

Regional Operational Plan CF.4K.2015.03

**Alaska Peninsula Salmon Catch Sampling Procedures,
2015–2016**

by

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and

Robert L. Murphy

March 2015

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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SIGNATURE/TITLE PAGE

Project Title: Alaska Peninsula Salmon Catch Sampling Procedures, 2015–2016

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PURPOSE

The primary purpose of this project is to sample the annual commercial salmon harvest of the Alaska Peninsula Management Area (Area M). The biological data collected from samples are used to create brood tables and generate run forecasts to assist with the inseason and long-term management of Alaska Peninsula salmon stocks. Samples will primarily be taken on the North Alaska Peninsula which will be supervised by the Assistant Area Management Biologist in Port Moller. Data analysis and reporting is not covered in this operational plan and will be completed in a Regional Information Report by the Alaska Department of Fish and Game Salmon Research in Kodiak.

Keywords: Chignik Management Area, CMA, Chignik Lagoon, test fishery, sockeye salmon, salmon management, *Oncorhynchus nerka*

BACKGROUND

The Alaska Peninsula Management Area can be divided into two sub-areas: the North Alaska Peninsula west of Cape Menshikof to Cape Sarichef, and the South Alaska Peninsula west of Kupreanof Point to Scotch Cap (Figure 1). There are 307 salmon producing streams in the Alaska Peninsula Management Area (McCullough 2001).

Five species of salmon are commercially harvested in Area M: Chinook salmon *Oncorhynchus tshawytscha*, sockeye salmon *O. nerka*, pink salmon *O. gorbuscha*, chum salmon *O. keta*, and coho salmon *O. kisutch*. Economically, sockeye, chum, and pink salmon are the primary species harvested on the South Alaska Peninsula, while sockeye salmon, followed by coho salmon are the primary species harvested on the North Alaska Peninsula.

In 1985, an expanded Chinook, sockeye, chum, and coho salmon commercial catch sampling project was initiated in Area M to establish a database for separating stocks, evaluating escapement goals, forecasting, and assessing inseason run timing. Due to budget reductions over the years, the catch-sampling program in King Cove was eliminated in 2002. Likewise, the catch-sampling program in Sand Point was eliminated in 2003. In 2004, the South Unimak June fishery was once again sampled in King Cove to help assess the strength of the Bristol Bay sockeye salmon run, and collect age composition data to assess the accuracy of the preseason forecast. In 2005, the North Peninsula commercial harvests began being sampled solely out of Port Moller. The emphasis of catch sampling was on sockeye and chum salmon, with Chinook and coho salmon being sampled opportunistically. In 2008 the department moved away from scale pattern analysis in Area M and began using genetic analysis to determine stock origin. The main emphasis for commercial catch sampling is currently the Nelson Lagoon commercial sockeye salmon fishery and the late (post July 31) Bear River sockeye salmon run.

OBJECTIVES

The objective of this project is to provide age data from the Nelson Lagoon and late Bear River sockeye salmon commercial harvests in the Northern District of the North Alaska Peninsula (Figure 2) to assist with the long-term management of the Alaska Peninsula sockeye salmon runs. This objective will be achieved through the acquisition of specific data derived from samples of the commercial salmon catch. These data will:

- facilitate the construction of accurate brood tables of the Nelson River and late Bear River sockeye salmon runs,

- allow the development of accurate run forecasts,
- aid in the evaluation of escapement goals and run timing.

METHODS

The main responsibility of the port sampling crew is to collect adult sockeye salmon scale samples from the commercial catch following the proper protocols in the Kodiak Management Area Salmon Catch and Escapement Sampling Operational Plan (Wattum *In prep*). To ensure that samples represent the entire catch from a designated area, mixed loads from multiple areas will not be sampled, nor will there be any pre-selection of fish for length, sex, or condition. The tender schedules and locations (determined by tender interviews and fish tickets) will be reviewed to ensure that samples of pure loads are obtained from the separate areas (Table 1). To ensure that sampling goals are met, the crew will begin sampling the first day catches are delivered from the designated sampling areas for each statistical week. By convention, every year the tenth statistical week starts on the first day of March (Wattum *In prep*). The crew will maximize the opportunity to collect samples once the fishery begins (typically a Monday). If there is an opportunity of collecting a sample from the same area on more than one occasion during a week, the crew will attempt to collect the samples over the entire week. If it is uncertain whether another sample can be collected later in the week, the crew should collect the entire sample when they are first available.

The Port Moller catch sampling crew will collect 400 scale samples per statistical week, per area, for sockeye salmon (Table 2). Sample sizes are statistically derived to ensure the accuracy and precision of age composition estimates. The sample size was constructed to permit each age class proportion estimates to be within at least 0.075 of the true proportion with a 90% confidence interval, regardless of number of age classes or population proportions (Thompson 1987, Bromaghin 1993). Sample sizes assume at least 80% of the scale samples will be readable. Obtaining scale samples of the highest quality will increase the percentage of readable scales and hence increase the precision of the estimates. In June and July, Nelson Lagoon Section will be sampled to obtain samples of the Nelson River sockeye salmon run. Beginning in August, the area from Harbor Point to Strogonof Point (Figure 2) will be sampled to obtain data on the late Bear River sockeye salmon run. The statistical area numbers for these locations are listed in Table 2.

Pure loads from multiple deliveries can be sampled and combined to reach the weekly sample goal. An area will not be sampled unless at least 75 fish can be sampled for a given species during a given week. The exception to this rule would be where knowledge of a run is limited. Some areas may never have a pure load. From these areas, the crew will attempt to sample the fish when deliveries are 90% or more from the targeted area: the percentage of the catch from each fishing area will be noted in the comments section on the back of the scale card. For areas that will never be greater than 90% pure, samples will be collected as time permits. Future analysis of the data will account for the mixed catch and subsequent sample. Proper identification of catch area will be the responsibility of the dockside catch sampling crew.

In the past, sampling crews have been asked to sample fish for length and sex data; however this has not been the case in recent years. If length data are to be collected refer to the Kodiak Management Area Salmon Catch and Escapement Sampling Operational Plan (Wattum *In prep*).

Sex data will be determined by kype (nose) development or visual determination of the presence or absence of an ovipositor, eggs, or milt. It is imperative that all scales collected correspond to the length and sex data for that fish. For the Nelson Lagoon sockeye salmon catch, a sex ratio is taken on a weekly basis. Sex ratio will be recorded by waiting 15 minutes after fish first start getting pumped off of the tender. This helps ensure that male and female fish in the tank are mixed. Experienced personnel will provide training on these procedures for new employees.

The port sampling crew will document and report all fin-clipped and tagged fish to their supervisor. For Chinook salmon with a clipped adipose fin, the head will be removed and sealed in plastic bag, frozen, and sent via air freight Pen-Pak® to: CWT & Otolith Processing Lab, 10107 Bentwood Place, Juneau, AK 99802-5526. Catch location of the fin-clipped Chinook salmon, catch date, gear type, tag number or head of fish, type of tag, length, weight, and several scales from the preferred area (*Wattum In prep*) will be included with the report and any shipped samples.

The Port Moller crew will also be responsible for pressing all scales (Appendix A) collected from the commercial catch as well as the escapement sampling performed throughout the Alaska Peninsula onto acetate cards, and keeping logbooks tracking weekly samples. The original scale “gum” cards and sampling log books will be sent to the Kodiak office at the end of the season.

Appendix B provides a summary of employee guidelines concerning camp policy, first aid, and safety. Catch samplers are expected to follow these guidelines at all times.

SCHEDULE AND DELIVERABLES

The general schedule for the commercial salmon catch sampling activities is as follows (this is a very general timeline as sampling will be dependent upon commercial fishing time and activities on the North Peninsula):

Date:	Activity:
June 1	Meet Peter Pan/Tender crews, prepare sampling supplies, log books, etc.
June 1–July 31	Sample Nelson Lagoon sockeye salmon run (400 scales/wk)
August 1–September 15	Sample late Bear River sockeye salmon run (400 scales/wk)
Daily	Logbook detailing sampling activities
Weekly	Scales pressed onto acetates, labeled and stored for shipment to Kodiak
Post season	Logbooks and scales/acetates sent back to Kodiak, scales aged

RESPONSIBILITIES

Fishery Biologist III:

Project leader

Fishery Biologist II:

Supervises project, coordinates logistics, trains crew, assists as necessary

Fish and Wildlife Technician III:

Port catch sampler, collects weekly samples, processes samples, assists in field office, and camp chores

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TABLES AND FIGURES

Table 1.–List of districts, sections, and statistical areas for the Alaska Peninsula Management Area to be sampled.

Fishing Area Location	Statistical Areas
North Peninsula	
Northern District	
Nelson Lagoon Section	313-30
Port Moller Bight Section	314-12
Bear River Section	315-11, 315-20
Three Hills Section	316-10
Ilnik Section	316-20, 316-22, 316-25

Table 2.--Sockeye salmon catch sampling schedule for the Alaska Peninsula Management Area.

Geographic Area	Sampling Area		Frequency	Sample	
	Statistical Areas	Statistical Code		Size	Data
Nelson Lagoon	313-10	313-30-XX-051	Weekly	400	Scale
Harbor Point to Stroganof Point (Bear River, Three Hills, and Ilnik Sections-post July 31)	314-12, 315-11, 315-20, 316-10, 316-20, 316-22, 316-25	316-XX-XX-051	Weekly	400	Scale

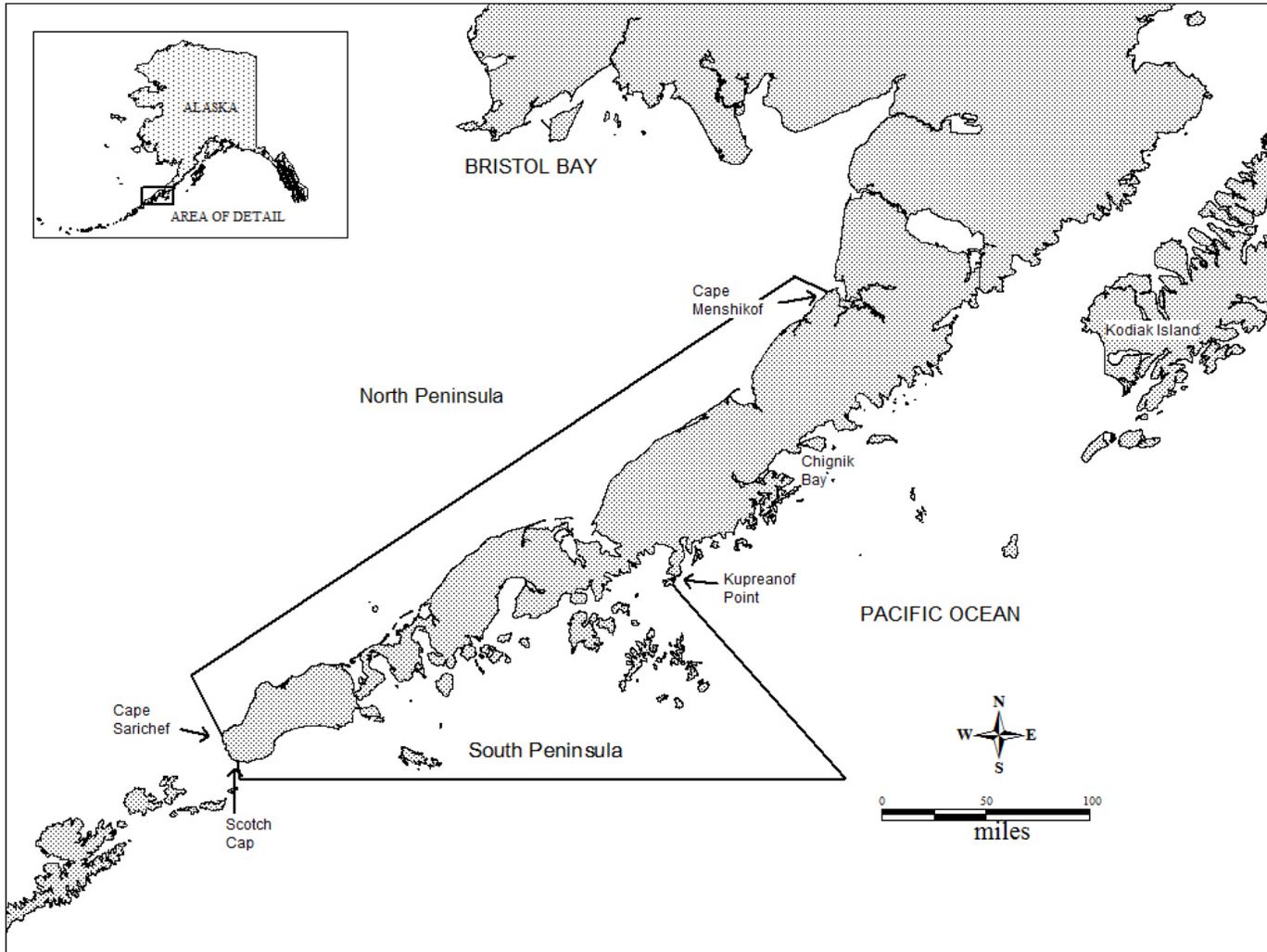


Figure 1.-Map of the Alaska Peninsula Management Area, with the North and South Peninsula defined.

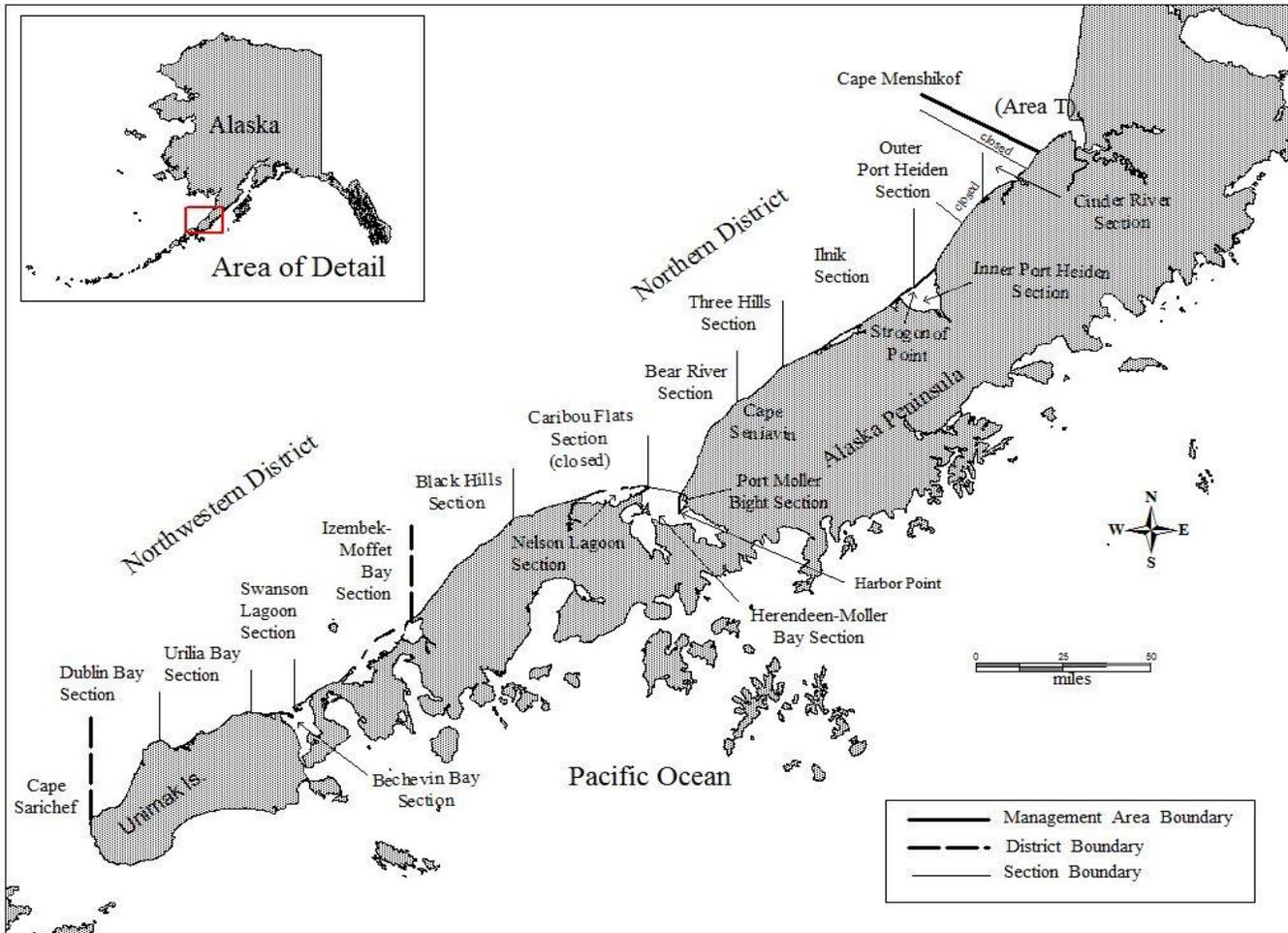


Figure 2.-Map of the North Alaska Peninsula with districts and sections defined.

**APPENDIX A. ADULT SALMON SCALE PRESS
OPERATION**

Appendix A1.–Adult Salmon Scale Press Operation.

The scale press is not regulated by a thermostat. During a long press, turn the heat switch on/off several times to keep the temperature consistent.

1. Pump up the jack until the metal plates (jaws) are touching.
 2. Plug in and allow the press to heat until about 170 degrees, which takes about 20 minutes. Unplug and wait about 8 minutes, as the temperature will continue to rise. The goal is to have the temperature move slowly, not spike.
 3. Open the jaws by taking the pressure off the jack and pushing the plates apart far enough to insert metal sheets.
 4. Center 3 scale cards between the metal sheets (with the scratched sides on the outside). Be sure that the cards are not touching or the acetates will melt together
 5. Insert the metal sheets so that there is an equal amount of sheet sticking out the sides as well as the front and back.
 6. Pump the press up with the jack until it becomes a little difficult.
 7. Press the cards at 185° for ~10 seconds. Release the pressure and open the jaws.
 8. Remove metal sheets from press and peel the gum card away from the acetate. It is okay to leave the top part of the gum card without scales on the acetate until you are ready to label.
 9. Quickly, place the gum card/acetate underneath a brick to flatten it while you continue to press.
 10. Repeat steps 4-9 until all scale cards are pressed.
 11. Label the acetates. Labeled acetates should have the following information: location, date, and in the upper right hand corner the scale card number. Lastly, the scale area of the acetate should have a vertical line between the 5th and 6th scale and each row should be numbered (i.e. 1, 11, 21, 31). Place a 'X' where a scale is missing.
-

APPENDIX B. CAMP POLICY, FIRST AID, AND SAFETY

EMPLOYEE CONDUCT

All employees will act in a professional manner at all times and shall be especially courteous to the public. The AAMB shall establish a policy on living standards and personnel behavior in accordance with State guidelines.

All sampling stations will operate as directed. Time off for individual crew members shall be scheduled by the supervisor. Overtime will be approved by the supervisor prior to any overtime worked.

It will be the responsibility of the crew leader to prevent any abuse to State equipment which includes ATV's, boats, equipment, and facilities. The crew leader must report within 24 hours any damaged or lost equipment. All injuries to employees will be reported immediately to the supervisor.

The crew leader must report any accidents immediately to the Area Management Biologist who will then report the accident to the Regional Finfish Management Supervisor.

PERSONAL GEAR AND PETS

Generally 100 lbs. is a maximum for personal gear. If you anticipate bringing more than that amount, check with your supervisor first. Pets shall not be brought to Port Moller unless approved by the supervisor beforehand.

Rabies is common on the Alaska Peninsula, be careful of all mammals including ground squirrels, fox, wolf, otters, and your pet. If bitten, administer proper first aid techniques to the person and then kill the animal immediately and notify the supervisor. Remove the head of the animal if possible, wrap the head in several layers of plastic, put in a good box and freeze if possible. Burn and bury remaining parts of the carcass away from water sources and cabins, take precautions such as wearing plastic gloves to dispose of the carcass. Do not send suspected rabid animals out of your area unless you are bitten, instead burn and bury the entire carcass.

FISH AND WILDLIFE VIOLATIONS

In the event that you observe a violation of a fish or wildlife regulation, contact the AMB and/or the AAMB as soon as possible. This is not intended as an inclusive procedure for handling violations, it is not your job. Use this as a guideline for obtaining the necessary information and/or evidence to show and prove that a violation has been committed. It is important to be familiar with the commercial fishing, subsistence fishing, sport fishing, and hunting regulations in your area. Violation reporting procedures are printed on the back cover of the commercial fishing regulation book. Request the regulation book if your camp does not have one.

The use of the "4 W's" can greatly aid in obtaining sufficient evidence for a case.

1. What is the violation?
2. When did the violation occur (date, time, tide condition, etc.)
3. Where did the violation occur?
4. Who is in violation and who are witnesses?

It is important that all witnesses to a violation are interviewed, preferably by Alaska Bureau of Wildlife Enforcement (ABWE) staff, and all statements pertaining to a violation are recorded along with their names and addresses. If you have a camera available, pictures are extremely valuable in prosecuting offenders. Collect as much information as possible and contact your supervisor or a State Trooper from the ABWE Division immediately. If you do not feel comfortable, or your personal safety may be in danger, do not pursue the violation. Contact your supervisor and they will handle the violation. Be aware that you do not have the authority to arrest somebody and never attempt this.

FIREARMS

A State firearm will be available at each location and staff should be familiar with firearm safety and proper use. Personal firearms are not necessary in Port Moller unless being used for recreational purposes, and must be approved by the immediate supervisor. Loaded guns are prohibited inside any facility. Anyone handling a firearm should always treat it as if it were loaded. Guns should be kept clean and oiled and be completely unloaded while being cleaned. **Any horseplay with or misuse of firearms while working for the Department of Fish and Game will not be tolerated and will be grounds for immediate dismissal.** Completely unload a firearm of all rounds before entering a vessel, airplane, or four-wheeler.

BEARS

Do not antagonize bears; each bear must be considered dangerous. Do not encourage bears to come around camp by leaving food or unburned garbage around. Do not shoot at a bear unless, in your best judgment, it is endangering someone's life or damaging valuable personal or state property. If shooting cracker shells at bears, be careful especially at close ranges (<30') since the shell could penetrate the bear and be lethal. Use your best judgment on whether to shoot a bear if property is at stake. When trying to frighten a bear away by shooting, do not fire toward it. By chance, you may accidentally wound the animal. If you are having problems with a particular bear around camp, notify your immediate supervisor of the situation. When possible, staff from the Division of Wildlife Conservation will take care of the problem.

TRANSPORTATION

Do not endanger life or property by going out in a boat on dangerously rough water. If you are unfamiliar with marine safety, ask for information or advice from your immediate supervisor. All personnel must wear a Coast Guard approved life jacket when out on any water. If you think it is dangerous situation, don't go out on the water.

Extra shear pins or propellers (impellers and sleeves) and a tool kit which includes pliers, spark plugs, spark plug wrench, wrenches of various sizes, various screwdrivers, and other tools should be in the boat at all times. In case travel at night (which should be avoided when possible) becomes necessary, carry a flashlight.

Some camps have 4-wheel all-terrain vehicles (ATV). The following safety precautions shall be observed at all times regarding department ATV. Safety helmets are provided for all riders.

Review the Marine Safety and Light Aircraft Safety Manuals located at all camps before boating or flying. Do not get in a boat or plane if you feel uncomfortable with the situation. Consult the crew leader, pilot, or immediate supervisor if you are uncomfortable.

APPEARANCE

Keep the facilities, surrounding area, and yourself clean and neat. Appearance is important even in remote camps. Visitor impressions are often based on your personal appearances. Do your best to look respectable and keep the grounds clean.

COMPATIBILITY OF FIELD PERSONNEL

If you find yourself unable to get along with other members at your camp, notify the appropriate supervisor and an attempt will be made to amicably solve the problem. Usually, the person with the most experience in camp will be the crew leader. If it is not clear who has been designated crew leader in your camp, ask the Assistant Area Management Biologist. Where satellite phones are provided, all employees must understand how to operate the phone. If you are unsure, please ask someone that does. All emergency contact phone numbers will be posted near or on the phone. These phones could be the difference between life and death. Also, if there are any personnel difficulties within the camp, all employees are encouraged to call the Assistant Area Management Biologist in Port Moller at any time.

FIRST AID AND SAFETY

Check the facilities fire extinguisher and emergency exits. Know where they are and how to use them! Inventory your camp first aid kit, replace items as needed and become familiar with basic first aid treatment. Review the first aid booklet. Make sure the smoke and carbon monoxide detectors are functioning properly with new batteries. All field personnel will have current Red Cross cardio-pulmonary resuscitation (CPR) and First Aid training and file copies of the associated certificates with the Department.