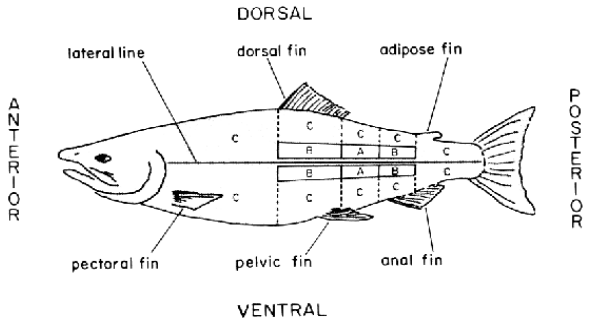
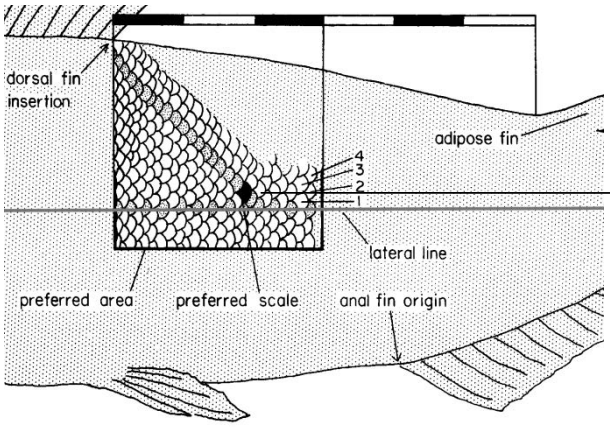
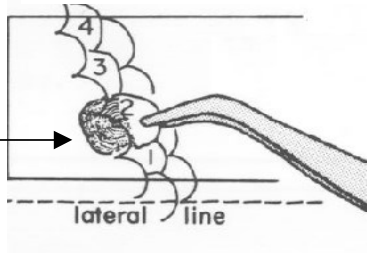


Area A is the preferred area. If scales on the left side are missing, try the right side. Area B is the second choice if there are no scales in Area A on either side of the fish. Area C designates non-preferred areas.



Do not turn scale over.



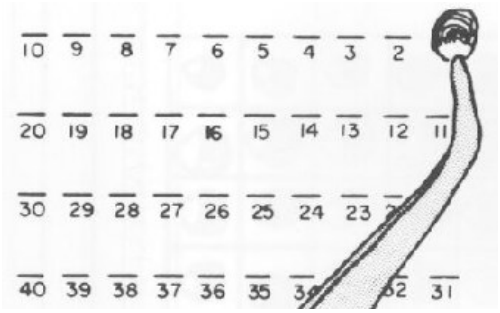


Figure 4.–Removal and placement of the preferred salmon scale onto the scale card.

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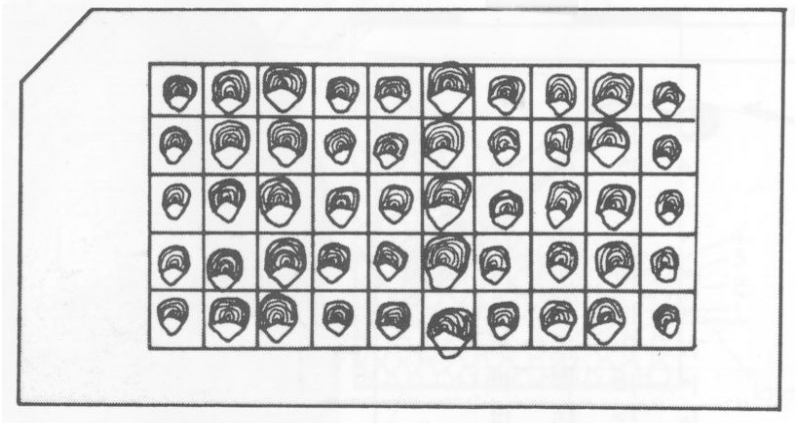
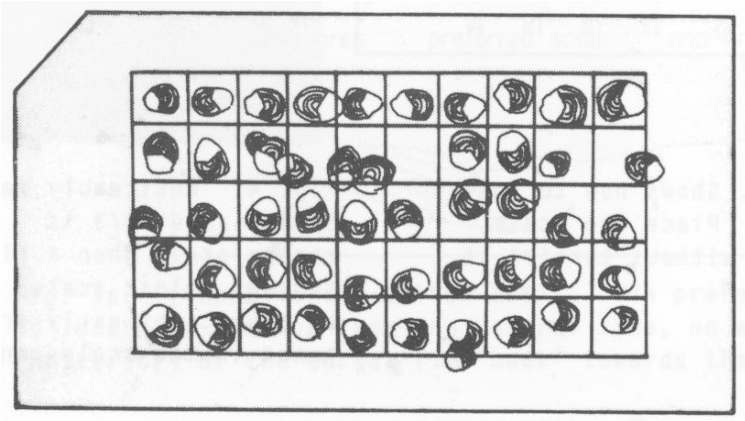


The scales are all correctly oriented on the card in the same direction, with the anterior portion of the scale pointed toward the top of the card and the posterior portion (which is that portion of the scale held in the forceps) pointed toward the bottom of the card.



The scales are incorrectly oriented in different directions. This increases the time spent to age samples.

Figure 5.–Scale orientation on scale card.

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Data Entry and Management

Data obtained while sampling is digitally recorded on a computer, typically a netbook found in the sampling kit, using an application developed by the Kodiak analysts/programmers (Neil Moomey and Ric Shepard). A USB storage device with an offline version of the Kodiak intranet (WIKI) will be inserted into a USB port on the computer and turned on. The computer will boot up using the USB device. Please note that data cannot be entered without this important USB storage device, so take care to ensure it is not misplaced. No connection to the internet is needed. After data has been recorded, a file with the all of the data will be created, saved, and transferred to the office throughout the sampling season.

Turn on Computer

To begin using the netbook or computer for entering data, make sure that the small black USB storage device is inserted into USB drive. Turn the computer on by pressing the power button. The computer will boot up off of the USB drive, and open a pared down version of the WIKI. It may take several minutes for the computer to boot up.

Navigate to Data Entry Portal

To begin entering data hover over the top of the screen to display the menu, click on the bookmarks button, and select either Sample Adults ASL or Sample Smolt AWL (Figure 6).

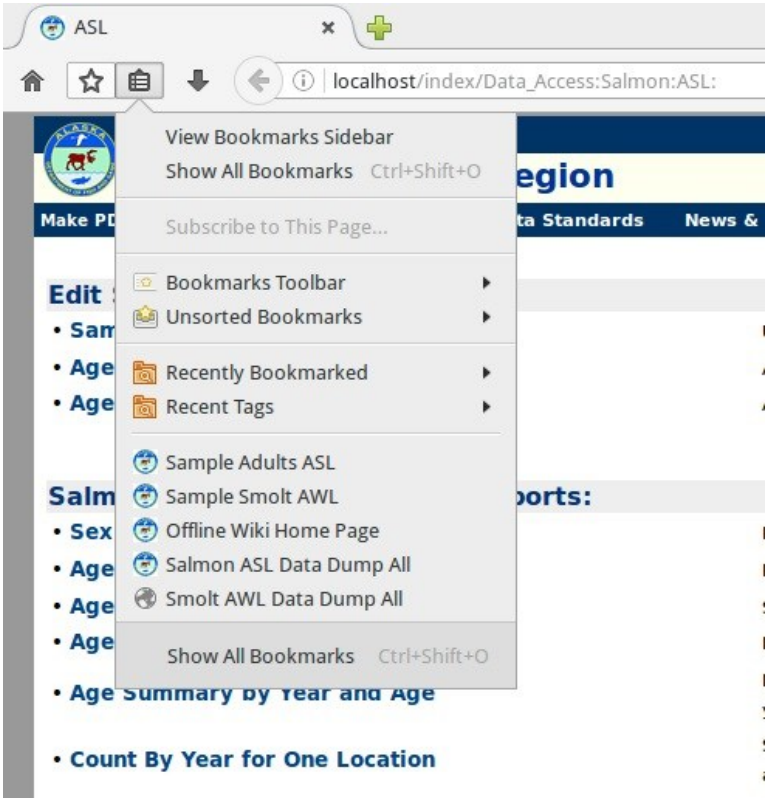

Figure 6.–Use the bookmarks button to access the data entry pages of the WIKI for adult or smolt sampling.

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Data Entry Portal

A screenshot of the sample selection page of the data entry portal is shown in Figure 7.

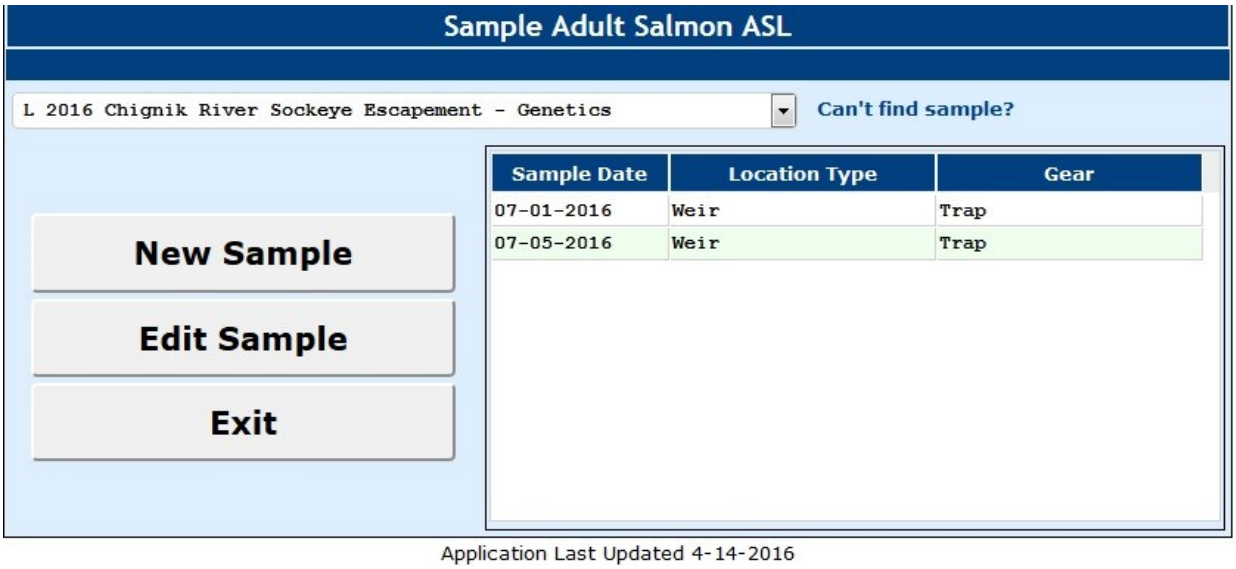

Figure 7.–Sample selection page.

Select Sample

Select the project you would like to add data to or edit by using the dropdown arrow on the top of the screen. The project selected in Figure 7 is 2016 Chignik River Sockeye Escapement – Genetics. Data can only be entered/edited for 2016. Please contact your project leader for clarification before entering data if there is confusion about which project to select. If the sample collected is not an option on the dropdown menu, click "Can't find sample?" to add it to the list. There are three buttons on the sample selection page, New Sample, Edit Sample, and Exit. New sample is used for entering new data, edit sample is used for editing existing data, and exit is used to return to the Salmon Age-Sex-Length or Smolt Age-Sex-Length WIKI page.

New Sample

Enter Sample Information

Sample information must be entered at the start of each sampling event. Adult ASL sampling information includes: Location Type, Project, Measurement Type, Gear Type, Sample Date, and Sampler Initials. Smolt AWL sampling information includes: Location Type, Location ID, Gear Type, Sample Date, and Sampler Initials. It is important to press New Sample when any change in sampling information occurs. After sampling information is entered click on the Save Background Data button to create a new card or slide. Sample information is visable on the top portion of the screenshot shown in Figure 8. are captured to minimize mortality.

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Some notes on Sample Date: For adult escapement sampling the date the fish are sampled should be entered. Catch samples should have the date the fish were caught entered as the sample date, even though this commonly differs from the sample date. Since smolt are collected in the middle of the night, the smolt sampling day is the 24-hour period from noon of the first day to noon the following day, and is identified by the calendar date corresponding to noon on the first day. The date can be entered as mm-dd-yy.

Card_number or slide_number

Scale (gum) cards or slides should be numbered sequentially by date throughout the season starting with 1. A separate numbering sequence will be used for each species or major location change. Consult your crew leader for the current card or slide number. It is crucial to make sure the number written on the scale card or slide matches the scale card or slide number entered into application.

After sample information is entered, card or slide number 1 or the next card/slide number will automatically appear under card_number/slide_number. After fish are entered for the first card/slide, additional cards/slides (with the same sample information) can continue to be entered. To add cards/slides, click on the box under the previously entered card/slide, type in the next card/slide number, and press enter. It will then be necessary to click on the card/slide number in order to enter specific fish data on the right side. Card/slide numbers for a particaular sample are visable on the left side of the screenshot shown in Figure 8.

Fish Information

To enter specifc fish information click on the card/slide number on the left side of the application, and then on first row on the right side of the screen, under Fish Number. Tab or enter can be used to advance through the fish fields. It is not necessary to type in fish numbers, as they will automatically increment by using the tab or enter buttons. A 10-key numeric keypad will be provided to enter fish data (make sure the Num Lock button on the 10-key is selected). Sex can be entered in numeric form (0=unknown, 1=male, and 2=female). In order for a line of data to be saved, the user must tab or enter completely off of the row. Fish information is shown in on the bottom right side of the screenshot shown in Figure 8.

Exit

Press the exit button to return to the sample selection page. The exit button is in the middle of the screenshot in Figure 8.

Edit Sample

If edits need to be made to a previously entered sample, highlight the sample (organized by date on the right side of the screen) and click on the Edit Sample button. This will bring the user back to the screen shown in Figure 8. The data previously entered for the highlighted sample is visible. To edit, click on the card/slide number and then the fields that need to be edited. Make changes as necessary. It is important to click or tab off of the row that data was edited on in order for it to save. Press the exit button to return to the sample selection page of the data entry portal.

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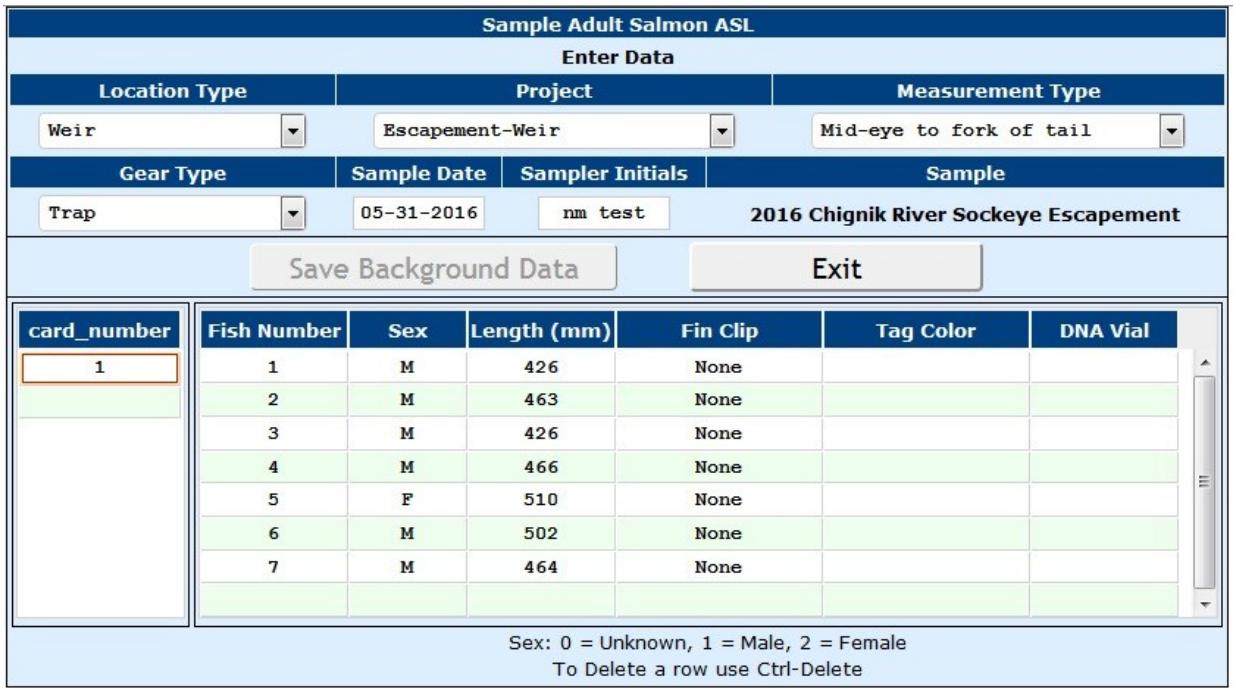

Figure 8.–This screenshot shows the screen that will be displayed when entering sample and fish information.

Saving Data

After each sample, a .csv file should be created and saved on a USB flash drive for transporting to the office, or for emailing. To save a file press the Salmon ASL Data Dump ALL or Smolt AWL Data Dump All bookmark (Figure 6). A window will pop up which allows you to open and/or save the file. Make sure the Save File circle is selected, and click on OK. A file will automatically download. To access the downloaded file for renaming and saving onto a USB drive, right click on the Desktop and click on Open in New Window. The window in Figure 4 will open. Under PLACES click on field to make the Downloads folder visible. Double click on the Downloads folder to see the .csv files that have been created. Rename the file by right clicking and selecting Rename. Type a file name that includes the area and date, e.g., Afognak Smolt 5-20-16.csv and click the Rename button.

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Figure 9.–The File Manager appears when you right click on the desktop and select Open in New Window. This is used for accessing the Downloads folder (under PLACES) and the USB flash drive (under DEVICES).

The file then needs to be saved onto a USB flash drive. To save onto a USB flash drive, insert the flash drive into the appropriate port on the netbook. Right click on renamed file, hover over Send To, and click on the USB storage device (the name of this device varies). The file will be copied onto the USB drive for transport to the office or to a computer with internet access. Files can be emailed to the project leader or michelle.wattum@alaska.gov.

To see what is on the USB flash drive, and to safely remove the device, right click on the desktop and select Open in New Window. Under the DEVICES heading you will see the USB flash drive. Click on it to see what files are on the drive. To safely eject the drive click on the eject symbol ⏏ to the right of the drive name.

Turning Computer Off

To turn the computer off click on Applications on the top right of the desktop, and then Log Out. Press the Shut Down button to turn the computer off.

Notes and Reminders

- If the application is closed, it can be reopened by clicking on Applications on the top right of the desktop, and then clicking on Web Browser.
- It is best to leave the USB storage device that runs the computer inserted into the USB port. If it is necessary to remove the device, make sure the computer is completely shut down to prevent any file corruption.

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- Responsibility for accuracy lies first with the primary data collector(s) and finally with the crew leader. Sloppy or incomplete data or gum cards will be returned to individual collectors for correction.
    - Each length, sex, and scale must correspond to a single fish! It is the responsibility of the crew leader to be sure the data has been entered correctly.
    - Never put data from different dates onto one gum card, and always enter new sample information when the date changes. Even if only one scale is collected that day, new sample information must be entered, and the next fish must be on a new gum card.
    - Any edits should be made in the application, and not in the .csv file that was created. If a mistake is made, made edits and perform a new data dump.
    - If a page on the application appears to have a bug, try exiting out of the page, and they going back into it or pressing the refresh button.
    - To delete a row in the application press Control and Delete. A card cannot be deleted without first deleting all of the individual fish.
- Be careful when collecting and mounting scales in wet conditions (rain, high humidity, etc.). If glue dries on top of the scale, it often obscures scale features, resulting in an unreadable scale. In addition, scales frequently adhere poorly to a wet gum card. Protect the cards and keep them dry to avoid having to remount the scales on a new card. If the cards get wet, try to dry them in a protected area or remount if necessary. Use a pencil when filling out gum cards, because ink will come off during pressing.
- Ensure that all equipment is well kept. Electronics should be stored in a clean safe place. Computers can only be charged with the provided AC power adaptors, so plan generator use accordingly.
- If you are having trouble fixing an error, clearly document the mistake and send the correction in with data file for the Kodiak office to fix.

APPENDIX B. SATELLITE TELEPHONE AND DISPATCH INSTRUCTIONS

The following information serves as a Policy Statement regarding the allowable uses of ADF&G satellite phones and Instructions on the proper method to successfully set up and operate the satellite phone system assigned to your camp.

These systems are not like standard telephones or cell phones, nor are they like a single side band or VHF radio. Communication is sent through the transmitter to low level satellites, then is beamed down to ground stations, either directly to another satellite phone system or to a switching station linked to standard telephone lines. As such, there is a much higher cost involved in operation than with standard telephone long distance or cell phone charges.

Under no circumstances may you use this satellite phone system for personal calls, unless a family or personal emergency exists. This does not mean that field crew leaders may grant permission for personal use of this phone. Only the project biologist may give you such permission. ANY DELIBERATE MISUSE OF THIS SYSTEM, SUCH AS MAKING UNAPPROVED, NON-EMERGENCY, OR PERSONAL CALLS, WILL RESULT IN DISCIPLINARY ACTION, WHICH MAY INCLUDE SUSPENSION OR DISCHARGE.

The primary purpose for having this satellite phone is for secure, reliable communications between remote field stations and ADF&G offices (Kodiak, Chignik, Cold Bay, Sand Point, or Port Moller), ADF&G research vessels (Resolution or K-Hi-C), Fish and Wildlife Protection vessels and offices, or other field camps that are similarly equipped. The secondary purpose is for your SAFETY. With these phones you are capable of directly dialing emergency services at any time of the day or night. It is essential that these phone systems are maintained in good working order, are fully charged or hooked to sufficient power at all times, and remain free for official or emergency use.

INSTRUCTIONS

The portable sat phone unit must be charged with power. There is an internal battery pack, and a 12-volt adapter is available in order to hook the phone to a larger battery bank, that may in turn be recharged by generator or solar panels.

Turn the unit on using the power switch in the lower left corner. A green light, just above the switch, should come on indicating that the unit is sufficiently powered. If no light or a red light comes on, you will need to charge the unit, or attach it to your 12-volt battery bank via the appropriate connections.

The back, or top, of the briefcase-like unit is the antenna, and it must be oriented correctly in order to access the receiving satellite. The top of the case should be open and pointed in a general east-southeast direction. You must have a fairly clear line-of sight to the horizon in that direction; this unit will NOT work through walls or mountains. The angle of the antenna should be almost vertical; remember to lock the support arm that attaches the lid to the main body of the unit, along the right side.

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This system has two means for calling; a telephone-like handset (for dial in or dial out phone calls), and a push-to-talk microphone (for 'dispatch', unit to unit, calls). All calls made with the handset are billed per minute of use, at an expensive rate. All calls on the 'AlaskaNet' dispatch system, using the microphone, are essentially FREE.

When first turned on, the handset and microphone should become active, with the display panels on the top of the phone handset and microphone lighting up (one LED panel, hopefully the one on the handset, should read SLEEP). The display will show, after a few moments, whether a connection has been established with the satellite, and how strong the signal is (ex. *B05 S* 21). Turn the unit slightly, and raise or lower the lid/antenna slightly until the highest possible signal strength is indicated (normally above 20 but will work down to 8). Lock the lid/antenna in place and do not turn the unit again, until your communications are finished. Once a strong signal is acquired push the "*" button for 2 seconds. Wait until there is a "beep" and the LCD screen displays '00:DN ??', then dial the number.

Alaska Dispatch System

Because all calls made on the dispatch system are FREE, this is the method of choice for using the satellite phone units. There are several ADF&G offices, many field camps, and two research vessels on the AlaskaNet dispatch system, as well as Fish and Wildlife Protection/State Troopers offices and vessels, plus many canneries, fishing vessels, and tenders. You should have received a 10-12 page directory with your phone.

First, make sure the unit is turned on, and that there is sufficient power. Set the unit up so that the signal strength is at the maximum for your location. You should see the signal strength on the microphone display (ex. *B05 S* 21), and the handset display should read SLEEP. Once a strong signal is acquired push the "*" button for 2 seconds. Wait until there is a "beep".

On the microphone display, below the signal strength, there should be a query, '00:DN ??'. This is asking you to 'dial' in the 4-digit dispatch number that you wish to call. After you have entered the 4-digit dispatch number of the unit you wish to contact, hold in the microphone key and a connection will be made with the satellite, which will then try to connect with the dispatch number you punched in. IF a connection is made you will hear two beeps ("bird chirps") and the microphone display will read SELF. While continuing to hold in the microphone key, call the station you wish to talk to. USE ALL THE SAME FORMALITIES AS WHEN CALLING ON A SSB RADIO. For example, say "Calling the ADF&G Kodiak Office, Calling the ADF&G Kodiak Office; this is Karluk Weir". When you release the microphone key, the unit will beep again.

BE PATIENT. It will take some time for the signal to go up to the satellite, down to the number you called. It may take the other party some time to get to the microphone and respond (this is especially true for calls to the ADF&G office; supervisors have to walk down to the radio room to respond). When they respond, their 4-digit dispatch number (DN) will show on the microphone display. This is a private conversation, unlike the previous dispatch service.

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Remember to be patient; wait until the other party stops speaking and you hear the unit beep (indicating that they are finished with this portion of their communication), the display should read SELF, and you may key microphone to talk. Then you must again wait for the other party to respond. If the other party is not there, they simply will not answer. If the satellite connection cannot be made, the display will read 'Unable to Connect' or 'Not Available'.

Phone System

DO NOT USE THE HANDSET TO PLACE CALLS UNLESS ABSOLUTELY NECESSARY. All calls made with the handset are billed per minute of use, at an expensive rate. Calls should only be made to supervisors, either when radio or dispatch contact is not possible or when a confidential message needs to be relayed. Calls are made by dialing out, almost like a standard telephone. Punch in the area code and telephone number, then PRESS SEND (button located in the upper right corner of the handset). Because there is a satellite relay, there will be a slight delay between when you speak and when the other party hears you, so be patient.

Note EVERY call in a phone logbook. The system will show you the amount of time you've used on the call, on the LED panel. Note the number called, the date, approximate time, and the length of the call (minutes and seconds). When the call is completed, you MUST push the END button (top right corner of handset buttons), otherwise the system will remain active and YOU will be billed for the time (at almost a dollar a minute). Remember, PRESS END.

If someone calls in to this unit, it will ring, like a standard telephone. Press the SEND button to start the conversation, but remember to PRESS END to finish the call. ADF&G is billed for all calls made using the handset, both the calls you dial out and any calls dialed in.

IN CASE OF EMERGENCY:

If there is a medical emergency, or a real danger to life or health, IMMEDIATELY call the US Coast Guard Rescue Coordination Center at **800-478-5555**. Be ready to tell them your name, exact location (latitude and longitude or nearby major landmark), and the exact nature of your emergency. They may question you extensively, so be prepared. There are emergency doctors on-call that can advise you. After the call is completed, immediately call your supervisor, at work or at home, and relay the details of your experience.

If there is an enforcement emergency, use the dispatch microphone to call the Kodiak office or the Alaska State Trooper, Fish and Wildlife Protection (DN 6370).

APPENDIX C. WEEKLY REPORT EXAMPLE

Appendix C1.–An example of a biweekly report.

Frazer Lake Biweekly Report

Activity Report for August 10th – August 25th, 2013.

Adult Sockeye Counts and Sampling

Frazer Lake Escapement

The Frazer fish pass was closed for the 2013 season on August 17th. The cumulative sockeye salmon escapement for the 2013 season is 136,059 (Figure 1). A total of 21,932 jacks have been passed for the 2013 season, representing a jack percentage of 16.12%. The 2013 pink escapement for Frazer Lake is 19, Chinook is 42, and steelhead is one. A total of 446 Dolly Varden have been passed through the weir for the 2013 season. Cumulative escapement of observed net marked salmon is 5,470; representing a percentage of 4.02% of the total 2013 season run.

Dog Salmon Escapement

The Dog Salmon weir was closed for the 2013 season on August 16th. The 2013 sockeye escapement for the Dog Salmon Weir is 129,369. The end cumulative sockeye escapement for Frazer is 136,059, representing a difference of 6,690 between the Dog Salmon weir and the Frazer weir (Figure 1).

Adult Sockeye Sampling

A total of 2,080 sockeye salmon have been sampled for the 2013 season. A weekly total of 240 sockeye were sampled for adult sampling stratum 34 (August 9th – August 15th). Jack percentage of sampled sockeye is 6.11%. Percentage of males in the cumulative sample is 39.95% and females are 60.05% (Figure 3).

Weather

The Frazer Fish pass was closed for the 2013 season on August 17th. Water temperatures and stream height measurements were suspended with the closure of the fish pass.

Stream water levels had remained relatively stable as changes in the fish pass water height have required periodic adjustments to the stream water level. Stream water levels have steadily decreased from a high of 33.5 cm on August 12th to a low of 31.5 cm on August 15th. Rising water height within the fish pass has required the removal of 12 wood blocks from the upper water diversion wall. During operation, the fish pass water level was 1.78 feet. The average water level height for the 2013 season is 35.71cm. Water temperature has fluctuated with variable cloud cover from a high of 14.0 °C on August 11th to a low of 10.5 °C on August 14th. Average water temperature for the 2013 season is 8.84°C.

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Miscellaneous

Cabin and camp compound area

A variety of camp projects have been accomplished from August 10th to August 25th. Additional gravel has been added to the trail. New shelves were installed within the cabin living room and bedrooms. Nails and screws were removed from the burn pits within the compound. Cut alder wood was moved into the bonya to season over winter. The propane refrigerator within the garage was tested and appears to be in working order. The clothes line was removed and stored within the garage. The wood pile was consolidated and covered with plastic and tarps for the winter season.

Smolt trap

The smolt by-pass system was installed on August 16th to test the water flow and trap location. Ninety percent of the smolt trap wings were installed and tested with a stream height of 32.0 cm. Once the smolt pipes were connected to the trap it was discovered that the pipes retained air from installation. Small holes were drilled into the pipes to allow purging of the trapped air. Water flow into the smolt holding tank was excellent, and water flow down the exit pipe was good. A–frames for the smolt wings were made and stored near the smolt trap above the second island from the falls. Two large A–frames to regulate water flow into the trap were constructed and stored near the smolt pipes. Perforated plates for the wings were stored near the wing A–frames above the second island. Smolt pipes were staged in small groups along the bank of the river for installation in May. All smolt pipe bolts and rubber gaskets were stored in the garage.

Smolt shack and holding tank

The drain cage was riveted in place and caulking was added to seal any rough edges. Two support hooks were bolted onto the smolt collection cage and secured into place below the sorting table. The sorting table was moved forward in the holding tank. The back support beam of the sorting table was removed and the front support beam was moved forward. The sampling storage cage was shortened and secured into place to the left of the sorting table. Sharp edges of the storage cage were caulked and sealed. The exit pipe of the drain duct of the smolt tank was shortened. Edges and cracks of the drain system was caulked and sealed. The smolt release tray was realigned to a proper angle and secured with rubber conduits. The inside of the release tray pipes were caulked to allow for smoother water flow. A new door and the two back windows were installed within the smolt shack. Railing along the top and left side of the stairs was constructed

Construction

The Fish and Game outhouse roof was trimmed and new roofing tiles were installed. The railing around the adult holding tank was reinforced. The keep off fish pass sign was reinstalled on the railing for the winter. The boardwalk in front of the holding tank was adjusted and secured to fit the new railing. The old boat shed was razed and a new boat shed was constructed.

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Anticipated Projects for the 2014 season

Mechanical

The old Kubota tractor was not operational for the remainder of the 2013 season. After examination, it appears to be a problem with the solenoid. It is recommended that the solenoid be replaced for the 2014 season. The four-wheeler also exhibited difficulty with starting, but the pull starter works fine. It is most likely a problem with the four-wheeler battery and should be replaced for the 2014 season. It was discovered that the Frazer air compressor is unable to run under the power of the small Honda generator. It is recommended that the larger Honda generator be used for the Frazer air compressor.

Construction

A door and entrance ramp will be constructed for the new boat shed. The roof of the boat shed will be finished and roofing tiles will be added. All of the cabin window and door covers will receive an additional coat of stain or paint. Additional cabinets and shelves will be added to the smolt sampling shack. The oil drip stove will be installed within the smolt shack. A section of flex pipe will be added to the end of the smolt by-pass system to decrease water velocity exiting from the pipe system. Additional shelves and cabinets will be made for the garage living space. The cabin will receive an additional coat of stain for the 2014 season. Support boards will be added to the perforated plate of the smolt wings. Screws and washers for the support boards are stored in the garage below the weather camera control box.

Miscellaneous

Additional gravel will be added to the lake trail and large rocks will be removed. Trail maintenance will be continued throughout the 2014 season. The old refuge outhouse will be moved from the Fish and Game compound. The large hole near the fish pass upper water diversion wall will be filled in with large rocks over the 2014 season. During construction of the smolt by-pass system, it was noticed that a lot of biological film built up on pipe fitting connecting the smolt pipes from the adult holding tank to the smolt trap. It is recommended that a wire brush be used to clean the fitting before installation.

APPENDIX D. TIMESHEET INSTRUCTIONS

All ADF&G employees must fill out a time sheet biweekly, and these timesheets must be turned in to the Administrative staff in Kodiak in a timely manner. Please follow these instructions when filling out your time sheets to avoid payroll problems. When a flight comes out to drop off groceries, or for any other reason, near the end of a pay period, camp personnel need to send in their timesheets. Fill in the time sheet up to the day you send them in and attempt to project your remaining hours worked.

EVE TIMESHEET INSTRUCTIONS

PLEASE MAKE SURE THE FOLLOWING ITEMS ARE CORRECTLY FILLED OUT ON THE TIMESHEET.

1. Pay Period End Date
2. Employee ID Number (NOT Social Security Number)
3. Name
4. Division
5. Enter time as actual hours worked
6. Ensure time calculated equals time worked (Work Hours Total = Daily Start/Stop Times)
7. No less than 37.5 hours need to be met weekly starting Monday and ending Sunday
8. Enter the Appropriate hours for sea duty, standby, or hazard
9. **If working past midnight**—**write 23:59** on the day worked and **on the next day—write 00:01**. (Ex: On the 24th you worked until 01:30 AM, you would put 23:59 as your stop time on the 24th and your start time as 00:001 on the 25th).
10. Clock out for lunch and back in when you return.
11. Supervisors make sure all leave is entered—be it personal, annual, sick, holiday, flex, etc.
12. Enter the total hours worked **IN EACH COLUMN** for each individual code—1,2,3, or 4
13. **Supervisors make sure the pay code is correct for the time charged** and in the "**Charge To**" box (left center) before you sign.
14. In the "**Comments**" section—please list the following if applicable:
    a. Departure and return time via boat, EX: 10:00 am dep. Port via F/V Hasta La Pasta, 3:00 am arr. Port.
    b. Departure and return time of low level aerial survey (for each flight if more than one), and type of plane being used (180, 260, Beaver).
    c. Hazard pay for aerial surveys is in **4-hr increments** at the time the survey begins—**NOT**—4 hours hazard pay for each survey.
    d. Explain the reason for hazard pay for each day—**no one hired after July 1, 1996 gets hazard duty pay unless working under the 4-hour increment rule qualifier:**

-continued-

i. DIVING
ii. NON-PILOT AERIAL
iii. TRANSPORTATION BY HELICOPTER OR WORKING ON/UNDER IT
iv. WORK FROM 25 FT TOWER

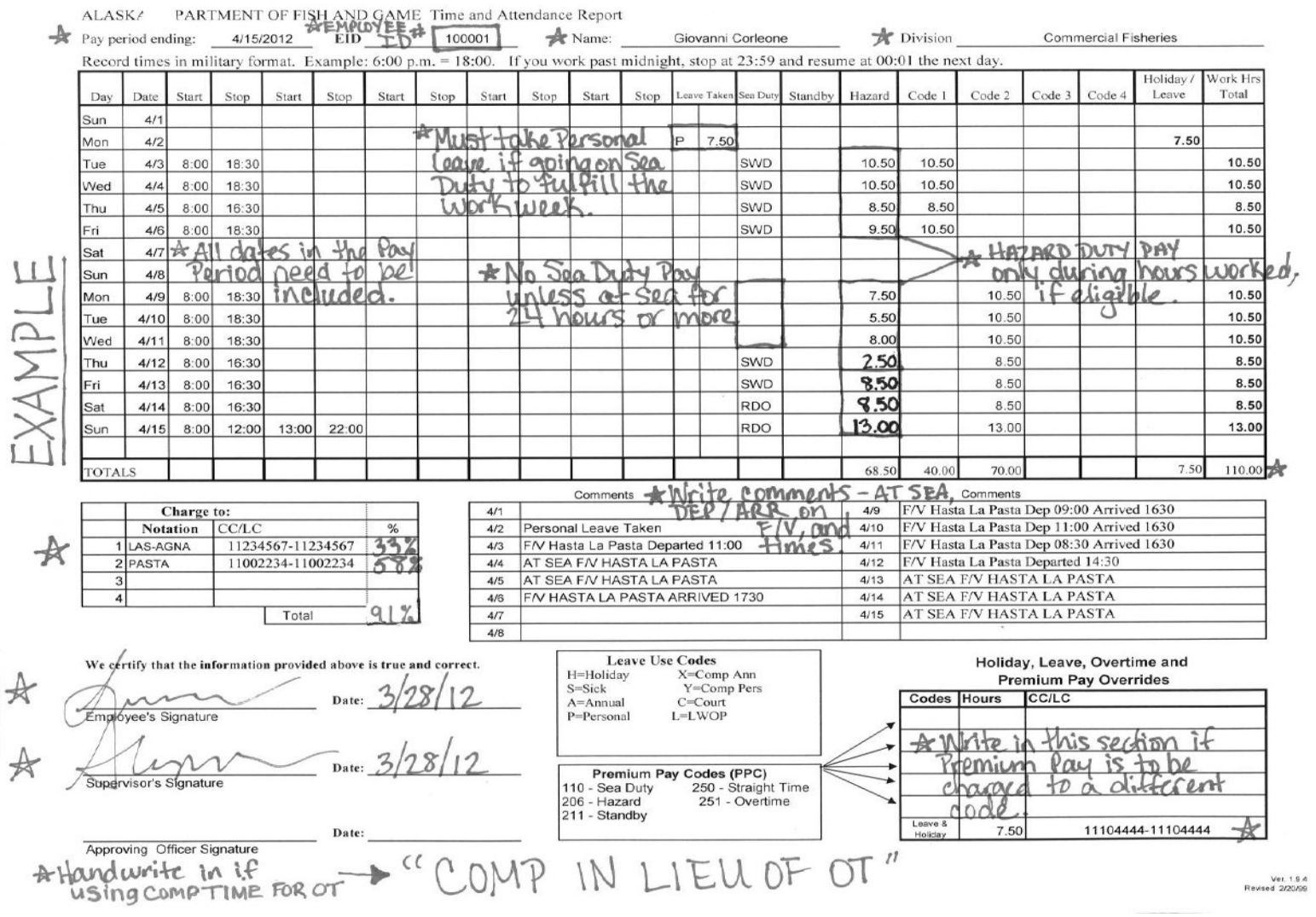
e. Explain whether you worked or did not work on holidays
f. Explain Standby pay (Ex: 1000-1500 standby for boat gate). Must be on standby roster prior to claiming standby pay. **Standby hours cannot be the same as hours worked. The only hours not documented as 15-min increments are 2359/0001. Hours can start/stop on the same hour as shift time (Ex: Start/stop for work—0800-1200, standby hours can be 1200-2359, or 0001-0800).**
g. SU Employees—Floating Holiday forms must be faxed in for approval prior to the holiday worked. If at sea, premium pay is more pay than floating the holiday.
h. SU Employees—FlexTime agreements must be submitted for approval **prior** to working the hours.
i. If using **Comp in Lieu of OT**—write in LARGE LETTERS at the **bottom** of EACH TIMESHEET it applies to: "**COMP IN LIEU OF OT**."
j. Explain any other variances from the normal in this area for each day.
k. If Flexing the last work week of the pay period, write "Flexing Work Week" on the **last day of the pay period**.

15. Premium Pay—if premium pay is to be charged to a **DIFFERENT** pay code than regular hours worked—log the hours and codes at the bottom right section in "**OVERRIDES**."
16. Make sure both the employee and supervisor have signed and dated the timesheet. IF the employee is in the field the supervisor may sign for the employee and write "For John Doe." Fax or scan and e-mail the timesheet WITH signatures as soon as possible. If the hours are different, please write "**Amended**" on it.
17. **MOST IMPORTANTLY—PLEASE WRITE LEGIBLY.** The faxed copies are very hard to decipher—the neater they are written the less time spent on the phone or e-mail confirming hours.
18. **PLEASE DO NOT USE** pencils, pink or red pens (they do not show up well when faxed or scanned).

EVEN IF WORK IS STARTED IN THE MIDDLE OF THE PAY PERIOD, ALL DATES NEED TO BE WRITTEN IN FOR THE PAY PERIOD

Crew leaders are responsible for reviewing each crew member's timesheet before sending them to town to ensure that they are properly filled out.

Appendix D2.–Example of a completed timesheet.



ALASKA PARTMENT OF FISH AND GAME Time and Attendance Report

★ Pay period ending: 4/15/2012 ★EMPLOYEE ID# EID 100001 ★ Name: Giovanni Corleone ★ Division Commercial Fisheries

Record times in military format. Example: 6:00 p.m. = 18:00. If you work past midnight, stop at 23:59 and resume at 00:01 the next day.

EXAMPLE

Day	Date	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Leave Taken		Sea Duty	Standby	Hazard	Code 1	Code 2	Code 3	Code 4	Holiday / Leave	Work Hrs Total
Sun	4/1																					
Mon	4/2											P	7.50								7.50	
Tue	4/3	8:00	18:30											SWD		10.50	10.50					10.50
Wed	4/4	8:00	18:30											SWD		10.50	10.50					10.50
Thu	4/5	8:00	16:30											SWD		8.50	8.50					8.50
Fri	4/6	8:00	18:30											SWD		9.50	10.50					10.50
Sat	4/7																					
Sun	4/8																					
Mon	4/9	8:00	18:30													7.50		10.50				10.50
Tue	4/10	8:00	18:30													5.50		10.50				10.50
Wed	4/11	8:00	18:30													8.00		10.50				10.50
Thu	4/12	8:00	16:30											SWD		2.50		8.50				8.50
Fri	4/13	8:00	16:30											SWD		8.50		8.50				8.50
Sat	4/14	8:00	16:30											RDO		8.50		8.50				8.50
Sun	4/15	8:00	12:00	13:00	22:00									RDO		13.00		13.00				13.00
TOTALS																68.50	40.00	70.00			7.50	110.00

★Must take Personal leave if going on Sea Duty to fulfill the work week.

★All dates in the Pay Period need to be included.

★No Sea Duty Pay unless at Sea for 24 hours or more

★HAZARD DUTY PAY only during hours worked, if eligible.

★

	Charge to: Notation	CC/LC	%
1	LAS-AGNA	11234567-11234567	33%
2	PASTA	11002234-11002234	58%
3			
4			
		Total	91%

Comments ★Write comments - AT SEA, DEP/ARR on F/V, and times Comments

4/1		4/9	F/V Hasta La Pasta Dep 09:00 Arrived 1630
4/2	Personal Leave Taken	4/10	F/V Hasta La Pasta Dep 11:00 Arrived 1630
4/3	F/V Hasta La Pasta Departed 11:00	4/11	F/V Hasta La Pasta Dep 08:30 Arrived 1630
4/4	AT SEA F/V HASTA LA PASTA	4/12	F/V Hasta La Pasta Departed 14:30
4/5	AT SEA F/V HASTA LA PASTA	4/13	AT SEA F/V HASTA LA PASTA
4/6	F/V HASTA LA PASTA ARRIVED 1730	4/14	AT SEA F/V HASTA LA PASTA
4/7		4/15	AT SEA F/V HASTA LA PASTA
4/8			

We certify that the information provided above is true and correct.

★ Employee's Signature Date: 3/28/12

★ Supervisor's Signature Date: 3/28/12

Approving Officer Signature Date:

★Handwrite in if using COMPTIME FOR OT → "COMP IN LIEU OF OT"

Leave Use Codes

H=Holiday	X=Comp Ann
S=Sick	Y=Comp Pers
A=Annual	C=Court
P=Personal	L=LWOP

Premium Pay Codes (PPC)

110 - Sea Duty	250 - Straight Time
206 - Hazard	251 - Overtime
211 - Standby	

Holiday, Leave, Overtime and Premium Pay Overrides

Codes	Hours	CC/LC
★Write in this section if Premium Pay is to be charged to a different code.		
Leave & Holiday	7.50	11104444-11104444 ★

Ver. 1.6.4 Revised 2/20/08