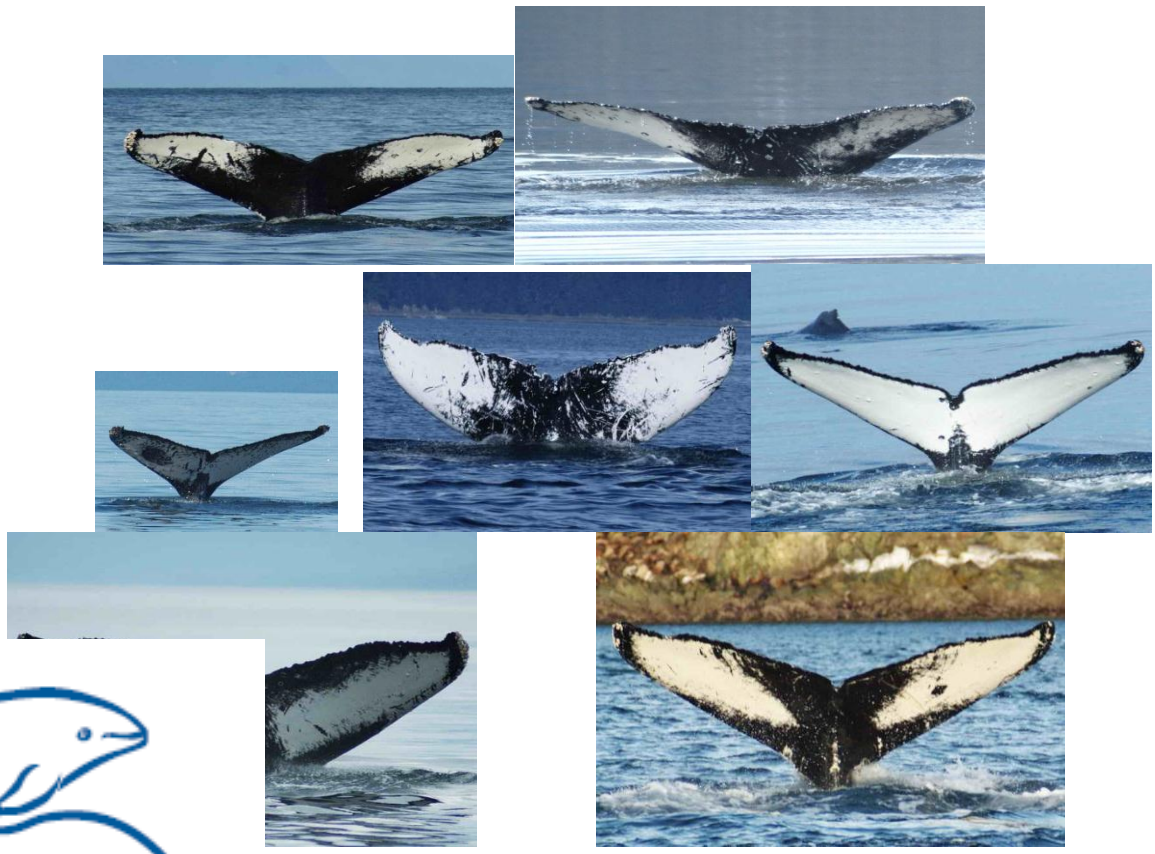
ALASKA MARINE MAMMAL OBSERVER PROGRAM



2013

ALASKA MARINE MAMMAL OBSERVER PROGRAM

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

2013
Alaska Marine Mammal Observer Program
Observer Manual

Contents

Section One

The Alaska Marine Mammal Observer Program

1.0 Introduction

The Marine Mammal Protection Act (MMPA) was enacted in 1972 to protect and conserve marine mammals and in response to growing public concern that many marine mammal populations were declining at an alarming rate. Congress intended that marine mammal populations should be "protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the ecosystem." The MMPA recognizes marine mammals as integral to an ocean ecosystem, and the Act's primary goal is to restore all marine mammal stocks to optimum population levels.

> The MMPA prohibits the "taking" (killing, injuring, or importation) of marine mammals. Marine mammals may be taken incidentally in the course of commercial fishing operations, provided the appropriate exemptions are issued. However, the *intentional* lethal take of any marine mammal in the course of commercial fishing operations is prohibited.

Congress gave the Departments of Commerce and Interior the responsibility and authority to manage marine mammals, and this is delegated to their respective agencies, the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service. NMFS is authorized to conduct observer programs in commercial fisheries to assess levels of mortality and serious injury of marine mammals that occur during fishing operations. In Alaska, NMFS' Alaska Marine Mammal Observer Program (AMMOP) collects information on fishery interactions with marine mammals. This information is incorporated into assessments of the general status of marine mammal populations in Alaska. NMFS is required by the Act to publish an annual "List of Fisheries" which categorizes commercial fisheries according to their relative impact on the health of marine mammal stocks.

1.1 Marine Mammal Stock Assessment Reports

Under Section 117 of the MMPA, NMFS is required to collect and report certain information on the status of marine mammal stocks in annual marine mammal Stock Assessment Reports (SARs). Published since 1995, the SARs compile current information on each marine mammal stock and make it available in a summary document for each region. Updates are made annually for strategic stocks and stocks for which there is significant new information, and at least every three years for all other stocks.

Each report is a brief summary of what is currently known about the stock with regard to specific topics. These topics include geographic range (including seasonal or temporal range variation), population estimates and trends, productivity, estimates of human-caused mortality and serious injury by source, calculation of the stock's Potential Biological Removal level, description of commercial fisheries that interact with the stock (including number of vessels active in fishery, estimated annual level and rate of serious injury and mortality in each fishery), seasonal or area differences in mortality or serious injury, determination of whether this level is insignificant and approaching a zero mortality rate goal, and a determination whether the stock is strategic or has a level of human-caused mortality and serious injury that is not likely to cause the stock to be reduced below its optimum sustainable population.

The Alaska Marine Mammal Stock Assessments Reports can be found on the NMFS Alaska Region website (www.fakr.noaa.gov).

1.2 Potential Biological Removal

A stock's Potential Biological Removal (PBR) level, defined as the level of removal that the stock can withstand, excluding natural mortality, while still obtaining their Optimum Sustainable Population (OSP), is calculated as follows:

> The PBR is calculated as the product of the minimum population estimate [N(min)], one-half the maximum theoretical net productivity rate [0.5R(max)], and a recovery factor [F(R)]:
>
> PBR = N(min) x 0.5R(max) x F(R)

Because the OSP of many stocks is not known, an approach has been developed that allows the agency to manage marine mammals based on information that can be estimated for these stock, such as their productivity levels, recovery factors, and estimated removal levels. Using the best available data these reports must assess status of each marine mammal stock, including whether it is considered a strategic stock. A strategic stock is one that is listed as threatened or endangered under the Endangered Species Act; is likely to be listed as threatened under the Act in the near future; or which has a level of direct human-caused mortality and serious injury that exceeds the stock's potential biological removal level.

1.3 Commercial Fishery Interactions

Section 118 of the MMPA addresses the interaction of fisheries with marine mammals, categorizes fisheries based on the level of fishery-related serious injury or mortality of marine mammals, and places certain requirements on those fisheries. The MMPA provides fishermen with a certification through the Marine Mammal Authorization Program (MMAP) that exempts them from MMPA prohibitions taking marine mammals while fishing. This exemption does not extend to stocks listed as threatened or endangered under the Endangered Species Act. All fishermen, regardless of the fishery they participate in, must report to NMFS incidental "takes", including mortalities and serious injuries of marine mammals. A primary goal of the MMPA is to reduce marine mammal takes in all fisheries.

1.3.1 Annual List of Fisheries and Fishery Categorization

The List of Fisheries, published annually by NMFS, is a list of all commercial fisheries that legally operate in U.S. waters. The list contains information on each fishery including number of participants, marine mammal stocks affected by the fishery, and the classification of the fishery relative to its impact on those marine mammal stocks.

NMFS classifies each U.S. commercial fishery (state and Federal) in one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in the fishery. A serious injury is defined as one that is likely to lead to mortality.

Each fishery is classified through a two-tiered analysis which assesses the potential impact of fisheries on each marine mammal stock by comparing serious injury and mortality levels to stock PBRs. NMFS relies on observer data in the analyses, but also evaluates other factors such as fishing techniques, gear, methods used to deter marine mammals, seasons and areas fished.

> **Tier 1:** For each stock, serious injuries and mortalities from all commercial U.S. fisheries are totaled. If the total is less than or equal to 10% of the PBR of that stock, then all fisheries interacting with this stock are placed in Category III. This process is repeated for each stock. A fishery remains in Category III unless it interacts with a stock for which PBR is exceeded by more than 10%. All fisheries that interact with a stock for which PBR is exceeded by more than 10% are subject to a Tier 2 analysis. Fisheries with no serious injuries or mortalities to any marine mammal stock are placed in Category III.
>
> **Tier 2:** For each fishery, the annual mortality and serious injury for each marine mammal stock is evaluated relative to the PBR of that stock. The fishery is categorized accordingly:
>
> **Category I:** Mortality ≥ 50% PBR
> **Category II:** 50% PBR > Mortality > 1% PBR
> **Category III:** Mortality ≤ 1% PBR

Observers may be placed in Category I and II fisheries on a mandatory basis. They also can be placed in Category III fisheries on a voluntary basis.

1.3.2 Marine Mammal Authorization Program

The Marine Mammal Authorization Program (MMAP) provides an exemption for the accidental injury or mortality of marine mammals during commercial fishing operations. As noted above, this exemption does not extend to stocks listed as threatened or endangered under the Endangered Species Act. To lawfully incidentally take a non-ESA listed marine mammal in a commercial fishery, the fishing permit holder in a Category I or II fishery must obtain a certificate from NMFS. NMFS has automated the registration process for Alaskan fisheries. When fishermen register with the Alaska Department of Fish and Game or NMFS for a Category I or II fishery permit, the permit holder receives a free exemption certificate, which must be available or displayed while fishing. All mortalities and injuries to marine mammals during commercial fishing activities must be reported to NMFS within 48 hours.

1.4 MMPA Observer Programs

Since 1994 fishermen have not been required to fill out and submit to NMFS annual logbooks documenting marine mammal takes that occurred during the course of commercial fishing operations. Fishermen are now required to submit individual reports of incidental mortality or injury events to NMFS within 48 hours of the event or return to port. However, a lower reporting rate for these reports compared to reports from the logbook program has been documented. Consequently, since 1995, NMFS has received little new data (other than occasional stranding or fishers' reports) on which to base a fishery's classification and subsequent management decisions. NMFS has a statutory obligation to categorize fisheries and a responsibility to the participants of those fisheries to base fishery classification on sound information. Due to a lack of information, several fisheries are currently designated as Category II fisheries based on analogy to fisheries of similar gear in other areas of Alaska.

> NMFS has determined that observer programs are the best means of obtaining accurate and objective data for determining rates of marine mammal takes in fisheries. The MMPA gives NMFS the authority to place observers aboard commercial fishing vessels to collect data for the purposes of assessing the impacts of commercial fisheries in the U.S. on marine mammal populations.

The objectives of the marine mammal observer programs are provided by the MMPA:

- Obtain statistically reliable estimates of incidental mortality and serious injury
- Determine reliability of fishermen's reports of mortalities and serious injuries
- Identify changes in fishing methods or technology that may increase or decrease incidental mortalities and serious injuries.

Data provided by MMPA observer programs can support a primary goal of the Act--to decrease incidents of mortality in these fisheries to insignificant levels approaching zero. The priorities used to determine in which fisheries to implement observer programs are:

1) Fisheries that take strategic marine mammal stocks.

2) Fisheries that take species listed as endangered or threatened under the ESA.

3) Fisheries that have a take from a stock in which the level of take is uncertain.

The resources are not available to allow the agency to monitor all the fisheries the required by the MMPA. This presents the challenges of having to select which of the fisheries to observe effectively and how long to observe them given the limited resources available.

To achieve a basic understanding of the rate of mortality and serious injury occurring to marine mammals in Alaska fisheries, NMFS may require any Category I or II fishery to be monitored for interactions with marine mammals. The North Pacific Groundfish Observer Program, based out of the Alaska Fishery Science Center in Seattle, WA, places observers aboard Federally-managed groundfish boats according to requirements in the Fishery Management Plans that govern those fisheries.

The Alaska Marine Mammal Observer Program, based out of the Alaska Regional Office in Juneau, AK, focuses on observer placement in state-managed Category II fisheries in Alaska.

In Alaska, while there are currently no Category I fisheries, the final 2008 List of Fisheries contains 18 Category II fisheries in Alaska. Four of these Category II fisheries are Federally-managed groundfish fisheries, and 14 are state-managed salmon gillnet or purse seine fisheries. Of the Alaska state-managed Category II fisheries, those that have been observed are the Prince William Sound drift and set net gillnet fisheries (1990-1991), Alaska Peninsula drift gillnet fishery (1990), Cook Inlet drift and set gill net fisheries (1999-2000), and the Kodiak set gillnet fishery (2002, 2005).

Several stocks of marine mammals in Alaska prompt the prioritization of observing the Category II state-managed fisheries. The Northern Gulf of Alaska has several marine mammal stocks with a population status in decline. These stocks include the Cook Inlet stock of beluga whale and the Gulf of Alaska harbor seal. The population of the endangered Western U.S. stock of Steller sea lion saw serious decline over a long period of time, but is recently thought to be showing some stabilization. Within this region, commercial salmon drift and set gillnet fisheries have been found to interact with these and other marine mammal stocks, including sea otter and harbor porpoise. While the central North Pacific humpback whale stock is increasing, documented takes are known occur in several fisheries.

1.5 Alaska Marine Mammal Observer Program

The primary goal of the Alaska Marine Mammal Observer Program (AMMOP) is to report on the number, condition, and nature of incidental injury and mortality to marine mammals and sea birds occurring during the course of Category II commercial fishing operations in Alaska state-managed fisheries. Its main objectives are, in order of priority, to:

1) obtain reliable estimates of incidental serious injury and mortality of marine mammals;
2) determine the reliability of reports submitted by vessel owners and operators;
3) identify changes in fishing methods or technology that may increase or decrease marine mammal incidental serious injury or mortality if necessary;
4) obtain reliable estimates of incidental serious injury and mortality of seabirds and other protected species; and
5) collect biological samples for scientific studies that may otherwise be unobtainable.

The AMMOP determines the needed coverage levels for each of the Category II fisheries based on a number of factors. Coverage may be revised based on changes in fishing effort, marine mammal population assessment, and future agency concerns, data needs, and funding availability. Ideally, the observation period for each fishery will be spread evenly over two or three consecutive fishing seasons.

Multiple year coverage is advantageous for several of reasons: It allows for the observation of each fishery over a time frame that will allow the agency to account for between-year variability in fishing effort and marine mammal distribution; it allows for the refinement of sampling design if significant takes are observed during the first or second year; it allows for optimum representative distribution of observer effort throughout the season, spatial or temporal stratification of observer coverage if hot spots are identified; and it provides time for the contractor to prepare for the hiring, training, and housing of observers.

When an observer program commences in a previously unobserved fishery, the first step is to collect some baseline data on fishing operations and any marine mammal interactions. Coverage levels at that point are largely influenced by available funding, the number of participants in the fishery, and program goals. The AMMOP generally wants to determine at the outset that PBR is not exceeded for any marine mammal stock. Once some baseline data are collected and an annual expected mortality level can be estimated, minimum observer coverage levels that will ensure statistical confidence in the mortality estimates can be determined. This also helps to ensure that observer resources are not wasted by collecting too much data.

Depending on the results from an observed fishery, the fishery may remain in same category or may be re-categorized. Category III fisheries are not required to be observed, since the level of marine mammal take is considered to be rare or approaching zero. A Category I or II fishery that has been observed for two to three years may not be observed again for several years, or it may continue to be observed if the level of marine mammal take is determined to need close monitoring.

1.5.1 AMMOP Partners and Affiliates

The agency-contractor relationship in the AMMOP is considerably different from that found in the NMFS North Pacific Groundfish Observer Program or ADF&G shellfish observer programs. In this MMPA observer program, there is a direct contractual relationship between the contractor and NMFS. The contractor is paid by and is directly responsible to NMFS. **The industry does not pay for observer coverage and permit holders are required to carry an observer when asked.**

THIS IS A MANDATORY OBSERVER PROGRAM

NMFS provides the contractor with support and direction, and the contractor hires and deploys observers and provides the observer-collected data and information to NMFS.

The successful initiation and development of an observer program is dependent on the cooperation and constructive support of all participants. NMFS will encourage and rely on suggestions from observers and the contractor, as well as input from the fishing industry, ADF&G, and other participants in the program to further develop and improve all aspects of the program. The contractor and NMFS work cooperatively to educate fishery participants of the nature of the observer program. In order to assure the best analysis of the program; NMFS, the contractor, and the observers need to maintain open and frequent communications concerning the distribution and deployment of the observers and confer on sampling protocol, data quality issues, and other aspects of the program.

1.5.1.1 National Marine Fisheries Service

NMFS is responsible for the sample design, which encompasses the distribution and level of observer coverage, providing observer training, and for the final

reports and analysis of the data. NMFS also supports the contracted observer provider with technical guidance, observer gear, field communication equipment and other gear as need to support field operations. Observer training is provided in conjunction with the Observer Training Center through a contract with the University of Alaska Anchorage. The Protected Resources Division of the Alaska Regional Office (Juneau) is the NMFS entity directly responsible for the Alaska MMPA Observer Program.

1.5.1.2 The Alaska Department of Fish and Game

ADF&G is the state agency responsible for the management of the fisheries in state waters. ADF&G biologists and managers provide fishing effort and distribution data in season to the contractor and NMFS to facilitate observer distribution and estimate observer coverage. ADF&G provides NMFS with refined estimates of fishing effort and distribution at the end of the season to be used in the final analysis. This information is critical to successfully developing and implementing sampling protocols appropriate to the fishery operations.

1.5.1.3 Other Agencies and Organizations

United States Fish and Wildlife Service (FWS) or other agencies may place field staff in the fisheries to obtain specific data. They will have different duties than the fishery observers and have received specific training for those duties. For example, FWS staff collected seabird sighting data in the Kodiak setnet fishery in 2002. They bring with them a specialized, and sometimes local, knowledge to help with scientific data collection. In Southeast Alaska, observers may sometimes work on land owned and or managed by the US Forest Service, US Park Service, and native Organizations. Other agency and university research is often supported by this program. The data and biological samples collected by observers can be requested for use in scientific studies.

1.5.1.4 Commercial Fishery Permit Holders

The fishing industry is required to report any marine mammal mortalities and serious injuries caused through their fishing activities to NMFS (even if there is an observer recording the same information). There is a special form for reporting such incidents: The Marine Mammal Authorization Program Mortality/Injury Reporting Form, which all permit holders received in the mail prior to the fishing season. Additional copies can be requested through NMFS Enforcement, the NMFS AK Regional Office or agency Headquarters (see handout for contact info), or accessed through the internet at: http://www.fakr.noaa.gov/protectedresources/observers/mmapform.pdf

Fishermen are required to carry an observer by law when asked by NMFS or the contractor, and cooperate with the observer in their data collection activities.

1.5.1.5 Saltwater, Inc.

The contracted observer provider, Saltwater, Inc., is responsible for obtaining data from fishing operations in the area of study according to the NMFS sampling protocol. This entails meeting required coverage levels of the fisheries; determining, reporting, and (to the extent possible) avoiding possible bias in the placement of observers; and providing NMFS with reliable quality data. The observer provider is responsible for working with the fleet and ADFG to understand the fishing effort levels and distribution to achieve the coverage and project goals. In addition, the observer provider is responsible for managing the hiring, logistics, deployment, data entry, and debriefing of observers. The observer provider is responsible for the accurate collection of quality data and biological samples by abiding by the guidelines and protocol provided by the observer manual, during training, and in the field.

Observers

Good observers are the key to every observer program, and they are critical to the successful implementation of the AMMOP. Observers collect the data and are the field representatives of the program. Collection of accurate, unbiased, and representative data is the goal. Safety is the first priority in accomplishing that goal.

NMFS requires that Saltwater hires only experienced observers for the AMMOP due to the complicated nature of the program and the AMMOP's rigorous sampling protocols. NMFS recognizes the value of experience and expects observers to provide high quality data and useful information to help NMFS meet its statutory mandate to return and maintain marine mammal populations to their place as a healthy, functioning element in the marine ecosystems of Alaska. Observer input on all aspects of the program strengthens the quality of the data as well as the program design and operations. Observers will work together to coordinate their efforts in arranging their deployments and carrying out their duties. Observers must develop a cooperative and supportive environment in order to meet the challenges of the program.

The importance of each observer's contribution to the program and their presentation of the program to the fishing community cannot be over-emphasized. Most fishermen interacting with the AMMOP observers have never had to cooperate with any observer program and may not be fully aware of the potential impact their fishery may have on marine mammal populations. We need their

cooperation to make this program work, and the ability of the observer to present the program goals and needs in a professional and clear manner to the fishing community is critical to the success of the program.

To build professional relationships of trust and respect between the observers and the fishing community, it is essential that the observers' professionalism be above reproach. Observers must abide by the standards of conduct and understand why these standards are so important to the success of the program.

Observer duties include the collection and recording of accurate and precise data in the field. These data shall include information on fishing gear deployment and operations, marine mammal and bird presence, interaction with and entanglements in the fishing gear, deterrents used against marine mammals, fish catch information, species identification of birds, mammals, and fish, environmental conditions and other elements covered in this AMMOP 2008 manual and during observer training. Observers will collect biological specimens and/or tissue of incidentally caught marine mammals and seabirds.

Observers will work cooperatively and professionally with fishermen, provide information to the industry regarding the program as directed, and conduct in-season data review and editing. Observers will be central to determining fishing effort distribution and helping the lead observers remain up to date on changes to effort due to changing distribution of the fishermen. Communication with fishermen will be key to achieving this on a real-time basis, and will affect the ultimate accuracy of the data analysis. In the Southeast Alaska drift gillnet fishery observers will be working from small skiffs.

Observers will work through Saltwater procedures to submit data to NMFS weekly and participate in weekly debriefings, during which data collection methods will be discussed and any issues of concern may be raised by the observer or lead observer. Final debriefings will be required and observer will be responsible for the condition and disposition of the safety and sampling gear issued to them.

Lead Observers

Lead observers, also hired by Saltwater, Inc. act as field coordinators and primary debriefers of observers. The lead observer will be the primary field contact who will work with the Saltwater, Inc. program manager and NMFS in addressing sampling, data, and deployment issues and to provide in-season reports. Lead observers will be responsible for notifying permit holders that they have been selected for sampling, directing the fishing effort tracking, assigning observer

deployments, oversight and tracking of debriefing, final data review, data editing and data submission. In addition, lead observers may need to meet with permit holders to provide updates and consider the suggestions and concerns of fishing community. At the discretion of the contractor, many of these duties may be shared among observers. When necessary, lead observers will participate as field observers in the collection of data.

Work Boat Operators

Saltwater, Inc. will hire contracted work boat operators to drive leased vessels to serve as data collection platforms for observers. The boat operators will work closely with observers to achieve the required program sampling by providing logistical support to the observer as needed. They will be supervised and supported by a Saltwater, Inc. vessel manager. In the interest of safety, the operators of the boats have the final decision regarding when, where, and how the boats are used, and plans may change due to safety concerns. Boat operators will have their own AMMOP operating manual provided by Saltwater, Inc. They will ensure safe operation around fishing vessels and gear, while providing the observer the best vantage point from which data collection can be maximized.

Section Two

The Southeast Alaska Environment

Figure 1. Map of major towns located in Southeast Alaska.

2.0 Introduction

The main ports in the fishing area that the 2012-2013 AMMOP will cover include Petersburg and Wrangell, AK. Given the distribution of the fishing industry in Petersburg and Wrangell, AMMOP operations will be run simultaneously out of both locations. A lead observer and a portion of the total observers and work vessel operators will be based in each town. Both Petersburg and Wrangell offer housing and services characteristic of mid-sized Alaska towns. Temporary accommodations will be used to house observers and work vessel operators during the commercial openers in a location closer to the fishing grounds to

reduce travel time and fuel consumption for observers working in this area. Temporary field housing will be available near the communities of Point Baker and Coffman Cove. Field lodging could include a floating cabin, barge, support vessel and lodging in nearby communities.

This section of the manual is intended to familiarize you with the area and the gillnet fishery, including fishing methods, gear types and fishing area descriptions.

2.1 Communities

2.1.1 Petersburg

The town of Petersburg is located on Mitkof Island. There are about 3,000 year-round residents on the island. The economic force on the island is the seafood industry, with local, state, and government jobs accounting for most of the remainder of the economy.

Docks

The city of Petersburg operates a boat harbor at the center of town and two boat harbors immediately to the south of town center. The Harbormaster assigns berths and maintains an office on the approach pier in the north boat harbor. The Harbormaster's office monitors VHF channel 16. Boat slips can be leased annually or temporarily (i.e. by the month or day) for between $40 and $90 per month, depending on their locations. Slips located to the inside and south in the harbor are less expensive than those conveniently located near the harbor mouth. Water and electricity are available on all floats. There are two surface boat-launching in the boat harbor. Additionally, a state-operated boat launch is at Banana Point, located approximately 20 miles south of town along the highway. All boat launches have parking available for vehicles and trailers. Additionally, there is ample space for storing trailered or blocked boats approximately four to seven miles from town.

There are a number of large vessel wharves in Petersburg, which are mainly privately owned, with the exception of the City Pier and the Ferry Terminal. The major docks in Petersburg include: Trident Seafoods; Petersburg Ferry Terminal Dock; Petro Marine Services, which fuels vessels and moors U.S. Coast Guard and U.S. Forest Service vessels; and Ocean Beauty Seafoods.

Service and supplies

Petersburg's stores and businesses provide for most shopping and service needs of residents and visitors. There is a small department store in Petersburg, The Trading Union, which supplies a large selection of hardware, electronics, housewares, and clothing. There is also an Ace Hardware that supplies a good

selection of housewares, electronics, hardware and marine supplies. The store hours are 8 am to 6 pm, seven days a week. Additionally, there are a number of other smaller specialty businesses providing electronics, cell phones, automotive service, printing service and construction service. There are three banks located in Petersburg. There are also laundry and shower service available to the public. Gasoline, diesel fuel and lubricating oil are available at the Petro Marine Services wharf. Ice can be obtained at the canneries or the cold storage plant, located adjacent to Petro Marine.

Repairs

There are no dry-docking or major facilities for larger vessels in Petersburg. The nearest boat lift and boat yard is located in Wrangell. Engine repair and minor boat repairs can be made in several marine shops adjacent to the waterfront in Petersburg, most notably Rocky Marine which services Yamaha and Mercury engines. Repairs to electronic equipment can be made by several local firms.

Food

There are two major grocers located in Petersburg; IGA and Hamner and Wilken. Cargo is delivered almost daily during the summer, bringing fresh food and dry goods north from Seattle. Hamner and Wilken also stock some Costco dry good items in bulk quantities. There are approximately 10 restaurants and cafés in Petersburg with summer hours generally ranging from 7 am to 8 pm. These have menus ranging from American, Asian, Mexican, pizza, deli, and seafood.

Lodging and offices

There are a number of temporary and long-term lodging options available in Petersburg. For temporary lodging, there are approximately 10 bed and breakfasts and two hotels in town. Seldom are accommodations full. Longer term housing in the form of rental houses and apartments are also available. While many require a one-year lease, some rental units offer month-to-month leases.

Medical services

There is a small hospital and several physicians and dentists located in Petersburg. The hospital maintains 24-hour emergency services. A police and fire department provide service to the community.

Communications

Petersburg maintains telephone and cell phone service. Cell phone coverage, provided by GCI, can be received in all locations throughout town and in most locations along the highway until about 15 miles south on the highway. Service picks back up again at the boat ramp at Banana Point. There is also high speed internet access provided through Alaska Power and Telephone. There is wireless service available for a nominal fee in most public locations in the town.

Transportation and freight

Petersburg and Wrangell both have regular passenger, express and freight service to Puget Sound, British Columbia and other Alaskan ports by water and air. The Alaska State Ferry System has daily service during the summer to major communities north and south of Petersburg (e.g. south: Prince Rupert, B.C., Ketchikan, Wrangell; north: Juneau, Haines, Skagway, and Sitka). There is also weekly ferry service to Hoonah, Kake, and Seattle. The schedule is less frequent during winter.

Scheduled air service operates twice daily by Alaska Air to Juneau and Seattle. Charter air service is also available with two companies, Pacific Wings and Nordic Air. A highway parallels the north shore of Mitkof Island along Frederick Sound for about five miles from Petersburg and runs along the west shore of Mitkof Island running 27 miles until Blaquiere Point on the southeast side of the island. There are approximately 1,500 passenger vehicles on the island. Passenger vehicles can arrive to and from the island on the ferry system.

2.1.2 Wrangell

Wrangell is located on the northern tip of Wrangell Island and is one of the older non-native settlements in Southeast Alaska. Wrangell Island is about 30 miles long and 13 miles at the widest. About 2,500 full-time residents live on the island. The primary economic driver of the city is fishing, followed by city and state services. There was a large wood processing factory in Wrangell, but that closed many years ago.

Docks

The city of Wrangell operates four boat harbors; Reliance, Inner Reliance (located in town center), Shoemaker (located 4 miles from town) and the recently completed Heritage Harbor (located 1 mile from town), which accommodates transient vessels. The Harbormaster's office is located at the north end of Reliance Harbor. Vessels can hail the Wrangell Harbormaster on VHF channel 16. Wrangell harbors feature a total of 500 berths and can accommodate vessels up to 1000 feet. The harbor moorage rates are competitive and rates range around $40 to $90 per month depending on the size and location. Ample moorage is available when considering all four harbors. Electricity and water are available on all floats.

Beside the city and state ferry pier, all of the piers and wharves at Wrangell are privately owned. The major wharves include: City of Wrangell Barge Ramp; City of Wrangell Cargo Wharf for receipt and shipment of containerized cargo; City of Wrangell, Seaplane Float; Delta Western Oil, Wrangell Oil, Sea Level Seafoods, and Trident Seafoods.

Service and supplies

Wrangell has approximately 20 stores that provide the community with most required supplies and services. There is a small department store, Ottesen's, which provides hardware, electronics, housewares and other supplies. Additionally, there is a hardware and marine shop, Sentry, which provides a large selection of hardware and marine supplies. Two oil companies maintain piers and fueling floats in Reliance Harbor. Gasoline, diesel fuel, lubricating oil and greases are available from the fuel facilities. Water is available at the wharves and on the floats in the small-craft basins. Ice is available from the processing plant and there is a cold storage plant. There are shower and laundry facilities located in town.

Repairs

The Port of Wrangell has a newly constructed boat haul out and is well-equipped to service major large boat repair. In addition to several small craft marine repair shops, notably The Bay Co., there is also aluminum fabrication and a shipwright available.

Food

In Wrangell, there are two major grocers; City Market and Bob's IGA. Hours are limited 8 am to 6 pm, 6 days a week. Cargo is delivered almost daily during the summer, bringing fresh food and dry goods north from Seattle.

Lodging and offices

There are fewer housing options in Wrangell than in Petersburg. Accommodations range from several B & B's to one lodge and two hotels. There is also a campground for tent camping and public and private R. V. parks. There are few options for longer term housing in the form of home or apartment rentals. Most rental apartments are booked over a year in advance for summer construction or forestry crews working in Wrangell

Medical services

Wrangell Public Safety building houses the police department, volunteer fire department, state court house and jail. There is a 24-hour medical clinic and privately owned pharmacy.

Communications

Wrangell maintains telephone and cell phone service. Cell phone coverage, provided by GCI can be received in most locations throughout town. Wrangell also has high speed internet access provided through Alaska Power and Telephone. There is wireless service available for a nominal fee in most public locations in the town.

Transportation and freight

Petersburg and Wrangell have regular passenger, express, and freight service to Puget Sound, British Columbia and other Alaskan ports by water and air. The Alaska State Ferry System has daily service during the summer to major communities in Southeast Alaska. There is also weekly ferry service to Seattle. The schedule is less frequent during winter.

Scheduled air service operates twice daily by Alaska Air to Juneau and Seattle. In Wrangell, Sunrise Aviation provides charter air service. There are approximately 1,500 passenger vehicles on Wrangell Island. The only road from town is Zimovia Highway, which heads south from town paralleling the shoreline. The road is paved for about 12 miles and ends after about 100 miles of unpaved logging road.

2.1.3 Point Baker

Point Baker is a settlement on the northern tip of Prince of Wales Island. There are approximately 50 year-round residents. The primary economic drivers are the troll and gillnet fleets. Point Baker is not connected to the highway running north-south along most of length of the island. A freight boat visits weekly from Ketchikan and charter seaplanes are also available. The state maintains a small-craft float and a seaplane float. The town has two general stores where supplies and provisions, such as gasoline, food, water, diesel fuel, and fishing supplies, can be found. There is a café, shower and laundry available. Telephone service is available but there is no cell phone coverage. There are approximately four lodges that operate in the Point Baker area.

2.1.4 Port Protection

Point Protection is located on the northwest point of Prince of Wales Island. There are approximately 50 year-round residents. The primary economic driver is commercial fishing. Similar to Point Baker, Point Protection is not connected to the highway; therefore, access is only possible by seaplane or boat. The state maintains a small-craft float and a seaplane float. The town has two general stores where supplies and provisions, such as gasoline, food, water, diesel fuel, and fishing supplies, can be found. There is a restaurant, shower and laundry available. Telephone service is available but there is no cell phone coverage.

2.1.5 Coffman Cove

Coffman Cove is located on the northeastern coast of Prince of Wales Island, alongside Upper Clarence Strait. There are 230 year-round residents. Access to the community is by the main highway connecting towns along Prince of Wales Island. Additionally, Coffman Cove can be accessed by boat or float plan. A small craft and seaplane float is located in main channel of the cove. Coffman Cove was

founded as a logging community; however, the majority of the economy has shifted towards commercial fishing. Coffman Cove has a variety of services available, including fuel, diesel, general store, grocery store and hardware store. There is a grocery store and a couple of small restaurants. There are a number of lodging options, including lodges, bed and breakfasts, and cabin rentals. There is telephone and internet access available.

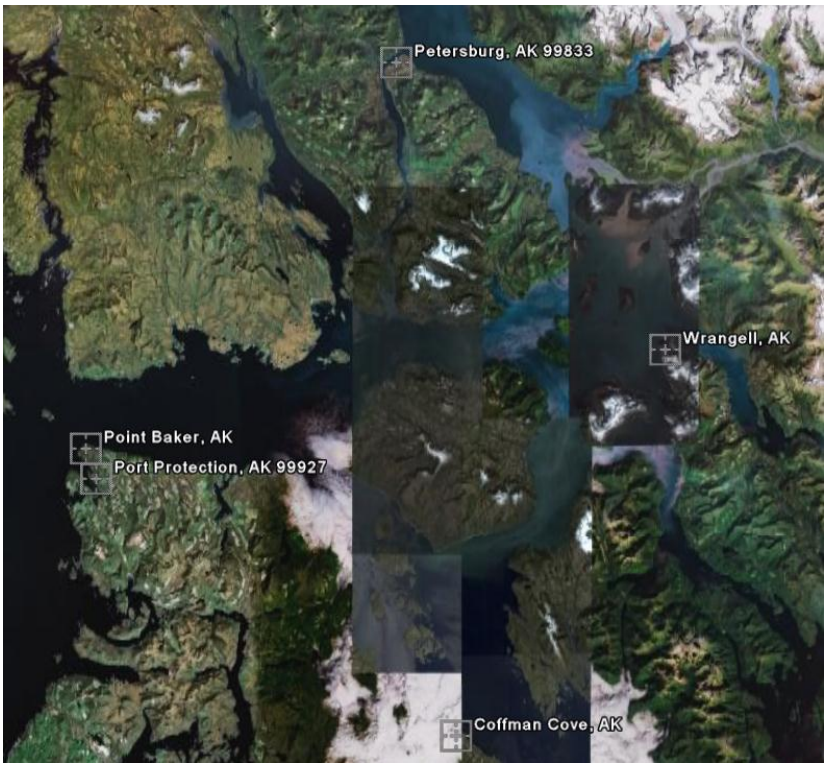


Figure 2. GoogleEarth image of potential field lodging communities.

2.2 Physical Environment

2.2.1. Geography

The town of Petersburg is located on the northwest end of Mitkof Island. The island is about 23 miles long and 17 miles wide. Much of the land is flat and covered by spruce forest and muskeg.

Wrangell is located on the northern tip of Wrangell Island and is one of the older non-native settlements in Southeast Alaska. Wrangell Island is about 30 miles long and 13 miles at the widest.

2.2.2 Climate

Petersburg and Wrangell have a typical maritime climate with mild winters, cool summers and an annual precipitation of more than 100 inches. Their location shields them from most of the high winds observed in the channels of southeastern Alaska, resulting in an average annual wind speed around five knots.

2.2.3. Flora and Fauna

Both Wrangell and Petersburg are within the Tongass National Forest, which contains mainly Sitka Spruce and Western Hemlock. You can also find mountain hemlock, Alaska cedar, western cedar, lodgepole pine and red alder in these areas. Other plants include devils club, skunk cabbage, blueberries, salmonberries, and high-bush cranberries. Berry pickers should be aware there are some poisonous berries in the area and a good berry book is recommended before picking.

Terrestrial mammals in the area include black bear, moose, moutain goats, river otter and Sitka blacktail deer.

Marine mammals are common along the shores of the Gulf of Alaska and include sea lions, sea otters and harbor seals. A number of cetaceans are present around Wrangell and Petersburg, including porpoises, killer, minke and humpback whales.

Numerous birds can be spotted in the local area including and Wrangell boasts the second largest concentration of bald eagles in the world during the spring run of eulachon. Other birds to be on the look out for include peeps, sandpipers, and plovers.

All five species of salmon (king, sockeye, coho, pink, and chum) are present in the area.

2.3 Southeast Alaska's Commercial Salmon Fishery

2.3.1 Fishery overview

The Department of Alaska Fish and Game (ADFG), Division of Commercial Fisheries has the management authority for the salmon fisheries within state waters. For management purposes, the Southeast Alaska salmon drift gillnet fishery is divided into five traditional districts: Tree Point and Portland Canal (District 1); Prince of Wales (District 6); Stikine (District 8); Taku-Snettisham (District 11); and Lynn Canal (District 15). Drift gillnet fisheries also occur adjacent to hatchery facilities and remote release sites through Southeast Alaska. These areas, referred to as Terminal Harvest Areas (THA), occur in: Neets Bay (District 1), Nakat Inlet (District 1), Anita Bay (District 7), Speel Arm (District 11), Deep Inlet (District 13), and Boat Harbor (District 15).

Throughout Southeast Alaska, ADF&G maintains a flexible management strategy for the drift gillnet fishery because of the uncertainty in salmon run strength. While there is close coordination of area office across the region, management decisions influencing Districts 6 and 8 are predominantly made by ADF&G staff located in the Petersburg and Wrangell offices.

The management of drift gillnet fisheries occurring in the waters adjacent to Prince of Wales Island (District 6) and the Stikine River (District 8), a transboundary river to Canada, is interrelated as major stocks are subject to harvest in both areas (Davidson et al. 2011b; Figure 2). District 6, referred to as the Prince of Wales area, occurs in the waters surrounding the town of Petersburg (56^{o} 48'16" N 132^{o}56'31" W) and encompasses two major fishing areas: Sumner Strait (subdistrict 6-A) and northern Clarence Strait (subdistrict 6-B, 6-C, and 6-D). District 8, referred to as the Stikine area, encompasses the waters surrounding the town of Wrangell (56^{o} 23'06" N 132^{o}05'11" W) near the terminus of the Stikine River. Two distinct management areas occur within this district: Frederick Sound (subdistrict 8-A) and Wrangell Sound (subdistrict 8-B).

There are four gear types permitted for the commercial harvest of the five Pacific salmon species (*Oncorhynchus* sp.) occurring in Southeast Alaska. Only the gillnet fishery is described here, although commercial harvest by purse seine, hand troll and power troll also occurs. Within Southeast Alaska, drift gillnet fishing is allowed by regulation in specific open areas in each of the five management districts. Salmon species migrate through these areas at different times, allowing management to focus on a particular species at specific time periods. Chinook ('king') salmon display the earliest run timing and begin migration in early summer (mid-May), although run sizes are typically too weak to allow a commercially harvestable surplus in all management districts. The drift

gillnet fishery primarily targets sockeye ('red') salmon in the early summer (June), then shifts to pink ('humpback' or 'humpies') salmon throughout mid-summer (August) and coho ('silver') salmon in late summer (late August). While the fishery is not managed for chum ('dog') salmon, they are harvested and sold as incidental catch during the commercial gillnet season.

In Districts 6 and 8, a commercially directed fishery primarily occurs for sockeye, pink, and coho salmon. Occasionally, a commercial harvest for Chinook salmon may occur in District 8. The gillnet fishing season generally extends from mid-June to early October, although the exact timing and duration of the fishery is variable year-to-year based on preseason forecasts of salmon run timing and strength (Thynes, *pers. comm.*). Preseason management plans are made from run size forecasts generated by ADF&G in the spring prior to the commercial season. Management plans are later adjusted, if needed, based on actual salmon run timing and strength measured in season.

A Chinook salmon directed fishery may occur in District 8 (Stikine) if in season run assessments determine a harvestable surplus is available above escapement and Canadian harvest sharing requirements. A Chinook salmon commercial fishery historically occurred in District 8 until the 1970s, after which run sizes were insufficient to provide for a commercial harvest. Run sizes strengthened to again allow for a directed fishery in District 8 from 2005 through 2008 (Davidson et al. 2011a). From 2009 to 2011, no Chinook salmon commercial fishery occurred due to poor returns. If a directed fishery is permitted, the season generally opens in late May with commercial periods beginning on Mondays at 8 am. The duration of commercial open periods is determined by ADF&G based on Stikine River stock assessments, the amount of fish harvested and the number of boats fishing.

2.3.2. Processing plants and tender vessels

2.3.2.1. Processor overview

In Districts 6 and 8 there are four fishing processing operators. These companies manage the processing of fish from the time of harvest to when the final product is delivered to the customer. The underlying concern of the processor is to prevent the fish from deteriorating, in order to deliver a high quality and marketable product. The first method of preserving fish quality is to control temperature using ice or refrigeration. The processing plant operates its own fleet of commercial fishing vessels and tender boats. The tender boats operate on the fishing grounds to take frequent deliveries from fishing vessels in their fleet to ensure fish are handled and stored appropriately to meet market demands. Another role of the tender vessel is to take deliveries in order to maximize the fleets overall fishing effort and harvest.

The day prior or the morning of the weekly opener drift gillnet boats in the fleet will load ice into their holds while tied up to their processors dock. Taking on ice lasts approximately 20 to 30 minutes. Tender boats will take ice the morning before the commercial opener, and then position at their designated location to give ice to vessels as needed before the opening. The tender boat will deliver the harvest to the processing plant one to three times during a weekly period, depending on fishing success. Offloading the tender vessel takes approximately four to six hours. Following the delivery, the tender vessel will load ice from the processing plant, which takes approximately three to five hours

2.3.2.2. Tender vessel operations

The day prior to the weekly commercial period opening the tender boat loads ice into its hold and auxiliary totes while at the processing plant. The tender boat then travels to a designated area, assigned by the processing plant, to wait for the start of the commercial period. Generally, the same tender boat operates in a single designated area for the duration of the fishing season. While waiting the tender boat may deliver ice to commercial vessels in the fleet that are not able to receive ice at their home port (e.g. Point Baker or Coffman Cove). Prior to the opening, the tender vessel receives information from the fleet or dock manager at the processing plant about which vessels in the fleet will be fishing in Districts 6 and 8. Each day of the opener, the tender vessel will communicate with the fleet manager at the processing facility by satellite phone or dispatch radio to receive updates on the location of vessels.

Once the commercial period opens the tender begins to patrol their designated area to take fish deliveries and resupply fishermen with ice. The first patrol begins either the evening of or morning after the weekly period opens. The tender generally follows a standard route during their patrol, visiting each fleet vessel within the area to take a delivery. Occasionally, the tender boat may anchor in a designated location and remain stationary until all fleet vessels in the nearby areas have traveled to them to make a delivery. This most often occurs just after the close of a weekly fishing period. The tender boat keeps all fishermen in their fleet informed of their operating plans via announcements on VHF radio. The tender boat also keep the processing plant regularly updated with information, including total onboard harvest, delivery schedule and fishing vessel location.

The frequency of deliveries from the tender boat to the processing plant varies in relation to fishing success. During the peak of fishing activity deliveries are made daily from the tender to the processing facility. In this case, the tender boat will depart the fishing grounds mid-day, make an afternoon delivery to the plant and then return to the fishing grounds late evening to receive final deliveries. When fishing success is slower tender boats will make a single delivery to the

processing plant after the close of the weekly fishing period. Within a weekly fishing period a commercial vessel will make two to five deliveries to a tender boat, depending on fishing success.

Deliveries to tender boats can be made at any time and do not require a prior appointment. Almost all fishermen deliver their harvest to the tender as opposed to delivering to the processing plant directly. Tender deliveries are encouraged by the processing plant to improve the quality of fish product. The offload of a fishing vessel to a tender boat generally spans 10 to 15 minutes, depending on the quantity of fish and sorting required by the tenderer. Typically, vessels will only make deliveries to tender boats in their respective fleets and tender boats will only make deliveries to their respective processing plant. On rare occasions, a vessel or a tender boat may deliver outside of their respective processing company; such situations are generally founded on logistical or fuel efficiency and are pre-arranged through the processing company manager.

Below is information about the commercial processor plants and their tender boat operations in Districts 6 and 8.

2.3.2.3. Trident Seafoods Inc.

Trident Seafoods Inc is the second largest processing plant within Districts 6 and 8 and has facilities located in both Petersburg and Wrangell. The plant hours are from 6 am to 6 pm; however during the summer fishing season the plant will take deliveries 24 hours a day.

The plant in Petersburg is located at the east end of North Harbor and is situated directly on the water. Boats tie directly up to the dock at the plant. The dock has a 65-foot face and a height of 25 feet. The majority of fleet vessels only make deliveries to the Trident tender boats, which occurs one to three times a day. The plant has a daily operating capacity of approximately 80,000 lbs of salmon.

The plant in Wrangell is located immediately southeast of the cargo wharf at the north end of town center. Boats tie up directly to the dock at the plant. The dock has a 115-foot face with an additional 10 feet alongside. The deck height is 24 feet. The Wrangell plant is designed to process approximately 500,000 lbs of salmon daily, although currently does not operate at its optimum capacity.

The Trident plant has a long history of fishery operations in Petersburg. The plant was first built in 1916 by the Ohmer family and operated as a shrimp cannery by the name of Alaska Glacier Seafoods. In 1943, the Alaska Glacier Seafood Co. plant was destroyed by fire and later rebuilt in a new location. The cannery was again destroyed by fire in 1985. Beginning in 1990, the Ohmer families' Alaska Glacier Seafoods merged with Ketchikan's Silver Lining Seafoods, and two years

later merged with Lafayette Fisheries Inc to form NorQuest Seafoods. In 2008, Norquest Seafoods was bought by Trident Seafoods. While the Petersbrug plant is now owned by Trident Seafoods, management and operation is still done by the original Ohmer family. The plant handles salmon, halibut, shrimp, crab, rockfish, black cod, sea cucumbers and sea urchins.

The plant in Wrangell was formerly Wrangell Seafoods, which began operating in 1956 as a partnership known as Harbor Seafoods Inc. Alaska Pulp Corp. purchased the firm in 1974 and sold it a decade later to J.S. McMillian Fisheries Ltd., which gave it the name Wrangell Fisheries Inc. The company focused on expansion into several areas of seafood processing, including salmon, halibut, herring, lingcod, rockfish, shrimp, prawns and sea cucumber. The plant was one of the largest employers in the town of Wrangell for nearly thirty years. In 2009, after several poor fishing seasons, Wrangell Seafoods filed for Chapter 11 bankruptcy. After bankruptcy the plant was bought by Trident Seafoods in 2009, who invested millions into upgrading the plant. While operational expansions are still ongoing, the plant focuses mainly on chum and pink salmon processing.

In total there are approximately 100 drift gillnet vessels that belong to the Trident fleet. Trident in Petersburg and Wrangell operate seven tender boats, three of which support the District 6 and 8 commercial gillnet fleet. The Sue Lynn and Kaleigh Anne mainly operate from the Petersburg plant, whereas the Northern Fury operates from the Wrangell plant. The plant to which the Trident tender boats deliver may change weekly depending on the respective plant's capacities. All vessels in the Trident fleet communicate several times daily with the Petersburg fleet manager using dispatch satellite radio. Additionally, tender boats in the Trident fleet have an automated tracking system (AIS) for identifying and locating vessels through electronic data exchange with other nearby ships. The processing plant can monitor this system online to track the location of the tender boats. No fishing boats in the drift gillnet fleet have AIS.

2.3.2.4. Icicle Seafoods, Petersburg Fisheries

Petersburg Fisheries Inc. (PFI) is the largest salmon processing facility in Petersburg. The plant hours are from 6 am to 8 pm; however during the summer fishing season the plant will take deliveries 24 hours a day. The plant is located on the farthest east end of the North Harbor, with a 175 ft dock face that is 26 feet above the waterline.

Given the size of the entire Icicle Seafoods fleet, a scout plane flies daily through common fishing areas during commercial periods to best position boats and maximize operational efficiency. The plant has a daily operating capacity of approximately 2 million lbs of salmon.

In 1890, Norwegian pioneer Peter Buschmann arrived to Petersburg and built the Icy Strait Packing Company cannery, sawmill and a dock. Salmon and halibut were packed in glacier ice at the cannery for shipment. In 1901, the cannery was sold to Pacific Coast and then in 1929, Norway Packing Co. Pacific American Fisheries (PAF) then purchased it. PAF sold to Petersburg Fisheries Inc. (PFI) in 1965. In 1977, PFI changed their corporate name to Icicle Seafoods, with Petersburg Fisheries as a subsidiary. In 2007, a private equity firm acquired a majority of Icicle Seafood's shares. Petersburg's first cannery has operated continuously since and is still referred to as PFI.

In total, there are approximately 60 drift gillnet vessels that belong to the PFI fleet. PFI operates four tender boats, two of which primarily support the District 6 and 8 commercial gillnet fleet. The St. Lazaria primarily operates in the Point Baker and Macnamara area, whereas the Roetta services the greater Wrangell and Clarence Strait areas. Tender vessels communicate several times daily with the Petersburg fleet manager using dispatch satellite radio or voice text messaging. Additionally, all tender boats in the fleet have an automated tracking system (AIS) for identifying and locating vessels by electronic data exchange with other nearby ships. The processing plant can monitor this system online to track the location of the tender boats. No fishing boats in the drift gillnet fleet have AIS, although this is planned for the future.

2.3.2.5. Sea Level Seafoods Inc.

Sea Level Seafoods is a small processing plant located in Wrangell. The plant hours are from 6 am to 8 pm; however during the summer fishing season the plant will take deliveries 24 hours a day. The plant is located on the north corner of Heritage Harbor, with a 90-foot face that is 22-feet above the waterline.

Sea Level Seafoods has been operating in Wrangell for approximately 30 years. Sea Level is a subsidiary of Pacific Seafoods, a leading seafood company operating across western North America. All five species of salmon, in addition to halibut, black cod, and crab, are processed at the Wrangell plant.

Approximately 15% of the boats in the Sea Level fleet have refrigerated seawater (RSW) units and do not take ice. The plant has a daily operating capacity of approximately 75,000 lbs of salmon, although typically works above its capacity.

Sea Level Seafoods has a fleet of approximately 40 drift gillnet boat, which fish predominantly in Clarence Strait, Stikine Flats, and Anita Bay. Sea Level operates four tender boats, two of which primarily support the District 6 and 8 commercial gillnet fleet. The Sprite primarily operates around Macnamara Point and Stikine Flats areas, whereas the Ms. Kristina operates in lower Upper Clarence Strait area. The tender vessels primary responsibility is locating the fishing vessels on

the grounds and typically maintains communication with fishermen each week about their intended fishing plans. Additionally, during ice up the fishermen will inform the dock attendant of their fishing plans. Tender vessels in the Sea Level fleet do not work on a regular rotation while on the fishing grounds; instead they operate on a dynamic schedule to maximize overall efficiency. Tender vessels generally communicate daily with the Sea Level plant by satellite phone.

2.3.2.6. E.C. Phillips and Sons Inc.

E.C. Phillips is a family operated processing plant located in Ketchikan. The company was originally established in 1926 by Edward Phillips and later run by his son. The new plant, built in 1950, is located at Ketchikan Wharf just east of Bar Point. The dock has a 232-foot and is 24 feet above the water. The plant processes salmon, halibut, black cod, sea cucumbers, geoducks, and spot shrimp.

There are approximately 50 drift gillnet vessel operating in the E.C. Phillips fleet. About one-third of these vessels fish in Districts 6 and 8, of which the majority are concentrated in subdistrict 6-B around the lower portion of Upper Clarence Strait. All boats in the E.C. Phillips fleet deliver fish to their respective tender. On occasion, because only one or two tender boats support the entire District 6 and 8 area, it may be inefficient for a tender boat to take a delivery from a single boat fishing located faraway. In these cases, an E.C. Phillips fishing boat may make a delivery to another processor's tender boat after it has been pre-arranged through the tender's mother plant.

E.C. Phillips operates three tender boats, two of which primarily support the District 6 and 8 commercial gillnet fleet (Table 6). The Ms. Mary and Twelgo operate primarily in the Upper Clarence, Macnamara Point and Stikine Flats areas. A third tender boat, Savage, may occasionally operate in the area depending on fishing success.

2.3.3. Terminal harvest areas (THA)

The Chinook, sockeye, coho, pink, and chum salmon runs are enhanced by privately operated hatcheries in Southeast Alaska. While ADF&G commercial management actions are focused on the harvest of wild stocks, a substantial portion of the commercial harvest in net fisheries is hatchery-enhanced salmon. Therefore, management is directed on the harvestable surplus of hatchery-enhanced salmon in terminal areas near hatchery release sites. Fisheries in the terminal harvest areas (THA) are typically managed in accordance with harvest management plans adopted by the Board of Fisheries (BOF), as well in cooperation with hatchery operations to provide cost-recovery harvest. The terminal hatchery fishery at Anita Bay (located in subdistrict 7A, approximately

20 miles south of the town of Wrangell) is managed jointly between the Southeast Regional Aquaculture Association (SRAA) and the BOF.

ADF&G releases the fishing period schedule for the entire season in the Anita Bay THA during late spring before the commercial fishing season. The scheduled is published as a news release and available from various media sources. The Anita Bay THA fishery is generally open to salmon harvest concurrently by mixed fishery types, including troll, drift gillnet, and purse seine, from the beginning of May to mid-June and from the beginning of September to early November. Beginning in mid-June the Anita Bay THA is open to salmon harvest on a schedule rotating between drift gillnet and purse seine fishing. The drift gillnet rotational schedule generally allows a 24-hour period of commercial fishing every fourth day between mid-June to the end of August. Openings occur at 12 p.m. on the scheduled fishing day. Purse seine fishing occurs for a 24-hour time period in between subsequent drift gillnet fishing openers. The Anita Bay fishery is closed to all fishing from early November through early May.

Anita Bay is in close proximity to Wrangell; therefore, almost all boats fishing in this area originate from there. Travel time to the fishing grounds is approximately one hour. Given the short duration of the opener, boats remain on the fishing ground for the entire period. Most fishermen quit fishing during the night to sleep for three or four hours.

2.3.4. Permit Holders

At the end of the 2011 commercial Southeast Alaska salmon gillnet fishery, there were 557 Commercial Fisheries Entry Commission (CFEC) registered permit holders. As of November 1, 2011 CFEC had listed 458 of these permits as active, which was above the 10–year average of 388. Of the active permit holders, 80% (365) are Alaska residents, 19% (89) are nonresidents, and 1% (4) are unknown residents. Figure 3 shows the proportion of gillnet CFEC permit holders by resident city in Alaska. The highest proportion of gillnet fishermen in Southeast Alaska reside in Petersburg (20%) and Juneau (15%).

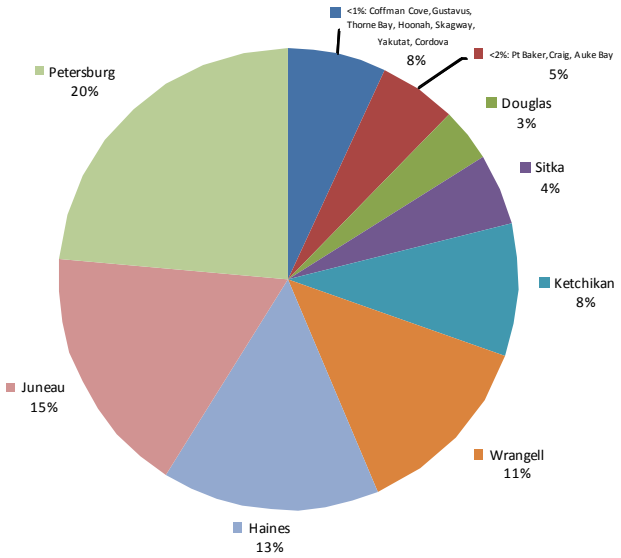


Figure 3. The proportion of active CFEC gillnet permit holders by city of residence in Alaska (n = 365).

By regulation, permits holders are entitled to commercial gillnet fishing in all five traditional Southeast Alaska districts using one single permit. There is no qualifying information associated with the permit that limits gillnet fishing to particular management areas. Generally, Southeast Alaska residents tend to fish within their local fishing districts, although some fishermen may travel to farther districts to fish if salmon run sizes are stronger or longer fishing periods are given.

All registered permit holders in Southeast Alaska have received several letters each from NMFS and Saltwater, Inc. that included information about the Alaska Marine Mammal Observer Program. Workshops and public meetings in Wrangell and Petersburg were held to provide the fishing communities with information about the program and to gather information from fishermen for program planning.

2.3.5. Commercial fishing periods

Each period, ADF&G publishes a drift gillnet commercial news release announcing the upcoming weekly period. This announcement includes opening and closure times, as well as any fishing restrictions by time or area. Weekly commercial fishing periods are initially set by Board of Fisheries (BOF) regulations to comply with the following management objectives: i) sustained yield, ii) allocation among users according to the BOF regulations, and iii) in accordance with Pacific Salmon Treaty harvest sharing agreements between the U.S. and Canada (Tingey and Davidson 2011). To ensure these objective are

fulfilled, these periods may be adjusted by the ADF&G area management biologist on a week-by-week basis under emergency order.

Regular commercial drift gillnet periods in Districts 6 and 8 typically extend for two days for sockeye salmon, and two or three days for the pink and coho salmon management periods. Weekly fishing periods in Districts 6 and 8 begin on Sundays at 12:01 pm, except for the first two weeks of the sockeye management period (June) when the start day is Monday at 12:01 pm. Fishing periods typically close at 12:00 noon on Tuesday of the same week. Table 1 summarized the weekly commercial period schedule by statistical area. News announcements are available to the public through a variety of media sources; including radio, fax, and posting on bulletin boards in town. Additionally, the information can be obtained from ADF&G by email, calling the recorded hotline (907) 772-3700 or accessing the website http://www.ADF&G.alaska.gov/index.cfm?ADF&G=cfnews.main (refer to Appendix 1 for an example news release of weekly commercial gillnet fishing period).

Table 1. The opening week, dates, and duration for by statistical area for scheduled weekly drift gillnet commercial fishery period in Districts 6 and 8.

Subdistrict	Statistical area	Statistical opening week	Scheduled opening duration
6A	106-41	25	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	106-42	25	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	106-43	-	-
6B/C	106-30	25	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
6D	106-22	25	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
8A	108-41	-	-
	108-50	26	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	108-60	26	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
8B	108-10	26	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	108-20	26	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	108-30	26	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	108-40	26	M- W 12 pm – 12pm ; Su – Tu 12 pm – 12pm (beginning stat week 27)
	10845	-	-

Note: symbol "-" indicates area not open to drift gillnet fishing.

The weekly commercial period may be adjusted each week to either extend the commercial period or provide an additional mid-week commercial period. Adjustments to the regular fishing schedule are made by the Area Management Biologist in Petersburg, Troy Thynes, and authorized under Emergency Order by the ADF&G Division of Commercial Fisheries Commissioner (refer to Appendix 2 for example emergency order news release adjusting the weekly commercial gillnet fishing period). Tables 2 shows the regular and adjusted schedule for the drift gillnet commercial fishing activity by hours per open day and subdistrict from 2011. Adjustments to fishing time are based on the harvest and fishery performance information gathered during commercial openings. ADF&G monitors salmon run sizes weekly using a variety of tools, including comparisons of historical to current-year catch rates measured by commercial fish tickets and in-person fishermen interviews; estimates of salmon escapement using fish weirs and aerial surveys; and stock composition estimates. Harvest effort and success are gauged by fishermen interviews during commercial periods and the monitoring of commercial fish tickets.

Table 2. The 2011 commercial drift gillnet fishing schedule, in hours per day by statistical week for Districts 6 and 8. Shaded cells indicate a weekly extension period under Emergency Order (EO). Hashed cells indicate a midweek opening period under Emergency Order (EO).

Statistical week	Statistical area	SU		M		T		W		TH		F		S		Total fishing	Directed species
		am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm		
25 [1]	District 6				12	12	12	12								48	sockeye
	District 8															0	
26 [1]	District 6				12	12	12	12								48	sockeye
	District 8				12	12	12	12								48	
27	District 6		12	12	12	12	12	12	12	12						96	sockeye
	District 8		12	12	12	12	12	12	12	12						96	
28	District 6		12	12	12	12	12	12	12	12						96	sockeye
	District 8		12	12	12	12	12	12	12	12						96	
29 [2]	District 6		12	12	12	12	12	12								72	sockeye
	District 8		12	12	12	12	12	12								72	
30 [2]	District 6		12	12	12	12		**6**	**12**	**6**	[3]					75	sockeye
	District 8		12	12	12	12		**6**	**12**	**6**						72	
31 [2]	District 6		12	12	12	12		**6**	**12**	**6**	[3]					75	sockeye
	District 8		12	12	12	12		**6**	**12**	**6**						72	
32	District 6		12	12	12	12	12	12								72	pink
	District 8		12	12	12	12	12	12								72	
33	District 6		12	12	12	12	12	12								72	pink
	District 8		12	12	12	12	12	12								72	
34	District 6		12	12	12	12										48	pink
	District 8		12	12	12	12										48	
35	District 6		12	12	12	12										48	pink
	District 8		12	12	12	12										48	
36	District 6		12	12	12	12										48	coho
	District 8		12	12	12	12										48	
37	District 6		12	12	12	12	12	12								72	coho
	District 8		12	12	12	12	12	12								72	
38	District 6		12	12	12	12	12	12								72	coho
	District 8		12	12	12	12	12	12								72	
39	District 6		12	12	12	12										48	coho
	District 8		12	12	12	12										48	
40	District 6		12	12	12	12										48	coho
	District 8		12	12	12	12										48	
41	District 6	fishery closed for season														0	coho
	District 8															0	

1: The first two sockeye fishing periods are open preseason to allow fishermen and processors to prepare for potential Chinook salmon opening, and to minimize interaction with sport fishermen.
2: Fishing periods are limited to 48 hour periods during McDonald Lake sockeye conservation, with no opportunity for extension in District 6.
3: Midweek extension in Section 6-A only in waters east of a line from Point Alexander to the northwestern tip of Northerly Island at 56°26.56' N. latitude, 132°58.63' W. longitude.

The majority of fishing period extensions or mid-week periods occur during sockeye management, when salmon are managed in accordance with the Transboundary Rivers Annex of the Pacific Salmon Treaty. During this time, mid-week periods almost exclusively occur within District 8, since fish stocks moving through District 6 at this time are believed to be a stock of concern. Depending on salmon abundance, a mid-week opener may be given to focus harvest effort on a specific stock group or migratory pulse. An extension is generally given if commercial catch rates are high and in-river escapement and harvest sharing agreement goals have been met.

Announcements of a fishery extension or mid-week commercial period by Emergency Order are made at 10 a.m. on the last day of the scheduled period. Announcements are made same media sources, in addition to being broadcast on marine VHF radio channel 16.

2.3.6. Description of fishing gear

Drift gillnetting is a fishing technique where gillnets drift free with the wind or current at the ocean surface. The name gillnet is adopted from the method used to snare the target fish, where fish swimming forward are unable to fit through deliberate sized openings in the net mesh. Once in position the fish's gill covers become caught in the mesh preventing them from backing out. The fish is effectively trapped in the mesh until later removed by a fisherman. The meshes of gillnet are uniform in size and shape, hence become highly selective for a particular size of fish. Fish smaller than the mesh are able to pass through the net unhindered, while fish with heads too large to push through the meshes as far as their gills are not retained.

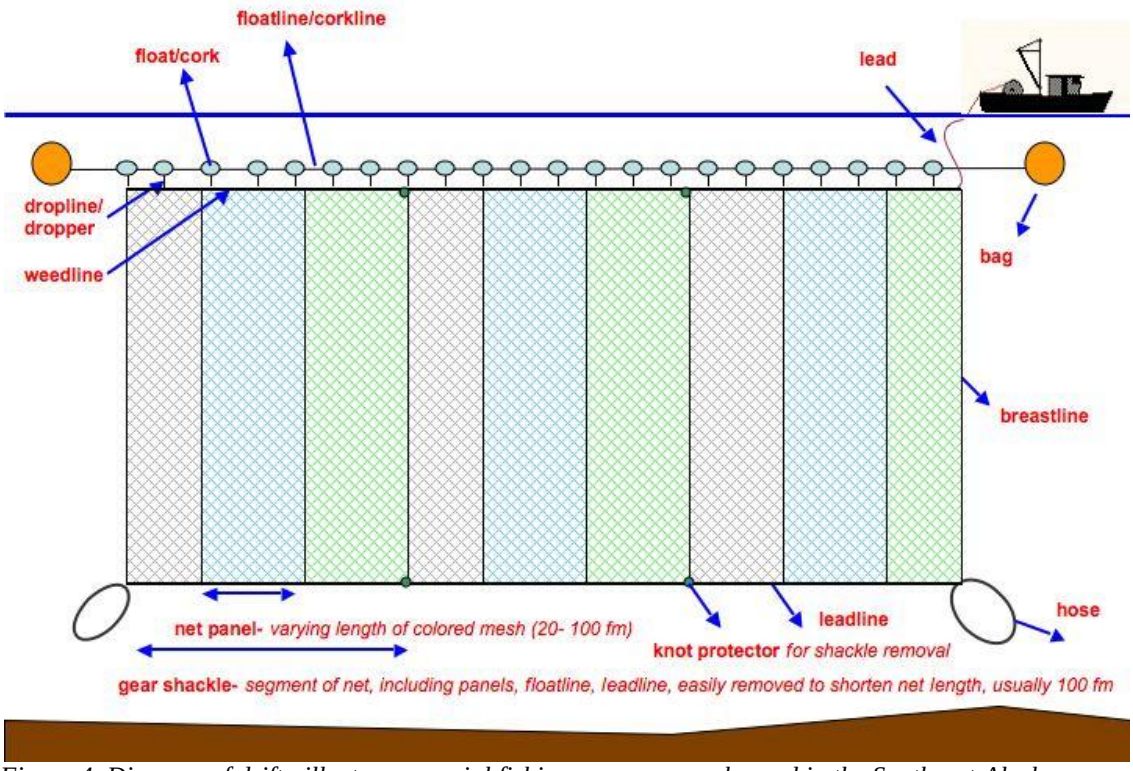


Figure 4. Diagram of drift gillnet commercial fishing gear commonly used in the Southeast Alaska drift gillnet fishery.

A gillnet basically consists of mesh webbing attached to a weedline along the top of the net and a weighted leadline along the bottom of the net (Figure 4). The weedline at the top of the mesh webbing is attached by a series of vertically spaced droplines to a floating corkline with suspended corks or floats. The weighted bottom line ("leadline") and floating topline ("corkline") keep the net vertical in the water column while drifting. To mark the ends of the floating corkline, a single orange float is attached to each end of the corkline using a 1-2 m lead rope. The buoy clusters (referred to as "bags") make the ends easily identifiable when the net is drifting in the water.

Corkline

The spacing and distance of floats along the corkline vary depending on the target species. A typical intermediary spacing is 38 inches.

- The float spacing varies from 22 to 44 inches.
- Spacing for chum is around 22 inches.
- Spacing for sockeye is 42 to 44 inches.

Leadline

In Southeast Alaska, the top of the net is set at the water surface and the bottom is weighted variably depending on the mesh net size. Fishermen may also alter the weight of the leadline in accordance with the mesh size to keep the net vertical in the water.

- A 5 to 5.5 inch mesh size is typically weighted with a "light" leadline (110 lb/100 fms).
- A larger net with 6 to 6.5 inch mesh size is weighted with a "heavy" leadline (150 to 200 lbs/100 fms).
- Fishermen may alter the ratio of mesh size to weight to prevent fish from becoming entangled in the net.

The ratio of floats to weights in the net may be altered to adjust the net buoyancy and the depth at which the net fishes.

Mesh size

The mesh size on the net webbing is changed by the fishermen to target particular species or sizes of salmon while fishing. The net mesh size may be altered according to the salmon migration timing and composition.

- In Districts 6 and 8, the mesh size for the Chinook salmon gillnet fishery is between 7 and 8 inches.
- There are no mesh size restrictions in place for the sockeye, coho, and pink salmon fisheries.
- Generally, early in the season a smaller mesh size (5 to 5.5 inches) is used to target sockeye salmon.
- Later in the season, fishermen may switch to a larger mesh net size (6 to 6.25 inches) to target coho or chum salmon.
- Pink salmon are targeted with a net mesh size around 5 inches.

Anchors

By regulation anchors are prohibited in the drift gillnet salmon fishery.

Net length and depth

In Districts 6 and 8, drift gillnets are restricted to a 300 fm length and 60 meshes depth. In most cases, unless there are space limitations or strong currents, fishermen will set the entire length of the net.

A gear shackle is a portion of the entire net (e.g. net mesh, leadline, and corkline) that can be readily added or removed to change the total net length. In Districts 6 and 8, a gear shackle is generally 100 fm. This allows fishermen to easily convert from a 300 fm net, the legal length for gillnets in District 6 and 8, to a 200 fm net

when fishing in areas with different gear restrictions, such as Anita Bay or District 11 (Taku Inlet).

Net panels

The mesh of a gillnet is composed of a series of adjacent webbing segments (called net panels) of varying color. Panels are of varying lengths, defined by the fishermen, but typically two to six panels occur per 100 fm of net. Some nets are unpanelled, meaning that the net webbing is a uniform color. Unpanelled nets are most common when targeting pink salmon or fishing in open ocean conditions.

Net mesh material and color

The material of gillnet mesh varies among fishermen and nets. The legal net mesh material for Alaska includes:

i) multistrand: monotwist (no center-core).
ii) super multistrand (MST), which is 10-12% stronger than monotwist.
iii) six strand.
iv) super six strand (MA-6).

Note that single strand monofilament is legal only for herring fisheries in the State of Alaska.

State of Alaska law requires that webbing material for salmon gillnetting must contain at least six filaments (strands), each of which must be at least #1.5 size (0.20 mm) in diameter.

- The most common net mesh material in Southeast Alaska is six strand or multistrand with eight strands.
- However, mesh strands may vary from 6 to 24 strands.
- For the multi-strand mesh material, the various fibers are all of one size (typically #1.5, 0.2 mm diameter).
- For the six strand material the strand diameter occurs in a variety of sizes ranging from #1.5 (0.2 mm diameter) to #4.

The color of gillnet mesh webbing varies among fishermen and nets. Fishermen generally select mesh color to match that of the water, as salmon will avoid nets they can see. Given the turbidity of water in the area, various shades of green and blue are the most common mesh colors used in the District 6 and 8 areas.

Net combinations

In addition to net combinations of color, mesh material and filament diameter, fishermen may use a combination of mesh sizes in the net. For example, a net may have panels with 5 3/8 inch mesh and other panels with 5 inch mesh. This is most common with fishermen that own few nets. A fisherman who is fidelic to one particular fishing location typically only alternate between one or two

different nets for the duration of the season. Fishermen that fish in more than one fishing location or management districts typically own three to six different mesh size nets. Changing the mesh size net on the net drum while at sea is challenging; therefore, fishermen typically use only one net while fishing in a given day or weekly opener. Nets can be easily unreeled or reeled onto the net drum while the fishermen is at the dock or tied up to a fishing float (e.g. fishing floats are located in Wrangell harbor and at Buster Bay near Point Baker).

2.3.7. Description of Commercial Fishing Methods

Nets are deployed by fishing vessels while at sea and drift until retrieved. Typically, when a vessel is at rest while the net is fishing, a lead rope from the vessel is attached onto the net bag. This position is commonly referred to as "hanging on the net." If the fishermen is attempting to place the net along shore the lead line may be cleated onto the vessel, as compared to clipped into the bag. In strong wind or tides, the fishermen may detach the boat from the net to prevent vessel drag which can result in the net becoming parallel to shore (referred to as "endo"). Additionally, fishermen may detach while running their boat parallel to the net to monitor capture success and to prevent interference with floating items (e.g. debris). While running between net ends fishermen also straighten or tighten the net to keep it taut against the current or wind.

Patterns of fishing are variable with individual fishermen and the locations being fished. Retrieval of the gillnet ("pick") occurs at intervals between one and a half to five hours. Habitat, tidal stage and wind are the three most common factors influencing the duration of time the net is fishing in the water ("soak time"). During slack tide or in protected habitat with little wind influence, fishermen may leave nets "soaking" in the water for many (e.g. three to five) hours before retrieving the net. The net does not require constant attention during this time. Therefore, some fishermen may rest before net retrieval. During ebb and flood tides, depending on the habitat, soak time is shorter (e.g. one to two hours) to reduce net interference by floating debris. During this time fishermen are attentive and continually manage their net.

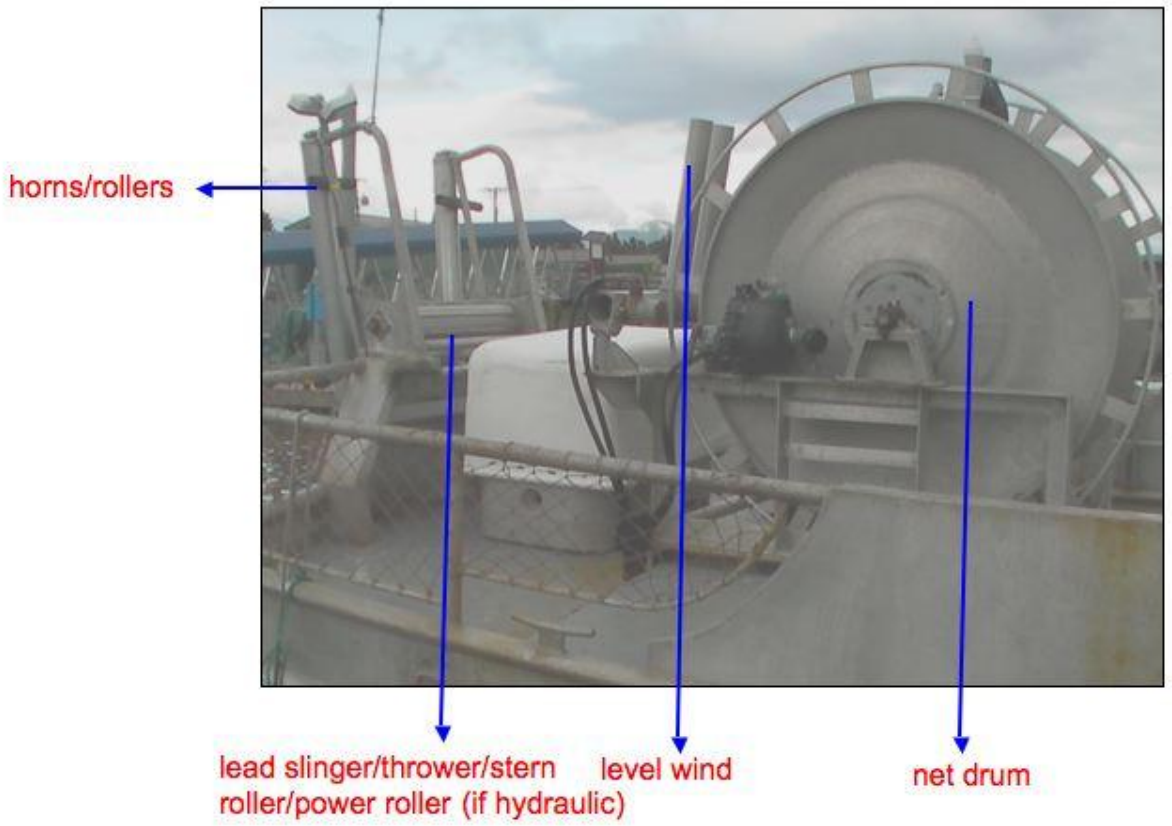


Figure 5. Diagram of the fishing gear used onboard commercial drift gillnet fishing vessels to manage the setting and hauling of nets

The gillnet is set and hauled onboard fishing vessels using a powered drum located on the deck (Figure 5). The net drum is a hydraulic device to which the net is reeled around. Mechanized net drums allow the net to be drawn in much faster than when traditionally done by hand. The net drum is controlled using armed levers located along side the drum; making it possible for fishermen to simultaneously operate the drum while retrieving fish caught in the net as it is hauled in. A device called a 'level wind' evenly redistributes the gillnet back onto the drum in preparation for the next set. The net extends from the net drum over a stern roller or "thrower" (mounted on the fore or aft part of the vessel), which is a lift that facilitates the setting and retrieval of the net over the side of the vessel. The guide rollers or "horns" abutting the stern roller form a protective frame that retains the net position and tension under varying conditions of rolling and pitching of the vessel. A guard extends underneath the vessel, running from

starboard to port to prevent the net from entangling in the vessel's propeller. The majority of drift gillnet vessel have a forward cabin and the fishing gear mounted aft. However, a small number of drift gillnet boats, no more than ten in Districts 6 and 8, have an aft cabin and fishing gear mounted forward on the bow. These boats are referred to as "bow pickers."

Fishing gear is typically set up current from the direction of water movement. Fishermen set their net at a discrete location and float down current while the net fishes, hence the term "drift fishing." After a period of time or when the fishing vessel has reached a discrete down current location, the fishermen will slowly reel the net (or "haul the net") onto the drum while picking gilled fish from the net. Depending on the contents, net retrieval duration is 25 to 45 minutes. Following retrieval, the fishermen will assess the total number of fish caught in the previous set and make subsequent adjustments to improve overall fishing performance. If success is strong, the fishermen generally motors their vessel upcurrent to the original starting location and repeats the drift set in a similar manner. Alternately, the fishermen may decide to fish in a new location of presumed higher fish abundance and follow the same general fishing pattern of drifting the net down the current.

Most drift gillnet fishing boats participate in other fisheries over the course of a calendar year. Therefore, the boat configuration is dynamic to accommodate different fishery types and associated gear. For example, following the drift gillnet season fishermen may remove the net drum and the use their vessel to fish for shrimp using pots. Historically, regulations did not allow for a single fishing vessel to participate in more than one commercial fishery at a given time. Beginning in 2011, BOF regulations were changed to allow drift gillnet vessels to additionally use troll fishing gear. However, given the difference in methods between these two fisheries, it is highly unlikely that fishermen would switch between fishing practices within a weekly period.

2.3.8. Description of commercial gillnet opener

During each weekly commercial period, fishermen may arrive to the fishing grounds either the night before or the morning of the opening day. Fishermen arriving the night prior generally are taking advantage of the outgoing tide to increase travel speed and reduce fuel consumption. After arriving to the grounds they take anchorage in a sheltered cove and prepare gear for the next day's opener. On the morning of the opener, fishermen arrive to the area they intend to fish and jockey for positions one to two hours prior to the designated opening time.

There is considerable variability in the fidelity of a fisherman to a particular location. A portion of fishermen are highly fidelic to a specific fishing area within

and across weekly periods. Generally, the most fidelic fishermen are those with vast fishing expertise, thus have mastered successful fishing techniques for a particular location. The majority of fishermen, however, typically fish over a large spatial area within one or more statistical areas. Some fishermen may fish across more than two statistical area during a single weekly period. Fishermen keep records or estimates of the number of fish harvested within each statistical area and report this to the processor at the time of delivery for fish ticket purposes.

Compared to other management districts in Southeast Alaska, Districts 6 and 8 have offered relatively little commercial drift gillnet fishing time and success in recent years. Districts 6 and 8 allow two or three day (measured in 24-hour periods) periods of commercial fishing weekly. Districts 1 (Tree Point) and 11 (Taku Inlet) allow three to four days of commercial fishing per week and run sizes are generally stronger. Therefore, fishermen residing in Districts 6 and 8 may travel to other management districts for a portion of the fishing season where greater fishing opportunity or higher purchase prices are offered. Fishermen that leave Districts 6 and 8 will generally do so between subsequent weekly periods. In the rare event a fisherman leaves during an opener in Districts 6 and 8, a delivery is first made to a tender vessel before leaving the area. Fishermen emigrating from Districts 6 and 8 to another statistical district will generally maintain association with their respective processor fleet; therefore, the vessel will inform the processor of their fishing plans to ensure support by a tender vessel in the alternate fishing location. Because of the relatively limited amount of weekly fishing time, it is not common for boats to migrate into District 6 and 8 for a commercial fishing period. Fishermen may occasionally emigrate from Craig or Ketchikan to upper Clarence Strait (subdistrict 6B) or Anita Bay (subdistrict 7A) for a weekly fishing period. These boats generally belong to the E.C. Philips processor fleet and are supported by their tender boats.

Once the weekly period begins, vessels typically remain on the fishing grounds for the duration of the period. While short breaks may be taken during slack tide, most fishermen will fish as much as possible in a 24 hour period. Few fishermen fish through the night time hours because of the high debris load and strong currents characteristic of Districts 6 and 8. Only when run sizes are particularly strong will fishermen continue fishing through the night. Therefore, the majority of fishing begins at the scheduled weekly opening time (e.g. noon) and fishermen remain fishing until 1 or 2 a.m. the following morning. Fishermen will then typically anchor for a few hours to sleep and begin fishing again around 4 or 5 a.m. that morning. Occasionally, fishermen may return home to dock for the night if they are fishing close to their home port (e.g. Point Baker, Frederick Sound, Coffman Cove). This general pattern will be repeated until the designated weekly period closure.

At the fishing period closure, fishermen make deliveries to the tender boat in their fleet. Once a delivery is complete, a fisherman generally returns to their home port and ties up to the dock until the next opener, unless another fishing period is expected within the next 24 hours. If there is the potential for a midweek opener, which would occur 24 hours after the weekly period closure, than fishermen may remain anchored on the fishing grounds after their final delivery. Alternately, if there is a commercial period in Anita Bay before the next Districts 6 and 8 weekly period, some fishermen may travel directly there to fish after making a delivery. Fishermen leaving Districts 6 and 8 to fish in another management district typically first return to port to take on ice at the processing plant before leaving the area. At this time they often notify the processing plan of their intentions.

2.3.9. ADF&G harvest and effort monitoring

Weekly monitoring of fishery performance and salmon run strength is made inseason as a management tool to determine whether a harvestable surplus of salmon exists above escapement needs. Assessments occur using fishermen interviews during commercial periods and commercial fish ticket monitoring.

During each weekly commercial period ADF&G management biologist conduct fishery performance interviews on the fishing grounds. During these surveys biologists visit as many fishing vessels as possible in Districts 6 and 8 over a two-day period to inquire about harvest rates and salmon run strength by species. The survey results are converted to a catch per unit effort (CPUE) rates and compared to historic rates as an index of stock abundance.

The fish ticket is a form documenting the commercial harvest of fish, and is used by ADF&G to monitor harvest catch and effort. The first purchaser of fish is responsible for the completion and submission of fish tickets to the local ADF&G office. In Districts 6 and 8 the first purchaser is typically the tender boat. In rare cases, the first purchaser may be the processing plant or a direct market catcher-seller. Information collected on fish tickets includes: buyer name and code; permit holder name and CFEC permit serial number; vessel name and U.S. Coast Guard number; date of fish landing; gear type used; statistical area where fish were caught (if more than one area is fished the harvest percentage is estimated for each area); number and total weight of fish by species; delivery condition of fish by species; number of other fish species incidentally captured by species; and number of fish by species retained for personal use. At the close of each commercial period fish tickets are collated by the first purchaser and submitted to ADF&G within seven days of the period close. In most cases fish tickets are generally delivered within two days after the weekly period closure.

2.4. Fishing Effort and Distribution

The locations of drift gillnet fishing vessels in District 6 and 8 vary according to the run timing of different salmon species. Generally, the distribution of vessels changes over the course of the fishing season relative to the salmon species targeted for harvest. According to the nine-year (2001-2009) average the highest number of fishing boats in Districts 6 and 8 occurs at the beginning of the season during sockeye management, which coincides with when Chinook salmon are also running (Figure 6).

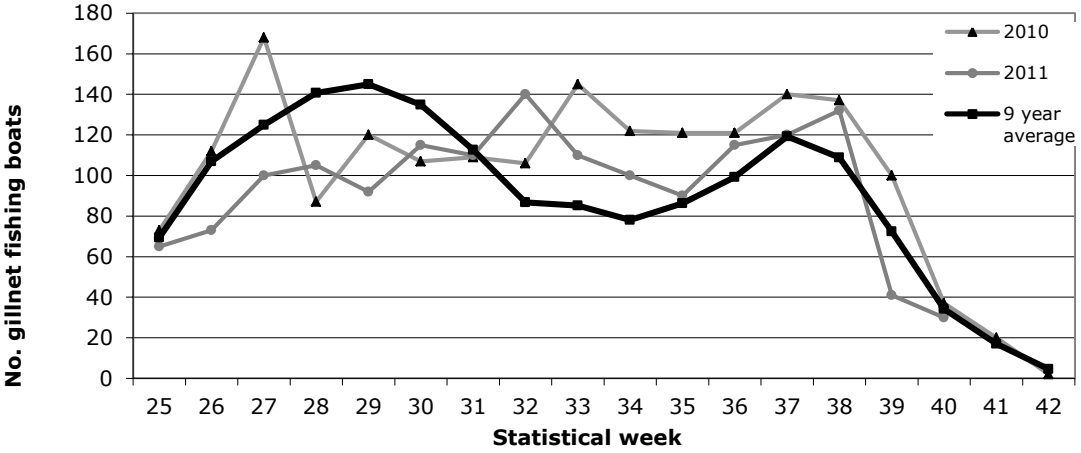


Figure 6. The number of commercial drift gillnet vessels fishing in Districts 6 and 8 by statistical week during 2010 and 2011compared to the 9-year average (2001-2009).

According to the average, the number of fishing boats decline in the area after the sockeye management (statistical week 27) and peaks again around coho management, generally in late August. In 2010, after the apex of fishing during sockeye management, the number of boats drastically declined. This pattern was observed since limited fishing time was given in District 6 and 8 due to protection of the MacDonald Lake sockeye stock. Many of the drift gillnet vessels fished in Districts 11 (Taku) or 1 (Tree Point) during this period because chum salmon were abundant and prices were favorable. A similar pattern was observed in 2011. The total number of vessels in Districts 6 and 8 were lower in 2011 than 2010-most likely due to the larger run size in District 11 and the large number of vessels there. In 2010 and 2011, fishing vessels began to return to the area during statistical weeks 32 and 33 when the pink and chum salmon run sizes were strengthening. Fishing activity later increased again during coho salmon management in statistical weeks 37 and 38. Thereafter, frequent and adverse weather conditions limited the number of boats that fished through the end of the season.

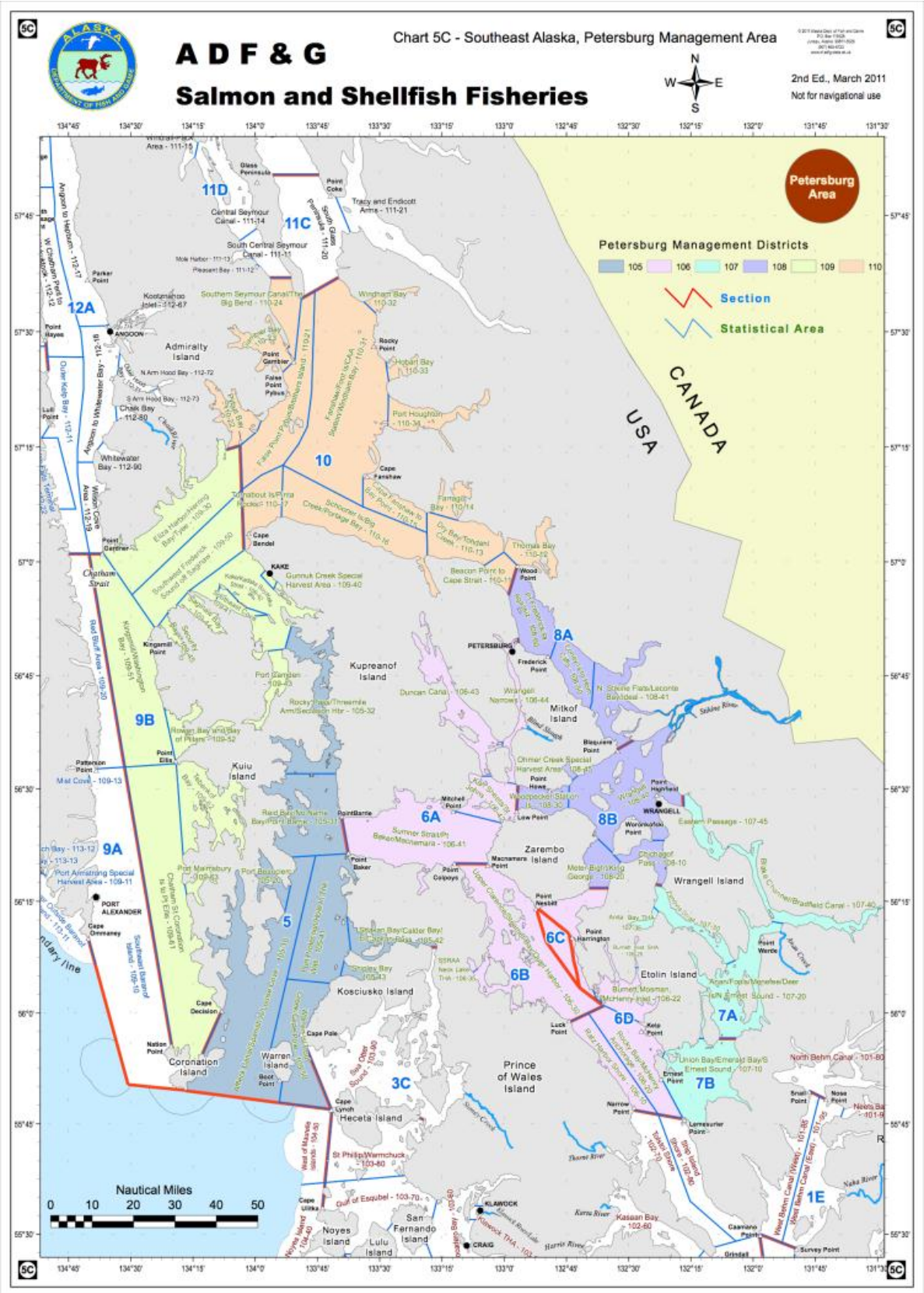


Figure 7. Map of Alaska Department of Fish and Game (ADF&G) management areas Districts 6 & 8.

2.4.1 District 6

2.4.1.1 Subdistrict 6A (statistical areas 106-41 and 106-42): Sumner Strait/Point Baker/Macnamara

Sumner Strait is a strait in the Alexander Archipelago, located in the southeastern region of Southeast Alaska. Sumner Strait is 80 miles long and 10 miles wide, extending from the mouth of the Stikine River to Iphigenia Bay on Prince of Wales Island in the Gulf of Alaska. The ADF&G management area is a 35-mile portion between Zarembo Island, Prince of Wales Island and Kupreanof Island. Subdistrict 6A is separated into two statistical areas: 106-41 and 106-42. Statistical area 106-41 extends approximately 23 miles long and 6 miles wide. It separates Zarembo Island and Prince of Wales Island on the south and Kupreanof Island on the north. The boundary line extends to the south from Point St. John on Zarembo Island to Point Baker and to the north from Point Barrie to Mitchell Point on Kupreanof Island. Statistical area 106-42 extends approximately 12 miles long and 5 miles wide and separates Kupreanof Island and Mitkof Island from Zarembo Island. The area boundaries extend to the south from Low Point to Point St. John and to the north from Mitchell Point to Point Alexander on Mitkof Island.

Sumner Strait is one of the main channels into southeastern Alaska from the sea and is influenced by open ocean weather conditions. A strong marine current flows easterly from the Gulf of Alaska and southern Sumner Strait with an estimated velocity of two knots. West of Zarembo Island the current divides; one branch flows through Snow Passage (subdistrict 6B) and meets the flood current from Clarence Strait and the second branches north and to the east of Zarembo Island (subdistrict 8B) until it meets and is overcome by the current from the Stikine River. The ebb tide generally flows in the opposite direction with considerably greater velocity. At the mouth Point Baker between Strait Island and at the confluence of Sumner Strait and Upper Clarence Strait near Snow Passage, the merging currents and irregularities of the ocean bottom produce heavy swirls and surface disturbances. It is reported that strong currents and heavy tide rips may occur in these areas.

Sumner Strait is vulnerable to easterly winds generated from the mainland ice fields and glaciers. These winds are present year round, but are most pronounced between October and February when open ocean gales arriving from the southwest generate wave heights up to 10 ft, which occur approximately 20 percent of the time (U.S. Coast and Geodetic Survey). Reduced visibility from marine fog is a problem from June through September. Visibility of less than 2 miles can occur about 15 percent of the time in the Point Baker vicinity (U.S. Coast and Geodetic Survey).

Safe harborage from prevailing southerly and westerly weather may be found in Buster Bay, 6.5 miles east of Point Baker. This is a regular anchorage for gillnet and tender vessels. Additionally, there is ample harborage in St. John Harbor, on the northwest side of Zarembo Island. The U.S. Forest Service maintains a logging camp here where log floats and a boat dock may provide safe anchorage.

Traditionally, subdistrict 6A is one of the more commonly fished areas for the entire drift gillnet season. This area is mainly fished to intercept sockeye salmon in Sumner Strait on their return migration up the Stikine River. Fish primarily enter Stikine Strait through the southern entrance from the Gulf of Alaska. Sockeye also make a northward migration into Sumner Strait from Clarence Strait, which is entered from the inside waters at Dixon Entrance. Later in the season, coho and chum salmon may also arrive in Sumner Strait in mulling aggregations until they migrate into the terminal harvest areas at Neets Bay on Prince of Wales Island and Anita Bay in Etolin Island. Chinook and pink salmon also occur, and may be caught incidentally in this area on their migration to the Stikine River. Figure 8 shows the 10 year average of the number of boats fishing in subdistrict 6A (106.41) and subdistrict 6B, by statistical week.

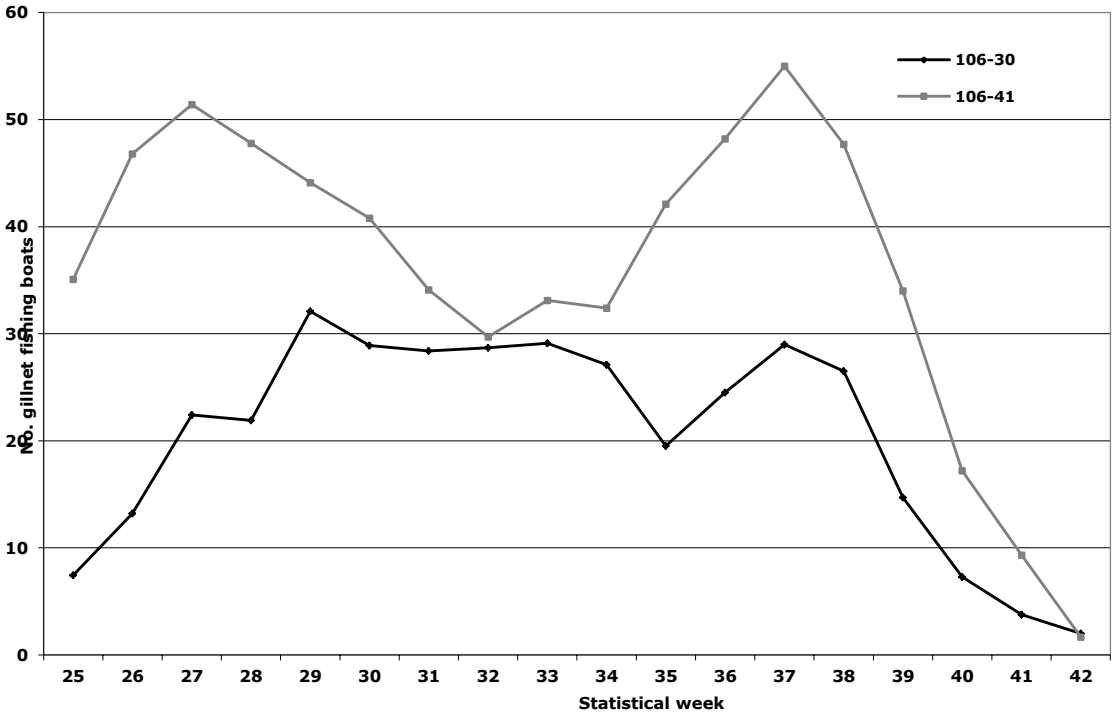


Figure 8. The 10-year average (2001-2010) of drift gillnet boats commercially fishing in statistical areas in subdistricts 6A (106-41) and 6B (106-30) by statistical week. Subdistrict 6A is consistently higher than 6B.

Sumner Strait is fished at all tides; the most common pattern is to drift with the flood tide while setting west to east. Given both high current and debris loads in the water, net soak time is typically one to two hours. Once the net has been retrieved, the fishermen will generally motor back upcurrent and reset the net at a discrete location and drift down current. Fishing boats targeting sockeye salmon will fish from the ADF&G boundary marker line off of Point Baker, down and along the north shore of Prince of Wales Island to Big Point (e.g. a local favorite fishing location). Fishing boats are located approximately one-half to three miles offshore. The highest numbers of boats are concentrated in the center of the strait and right up to the ADF&G boundary line. Few boats early in the season fish along the north side of Sumner Strait, although later in the season more boats move to this area near the south shore of Kupreanof Island to target coho and chum salmon. The number of boats in western Sumner Strait can range between 30 to 60. On the east side of Prince of Wales Island, there are frequently a small number (less than five) of boats targeting coho salmon in the Neck Lake area near Point Colpoys. This area is notoriously challenging for fishing given the swirling current at the convergence of Sumner and Clarence straits. From Macnamara Point to Low Point on the east side of Zarembo Island there are typically 10 to 12 boats fishing for the duration of the season targeting sockeye, coho and chum salmon. Boats here fish about one to two net sets from shore. Fishing is

challenging in this area considering the strong northward current from Snow Passage.

The travel time of a vessel at 10 kns from Petersburg to Point Baker is three hours. The majority of boats fishing in this area arrive from Point Baker and Petersburg. A smaller number of boats from Wrangell fish in this area, although they are mostly concentrated along the Zarembo shoreline. Few boats from Ketchikan are known to fish here.

Common fishing areas in subdistrict 6A include:

- Point Baker
- Point Colpoys
- main channel south of Totem Bay
- Macnamara Point

In Subdistrict 6A, the area around Totem Bay is closed by emergency order to drift gillnet fishing. The closure occures: from about 10.5 miles northeast of Point Baker where there is a large indentation on the north shore of Sumner Strait, to midway between Point Barrie and Mitchell Point. A reef extends 1.2 miles east from the west point at the entrance. A shoal extends 0.2 mile off the E point at the entrance. This area is closed through sockeye management and may be open later in the season during pink and chum salmon.

2.4.1.2 Subdistrict 6B and 6C (statistical area 106-30): Upper Clarence/Steamer Bay/Quiet Harbor

Clarence Strait is a strait in southeastern Alaska in the Alexander Archipelago separating Prince of Wales Island, on the west side, from Revillagigedo Island, Annette Island, and Etolin Island on the east side. Clarence Strait is 126 miles long, extending from Dixon Entrance, the international boundary between the U.S. and the province of British Columbia in Canada, to Sumner Strait. The ADF&G management area (106-30) extends approximately 32 miles long and 6 miles wide and separates Etolin Island and Zarembo Island to the east and Prince of Wales Island to the west. The management boundaries of subdistrict 6B extend from the south at Point Stanhope on Etolin Island, to Luck Point on Prince of Wales Island, north to Macnamara Point on Zarembo Island to Point Colpoys on Prince of Wales Island.

Subdistrict 6C is a narrow, diamond-shaped area occurring at the confluence of Clarence Strait and Stikine Strait. The four corners of the management area extend to the south at Lincoln Rock, a prominent islet with a navigational light 0.3

miles from Etolin Island located to the west at Key Reef, a rocky reef located 3 miles east of Point Harrington, to the north to Point Nesbitt on Zarembo Islands, and east to Point Harrington on Etolin Island.

Clarence Strait extends in a north direction from Dixon Entrance to Sumner Strait. At the south entrance to Zarembo Island the strait divides. The eastern channel is called Stikine Strait, a route taken by vessels to Wrangell and Wrangell Narrows. The western channel is Snow Passage, a deep channel used for vessels bound to Wrangell Narrows (enroute to Petersburg or north). The passage is regularly transited by larger vessels, including tugs, barges, coastal freighters, as well as cruise ships from May through September.

Clarence Strait is exposed to open ocean conditions from the south and southwest. The current throughout the strait has a maximum velocity of four knots (U.S. Coast and Geodetic Survey). In general, the currents run directly north and south through the strait during flood and ebb. There may be a small countercurrent near the vicinity of entrances to coves or tributaries along the strait. Additionally, a countercurrent meets the main current at the entrance of the large bay at Point Stanhope, at the south boundary of subdistrict 6B. The currents in Clarence Strait are most extreme at Snow Passage. The flood current has a velocity up to three knots and the ebb current has a velocity up to four knots (U.S. Coast and Geodetic Survey). Swirls of some severity occur through the passage and particularly steep waves exist at both passage entrances during strong south winds with contrary currents. Heavy logging activity on nearby islands will cause considerable debris loads, including drifting logs, throughout Clarence Strait, particularly in Snow Passage.

The orientation of Clarence Strait causes exposure to strong southeasterly weather systems during the fall and early winter. Gales may also blow down the strait from the northwest. The southern part of the strait is the most exposed to open ocean weather. These waters tend to be more sheltered from summer marine fog, compared to Sumner Strait (U.S. Coast and Geodetic Survey).

The northern area of Upper Clarence Strait is marked with two small islands groups, the Blashke and Kashevarof Island groups. These are low and wooded islands surrounded by numerous bare rocks. There are many passages between the islands, but extreme caution is advised when navigating due to the rocks and reefs. The current at the northwest end of Kashevarof Passage is similar to Snow Passage, but its velocity is considerably less. Many small eddies and whirlpools are found in this area.

Protected shelter may be found in several bays and inlets through Clarence Strait. Steamer Bay, east of Point Harrington on Etolin Island, affords some anchorage, although the holding ground is not good, particularly with southeast winds.

Coffman Cove, located on the east side of Clarence Strait on Prince of Wales Islands, is protected by Coffman Island. There is good anchorage for small craft in the middle of the southeast part of the cove. Additionally, Coffman Cove is a small residential community with a ferry terminal, boat ramp and city pier. Whale Pass leads between Prince of Wales Island and Thorne Island. This pass has some anchorage near a logging camp located on the northeast side of the bay. Floats for small craft, tugs and seaplanes are located near the camp.

Exchange Cove, which is north of Whale Pass on Prince of Wales Island, is the largest sheltered anchorage in this vicinity. It has room for several small vessels and is well protected from all directions. Anchorage may also be found on the northwest side of Bushy Island, in the Kashevarof Islands, and is protected from all winds except those from the northwest. Salmon Bay is located just south of Point Colpoys on the northeasterly point of Prince of Wale Islands. A sheltered anchorage for small vessels can be found here and is extensively used for subsistence fishing by local boats. ADF&G anchors a floating cabin in Salmon Bay for the commercial salmon fishing season.

Subdistrict 6B is also a commonly fished statistical area throughout the entire drift gillnet season, particularly in the southern portion. This area is mainly fished to intercept the enhanced Neck Lake coho stock and chum salmon returning to the terminal harvest areas at Neets Bay and Anita Bay. Fish primarily enter north through Clarence Strait from the inside waters at Dixon Entrance. Fish traveling north through Clarence Strait may aggregate at the divide of the strait into Stikine Strait. This area is most popular later in the season as pink salmon make their northward migration through the area.

Subdistrict 6B can generally be divided into two common fishing areas, south and north, representing considerably different current conditions. In the southern portion of Clarence Strait, the bulk of fishing activity is centered halfway between Point Nesbitt and Point Harrington, south to the lighthouse near Point Stanhope. Boats fish between one half and one mile offshore. The southern strait is fished at all tides; during the flood tide nets are fishing south the north, whereas sets are in the opposite direction during the ebb. The number of boats in southern Clarence Strait can range between 20 and 40, although in 2010, over 60 boats were seen fishing in this area at one time. Later in the season when coho and chum run sizes strengthen, more of the fleet may be concentrated along the western portion of the strait near Luck Point. As the salmon runs progress fishing boats may move northwestward in the strait towards Whale Pass. Later in the season, lee from northern and easterly winds can be found behind the outlying islands. The waters in the southern portion of Clarence Strait are typically less influenced by current and debris than the northern portion of the strait; therefore, net soak time is typically two to four hours. Fishermen in the Point Harrington area may sleep

while the net is drift fishing. However, later in the season strong storms arriving from the south may inhibit fishing.

The northern portion of Upper Clarence Strait is notorious for strong, swirling currents and substantial wave activity from the converging waters of Sumner and Clarence straits. There are also substantial foul areas and rocks around the numerous islands dotting the northern part of the strait. A culmination of these conditions limits the number of boats that actively fish in northern Clarence Strait. A small number of boats (e.g. six) may fish along the north shore of Bushy Island, where there is refraction of the strong Snow Passage current and southeasterly winds.

The travel time of a vessel at 10 kns from Wrangell to Point Harrington is three and a half hours. The majority of boats fishing in the southern portion of Clarence Strait arrive from Coffman Cove and Wrangell. Additionally, boats from Ketchikan or Craig belonging to the E.C. Philips processing fleet fish in this area. Few boats from Petersburg fish in the southern portion of the strait, although some may fish in the northern portion.

Common fishing areas in subdistrict 6B include:

- Bushy Island
- Whale Pass
- Exchange Cove
- Luck Point
- Point Nesbitt/Point Harrington

2.4.1.3 Subdistrict 6D (statistical area 106-22): Burnett/Mosman/McHenry Inlet

The following section in subdistrict 6-D is closed by emergency order to gillnet fishing: north and east of a line from Mariposa Rock Buoy to the northernmost tip of Point Harrington, to a point on Etolin Island at 56°09.60' N. latitude, 132°42.70' W. longitude, to the southernmost tip of Point Stanhope and south of a line from Point Stanhope to Luck Point. This area is open for gillnet fishing during the months of June, August, and September, and closed at other times to allow for seine fishing. Additionally, during sockeye management, the area in Salmon Bay is closed west of a line from Point Colpoys to Rookery Island Light to the westernmost tip of Fire Island to a point on Prince of Wales Island at the latitude of the westernmost tip of Fire Island.

Subdistrict 6D is a management area composed of three statistical areas, which generally extend from the north at Point Stanhope to the south at Lemesurier Point at the confluence of Earnest Strait. However, only a narrow portion of statistical area 106-22 in subdistrict 6D, extending approximately 11 miles long and 1 mile wide, is occasionally open to drift gillnet fishing during the early and

late portions of the season. The management boundaries for this area (referred to as the "Screen Islands Shore") extend from the southernmost tip of Point Stanhope, to a western line from Mariposa Rock Buoy, to the northernmost tip of Point Harrington.

Current and weather influence is similar to that previously described for Upper Clarence Strait. There is no safe harborage for vessels in this area.

2.4.2 District 8

2.4.2.1 Subdistrict 8A (statistical area 108-50 and 108-60): Coney Island to Hom Cliffs and Point Frederick/Point Agassiz

Frederick Sound is a strait in Southeast Alaska extending northeast to the entrance of Stephens Passage and southeast along the mainland to Dry Strait, a narrow high-water boat passage connecting to the east end of Sumner Strait. Frederick Sound separates Mitkof and Kupreanof Islands from the mainland to the south and Admiralty Island to the north. The ADF&G management subdistrict is composed of two statistical areas open to drift gillnet fishing: 108-50 and 108-60. The northern statistical area, 108-60, extends approximately 12 miles long and 3 miles wide from the north at Cape Strait on Mitkof Island to Wood Point on the mainland, to the south at Frederick Point on Mitkof Island to Point Agassiz on the mainland. The southern statistical area, 108-50, extends approximately 10 miles long and 3 miles wide from the north at Frederick Point and Point Agassiz to the south at Ideal Cove to a point adjacent to Thunder Mt. on the mainland.

Generally, Frederick Sound is open and clear of obstructions and has few offshore navigational dangers. The tidal current on the flood enters Frederick Sound from Chatham Strait to the west and runs east through Frederick Sound arm. The ebb current flows in the reverse direction. The close location of Frederick Sound to the mainland, while sheltered from the open Gulf, is exposed to southeast winds, which are predominant from October through February. Marine fog in the summer months may reduce visibility to less than 2 miles (U.S. Coast and Geodetic Survey).

Glacial ice from Le Conte Bay, located on the mainland south of statistical area 108-50, is generally present in the arm of Frederick Sound and may occur in large quantities. Ice can most often be avoided, although in certain locations large amounts of ice may create navigational hazards.

Predominant geographic features in Frederick Sound arm include: Ideal Cove at the south side of Frederick Sound. Log storage extends along the eastern shore of the cove and at times may occupy the entire cove. Anchorage is possible for small craft by tying up to the log booms. Coney Island is a steep island on the southern

end of 108-60, near the edge of the Stikine River Flats. Le Conte Bay, on the north side of the head of Frederick Sound and just south of the 108-60 southern boundary, at times is inaccessible due to floating ice. The great depths in the bay prevent anchorage. Sukoi Islets are two wooded islands in close promixity to the eastern entrance to Wrangell Narrow. The smaller of the Sukoi Islands is approximately 1 mile offshore of Frederick Sound.

Subdistrict 8A is the least heavily fished statistical area in Districts 6 and 8. This area is mainly fished to intercept salmon migrating southward into the northern channel of the Stikine River. The bulk of fishing activity occurs along the eastern side of Frederick Sound, adjacent to the mainland from Point Agassiz in statistical area 108-60 to Horn Cliffs in statistical area 108-50. Boats work their gear a few hundred yards offshore mainly during the flood tide as it runs south through the sound. The number of boats in Frederick Sound is typically between 5 and 10, although in 2010 over 20 boats fished during the third weekly period. A higher number of boats traditionally fish in the northern statistical area. The sound is relatively protected from substantial current and wave activity, thus net soak time ranges from two to five hours. Fishermen may sleep while their net is drift fishing.

Gillnet fishing in subdistrict 8A is highest early in the season during sockeye salmon management. In recent years, a second and smaller pulse in fishing activity has occurred during pink salmon management. In 2010, for statistical area 108-50 the number of drift gillnet boats fishing per weekly period was similar to the 9-year (2001-2009) average, although an uncharacteristic peak in fishing occurred during pink salmon management in statistical week 33. The number of boats was two times higher than the average and likely attributed to the relatively high pink salmon market price. During 2010 in statistical area 108-60, the fishing patterns were near the 9-year average for all statistical weeks except during pink and chum salmon management where the numbers of boats was above average, most likely related to the spike in market price.

Frederick Sound is located in close proximity to Petersburg; therefore, almost all boats fishing in this area originate from there. Travel time to the fishing grounds is approximately one hour. Given the close location to town, many of the fishermen may fish only during the day and return to port at night. Traditionally, the fleet is composed of senior fishermen (e.g. retired) with casual fishing methods.

Common fishing areas in subdistrict 8A include:

- Point Agassiz
- Horn Cliffs

The following area is closed by emergency order in Frederick **Sound: south and west of a line from the District 10 boundary one nautical mile off the Kupreanof Island shoreline to Sukoi Island Light to the southernmost tip of Sukoi Island to the southernmost tip of McDonald Island to the mainland shore at the latitude of the** southernmost tip of McDonald Island. While this area is commercial gillnet not a permanent closure, it typically remains closed for the duration of the season (Thynes, pers. comm.).

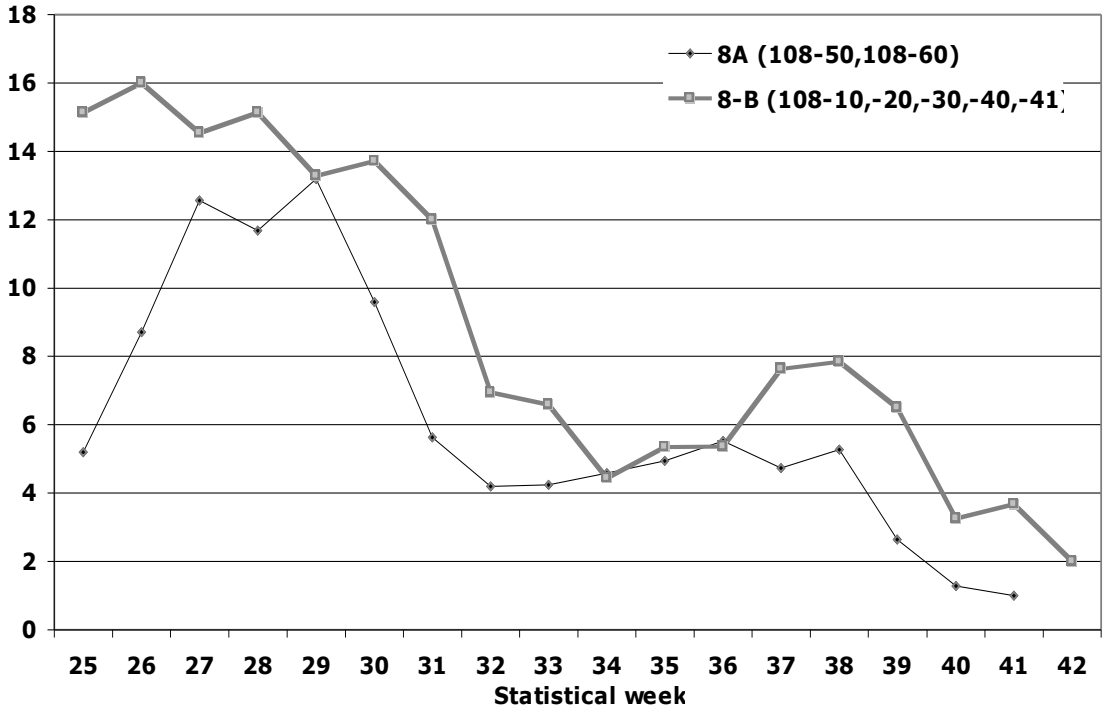


Figure 9. The 10-year (2001-2010) average of drift gillnet boats commercially fishing in statistical areas in subdistrict 8A (108-50,-60) and 8B (108-10,-20,-30,-40,-41) by statistical week.

2.4.2.2 Subdistrict 8B (statistical areas 108-20, 108-30, 108-40, and 108-41): Chicagof Pass, Meter Bight/King George, Woodpecker/Station Is, and Wrangell

Subdistrict 8B is composed of waters surrounding the greater Wrangell area and includes the head of Sumner Strait, the entire Stikine Strait, Chicagof Pass, and the northern portion of Zimnovia Strait. This area is commonly referred to as "Stikine Flats." Subdistrict 8B comprises four ADF&G statistical areas, including: 108-20, 108-30, 108-40, and 108-41. Statistical area 108-10 separates Wrangell Island to the east and Etolin Island to the west and extends north to the southern side of Woronofksi Island. The area is approximately 11 miles long and 2 miles wide. The management boundaries to the south extend from Nemo Point on Wrangell Island north to Chichagof Point and west along the southern shore of Woronkofski Island to the westernmost point at Reef Point. Statistical area 108-20 separates the northwestern portion of Etolin Island to Zarembo Island to the west and extends north to the western side of Woronofksi Island. The area is approximately 8 miles long and 5 miles wide. The management boundaries to the

south extend from Round Point on Zarembo Island north to Craig Point and east and south to Reef Point on Woronkofski Island to the westernmost point on Etolin Island. Statistical area 108-30 separates Zarembo Island to the south and Mitkof Island to the north. The area is approximately 16 miles long and 9 miles wide. The management boundaries adjoin the eastern boundary of 108-30 to the west, the northern boundaries of 108-10 and 108-20 to the south, the southeasterly shore of Mitkof Island and the southern edge of Dry Strait to the north, and the mouth of the Stikine River along the mainland south to Point Highfield to the east.

Stikine Strait connects the north part of Upper Clarence Strait (subdistrict 6B) with the east end of Sumner Strait near the mouth of the Stikine River. The strait is generally used by vessels enroute to Wrangell. Stikine Strait is broad and deep, thus mainly free of navigational dangers. Chichagof Pass, between the south side of Woronkofski Island and the north side of Etolin Island, connects Stikine Strait with the north part of Zimovia Strait. The water is also generally clear of navigational hazards except for Young Rock, located at the east end of the Pass in Zimovia Strait. Zimovia Strait, between Etolin Island and Wrangell Island, connects Ernest Sound with the east end of Sumner Strait. The strait is a convenient route for small vessels bound from Ketchikan to Wrangell.

In Stikine Strait, the flood runs north through the strait until met by the outflow current from Stikine River. Velocity of the current is about two knots (U.S. Coast and Geodetic Survey). The edge of the current from the Stikine River is well defined by its muddy white appearance. The current may be noticed west of Vank Island and south in Chichagof Pass and Stikine Strait. The ebb current flows from Sumner Strait through Stikine Strait and Chichagof Pass to Clarence Strait. In Zimovia Strait, the flood current enters from both the north and south ends; the approximate velocity is two knots (U.S. Coast and Geodetic Survey). Between Woronkofski Island and Wrangell Island, the ebb runs south out through Chichagof Pass and the flood sets north.

The Stikine River empties into the head of Sumner Strait by two mouths. The north channel enters the head of Frederick Sound; the other channel follows the mainland south and enters close to the town of Wrangell. The river entrance has a depth of about two feet and the mean tidal range of tide is about 11½ feet (U.S. Coast and Geodetic Survey). Tidal effects may occur at a distance of 15-17 miles from the river mouth.

The orientation of Stikine Flats, which lies among the confluence of Sumner Strait, Stikine Strait and Zimovia Pass, may cause confused weather. The head of Sumner Strait is vulnerable to easterly winds generated from the mainland ice fields and glaciers. Sumner Strait, connecting to Clarence Strait, is exposed to strong southeasterly weather systems. Zimovia Strait is also exposed to

southeasterly systems from Ernest Sound to the south. While winds and current may mix in these areas the close proximity to the mainland generally creates conditions more protected than farther west locations exposed to the open ocean.

The Stikine Flats area is relatively free of navigational hazards and there are several safe anchorages here. Woodpecker Cove is a small indentation on the north side of Sumner Strait, affording anchorage with protection from Stikine winds. Blind Slough enters the south end of Mitkof Island. It has a wooded island at the entrance and, while shallow, may provide safe harborage behind the islands. Baht Harbor, on the north shore of Zarembo Island, is a broad, open bight with safe anchorage from southeast winds. Other common geographical features in this area that may not necessarily afford safe harborage include: Craig Point, marked by a light, on the north shore of Zarembo Island; and Vank Island, about two miles off the northeast end of Zarembo Island. Vank Island is a wooded island with a small church and a few cabins. The bight in the north end at times may used as a small-craft anchorage. "Elephant nose" is a commonly referenced ridgeline feature on the northeast end of Woronkofski Point.
Given the relative expanse of subdistrict 8B, considerable variability occurs between statistical areas over the course of the fishing season. The statistical areas located at the head of Sumner Strait primarily target sockeye salmon during their return migration up the Stikine River. Sockeye salmon travel eastward from Sumner Strait and northward through Stikine Strait, merging in Stikine Flats prior to entering the Stikine River. Pink and coho salmon are targeted in the southern statistical areas where runs are intercepted in their northward migration to the Stikine River and for Anita Bay THA. Fish primarily enter Stikine Strait through the south entrance to the Gulf of Alaska.

The pattern of fishing in subdistrict 8B varies by statistical area. In statistical area 108-30, between Mitkof and Zarembo Islands in Sumner Strait, fishing commonly occurs during the flood tide as it sets towards the Stikine River. Sockeye and Chinook salmon are primarily targeted early in the season. Net soak time is generally between 1 to 3 hours, depending on current and wind activity. During slack and ebb tides, fishermen may break until the proximate flood. Most fishermen aggregate along the northshore of Zarembo Island at Low Point and Craig Point. Up to 30 boats may fish this area in the early season during sockeye management (Figure 10e). Beginning in statistical weeks 31 and 32, the number of boats fishing here drops. A smaller number of boats (one to three) fish on the south end of Mitkof Island in Blind Slough and Woodpecker Cove. Both areas are frequented by the same local fishermen week after week. The number of boats fishing in 2010 was slightly below the 9-year average for all statistical weeks in this area.

The pattern of fishing in statistical area 108-40, located closer to the Stikine River mouth, is similar to area 108-30 in that sockeye and Chinook salmon are initially

targeted. A smaller pulse in the number of boats may also occur late season as coho and chum salmon run sizes strengthen. Net soak time is generally one to three hours, although may be shorter for boats fishing in the vicinity of the surrounding islands. Between five and ten boats generally fish in this area and mostly occur east of Craig Point on Zarembo Island and around Vank Island. Boats also fish around the eastern point of Woronkofski Island later in the season to target salmon returning south through Zimovia Strait to Anita Bay THA. The number of boats fishing in 2010 was below the 9-year average, particularly in the early season during sockeye management. Later in the season, during coho management, the number of boats fishing was slightly above the average.

Chichagof Pass and upper Zimovia Strait (statistical area 108-10) are among the more commonly fished areas in subdistrict 8B during late sockeye and early pink salmon management. Fishing is typically concentrated around flood tide, where fishermen set their nets along the western end of Woronkofski Island at the confluence with Stikine Strait. Fishermen repeatedly drift eastward along the southshore of the island, otherwise referred to as "The Bend." Net soak time is generally between one to three hours, depending on current and wind activity. During slack and ebb tides, fishermen may break until the proximate flood or move to a different area. Up to thirty boats may fish this area in the early to mid season; thereafter, the number of boats in the area decline. The number of boats fishing in 2010 was near the 9-year average for all statistical weeks in the area.

In statistical area 108-40, a small number of boats fish most statistical weeks throughout the season. The area is most popular later in the season during coho salmon management where the late season stocks returning to Anita Bay THA are intercepted. Although a small number (e.g. two to four) of boats fish this area sporadically during the early season. Beginning late season, the numbers of boat steadily increase in relation to strengthening coho salmon runs. Fishermen most commonly fish along the east side of the strait just south of "The Bend," and place their nets approximately one to two sets from shore. This area is far less exposed than Upper Clarence Strait during the later summer months thereby offering relatively protected fishing conditions.

Fishing is typically concentrated around the flood tide, although the ebb tide may also be fished. Net soak time is generally between two to four hours. The pattern of numbers of boats fishing in 2010 was slightly different compared to the 9-year (2001-2009) average. During 2010, there were a few weekly periods in which no fishing boats occurred in this area. However, later in the season, beginning in statistical week 36, the number of boats peaked well above the average for five consecutive periods.

The travel time from Petersburg to subdistrict 8B is approximately two to three hours. Travel time from Wrangell is generally less than two hours. The majority

of boats fishing in this area, particularly in the southern statistical areas (108-10 and -20) arrive from Wrangell, whereas boats from both Petersburg and Wrangell regularly fish in areas 108-30 and -40.

Common fishing areas in subdistrict 8B include:

- Low Point
- Woodpecker Cove
- Blind Slough
- Craig Point
- Vank Island
- The Nose
- King George/ "The Bend"

The following area around the Stikine River is closed by emergency order, including waters off the Stikine River which are closed east of a line from a point east of Blind Slough on Mitkof Island at 56°31.95' N. latitude, 132°40.67' W. longitude to the small island near the eastern entrance of Blind Slough to Two Tree Island Light to Neal Point Light to Ancon Point Light and then south down the Woronkofski Island shoreline to Reef Point to the northwest tip of Etolin Island at 56°20.01' N. latitude, 132°32.32' W. longitude. This area may be open to fishing during certain parts of the season, depending on salmon run strength.

2.4.3. Subdistrict 7A (statistical area 107-35): Anita Bay Terminal Harvest Area (THA)

Subdistrict 7A includes Zimovia Strait and merges with Ernest Sound waters to the south. ADF&G management area 107-35 is a Terminal Harvest Area located in Anita Bay. The bay is located on the west side of Zimovia Strait, approximately 13 miles from the north strait entrance. The area is approximately 6 miles long and half a mile wide and the management boundaries extend from the head of the cove to Anita Point and north across the mouth.

Anita Bay is a deep water channel and is clear on both sides of navigational hazards. The bay is exposed to strong southeasterly winds blowing down the valleys from Etolin Island. Currents flowing east and west from Zimovia Strait are met with small countercurrent flowing outward from the tributary at the mouth of the bay.

Safe anchorage can be found near the head of the bay. A fish hatchery is in a small inlet along the northwest shore of Anita Bay. A log boom lies across the inlet and a mooring buoy is 60 yards offshore of the log boom.

Hatchery-enhanced salmon are intercepted as they return to terminal areas at the hatchery release site in Anita Bay. Anita Bay is open each year to allow the harvest surplus of Chinook, chum and coho salmon. The fishery is open from May through mid-June for concurrent gillnet and seine fisheries. Beginning in mid-June the fishery is open on a rotational schedule alternating between gillnet and seine fishing. Commercial openings are 24-hours in duration, after which there is a 24-hour close before opening for an additional 24-hour period for the alternate fishery. While Chinook, chum and coho salmon are primarily harvested, a smaller number of sockeye and pink salmon are also caught. The bulk of effort is concentrated early in the season during the Chinook salmon run and again later in the season when coho and chum salmon returns have strengthened.

The hatchery release site is located at the narrow head of the bay; therefore, the bay supports a gauntlet-style fishery with fishing boats positioned along the entire 6-mile length of the bay. Most fishing boats are positioned at the mouth of the bay or along prominent contours and headlands in the shoreline. Most boats work their gear 100 yards or less from the shoreline as the bay is narrow and deep. Depending on the time of year, boats may also aggregate at the head of the bay near the hatchery release site, where they target aggregations of returning salmon. The bay is relatively protected from substantial current but exposed to wind generated wave activity from the west, thus net soak time ranges from two to three hours.

The number of boats in Anita Bay is variable depending on the weekday of the opening period occurs. There are typically less boats fishing in the bay if the opener coincides with a scheduled weekly period in Districts 6 and 8. If the Anita Bay opener falls between (i.e. Thursday, Friday, or Saturday) the scheduled District 6 and 8 weekly opener then more boats are present in the bay. The numbers of gillnet boats in Anita Bay ranges from 10 to 30 and is limited by sufficient space to support a higher number of boats. The fishing activity by statistical week in Anita Bay during 2010 is summarized in Table 3.

Table 3. The commercial drift gillnet fishing schedule in the Anita Bay terminal harvest area (THA) located in District 7, Alaska. The continuous fishing schedule is open unless closed by Emergency Order (EO).

Dates	Schedule	Gear type
May 1–Jun 12	open continuously to all fishers	gillnet,seine, troll
Jun13-Aug 31	24-hr rotation between gear types begin/end at 12pm; each fishing period followed by a 24-hr closure	gillnet, seine
Sept 1-Nov 10	open continuously to all fishers	gillnet, seine, troll

An Alaska Department of Fish and Game news release announcing the opening of a weekly commercial gillnet fishing period in Southeast Alaska.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE

Cora Campbell, Commissioner
Jeff Regnart, Director

Contact:
Bill Davidson

Phone: (907) 747-6688
Fax: (907) 747-6693

Sitka Area Office
304 Lake Street, Rm. 103
Sitka, Alaska 99835
Date: July 21, 2011
Time: 2:15 p.m.

SOUTHEAST ALASKA DRIFT GILLNET FISHERY ANNOUNCEMENT

Sitka. . . The Alaska Department of Fish and Game announced today the opening of the Southeast Alaska drift gillnet fishery beginning Sunday, July 24, 2011.

Section 1-B: will be open from **12:01 p.m., Sunday, July 24, through 12:00 noon, Thursday, July 28,** with the following restriction:

Pearse and Portland Canals: will be closed north of the latitude of Akeku Point located at the southern entrance of Edwards Passage.

District 6: will be open from **12:01 p.m., Sunday, July 24, through 12:00 noon, Tuesday, July 26**, with the following restrictions:

Section 6-D: will be closed north and east of a line from Mariposa Rock Buoy to the northernmost tip of Point Harrington, to a point on Etolin Island at 56°09.60' N. latitude, 132°42.70' W. longitude, to the southernmost tip of point Stanhope and south of a line from Point Stanhope to Luck Point;

Salmon Bay: will be closed west of a line from Point Colpoys to Rookery Island Light to the westernmost tip of Fire Island to a point on Prince of Wales Island at the latitude of the westernmost tip of Fire Island.

District 8: will be open from **12:01 p.m., Sunday, July 24, through 12:00 noon, Tuesday, July 26,** with the following restrictions:

Frederick Sound: waters of Frederick Sound will be closed west of a line from the District 10 boundary one nautical mile off the Kupreanof Island shoreline to Sukoi Island Light to Point Frederick, and south and east of a line from the prominent point of Mitkof Island nearest Coney Island to the northern end of Coney Island to a point 500 yards north of Jap Creek on the mainland shore;

Stikine River: waters off the Stikine River will be closed north and west of a line from Babbler Point to Hour Point, and north and east of a line from Point Highfield to the southern end of Liesnoi Island to the southern end of Greys Island to the small island near the eastern entrance of Blind Slough to the nearest point of Mitkof Island;

GN wk31 page 1 of1 July 21, 2011

An Alaska Department of Fish and Game news release announcing an extension of the weekly commercial gillnet fishing period in Southeast Alaska.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE

Cora Campbell, Commissioner
Jeff Regnart, Director

Contact:
Kevin Clark

Phone: (907) 772-3801
Fax: (907) 772-9336

Petersburg Area Office
16 Sing Lee Alley
Petersburg, Alaska 99833
Date: July 6, 2011
Time: 11:30 a.m.

DISTRICT 6 and 8 DRIFT GILLNET FISHERY EXTENSION

Petersburg. . . The Alaska Department of Fish and Game announced today the drift gillnet fishery in Districts 6 and 8 will be extended for an additional **24** hours and will close at **12:00 noon on Thursday, July 7**.

District 6: will be **extended for 24 hours and will close at 12:00 noon Thursday, July 7,** with the following restriction:

Section 6-D: will be closed north and east of a line from Mariposa Rock Buoy to the northernmost tip of Point Harrington, to a point on Etolin Island at 56°09.60' N. latitude, 132°42.70' W. longitude, to the southern most tip of Point Stanhope and south of a line from Point Stanhope to Luck Point;

Salmon Bay: will be closed west of a line from Point Colpoys to Rookery Island Light to the westernmost tip of Fire Island to a point on Prince of Wales Island at the latitude of the westernmost tip of Fire Island.

District 8: will be **extended for 24 hours and will close at 12:00 noon Thursday, July 7,** with the following restrictions:

Frederick Sound: waters of Frederick Sound will be closed west of a line from the District 10 boundary one nautical mile off the Kupreanof Island shoreline to Sukoi Island Light to Point Frederick, and south and east of a line from the prominent point of Mitkof Island nearest Coney Island to the northern end of Coney Island to a point 500 yards north of Jap Creek on the mainland shore;

Stikine River: waters off the Stikine River will be closed north and west of a line from Babbler Point to Hour Point, and north and east of a line from Point Highfield to the southern end of Liesnoi Island to the southern end of Greys Island to the small island near the eastern entrance of Blind Slough to the nearest point of Mitkof Island;

Kunk Creek: waters of Kunk Creek will be closed west of a line extending due south from a point on Etolin Island at 56°17.82' N. latitude, 132°22.98' W. longitude, to the District 7/8 boundary line in Zimovia Strait.

This announcement was made on the fishing grounds via VHF radio at approximately 10:00 a.m. Wednesday, July 6.

D6/8 ext wk28 page 1 of1 July 6, 2011

A list of local contacts associated with the ADF&G drift gillnet fishery in ADF&G management Districts 6 & 8.

Town	Affiliation	LastName	FirstName	Title	Phone	Email
Fairbanks	UAF	Hoyt	Zack	Sea otter researcher	-	znhoyt@alaska.edu
Ketchikan	E.C. Phillips Seafoods	Porter	Ron	Fleet manager	723-4382	
	Southeast Regional Aquaculture Assoc	Burke	John	General manager	225-9605	
	E.C. Phillips Seafoods	Marsh	Tomi	Tender vessel captain, F/V Savage	206-849-4127	
Petersburg	ADFG	Thynes	Troy	Area management biologist	772-3801	troy.thynes@alaska.gov
	ADFG	Clark	Kevin	Asst. area management biologist	772-5239	kevin.clark@alaska.gov
	ADFG	Rice	Jeff	Dock side sampling manager	772-3801	jeff.rice@alaska.gov
	US Forest Service	Savage	Chris	Disrtict Ranger	772-5900	csavage@fs.fed.us
	Petersburg Harbor	Tagaban	Ed	Office manager	772-4688	harbor@ci.peteresburg.ak.us
	Icicle Seafoods	Lantiegne	Randy	Fleet Manager	518-0800	randyl@icicleseafoods.com
	Icicle Seafoods	Wilson	Patrick	General manager	772-4294	
	Icicle Seafoods	Timm	Kevin	Assistant fleet manager	772-4294	
	Icicle Seafoods	Narraway	Charlie	Dock manager	772-4294	
	Icicle Seafoods	Jip	Qwang	Asst. dock manager	772-4294	
	Icicle Seafoods	Dolan	Bob	Gillnet fisherman	518-4050	jaleo_alaska@yahoo.com
	Icicle Seafoods	Staake	Lynn	Gillnet fisherman	518-1821	
	Kiseno Guest House	-	Margaret	Owner	772-3358	kisenohouse@gci.net
	Marine Mammal Center	Holmes	Don	President	518-5009	holmes.don@gmail.com
	Marine Mammal Center	Bracken	Barry	Board member/naturalist	518-0019	bbsea@gci.net
	NMFS	Cook	Jerod	Enforcement office	772-2285	jerod.cook@noaa.gov
	Petersburg Visitor's Center	Menish-Meucci	Marilyn	Manager	772-4636	visitorinfo@alaska.com
	Petersburg Indian Association	Ware	Will	Tribal administrator	772-3636	wware@piatribal.org
	Rocky's Marine Inc	Flint	Casey	Manager	772-3949	casey@rockysmarine.com
	Sea Grant	Rice	Sunny	Marine advisory agent	772-3381	sunny.rice@alaska.edu
	Sportfish Association	Malcolm	Stan	Member	772-9255	<magicman@aptalaska.net>
	Trident	Dolan	Bob	fisherman	518-4050	jaleo_alaska@yahoo.com
	Trident Seafoods	Ohmer	Nick	Fleet Manager	772-3333	nohmer@tridentseafoods.com
	Trident Seafoods	Ohmer	Dave	General manager	772-3333	dohmer@tridentseafoods.com
	Trident Seafoods	Short	Matt	Tender vessel captain, F/V Kaleigh Anne	772-3585	
	Trident Seafoods	Short	Joe	Tender vessel captain, F/V Carole B	772-3585	
	Trident Seafoods	Augustine	John	Tender vessel captain, F/V Sue Lynn	305-0408	
Wrangell	ADFG	Kowalske	Tom	Asst. area management biologist	874-3822	thomas.kowalske@alaska.gov
	Alaska Vista	Ettefag	Sylvia	Naturalist	206-849-4127	
	Bay Co	Powell	Dave	Manager	874-3340	info@baycompany.com
	Breakaway Adventure	Yancey	Eric	Water taxi operator	874-2488	eric@breakawayadventures.com
	Sea Level Seafoods	Phillips	Vern	Manager	874-2401	
	Sea Level Seafoods	Moody	John	Dock manager	874-2401	
	Sea Level Seafoods	Petermann	Tim	Tender vessel captain, F/V Sprite	723-3576	
	Svendsen Marine	Svendsen	Dave	Owner	230-5773	smwboats@gci.net
	Trident Seafoods	Fruehan	Rob	Plant manager	723-4382	rfruehan@tridentseafoods.com
	Wrangell Harbor	Botsford	LaDonna	Administrative assistant	874-3736	harbor@wrangell.com
	Sea Level Seafoods	Magart	Tony	Tender vessel captain, F/V Champion	206-605-8669	
	Sea Level Seafoods	Sorric	Don	Tender vessel captain, F/V Ms Kristina; Pt Protection residen	305-0614	
	Sea Level Seafoods	Smith	Kenny	Dock manager	874-2401	
Coffman Cove	Oceanview RV	Jeffreys	Deedee	Manager	329-2032Ê	dieffreys@coveconnect.com
	Riggin Shack	Wilson	Roxy	Store manager	329-2213	
	Mayor	Fitzpatrick	Misty	Mayor/harbor mas	329-2054	misty@mistyseacharters.com
Pt Protection	residents	Nicoles	Mike & Gail	Pt Protection resi	907-489-2241	lilpelican2003@yahoo.com
	Pt Baker Trading Post				559-2204	

Section Three

Operations: Southeast Alaska Drift Gillnet Fishery 2012- 2013

3.0 Introduction

Observer operations include a suite of many and varied details and protocols. All are critical components to the success of the program. Each element plays an important role in the ultimate analysis of the data collected, and the instructions given should be followed carefully. There may be situations, however, where the observer is the first to recognize new or unforeseen activities in fishery operations that confound existing AMMOP operational protocols. In these cases, it is incumbent on the observer to bring such situations to the attention of Saltwater and the AMMOP leadership, so that appropriate adjustments can be made. This section provides an overview of the sampling protocols and more detailed instructions will be provided in training.

3.1 Basic Sampling Protocol Summary

AMMOP sampling for marine mammal interactions in the Southeast Alaska drift gillnet fishery will follow a sampling approach similar to sampling protocols followed in the Yakutat set gillnet fishery in 2007 -2008. Adjustments have been made to the sampling protocol to accommodates specific characteristics of the Southeast Alaska drift gillnet fishery.

Optimal observer coverage effort for a sample unit, or "permit sample", is considered to be:

> The observation of all retrievals, picks, or hauls (with a minimum of one retrieval, pick or haul observed) during a 24 hour period during which permitted fishing gear is submerged and fishing during an ADF&G fishing opener.

It is understood that factors such as weather, changes to fishing operations, and other unforeseen circumstances may interfere with observer effort and is taken into consideration in program design and data analysis. Additionally, different permit holders may fish on different schedules throughout the 24 hour period, and the observer will maximize sampling to achieve a complete permit sample as defined above. An observer is limited to 12 hours of work in a day, though it is not necessary for those 12 hours to be continuous. The observer should ask the permit holder what their general fishing strategy for the day looks like and should attempt

to schedule breaks between hauls to achieve maximum sampling throughout the day. In cases where fishing continues after an observer has completed 12 hours of work in that permit sample day (where a permit holder plans to retrieve a soaking net at least once prior to midnight after the observer leaves), Saltwater will assign a second observer to meet the fishing vessel to complete that permit sample. Where it is not possible to achieve a complete permit sample, the observer will follow guidelines established by NMFS and Saltwater, Inc.

The level of observer coverage for this fishery is set initially at 7.5% of total fishing effort, based on an analysis of past effort in the Southeast Alaska drift gillnet fishery. This coverage level will be applied to each opener. Sampling is designed to be conducted in a random sampling scheme, whereby all permit holders fishing in Districts 6 & 8 are randomly placed in a master sampling list and sampled in that order. As each permit holder is sampled from the list, he or she is crossed off and will not be selected for sampling again until the list is completely sampled as detailed below. Marine mammal incidental take analysis will employ a post-season stratification approach to assess incidental take in different geographic sub-strata in these Districts.

After each opener, observer coverage achieved will be compared to actual fishing effort for that opener, and where needed, observer coverage will be adjusted during the next opener to ensure that target coverage is met for each bi-weekly period throughout the season. Therefore, as fishing effort changes throughout the season, the actual numbers of permit samples collected may change to achieve an overall observer coverage level of 7.5%.

3.1.2 Tracking Fishing Effort

Accurate fishing effort tracking on a real-time basis is one of the biggest challenges in this sampling scheme and is one of the **most critical elements** in conducting the post-season analysis of the data collected. Achieving accurate tracking of the fishing effort will help ensure that sampling efforts meet the target levels. To achieve this, a fishing effort tracking system will be implemented and modified in-season as needed.

The lead observer will coordinate tracking the fishing effort for his or her area and all leads will coordinate to track effort across all areas, especially for those permit holders moving from one area to another within Management Areas 6&8. All observers will participate in the fishing effort data collection.

At the start of the season, a list of all the permit holders in the fishery will be checked for fishing status of each participant. This will be accomplished through various means, including ADF&G and direct contact with fishers. Thereafter throughout the season, fishing effort must be tracked through post-opener contact

with fishers through a variety of means including at offload to tenders, at the dock, or via phone.

3.1.3 Permit Sample Selection

Once effort has generally been established, the following sampling scheme will be followed:

All permit holders expected to fish in ADFG Management Districts 6 & 8 will be included on a master list in random order. Each week Saltwater will establish which permit holders are actually expected to fish in these Districts during that week's fishery opener. The number of permits selected for monitoring in any given week or fishery opener will vary according to expected fishing effort and will target 7.5% of that effort. For each opener the appropriate number of permits will be selected from the master list in the order that they appear on the list. A vessel that is selected but does not fish in Districts 6 or 8 during that opener will remain on the top of the list until they return and are sampled. Once a permit has been sampled, they will be crossed off the master list. Once all permits on the master list have been sampled, a new random master list will be generated, and permits will be selected for sampling in the order they appear on the list. This selection process will continue throughout the fishing season.

For a given opener, the selected permit holder will be notified prior to the beginning of the weekly opener and told which day they will be sampled. The permit holder may either elect to pre-establish a time and location to meet the observer on the sampling day or be issued a SPOT unit via which the permit holder will relay his or her position to Saltwater, Inc. If the permit holder chooses to notify Saltwater, Inc. of their intended fishing location on the selected sample day, he or she must transmit their location no less than 2 hours prior to commencing their first haul for that calendar day (see Appendices for details on SPOT units). This prior notification by the permit holder is required by regulation (50 CFR 229.7). Once the observer deploys for the fishing vessel on the established day and location, a "permit sample" has been initiated by definition and the observer's data collection duties commence.

3.1.4 Watch Types

Each type of data collection during the permit sample is conducted during a period called a "watch." The following summary of "watches" and the respective data to be collected is described below, with detailed data collection protocols described in Section 4 of this manual. The data collection is prioritized by type in case events conflict in area or time. However, the order in which they occur will vary on a given permit sample day.

3.1.4.1 Haul Watch

Highest Priority: A **haul watch** is conducted while the vessel is hauling or picking fish from the fishing gear. The observer's highest sampling priority is to observe the entire haul of a net. The **haul watch** provides information on the fishing operations, marine mammal interactions, and marine mammals that are in the vicinity of the gear during fishing operations when the net is actively picked. The data collected during the **haul watch** is the most critical data collected in this program. Detailed instructions on how to conduct a haul watch are found in Section 4 of this manual. Detailed haul data are recorded on the Haul Form and associated data forms. Any incidental takes will be documented and necessary sampling conducted and recorded.

3.1.4.2 Additional Watches

In addition to watching and recording data during periods when the net is actively retrieved and picked, the observer will conduct additional marine mammal sighting watches as described below. Specific instructions for conducting these watches and recording data can be found in Section 4 of this manual under Marine Mammal Sighting Watches. The priorities for conducting these watches are determined by the on-going fishing activities.

Soak Watch

A **soak watch** is conducted while the net is in the water fishing, but is not actively being retrieved. Data collected during a **soak watch** includes details of any marine mammals that may become entangled in the gear as well as all marine mammals that are seen within x distance from the net in any direction. Also recorded are certain fishing activities. **Soak watches** will be conducted to the maximum extent possible as conditions and fishing operations allow. The standard **soak watch** period is 60 minutes. However, observers may conduct a **soak watch** anytime during the trip if he or she can expect an uninterrupted period of at least 30 minutes – with the exception of an unanticipated net retrieval by the permit holder. Therefore, **soak watches** should never intentionally be shorter than 30 minutes or longer than 60 minutes. If a **soak watch** is less than 60 minutes, the observer should document the reason for not achieving the 60 minute duration. Observers may conduct several **soak watches** in a row if the net soaks longer than 60 minutes. However, a 15 minute break must be taken between **soak watches** to rest the observer's eyes and renew his or her ability to concentrate. If a **soak watch** is begun with the anticipation that the observer will be able to complete a 30 minute watch, but the permit holder unexpectedly begins to retrieve or pick the net, the observer should so note this in comments on the sighting form, and immediately begin a **haul watch**.

Set Watch

A **set watch** is conducted while the vessel is in the process of setting out fishing gear. This information is used to assess possible interactions and associations of marine mammals with this aspect of the fishing activity. **Set watches** are a lower priority if the observer is still working up samples, preparing for the haul/pick, or needs to take a break. A **set watch** can be conducted during every set, regardless of weather conditions.

Transit Watch

A **transit watch** is conducted while traveling over water to or from the fishing grounds and between fishing sites when transit is likely to be 15 minutes or more. **Transit watches** are conducted when the Beaufort sea state is 5 or less. The Beaufort Scale defines a Force 5 as 17 to 21 knot wind speed, 6 to 8 foot waves, many white caps, and some spray (see Section 3.1.5 below). Each **transit watch** is maintained without break for a minimum of 15 minutes and a maximum of 60 minutes, followed by a 15 minute break.

3.1.5 Beaufort Scale Sampling Reduction Plan

Weather can potentially affect all observations and could bias observer coverage of more exposed sites. Some areas within the fishing grounds may receive more extreme weather than other areas. The contractor will ensure that observer coverage at exposed sites is in proportion to other sites in a region based on fishing effort. Weather will also reduce the quality of observations during soak watches due to wave action and sampling platform movement. Moderately rough weather will reduce visibility and obscure interactions, while strong winds and heavy seas will cause serious safety concerns.

Lead observers will use a combination of National Weather Service forecasts, USCG weather reports, local mariners, and information provided by area radio contacts to assess weather conditions. Lead observers will attempt to establish the weather at sites before deploying observers. If the weather begins to worsen, observers will relay information to the lead observer, or other appropriate parties and a determination to change sampling protocols appropriately will be made. Avoidance of placing observer/skiff operator teams in danger during severe weather conditions is paramount. For these reasons, the contractor will deploy observers based on sea-state and implement a Beaufort Scale Sampling Reduction Plan as follows:

Beaufort 0-3 (wind 0-10 knots; seas 0 - 3.5 ft): All sampling will occur as scheduled.

Beaufort 4 (wind 11 to 16 knots; seas 3.5-5 ft): All observer work boat-based soak watches will be suspended. At Beaufort 4, frequent white caps and waves begin to limit visibility, affecting the dependability of soak watch data. Observer effort will focus on observing hauls/picks.

Beaufort 5 (wind 17-21 knots; seas 6-8 ft): Lead observers may direct observer-skiff operator teams to sample in an alternate area. Lead observers will restrict deployment of observer work boats during Beaufort 5 weather. Leads will determine if an observer work boats can safely be deployed during hauls/picks only. Wind and seas of this magnitude can come up quickly in SE Alaska, and observers and vessel operators must remain vigilant in their awareness of the marine environment at all times.

Beaufort 6 and higher (wind 22+ knots; seas 9.5 ft +): All observer work boats -based observations will be suspended. Ten-foot white-capped waves with scattered spray will reduce visibility beyond acceptable observation levels. Observers must try to contact the permit holder to determine if fishing will occur that day.

3.2 Observer Deployments

Observers will be deployed at the direction of the observer provider. The contracted observer provider will coordinate all logistics for travel and living accommodations, including lodging and food.

3.3 Observer Gear

A full complement of sampling and safety gear for each observer will be provided by NMFS to the contracted observer provide. Observers will be issued the NMFS-furnished gear by the contractor. Observers are expected to provide their own personal needs, including footwear and outerwear, though NMFS will provide rain jackets and bibs, as well as full body Mustang suits. The observer will be responsible for keeping track of their gear, conducting required in-season maintenance and testing of certain items, and returning the gear in clean, useable condition at the end of the season. Some sampling and safety gear may be checked out to the work boat drivers and kept aboard the work boats to minimize observers lugging extra weight around unnecessarily. A list of gear for observers and boat operators can be found in the Appendices.

3.4 Field Communications

The SE Alaska drift gillnet fishery is conducted in remote areas often hours away by boat from the SEAK towns of Petersburg and Wrangell. There are numerous logistical requirements to get the job done that require on-going teamwork, and safety is an ever-present concern. Good field communications are essential to this program. As with any observer program, and particularly in a new fishery, there will be a daily need to adjust to changes as new circumstances arise or information comes to light. Ensuring an effective communications network will minimize confusion and create a reliable transfer of information. This will help keep everyone in the program safer and will provide a better chance for success of the program.

3.4.1 Daily Communication Protocols

Mandatory float plans will be filed daily for each observer/work boat operator pair who deploys to the field from a base camp (overnight trips may have multiple day float plans). Daily radio check protocols between field camp and the observer/skiff driver team are mandatory and will be included in each float plan prior to each deployment. Guidelines for establishing those daily protocols can be found in the Float Plan instructions in Section 5 of this manual. These radio checks are mandatory and failure to check in or respond to a check in will initiate the appropriate response as specified in the float plan instructions.

Saltwater and lead observers will establish general daily communication protocols between any remotely housed observers and the base camps in Petersburg or Wrangell.

The lead observers at the Petersburg and Wrangell base camps will have a satellite or cell phone for voice communication and data transfer, as well as VHF radios. Observers will each be issued a VHF handheld radio and a satellite phone. Each work boat driver will be issued a handheld VHF radio and each work boat will be equipped with a VHF radio and antenna. Improperly working communications equipment must be reported as soon as possible, so that repair or replacement can be made immediately.

3.4.2 General Communications with Saltwater and NMFS

Observers and work boat drivers should follow the established chain of communication regarding needs, concerns or problems. Chain of communications will be provided in training. However, if there is no response at the field level, or the response appears to be ineffectual, the observer or work boat driver should consider whether the issue is of a nature that requires direct communication to the

observer contractor operations manager or NMFS and follow through as appropriate.

THESE LINES OF COMMUNICATION WILL ALWAYS BE OPEN.

Saltwater, Inc. will provide 24 hour contact information during training.
Bridget Mansfield, AMMOP coordinator, can be reached M-F 8am - 4:00 pm at (907) 586-7642. A cell phone number and home number will be provided during training. She can be called 7 days a week, 24 hours a day.

3.4.3 Emergency Communications

- Emergency communications are covered in a separate Emergency Action Plan.

3.5 Communications with Permit Holders

Good communication with fishermen is the backbone of the program. ***A courteous and respectful manner must be observed at all times when speaking with fishermen.*** The AMMOP wants to foster a good working relationship with fishermen. Although NMFS and your contractor have done pre-season outreach to try to explain the goals and objectives of the AMMOP, most fishermen will still have questions about the program. Many may be concerned about additional government oversight and worried that any data collected could have a negative impact on their fishery. The perception may be that NMFS is entering their workplace with what could be considered an intrusive program. We want to try to dispel these worries to the degree possible. Observers will have one-on-one contact with permit holders all season and are therefore the best and most important ambassadors of the program.

While this is a mandatory program and fishermen are required by law to provide information and access to the needed data, we want to ensure that fishermen understand that we respect their livelihood and that we would like to work cooperatively with them. The information that they provide to us will be critical in getting an accurate snap shot of the level and nature of marine mammal interactions.

3.6 Field Logistics

Observers and work boat drivers will work together as a team. Detailed specifics on sampling protocols are found in Section 4 of this manual and Saltwater will provide very detailed arrangements for field deployment logistics. However, the logistics required to ensure the data is able to be collected require additional planning. Each sampling day, the observer and skiff driver will coordinate on all

pre-trip logistics, travel together to the fishing vessel, work in tandem to achieve the day's sampling goals, return safely to base camp after the day's sampling, and wrap up the details of the day. The following is a basic summary of a typical sampling day's activities.

3.6.1 Observer Responsibilities

- Understand AMMOP goals and needs and present the program in a professional manner.
- Interact with permit holders in a professional and courteous manner.
- Collect and record accurate and precise data according to training and manual sampling protocols.
- Collect and record biological samples in accordance with training and manual protocols.
- Review and edit data to ensure data quality.
- Maintain conduct standards and safety protocols.
- Care for assigned gear, including recording maintenance, problems, and disposition.
- Work with all program staff in a cooperative manner to ensure a successful program.

Night before a sampling day:

- Determine what permit he or she is to sample the next day.
- Coordinate with the lead observer to ensure the permit holder was notified and ascertain:
  1) fishing vessel meet location
  2) estimated time of the first haul/pick of the day
- Communicate with the work boat driver on the next day's sampling logistics, including permit number, location, and estimated time of departure from the dock and estimated arrival at the fishing vessel location.
- Establish radio check procedures with the lead observer and the work boat driver.
- Ensure personal, sampling, and safety gear is clean, ready, and working.

Sampling day:

- Prior to departure: Coordinate with the work boat driver on the weather and route to the fishing vessel meet location, ensure all needed gear is loaded on the work boat; review radio check protocols with work boat driver and lead observer.
- Prior to departure: Double check that the work boat driver filed the float plan with the lead observer or base camp.
- Arrive at the fishing vessel meet location **at least 30 minutes prior** to the first haul/pick of the day.
- Introduce yourself to the permit holder. When appropriate, initiate permit holder interview to understand the general fishing plan for the day and gain information for data collection.
- Begin data collection and recording on appropriate data forms. Conduct data collection according to sampling protocols throughout the day.
- Conduct radio checks with base camp according to radio check protocols.
- Return to camp.

- Remove gear from work boat; clean as appropriate.
- Complete paperwork for the day and turn it in to the lead observer.
- Submit any biological samples to the lead observer.
- Consult with lead observer, if appropriate, on any pressing concerns.

3.6.2 Work Boat Driver Minimum Responsibilities

- Understand AMMOP goals and needs and present the program in a professional manner
- Interact with permit holders in a professional and courteous manner.
- Maintain safe operation of work boat at all times.
- Maintain conduct standards and safety protocols.
- Care for assigned gear, including recording maintenance, problems, and disposition.
- Work with all program staff in a cooperative manner to ensure a successful program.

Night before a sampling day:

- Communicate with the observer on the next day's sampling logistics, including permit number, fishing vessel meet location, and estimated time of departure from the camp and arrival at the set net site.
- Check the weather forecast and plan route.
- Establish radio check procedures with the lead observer and the observer.

Sampling day:

- Check weather forecast to/at fishing vessel meet location.
- Coordinate with the observer on the weather and route to the fishing vessel meet location, ensure all needed gear is loaded on the work boat; review radio check protocols.
- File float plan
- Complete work boat departure checklist
- Begin work boat log entry.
- Leave the dock in a timely manner to arrive at the intended permit sample location (vessel met location) at least 30 minutes prior to the expected first haul/pick of the day.
- Maintain workboat operations in a manner that ensures the safety of the vessel and people aboard, as well as nearby vessels and crew.
- Operate vessel in a safe, professional manner that allows the observer to successfully complete his/her duties.
- Conduct radio checks with base camp according to radio check protocols
- Return to camp.
- Remove gear from work boat as appropriate, secure vessel for the evening.
- Close Float Plan.
- Complete work boat Return Checklist.
- Report any vessel maintenance problems to vessel coordinator.
- Complete daily logbook entry.

3.7 Debriefing and Data Editing

One of the most critical elements in data quality control is the in-season debriefing of an observer who has collected data in the field. In-season debriefing of the observer ensures that the data are complete and as accurate as possible before data entry. During the 2013 field season, observers will debrief with the area lead observer on a weekly basis, after each opener.

The observer will complete his or her data from the most recent opener and submit it to the area lead observer. The lead observer will review the data and conduct a positive and private, face-to-face discussion with the observer on the submitted data. During the debriefing, two-way communication between the observer and the lead should focus on data quality, logistical issues related to the trips made, sampling protocols that need to be examined, and any safety issues that may arise. The lead observer will courteously explain all concerns or errors and suggest appropriate ways to make corrections.

The observer will be expected to make all needed corrections to the data at the time of the debriefing. The lead will complete a debriefing form for each debriefing, and discrepancies or errors in collecting or recording data will be noted, with suggestions for improvement discussed. Data collection methods will be discussed and documented on the debriefing forms.

Observers will provide feedback to the lead observer on data sampling protocols or other issues or concerns, such as logistical questions or comments and any interactions with fishermen that are noteworthy. Observers should note that in many cases where there is a question on sampling protocol, the lead may not be able to offer a simple answer, because he or she was not present during the data collection. The lead may offer guidance based on the observer's input and sampling protocols set out by the program. The observer will then use those guidelines to make a judgment call on how to report and record the data.

All safety concerns must be discussed as soon as they are noted. If a serious concern arises, the lead should be notified immediately, without waiting for the weekly debriefing. Lead observers will ensure that all concerns and suggestions are discussed in a professional manner and that observers are provided with appropriate and professional responses to their concerns.

A final debriefing with NMFS AMMOP staff is required for each observer at the end of the fishing season. The final debriefing will focus on a review of any outstanding data problems, the observer's performance throughout the fishing season, writing of any necessary affidavits or reports, turning in any biological samples, gear, and equipment to NMFS, and a general review of the observer's

experience during the summer. The observer provider is responsible for making any changes or corrections requested by NMFS prior to final acceptance of the data and reports from each observer for the season, as well as return of all issued gear, unless other arrangements are made in the case of missing or damaged gear.

3.7.1 Data Entry

The observer provider is not responsible for the bulk of the data entry into electronic format, but observers will perform some data entry of information pertaining to their work. The bulk of the collected data will be scanned and the electronic and original paper forms will be sent to NMFS on a biweekly basis for data entry. The contractor will maintain a data tracking system for the observer data as they are collected and corrected. The contractor will complete quality-assurance processes of observer-collected data, and make any necessary corrections before sending data to NMFS. All data, photos, logbooks or any information in any format collection in the course of this program are the property of the National Marine Fisheries Service. Data confidentiality is discussed below.

3.8 Regulatory Compliance

3.8.1 Trip Refusals

The Alaska Marine Mammal Observer Program is providing observer coverage of Category I and II fisheries in Alaska under the authority of the Marine Mammal Protection Act of 1972. Vessel or permit owners and operators selected for observer coverage are responsible for complying with regulations set forth by the Marine Mammal Protection Act (50 CFR § 229.7) and the Magnuson-Stevens Act (50 CFR § 600.746).

If asked, a fisherman must allow an observer access to fishing operations and gear, and must provide information requested by the observer for the collection of data critical to this program. The data collected by the observer has been cleared by the Office of Management and Budget under the Paperwork Reduction Act. A refusal occurs when an observer informs a fisherman that they have been selected for observer coverage and the fishermen refuses to cooperate with the observer as required at any point during the data being collected according to official data collection protocols. The observer must clearly communicate that the permit or vessel has been selected for coverage and confirm that the skipper is denying the observer access to properly observe the operations or to information required to be collected.

Trip refusals are documented in observer logbooks and immediately reported to the contracted Program Manager and the NMFS Program Coordinator. The

observer will note in their log all dialogue that occurred between the parties, including dates and times, weather conditions, fishing conditions, trip logistics, and safety issues. The notes must be complete and factual and may be used to write an affidavit for NMFS Enforcement, if warranted. The reasons for refusing an observer will be clearly reported and evaluated on a case by case basis. A refusal based on principle (a fixed or predetermined policy or mode of action) is not a legitimate reason to not comply with observer requirements.

The observer requirements for participants in Category I and II fisheries are [from 50 CFR § 229.7(c)]:

1. If requested by NMFS or by a designated contractor providing observer services to NMFS, a vessel owner/operator must take aboard an observer to accompany the vessel on fishing trips. For set net fisheries, the observer must have access to the fishing operations to collect the needed data. This may be visual access from an independent observation platform.

2. After being notified by NMFS, or by a designated contractor providing observer services to NMFS, that the vessel or permit holder is required to have their fishing operations observed, the vessel owner/operator (permit holder) must comply with the notification by providing information requested within the specified time on scheduled or anticipated fishing trips.

3. NMFS, or a designated contractor providing observer services to NMFS, may waive the observer requirement based on a finding that the facilities for housing the observer or for carrying out observer functions are so inadequate or unsafe that the health or safety of the observer or the safe operation of the vessel would be jeopardized.

4 The vessel owner/operator and crew must cooperate with the observer in the performance of the observer's duties including:

i. Providing, at no cost to the observer, the United States government, or the designated observer provider, food, toilet, bathing, sleeping accommodations, and other amenities that are equivalent to those provided to the crew, unless other arrangements are approved in advance by the Regional Administrator;

ii Allowing for the embarking and debarking of the observer as specified by NMFS personnel or designated contractors. The operator of a vessel must ensure that transfers of observers at sea are accomplished in a safe manner, via small boat or raft, during daylight hours if feasible, as weather and sea conditions allow, and with the agreement of the observer involved;

iii. Allowing the observer access to all areas of the vessel necessary to conduct observer duties;

iv. Allowing the observer access to communications equipment and navigation equipment, when available on the vessel, as necessary to perform observer duties;

v. Providing true vessel locations by latitude and longitude, accurate to the minute, or by loran coordinates, upon request by the observer;

vi. Sampling, retaining, and storing of marine mammal specimens, other protected species specimens, or target or non-target catch specimens, upon request by NMFS personnel, designated contractors, or the observer, if adequate facilities are available and if feasible;

vii. Notifying the observer in a timely fashion of when all commercial fishing operations are to begin and end;

viii. Not impairing or in any way interfering with the research or observations being carried out; and

ix. Complying with other guidelines or regulations that NMFS may develop to ensure the effective deployment and use of observers.

It is unlawful to fail to take an assigned observer on a fishing trip [50 CFR § 229.7(c)(1)]. It is unlawful for any person to assault, harm, harass (including sexual harassment), oppose, impede, intimidate, impair, or in any way influence or interfere with an observer, or to attempt the same. This includes any action which has the purpose or effect of interfering with the observer's responsibilities, or which creates an intimidating, hostile, or offensive environment [50 CFR § 229.3(b)].

The general prohibitions listed under the Magnuson-Stevens Act (50 CFR § 600.746) are applicable to any fishing vessel required to carry an observer under any U.S. law and include, but are not limited to:

Failure to submit to a USCG safety examination when required by NMFS pursuant to Sec. 600.746.
Fish without an observer when the vessel is required to carry an observer.
Assault, oppose, impede, intimidate, or interfere with a NMFS-approved observer aboard a vessel.

Prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer from conducting his or her duties aboard a vessel.

Violations of the MMPA may result in sanctions on Authorization Certificates, civil penalties of up to $12,000 and criminal penalties. A complete list of MMPA prohibitions can be found at 50 CFR § 229.3

3.8.2 Marine Mammal Authorization Certificate

All participants in Category I and II fisheries are required to have a Marine Mammal Authorization Certificate in their possession while they are fishing or accessible at the set net site. The Marine Mammal Authorization Certificate allows for lawful incidental serious injury and mortality of marine mammals during the course of fishing. If a person is operating in one of these fisheries and has not received a certificate, they may contact Rhonda McMichael, National Marine Fisheries Service, Alaska Regional Office, Protected Resources, P.O. Box 21668, Juneau, Alaska 99802, at (907) 586-7236. A copy of the certificate can be found in the Appendix of this manual.

It is not the job of the observer to enforce this (or any) provision of the MMPA. This information is provided in the manual to inform the observers in case a permit holder asks about this.

3.8.3 Injury and Mortality Reporting Requirements

Operators in all commercial fisheries must report all incidental injuries and mortalities of marine mammals that have occurred as a result of their fishing operations on a NMFS Marine Mammal Injury/Mortality Report Form. This report must be submitted regardless of whether there was an observer observing the fishing operations or present at the site. The report must be sent by mail or fax within 48 hours of the end of the fishing trip (or within 48 hours of an occurrence of a take in the case of a set net fishery) in which the injury or mortality occurred [50 CFR § 229.6(a)]. Failure to report all injuries and mortalities within 48 hours may result in suspension, revocation, or denial of a marine mammal authorization certificate [50 CFR § 229.10(e)].

Copies of the Injury/Mortality Report Form may be provided by observers to permit holders. For additional copies, contact Rhonda McMichael, National Marine Fisheries Service, Alaska Regional Office, Protected Resources, P.O. Box 21668, Juneau, Alaska 99802 or (907) 586-7235.

The Injury/Mortality Report Form is also available on the internet at: http://www.fakr.noaa.gov/protectedresources/observers/mmapform.pdf

When an observer witnesses an incidental take, the observer will record the information as appropriate on the AMMOP data forms. The observer may want to offer to the fisherman the information that a the report must also be made to NMFS

3.8.4 Safety Requirements

On May 18, 1998, NMFS published regulations under the Magnuson-Stevens Fishery Conservation and Management Act that address the health and safety of observers stationed aboard commercial fishing vessels. Under these regulations, observers may not depart on a fishing trip aboard a vessel which does not comply with United States Coast Guard (USCG) safety requirements or that does not display a current Commercial Fishing Vessel Safety Examination decal [50 CFR § 600.746(c)(1)].

Observers will not be deployed on fishing vessels for data collection in the Southeast Alaska salmon drift gillnet fishery. However, in general, all fishing vessels that are required to carry an observer must meet USCG safety requirements and display a current safety decal (issued within the previous two years). Vessels that do not meet these requirements are deemed unsafe for purposes of carrying an observer and must correct noted deficiencies prior to departing port [50 CFR § 600.746(d)(2)].

Where an observer will be deployed aboard a fishing vessel for data collection, the vessel owner operator must allow an observer, NMFS, or NMFS-appointed-contractor to visually inspect any safety or accommodation requirement if requested [50 CFR § 600.746(c)(2)]. Observers are required to complete a pre-trip safety check of the emergency equipment and are encouraged to review emergency instructions with the operator prior to the vessel departing port. Fishermen can schedule a free dockside examination to obtain a current safety decal by contacting the nearest US Coast Guard Marine Safety Office Dockside Examiner.

Section 5 of this manual provides a more in-depth review of safety issues.

3.8.5 Observer Guidelines for Preparing an Affidavit

An affidavit is a written declaration made under oath before an official, such as a notary public. In the case of a possible regulatory violation, any follow-up must begin with the observer preparing a written affidavit. The observer must be prepared to provide evidence or testimony as needed. An affidavit should be a detailed, non-inflammatory, concise, and factual description of the events that led up to and including the violation(s).

The first paragraph should be an introduction of yourself; your name, who you work for, what position you hold, relevant experience, your education, and any other pertinent background information that would support your credibility.

Example: I, (First / Last Name), was employed by (Contractor) to serve as a marine mammal observer for the National Marine

Fisheries Service (NMFS). I have served as a NMFS fisheries observer on (number of) deployments, and on this trip served aboard the (vessel name) fishing in the (fishery name) with permit (permit number) from (embark to disembark date), where I witnessed several incidents of (state suspected violation). I received a (highest schooling degree) from the (school name) in (year of graduation). I have successfully completed certifications in C.P.R., vessel safety, and NMFS fisheries observer courses.

Referring to your logbook and forms, detail the event addressing the following questions:

Who committed the violation?
What was the violation?
When did it occur?
Where did it occur?
Why did it occur?
How did it occur?

- Define crucial information (names, dates, times, locations)
- Outline the issues with the debriefer.
- Detail events in chronological order as they occur.
- Do not summarize or minimize events.
- Identify each time an event occurred.
- Maintain objectivity, do not use personal opinions.
- Use complete sentences in a narrative, not outline form.
- Write in the first person, active tense.
- Should be written on plain paper and may be handwritten or typed.

Confirm that the information in the heading of the report is correct, including:

- Observer's name
- Violation(s) type
- Trip identification number
- Vessel/permit name or number
- Vessel/permit operator
- Number and date of violation(s)

You should close the affidavit with the following and sign and date:

I certify that, to the best of my knowledge, the above statement is true.
Signature_____ Date _____

3.9 Data Confidentiality

Permit holders should be assured that all proprietary data collected by AMMOP observers will be considered confidential and will never be released in a form that can identify an individual permit holder's proprietary information. Proprietary information is generally understood to be information related to the business and that derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by the public.

Data released to the public will be summarized and aggregated according to NMFS policy. For further information on NOAA data confidentiality requirements, please refer to NAO 216-100 and 50 CFR 229.11.

All Federal or State of Alaska personnel with a direct need for access to AMMOP data, contracted AMMOP Observers and vessel operators, Saltwater staff, and other individuals contracted by AMMOP to fulfill programmatic needs through access to the data are required to read and sign a data confidentiality agreement that states the terms of data access authorization and are bound to the requirements of NAO 216-100 and 50 CFR 229.11. See below.

The Alaska Marine Mammal Observer Program

STATEMENT OF NON-DISCLOSURE/ DATA ACCESS AGREEMENT

Procedures for protecting National Marine Fisheries Service (NMFS) data confidentiality relating to the Alaska Marine Mammal Observer Program.

To insure the confidentiality of applicable National Marine Fisheries Service (NMFS) data the following procedures will apply to all authorized users.

- Only authorized users who have signed a statement of non-disclosure will have access to NMFS confidential data or its resultant confidential products.
- Care will be exercised not to leave computers unattended when working with NMFS confidential data.
- Actual confidential data provided by NMFS will be stored under lock and key and segregated from non-NMFS data.
- Only aggregate, summarized, NMFS data will be stored on-line on any time-sharing computer system.
- When the data is stored on multi-user computer systems a separate dedicated account with a unique access code will be used for NMFS data and analyses. Usage of this account is to be limited to the authorized individual.
- On multi-user systems, on-line data will be stored in files or directories to which only the owner has read access. All others including system operators or accounts are to be denied read access.
- On multi-user systems where access to files and directories cannot be restricted due to operating system limitations, specialized encryption software must be used to encrypt the confidential data files. A unique or series of encryption keys should be used for the project.
- On single user systems confidentiality will be maintained by securing the entire machine, either physically or with software that denies unauthorized access. Only the NMFS authorized individual is to be permitted access to the machine.
- If the single user machine is available to non-authorized users, the data confidentiality will be protected by security software which limits access to directories or files by password or performs data encryption. Passwords or encryption keys should be unique to the project.
- Confidential output will be retrieved promptly from output devices.
- Confidential output will be disposed of by shredding.

FORM 023-05

NOAA FISHERIES ALASKA MARINE MAMMAL OBSERVER PROGRAM

STATEMENT OF NON-DISCLOSURE

I have read the NOAA Administrative Order, NAO 216-100, dated July 18, 1994, on Confidentiality of Fisheries Statistics and understand its contents. I have read the Marine Mammal Protection Act (MMPA), Section 118(d)(8) and (9) on the confidentiality of data collected by programs monitoring incidental takes during commercial fishing operations, which states:

> "Any proprietary information collected under this subsection shall be confidential and shall not be disclosed except -
> - To Federal employees whose duties require access to such information;
> - To state or tribal employees pursuant to an agreement with the Secretary that prevents public disclosure of the identity or business of any person;
> - When required by court order; or
> - In the case of scientific information involving fisheries, to employees of Regional Fishery Management Councils who are responsible for fishery management plan development and monitoring.
>
> The Secretary shall prescribe such procedures as may be necessary to preserve such confidentiality, except that the Secretary shall release or make public upon request any such information in aggregate, summary, or other form which does not directly or indirectly disclose the identity or business of any person."

I will not disclose any statistics identified as confidential to any person or persons, except as directed by the Assistant Administrator for Fisheries, or the Assistant Administrator's designee. I am fully aware of the civil and criminal penalties for unauthorized disclosure, misuse, or other violation of the confidentiality of such statistics.

I understand that I am subject to the provisions of Title 18 U.S.C. 1905 and Title 16 U.S.C. 1387, which is the primary Federal criminal statute prohibiting unauthorized disclosure of confidential information. I am also subject to civil penalties under the Trade Secrets Act, and under sections 307 and 308 of the Magnuson-Stevens Act and 50 CFR, parts 620 (Citations) and 621 (Civil Penalties), for data collected under the Magnuson-Stevens Act.

_____ _____ _____

Name Printed Date Signature

Affiliation: (Check one)

____ NOAA/NMFS
____ Other Federal
____ State
____ Council Staff
____ Contractor
____ Grantee

FORM 023-05

3.9.1 Permit Holder Data Requests

The only individuals who may request and receive copies of AMMOP observer data for a given permit sample is the permit holder whose fishing operations are the focus of that permit sample. A Data Request Form must be completed and submitted to NMFS.

For each permit sampled, observers should offer fisherman the opportunity to request copies of the data collected at their site, and have blank copies of this form available for the fisherman to fill out. Completed forms must be mailed directly to NMFS at the address on the form. See Appendices for Data Request Forms.

3.10 Observer Logbooks

The observer logbook is used to document conversations, discussions, encounters, notes and observer activity on the docks or in the field. It is for recording names of people and places, times of meetings and deployments, calculations and notes on working conditions, as well as operational notes. The logbook is collected by NMFS at the end of the season and is considered part of the official records of the program. Therefore, it should be kept presentable and professionally. All entries except calculations must be recorded in pen. Errors are crossed out with a single line and pages may not be ripped out. A daily entry is required throughout your deployment. Debriefing, travel, sick, and personal days should be noted as such without detail. Aborted permit samples, weather-related changes to expected operations, permit holder refusals, or other issues of concern or questions of note should be recorded. At a minimum, the daily entry in the logbook should include:

- Date/times of significant events such as departure/return to/from permit site
- Data collection notations
- Calculations
- Sampling gear issues
- Interactions with fishermen
- Regulatory compliance issues
- Injury/illness/close calls
- Safety concerns

Section 4

Data Forms and Instructions

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4.0 Introduction

Excellent record keeping and documentation are essential parts of this program. Observers are expected to complete all the permit sample data forms covered in this section, administrative records like the Gear Maintenance and Health and Safety Logs, and any record keeping assigned by lead observers (for example, fishing effort tracking).

High quality data are required from observers for a number of reasons. During the field season clear and legible records facilitate accurate data entry. After the field season, the data collected will inform management decisions for many years. At any time, once the data have been cleared through NMFS data quality clearance procedures, documentation associated with AMMOP is available for viewing by managers, researchers and the public. The AMMOP data must withstand scrutiny throughout its lifecycle.

When in doubt of where to record data, remember that an observer's job is to detail and document events as objectively, accurately and professionally as possible. To accomplish this, observers must use their data forms, logbook, and camera, as described in this section.

4.0.1 General Data Guidelines

Please follow these general data guidelines:

- Use legible print writing.
- Stay aware of writing space. Do not crowd writing to the point it becomes illegible. If additional space is needed for comments, use an additional page.
- Use a #2 pencil (do not use mechanical pencils: they may tear the forms).
- Strikethrough errors: errors should be corrected with a single line (DASH) through the error. Do not erase or darken over errors.
  Example: *correct* ~~ERROR~~; *incorrect* ~~ERROR~~
- Write any correction made prior to debriefing to the side of the struck item. Example: ~~ERROR~~ Correction
- Errors corrected in debriefing must be corrected with a colored pencil. Example: ~~ERROR~~ Correction

- Cross out fields that **do not apply** with a single diagonal line (i.e. SLASH).
- If the field **does not apply** and has check boxes with codes that do not apply, cross out the field with a single diagonal line (SLASH).
- Where **unknown codes are not provided**, unknown fields should be DASHED (one solid horizontal line).
- All **unknown fields** –even if an unknown code is provided— must be explained in **comments**.
- When the code for **"other"** is recorded provide **details in the comment** section.
- Record a leading zero when decimals are less than one (ex: 0.4)
- Use the correct unit required for each field.
- All yes/no fields are to be completed with "Y" or "N" for yes or no.
- Cross (dash) zero, seven, and letter zee. Example:

- Record "No Comments" the in comment field on forms when there are no comments (so it is clear that comments were not accidentally omitted).

4.0.2 Confidentiality and Comments

The confidentiality of data that observers collect is protected by a number of Federal regulations. Observers should be aware that data forms(including the comment fields) may be reviewed by researchers or the public. Observers should word comments in a manner that protects the identities of people involved at a fishing site (both permit holders and AMMOP crew), and location information. Comments involving people and places should use descriptions like "permit holder, captain, crew, G01, vessel operator, skiff driver" instead of personal names. See Section 3.10 for further discussion of what information should be recorded in logbooks rather than data form comment sections.

For more details about observer data confidentiality and Federal regulations,
See NAO 216-100 and 50 CFR 229.11

4.0.3 Writing Standards

It is assumed that AMMOP Observers have had previous experience with technical writing. Therefore this section is not an exhaustive review of technical writing but instead is a brief review of AMMOP data recording standards.

- Legible Print
- Unambiguous
- Concise
- Neutral and Professional Tone
- Correct Spelling and Grammar

Legible Print It is not always possible to record all the comments on a single data form. Observers should use the front, back, and if needed, additional pages, to ensure writing is not cramped into space too small to legibly record necessary comments. Block or print writing is preferred to cursive; the writing must be legible.

Unambiguous Comments should clearly articulate a point without the possibility of misinterpretation. There should be no doubt as to the meaning of the comments.

Concise Choose words which objectively, briefly and succinctly convey your observations.

Neutral and Professional Tone All comments are expected to maintain a neutral, objective and professional tone. For example: when a data field cannot be completed because a permit holder would not provide the information when requested, the observer will record "*unknown because permit holder did not provide the information when requested*." However,

when a permit holder states they do not know information for a field, record *"unknown because permit holder stated they did not know."* In both cases, the field is unknown, and the language explaining the unknown is neutral.

Correct Spelling and Grammar Comments should not contain gross spelling or grammar errors. Observers may be brief in order to be concise but the notes must be understandable. Abbreviations or acronyms, except for standard abbreviations or acronyms widely in use, are not allowed. Punctuation is important to set ideas apart in comments: the database cannot capture the physical layout of notes in the comments field. Spacing notes apart on the data form is not sufficient; punctuation must be included.

4.1 Data Forms and Instructions

4.1.1 Permit Sample Information Form

This form serves as a header sheet and general summary for an observed permit sample. One Permit Sample Information Form is completed per observed or arrested permit sample (see 4.1.1.1. for a definition of an arrested permit sample).

An **observed permit sample** is defined as all data collected during the 24 hour period of a calendar day (beginning at midnight) for a selected drift gillnet permit under the following conditions: The permit sample begins when an observer departs from the dock to observe fishing operations and concludes when the observer returns to the dock from observing fishing operations for the selected permit where at least part of one haul was observed. In the event a second observer completes the sampling of a selected permit's fishing operation, the observed permit sample will include the duration of the second observer's sampling and conclude when the second observer returns to the dock with sampling duties are completed for the day.

The only departure from the above rule occurs when the selected drift gillnet permit moves between Anita Bay located in District 7A and Districts 6&8 at the closure of one and the opening of the other. Anita Bay is on 24 hour rotational openers to gillnet permits and purse seine for several months in the summer beginning at noon on one calendar day and closing at noon on the next calendar day. Districts 6&8 are open for a duration determined by the ADF&G opening at noon and closing at noon. In the event you are sampling a selected permit in a district on the day that it closes at noon and the selected permit holder moves into an adjacent district opening at noon on the same day, the data collected in the subsequent District are treated as a new permit sample. (Districts 6&8 are considered to be one district for this purpose alone) Two separate Permit Sample Information forms with consecutive permit sample identification numbers will be completed in the case of data collection in both 7A and 6 and/or 8 during one calendar day, when the two areas are not concurrently open to fishing.

4.1.1.1 Definitions

Term	Definition
Permit Sample	All data collected during the entire 24 hour period of a calendar day, beginning at midnight, A permit sample begins when an observer departs for the day to observe fishing operations for a selected drift gillnet permit and ends when an observer arrives at the dock or support vessel from observing fishing operations for that permit, with at least one fully or partially observed haul. Refer to section 4.1.1 regarding the rare departures from this rule.
Fully Observed Permit Sample	A permit sample in which all hauls executed during the calendar day were fully observed with a minimum of one haul observed. Refer to the Haul Form for a complete definition of a fully observed haul.
Partially Observed Permit Sample	A permit sample in which one or more entire hauls, or any portion of one or more hauls, were not fully observed. This includes circumstances where the net view was obstructed 5% or more of the time during an observed haul.
Arrested Permit Sample	A permit sample in which an observation was scheduled for a particular permit holder, and the observer departed for the fishing vessel. Fishing was intended but was canceled due to weather, fishing vessel or gear problems, or other unforeseen circumstances beyond the observer's or the permit holder's control. To consider a permit sample arrested there must have been contact with the permit holder confirming the intent to fish prior to the observer's departure to meet the vessel and the observer departed for the vessel. A Permit Sample Information Form will be completed for arrested permit samples. A permit sample in which contact was made with the permit holder and the observer departed, but the permit holder hauled gear and quit fishing for the day prior to the observer's arrival is not an arrested permit sample. This is a missed observation and you should report to your lead for advice.
Single owner/operator	The permit holder is the original owner and sole operator of the permit.
Random sample	A statistical method of sample selection in which each permit has an equal chance of being selected. With regard to AMMOP sampling, the permit was selected from the random master list in the order it appeared on the list.
Haphazard Sample	A permit sample in which an alternative permit is sampled when the randomly selected permit holder cannot be located after the prescribed standard operating procedures have been used. Despite the term "haphazard" the alternate selection methods are systematic and specific.

4.1.1.2 Permit Sample Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number the front and back of all double-sided forms (if used) and backs with comments on them. The pages are numbered by permit sample with all forms in the order they are listed in the Table of Contents. The Permit Sample Information form serves as the cover sheet for an observed permit sample and is considered page 1 for the observed permit sample.

2. YEAR: Record the year (YYYY) when the permit sample ended. This field is pre-filled for 2013.

3. MONTH: Record the month (MM) when the permit sample ended.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three digit permit sample number that consecutively numbers your permit samples for this year (ex: G01001 for your first trip). If a secondary observer continues this permit sample upon the departure of the original observer assigned to this permit sample, the second observer will add his or her unique three character

Observer Identifier to the end of the Permit Sample ID number on this form and all forms associated with this permit sample.(e.g. G01001G07)

5. FISHERY NAME AND CODE: The abbreviated fishery name and Alaska Department of Fish and Game (ADFG) code assigned to identify this fishery. This field is pre-filled as: "Southeast Alaska Salmon Drift Gillnet S03A"

6. GEOGRAPHICAL REGION AND CODE: The region and code where this permit sample occurred is pre-filled as: "SE AK Districts 6, 8, &7A."

7. PERMIT SAMPLE BEGIN DATE: Record the date (MMDDYY) you left the dock for this permit sample.

8. PERMIT SAMPLE BEGIN TIME: Record the time, in hours and minutes (HHMM) you left the dock for this permit sample. Record time in the 24 hour format. If the permit holder has moved from District 7A into 6 or 8 or vice versa because of a closure, the PERMIT SAMPLE BEGIN TIME is when the fishing vessel enters the new area.

9. PERMIT SAMPLE END DATE: Record the date (MMDDYY) that you arrived at the dock after completing the permit sample. This will be completed by the second observer in the event that two observers were required to complete the sampling duties for the permit sample day and will be the date the second observer arrived at the dock.

10. PERMIT SAMPLE END TIME: Record the time (HHMM) that you arrived at the dock after completing the permit sample. This will be completed by the second observer in the event that two observers were required to complete the sampling duties for the permit sample day and will be the time the second observer arrived at the dock. Record time in the 24 hour format.

11. ADF&G STATISTICAL AREAS SAMPLED: Record all the statistical areas in which you recorded data from hauls retrieved during the permit sample day. This information will be taken from the Haul Forms. Separate individual stat areas with commas. Refer to 4.1.1 for sampling protocols for data collection between adjacent Management Districts when one closes and another opens.

12. CFEC FISHING PERMIT(S): Record the Alaska State Commercial Fisheries Entry Commission (CFEC) fishing permit number being observed; include the trailing letter associated with the permit number(s). (Example: 12345M)

13. PERMIT SELECTION TYPE: For the permit number recorded in Field 12 (CFEC Fishing Permit #), record the selection method. If the permit number was selected from the random sample master list and assigned in order by the lead observer, record a "1," the code for "primary/random." Record "2"

for the secondary selection method if this permit was selected through a defined alternative selection method, such as haphazard or adaptive sampling and describe circumstances in comments. Record "9" for any other selection method and record in the comments section of this form the details of how and why this permit was selected.

1 = Primary / Random
2 = Secondary / Haphazard or Adaptive
9 = Other

14. ADAPTIVE SAMPLING: If this permit was selected for adaptive sampling, record "Y" for yes. If this permit was NOT selected for adaptive sampling, record "N" for no. This information will be given to you by the lead observer.

15. PERMIT SAMPLE TYPE: At the completion of the permit sample, record whether the permit sample was fully observed, partially observed or an arrested permit sample using the Permit Sample Type Codes (see 4.1.1.1. for definitions):

1 = Fully observed
2 = Partially observed
3 = Arrested
9 = Other (record in comments)

16. OPERATION TYPE: For this fishery, there should only be a single vessel and operator, though there may be crew aboard.

1 = Single operator
9 = Other (record in comments)

17. TOTAL NUMBER OF INDIVIDUAL HAULS OBSERVED: Record the total number of observed hauls for a permit sample observation in three columns consisting of partial, whole, and total counts. The observed hauls for the initial observer are recorded in the first column (OBS 1), the observed hauls for the second observer in the second column (OBS 2), and the total observed hauls in the third column (TOT).

"P", "W", and "T" refer to the whole number count for each partial (P), whole (W), and Total (T) sum of the individual hauls observed for the permit sample day.

OBS 1: Record the number of hauls (of each P, W, T) observed only by the initial observer in the OBS 1 column.

OBS 2: If a secondary observer completes this permit sample (i.e. collects data after the original observer leaves for the day) record in the OBS 2 column the total of each P, W, T hauls observed by the secondary observer only. If there is no secondary observer, record zeros.

TOT: In the TOT column record the total (of each P, W, T) number of hauls observed during this permit sample as the sum of hauls observed by the primary and secondary observers for this permit sample. If no hauls were observed occurred during this permit sample (i.e. if it is an arrested permit sample), record a zero.

Note: *These are whole number counts. The summed total in the TOT column will match the total number of Haul Forms submitted with this permit sample. This includes all fully or partially observed hauls.*

18. NUMBER OF HAULS NOT OBSERVED ***PRIOR*** TO OBSERVER ARRIVAL: Record the whole number count of hauls not observed, wholly and partially, before your arrival at the permit holder's fishing location, followed by the fraction (in decimal form) of each partial haul not observed. When you arrive at the fishing site of your permit sample, ask the permit holder how many hauls were completed after midnight and prior to your arrival for the calendar day. Record as follows:

    - **"W"**: The whole number count of hauls that were missed entirely. Ask the permit holder for this information.

    - **"P"**: If you arrived during a haul and missed observing a part of that haul, record the whole number count of partially observed hauls (in practice this should never be more than one), followed by a semi colon and record the fraction of the haul missed in decimal form.

    - **"T"**: The total of the whole number count of "W" plus the whole number count of "P". This is a whole number count because it is the sum of two whole number counts.

    EXAMPLE: if you arrive at your permit sample and find they are three quarters of the way through hauling their third set since midnight for this calendar day you would record (**P** 1; 0.75 **W:** 2 **T:** 3)

    If you record a number greater than zero (the permit holder began hauling a net before you arrived), record in comments the circumstances of the situation. This field will only be filled out by the initial observer in the event a second observer is required to complete the observation

    NOTE: Each haul that is partially observed upon arrival will be accounted for in this field, as well as in the previous field "TOTAL NUMBER OF INDIVIDUAL HAULS OBSERVED". This is for tracking purposes and the haul will not be double counted in analysis.

19. NUMBER OF HAULS NOT OBSERVED ***DURING*** OBSERVER PRESENCE: Record the number of all hauls that were either partially (P) and wholly missed (W) for any reason AFTER you arrived at the selected permit holder's vessel. The total (T) of missed hauls will be recorded as the sum of wholly and partially missed hauls. *This will not include any partial haul that was initiated before your arrival.* Record as follows:

    - **"W":** The whole number count of hauls that were missed entirely.

    - **"P":** The whole number count of hauls that were missed in part, followed by a semi colon followed by the fraction of each haul missed in decimal form. Separate the individual fractions (in decimal form) of hauls missed by commas. (EXAMPLE: **P** 3; 0.15, 0.09, 0.30). Record decimal fractions in comments if more than one partial haul and there is not enough room in the data field on the form to clearly record the data.

    - **"T":** The total of the whole number count of "W" plus the whole number count of "P".

    Record the reason for missed hauls in comments. Reasons may include sea sickness, temporary engine trouble, etc., but must be documented. There will be no Haul Forms associated with whole missed hauls.

20. PERMIT HOLDER'S EXPECTED NUMBER OF HAULS FOR DAY: During your initial contact with the permit holder ask how many hauls are expected to be completed during the permit sample. This is the number of hauls that the fisher expects at the beginning of the day, even if the number eventually changes due to weather, fish run strength, fishing effort (record in comments), or other. If the permit holder gives you a range, choose the median (whole) number, and record the range in comments. The permit holder may not be able to provide this number; record a DASH (-) for unknown and explain in comments why this was unknown. This may not match the number of actual hauls completed (e.g., fishing slow or weather picks up). In the case of two observers completing this permit sample, this field will only be filled out by the primary observer.

21. PERMIT HOLDER'S EXPECTED NUMBER OF HAULS AFTER OBSERVER DEPARTURE: At least 2 hours prior to leaving for the day, ask if the permit holder expects to do any fishing after you leave. If so, you must immediately communicate this to your lead and await a response as to whether you will be relieved by a secondary observer. If you will not be relieved by a secondary observer, ask the permit holder about how many hauls might be completed before midnight and record that number. The permit holder may not be able to provide this number; record a dash (-) for unknown and explain this in comments. If the primary observer is relieved by a secondary observer, the primary observer leaves a blank and the

secondary observer completes this field. If the observers stay until midnight, this number will be "0" (zero).

22. CONFIRMED NUMBER OF HAULS NOT OBSERVED AFTER OBSERVER DEPARTURE: This information is obtained from the permit holder after the permit sample is completed (which may be a day or more later). This is a count (whole numbers; no fractions) of all haul(s)entirely unobserved by the observer for any reason, *after the observer left,* during the calendar day on which this permit sample occurred. No Haul Forms were completed for these hauls. If the observers stay until midnight, this number will be "0" (zero).

23. TOTAL NUMBER OF MARINE MAMMALS TAKEN: Record the total number of marine mammals incidentally taken during this trip. "Incidentally taken" means the animal was entangled, momentarily or longer, in the fishing gear during this observed permit sample, which may or may not result in injury or death of the animal. The number recorded in this field should match the number of marine mammals recorded on the Incidental Take Form(s). If there were no marine mammals taken, record a zero.

24. TOTAL NUMBER OF SEABIRDS TAKEN: Record the total number of seabirds incidentally taken during this trip. Incidentally taken means the animal was entangled, momentarily or longer, in the fishing gear during this observed trip, which may or may not result in injury or death of the animal. The number should match the number of seabirds recorded on the Incidental Take Form(s). If there were no seabirds taken, record a zero.

25. PRIMARY SPECIES RETAINED: Record the primary species retained for this trip AND the appropriate species code (see Appendix 7. Species Codes for a listing of codes). This is the "kept" species making up the majority of the catch, by weight.

26. NUMBER OF PRIMARY SPECIES RETAINED: Record the total number of fish of the primary species retained (as defined by field #25). This may be an estimate obtained by summing observer data from individual hauls.

27. NUMBER OF DELIVERIES: Record the total number of deliveries made by the observed fishing vessel during this permit sample. If no deliveries are made on the observed day, record "0".

28. DELIVERY LOCATION NAME: Record the name of the tender vessel (EX: T/V Ms B Haven), processor, or direct market company name where the transfer for the sale of fish took place and a fish ticket was written. If you are not there for the final sale of fish on the permit sample day, ask the fishermen where and to whom they intend to sell their catch. If you do not have the opportunity to ask, DASH the field as "unknown". If no deliveries are made on the observed day, slash this field.

29. DELIVERY LOCATION CODE: Record the appropriate code where the transfer for the sale of fish took place and a fish ticket was written. If you are not there for the final sale of fish on the permit sample day, ask the fishermen where and to whom they intend to sell their catch. If no deliveries are made on the observed day, SLASH the code field.

    1 = Tender Vessel
    2 = Processing plant
    3 = Direct Market
    9 = Other (record in comments)
    0 = Unknown

30. COMMENTS: Record comments relating to this trip. Comments should include supplementary information qualifying and clarifying circumstances concerning missed hauls, partial observations, lost sampling time, relevant aspects of your permit sample, and arrested trips. Refer to 4.0.3 for writing standards. Circle Y (yes) or N (no) to indicate if comments are continued on the back of the form. Record "no comments" if there are none.

4.1.2 Drift Gillnet Gear Characteristics Form

This form contains detailed information on the characteristics of the gear that is observed during the permit sample. If the permit sample was arrested (i.e., no hauls were observed), do not complete this form. Complete a new form for each uniquely configured net observed during each permit sample, numbering each net sequentially. One form is completed per net, with two exceptions.

(1) If a permit holder changes the configuration of a net during the permit sample, a new form is used, as this net is now considered a new net. On the new form, circle the areas which have changed and fill in the new information. The un-changed fields should be left blank; in the comments section note that all other aspects have remained the same. When net configuration changes are made, comments should document what has changed and when during a haul or soak the changes were made. (EXAMPLE: After an hour soak at HHMM the net began to sink with fish so the permit holder attached an additional three buoys to the corkline in the middle of each 100fm panel to keep his net from sinking./ The permit holder removed a 100fm panel of his 300fm net when he began fishing in a different district.) Note: Document these changes on the Gear Characteristics Form, Haul Form, and Marine Mammal Sighting & Event Form, making comments as appropriate. Be sure to include in comments the original net number, because the changed gear will have a new net id number. Note: Gear changes of this type are common when a permit holder moves from or to Anita Bay.

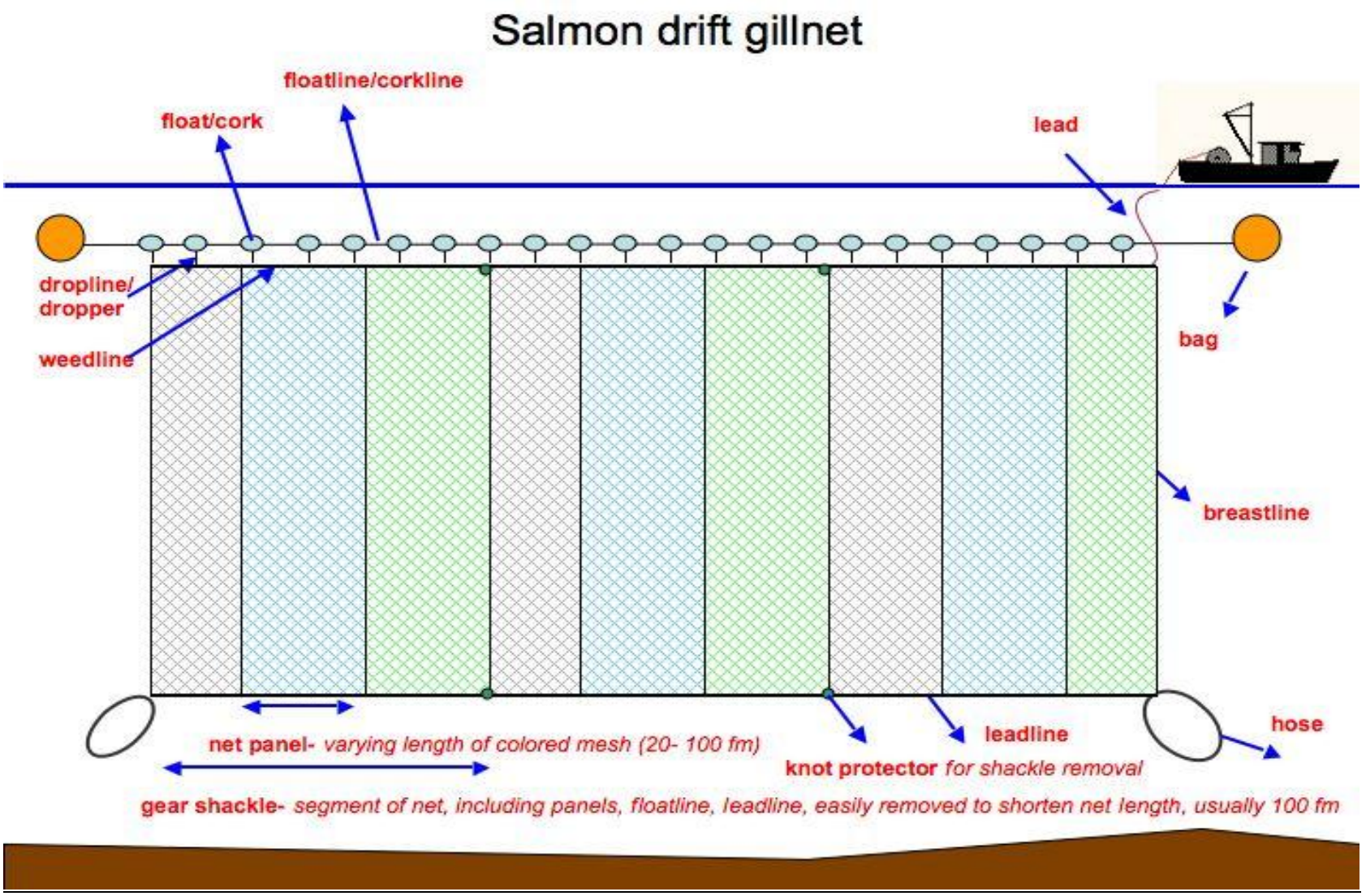
(2) If two or more nets have a complete suite of identical characteristics, fill out one form and assign unique consecutive numbers to each net. Record all of these numbers on one Gear Form in the same NET IDENTIFICATION NUMBER field, separated by commas.

At least one new Gear Form must be completed for each permit sample, even if the permit holder was previously sampled and a gear form previously filled out by another observer. It is permissible to bring a copy of the previous Gear Characteristics Form for that permit holder's gear, but the observer must request it from their lead ahead of time and MUST confirm, FIELD by FIELD that nothing has been changed since the last time the permit holder was observed.

Observers should not handle permit holder's gear. The permit holder should provide all information that is not obtainable visually by the observer. If a permit holder does not know a measurement, DASH the field and record as *"unknown; permit holder stated he/she did not know this measurement"*. Net nomenclature can and often does differ between fleets and among permit holders. An effort has been made to use the most common name for specific gear characteristics. However, if you do not recognize a term, ask for clarification from the permit holder and record in comments for possible clarification during debriefing.

4.1.2.1 Drift Gillnet Gear Definitions

Term	Definition
Tow/tag Line	Any line that attaches the net to the net reel or drum. The tow/tag line may be an extension of the corkline.
Droplines	Lines attached to the corks on the corkline extending from the bottom center of the cork to a point of attachment on the weedline.
Breastline	This is a line extending through the selvedge (loose ends of the mesh) of one or both vertical side ends of the net mesh in order to reinforce the webbing against tearing.
Breastline Hose/Hoop	A hose or serpentine belt often attached at the bottom corners of the net in order to prevent potential snagging.
Weedline	A line that runs through the top of the net web or mesh on which a net is hung.
Bag/Buoy	A traditional mooring style buoy with a reinforced rope hold on the bottom of the buoy.
True/Hang Ratio	The hang ratio attempts to describe the geometry of the net web based on the proportion of horizontally stretched mesh distributed along a regulatory-based length of corkline (i.e. if 200 fm of horizontally stretched mesh is hung along 100 fm of corkline, the resultant hang ratio is 0.5) Mesh is stretched along the head (corkline) and foot (leadline) of the gillnet. The hang ratio varies between the value 0, in which all meshes are mounted at the same point along the lines resulting in no stretched length dimension to the web and the value 1, in which the mesh is fully stretched out, resulting in no height dimension to the web. In commercial fisheries, hang ratios typically range between 0.25 and 0.65. See Hang/True ratio field for vernacular terms.
Leadline	A weighted line to which the bottom of the mesh is hung or attached. It provides negative buoyancy against the positive buoyancy of the corks and corkline to keep the net positioned properly in the water column. It is almost always a braided polyester/nylon cover surrounding a notched and segmented lead core.
Shackle	A point of attachment between net panels facilitating the rapid reconfiguration of a net's length at sea depending on the circumstances. Be aware that green knot protectors sometimes cover these. The knot protectors are not corks and should not be counted as such. The shackle can take different forms such as an actual shackle, carabiner, knot, or other.
Cork Line	A line through which corks are strung and which supports the rest of the net in the water column. The industry standard for gillnet corkline is manufactured by Samson company. In general, the corkline is a braided combination cover of polyolefin and spun nylon with a parallel polyester internal core. The line is manufactured in a range of pliability types rated as soft, medium, or firm. Often the outer material of the corkline has a longitudinal black hanging line braided into it.
Corks	Individual units strung along the corkline, providing positive buoyancy to the net. Industry standard drift gillnet corks are made by the Bao Long Corporation. This company makes a variety of corks only three of which seem to be used in the drift gillnet fisheries of SE Alaska: BL-S, BL-1, and BL-2. These corks are ~5", ~6", and ~6" in length, respectively, and are all oval/football shaped. Note that this is not a universal selection and variation does occur.
Pinger	A low-intensity, sound-generating device that functions as an alarm to keep marine mammals away from a net.
Panel	Refers to a section of colored mesh of a pre-specified dimension, the height of which is limited by Alaska regulation to 60 meshes. Panels can be arranged in any horizontal fashion so that they cumulatively do not exceed the legal length restriction for the designated fishing district.
Mesh Size	The stretched mesh is measured vertically from the knots most distant from each other. Gillnet mesh size may range from 7" to 8" when targeting king salmon to 5" or less when targeting smaller salmon species.
Twine Material	The composition of the mesh material falls into two categories: **Multi-strand monotwist** and **six-strand** twines both made of nylon. Multi-strand twine may contain 6 - 24 strands all of the same size (1.5 gauge which is .2mm in diameter). Six-strand twine has only six strands. However the diameter of these strands range from 1.5 gauge - 4.0 gauge. Variations to these two main categories include the use of super-nylon material referred to as super multi-strand (MST) twine or super six-strand (MA-6) twine.
Twine Size	The size or diameter of the filaments the mesh. Twine sizes range from a minimum of 1.5 up to 4.0
Twine Manufacturer	This field attempts to capture the best information on who made the net mesh material. This can be a bit convoluted as certain nets are hung by manufacturers in the United States using net materials manufactured from Japanese companies. Attempt to get the best information you can on this field. Common twine manufacturers include Momoi, Osada, Yamaji, Nagura
Twine Color	This field is used to capture the general color of the twine that makes up the mesh in a given panel type.


Salmon drift gillnet
floatline/corkline
float/cork
lead
dropline/
dropper
weedline
bag
breastline
net panel- varying length of colored mesh (20- 100 fm)
leadline
hose
knot protector for shackle removal
gear shackle- segment of net, including panels, floatline, leadline, easily removed to shorten net length, usually 100 fm

4.1.2.2. Drift Gillnet Gear Characteristics Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double-sided forms (if used), and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. YEAR: 2013 is pre-printed in this field.

3. MONTH: Record the month (MM) when the permit sample ended.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three digit Permit Sample Number consecutively numbering your permit sample for this year (ex: G01001). If more than one observer participated on the same permit sample, add the ID number of the second observer to the end of the existing Permit Sample ID number. (e.g. G01001G12)

5. NET IDENTIFICATION NUMBER: Record the consecutive number(s) assigned to identify each unique net hauled per permit sample. If two or more identical nets are used, assign unique consecutive numbers to each net and record all of these numbers on one Gear Form in this field, separated by commas. A complete record will be entered in the database for each net number. Nets should be numbered consecutively according to the order in which they are first hauled.

6a. TOW/TAG LINE USED?: Record whether or not a tow or tag line was used on this net. Record from observation. Use the Yes / No Codes:

Y = Yes
N = No

6b. TOW/TAG LINE LENGTH (ft): Record, in whole feet, the horizontal length of the tow/tag line on this net. This information may be obtained from the permit holder. If more than one tow/tag line is used, record individual lengths separated by commas. If there was no tow/tag line on the net, SLASH this field as N/A.

6c. TOW/TAG LINE MATERIAL: Indicate the type of material making up the tow/tag line by using the Material Codes provided. This information may be obtained from the permit holder. If no tow was used, SLASH the field box as N/A. If more than one tow line was used, record multiple material codes separated by commas in the same order as the lengths were recorded above.

1 = Twisted Polypropylene
2 = Braided Polypropylene
3 = Twisted Nylon
4 = Braided Nylon

9 = Other (record in comments)
0 = Unknown

6d. TOW/TAG LINE DIAMETER: Record the tow/tag line diameter in inches. This information should be obtained by asking the permit holder and should be recorded in fractions of an inch (e.g. ¾ or 7/8). If known, record the manufacturer in the comments section. If no tow was used, SLASH the field box. If unknown, dash the field and explain in comments.

7a. DROPLINE USED?: Record whether or not a drop line was attached between the cork line or corks and the weed line or top of the gillnet. Record from observation. Use the Yes /No Codes:

Y = Yes
N = No

7b. DROPLINE LENGTH: Record, in whole inches, the LENGTH of the drop line. This is the distance of the dropline between the bottom of the cork center to where it attaches on the weedline. It is not to be confused with the entire cut length of dropline that is threaded through the cork. If the length of the dropline varies, calculate the average and detail in comments. If no drop lines are used, SLASH this field as N/A and detail in comments the configuration of the net. Information on dropline length can generally be directly observed and estimated if the permit holder doesn't know.

7c. DROPLINE MATERIAL: Indicate the type of material making up the dropline by using the following Material Codes. This information may be obtained from the permit holder. If no dropline was used, SLASH the field box as N/A.

1 = Twisted Polypropylene
2 = Braided Polypropylene
3 = Twisted Nylon
4 = Braided Nylon
9 = Other (record in comments)
0 = Unknown

7d. DISTANCE BETWEEN DROPLINES: Record in inches the average estimated distance between each dropline. Since the droplines are suspended from the center of the cork this distance should always be the same as the distance between corks. This information should be obtained frm the permit holder or can be directly observed if confident.

8a. NUMBER OF BREAST LINES USED: Record the number of breast lines used. This information may be obtained from the permit holder. If no breast lines were used record a "0".

8b. BREAST LINE LENGTH (mesh count): Record the depth of the breast line in number of meshes. If more than one breast line is used record individual

depths separated by commas. This information may be obtained from the permit holder. If no breast lines were used then SLASH this field.

8c. BREAST LINE MATERIAL: Indicate the type of material making up the breast line by using the following Material Codes. This information may be obtained from the permit holder. If no breast line was used, SLASH the field box.

1 = Twisted Polypropylene
2 = Braided Polypropylene
3 = Twisted Nylon
4 = Braided Nylon
9 = Other (record in comments)
0 = Unknown

8d. BREAST LINE HOSE/ HOOP USED? Record whether or not a hose or hoop was attached to the lower portion of the breast line. This information may be obtained from the permit holder. In comments record what type of material was used. Use the Yes /No Codes:

Y = Yes
N = No

9a. WEEDLINE USED: Indicate whether a weedline was attached to the top of the gillnet separate from the corkline and attached to it by the droplines. Record from observation. Use the Yes/ No Codes:

Y = Yes
N = No

9b. WEEDLINE LENGTH: (fm): Ask the permit holder for this information and record the horizontal length of the weedline. The weedline is usually longer than the corkline (see definition table).

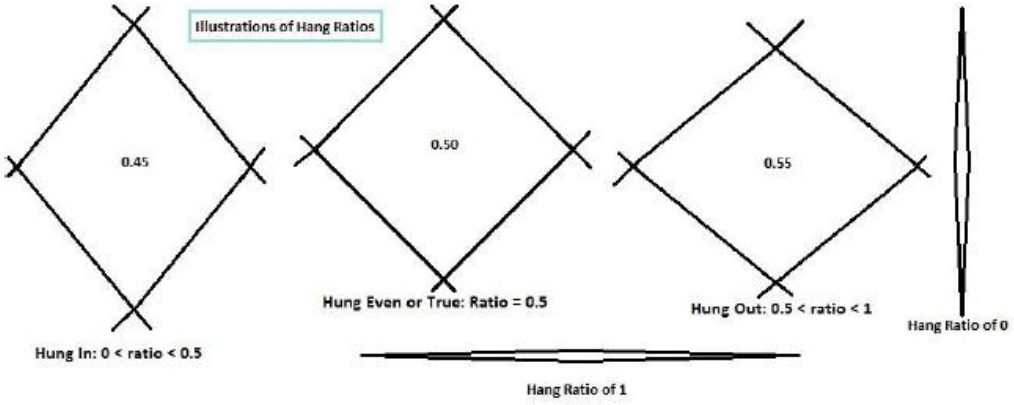
9c. WEEDLINE MATERIAL: Record the material the weedline was made from by using the Weed line Material Codes. This information may be obtained from the permit holder:

1 = Twisted polypropylene
2 = Braided polypropylene
3 = Twisted Nylon
4 = Braided Nylon
9 = Other (record in comments)
0 = Unknown

10. NUMBER OF BAGS/BUOYS : Record the total number of bags or buoys attached to the corkline. Record from observation. Using your best ability, illustrate or describe the number of buoys and attachment points along the corkline (EXAMPLE: 1 buoy on end at boat, 2 at other end). Use the soak

diagrams on the Haul Form to capture position and relation to shore or any other relevant positional features.

11. HANG/TRUE RATIO: Record the hang ratio in a decimal format (e.g. 0.45 or 0.5). This information may be obtained from the permit holder. If the permit holder provides a description such as the vernacular terms "hung in', "hung even", or "hung out", record the range as noted below in the diagram. Include all information provided by permit holders and calculations in comments, if necessary.



12. LEADLINE WEIGHT: Record the weight of the lead line, in whole pounds per 100 fathoms (EXAMPLE: if lead line weighs 1.0 lb/ft, then record 600 lbs/100 fm. If more than one leadline of different weights/lengths are used record the weights separated by commas and record in comments the lengths. This information may be obtained from the permit holder.

13a. TOTAL # PANELS: Record the total number of panels that make up this gillnet. This information may be obtained from the permit holder.

13b. PANEL CONFIGURATION: Record the panel arrangement by panel # type in the following manner: 1,2,1,3,2,1.

13c. SHACKLE USED?: Record whether a shackle was used to attach net panels (see definition table). This information may be obtained from the permit holder. Use the Yes/ No Codes:

Y = Yes
N = No

14a. CORK LINE LENGTH (fm): Record the horizontal length of the cork line in whole fathoms. This information may be obtained from the permit holder.

14b. CORK LINE MATERIAL: Indicate the cork line material by using the following codes. Ask permit holder:

1 = Twisted polypropylene

2 = Braided polypropylene
3 = Braided nylon
4 = Samson braid
9 = Other (record in comments)
0 = Unknown

15a. NUMBER OF CORKS: Record the number of corks on the cork line. Do not include corks, floats, bags, shackle covers, knot protectors, or buoys on the tow/tag line. *The number of corks should come from the observer's count and not a calculation derived from corkline length and cork spacing.* If an actual count is not possible, ask the permit holder. If the permit holder does not know, a calculation based on cork spacing is allowable. Record in comments if cork count was an actual count, from the permit holder, or calculated. If calculated, include the actual calculation in comments.

15b. DISTANCE BETWEEN CORKS: Record, in whole inches, the average distance between the center of one cork to the center of the next cork. If there is a predominant distance between corks, record that distance in the field and note in comments. This is the same as the distance between droplines.

15c. CORK SHAPE COUNT AND LENGTH: Record the count and length, in whole inches, for each cork shape. Refer to the AMMOP common cork lengths in the gear definition table. Record in comments the manufacturer and model if that is all the information the permit holder can provide. If various lengths occur for one shape choose the predominant size and note in comments. Use the cork pattern box to illustrate or describe any pattern you identify (e.g.: 5 white for every 1 yellow). If there is no pattern record "No Pattern". If all corks are uniform SLASH this field. Codes are noted for the database. Record "0" for each cork shape count on the Gear Form that is not used and SLASH the corresponding length field.

1 = Sphere / ball
2 = Disk / cylinder
3 = Oval / football
4 = 3D Rectangle
5 = Square / Cube
6 = Bullet
8 = Combination (note details in comments)
9 = Other (record in comments)

15d. CORK COLOR: Indicate the count for each commonly used color of corks. Record a "0" for each color on the Gear Form that not used. Record from observation:

1 = Clear
2 = White
3 = Black
4 = Gray
5 = Green
6 = Blue
7 = Red
8 = Pink
9 = Orange
10 = Yellow
11 = Purple
12 = Tan/Brown
13 = Combination (mixed colors on float)
99 = Other (record in comments)

16a. PINGERS USED?: A pinger is a small, low-intensity sound-generating device intended to function as an acoustic alarm to keep marine mammals away from a net. Record whether pingers were used to deter mammals from the net (i.e., were activated during fishing period of the observed haul/pick). This information may be obtained from the permit holder. Use the Yes/ No Codes. ***Note:*** the addition of or removal of pingers between sets is common and comprises a net configuration change which requires a new form to be completed, if the number and/or position of pingers changes between hauls.

Y = Yes
N = No

16b. NUMBER OF PINGERS: Record the number of pingers on the gear. This information can be obtained from the permit holder. If no pingers were used, record a zero.

16c. PINGER BRAND: Record the brand name of the pinger. Fumunda is a commonly used brand but do not assume all pingers are the same. Make sure you ask the permit holder for this information. If no pingers were used, SLASH the field box. If unknown, DASH and record in comments.

16d. PINGER FREQUENCY (kHz): Record the frequency of the sound emitted by the pinger (example 3 kHz, 10kHz, or 70kHz). This information can be obtained from the permit holder. If no pingers were used, SLASH the field box. If unknown, DASH and record in comments.

16e. PINGER LOCATION ON NET: Record for each pinger the horizontal distance, in whole fathoms, from one end of the net. If more than one pinger is used, estimate the distance from the same end as the other pingers and separate distances by commas. Record for each pinger the vertical depth, in mesh count, from the weedline. If more than one pinger is used, separate depths by commas. List horizontal and vertical locations in the

same order for all pingers so as to yield a uniform coordinate position on the net. This information can be obtained from the permit holder. If no pingers were used, SLASH field box. If unknown, DASH field and explain in comments.

16f. PINGERS OPERATIONAL?: Pingers are powered by batteries and may or may not be salt water activated. Ask the permit holder if he or she knows if the pingers are operational. If no pingers were used, SLASH field box. If unknown, DASH field and explain in comments.

COMPLETE THE FOLLOWING FIELDS FOR EACH UNIQUE PANEL TYPE

The following fields are filled out in order to capture each panel's unique set of characteristics. It is very important to get as much information as possible and be as accurate and specific as possible. This will require a reasonable understanding of the nature of the gear on your part and an ability to communicate effectively with the permit holder in vernacular terms (see definitions table). **When possible please limit the number of unknown fields, and if you end up with two panel types that are identical because of unknowns, please specify in comments why the panels are unique.**

17a. # PANELS THIS TYPE: Record the total number of panels that have identical characteristics of this type (fields 17b – 17i). **If the net has more than four panel types, use more than one gear form for the same net.**

17b. PANEL LENGTH (fm): Record the horizontal length of the panel in whole fathoms.

17c. PANEL DEPTH (mesh count): Record the number of vertical meshes in the panel.

17d. PANEL MESH SIZE - MINIMUM: Record, in fractions of inches e.g. 5 ¾, the minimum mesh size of the gillnet.

17e. PANEL MESH SIZE - MAXIMUM: Record, in fractions of inches e.g. 6 1/2, the maximum mesh size of the gillnet.

17f. PANEL TWINE SIZE NUMBER: Record the industry standard twine size number of the gillnet webbing. (Example: Momoi MST 63) If the information is unknown, dash the field and explain in comments. It is unlikely that the diameter will be known but if you can get the permit holder to recall the mesh brand (MST-50) this information can be easily referenced.

17g. PANEL TWINE MANUFACTURER: Record the name of the twine manufacturer if known. If the information is unknown, dash the field, and explain in comments.

17h. PANEL TWINE MATERIAL: Record the material that the gillnet is made of, using the Gillnet Material Codes.

3 = Six-strand mono twist (Alaska 6 Style)
4 = Multi-strand mono twist (Monotwist)
5 = Supertwist
7 = Super six strand (MA6)
8 = Combination (record in comments)
9 = Other (record in comments)
0 = Unknown

17i. PANEL TWINE COLOR: Record the primary color of the net by using the Color Codes listed below. If unable to distinguish between similar colors, use the best code describing most likely shades. If no suitable code is listed, select "other" and describe in comments. If net repair or panel uses varying colors, select "combination" and describe in comments. If the permit holder can only provide the manufacturer shade code record this in comments and use your best judgment as to the panel twine color. You should be able to make some assessment of the general twine color in order to limit the amount of unknown information. e.g. If the permit holder says the net color is "smoky blue" and you observe the net to be a light blue color, record code 23 and note in comments that the permit holder said the net was "smoky blue" color.

1 = Clear
2 = White
3 = Black
4 = Gray
11 = Purple
12 = Tan/Brown
13 = Combination (mixed colors in material)
20 = Bluish-Green
22 = Bluish – greenish – gray
23 = Light blue
24 = Medium blue
25 = Dark blue
26 = Light green
27 = Medium green
28 = Dark green
99 = Other (record in comments)

18. COMMENTS: Record any additional notes on the gear characteristics.

4.1.3 Drift Gillnet Haul Form

This form contains information associated with an observed haul (see below for definition of a haul). The Haul Form describes the location of the haul, fishing practices, catch and bycatch, as well as some set and soak information. Complete a new form for each haul. If the permit sample was arrested (stopped before any hauls were observed), **do not** complete this form.

The Haul Form was developed to record a traditional haul. For AMMOP purposes a traditional haul is described as follows: Once any portion of the net enters the water it is considered to be "setting" and is "set" when the permit holder ceases to put any more net into the water. The net is considered to be soaking once any portion of the net is in the water (including during the set). **The haul is considered to be the action during which the net is retrieved onto the vessel, or hauled out of the water**, and fish may be picked out. After this traditional haul, the permit holder may reset the net, move to a new location to reset the net, take a rest, make a delivery, return to port, or do some other activity.

Non-traditional hauls may include actions such as initiating a haul immediately after the set, hauling only a portion of the soaking net and resetting, or towing the net away from the shore. Other activities may include "net cleaning" events, where a permit holder will set out his net in order to clean debris from it, not necessarily with the intent to catch fish. Net cleaning represents time in the water in which an incidental take may still occur and is to be treated as a haul with the necessary Haul Form filled out.

Haul Watches are described in this manual in Sections 3.1.4.1. and 4.1.8.1.

4.1.3.1 Definitions The terms in the table below generally follow standard definitions. However, for the purposes of this program, some modifications to the standard definitions have been made.

Term	Definition
Open Ocean	An area, when facing seaward, where the majority of the horizon is water.
Strait/Sound	A broad, typically navigable, waterway that connects two larger, navigable bodies of water. It most commonly refers to a body of water that lies between two land masses.
Large Bay	A bay with considerable exposure to the open ocean or where the other side cannot be seen with the naked eye.
Sheltered Bay	A bay sheltered from the open ocean where land is visible on most of the horizon.
Canal	An artificial waterway or artificially improved river used for shipping or travel.
Channel	A broad, straight or deep part of a river or harbor with a navigable passage.
Ebb Tide	Outgoing tide.
Flood Tide	Incoming tide.
High Slack	A period of *high* water and lack of discernible current prior to onset of ebb tide. In SE Alaska, where rivers influence tidal activity significantly, there may be no period of slack tide.
Low Slack	A period of *low* water and lack of discernible current prior to onset of flood tide. In SE Alaska, where rivers influence tidal activity significantly, there may be no period of slack tide.
River Height	In SE Alaska daily changes in river water volume output occur due to snowmelt and rainfall. This change in water volume can have a significant affect on nearby tidal periods.
Mainland	The principal landmass of a continent; or a very large island (greater than 25 miles at its widest dimension).
Peninsula	A projection of land surrounded by water on three sides and connected to the mainland.
Island	A land mass completely surrounded by water, less than 25 miles across at its widest dimension.
Sand Bar	A ridge of sand or gravel adjacent to shore or near shore, or in a river or stream that is formed by currents or tides. Sand bars may form and change over a short period of time.
Rocky Reef	A strip or ridge of rocks, sand or coral that rises to or is close to the surface of a body of water. Permanent or changes occur very slowly.
Prominent Point	A projection of land from a larger land mass that is referenced on navigation charts as a point. See the ADF&G Salmon and Shellfish management charts for specific prominent points in the observed districts.
Fully Observed Haul	A haul where the observer had an unobstructed view of the net for >95% of the total length of the net hauled out of the water,
Partially Observed Haul	A haul where the observer was unable to observe >95% of the total length of the net hauled out of the water,
Incidental Take	A marine mammal, seabird, or sea turtle (alive or dead) that is in any way entangled or snagged in fishing gear, even momentarily, whether it is ultimately brought aboard the fishing vessel, falls from gear, or is released or self-released from the fishing gear.

4.1.3.2 Set Gillnet Haul Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double-sided forms (if used), and backs with comments on them. The pages are numbered by permit sample, with forms in order as they are listed in the Table of Contents.

2. YEAR: 2013 is pre-printed in this field.

3. MONTH: Record the month (MM) when the permit sample ended.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three character Permit Sample Number that consecutively numbers your permit samples for this year (example: G01001). If a secondary observer continues this permit sample upon the departure of the primary (original) observer assigned to this permit sample, the second observer will add his or her unique three character Observer Identifier to the end of the Permit Sample ID number. (i.e. G01001G07)

5. HAUL NUMBER: Assign a sequential haul number to each haul observed during this permit sample. Record a new haul number each time gear is hauled and observed for the permit sampled. Any time the net is pulled from the water, this is considered a haul (NOTE: the fisherman may have a different definition of a haul to the one described here. Please follow the AMMOP definition for the purposes of filling out your paperwork). If a net is "run" but not "pulled" out of the water, it is not considered a haul. If the net is "pulled" with the intention of picking fish and no fish are found, it is still considered a haul. "Net cleaning" events as described above are considered hauls and a Haul Form will be filled out in these instances.

   A **paused haul** is a haul in which the permit holder hauls part of the net onto the drum and then stops partway through the haul and leaves the rest of the net in the water to soak for an additional amount of time before hauling the rest of the net. Observers should complete the haul begin and end fields for the first part of net hauled and then note in comments the details of the 2nd part of the haul (haul begin and end date, time, lat/long, depths). (Example: Permit holder hauls first 100 fathoms of gear onto the drum but then halts the haul and leaves the remaining 200 fathoms of net in the water to soak for an additional hour. The observer would fill out the haul begin/end details for the first 100 fathoms hauled on the front of the haul form and then *note in comments* the begin/end haul details when the permit holder hauls the last 200 fathoms of net.

A **multi-pick** is a haul in which the permit holder rolls part of the net onto the drum and drops it back in the water more than once without actually hauling the entire net on board. At some point during a mutli-pick, the permit holder will drop the entire net back in the water. As soon as the end buoy hits the water, this is the end of a multi-pick and ***observers should begin a new haul form when the permit holder begins hauling again, estimating set times as appropriate***. We recognize that there may be some missing fields in situations where the permit holder moves too quickly for the observer to record all information required on the haul form. This is okay; observers just need to note this in comments.

6. NET IDENTIFICATION NUMBER: Record the number of the net observed for this haul as it is uniquely identified on the Gear Characteristics Form.

7. OBSERVED HAUL: Circle corresponding word to indicate if this haul was partially or fully observed. See definition table above.

8. MARINE ZONE: Record the code that best describes the area where the fishing occurs (refer to definitions table above), using Marine Zone Codes:

    1 = Open ocean
    11 = Strait/Sound
    2 = Inside a large bay
    3 = Inside a sheltered bay or inlet
    4 = River
    5 = Channel or canal
    6 = River mouth/estuary
    7 = River mouth/open water
    17 = River mouth/Strait
    8 = Creek or waterfall
    9 = Other (record in comments)

9. LAND FEATURE: Record the code that best describes the nearest physical land Use GPS or marine charts when helpful and refer to definitions table above. Use Land Feature Codes:

    1 = Mainland shore
    2 = Peninsula or island
    3 = Sand bar
    4 = Rocky reef
    6 = Prominent Point
    7 = > 1 mi to shore
    9 = Other (record in comments)

10a. TIDE: Record the stage of the tidal cycle at the beginning of this haul. Visual cues should be used in addition to tide tables. Be aware that tides in the statistical areas 108-40, 108-30, 108-10 and 106-60 may be particularly affected by daily changes in river height. Use Tide Codes:

1 = Ebb tide
2 = Flood tide
3 = High slack
4 = Low slack
9 = Other (record in comments)

10b. RIVER HEIGHT: When observing in statistical areas 108-40, 108-30, 108-10 and 106-60 or other stat areas in proximity to a large river, record the river height in order to compensate for riparian tidal influence. This information may be obtained from local radio stations and marine advisories. If you are observing outside the above-mentioned stat areas and there are no large rivers nearby, SLASH this field.

11. ADFG STATISTICAL AREA: Record the ADFG Fisheries Management Statistical Area Code (e.g.: 18270) at the haul location. If a net overlaps two statistical areas, record the statistical area where the majority of the net fishes and note the other area in comments. If an incidental take occurs on a haul which overlaps two statistical areas specify in comments in which area the take occurred.

12. WATER TEMPERATURE: Record the water temperature, in tenths of degrees Celsius, at the fishing location at the beginning of the observed haul. Note in comments where along the net length the temperature was collected. This information is collected with a bucket thermometer just below the surface. This information should be collected as soon as possible to the beginning of the haul. Do not record temperature estimates. Record a DASH (-) if this was not collected and note in comments.

13. WATER CLARITY: Measure the water clarity by lowering a Secchi disc on a calibrated line. Record the depth at which the secchi disk is no longer visible, in tenths of meters, at the end of each observed haul or as soon as possible. Record a DASH (-) if this was not collected and note in comments, including if the water current was too strong for an accurate reading.

14. AIR TEMPERATURE: Record, in tenths of degrees Celsius, the air temperature at the beginning of this haul. This is collected with a temperature gauge on the wind meter. Do not estimate temperature or include the wind chill factor. Record a DASH (-) if this was not collected and note in comments.

15. DISTANCE TO SHORE - MINIMUM: Record, in whole meters, the minimum distance of the closest section of net (mesh) to the shore line during the haul. If the entire haul is not observed, record the minimum distance to shore during the observed portion of the haul. This distance usually will be estimated. Explain unknowns and zeros in comments. If greater than 1 kilometer, record " >1000 m". You can use the plotting function in your GPS unit to accurately assess these distances, if you feel your visual estimates are imprecise.

16. DISTANCE TO SHORE - MAXIMUM: Record, in whole meters, the maximum distance of the farthest section of net (mesh) to the shore line during the haul. If the entire haul is not observed, record the maximum distance to shore during the observed portion of the haul. This distance usually will be estimated. Explain unknowns and zeros in comments. If greater than 1 kilometer, record " >1000 m". You can use the plotting function in your GPS unit to accurately assess these distances if you feel your visual estimates are imprecise.

17. PRESSURE WASHER/SPRAYER BAR (HYDRAULIC PUMP) USED: Record whether a pressure washer/sprayer bar was used to clean the net of debris during or directly after this haul. Record in comments if use of pressure washer affected the net view rank. Include information about the area affected (m square)

18. DISTANCE OBSERVER VESSEL TO FISHING VESSEL: MIN-MAX (m); Record the minimum and maximum distance between the observer vessel and the location of the fishing vessel where the net is hauled aboard for the duration of the haul, in whole meters. If the observer vessel was unable to remain within 6 m of the fishing vessel for the duration of the haul, explain why in comments.

19. PRIMARY TARGET SPECIES AND CODE: Record the species and the species code targeted for this haul (see Appendices - Species Codes). This does not have to be the primary species caught. This information should be obtained from the permit holder. Record "salmon, NK" if the permit holder says that they do not know or just responds "salmon of any kind".

20. OBSERVED SET: Record "YES" if you observed any part of the set associated with this haul. If "No", record in comments why set was not observed.

21. INCIDENTAL TAKE OBSERVED: Complete this field after the haul is completed. Record whether an incidental take of a marine mammal, sea bird, or sea turtle was observed during this haul. If an incidental take was observed, an Incidental Take Form must also be completed.

22. EVIDENCE OF "NET BLOW THROUGH": Record whether there was evidence of a "net blow through" during the soak associated with this haul. A "net blow through" is an assumption that something large, such as a humpback whale or Steller sea lion, ran through the gillnet. This is your opinion as the observer. Evidence that may indicate a blow-through occurred includes, but is not limited to, any of the following:

    - Sudden and/or temporary change in net configuration or end tension (also noted on MM Sighting & Event Form)
    - Certain marine mammal behaviors or observations (also noted on MM Sighting & Event Form)
    - Gear damage that includes one or more holes

    If there is evidence of a "blow through", a corresponding entry will be made with comments on the Event & Marine Mammal Sighting Form. On the Haul Form, reference the event # and time from the corresponding entry on the Event & Marine Mammal Sighting Form. Describe in comments on the Haul Form the entire sequence of observed events including diagram and narrative. This does not need to be duplicated in the Event & Marine Mammal Sighting Form comments.

23. NET VIEW: Assess the view you had of the net during your observation of the haul/pick according to the criteria below. Choose one of the following codes that best describes your view of the net. Record in the comments field the criteria used in determining your code choice.

1 = For most or all of the pick, the observer had a clear view of the full depth of the net under the water near the picking operation; AND the observer's view of the net being pulled was unobstructed for the duration of the pick; AND the observer skiff was within 6 m of the fishing vessel at all times.

2 = The observer could see at least the top 1/3 of the net depth underwater; AND the observer's view of the portion of the net being pulled was obstructed for less than 25% of the pick; AND the observer skiff was within 6 m of the fishing vessel for most or all of the pick.

3 = No underwater portion of the net could be seen by the observer due to glare, poor water clarity or other reason; AND/OR the observer's view of the portion of the net being pulled was obstructed for 25% - 50% of the pick; AND/OR the observer skiff could not get closer to the fishing vessel than 9 m for most or all of the pick.

4 = No underwater portion of the net could be seen by the observer due to glare, poor water clarity or other reason; AND/OR view was obstructed more than 50% of the pick; AND/OR skiff could not get within 15 m of the fishing vessel to observe the haul for most or all of the pick;

9 = Other (record in comments)

If the set preceding this haul was observed by the observer, then complete all data fields 24a – 25e. If the set was NOT observed by the observer, ask the permit holder for the date the set began and

ended and a best estimate of the time the set began and ended. Record these in fields 24 a & b and 25 a & b and record in the comments that the information was obtained from the permit holder DASH fields 24c through e and 25c through e.

24a. SET BEGIN DATE: Record the date when the set began (net was let into water), with month, day, year (MMDDYY). This field cannot be left blank.

24b. SET BEGIN TIME: Record the time when the set began (net was let into water), using the 24 hour clock (HHMM). This field cannot be left blank.

24c. SET BEGIN LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where the set began. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

24d. SET BEGIN LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where the set began. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

24e. SET BEGIN DEPTH: Record the water depth, in whole fathoms, where set began. This information is collected from the depth sounder on the observer work vessel. If the information is not available from that source, it should be collected from the permit holder's fathometer or from a NOAA marine chart, in that order of priority. Circle the corresponding letter "O" for fathometer on observer boat, "P" for fathometer on permit holder's fishing vessel, or "C" for marine chart. Use comments to explain zero or unknown values.

25a. SET END DATE: Record the date when the set ended (no more length of net was let into the water), with month, day, year (MMDDYY). This field cannot be left blank.

25b. SET END TIME: Record the time when the set ended (no more length of net was let into the water), using the 24 hour clock (HHMM) format. This field cannot be left blank.

25c. SET END LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where the set ended. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS

coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

25d. SET END LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where the set ended. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

25e. SET END DEPTH: Record the water depth, in whole fathoms, where the set ended. This information is collected from the depth sounder on the observer work vessel. If the information is not available from that source, it should be collected from the permit holder's fathometer or from a NOAA marine chart, in that order of priority. Circle the corresponding letter "O" for fathometer on observer boat, "P" for fathometer on permit holder's fishing vessel, or "C" for marine chart. Comment on zero or unknown depth values.

26a. HAUL BEGIN DATE: Record the date when the haul began, with month, day, year (MMDDYY). This field cannot be left blank.

26b. HAUL BEGIN TIME: Record the time when the observer begins to observe the haul, using the 24 hour clock (HHMM). This field cannot be left blank.

26c. HAUL BEGIN LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where the haul began. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

26d. HAUL BEGIN LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where the haul began. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

26e. HAUL BEGIN DEPTH: Record the water depth, in whole fathoms, where the haul began. This information is collected from the depth sounder on the observer work vessel. If the information is not available from that source, it should be collected from the permit holder's fathometer, or from a NOAA marine chart, in that order of priority. Circle the corresponding letter "O" if the information was collected from the fathometer on observer boat, "P" for fathometer on permit holder's fishing vessel, or "C" for marine chart. Use comments to explain zero or unknown values.

27a. HAUL END DATE: Record the date when the haul ended, with month, day, year (MMDDYY). This field cannot be left blank.

27b. HAUL END TIME: Record the time when the haul ends, use the 24 hour clock (HHMM) format. This field cannot be left blank.

27c. HAUL END LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where the haul ended. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

27d. HAUL END LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where the haul ended. This will be the location of the fishing vessel. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If GPS coordinates are not available, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

27e. HAUL END DEPTH: Record the water depth, in whole fathoms, where the haul ended. This information is collected from the depth sounder on the observer work vessel. If the information is not available from that source, it should be collected from the permit holder's fathometer or from a NOAA marine chart, in that order of priority. Circle the corresponding letter "O" if the information was collected from the fathometer on observer boat, "P" for fathometer on permit holder's fishing vessel, or "C" for marine chart. Comment on zero or unknown depth values.

28. PERCENT NET SET: Record the percentage of the total net length, as recorded on the Gear Characteristics form, that is set out by the permit holder prior to this haul. This should be a whole number. As you gain experience the percent set estimate will become easier. Use visual references in combination with gear characteristics information such as number of corks out, panel lengths, shackles out, or any other means whereby you can estimate the percent of the total length of the net that has been set. For example: If the permit holder has set out his net to the first shackle and you know that he has three 100 fm panels shackled together, they have set out ~33% of the net. Record "33" without additional symbols. Confirm estimate with the permit holder. RECORD ENTIRE CALCULATION IN COMMENTS.

29. PERCENT NET HAULED: Record the length of net, as a percent of the total net length SET, that was actually pulled out of the water to any degree during this haul, whether or not fish were picked. This refers to the horizontal length of the net, not the vertical amount of net removed from the

water. This may not exceed 100%; Record as a whole number, do not use decimals. RECORD ENTIRE CALCULATION IN COMMENTS.

30. PERCENT NET OBSERVED: Record the length of net, as a percent of the total net length SET, that was actually observed being hauled during this haul. The percent of the net observed cannot exceed the percent of the net hauled. This may not exceed 100%; Record as a whole number, do not use decimals. RECORD ENTIRE CALCULATION IN COMMENTS.

If a portion of the actual haul operation was not observed, record in the comments section the reasons for missing observation of that portion of the picking operations. Reasons may include engine failure, tardiness, feeling ill, or view was obstructed. Take into account length of net and haul time.

Calculating Percent of Net Hauled and Percent of Net Observed

Example 1: The total length of net recorded on the Gear Characteristics form is 300 fathoms (1800 ft) and the total length of net set is 300 fathoms. The fisherman hauls 600 ft of net and returns to port with some fish. The observer watched the entire operation. That translates to 33% of the total length of net that was set being observed.

Total net length recorded on Gear Characteristics Form: 1800 ft
Horizontal length of net set: 1800 ft
Calculation: 1800ft/1800ft = 1* 100 = 100% of the total net length was set
Total horizontal length of net hauled: 600 ft
Calculation: 600 ft /1800 ft= 0.333
0.333 * 100= 33% of set length was hauled
33% of set length was observed

Example2: The total length of net set is 300 fathoms (1800 ft) and the fisherman hauls about 300 ft of net on the shore end, stops and runs to the seaward end of the net and pulls/picks about 300 ft toward shore. This totals about 600 feet of the net being hauled. However, in this case, the water was really rough and the observer was getting sick over the side during the 2nd part of the pick (the 300 ft of net picked from the seaward end of the net). In this case, only about 17% of the net that was set was observed. In this example the % net observed is less than the percent net hauled.

Total net length recorded on Gear Characteristics Form: 1800 ft
Horizontal length of net set: 1800 ft
Calculation: 1800ft/1800ft = 1* 100 = 100% of the total net length was set
Total horizontal length of net hauled: (300 ft+300 ft)= 600 ft
Calculation: (600 ft /1800 ft)= 0.333
0.333 * 100= 33% of set length was hauled
Total horizontal length of net observed: 300 ft
Calculation: (300 ft /1800 ft)= 0.167
0.167 * 100= 17% of set length was observed

Example 3: The permit holder has 300 fathoms on the drum and you recorded 300 fm on the Gear Characteristics Form. The total length of net set is 200 fathoms (1200 ft). The fisherman hauls about 300 ft of net on the shore end, stops, and runs to the seaward end of the net and hauls about 300 ft toward shore. This totals about 600 feet of the net being hauled, and the observer observed half of that operation due to illness. The observer should record that about 25% of the total length of net that was set was observed.

Total net length recorded on Gear Characteristics Form: 1800 ft
Horizontal length of net set: 1200 ft
Calculation: 1200ft/1800ft = 0.667 * 100 = 67% of the total net length was set
Total horizontal length of net hauled: (300ft+300ft)= 600 ft
Calculation: (600 ft /1200 ft)= 0.5
0.5 * 100= 50% of set length was hauled
Total horizontal length of net observed: 300 ft
Calculation: (300 ft /1200 ft)= 0.25
0.25* 100= 25% of set length was observed

31. GEAR DAMAGE: Indicate the condition of the gear at the end of the haul. If damage is found, ask the fisherman if the damage occurred before this set/haul. Use Gear Damage Codes to reflect damage that occurred while net was fishing since the most recent set. Please note the nature of the damage or tear in the comments:

1 = No gear damage, very few small holes
2 = Less than 5% of the net torn
3 = Between 5% and 25% of the net torn
4 = Between 25% and 50% of the net torn
5 = Greater than 50% of the net torn
8 = Net totally balled up
9 = Other (record in comments)
0 = Unknown

32. GEAR DAMAGE LOCATION: Record the vertical and horizontal location in the net of the damage. Obtain this information from the fisherman. If damage is extensive, record more than one location, separated by commas. Indicate how many separate "holes" and how approximately large in comments.

Vertical Location:
V1 = bottom third of net
V2 = middle third of net
V3 = top third of net
0 = unknown

Horizontal Location:
H1 = first third of net closest to F/V
H2 = middle third of net
H3 = last third of net from to F/V
0 = unknown

33. GEAR OBSTRUCTION: Indicate the condition of the gear at the end of the haul. Assume that any obstruction occurred since the last haul. Debris includes but is not limited to: jellyfish, algae, seaweeds and man-made objects and structures; Please note what caused obstruction in the comments and include in the catch information field if there is a relevant code. If no code exists for the obstruction, please provide as much detail as you can in your comments. At a minimum use the Gear Obstruction Codes to reflect obstruction that occurred while net was fishing and since last haul.

1 = Debris obstructing less than 33% of the net
2 = Debris obstructing between 33% & 66% of the net
3 = Debris obstructing more than 66% of the net
4 = No obstruction
9 = Other (record in comments)
0 = Unknown

SOAK INFORMATION

34. NUMBER OF TIMES NET RUN: Record the number of times during the observed soak that the fishing vessel ran the net, either partially or completely – this should be a sum of all code "13"s "Fishing Vessel Ran Net" observed during soak watches conducted during this soak from the Marine Mammal Sighting & Event Form. If the soak is not observed, DASH this field and explain in comments.

CORK LINE SHAPE CODES

1 = Straight
2 = curved; 0-30˚ arc
3 = curved; 31-60˚ arc
4 = curved; 60-120˚ arc
5 = curved; 121-180˚ arc
6 = sinuous
9 = other (record in comments)
0 = unknown

35. CORK LINE SHAPE – BEGIN SOAK: Use Cork Line Shape codes (above) to describe the shape of the net at the end of the set, if the set was observed. If the set was not observed, record "0" = unknown.

36. CORK LINE SHAPE – END SOAK: Use Cork Line Shape codes (above) to describe the shape of the net at the beginning of the haul (just prior to the fishing vessel beginning to retrieve the net). There should be no "unknowns" in this field, because you are expected always to be present for the beginning of the haul.

37. # CORK LINE SHAPE CHANGES: A cork line shape change is considered to have occurred when the cork line moves from one shape code to the next. Record the number of changes noted for the soak preceding this haul. This will be a summation of all code 14s "Cork line shape change" observed during soak watches conducted for this haul from the Marine Mammal Sighting & Event Form. If the soak is not observed, SLASH this field and explain in comments.

NET END TENSION CODES

1 = straight/taut
2 = <10 corks no tension
3 = 10 – 20 corks no tension
4 = > 20 corks no tension
9 = other (record details in comments)
0 = unknown

38. NET END TENSION – BEGIN SOAK: Use Net End Tension codes (above) to describe the net end tension at the end of the set, if the set was observed. If the set was not observed, record "0" = unknown.

39. NET END TENSION – END SOAK: Use Net End Tension codes (above) to describe the net end tension at beginning of the haul (just prior to the fishing vessel beginning to retrieve the net). There should be no "unknowns" in this field, because you are expected always to be present for the beginning of the haul.

40. # TENSION ADJUSTMENTS: A tension adjustment is a deliberate manipulation of the net on the part of the permit holder and is recorded as being caused by direct fishing activity as opposed to drift or unknown causes. Record the number of net end tension adjustments observed for the soak preceding this haul. This will be a summation of all code 15s with a "fishing" cause code "F" from the Marine Mammal Sighting & Event Form. If the soak was observed and no tension adjustments were observed, record "0". If the soak was not observed, SLASH this field as not applicable and record in comments.

41a. CORK LINE SHAPE AND NET END TENSION DRAWING: BEGIN SOAK - Draw the shape of the cork line and the net end tension in one drawing at the beginning of the soak/the end of the set preceding this haul (if observed). Include location and number of buoys and location of fishing vessel. If no information on cork line shape and net end tension, DASH this field.

41b. CORK LINE SHAPE AND NET END TENSION DRAWING: END SOAK - Draw the shape of the cork line and the net end tension in one drawing at the end of the soak/start of the haul (just prior to the fishing vessel beginning to retrieve the net). Include location and number of buoys and location of fishing vessel. If no information on cork line shape and net end tension, DASH this field.

CATCH INFORMATION

42. SPECIES NAME AND CODE: Record the common name of each species caught followed by the associated code from the Species Codes (See Appendix 7.). Debris with codes will be recorded here as well. Debris without codes will be recorded in comments. Please be sure to use the most recent species code list. Describe and draw any unidentified species in comments and include photos if possible.

43. NUMBER: Record the number of individuals caught in this haul, by group where Species, Disposition, Condition, and Reason are all the same. This information should be obtained from the permit holder.

44. NUMBER CODE : Indicate the source of the species individual count by recording the proper code. Use the Codes:

A = Actual
E = Observer's Estimate
F = Fishermen's (Permit Holder) Estimate

45. WEIGHT: Record the total weight, in whole pounds, for each grouping of Species + Disposition + Condition + Reason. This information should be obtained from the permit holder. If the permit holder provides average weights for fish species, show your calculations in the comments section. For jellyfish, kelp, seaweed, or any debris, do not record a weight. DASH this field for those species.

46. WEIGHT CODE: Indicate the source of the species weight by recording the proper code. For jellyfish, kelp, seaweed, or any debris, do not record a weight. Record a "U" unknown for these types. Use the WEIGHT Codes:

A = Actual
E = Observer's Estimate
F = Fishermen's (Permit Holder) Estimate
U = unknown

47. CATCH DISPOSITION: Indicate whether this catch category was kept or discarded. All jellyfish, kelp, seaweed, or debris will be recorded as "D" discarded. Use Catch Disposition Codes:

K = Kept
D = Discarded
U = Unknown

48. ANIMAL CONDITION: Indicate the ultimate condition at the end of the haul of each species catch category. All kept species should be dead, unless they are being kept for a live market. Indicate whether discards are released alive or dead. Record Jellyfish, Kelp, Seaweed, and debris condition as U = Unknown. Record the most appropriate Animal Condition Code:

A = Alive
D = Dead
R = Recovering in tank or comatose
U = Unknown

49. DISPOSITION REASON: Indicate why the catch was either discarded or kept for each catch category, using the Disposition Reason Codes:

1 = Discarded, no market, reason not specified
2 = Discarded, no market, too small
3 = Discarded, no market, too large

4 = Discarded, no market, quota filled
5 = Discarded, no market, won't keep until trip end
6 = Discarded, regulations prohibit retention
7 = Discarded, poor quality, reason not specified
8 = Discarded, poor quality, due to sand flea damage
9 = Discarded, poor quality, due to seal or sea lion damage
10 = Discarded, poor quality, due to shark damage
11 = Discarded, poor quality, due to cetacean damage
12 = Discarded, poor quality, due to scavenger damage
13 = Discarded, poor quality, due to gear damage
14 = Discarded, fell out of gear and lost
15 = Discarded, too large to bring on-board
16 = Discarded, vessel capacity filled
17 = Discarded, not enough fish to pump on board
19 = Discarded, debris
20 = Discarded, other reason (record in comments)
21 = Discarded, reason unknown
30 = Kept, landed/sold
31 = Kept, used for bait
32 = Kept, for personal consumption (if Code 32 is chosen, note in comments whether this is due to pinniped damage)
33 = Kept, other reason (record in comments)
34 = Kept, reason unknown
0 = Unknown disposition

50. COMMENTS: Record any comments associated with this haul.

4.1.4 Fish/Shark Sample Form

DELETED – NOT USED FOR 2013

4.1.5 Incidental Take Form

This form is used to record information on all incidental takes observed during the permit sample. An incidental take is a marine mammal, seabird, or sea turtle that is observed entangled or snagged momentarily or longer in the gear. A new Incidental Take Form must be started for each haul in which one or more incidental take occurs. The incidental takes are numbered consecutively per permit sample. All incidental takes must be photographed (see the Photo Form for more details). Dead incidental takes will be uniquely tagged and sampled or retained whole. Carcasses that cannot be retained will be sampled, tagged and discarded at sea. Fishermen have a legal obligation to retain samples that are requested by observers [50 CFR 229.7(c)(4)(vi)].

- An incidental take involves direct contact between the gear and a marine mammal, seabird, or sea turtle (although sea turtles are relatively rare in Alaska).

- If at any point during an observed trip, a marine mammal or seabird (or sea turtle) makes physical contact with the fishing gear being observed AND any part of the animal's body gets snagged, ensnared, hung up, tangled, or snarled for any period of time, regardless of the final condition and release of the animal, this is an incidental take and is recorded on the Incidental Take Form.

- There is no set minimum amount of time, such as number of seconds, for which the animal has to be held or stuck (or in contact with the gear) to be considered an incidental take.

Not all physical contact with the net is considered an incidental take. Examples of direct contact with fishing gear that are not considered incidental takes include: a sea otter scratching its back on the floatline, a sea lion picking a fish out of the net and swimming away, a bird landing on a float for a rest.

FULL documentation of marine mammal takes is the most CRITICAL element of this program.

An observed incidental take may be alive or dead at first sight, or an animal's condition may change as you observe it. Depending on the species and age of the animal, response behaviors may differ. Some animals are extremely sensitive to shock, are quickly overcome or incapacitated, and are unable to free themselves. Other species will have a powerful, continuous response until exhaustion, yet some species are strong enough to tear or rip through the gear. Some animals

may escape uninjured, while others may drown, asphyxiate, break a limb, have deep lacerations or bleeding wounds, and others may escape with internal injuries or shock responses not obvious externally.

Serious Injuries are defined as injuries that are more likely than not to lead to mortality. Federal guidelines have been developed to assist the agency in making serious injury determinations, but it is still extremely difficult to determine what constitutes a serious injury. Experts carefully review observer data on incidental takes to determine whether a serious injury or mortality occurred. *Making this judgment is extremely difficult after the fact.*

Therefore, the observer who observed the take in the field must provide as much information as possible on the condition of the animal and the circumstances surrounding the take. This should include drawings & diagrams, full descriptions of events & animal behavior, injuries, and gear on the animal.

A description of how various codes like condition and disposition were decided upon should be included. Opinions based on observations are extremely helpful. If gear remained on the animal, how much? What parts of the gear? Where on the animal was the gear? How tightly wrapped? You will be provided with a matrix of information that may be used by NMFS to determine the degree of injury. Review this matrix to familiarize yourself with the types of details that are informative in determining severity of different types of injuries. This will help you better notice relevant details and document them.

Proper species identification is critical. The observer should take care that species identification is made properly; all information used to make that identification must be documented. A complete suite of photos MUST be taken of every dead incidental take to the degree possible. Opportunistic photos of live incidental takes are critical. These events may occur in a matter of seconds before the animal is gone from view. Therefore, cameras MUST be at hand at all times during a permit sample.

If the take is dead, it is important to fully note the animal condition, state of decomposition, scavenger damage, environmental conditions, and fully describe the entanglement situation. If it is possible to retain the whole animal, a complete necropsy can be done to determine the animal's cause of death, its body condition at time of death, and it can be examined for resulting injuries from being entangled. If a dead incidental take is retrieved and cannot be kept whole, it should be sampled, tagged, and thrown overboard. Tagging the carcasses will enable the animal to be identified as already sampled if caught again or washed ashore. If the remains of less than a quarter of an animal in skeletal form is retrieved in the gear, it is not recorded as an incidental take and should be photographed and described in detail in the Catch Section of the Haul Form. If a beached or floating carcass is observed in the area, it cannot be assumed to have been an incidental take in the gear you are observing, unless the observer observes

an interaction with that gear. (In this case a Strandings Level A Form will be completed - see section 4.2.1.3. and 4.2.1.4.). However, it may be from an interaction with nearby gear, so please note any injuries or if there is gear or gear markings on the animal.

4.1.5.1 Incidental Take Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double-sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. YEAR: 2013 is pre-recorded on this form.

3. MONTH: Record the month (MM) when the trip ended.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (ex: G01001). If a secondary observer continues this permit sample upon the departure of the original observer assigned to this permit sample, the second observer will add his or her unique three character Observer Identifier to the end of the Permit Sample ID number on this form and all forms associated with this permit sample. (ex: G01001G12)

5. HAUL NUMBER: Record the consecutive haul number assigned to the haul during which the take occurred. This number must agree with the haul number recorded on the corresponding Haul Form.

6. INCIDENTAL TAKE ID NUMBER: Assign a consecutive number, starting with "1", by permit sample, to each incidentally taken animal recorded on this form. If there are insufficient lines on one form, continue on a new Incidental Take Form. Start a new Incidental Take Form for each haul, but continue consecutive incidental take ID numbers through entire permit sample.

7. SPECIES AND CODE: Record the complete common name for each animal incidentally taken during this permit sample as listed in the Species Code (Appendices). Include the appropriate Species Code for data entry (this can be filled in after the permit sample when codes can be referenced).

8. TAG NUMBER(S): A tag may be found already on the animal or you may attach a tag. You will only tag dead animals and you will tag all dead animals that you are able to. Record the complete alpha-numeric number(s) from the tag(s) you attach or from any tag(s) already attached to the animal. All cattle ear tags issued should begin with "A" followed by 4 digits (e.g. A0123). This tag number should be uniquely and individually assigned to a particular animal, and only if the animal is dead. If only one tag is recorded on this form, SLASH the field box for the second tag.

9. TAG TYPE(S): Indicate what kind of tag is (or was) on the animal. If only one tag is recorded, SLASH the field box for the second tag. Use the Tag Type Codes (describe the colors in comments):

1 = Cattle ear tag
2 = Brand
3 = Bleach, dye, or ink
4 = Flipper tag
5 = Dorsal fin tag
6 = Metal leg band
7 = Plastic color leg band
8 = Nasal tag
9 = Spaghetti tag
10 = Coded wire tag
11 = Stomach tag
99 = Other (record in comments)
0 = No tag

10. TAG STATUS(S): Indicate whether the tag was already on the animal when it came up in the net, left on or removed, or a new one put on the animal by the observer. If only one tag is recorded, SLASH the field box for the second tag. Use the Tag Status Codes:

1 = New tag applied by observer
2 = Already on and left on by observer
3 = Already on and removed by observer
9 = Other (record in comments)
0 = No tag(s)

11. DISENTANGLEMENT: Indicate the how the animal was released or disentangled from the gear by recording the most appropriate Disentanglement Code. Record all applicable codes, separated by commas

1 = Momentary snag with self-release
2 = Released from gear at a point unknown
3 = Dislodged from gear under water or at water's surface
4 = Dislodged from gear once out of water
5 = Removal from gear resulted in damaging gear
6 = Removal from gear resulted in cutting the animal
7 = Removal from gear by unrolling or untangling gear
9 = Other (record in comments)
0 = Unknown

12. HORIZONTAL LOCATION: Indicate, horizontally, relative to the end where the haul began (first hauled by the F/V), where in the gear the animal became entangled. The first third of gear would be that closest to the end where the haul began (first hauled by the F/V), and the final third would be that farthest from the end where the haul began. Use the most appropriate Horizontal Location Code:

1 = Found in first third of gear
2 = Found in middle third of gear
3 = Found in final third of gear
9 = Other
0 = Unknown

13. VERTICAL LOCATION: Indicate, vertically, where in the gear the animal became entangled by recording the most appropriate Vertical Location Code:

    1 = At water surface
    2 = Top third of gear
    3 = Middle third of gear
    4 = Bottom third of gear
    9 = Other
    0 = Unknown

14. ANIMAL CONDITION: Indicate the condition of the animal at the time of release from gear, by recording the most appropriate Animal Condition Code:

    A = Alive
    D = Dead
    R = Recovering or comatose
    U = Unknown

15. INJURY: Indicate the degree of injury, if any, the animal had upon release. Refer to Marine Mammal Injury Matrix for injury codes. Record all appropriate Injury Codes. SLASH this field for seabirds.

16. AGE CLASS: Indicate the age class of the animal by using one of the following Age Class Codes. SLASH this field for seabirds.:

    1 = Calf or pup
    2 = Immature
    3 = Adult
    0 = Unknown

Guidelines for Determining Age

Pinnipeds:	Relative size is the best guide.
Cetaceans:	Age class may be hard to determine from field examination, so only distinguish between calves of < 1 year and adults.

17. SEX: Indicate the sex of the animal (see diagram) by recording one of the following Sex Codes:

    M = Male
    F = Female
    U = Unknown or too young

18. PHOTOS TAKEN: Indicate if photos were taken of this animal by using the Yes/ No Codes. For all animals with "Yes," there should be an accompanying Photo Log Form. **Photos must be taken of all incidental takes.** If photos were NOT taken, an explanation must be provided in comments. *Cameras should be at hand at all times during all watches.*

19. SAMPLES TAKEN: Indicate whether samples (including retained whole) or measurements (which are considered samples) were collected from this animal. Photos are not considered samples. For those animals that had samples taken "Yes," is indicated in this field and there should be an accompanying Biological Sample Form.

20. COMMENTS: Record any additional information regarding the incidental take(s). Reference each comment with its corresponding Incidental Take ID # and tag number. Do not record sampling information on this form. For each animal the observer must record (i.e., sketch and/or describe):

    - All key characteristics used to identify this animal to species.
    - Identifying characteristics: condition, marks, scars, gear on the animal, injuries, etc.
    - Presence of foam or other excretions, including blood, coming from blowhole, mouth, eyes, mammary glands, genital slit, or obvious injury.
    - The color of the eyes.
    - If the animal fell or was released from the gear, the observer should describe in detail at what point it fell/ or was released, how the animal was entangled and became untangled, and if the animal sank, floated, and/or drifted away. If it swam away, describe swimming strength as strong or weak. Did the animal seem lopsided or misshapen? Did it swim in circles or directly away? Did it hesitate or seem disoriented? Did it sink?
    - If any fishing gear remains on the animal upon release, describe: type and amount of gear including material, color, or width of - buoys, lines, netting, hooks, or other; the number of wraps as well as tightness of any wrap(s) around any part of the animal; location of gear on animal. TAKE PHOTOS!
    - Use the Injury matrix to inform any additional thoughts or descriptions of this incident.

    Take form comments should describe the circumstance of the take and the appearance of the animal collected.

Large Cetacean Injury Codes:
All Mysticetes AND Sperm Whales

Code	Injury Type	Criteria for this Injury Type
L1	Ingested gear or hook	Swallowed (down throat), not simply draped through mouth
L2	Constricting wrap	Tightly wrapped line or net anywhere on body that indents the skin or does not shift with whale's movement, or line that is likely to become constricting as the whale grows. Indication that a whale that is heavily weighted, anchored or has a discolored appendage is sufficient evidence of constricting gear. DESCRIBE AMOUNT AND TYPE OF GEAR (lines, net, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc) AND LOCATION ON ANIMAL
L3	Loose wrap, bridled or draped gear	Loosely wrapped gear that moves or shifts freely with whale's movement. Absence of constricting gear must be confirmed. DESCRIBE AMOUNT AND TYPE OF GEAR (lines, net, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc) AND LOCATION ON ANIMAL,
L4	External hook	Fishing hook of any size on any part of the body (i.e., not ingested); Any part of the hook is visible. DESCRIBE LOCATION ON ANIMAL
L5a	Deep laceration	Laceration with the potential to affect major artery (e.g., laceration or severing at insertion of flipper/fluke), penetrating body cavity, or cutting bone. DESCRIBE LOCATION ON ANIMAL, DEPTH AND LENGTH OF LACERATION
L5b	Superficial laceration	Laceration not deeper than blubber layer, does not affect major artery, or cut bone. DESCRIBE LOCATION ON ANIMAL, DEPTH AND LENGTH OF LACERATION
L6a	Vessel strike: vessel much greater in size than whale or vessel ≥65' and >10 knots	Struck by vessel much greater in size than the whale and traveling greater than 10 knots, or struck by vessel equal or greater than 65' and traveling greater than 10 knots, and no information on injury to the whale
L6b	Vessel strike: vessel smaller in size than whale or vessel <65' and >10 knots	Struck by vessel smaller in size than the whale and traveling greater than 10 knots, or struck by vessel less than 65' and traveling greater than 10 knots, and no information on injury to the whale.
L6c	Vessel strike: vessel any size ≤10 knots	Struck by vessel of any size traveling at equal or less than 10 knots and no information on injury to the whale
L7a	Vessel strike: vessel much greater in size than whale or vessel ≥65' and speed unknown	Struck by vessel much greater in size than the whale traveling at an unknown speed, or struck by vessel equal or greater than 65' and traveling at unknown speed, and no information on injury to the whale. A strike to a calf by a vessel of any size when speed is unknown will be considered a serious injury
L7b	Vessel strike: vessel smaller in size than whale or vessel <65' and speed unknown	Struck by vessel smaller than the whale traveling at an unknown speed, or struck by vessel less than 65' and traveling at unknown speed, and no information on injury to the whale. A strike to a calf by a vessel of any size when speed is unknown will be considered a serious injury
L8	Dependent	Dependent calf of a dead or seriously injured mother
L9	Brought on deck	Whale removed from water and brought on deck
L10	Evidence of entanglement	Confirmed entanglement but insufficient information available to assign any of the L1 - L4 injury codes with a high degree of certainty. DESCRIBE LOCATION ON ANIMAL AND AMOUNT AND TYPE OF GEAR (lines, net, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc) OR ENTANGLEMENT EVIDENCE
L11	Vessel strike laceration	Whale confirmed with non-entanglement related laceration but lacking details to place in either criteria L5a or L5b with a high degree of certainty. Includes observation of blood in water.
L12	Vessel strike observed	Confirmed vessel strike report where there is insufficient detail to assign event to criteria L6a – L7b with a high degree of certainty. A strike to a calf by a vessel of unknown size traveling at an unknown speed will be considered a serious injury.

Small Cetaceans Injury Codes:
All Odontocetes EXCEPT Sperm Whales

Code	Injury Type	Additional Details Required to Report
S2	Ingested gear or hooks	
S3	Visible blood loss	Amount of blood, duration & location of the bleeding injury
S4	Animal brought on vessel deck following entanglement/ entrapment	
S5a	Hook(s) in head (excluding criterion S5b), regardless of the presence of gear	
S5b	Hook(s) confirmed in lip only or external tissue outside of teeth, no trailing gear	Describe duration of any restraint or struggle, size of hook, depth of hooking, impairing ability to feed, presence of other injuries
S5c	Hook(s) in any body part, but removed or pulls out	Further describe duration of any restraint or struggle, depth of hook, hook pulls out cleanly vs. causes further injury during dehooking, method used to remove hook, length of time hooked
S5d	Hook(s) in appendage or body (not head), without trailing gear OR with trailing gear that **DOES NOT** have the potential to: 1) become a constricting wrap on animal; 2) be ingested; 3) accumulate drag; or 4) snag on something in the environment	Further describe duration of any restraint or struggle, depth and location of hook, type and amount of gear attached.
S6	Gear attached to free-swimming animal that **DOES** have potential to: 1) become a constricting wrap on animal; 2) be ingested; 3) accumulate drag; or 4) become snagged on something in the environment	Further describe duration of any restraint or struggle, depth and location of gear, type and amount of gear attached. (lines, netting, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc)
S7a	Anchored, immobilized, or entrapped & not freed	
S7b	Anchored, immobilized, entangled, or entrapped before being freed without gear attached	Duration of entanglement/entrapment, duration of restraint or struggle, gear type, where/how gear is attached to animal, associated injury (i.e., where directly or indirectly caused by initial entanglement), response of individual animal, method used by human to remove gear from animal
S8a	Gear wrapped and constricting on any body part or is likely to become constricting as the animal moves or grows	Gear type & amount, potential for snag, potential to lead to S8a, animal body size relative to gear, effect on animal movement - location of gear, type and amount of gear attached. (lines, netting, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc)
S8b	Gear wrapped and loose on any body part	Location, amount and type of gear, snag potential, potential to lead to wrap, animal body size relative to gear, effect on animal movement. (lines, netting, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc)
S9	Body trauma not covered by any other criteria	Location of wound, depth (e.g., superficial or to the bone, penetrating muscle or organs), length, number of lacerations, cleanliness (i.e., compression vs. tearing)
S10	Visible fracture(s), excluding pectoral fins (see criterion S13d for pectoral fin fractures)	
S11	Loss or disfigurement of dorsal fin	Nature of injury causing the loss, extent of fin loss (full or partial), amount & duration of blood loss
S12	Partially severed flukes, transecting midline	
S13a	Loss or disfigurement of dorsal fin	
S13b	Partially severed flukes, transecting midline	
S13c	Partially severed flukes, not transecting midline	Cleanliness (i.e., compression vs. tearing), nature of injury causing the loss, amount and duration of blood loss
S13d	Partially or completely severed or fractured pectoral fin(s)	Cleanliness (i.e., compression vs. tearing), nature of injury causing the loss, extent of fin loss (i.e., full or partial), amount and duration of blood loss, opened or closed fracture
S14	Social animal separated from group and/or released alone post-interaction (excluding S15)	Location of release relative to conspecifics
S15	Dependent animal released alone post-interaction or left with a seriously injured or dead mother	
S16	Observed collision with vessel	Vessel: speed, size, hull shape, part of vessel to strike the animal, size of animal compared to size of vessel, behavior of animal after collision, extent and location of wound(s) on animal

Pinniped Injury Codes:
All Pinniped Spp EXCEPT Walrus

Code	Injury Type	Additional Details Required to Report
P1	A free-swimming animal observed at a date later than its human interaction, exhibiting signs of declining health believed to be resulting from initial injury (e.g., a marked change in body condition, tissue necrosis, emaciation, gangrene).	
P2	Ingested gear or hook(s)	
P3	Visible blood loss	Amount & duration of bleeding, location of the bleeding injury.
P4	Animal brought on vessel deck following entanglement/entrapment	Manner in which animal is brought on deck, length of time animal is on deck, environmental conditions (e.g.temperature)
P5a	Hook(s) in mouth (excluding criterion P5b), regardless of the presence of gear	
P5b	Hook(s) confirmed in head (excluding criterion P5a), or in lip only (external tissue outside of teeth), no trailing gear	Location on head (e.g., eye), depth of penetration, type of hook, prolonged restraint or struggle that could lead to capture myopathy, size of hook, impairing ability to feed
P5c	Hook(s) in any body part, but hook(s) is removed or pulls out	Prolonged restraint or struggle that could lead to capture myopathy, location of hooking on the body, depth of hook, hook pulls out cleanly vs. causes further injury during dehooking, method used to remove hook, length of time hooked
P5d	Hook(s) in appendage or body (excluding criteria P5a-c and P12), without trailing gear or with trailing gear that does not have the potential to: 1) become a constricting wrap on animal; 2) be ingested, 3) accumulate drag; or 4) become snagged on something in the environment, anchoring the animal	
P6	Gear attached in any manner to free- swimming animal with potential to: 1) become a constricting wrap on animal; 2) be ingested; 3) accumulate drag; or 4) become snagged on something in the environment, anchoring the animal	Include: location of gear, type and amount of gear attached. (lines, netting, bouys, anchors, other – include line diameter, net mesh size, twine thickness, bouy size, colors, id numbers or letters etc)
P7a	Anchored/immobilized and not freed	
P7b	Anchored, immobilized, or entangled before being freed without gear attached	Duration of entanglement, prolonged restraint or struggle that could lead to capture myopathy, type of fishing gear, where/how gear immobilized animal, associated injury (where directly or indirectly caused by initial entanglement), response of individual
P8a	Gear wrapped & constricting any body part or likely to become constricting as the animal moves or grows	Include: location of gear, type and amount of gear attached. (lines, netting, buoys, anchors, other – include line diameter, net mesh size, twine thickness, buoy size, colors, id numbers or letters etc)
P8b	Gear wrapped loosely on any body part	Include: location of gear, type and amount of gear attached. (lines, netting, buoys, anchors, other – include line diameter, net mesh size, twine thickness, buoy size, colors, id numbers or letters etc)
P9	Body trauma not covered by any other criteria	Location of trauma on body, depth (superficial or to the bone, penetrating muscle or organs) length & number of laceration(s), cleanliness (compression vs. tearing), amount & duration of blood loss, infection risk / disease transmission (e.g., dog bites)
P10	Visible fracture(s), excluding broken appendages (see criterion P13 for broken appendages)	
P11	Vertebral transection or fully severed flipper(s)	
P12	Body cavity penetration by foreign object or body cavity exposure	

[2] For the purposes of this table, ―gear‖ is defined as any portion of fishing gear excluding the hook, which is considered separately.

[5] For the purposes of this table, ―laceration‖ is defined as a ragged incision or a tearing of the skin. Lacerations are caused by trauma that results in stretching, tearing, crushing, shearing, or avulsion of the tissue. Trauma, including blunt and sharp force trauma, includes a wound or bodily harm caused by an extrinsic agent.

[7] Dependent‖ for a large cetacean means a non-weaned calf. Weaned calves and juvenile large cetaceans are no longer dependent on their mothers.

* Factors listed in the far right column of Table 2 are unique to the associated injury type. In addition to those listed in this column, the factors that should be considered, if available, when reviewing all case specific injury events in Table 2 include, but are not limited to:

- Species
- Age or age class (e.g., calf, juvenile, adult)
- Sex
- Size of animal
- Overall health (e.g., nutritional status, body condition, pre-existing disease state, pre-existing injuries)
- Behavior during and/or after injury- causing interaction (e.g., dorsal arching, listlessness)
- Location of injury (e.g., mouth, head, body, fin, tail, internal)
- Size of injury
- Duration of injury (e.g., single event, repeated, chronic)
- Depth of injury (e.g., superficial or to the bone, penetrating muscle or organs)
- Cleanliness of injury (e.g., compression, tearing)

In addition to those factors listed above, the factors that apply to all fishery-interaction related case specific injuries include, but are not limited to:

- Entanglement type (e.g., hooked, anchored, entrapment)
- Amount and size of gear (e.g., size, length and number of branches of line; number of buoys, traps or anchors; volume of netting)
- Entanglement constriction (e.g., tight, loose, multiple wraps)
- Habitat where animal is located (e.g., an animal with trailing gear areas of dense gear or an area with vegetation is more likely to risk snagging the gear and becoming anchored)
- Entanglement duration
- Existence, type and amount of any trailing gear
- Method of handling the animal during disentanglement

4.1.6 Marine Mammal Sample Form

This form is used when marine mammals incidental takes are measured or sampled. Refer to the preceding Marine Mammal Sampling Guidelines for detailed sampling instructions. Only dead marine mammals are to be tagged and sampled. The dead marine mammals are uniquely numbered with a plastic cattle ear tag. Start a new Marine Mammal Sample Form for each haul/pick when marine mammals are sampled or measured. Measurements should be estimated when animals are unable to be brought aboard for measurement (see page 47).

4.1.6.1 Marine Mammal Sample Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. YEAR: 2013 is pre-recorded in this field.

3. MONTH: Record the month (MM) when the trip ended.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three digit Permit Sample Number consecutively numbering your trips for this year (ex: G01001). If a secondary observer continues this permit sample upon the departure of the original observer assigned to this permit sample, the second observer will add his or her unique three character Observer Identifier to the end of the Permit Sample ID number on this form and all forms associated with this permit sample. (ex: G01001G12)

5. HAUL NUMBER: Record the consecutive haul number assigned to the haul during which take occurred. This number must agree with the haul number recorded on the corresponding Haul Form and Incidental Take Form.

6. TAG NUMBER: Record the unique tag number that has been attached to the dead marine mammal. This tag is a plastic cattle ear tag and should be attached to the carcass with a cable tie. The tag number will start with an "A" and be followed by 4 digits. Be sure to record all alpha-digits accurately on all forms and sample labels. See Marine mammal Sampling guidelines for tag placement. Tags should never be reused to identify another animal. If you are unable to assign a plastic tag and the animal already has a unique tag number or brand, record that number. This is NOT the consecutive identification number from the Incidental Take Form.

7. SPECIES AND CODE: Record the complete common name for each animal sampled as listed in the Species Codes (Appendices). Include the appropriate

Species Code for data entry (this can be filled in after the trip when codes can be referenced).

8. STANDARD LENGTH: Record the straight line total length, in whole centimeters, of the animal. For cetaceans, this is from the tip of rostrum to the notch in flukes. For pinnipeds, this is from the tip of snout to tip of tail.

9. GIRTH: Record the axillary girth, in whole centimeters. This is taken at the "armpits," posterior of the fore-flippers or pectoral flippers.

10. FLIPPER LENGTH: For cetaceans, record the straight line, in whole centimeters, from the anterior insertion of the pectoral flipper to tip of the flipper. For pinnipeds, measure the straight line, in whole centimeters, from the outside anterior insertion of the hind flipper to tip of the longest toe, not including the nail.

11. FLIPPER WIDTH: For cetaceans only, record, in whole centimeters, the widest straight line distance across the pectoral flipper.

12. DORSAL FIN HEIGHT: For cetaceans only, record, in whole centimeters the straight line height of the dorsal fin, up and down.

13. FLUKE WIDTH: For cetaceans only, record the width of the flukes, from one tip to the other, in whole centimeters.

14. BLUBBER THICKNESS: For cetaceans, record, in millimeters, the depth of the blubber posterior of blow hole just off mid-line. For pinnipeds, measure, in millimeters, blubber thickness at sternum. The measurements are taken from the muscle layer to (but not including) skin layer.

15. SKIN: Was a skin sample collected (this includes a fin clip sample)?
    Y = Yes
    N = No

16. RETAINED WHOLE: Was the animal retained whole?
    Y = Yes
    N = No

17. JAW OR TEETH: Was a jaw sample taken (this would include a jaw, tooth, or head sample)?
    Y = Yes
    N = No

18. STOMACH: Was the stomach retained whole?
    Y = Yes
    N = No

19. NUMBER OF OTHER SAMPLES: Record the number of other biological samples collected from this animal. If no other samples were collected, record zero.

20. COMMENTS: Record any additional information regarding the marine mammal incidental take(s), especially when animal data are unable to be collected. Reference each comment with its corresponding field name. Reference each description with the animal's unique tag number. For each animal the observer must sketch and describe:

    - Notes from internal examination (colors, shapes, etc.) *without repeating information already recorded in the take form comments*
    - Location where samples and measurements were taken
    - Storage method, size and packaging of samples

4.1.6.2 Marine Mammal Biological Sampling Guidelines

This section describes the guidelines for collecting and documenting biological samples of incidentally taken marine mammals. Each trip may present different challenges in accommodating these priorities and may be affected by circumstances such as rough weather conditions, the animal falling out of the net, etc. It is up to the observer to use his/her best judgment in following these guidelines.

I. Minimum Sampling Requirements

a. Live Animals
   1. Identify and Photograph
   2. Release

b. Dead Animals
   1. Identify and Photograph
   2. Apply AMMOP Tag
   3. Collect Skin Sample (for DNA)
   4. Take Body Measurements
      i. Blubber Thickness
      ii. Standard (or Total) Length
      iii. Girth
      iv. Hind Flipper or Pectoral Flipper Length
      v. Pectoral Flipper Width
      vi. Dorsal Fin Height
      vii. Fluke Width
   5. Determine Sex
   6. Describe Unusual Marks or Scar Locations

II. Additional Sampling Priorities

a. Retaining the Whole Animal

b. Necropsy Guidelines for Sampling Animals not Retained
   1. Position Animal
   2. Make Incision
   3. Examine Liver & Stomach
   4. Examine Kidneys
   5. Examine Gonads
   6. Collect Samples
      i. Skin
      ii. Stomach
      iii. Blubber
      iv Muscle
      v. Reproductive Organs
      vi. Head
      vii. Jaw
      viii. Fetus

III. Carcass Disposition

I. Marine Mammal Minimum Sampling Requirements

a. Live Animals

1. *Identify and photograph*

Refer to the identification guides to assist you while on a deployment. Identify animals to the most specific grouping you are sure of. Document on the Incidental Take Form how the identification was made. Do not guess at identification. All animals MUST be photographed. Photographic instructions are outlined in the Photo Form instructions.

Seals and sea lions should be checked for previous tags, brands, tattoos, and other alphanumeric markings. Note the color, size, shape, and where on the body the marking or tag was located.

2. *Release*

Return to the sea as quickly as possible in a manner that minimizes further stress and injury.

b. Dead Animals

1. *Identify and Photograph*

Refer to the identification guides to assist you while on a deployment. Identify animals to the most specific grouping you are sure of. Document on the Incidental Take Form how the identification was made. Do not guess at identification. All animals MUST be photographed. Photographic instructions are outlined in the Photo Form instructions.

Seals and sea lions should be checked for previous tags, brands, tattoos, and other alphanumeric markings. Note the color, size, shape, and where on the body the marking or tag was located.

2. *Apply AMMOP Tag*

Attach a plastic cattle ear tag with a cable tie to all dead animals to which it is possible to affix a tag. This also applies to animals on which a tag already exists. Only one cattle ear tag should be used per animal. The cattle ear tags should start with one letter, followed by four numbers (ex: A0999) -- be sure to record all letters and numbers accurately.

Tag Placement

- Porpoise: cinch the cable tie around the caudal peduncle (tail stock).
- Pinnipeds: cinch the cable tie around the flipper, above the ankle.
- If it is not possible to retain the whole animal, attach the tag to the carcass and discard at sea.

3. *Collect Skin Sample (for DNA)*

   For each biological sample collected from that animal, record the tag number on a Tyvek biological sample label (along with other pertinent information), and attach the label to the corresponding sample packaging. All samples will be double bagged, with a waterproof (Tyvek) label enclosed between the first and second bag. The sample label must include the animal Tag #, the species name, and sample type. Record this information with a permanent (sharpie) marker. Exclude as much air as possible from both sample bags. Samples from each animal should be kept together in one larger bag, and frozen or iced. See instructions below for completing the Biological Sample Tracking Sheet.

Cetaceans: Obtain a skin sample by removing a 3 cm x 3 cm sample from the tip of the dorsal fin or fluke with the skin intact.

Pinnipeds: Obtain a skin sample by removing a 3 cm x 3 cm sample from one of the flippers with the skin intact.

4. *Take Body Measurements*

   If it is not possible to bring an animal aboard the vessel, record the estimated total length in the comment section of the Incidental Take Form.

   If the animal can be retained, actual length measurements are recorded on the Marine Mammal Sample Form. When measurements are taken which require a mammal to be placed on one side, the preferred method is for the animal to be lying on the right side, i.e. measurements taken on the left side.

Body Measurement Guide		
Measurement	**Cetacean**	**Pinniped**
i. Blubber Thickness	Record, to the nearest millimeter, the thickness of the blubber. Measure from where the blubber meets the muscle, up to, but not including, the skin. Make an incision two to three inches behind the blow hole of the marine mammal (Figure 1, Letter A).	Record, to the nearest millimeter, the thickness of the blubber. Measure from where the blubber meets the muscle, up to, but not including, the skin. Make an incision in the ventral surface of the marine mammal, about five or six inches anterior to the navel, in the middle of the body (Figure 1, Letter B).
ii. Standard (or Total) Length	Record the straight line length from the tip of the jaw (top or bottom jaw, whichever is longer) to the fluke notch (Figure 1, Letter C).	Record the straight line measurement from the snout to the tip of the tail (Figure 1, Letter D).
iii. Girth	Record the girth of the animal just under the pectoral flippers at the axilla. See Figure 1, letter E.	Record the girth of the animal just under the fore-flippers at the axilla. See Figure 1, Letter F.
iv. Hind Flipper or Pectoral Flipper Length	Record the straight line length of one flipper of the cetacean. This length is taken from the outside or anterior edge of the flipper to the tip of the flipper. This is the longest length along the pectoral flipper. See Figure 1, Letter G.	Record the straight line length of one rear flipper of the pinniped. This length is taken from the outside anterior edge of the flipper at the joint where the flipper connects to the body (this is best located by flexing the flipper forward and measuring from the point where the flipper flexes) to the tip of the flipper. See Figure 1, Letter H.
v. Pectoral Flipper Width	Using the same flipper on which the length was measured, record the straight line width, at its widest part. See Figure 1, Letter I.	No measurement taken; dash (-) this field.
vi. Dorsal Fin Height	Record the straight line height of the dorsal fin of the cetacean from the posterior tip of the fin to the insertion at the body. See Figure 1, Letter J.	No measurement taken; dash (-) this field.
vii. Fluke Width	Record the width of the flukes of the cetacean, from one tip to the other. See Figure 1, Letter K.	No measurement taken; dash (-) this field.

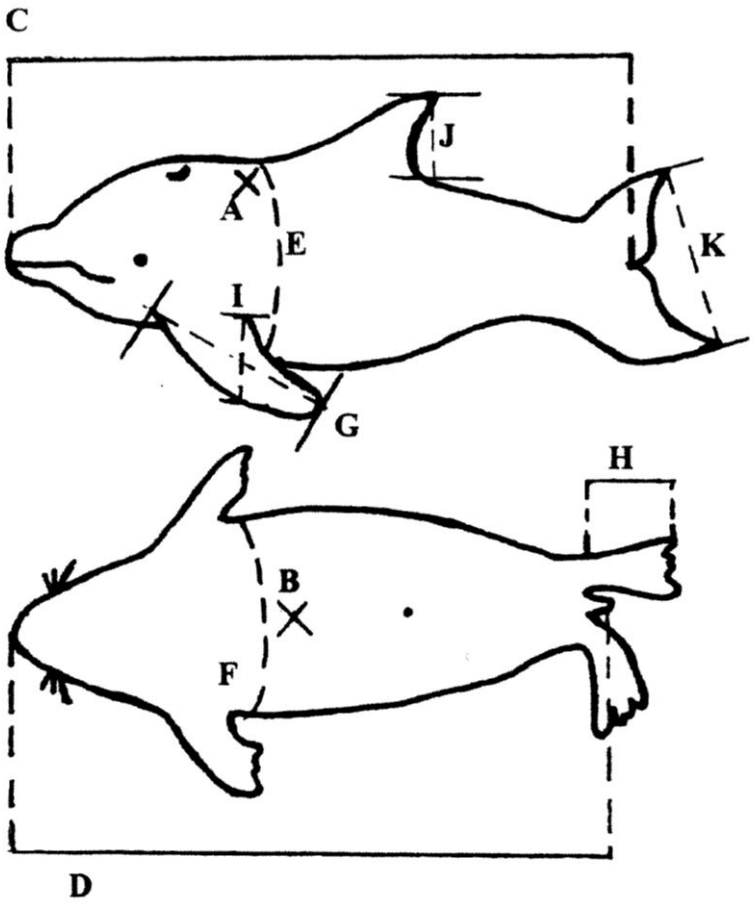


Figure 1. Marine Mammal Measurements and Blubber Thickness

A. Cetacean Blubber Measurement Site
B. Pinniped Blubber Measurement Site
C. Cetacean Total Length
D. Pinniped Total Length
E. Cetacean Girth
F. Pinniped Girth
G. Cetacean Hind Flipper Length
H. Pinniped Pectoral Flipper Length
I. Cetacean Pectoral Flipper Width
J. Cetacean Dorsal Fin Height
K. Cetacean Fluke Width

5. Determine Sex

It is important to determine the sex of the animals correctly, and the use of photographs of the genital area will help the agency confirm your determination. You may also note the presence of mammary slits on both sides of the genital slit on females, and the absence of mammary slits on males. Additionally, confirm the sex by examining the animal's reproductive tract if you cut the animal open.

Cetaceans	
Females	Probe inserted into the genital slit will insert **anteriorly.**
Males	Probe inserted into the genital slit will insert **posteriorly.**
Pinnipeds	
Females	Two mammary nipples posterior of the umbilicus on females; Genital opening anterior to the anal opening, near the base of the tail.
Males	Penile aperture posterior to the umbilicus on males.

6. Describe Unusual Marks or Scar Locations

As you are collecting the body measurements of the animal, observe whether there are any marks or scars on the animal. Sketch and describe these in the comment section of the Marine Mammal Sample Form. If animals are released with gear still attached to any area of the body, be sure to illustrate and comment as to how much remains, what part of the gear remain, and where the gear is attached or wrapped. *Photographs of scars and marks, in addition to sketches, are extremely valuable.*

II. Additional Sampling Priorities

Once the minimum requirements above have been recorded, additional species- specific sampling and measurements should be obtained as time permits, after recording catch information.

These additional samples are collected after all the minimum sampling requirements are obtained, and also after recording the catch for that haul/pick.

a. Retaining the Whole Animal

This is the most valuable sample and also the easiest to obtain, but care must still be taken in handling the animal.

If an animal is retained in warm weather and cannot be frozen on board, it should be kept cool until it is unloaded from the vessel.

If an animal must remain on deck or in the skiff, then it should be covered with a tarp and either be iced or occasionally hosed with sea water.

Once ashore, the lead observer must be notified immediately that there is a whole animal that needs to be taken care of.

b. Necropsy Guidelines for Sampling Animals not Retained

The tissue/organ samples listed below are to be taken only if the whole animal is not retained. Take the required length measurements (see minimum requirements above) before any tissue/organ sampling of the animal is done.

All samples will be double bagged, with a waterproof (Tyvek) label enclosed between the first and second bag. The sample label must include the animal Tag #, the species name, and sample type. Record this information with a permanent (sharpie) marker. Exclude as much air as possible from both sample bags. Samples from each animal should be kept together in one larger bag, and frozen or iced. See instructions below for completing the Biological Sample Tracking Sheet.

1. Position Animal

When sampling cetaceans, the animal should be placed on its right side if possible, with its head to the left of the observer. This is the standard method for cetacean dissection, and will result in the stomach being in a more accessible position, because it is located on the animal's left side. This will also make other organs easier to locate. Pinnipeds are much easier to sample when they are on their back.

2. Make Incision

   To examine the internal organs, an incision is made from between the flippers to just forward of the anus. To the posterior of the rib cage, the intestines will be the main feature.

3. Examine Liver & Stomach

   Just posterior to the rib cage and under it, the liver, a large dark red organ, will be the main feature. The stomach will be located under the liver. Stomach removal is possible without removing the rib cage. However, in order to fully expose the upper part of the stomach and esophagus, and for more working room, removal of the ribcage can be helpful. As you push back the ribs, take care not to break them; broken ribs can leave sharp pieces attached to the backbone which can puncture gloves and hands, resulting in abrasions and infection. If the ribs are not removed, access to the esophagus can be made by cutting between and pushing apart the third and fourth ribs from the bottom.

4. Examine Kidneys

   In order to examine the other internal organs, the intestines should be removed. The kidneys will then become visible near the dorsal side of the abdominal wall. The kidneys have the appearance of compartmentalized globules, almost like a squeezed bunch of grapes.

5. Examine Gonads

   The testes will appear as paired, sausage-like organs pointing forward and attached to the back wall of the body cavity. They will vary in size depending on species, season, and the maturity of the animal: from a few inches long (the size of your little finger) to a width of two to three inches and a length of six to seven inches. For male phocids, the testes are located in the inguinal area (groin), outside the abdomen, but deep under the skin and blubber.

   The female reproductive tract is held in place by a broad ligament, a sheet of peritoneal tissue dorsal to the sheet holding the more ventral urinary bladder. The tract includes the uterus which is oriented along the midline of the body cavity, and the right and left uterine horns which branch laterally from the anterior portion of the uterus. The ovary is anterior to each uterine horn. The ovaries are light gray to tan in color and are bean-shaped.

6. Collect Samples

Sample Instructions	
All samples will be double bagged, with a waterproof (Tyvek) label enclosed between the first and second bag. The sample label must include the animal Tag #, the species name, and sample type. Record this information with a permanent (sharpie) marker. Exclude as much air as possible from both sample bags. Samples from each animal should be kept together in one larger bag, and frozen or iced. Complete both the Marine Mammal/Seabird Sample Form and the Biological Sample Chain of Custody form.	
i. Skin	Cetaceans: Obtain a skin sample by removing a 3 cm x 3 cm sample from the tip of the dorsal fin or fluke with the skin intact. Pinnipeds: Obtain a skin sample by removing a 3 cm x 3 cm sample from one of the flippers with the skin intact.
ii. Stomach	If it is possible, collect the whole stomach. This should be done by tying off the esophagus and the small intestine near the stomach. Then remove the entire stomach by cutting before the tie on the esophagus and after the tie on the small intestine.
iii. Blubber	Remove a 10 x 10 cm (.25 lb or 100 g) sample of blubber, including the skin: Cetaceans: Take sample from the dorsal surface of the animal forward of the dorsal fin (Figure 1, Letter A). Pinnipeds: Take sample from the ventral surface, about five or six inches anterior to the navel, along the midline (Figure 1, Letter B). If the animal is badly decomposed, do not collect this sample.
iv. Muscle	Remove approximately a 0.25 lb (100 g) sample of muscle beneath the blubber on the dorsal surface of the animal forward of the dorsal fin.
v. Gonads	Remove the entire reproductive tract. Collect both gonads.
vi. Head	Remove the head by making a transverse cut halfway between the eye and the anterior insertion of the flipper.
vii. Jaw	Do not collect this sample if you are going to retain the head of the animal. Remove either the whole lower jaw or the lower left jaw with at least four teeth (including the incisor, canine and post-canine for pinnipeds). Be careful not to puncture your skin or gloves, as cetacean and pinniped teeth are sharp.
viii. Fetus	Collect the whole fetus. If the fetus cannot be brought in whole, a total length measurement and a sex determination are required. Record this information in comments on the Marine Mammal Sample Form. A fetus should not be considered a separate incidental take and should not be recorded on the Incidental Take Form.

III. Carcass Disposition

When you have completed the required sampling for a species, the tagged carcass may be discarded.

4.1.7 Seabird Sample Form

Incidentally caught seabirds should always be saved and frozen whole, unless extenuating circumstances prevents it. If birds have a leg band or other marker, record these (including the numbers) on the form.
Only dead seabirds are to be tagged and sampled. The dead seabirds are uniquely numbered with a tag tied around the leg. Start a new sample form for each haul/pick when seabirds are sampled.

4.1.7.1 Seabird Sample Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double-sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents.

2. YEAR: 2013 is pre-recorded in this field.

3. MONTH: Record the month (MM) when the trip ended.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three digit Trip Number consecutively numbering your trips for this year (ex: G01001). If a secondary observer continues this permit sample upon the departure of the original observer assigned to this permit sample, the second observer will add his or her unique three character Observer Identifier to the end of the Permit Sample ID number on this form and all forms associated with this permit sample. (ex: G01001G12)

5. HAUL NUMBER: Record the consecutive haul number assigned to the haul/pick during which the take occured. This number must agree with the haul number recorded on the corresponding Haul Form.

6. TAG NUMBER: Record the unique tag number that you attach to the dead seabird. This tag is a plastic cattle ear tag and should be attached to the carcass with a cable tie. The tag number will start with an "A" and be followed by 4 digits. Be sure to record all alpha-digits accurately on all forms and sample labels. Tags should never be reused to identify another animal. If you are unable to assign a plastic tag and the animal already has a unique tag number or brand, record that number. This is NOT the consecutive identification number from the Incidental Take Form.

7. SPECIES: Record the complete common name for each animal sampled (Appendix 7. Species Codes). Include the appropriate Species Code for data entry (this can be filled in after the trip when codes can be referenced).

8. PHASE: Plumage varies seasonally, and may indicate breeding status. Select the most appropriate Plumage Phase Code:

S = Summer (breeding) plumage
T = Transitional (molt in progress)
W = Winter (basic) plumage
J = Juvenile plumage
U = Unknown or cannot tell

9. MISSING FEATHERS: Birds may molt sequentially or all at once, and this may affect the ability to fly. Record if feathers are missing, or just growing back in (still in feather shaft) using the following Feather Codes:

1 = No missing feathers
2 = One or more primary flight feathers missing; record details in comments
3 = One or more secondary flight feathers missing; record details in comments
4 = One or more tail feathers missing
5 = Missing feathers in wings and tail
6 = Other missing feathers (body, head)
7 = Primary and secondary flight feathers missing; record details in comments
0 = Not checked, or cannot tell

10. BODY WEIGHT: Weigh bird, to the nearest gram, using hand-held scale. Gently squeeze excess water first. If carcass is extremely waterlogged, do not weigh. If a bag is used to hold the bird, subtract the weight of the bag.

11. HEAD-BILL: For birds, use calipers to measure the head and bill together, in millimeters. Place one end of the calipers at the base of the skull and the other at the tip of the bird's beak.

12. CULMEN LENGTH: For birds, measure the length of the culmen (beak) in millimeters. Place one end of the calipers at the tip of the beak and the other at the top most end of the beak, where the forehead feather line begins, between the eyes.

13. TARSUS LENGTH: For birds, measure the length of the tarsus (main leg bone) in millimeters. The tarsus is the long bone connecting the ankle to the foot. Place one end of the calipers at the top of the upper joint, and the other at the end of the joint connecting to the foot.

14. WING CHORD: Measure, in centimeters, the length of the wing from the "wrist" (where the wing bends to fold against the body) to the tip of the longest primary feather. Do not stretch out the wing. Place the feather flat (but not pressed tightly) against the ruler or long handle of the caliper, and measure.

15. BROOD PATCH CODE: Search the belly and abdomen of the bird by pulling the body feathers gently toward the head. If there is a bare patch

present record its state as near as possible according to the following Brood Patch Codes:

1 = No defeathering
2 = Loss of down and some contour feathers
3 = Loss of down & most contour feathers; vascularization beginning
4 = Loss of feathers & heavy vascularization
5 = Regression beginning, down appearing
6 = Downy, feathers beginning to break sheath
7 = Partial or near-complete regression
0 = Did not check, or carcass too degraded

16. FAT INDEX: If the carcass will not be kept, open the bird from the cloaca to the throat. Examine for fat deposits (yellowish, fatty material) on the inside of the skin, along the keel bone, and around the heart area. Use the following Fat Index Codes:

1 = Skin fat associated with feather tracts on either side of the keel absent or membrane-thin; feather bases, "papillae", are prominent
2 = Skin fat surrounds papillae but tips of papillae still visible
3 = Skin fat covers papillae but dimples still visible, especially when feathers are gently pressed inward
4 = Skin fat smooth over papillae, dimples absent even when feathers are gently pressed inward
5 = Skin fat over papillae globular and lumpy, 4+ mm thick
0 = Unknown or did not check

During the internal exam, note if there are any obvious parasites or discoloration on the liver, heart, or large muscles.

If the sex of the bird can be determined by examination of the ovaries or testes, indicate in the comments section and record the Age Class Code on the Incidental Take Form. Measure the largest egg follicle to the nearest millimeter, and record in comments.

17. RETAINED WHOLE: Was the whole bird carcass retained?
Y = Yes
N = No

18. RETAINED HEAD/FEET: Were the head and/or feet of the bird retained?

    Y = Yes
    N = No

19. RETAINED STOMACH: Was the whole stomach of the bird retained?

    Y = Yes
    N = No

20. NUMBER OF OTHER SAMPLES: Record the number of other biological samples collected from this animal. If no other samples were collected, record zero.

21. COMMENTS: Record information about how the sample was collected. Be sure to include a reference to the animal's tag number to relate the comment to the appropriate animal. Do not repeat comments that have already been recorded on the Incidental Take Form.

4.1.7.2 Seabird Biological Sampling Guidelines

The following are guidelines for biologically sampling incidental takes of seabirds. Each trip may present different challenges in accommodating these priorities and may be affected by circumstances such as rough weather conditions, the bird falling out of the net, etc. It is up to the observer to use his/her best judgment in following these guidelines.

All seabirds caught by the vessel, or entangled in its gear, during any stage of fishing activity, are considered incidental takes. Birds determined to be incidental takes are not recorded as sightings on the Sighting Form, rather they are recorded on the incidental take form.

Overview:

Live Bird

Identify and Photograph
Examine
Release

Dead Bird

Tier I. Carcass can be frozen
Tier II. Carcass cannot be frozen
Tier IIA. No Freezer Available
Tier IIB. No Room In Freezer
Tier III. Too many birds captured at once to be frozen whole, and too little time to process using Tier II protocols

LIVE ANIMALS

Identify to species or to the most specific grouping you are sure of. To reduce handling time, do not attempt body measurements. If identification is not certain, take a photograph and reference on the Photo Form.

As you are untangling the bird or making a quick survey of its plumage, observe whether there are any marks, scars, or abrasions on the animal. Sketch and describe these in the comment section of the Seabird Sample Form. If birds are released with gear still attached to any area of the body, be sure to illustrate and comment as to how much remains and where the gear remains attached.

To the degree possible, given the observer's expertise, the type of bird, and conditions at the time:

1. Examine plumage characteristics (see below) and determine sex, age class (juvenile, immature, adult), and plumage phase (summer breeding, transitional, winter).

2. For fulmars, note if bird is light or dark phase, or use the four-phase classification described on the Bird Measurement Guidelines diagrams.

3. Note if any wing or tail feathers are missing.

Return to the sea as quickly as possible in a manner that minimizes further stress and injury.

DEAD ANIMALS

In most cases, we expect to have freezer facilities available to keep all dead birds for later processing in the lab, where conditions, measurements, and other factors can be more easily controlled. We will try to obtain the optimum amount of information from all bird carcasses, including external and internal exams, measurements, stomachs for diet information, tissue samples for genetic, diet, and possible contaminant tests, and preparation of museum and training study skins.

We have prioritized the treatment of salvaged bird carcasses based on availability of freezers or quick pick up, number of carcasses the observer has to deal with, and conditions at time of salvage. Conditions such as safety, weather, intensity of the day's observations, and observer's abilities may determine what "Tier" of treatment is applied to a carcass in the field. We have established 3 tiers of treatment, listed here from most preferred to least:

Tier I. Facilities and time available to freeze whole carcass (most preferred)

Tier II. Whole bird cannot be frozen, because either there is
A) No freezer available or
B) Freezer is available but there is not room to save whole birds

Tier III. Too many birds captured at once to be frozen whole and too little time to process using Tier II protocols

Ideally, process all birds using Tier I protocols; however, if freezer space is not available or limited process using Tier II protocols. If dozens of birds are caught simultaneously, sub-sample 10 birds of each species with Tier I protocols (examine and freeze whole), and apply Tier III protocols to the remainder.

Tier I birds: Facilities and time available to freeze whole carcass (most preferred).

This is the most valuable sample and also the easiest to obtain, but care must still be taken in handling the animal.

Birds must be individually double-bagged, with the waterproof tag placed between the first and second bags, and NOT inside the bag with the bird carcass. Exclude as much air as possible from both the inner and outer sample bags.

Double check tag on bird matches the tag number on the sample form and the chain of custody form.

If an animal is retained in warm weather and cannot be frozen on board, it should be kept cool until it is unloaded from the vessel.

If it must remain on deck or in the skiff, then it should be covered with a tarp and either be iced or occasionally hosed with seawater.

When freezing birds, the animal should be placed on its back, with its neck laying naturally (for small birds) or curved back towards the body (for larger or long-necked birds). To save space, wings should be folded against the side and legs folded close to the body and the orientation of birds should be alternated.

1. Tagging

Attach a plastic cattle ear tag with a cable tie to one leg of all dead birds. Check all birds for previous tags, particularly leg bands. The USFWS leg band is metal with engraved numbers; record these numbers in the tag number field on the Sample Form. The return of leg band data provides valuable information. Also note presence of any colored plastic leg bands and alphanumeric markings they may have. In rare cases, birds may be fitted with radio antennae, nasal tags, or wing tags, or feathers may be dyed. Always try to save the whole bird if it has leg bands, tags or other devices attached. If keeping the bird is not possible, remove all tags and devices that were on the bird, place in a bag marked with the unique cattle ear tag number and a note recording the species, date, location, and position of the tags or bands. For leg bands, note which leg (right, left) and for double bands on a leg, the top (near body) and bottom (near foot) band. Ensure the tag number matches the number on the sample form.

2. Identification

Refer to the identification guides to assist you while on a deployment. Classify animals to the most specific grouping you are sure of. Do not guess at identification. All frozen birds will be identified to species in the lab.

3. External Examination of Plumage and Brood Patch

Sex: Note sex of the bird for species for which sex can be determined from plumages (i.e., waterfowl, sea ducks, phalaropes). Care must be taken when identifying females in these groups, because 1st year birds are often very similar (or for phalaropes, juveniles resemble males). If you are not certain, record the sex as “unknown.”

Age-class: For many seabirds (loons, albatross, cormorants, phalaropes, gulls, terns, alcids), newly fledged juveniles (hatch-year birds) have distinct plumages. For albatross and gulls, it is possible to distinguish between immatures (1st - 3rd year birds) and adults. Most bird guides show all plumages. If age can be determined by plumage, record age-class and note in comments the identifying

characteristics used to make this decision. Record sex and age class information on the Incidental Take Form. The remaining data go on the Seabird Sample Form.

Seasonal Plumage Phase: Note whether the plumage phase is closest to summer (breeding), winter, or transitional plumage. Again, care must be taken in identifying winter plumages, since juvenile or immature birds are often similar. Check bird guides for identifying characteristics, and note those in the comment section, if you make a classification. If uncertain, record the plumage as unknown.

Brood Patch: In seabirds, a large bare patch of skin on the belly indicates that the bird will be or has been incubating its egg(s), thus indicating breeding status. This is an important piece of information. It is possible to find the brood patch in frozen birds, but vascularization of the brood patch is most easily observed in a fresh bird. The brood patch may be a single large oval, bi-lobed, or several, discrete patches depending on species. It may be large relative to the body, but still not obvious, since dense feathers and down cover it. Search for the presence of a brood patch by turning the bird on its back, beginning near the cloaca, and brush abdominal feathers backwards towards the head. If a bare patch is found, push back all the feathers around the area to determine the status of the brood patch using criteria and codes indicated on the Seabird Sample Form.

4. Examination for Injuries, Oiling, and Rigor Mortis

Examine the carcass for obvious external injuries such as broken wings or legs, abrasions, missing feather patches (other than brood patch), etc. Note these on the Incidental Take Form using Injury Codes. Also check the plumage for spots of oiling, and note in the comments section the approximate size and location of oil patches on the bird. If time allows, use the comment section to record "rigor" status of the carcass as limp, stiff, or decomposing, and the time of inspection. If time allows and tools are available, use the comment section to record internal body temperature using a rectal thermometer.

5. Weight

If time allows and weighing tools are available, weigh the bird regardless of its condition. In comments, note whether the carcass was relatively dry (external feathers shed water, deeper feathers and down are dry), damp (external feathers not shedding water), wet (under feathers and down are damp) or soggy (feathers and body soaked through). This information will be used to compare fresh weights to dry weights of the same carcasses in the lab and better-interpret weight data from birds processed using Tier II protocols.

Tier IIA. Cannot keep whole bird, and freezer is not available.

When you have completed the required sampling, discard the carcass.

1. Tags

Record the unique ID# for each bird, even if the bird will not be frozen. Look for leg bands, tags, and other marking devices on the bird. Record and save all such bands as described in Tier I protocols.

2. Identification

As with Tier I procedures, identify carcasses to the most specific taxonomic grouping you are sure of. Do not guess at identification. If species identification is not certain, photograph the bird (be sure head and feet are clearly visible) and record on the Photo Form. If you cannot take a photograph, note in the comments what identifying characteristics were used to determine the species or species group.

3. External Examination of Plumage and Brood Patch

Follow Tier I guidelines with the exception that if your determination is uncertain, photograph the bird and record on the Photo Form. If you cannot take a photograph, note in the comments what characteristics were used to make the sex, age-class or phase determinations.

4. Injuries, Oiling, and Rigor Mortise

Check as for Tier I birds before conducting the necropsy.

5. Body Measurements

Body Weight: Regardless of condition, weigh birds to the nearest gram using an appropriately-sized hand-held pesola and weighing mesh bag. In comments, note whether the carcass was relatively dry (external feathers shed water, deeper feathers and down are dry), damp (external feathers not shedding water), wet (under feathers and down are damp) or soggy (feathers and body soaked).

Head-bill: Place one end of the calipers on the back of the head and the other at the tip of the beak, following Fig. 1 (HL). Press gently through the feathers to reach the skin of the head, but do not press into the skull. Do not compress the tip of the beak. Record to nearest millimeter.

Culmen Length: Place one end of the calipers at the base of the bill, at the feather line, and the other at the tip of the bill, following Fig. 1 (CL). Record to nearest millimeter.

Tarsus Length: Measure the left leg. Bend the leg and foot as in Fig 1 (TL), to find the tarsus joints. Place one end of the calipers on the end joining the foot, using the most protruding point of bone. Place the other end of the calipers at the joint with the femur, roughly diagonal from the lower joint. Press gently, but do not push into the flesh with calipers. Record to nearest millimeter.

Wing Chord: Lay the wing flat against the length of the caliper, or a ruler, but do not flatten or press the wing. Measure to the nearest centimeter from the flesh at the bend of the folded wing to the tip of the longest primary.

6. Determine Fat Index and Sex

The required length measurements should be taken before any tissue/organ sampling of the animal is done. All samples will be double bagged, with a waterproof tag enclosed between the first and second bag. *As much air as possible should be excluded from both sample bags.* Samples from each animal should be kept together in one larger bag, and frozen or iced. Avoid putting more than one bird in a bag.

To examine the internal organs and obtain a fat index, an incision is made from the cloacal opening to the neck.

Fat Index: After carefully peeling the skin away from the breast muscle and keel, examine the inner surface of the skin for degree of fat and record. Use the following criteria:

1) Skin fat associated with feather tracts on either side of the keel absent or membrane-thin; feather bases, "papillae", are prominent.
2) Skin fat surrounds papillae but tips of papillae still visible.
3) Skin fat covers papillae but dimples in fat still visible, especially when feathers are gently pressed inward.
4) Skin fat smooth over papillae, dimples absent even when feathers are gently pressed inward.
5) Skin fat over papillae globular and lumpy, 4+ mm thick.

Caution: Newly-growing feathers with dark, rounded, swollen papillae should not be used as gauges of fat level. Use only pointy, light-colored papillae of established feathers.

Sex of Bird: Open the bird up fully by snipping between ribs along one side of the sternum and lifting up on the sternum. Large and small intestines fill the posterior (tail) half of the abdominal cavity. The dark red liver hangs just beneath and posterior to the posterior edge of the sternum and above the stomach.

Push the intestines to one side to reveal the dark red lobes of the kidneys flattened against the dorsal side of the abdominal wall. Testes and ovaries are attached to the body dorsal surface of the body cavity anterior to the kidneys and may be covered by mesentery membranes that potentially obscure their true color. The testes appear as roundish or sausage-shaped organs and will vary in size depending on species, season, and the maturity of the animal. Testes of breeding males are inflated during the breeding season and are an unmistakably creamy white in color. Testes of immature males and non-breeding males are much smaller, smoky grey-black and much less obvious. Regardless, the left testis is always slightly larger than the right.

A single ovary will occur only on the left side of the spine and look like a cluster of tiny, pale-white grapes. During the breeding season one or more ova may be inflated and yolk-like in appearance.

7. Preserve Stomach and Fat Samples

Stomach removal is often possible without removing the rib cage, especially if the stomach and esophagus are empty. If the bird has a full stomach remove the sternum and fully expose the upper part of the stomach and esophagus. As you push back the ribs, take care not to break them; broken ribs can leave sharp pieces attached to the backbone which can puncture gloves and hands, resulting in abrasions and infection.

If it is possible, collect the whole stomach. This should be done by tying off the esophagus as high up as possible and clipping the small intestine from the stomach. Then remove the entire stomach by cutting the esophagus above the tie and place it in a whirl pack. If you cannot tie the ends, simply clip the esophagus as high above the stomach as possible and place the entire mass into a whirlpack. Add alcohol solution to the whirlpack to cover the organ mass. Place the preserved stomach sample in a zip-lock bag and include a Tyvek biological sample label with the tag number.

If time allows and materials are available, collect a glob of intra-peritoneal fat from around the organs in the body cavity of the bird and place in vial of anti-oxidant buffer. Include with stomach sample in the zip-lock bag for that carcass.

Tier IIB. Cannot keep whole bird, but freezer is available.

These birds will be treated similar to Tier IIA birds, with the exception that some body parts can be frozen, and measurements do not have to be done in the field. Do the external and internal examination 1 through 6 as described previously in Tier IIA:

In addition to these procedures, collect and freeze the following tissue/organ samples:

Stomach: Remove and save the stomach as described in Tier IIA birds, but since the stomach will be frozen, there is no need to add alcohol to the whirlpack. After closing the whirlpack, place it inside the larger bag holding the remaining tissue samples, along with the ID tag.

Liver: Snip a finger-tip sized lobe of liver free and place in outer sample bag.

Heart: Use one finger to scoop heart away from rib cage, by reaching above and past the liver and include in outer sample bag.

Fat: Collect a glob of intra-peritoneal fat from around the organs in the body cavity of the bird and place in outer sample bag.

Muscle: Remove a tea-bag sized cube of breast muscle and include in outer sample bag. In small birds, this sample may be most of one breast muscle.

Head: Remove the head by making a transverse cut at the middle of the neck. Place in outer sample bag.

Feet and Legs: Remove the legs above the tarsus, cutting through the leg just below the feather line of the body and place in outer sample bag.

Tier III. Observer cannot process all birds caught at once.

If time or conditions do not allow for processing of all birds, such as after a large incidental take of the same species in a single haul/pick, subsample 10 birds for Tier I or Tier II treatments. For remaining birds, collect the following:

1. Identify species or species group. Note if it is the same as birds that are frozen.
2. Check plumage for sex and age-class. If time allows, check for brood patch.
3. If time allows, check for obvious injuries to bird.
4. If additional time allows, select 10 birds for removal and saving of stomachs.

Keep each stomach in a separate whirlpack, put all stomach sample bags from same haul/pick and of same species in the same large sample bag, marked with ID#, species, date, observer identification number.

4.1.8 Event Log and Marine Mammal Sighting Form

4.1.8.1 Event and Marine Mammal Sighting Watch Types

Observers will conduct focused marine mammal sighting and event watches during each trip. Marine mammal sighting snd event watches are conducted to collect detailed information on sightings of marine mammals encountered during the program, as well as to capture relevant additional fishing activities not otherwise recorded on other AMMOP data forms. This information is critical in determining the temporal and spatial distribution and relative abundance and behavior of marine mammals in the vicinity of fishing operations as well as identifying fishing activities that may have bearing on marine mammal interactions. Watch types are described in detail below.

Marine Mammal & Event Watch Overview

Watch Type	Applicability	Focus	Rotation	Priority
Haul	All hauls. Suspended at Beaufort sea state 6. Always associated with a "permit sample."	Incidental takes of marine mammals and seabirds; marine mammals within the vicinity of the gear, especially within 300 m.	Entire Haul.	1
Soak	Soaking or "fishing" net. One hour before haul is priority. Suspended at Beaufort 5 sea state.	Incidental takes of marine mammals and seabirds; marine mammals in vicinity of gear, generally within 1000 m.	1 hour on, 15 minutes off; up to 4 hours.	2
Set	During setting of gear. Suspended at Beaufort 6 sea state. Always associated with a "permit sample."	Incidental takes of marine mammals and seabirds; marine mammals within vicinity of gear, especially within 300 m.	Entire Set	3
Transit	When transit is likely to be 15 min or more. Suspended at Beaufort 5 sea state. Need not be associated with a "permit sample."	Marine mammals near fishing grounds; under ideal conditions, cetaceans can be seen up to 3000 m.	1 hour on, 15 min off; up to 4 hours.	4

It is very important that the observer does not extend the specified rotation time without taking a break. Sighting survey data have shown reduced effectiveness when watches exceed the specified on-effort watch time period.

Haul Watch

A haul watch is conducted while the fishing vessel is hauling the fishing gear into the boat to pick catch from the gear. The observer focus is on looking for incidental takes of marine mammals. This watch must be concentrated on the water near and around the net, including down into the water column, in the immediate area adjacent to where the net comes out of the water. This focus is to ensure that an entangled marine mammal does not drop out of the net unseen before it breaks the water's surface. Quick sharp glances around the net area are possible without missing drop outs from the net. The haul watch also provides information on marine mammals that are in the vicinity of the gear during fishing

operations. This additional information is used to assess possible interactions and associations of marine mammals with fishing activity.

A haul watch is conducted during every haul, but will be suspended when the Beaufort sea state reaches 6 or more. During a haul watch, the observer maintains a continuous watch until the gear is completely onboard or picked. The observer should choose the best possible location from which to conduct the sighting haul watch while remaining out of the way of normal fishing vessel operations. This location should provide an unobstructed view of:

1) the net next to the vessel,
2) the area 180° around the net (perpendicular to and on either side of the float line),
3) down into the water column where the net emerges from the water as it is hauled or picked,
4) and immediately in front of where the net emerges from the water.

Observers are expected to remain at the same location (or same relative distance to fishing vessel) during the entire watch. During a haul watch, the observer should face the net looking down along the cork line of the net as it exits the water and is brought up to the vessel. The primary focus should be along that line, where the net breaks the water's surface, and immediately prior to where it exits the water. Quick scans should be made intermittently to the area within 300 meters of the gear. Continuous scanning of the water surface in the designated area to either side of the net should be done with the naked eye.

Any obstructions to your viewing of the haul as directed, water clarity, and your distance from the net will be noted in the Net View Rank field of the corresponding haul form.

Any biological sampling necessary will occur after the pick is over. During a haul watch, scanning the water and net for incidental takes is a priority over all other data collection. Therefore, all catch composition data should be collected after the haul is done. The observer should detail the circumstances in comments if at any point they feel they cannot confidently watch for incidental takes.

During a haul watch The Event Log & Marine Mammal Sighting Form is completed in conjunction with the previously described Haul Form .

Soak Watch

A soak watch is conducted while the fishing gear is soaking to intercept fish. Soak watches should be conducted throughout the period of time the net is soaking. This will be between each set and haul of the net according to a rotation schedule of one hour on followed by a fifteen minute rest for up to four hours at a time; and repeated as much as opportunity arises during the permit sample. This provides

an excellent record of the marine mammals in the vicinity, as well as specific fishing activities, throughout the day of the permit sample.

The observer should find the best view of the entire net. As with the transit watches, soak watches should be conducted when the Beaufort sea state is 5 or less. The Beaufort Scale defines a Force 5 as 17 to 21 knot wind speed, 6 to 8 foot waves, many white caps, and some spray. Each soak watch is maintained without break for at least 30 minutes and up to a continuous 60 minutes, followed by a 15 minute break. If for any reason you are unable to maintain a soak watch for at least 30 minutes, comment on why this occurred. Example: "Soak watch was less than 30 minutes because the permit holder unexpectedly began hauling their net." This rotation may be repeated up to four hours at a given site.

The observer should scan a 180° area with the net directly in front (at 0°). The observer should position themselves near the middle of the net at a minimum distance where the entire length of the net can be seen. The observer should communicate with the permit holder to let him/her know they will be conducting a soak watch with the expectation that prior warning of the beginning of a haul will allow time for the observer to position him or herself appropriately to conduct the commencing haul watch. Depending on the weather and sea conditions and observational height off the water, the maximum distance over the water an observer should scan is a distance within which a harbor porpoise dorsal fin or seal head can be seen. Generally, the observer should focus on the water surface area within 1000 meters of the net. The observer may record marine mammals out to a nautical mile from the gear. Observing hauls takes priority over the transit, set, or soak watches.

Set Watch

A set watch is conducted while the vessel is setting out fishing gear to begin fishing. This information is used to assess possible interactions and associations of marine mammals with this aspect of the fishing activity. In some fisheries, such as drift gillnet, the set watch becomes more critical, as this may be when entanglements are observed.

A set watch can be conducted during every set, but will be suspended when the Beaufort sea state reaches 6 or more. During a set watch, the observer maintains a continuous watch until the gear is completely deployed. The observer should choose the best possible location from which to conduct the set watch while remaining out of the way of normal vessel operations. This location should provide an unobstructed view of the net and the area 180° around the net. Observers are expected to remain at the same location (or same relative distance to fishing vessel) during the entire watch. The primary focus should be along the cork line and where the net breaks the water's surface, and generally within 300 meters of the gear. Continuous scanning of the water surface in the designated area to either side of the net should be done with the naked eye.

Transit Watch

A transit watch is conducted while traveling over water to or from the fishing grounds and between fishing sites when transit is likely to be 15 minutes or more. Transit watches are conducted when the Beaufort sea state is 5 or less. The Beaufort Scale defines a Force 5 as 17 to 21 knot wind speed, 6 to 8 foot waves, many white caps, and some spray. Each transit watch is maintained without break for a minimum of 15 minutes and a maximum of 60 minutes, followed by a 15 minute break. This cycle is repeated continuously (weather, daylight, and fishing operations permitting) while the vessel is underway. The observer should choose a watch position outside, facing the bow, free of obstructions and as high off the water as safely possible.

During a transit watch, the observer should thoroughly scan a 180° area from 270° abeam to port across the bow to 90° abeam to starboard. At each angle, the distance between the vessel and up to 3 or more miles is covered. Continuous scanning of the water surface back and forth across the designated area in a continuous sweep is done with the naked eye. Once a sighting is made, binoculars are used to confirm the sighting, make an identification of the species, and determine the number of animals sighted. If biological samples are to be collected as the vessel resumes transit after a haul, the transit watch is pre-empted by the biological sampling priorities.

4.1.8.2 Sighting Types

On-Watch Sighting

Marine mammal sighting made during one of the sighting watches described above.

Off-Watch Sighting

An opportunistic sighting of a marine mammal made at a time when the observer is not conducting a formal sighting watch.

Marine mammal sightings will either occur during one of the defined watch types – *an on-watch sighting* - OR before or after one of the defined watch types – *an off-watch sighting*. Each separate grouping of animals, traveling, or behaving as a unit should be considered a sighting. A single sighting of multiple species may occur. In such cases, each species will be recorded on separate lines, but will reflect the same sighting time and event number. Sightings and individual marine mammals must never be double-counted or recorded as a re-sighting with one exception. This exception is described in more detail below under the Animal Behavior Codes 19-22. These codes reflect net approaching behavior. If an animal already sighted approaches to within 20 meters of the net, an additional sighting entry is made. If the animal continues to approach the net, additional entries are

made at 10 meters and 5 meters to the net. If the animal makes physical contact with the net, you must determine if an incidental take has occurred. (see below). If the physical contact is NOT an incidental take, record the event on the Sighting and Event Form.

Animals determined to be incidental takes may not be recorded as sightings on the Sighting Form after the take occurs. A marine mammal sighted and recorded on the log conceivably could be entangled later. If this appears to be the case copious details of what happened and why you think it was the same animal must be recorded in the comments section. If a dead marine mammal is observed, and the observer determines it is not an incidental take as direct result of the gear being observed, the animal is recorded on the Sighting Form, with extensive comments on how that "no take" determination was made. A Marine Mammal Stranding Form should be completed and photos taken for any dead animal that is determined not to be an incidental take (see Section 4.2.1).

Once the sighting is recorded and identified accurately, the observer must go back to his or her scanning so other animals are not missed. Although it may be tempting and entertaining to observe an active animal, the observer must maintain a scientifically rigid watch. However, certain behaviors indicated on the Event Log and Marine Mammal Sighting Form should be noted if observed.

4.1.8.3 Event Log and Marine Mammal Sighting Form

This form is used to record all watches, marine mammal sightings, and other applicable events. Watches are described in Section 4.1.8.2 Marine Mammal Sighting & Event Watch Types above.

A new Event Log and MM Sighting Form must be initiated for each calendar day and more than one form may be used in a day, if needed. Sightings must NOT be double-counted (do not record re-sightings with the exception described below where an animal approaches a net to within 20 meters or less).

If you are recording the beginning or end of any watch only the Event #, Event Type, Time, Latitude and Longitude, and all Environmental Conditions fields are completed. If recording an on- or off-watch fishing activity event or marine mammal sighting, all applicable fields must be filled out, including event #, event type, time and lat/long, as well as all fields in the "Environmental Conditions" section.

If the latitude, longitude, or "Environmental Conditions" have not changed from one event to the next, vertical arrows may be drawn through the rows that are the same. However, the first and last rows of this series must always be completely filled out. Also, if this series continues between pages, including front to back, the first and last rows of each page must be filled completely.

Time and location information is critical to data analysis and must be completed for each entry. No time or location should be missing.

All "begin watch" events must have a corresponding "end watch" event. If either a "begin watch" or "end watch" was omitted during a permit sample, even if the missing time or location cannot be determined after the fact, the observer must create a "placeholder" row -- even if it requires a new form for just that one row. Explain in comments.

Event numbers represent a sequential log of watch activities and events within a given observer "Event Type" watch. The same event number is used to identify the beginning, end, and all the events that occur during that watch. A unique event number may be used outside of a begin / end watch set to record an off-watch marine mammal sighting.

Fields with repetitive identical entries down the column may use the double arrow (↕) but the first entry and the last entry of such a set must have complete information in each field. All entries on the first and last rows of each page must have complete information in each field.

4.1.8.4 Event Log and Marine Mammal Sighting Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number the front and back of all double-sided forms. The pages are numbered by permit sample with forms in order as they are listed in the Table of Contents. If this form is not associated with an observed permit sample, then the pages should be put in order of date and time.

2. YEAR: Pre-filled with 2013.

3. MONTH: Record the month (MM) when the trip ended.

4. DAY: Record the calendar day when this sighting /event or sequence of sightings/events occurred (DD).

5. PERMIT SAMPLE IDENTIFICATION NUMBER: Record the unique three character Observer Identifier combined with the three digit Permit Sample Identification Number consecutively numbered trips for this year of the primary observer (ex: G01001). Dash (-) if not associated with a trip. If you are a secondary observer, start a new Form. Add your unique three character Observer Identifier to the end of the permit sample identification number on all the forms previously completed by the primary observer and on any new forms you complete. (ex: G01001G12)

6. EVENT NUMBER: This number is used to associate the start ("begin") of a haul, set, soak or transit watch with the conclusion of that same watch, as well as with any on-watch sightings or fishing activity events during that watch. Start with "1" for the first watch of the trip and record the same event number for all events that occur during that watch (begin/end watch events, on-watch marine mammal sighting, specified fishing activities, other). Note: You must record an "end watch" event before beginning a new watch. Continue to number watch events and other off-watch events sequentially within a trip. If you are a secondary observer, you will continue numbering events where the primary observer left off.

7. EVENT TYPE: Record the code to describe an event by using the following Event Type Codes:

OBSERVER EVENTS
- 1 = Begin haul watch
- 2 = End haul watch
- 3 = Begin transit watch
- 4 = End transit watch
- 5 = Begin set watch
- 6 = End set watch
- 7 = Begin soak watch
- 8 = End soak watch
- 11 = Marine Mammal Sighting, on-watch
- 12 = Marine Mammal Sighting, off-watch

FISHING ACTIVITY EVENTS (only recorded during soak watches)
- 13 = F/V ran net
- 14 = cork line shape Δ
- 15 = net end tension Δ
- 99 = Other (record in comments)

NOTE: If any of the Environmental Conditions change substantially (where another code becomes more applicable) during a watch with no other events/changes occurring, use event type code 99 and record the new time, Latitude & Longitude, and appropriate new Environmental Condition code . Leave all other fields blank. Otherwise, the weather change will be reflected at the begin or end of a watch.

8. TIME: Record the time when this event took place, using the 24 hour clock (HHMM).

9. LATITUDE: Record the latitude location, in tenths of minutes (ddmm.m), where you are when the sighting or event occurred. Do not record symbols or letters. This information can be obtained from your personal GPS unit (be sure settings are correct). If latitude cannot be fixed by GPS, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

10. LONGITUDE: Record the longitude location, in tenths of minutes (dddmm.m), where you are when the sighting or event occurred. Do not record symbols or letters. This information can be obtained from your GPS unit (be sure settings are correct). If longitude cannot be fixed by GPS, plot the position on a NOAA nautical chart and record the coordinates, converting to tenths of minutes.

11. CLOUD COVER: Record the cloud cover using the following codes:

1 = Clear (<10% cloud cover)
2 = Partly cloudy (10-50% cloud cover)
3 = Cloudy (51-90% cloud cover)
4 = Overcast (>90 cloud cover)
0 = Unknown

12. PRECIPITATION: Record the amount of precipitation using the following codes.

1 = Light rain
2 = Heavy rain
3 = Hail
4 = Fog
5 = Sleet or snow
6 = No precipitation
7 = Combination fog and rain
0 = Unknown

13. BEAUFORT SEA STATE: Record the sea state condition for each event, using Beaufort Scale Sea State Codes (wind speed in knots (kts)):

0	= < 1kt	wave height 0 ;	mirror-like surface
1	= 1-3 kt;	wave height 0.25 ft	ripples; no foam crests
2	= 4-6 kt;	wave height 0.5 - 1 ft	small wavelets; crests glassy, not breaking
3	= 7-10 kt;	wave height 2-3 ft;	large wavelets; crests beginning to break; scattered whitecaps
4	= 11-16 kt;	wave height 3.5 - 5 ft	small waves becoming longer; numerous whitecaps
5	= 17-21 kt;	wave height 6 - 8 ft	moderate waves becoming longer; many whitecaps; some spray
6	= 22-27 kt;	wave height 9.5 - 13 f ;	larger waves forming; whitecaps everywhere; more spray
7	= 28-33 kt;	wave height 13.5 - 19 ft	sea heaps up; white foam from breaking waves blown in streaks
8	= 34-40 kt;	wave height 19 - 25 ft	moderate high waves; waves breaking into spindrift; blowing foam

15. WAVE HEIGHT: Record the average estimated wave height, in tenths of meters.

Fields 16-20 are only recorded during soak watches.

16. PERCENT NET RAN: If the fishing vessel leaves one end of the net and "runs" the net, record the percentage of the net the fishing vessel covered. The total cannot be more than one hundred percent. If the vessel runs the net more than once in one event type type (i.e. runs back and forth along the net continuously), please record in comments, including the number of times the net is run.

17. CORK LINE SHAPE: Record the Cork line shape using the following

1 = straight
2 = curved; 0 - 30˚ arc
3 = curved; 31 - 60˚ arc
4 = curved; 61 - 120˚ arc
5 = curved; 121 - 180˚ arc
6 = sinuous
7 = sudden and/or temporary submergence or shape Δ
9 = other (comment)
0 = unknown

18. CAUSE - CORK LINE SHAPE CHANGE: Record the most likely cause of the cork line shape change using the best choice from the following codes:

F = fishing activity cause Δ
D = drift cause (wind or current) Δ
U = unknown cause Δ

19. NET END TENSION: Record the Cork line shape using the following codes:

1 = straight / taut
2 = < 10 corks -no tension
3 = 10-20 corks -no tension
4 = > 20 corks -no tension
5 = sudden/ temporary tension Δ
9 = other (comment)
0 = unknown

20. CAUSE - NET END TENSION CHANGE: Record the most likely cause of the cork line shape change using the best choice from the following codes:

F = fishing activity cause Δ
D = drift cause (wind or current) Δ
U = unknown cause Δ

21. SPECIES CODE: Record the species code of the marine mammal sighted to the most specific group possible (reference Appendices - Species Codes). Complete one line for each species in each sighting. Multi-species sightings will have the same event number and time, but individual species will be recorded on separate lines. In comments reference the event number and time and describe/illustrate key characteristics used to identify the species.

22. SPECIES NAME: Record the common name of the species to the most specific group possible. Complete one line for each species in each sighting. Multi- species sightings will have the same event number and time, but individual species will be recorded on separate lines. Detail multi-species groups in the comments.

23. NUMBER IN GROUP: Record your best estimate of the number of individuals of the same species in the group sighted. If you have a range for the number, record the average here and the range in comments.

24. ANIMAL BEHAVIOR: Indicate the *initial* behavior of the animal when first seen by recording the most appropriate code. There will only be one entry per animal, except in the case where the animal approaches the net to within 20 m or less. When using Animal Behavior Codes 19-22, use multiple entries to record an individual animal's incremental movement toward the net as follows (see data fields 27-28 below): If an animal is first seen 200 m from the net and moves to within 9 m of the net before swimming away, the first entry should have an "initial distance to the net" of 200 m and "closest distance to the net" of 20 m. The animal Behavior codes will be 19. The second entry will have an "initial distance to the net" of 200 m and "closest distance to the net" of 9 m and an animal behavior code of 20. Every entry should have both an initial- and closest- distance to net entry. Each time the animal reaches one of the distance–to-net thresholds (20, 15, 10, 5, 0m), record a new entry. (Do not record more than four per pinniped). In comments, note that these multiple entries refer to the same animal and describe how you know they are the same animal:

Animal Behavior Codes & Guide

Code	Type	Description
1	Swimming at surface	Implies forward progress (i.e., transit).
2	Milling/Circling	Implies movement within the immediate area without transiting; making short dives without moving along. Often a group activity.
3	Sounding	Whale making final dive after a series of short dive a.k.a "terminal dive"; may refer simply to a long dive. Tail flukes might come out of the water prior to sounding.
4	Porpoising	Splashing along at the surface, breaking the surface regularly, showing most of the body.
5	Bow riding	Swimming in the pressure wake of a moving boat (bow or stern, despite name).
6	Breaching	Animal emerges almost entirely from the water and crashes down on a flank, back or belly.
7	Thrashing	Moving or stirring about violently; tossing about
11	Feeding on catch	Refers to **any** fishing vessel's catch
12	Foraging on other prey	Natural foraging
13	Floating on surface	Drifting, resting on the water's surface.
14	Vessel avoidance	Abruptly changes swimming direction or behavior to avoid the vessel or fishing gear; sometimes a startling, alarming, or fleeing reaction.
16	Hauled out on land	Pinniped on shore, out of the water.
17	Dead	Use when dead stranding animal is sighted .
18	Loss of Shyness/lack of avoidance	Displays an unusual tolerance of approach from humans or a vessel. Primarily used for pinnipeds.
19	Approach to net w/in 20 meters	Animal travels to between 20 and 10 meters of the net.
20	Approach to net w/in 10 meters	Animal travels to between 10 and 5 meters of the net.
21	Approach to net w/in 5 meters	Animal travels to within 5 meters of the net, but does not make physical contact with the net.
22	Physical contact with net	Animal makes some contact with the net but is not determined to be an incidental take.
9	Other (Comment)	
0	Unknown	

25. ANIMAL CONDITION CODES: Record the appropriate animal condition code:

    1 = no unusual observations
    2 = hair loss on head
    3 = hair loss on body
    4 = lesions on head
    5 = lesions on neck/shoulders
    6 = lesions on body
    7 = lesions on front flippers
    8 = lesions on back flippers
    9 = other (comment)
    0 = unknown

26. DISTANCE TO FISHING VESSEL: Record the distance from the animal to the fishing vessel at the *initial* sighting, estimated in whole meters. If more than 1 kilometer away, SLASH this field. If you are on a Transit Watch or have another off-watch sighting where no fishing vessel is present, SLASH this field.

27. ANIMAL DISTANCE TO NET INITIAL: Record the distance between the animal to the net at the initial sighting, estimated in whole meters. If more than 1 kilometer away, SLASH this field.

28. ANIMAL DISTANCE TO NET - CLOSEST: Record the closest distance that the animal came to the net during entire sighting. If it comes within 20 meters, you will be recording additional events for the same animal with codes 19-22. Estimate distances in whole meters. If more than 1 kilometer away, SLASH this field. If this is an off-watch sighting and there is no net, SLASH the field.

29. ANIMAL LOCATION ALONG NET: Record the horizontal quarter along the net if the animal or group of animals is within 100m of the net. Choose the first, second, third, or fourth quarter of the net from the end to which you are closest. If more than 100m away from net, SLASH this field. If this is a Transit or Off-Watch sighting and there is no net in the water, SLASH this field.

30. ANIMAL INTERACTION WITH NET: Record "Y" for yes if the animal is within 5 meters of the net OR comes into physical contact with the net OR displays obvious net avoidance or attractant behavior. Describe details in comments. Record "N" for no if none of those behaviors apply or if more than 5 m away from net. If this is a Transit or Off-Watch sighting and there is no net in the water, SLASH this field.

31. FISHERMAN RESPONSE TO MARINE MAMMAL: Record the most appropriate code for a fisherman's response to marine mammals in the vicinity (within 500 m). If this is a Transit or Off-Watch sighting and there is no permit holder operating in the area, SLASH this field.

    1 = no response
    2 = change net tension
    3 = change cork line shape
    4 = run net
    5 = make noise
    6 = haul initiated
    9 = other (comments)

32. COMMENTS: Begin each comment with the sighting event number and time to which the comment corresponds. Use comments to detail the animals' behavior, reactions, characteristics used to identify species, any signs of injuries or scarring, species associations, vessel's or fishermen's activities during the event, etc. If corresponding evidence of "blow through" as noted on the Haul Form, identify it as such and identify corresponding haul number. Additionally, observers should comment on any soak watches less than 30 minutes long.

    Comment should include remarks regarding:

    - Identifying Characteristics – what you used to make a species ID. This should include a sketch and one or more key characteristics of the species you have id'd.
    - Behavior – including approach to or avoidance of fishing vessel or gear
    - Reactions to fishing activity
    - Sign of injury/ Scarring

4.1.9 Photo Form

This form is used to record information about what photos have been taken. It is completed for each frame (photograph) per permit sample.

Bring camera to debriefing. If there are photos of an incidental take or stranding on the camera, make sure to alert lead observer during debriefing. Each download file should be labeled by the year, permit sample number, and frame #.

4.1.9.1 Photography Guidelines

Cameras are provided to photograph incidentally caught animals. Observers are required to photograph all incidentally caught animals, even if the whole carcass will be brought back to camp.

For confidentiality purposes, photographs should not be taken of vessel names, vessel numbers, or clear shots of crew members. Permit gear, site, and crews should not be identifiable.

All photos taken of all fishing vessels and gear, catch and bycatch, or marine mammals in the area around the fishing vessel and gear taken while conducting a permit sample are the property of the federal government. All such photos must be submitted during debriefing and NO COPIES may be retained for any purpose.

Photos are an important part of the species identification process and can also aid in determining the sex, age, unique markings, and condition of animals taken. Cameras may also be used to photograph:

- Marine Mammal Sightings
- Marine Mammal Strandings
- Sharks and rare or hard-to-identify fish

Species ID Photographs:

For animals that are removed from the water:

- At minimum a full side view photo should be taken - left side view of the animal is preferable.
- Place the animal against a plain contrasting background if possible.
- Place a piece of paper with the **permit sample identifier number, the animal's tag number, and the date** next to the animal's body. Include the actual carcass tag in the photo if possible.
- Include an object in the photo to be used as a size reference (carcass tag is sufficient if available).
- Orient the camera perpendicular to the animal to obtain a full side view. Include dorsal fin for cetaceans.

- Close up of any characteristics/body parts of the animal which can be used for species identification.
- Specific body parts useful for identification:
    i. head (head-on, dorsal, ventral, mouth)
    ii. rostrum or bill
    iii. flipper and fluke shapes
    iv. dorsal fin shape and relative placement on back
    v. full ventral view
    vi. genital area
    vii. birds: shape and color of feet and bill,
    viii. fish/sharks: gills and placement of fins
- Avoid oblique angle shots or direct head-on views (not usually useful for identification)
- Be aware of lighting: make sure shadows do not obscure animal
- Fill the viewfinder with the animal or center the important focus of the photo.

For animals that cannot be removed from the water:

- Best opportunistic shots. Try to include head, any distinguishing coloring or markings. Underside of flukes (can only be seen during terminal dive) on a humpback whale are extremely valuable for later identification.
- Include any object in foreground or background that may provide a size reference.

Additional Photographs:

- Unusual marks and scars
- If the animal is an incidental take, include location on animal of gear entanglement (preferably with gear still attached)

Camera Maintenance

Keep cameras away from excessive heat, moisture, salt, and vapors. Wipe salt and sand from camera regularly and after each trip. Charge camera before each opener.

4.1.9.2 Photo Form Field Descriptions

1. OBSERVER IDENTIFIER NUMBER: Record your three character Observer Identifier Number (ex: K12).

2. PERMIT SAMPLE IDENTIFICATION NUMBER: Record the permit sample number associated with the photos on this FORM. If you are a secondary observer, start a new Form. Add your unique three character Observer Identifier to the end of the permit sample identification number on all the forms previously completed by the primary observer and on any new forms you complete.

3. FRAME NUMBER: Record the frame number(s).

4. DATE: Record the date when this photo was taken, with month, day, year (MMDDYY).

5. TIME: Record the time when this photo was taken, using the 24 hour clock (HHMM).

6. SPECIES NAME AND CODE: If this photo is of an animal, record the species and the species code (see Appendix 7. Species Codes for a list of species codes).

7. TAG NUMBER: If this photo is of an animal with a unique tag number, include the tag number in the first photo of the series and record the complete tag number in this field.

8. SUBJECT: In 2 or 3 words, briefly state the subject of the photo. This field may be used to create the label to be applied to the photo.

9. DESCRIPTION: A more detailed record of the subject. Include trip number, haul/pick number, area location, operation description, specific markings, or what the photo intends to detail.

10. QUALITY: This field will be completed by the lead observer during debriefing. It is a ranking of the quality of the photo by using one of the following Quality Codes:

    1 = Excellent
    2 = Good
    3 = Fair
    4 = Poor

4.1.10 Fisher's Comment & Additional Observer Comments Forms

The Fisher's Comment Form is offered to the permit holder if they wish to comment on the trip which was observed. Alternatively, the observer should use this form to record comments made by the permit holder regarding the trip, rather than on other data forms. If an observer completes the form for the permit holder, this should be stated clearly in the comments section.

While the other data forms capture the objective, neutral observations made by an observer, this form is dedicating to capturing observations made by permit holders. These observations may help to contextually interpret data and therefore this form is provided to record this aspect of the program.

In the past this form has recorded observations that are not ascribed to a single net, haul/pick, or trip. For instance, there are observations that describe the opener, season, or even lifetime of experience the permit holder. Catch quality, climate, ecosystem, or predator remarks have been recorded on this form. General gear and fishing method remarks have also been recorded.

Do not feel limited by the past applications. Use the form as needed to capture permit holder observations (or allow them to complete the form themselves).

4.1.10.1 Fisher Comment Form Field Descriptions

1. PAGE NUMBERING: This is for paperwork filing purposes. Number front and back of all double-sided forms (if used) and backs with comments on them. The pages are numbered by trip with forms in order as they are listed in the Table of Contents. If this form is not associated with an observed trip, then the page order would be date and time.

2. YEAR: Record the year (YYYY) when the trip ended. Dash (-) if not associated with a trip.

3. MONTH: Record the month (MM) when the trip ended. Dash (-) if not associated with a trip.

4. PERMIT SAMPLE IDENTIFICATION NUMBER: Record the unique three character Observer Identifier combined with the three character Trip Number consecutively numbered trips for this year of the primary observer (ex: G01001). If you are a secondary observer, add your unique three character Observer Identifier to the end of the permit sample identification number on all the forms previously completed by the primary observer and on any new forms you complete. Dash (-) if not associated with a trip.

5. FISHERY NAME AND CODE: This field is pre-recorded with the name of the fishery and code: "SEAK DGN SØ3A."

6. VESSEL NAME: Record the name of the vessel to which you are deployed. Record "No Name" for a vessel without a name. Record a dash (-) if this field does not apply.

7. VESSEL NUMBER: Record the vessel registration numbers (and letters) written on the hull of the vessel the permit holder is using. If the vessel has not been registered or the registration number is not visible, record "None" for each skiff/vessel.

8. PERMIT NUMBER: Record the state fishing permit number and letter belonging to the permit holder.

9. TODAY'S DATE: Record the date the form is completed (MMDDYYYY).

10. FIRST NAME: Record the permit holder's first name.

11. LAST NAME: Record the permit holder's last name.

12. COMMENTS: Provide the form to the permit holder to complete.

4.1.11 Biological Sample Chain of Custody Form

4.1.11.1 Overview

The Chain of Custody Form is used to ensure that the locations of biological samples are known at all times. The AMMOP is accountable for all samples collected under the auspices of the various permits allowing sample collection, even after samples have been transferred to sample custodians outside of the AMMOP.

The Chain of Custody Form is the only data form AMMOP uses that is carbonless triplicate paper instead of the standard waterproof paper. Be mindful that all marking done on the form is intended to show in triplicate and indeed is clearly readable on all three copies.

The chain of custody form collects three different types of information:

Animal Information: This is the information about the animal being sampled. This may be a marine mammal or seabird take, other bycatch, or a stranded animal.

Sample Information: This is information about individual samples collected from a given animal and also treats the whole carcass of the animal as a sample.

Custodial Information: This is the information about the custodians handling individual samples.

This Chain of Custody Form is used throughout the lifecycle of the sample. Photocopies of the forms are used as needed, mainly in two situations:

- *When samples from a single animal are separated:* There must be one copy of the Chain of Custody to every sample (or cohesive group of samples from a unique animal).

- *Notifying NMFS of sample status:* NMFS must be notified when a sample is transferred, disposed of, or destroyed. If faxing is not possible, a photocopy must be sent to the address listed on the Chain of Custody Form.

4.1.11.2 Custodial Protocol

The custodial protocol for samples collected by AMMOP observers emphasizes documenting each sample, who holds each sample, and where the sample is located.

1. Whole Carcass Collection: The collector completes the animal, sample and name/location information portions of the form as the "collector."
2. Primary Sample Transfer: The collector makes a photocopy of the form, to be sent on with the samples. On the photocopy checks the "Photocopy" box. On the original form, the collector initials and dates the "Transferred" boxes; then the form is sent to NMFS.
3. Transferred Samples Reception: The new custodian completes the appropriate custodian column in the sample information with date and initials. The appropriate row in name/location information should also be completed.
4. Additional Sample Transfers: Make a photocopy of the form, and on that form and initials and dates the "transferred" boxes. This photocopy is sent to NMFS.
5. Destroyed Sample: Record the date the sample was destroyed and send the form to NMFS.

4.1.11.3 Biological Sample Chain of Custody Form Field Descriptions

Animal Information

1. PERMIT SAMPLE IDENTIFICATION NUMBER: Record your unique three character Observer Identifier combined with the three character Trip Number consecutively numbering your trips for this year (ex: G01001). If you are a secondary observer, add your unique three character Observer Identifier to the end of the permit sample identification number on all the forms previously completed by the primary observer and on any new forms you complete.

2. HAUL: Record the consecutive haul/pick number assigned to the haul/pick with the take. This number must agree with the haul/pick number recorded on the corresponding Haul/pick Form. Dash (--) this field if it does not apply.

3. DATE TAKEN: Record the date when the animal was taken (MMDDYY). If the animal was not a take, use this field to record the date the animal was collected (MMDDYY).

4. TAG NUMBER: Record the complete alphanumeric number from the tag attached by the observer. All tag numbers should begin with "A" followed by 4 digits.

5. SPECIES: Record the complete common name for each animal incidentally taken on this trip as listed in the Species Code (Appendix 7. Species Codes).

Include the appropriate Species Code for data entry (this can be filled in after the trip when codes can be referenced).

6. COMMENTS: Note any clarifications or special instructions here.

7. COPY OF ORIGINAL: Use this box only after a photocopy has been made. If the Chain of Custody form being completed is a photocopy, check this box.

8. TYPE: Find the type of sample that has been collected and use the row to record custodial information. The Type options are:

Notes on Biological Sample Types

Type	Note
Whole Carcass	If the whole carcass is collected and all other samples are still intact, do not record any further rows. When samples are *taken* from the carcass record the samples.
Skin	If more than one skin sample is collected, mark one here (result: "Skin 1") and use an "Other" row, noting skin 2 (result: "~~Other~~Skin 2")
Head	If the head is collected and the jaw remains intact, do not record the jaw separately.
Jaw	If the head is collected and the jaw remains intact, do not record the jaw separately.
Stomach	If stomach contents are collected separately from the stomach, record using Other row.
Blubber/Fat Globule	Blubber is collected from marine mammals. Fat globules are collected from seabirds.
Muscle	Record muscle type if known.
Reproductive Tract	--
Fetus	--
Liver (Bird)	--
Heart (Bird)	--
Leg (Bird)	--
Other 1-5	If the type of sample is not listed, or if the sample is a duplicate of an already collected sample, use the rows marked "Other 1" to "Other 5" to record custodial information. Record the type of sample next to the "Other #."

Sample Information

9. COLLECTOR: The first collector of the sample records their observer identification code and the date they collected the sample in this field. Example: E01 2/1/07. If the collector is not an observer, the collectors initials should be used.

10. CUSTODIAN I: The first custodian to posses the sample after the collector records their observer identification code and the date(MM/DD/YY).

11. CUSTODIAN II: The second custodian to posses the sample after the collector records their observer identification code (if custodian not an observer, they should record their initials) and the date (MM/DD/YY).

12. CUSTODIAN III: The third custodian to posses the sample after the collector records their observer identification code (if custodian not an observer, they should record their initials) and the date (MM/DD/YY).

13. CUSTODIAN IV: The fourth custodian to posses the sample after the collector records their observer identification code (if custodian not an observer, they should record their initials) and the date (MM/DD/YY).

14. TRANSFER: Prior to recording this field, a photocopy should be made of the form. After a photocopy is made of the form, record on original [with regards to the photocopy!] the name and contact of the person to whom sample is being transferred.

15. DESTROYED: Record the date (MM/DD/YY) the sample was destroyed.

Name and Location

16. COLLECTOR: Record observer identification code and general area. Example: G01, Tisu River, AK

17-20. CUSTODIAN I-IV: Record observer identification code and location of sample storage. (Example: G01, Yakutat, AK) If custodian is not an observer then record the custodian's name, address, and contact information.

NOAA Fisheries
Alaska Marine Mammal Observer Program

Biological Sample Chain of Custody Form

Animal Information

Trip: 1
Haul: 2
Date taken: 3
Tag Number: 4
Species: 5
Comments: 6

Copy of Original? ☐ 7

IMPORTANT:
Samples are obtained under permits issued to:
NOAA/NMFS/ AK Marine Mammal Observer Prgm
POB 21668
Juneau, AK 99802
1. When sending samples to next custodian, notify AMMOP Coordinator at (907) 586-7642
2. On receiving or destroying of samples: complete the Log with your initials/date and location, and send a photocopy to address above or fax to (907) 586-7012.

Sample Information

Initial and date when sample is collected, shipped, received, or destroyed per instructions on back of form

Type 8	Collector	Custodian I	Custodian II	Custodian III	Custodian IV	Transfer Name and Contact Info	Destroyed Date
Whole Carcass	9	10	11	12	13	14	15
Skin							
Head							
Jaw							
Stomach							
Blubber/ Fat glob.							
Muscle							
Repro. Tract							
Fetus							
Liver (Bird)							
Heart (Bird)							
Leg (Bird)							
Other 1:							
Other 2:							
Other 3:							
Other 4:							
Other 5:							

Name and Location

Collector: 16
Custodian I: 17
Custodian II: 18
Custodian III: 19
Custodian IV: 20

AMMOP Form 031-05 White: Sample * Gold: NMFS * Pink: Trip

Instructions
1. At time of sample collection, one form is completed (in triplicate) per each animal sampled.
2. Use ballpoint pen and PRESS FIRMLY to ensure triplicate legibility.

Animal Information
The observer completes this section.
Trip: Trip Identification number (A#####)
Haul: Haul Identification number (#)
Date Taken: Date animal was collected (MM/DD/YYYY)
Tag Number: Number from carcass tag applied by observer (A####).
Species: Identify only to level confident; do not guess. Code is not required here.
Comments: Comments as needed. *Note here if observer who completes form differs from primary trip observer.*
***Copy of Original?*:** This form is designed to accompany a group of samples taken from an individual animal kept together as a cohesive unit, or a carcass. When a sample is removed from this cohesive group of samples, an additional white form **must** be created to accompany the sample that is being removed. On the additional white form, **check this box.** If a photocopier is not available, the additional copy of the white form must include the animal information section and the information relevant to the sample being removed.

Sample Information
Type: This column contains the types of samples that are collected following standard sampling protocol. If additional samples are collected for supplemental research, write in the type of sample collected on rows marked "Other."
Collector: The observer completes this column. Initial (using observer code) and date, or write "N/A" for each sample type not collected.
Custodian I: Lead observer should complete this column. Initial (using observer code) and date, or write "N/A" for each sample type not collected.
Custodian II- IV: Subsequent sample recipients initial and date each sample type received. Then fax or send a photocopy of the form to NMFS.
Transfer: When a sample is separated from an initial group of samples, a copy of the white form must be made. On the copy of the form that will accompany the sample that has been separated, write in this column the name and contact information of the next custodian for the sample being transferred. (On the original form, this field remains empty.)
Destroyed: Date when sample has been destroyed. Then fax or send a photocopy of the form to NMFS. (When a sample is destroyed, the last custodian is assumed to be the person who destroyed the sample.)

Name and Location
Collector: Observer and general area collected. Example: "A10, Uyak Bay, Kodiak, AK"
Custodian I: Lead observer and field office or vessel where stationed. Example: "A10, Village Islands, Kodiak, AK"
Custodian II – IV: Name, mailing address and contact information.

Chain of Custody Protocol
1. Observer collects animal and completes the Animal Information section of this Form. **One triplicate form is completed per animal collected.**
2. Observer completes the Collector column of this Form. **When multiple samples are collected from an individual animal, ensure that the samples remain together as a group based on the individual animal represented by this form.**
3. Observer submits samples, with triplicate form attached to the sample or sample group, to the lead observer upon return from the trip during which samples were collected.
4. Lead observer reviews samples collected (by individual animal). Under "Custodian I," the lead observer initials and dates each sample that they receive.
    a. Lead observer places the **white copy with the sample or group of samples from an individual animal.**
    b. Lead observer provides the observer with pink copy.
    c. Observer includes the pink copy with trip data forms.
5. Lead observer keeps gold copy and enters information into the electronic Sample worksheet.
6. Lead observer sends gold copy of log to NMFS with bi-weekly data shipment.
7. Lead observer arranges storage or shipping of samples.
    a. If a sample is removed from an individual animal sample group, **an additional white form must be created to accompany the separated sample** (by photocopying or completing a new white form). If hand copying onto a new white form, include the information relevant to the sample that is being removed (Animal Information, and sample Collector, Custodian I, and Location.) Then, on the original white form **only**, record in the Transfer column the name and contact information of the custodian who will receive the sample [that was removed from the initial sample group].
    b. Inform the next custodian regarding shipping details and confirm that the shipment arrived.
8. New custodian initials and dates the appropriate column for sample type received, adds custodian Name and location, and then sends a photocopy or fax to NMFS.
9. For any subsequent transfer (or any time a sample is removed from a group of samples): See #6. **Custodians should notify NMFS prior to transferring samples.**
10. Custodian destroying samples should date "Destroyed" column and send photocopy to NMFS.

4.2 Additional Research

4.2.1 Marine Mammal Health and Stranding Response Program and Alaska Marine Mammal Stranding Network

Contact Information:

- Aleria Jensen, Marine Mammal Health and Stranding Response Program Coordinator, NMFS, Alaska Regional Office, Juneau, AK (907) 586-7248
- Barbara Mahoney, NMFS, Alaska Regional Office, Anchorage, AK (907) 271-3448.
- After hours, the NMFS Enforcement hotline can be called at 800-853-1964. The U.S. Coast Guard may also be called in these events and will pass on reports to appropriate personnel.
- The Stranding Network 24/7 hotline number is 1-877-925-7773. Observers can call this one number and the hotline service will track down the NMFS stranding person most available.

4.2.1.1 Overview

Marine mammal stranding response is conducted out of a concern for animal welfare as well as support marine mammal research and management. Stranding response is a collaboration between Federal, state, and local agencies, as well as public institutions and individuals.

In 1992, the Marine Mammal Health and Stranding Response Progam (MMHSRP) was formalized by Title IV, an amendment to the Marine Mammal Protection Act (MMPA). The MMPA define the goals of the program as:

1. Facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild;
2. Correlate the health of marine mammals and marine mammal populations, in the wild, with available data on physical, chemical, and biological environmental parameters; and
3. Coordinate effective responses to unusual mortality events by establishing a process in the Department of Commerce in accordance with Section 404 of the MMPA.

A stranding is defined as an event in the wild in which:

(A) a marine mammal is dead and is
(i) on a beach or shore of the United States; or
(ii) in waters under the jurisdiction of the United States (including any navigable waters); or

(B) a marine mammal is alive and is
(i) on a beach or shore of the United States and is unable to return to the water;
(ii) on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or
(iii) in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance (16 U.S.C. 1421h).

The Department of Commerce is authorized by Section 112(c) of the MMPA to enter into agreements with individuals or groups to "take" marine mammals in response to a stranding event. These agreements are known as Stranding Agreements (previously termed Letters of Agreement).

To respond to marine mammal strandings, volunteer stranding networks were established in all coastal states and are authorized through Letters of Authority from the NMFS regional offices. Through a National Coordinator and five regional coordinators, NMFS oversees, coordinates, and authorizes these activities and provides training to personnel.

Section 109(h) of the MMPA allows Federal, state, and local government employees (or authorized contracted employees) in the line of duty to take a stranded marine mammal in a humane manner (including euthanasia) if such taking is for: the protection or welfare of the mammal; the protection of the public health and welfare; or the non-lethal removal of nuisance animals.

4.2.1.2 Stranding Response to Endangered Species

The NMFS Office of Protected Resources issues the Endangered Species Act (ESA)/MMPA permit which authorize takes of marine mammals, including threatened and endangered species. The permit covers some of the MMHSRP's activities including emergency response activities for threatened and endangered species, health assessment studies, and other research projects. In Alaska, all response to threatened or endangered species must occur under this permit.

The current permit allows the MMHSRP Coordinator to:

- Collect, preserve, label, and transport all species of the Orders Cetacea and Pinnipedia (except walrus), for tissue and fluid samples for physical, chemical, or biological analyses, import, and export;
- Take stranded or distressed marine mammals, including threatened or endangered species;
- Salvage specimens from dead marine mammals, including threatened or endangered species;
- Conduct aerial surveys to locate imperiled marine mammals or survey the extent of disease outbreaks or die-offs;
- Harass marine mammals on land incidental to other MMHSRP activities authorized by the permit; and
- Develop and maintain cell lines from species under NMFS jurisdiction.

Takes of live marine mammals include those that are stranded, entangled, disentangled, trapped out of habitat, extra-limital, in peril (e.g., in vicinity of an oil spill), or are a nuisance. The permit does not authorize takes of USFWS species, but fluid and tissue samples of U.S. Fish and Wildlife Service species (e.g., sea otter) may be received if they were collected legally.

Under the current ESA/MMPA permit, animals may be "taken" during stranding response activities, such as returning the animal back to the wild or treating a distressed condition.

Clearance from the NMFS permit holder must occur BEFORE any stranding program activities, other than those described in Section 4.2.1.3, are conducted by AMMOP observers regarding a threatened or endangered marine mammal.

4.2.1.3 AMMOP Marine Mammal Stranding Protocol

If a stranded marine mammal carcass is found, the following steps should be taken by the observer:

I. Harbor Porpoise and Harbor Seals:

1. Complete a Level A Stranding Form.
2. Mark the carcass with colored grease stick as instructed.
3. Take photographs. Record when film given to lead observer.
4. Take a skin sample (about the size of the tip of your thumb) and place in vial with DMSO or EtOH.
5. Submit sample, completed Level A Stranding Form, and Biological Sample Chain of Custody Form to lead observer, as per standard operating procedure.

II. All Other Cetaceans and Pinnipeds:

1. Partially complete Level A Stranding Form as instructed.
2. Take photographs.
3. Contact lead observer immediately via radio to notify him/her of stranded carcass. At this point the stranding network will take the lead in all further action regarding this animal. Immediate notification is critical to avoid the next tide re-floating and removing animal or depredation by eagles and bears.
4. Mark the carcass with colored grease stick as instructed.

III. For Sea Otters:

1) Partially complete Level A Stranding Form as instructed.
2) Collect carcass in appropriate opaque size plastic bag.
3) Do Not Freeze

4.2.1.4 Marine Mammal Stranding Report – Level A Data Form

This form is not considered part of a trip (i.e., it is not page numbered). Observers record selected fields from the Level A, and the information is used to inform the Stranding Network. The Stranding Network then decides how best to respond to the stranding. The field descriptions that follow are AMMOP interpretation, not repetitions, of the instructions found in the Level A Examiner's Guide.

4.2.1.5 Level A Stranding Report Form Field Descriptions

(This list includes only the fields which observers will be completing)

1. COMMON NAME: Record the identification of the animal to the nearest level of which the observer is confident.

2. EXAMINER NAME: Record your observer identification number.

3. AFFILIATION: Record AMMOP in this field.

4. STATE: Record AK for Alaska in this field.

5. BODY OF WATER: Record the nearest regionally known body of water.

6. LOCALITY: Brief description of location. On the back of the form, describe location in detail including tide and animal's level on beach, any nearby local reference points, etc.

7. LAT: Record the latitude in decimal degrees. *Note this is different then AMMOP forms which use degrees and decimal minutes.*

8. LONG: Record the longitude in decimal degrees. *Note this is different then AMMOP forms which use degrees and decimal minutes.*

9. HOW DETERMINED: Check the appropriate box to record if the location latitude and longitude are the actual or estimated coordinates.

10. # OF ANIMALS: Use this field to record the number of animals stranded only if the number of animals is 2 or greater.

11. YEAR: Record the year as YYYY.

12. MONTH: Record the month (not abbreviated).

13. DAY: Record the day (1-31) the animal was initially observed.

14. CONDITION AT INITIAL OBSERVATION: Record appropriate code. A quick summary of the difference between "fresh dead, Moderate decomposition,

and Advanced decomposition" is edible, a little gooey, and very gooey, respectively.

15. INITIAL LIVE ANIMAL DISPOSITION: Check "left at site." O*bservers should never handle a live stranded animal.* Leave this section blank if animal is dead at initial observation.

16. CONDITION/DETERMINATION: Check the best descriptions, and describe the situation on the back of the form. Leave this section blank if animal is dead at initial observation.

17. SEX: Note if sex is obvious. Record on back of form how determined.

18. AGE CLASS: Note if age class is obvious; describe size of animal on back of form.

19. WHOLE CARCASS: If a complete carcass is present, check this box.

20. PARTIAL CARCASS: If an incomplete carcass is present, check this box.

21. STRAIGHT LENGTH: Record the estimated straight length and check estimated.

22. WEIGHT: If it is possible to estimate a weight, record the weight in this field and check estimated.

23. PHOTOS/VIDEO TAKEN: Check yes or no.

24. PHOTO/VIDEO DISPOSITION: Submit roll of film to lead observer; record that film submitted.

25. TAG DATA: Note if any tags or intentional markings already on carcass.

26. WHOLE CARCASS STATUS: Check "left at site."

27. SPECIMEN DISPOSITION: Leave blank if no specimens were collected. Otherwise check "Scientific collection" and in comments "see Chain of Custody."

28. ADDITIONAL REMARKS: Record details including any obvious signs of human interactions (include location on animal of any marks, types of marks, etc..) Record in detail where the carcass can be found, including local landmarks.

MARINE MAMMAL STRANDING REPORT - LEVEL A DATA

FIELD #: _____ **NMFS REGIONAL #:** _____ (NMFS USE) **NATIONAL DATABASE#:** _____ (NMFS USE)

COMMON NAME: 1 **GENUS:** _____ **SPECIES:** _____

EXAMINER Name: 2 Affiliation: 3

Address: _____ Phone: _____

Stranding Agreement or Authority: _____

LOCATION OF INITIAL OBSERVATION

State: 4 County: _____

City: _____

Body of Water: 5

Locality Details: 6

Lat (DD): 7 . _____ N

Long (DD): 8 . _____ W

☐ Actual ☐ Estimated

How Determined: (check ONE) 9

☐ GPS ☐ Map ☐ Internet/Software

OCURRENCE DETAILS ☐ Restrand GE# _____ (NMFS Use)

Group Event: ☐ YES ☐ NO

If Yes, Type: ☐ Cow/Calf Pair ☐ Mass Stranding # Animals: 10 ☐ Actual ☐ Estimated

Findings of Human Interaction: ☐ YES ☐ NO ☐ Could Not Be Determined (CBD)

If Yes, Choose one or more: ☐ 1. Boat Collision ☐ 2. Shot ☐ 3. Fishery Interaction

☐ 4. Other Human Interaction: _____

How Determined (Check one or more): ☐ External Exam ☐ Internal Exam ☐ Necropsy

☐ Other: _____

Gear Collected? ☐ YES ☐ NO Gear Disposition: _____

Other Findings Upon Level A: ☐ YES ☐ NO ☐ Could Not Be Determined (CBD)

If Yes, Choose one or more: ☐ 1. Illness ☐ 2. Injury ☐ 3. Pregnant ☐ 4.Other: _____

How Determined (Check one or more): ☐ External Exam ☐ Internal Exam ☐ Necropsy

☐ Other: _____

INITIAL OBSERVATION

Date: Year: 11 Month: 12 Day: 13

First Observed: ☐ Beach or Land ☐ Floating ☐ Swimming

CONDITION AT INITIAL OBSERVATION (Check ONE) 14

☐ 1. Alive ☐ 4. Advanced Decomposition

☐ 2. Fresh dead ☐ 5. Mummified/Skeletal

☐ 3. Moderate decomposition ☐ 6. Condition Unknown

LEVEL A EXAMINATION ☐ Not Able to Examine

Date: Year: _____ Month: _____ Day: _____

CONDITION AT EXAMINATION (Check ONE)

☐ 1. Alive ☐ 4. Advanced Decomposition

☐ 2. Fresh dead ☐ 5. Mummified/Skeletal

☐ 3. Moderate decomposition ☐ 6. Unknown

INITIAL LIVE ANIMAL DISPOSITION (Check one or more) 15

☐ 1. Left at Site ☐ 6. Euthanized at Site

☐ 2. Immediate Release at Site ☐ 7. Transferred to Rehabilitation:

☐ 3. Relocated Date: Year:_____ Month:_____Day:___ Facility:_____

☐ 4. Disentangled ☐ 8. Died during Transport

☐ 5. Died at Site ☐ 9. Euthanized during Transport

☐ 10. Other:_____

CONDITION/DETERMINATION (Check one or more) 16

☐ 1. Sick 7. Location Hazardous

☐ 2. Injured ☐ a. To animal

☐ 3. Out of Habitat ☐ b. To public

☐ 4. Deemed Releasable ☐ 8. Unknown/CBD

☐ 5. Abandoned/Orphaned ☐ 9.Other_____

☐ 6. Inaccessible _____

MORPHOLOGICAL DATA

SEX (Check ONE) 17

☐ 1. Male ☐ 2. Female ☐ 3. Unknown

AGE CLASS (Check ONE) 18

☐ 1. Adult ☐ 2. Subadult ☐ 3. Yearling ☐ 4. Pup/Calf ☐ 5. Unknown

☐ Whole Carcass 19 ☐ Partial Carcass 20

Straight length: 21 ☐ cm ☐ in ☐ actual ☐ estimated

Weight: 22 ☐ kg ☐ lb ☐ actual ☐ estimated

PHOTOS/VIDEOS TAKEN: ☐ YES ☐ NO 23

Photo/Video Disposition: 24

TAG DATA Tags Were: 25

Present at Time of Stranding (Pre-existing): ☐ YES ☐ NO

Applied during Stranding Response: ☐ YES ☐ NO

ID#	Color	Type	Placement* (Circle ONE)	Applied	Present
			D DF L LF LR RF RR	☐	☐
			D DF L LF LR RF RR	☐	☐
			D DF L LF LR RF RR	☐	☐

* D= Dorsal; DF= Dorsal Fin; L= Lateral Body
LF= Left Front; LR= Left Rear; RF= Right Front; RR= Right Rear

CARCASS STATUS (Check one or more) 26

☐ 1. Left at Site ☐ 4. Towed: Lat_____Long_____ ☐ 7. Landfill

☐ 2. Buried ☐ 5. Sunk: Lat_____Long_____ ☐ 8. Unknown

☐ 3. Rendered ☐ 6. Frozen for Later Examination ☐ 9. Other_____

SPECIMEN DISPOSITION (Check one or more) 27

☐ 1. Scientific collection ☐ 2. Educational collection

☐ 3. Other:_____

Comments: _____

NECROPSIED ☐ NO ☐ YES ☐ Limited ☐ Complete

☐ Carcass Fresh ☐ Carcass Frozen/Thawed

NECROPSIED BY: _____

Date: Year: _____ **Month:** _____ **Day:** _____

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PLEASE USE THE BACK SIDE OF THIS FORM FOR ADDITIONAL REMARKS

ADDITIONAL REMARKS

ADDITIONAL IDENTIFIER: _____ (If animal is restranded, please indicate any previous field numbers here)

28

DISCLAIMER

THESE DATA SHOULD NOT BE USED OUT OF CONTEXT OR WITHOUT VERIFICATION. THIS SHOULD BE STRICTLY ENFORCED WHEN REPORTING SIGNS OF HUMAN INTERACTION DATA.

DATA ACCESS FOR LEVEL A DATA

UPON WRITTEN REQUEST, CERTAIN FIELDS OF THE LEVEL A DATA SHEET WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR CREDIT THE STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE. THE NATIONAL MARINE FISHERIES SERVICE WILL NOTIFY THE CONTRIBUTING STRANDING NETWORK MEMBERS THAT THESE DATA HAVE BEEN REQUESTED AND THE INTENT OF USE. ALL OTHER DATA WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR OBTAIN PERMISSION FROM THE CONTRIBUTING STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE.

PAPERWORK REDUCTION ACT INFORMATION

PUBLIC REPORTING BURDEN FOR THE COLLECTION OF INFORMATION IS ESTIMATED TO AVERAGE 30 MINUTES PER RESPONSE, INCLUDING THE TIME FOR REVIEWING INSTRUCTIONS, SEARCHING EXISTING DATA SOURCES, GATHERING AND MAINTAINING THE DATA NEEDED, AND COMPLETING AND REVIEWING THE COLLECTION OF INFORMATION. SEND COMMENTS REGARDING THIS BURDEN ESTIMATE OR ANY OTHER ASPECT OF THE COLLECTION INFORMATION, INCLUDING SUGGESTIONS FOR REDUCING THE BURDEN TO: CHIEF, MARINE MAMMAL AND SEA TURTLE CONSERVATION DIVISION, OFFICE OF PROTECTED RESOURCES, NOAA FISHERIES, 1315 EAST-WEST HIGHWAY, SILVER SPRING, MARYLAND 20910. NOTWITHSTANDING ANY OTHER PROVISION OF THE LAW, NO PERSON IS REQUIRED TO RESPOND, NOR SHALL ANY PERSON BE SUBJECTED TO A PENALTY FOR FAILURE TO COMPLY WITH, A COLLECTION OF INFORMATION SUBJECT TO THE REQUIREMENTS OF THE PAPERWORK REDUCTION ACT, UNLESS THE COLLECTION OF INFORMATION DISPLAYS A CURRENTLY VALID OFFICE OF MANAGEMENT AND BUDGET (OMB) CONTROL NUMBER.

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4.3 Data Review

4.3.1 Reviewing Your Data

After a trip and before debriefing each observer should review their own work. Observers may proofread each other's work as well. Do not change data for the sole purpose of fitting it to the manual. If a novel data or circumstance arises let AMMOP staff know.

Lead observers should use **RED** when reviewing observer data forms, and return the forms to the observer for correction.

The observer will make corrections in **BLUE**. Any changes to data made after the fact should be dated with the observer code recorded. Briefly note why the change was made.

4.3.1.1 Data Review Checklist

This list is a minimum check on your data – please refer to the specific instructions for a given data form to ensure you have collected and recorded your data correctly.

All Forms

- □ Page numbering is consistent and all pages are present.
- □ Forms are in order (follow the order the in manual: section 4 page 1).
- □ Forms are fully completed. *Fields should only be blank is a few cases (e.g., unused sighting for rows, selected bird sample rows).*
- □ Date consistent throughout trip.
- □ Net IDs established on gear forms match net ids recorded on haul forms
- □ Haul numbers on Incidental Take forms correspond to Haul forms with "Incidental take = Y".
- □ Incidental Take ID and tag numbers on Sample and Chain of Custody forms correspond.
- □ Fields for maximum are larger number then fields with minimums.
- □ Calculations are written out and correct.
- □ Formulas are written out and correct.
- □ Comments are neutral, relevant and professional.
- □ Unknowns (" – ") are explained.
- □ All "Others" are explained.
- □ Forms are legible.
- □ Erroneous entries are marked with ~~strikethrough~~ and the correct entry is written nearby.

Comment Fields

Comment fields are used extensively during data analysis to verify data fields and put the data into context *and are relied upon heavily to fully understand fishing operations and take conditions.* Observers should ensure that all comments are as useful as possible by being familiar with this section. C*omments should be as detailed, objective and professional as possible.* The notes below combines both the manual instructions for comment fields (as a checklist) and questions commonly asked of the data during analysis.

Permit Sample information Form

- Any comments relating to permit sample not recorded elsewhere

Gear Form

- Any comments on gear characteristics
- Sketch of net or description of novel characteristics; How was the net configured? If there are unknowns, combinations, or others on the front then there should be notes and possibly an illustration on the back.
- Alarm type (marine mammal deterrent) and circumstance of use; If an alarm was used, the type and circumstance for its use should be documented using who (no names), what type, when, which part of the net, why?

Haul Form

- Any comments associated with this haul
- Observation quality, even excellent should be noted "calm sea; perfect lighting"

In what manner was this haul carried out? What factors affected the observer's working conditions and view of the net? Describe the conditions like weather, health, skiff positioning, communications, gear function, and observer platform that affect observation. Describe the manner the haul/pick was carried out, especially when it is not a straightforward, whole area of net out of the water pick. Describe the factors used to rank the view of the net in the water before it was hauled. Describe distractions, if any, including bears or lighting (glare, dusk).

Incidental Take Form

- Any additional information, especially when samples are unable to be collected
- Identifying characteristics: marks, scars
- Condition: gear on animal, injuries
- Presence of foam or other excretions from blowhole, mouth, eyes, etc.

- If the animal fell from gear, the observer should describe in detail at what point it fell, how the animals was entangled and became free, and if the animal sank, floated, and/or drifted away. If it swam away, describe swimming strength as strong or weak.
    - Did the animal seem lopsided or misshapen?
    - Did it swim in circles or directly away?
    - Did it hesitate or seem disoriented?

- Comment should reference tag/animal number

Can someone who was not present reconstruct the take—could a re-enactment be filmed based on the notes? That is essentially the scene when the take is reviewed by NMFS managers. Be sure the observer's situation at the time of the event is recorded. If the observer was not the initial witness of the take (e.g., fisher alerted observer), describe how they learned of the take. Describe unknowns so that future data users know the difference between missing information (even accidentally) versus unknowns. REFER to the marine mammal injury matrix.

Biological Sample Forms

- Any additional information, especially when samples cannot be brought back to camp
- For each animal:
    - Sketch and describe notes from external and internal examination (color, shape, etc)
    - Location where samples and measurements were taken

- Storage method, size, and packaging of samples
- Comment should reference tag/animal number

If camera and photos are lost from the trip, do the notes describe the animals condition? Like the take form, the sample form is used extensively to reconstruct incidental take circumstances after the fact. Photos are great, but are not insurance that the take can be reviewed later. Knowing what the sample size and packaging method is helps make future identifications on UFOs (unidentified frozen objects).

Event Log & Marine Mammal Sighting Form

- Detail the animals'
    - Behavior
    - Reactions
    - Identifying characteristics
    - Signs of injury or scarring; previous branding/tagging
    - Species associations (e.g., mixed pod, cavorting sea lions)
    - Vessel/fisher activity during the event

- Reference event number and time so the comment is specific to an event(s)

How did the observer know the species? What was happening between the initial observation and the closest the animal got to the gear? The comment fields are used to verify the identification of the species as well as understand marine mammal interactions with fishing gear.

Fisher Comment Form

The fisher comment form helps keep observer comments separate from information provided by fishermen to the observer. The type of information recorded here in previous seasons includes: environmental observations (e.g., changing run strength over the years, new marine mammal behaviors), management concerns, and requests for information.

Section Five

Safety

5.0 Introduction

The Alaska salmon fisheries operate with smaller boats than most other observer programs around the country. Likewise, Alaska marine environments can be some of the most punishing in the world. Observers hired for this project will complete safety training and will be issued safety equipment prior to deploying for observer work duties, and are expected to be aware of the inherent dangers of that working environment. This manual gives some safety guidelines, and introduces safety and survival topics and should be used as a supplement to your training and common sense. Seek further information, practices drills, understand equipment, and be well aware of your surroundings at all times.

5.1 General Safety Protocol for Observers

The following safety protocols must be followed by all AMMOP observers:

- Observers will not deploy in drift gillnet vessels to perform observer duties.
- Observers may not board a commercial fishing vessel for transit or performance of observer duties, except in case of emergency, unless the vessel meets the AMMOP safety checklist and U.S. Coast Guard safety requirements. Boarding to determine if safety standards are met is acceptable.
- Observers may not board fishing tenders or commercial fishing vessels for transit, except in case of emergency, or performance of observer duties that do not display a current USCG safety inspection sticker. Boarding to determine if current sticker is displayed is acceptable.
- Observers may decline to board a permit holder's vessel if he/she feels that it is either not a safe vessel or will not be operated in a safe manner and will note on appropriate form.
- If a permit holder refuses to carry an observer, citing safety concerns, the observer will note the refusal in the logbook or on the appropriate form.

- Observers must wear a Personal Floatation Device (PFD - U.S. Coast Guard Approved, Type I, II, or III) at all times when aboard any vessel. There will be a whistle and personal marker light attached to the PFD.

- Observers must carry an immersion suit on board all vessels. There will be a whistle and personal marker light attached to the immersion suit.

- Observers will carry an emergency bag on board all vessels. Items in the bag or on their person will include a PLB, GPS, VHF radio, flashlight, signaling device, and first aid kit.

- Observer work boats will carry safety gear that includes: VHF radio, flares and day markers, extra PFDs, horn, floating throw cushions, and all other safety equipment required by the USCG of that size vessel.

- Observers working in the field should always carry these additional survival essentials: map/chart of area, tide/current tables, pencil and paper, whistle, magnetic compass, emergency supply of food and water, extra clothing and rain gear, nylon rope, sunglasses and sun screen, pocket knife, matches or lighter, candle or fire starter, and emergency blanket or tarp.

- Observers will be issued the following additional safety equipment, to be used as appropriate: leather gloves, ear plugs, ear muffs, and wilderness survival book.

- Observers must never camp alone.

5.2 AMMOP Vessel Safety Checklist for Observers

Observers MUST have the following safety/survival with them aboard any vessel:

- Immersion suit (unless operating in an immersion-suit-exempted fishery/area)
- Personal marker light (strobe)
- Personal flotation device (PFD) (Observer must WEAR a PFD while on any vessel)
- Whistle
- PLB (Personal Locator Device)
- Visual distress signal (mirror)
- VHF radio
- GPS (Geographic Positioning System)
- Survival kit / First aid kit

AMMOP Observer Checklist of Vessel Safety Equipment

All vessels	**Flares**–check locations and expiration dates.
All fishing vessels	**Safety inspection documentation**. A USCG Commercial Fishing Vessel Safety Examination is required on fishing vessels that carry observers.
All fishing vessels (some exempt)	**Immersion suits/ PFDs** – Check location and number of immersion suits and PFDs. Are there enough for everyone on board? Are they accessible at all times?
CPR and 1st Aid if > 3 persons	**First aid materials**– check location of first aid materials? Is there a reference book on board? Who in the crew has had first aid and CPR training?
All outside of 3 miles	**EPIRBS**– Check number and location of all EPIRBs?
Vessel > 26 ft	**Life rings**. Check location and accessibility.
Vessel > 26 ft	**Fire extinguishers**–Check location, accessibility, expiration date, charge level.
Vessels > 36 ft	**Life rafts** – Check locations, service dates and capacity displayed on the canister. Know which one you are assigned to if any.
Larger vessels	**Station billet** (commonly called the station "bill"): Locate and read the posted placard describing the role of all hands on board in an emergency.
Larger vessels	**Radios**–Check location and emergency call instructions posted nearby? Know how to operate the radio for an emergency call.
Larger vessels	Are there emergency instructions for, and did you get a **safety orientation** on: □ Survival craft embarkation stations/survival craft assignments □ Immersion suits (survival suit locations and donning instructions) □ Procedures for making a distress call □ Procedures for rough weather at sea □ Procedures for anchoring □ Procedures for recovering a person overboard □ Procedures for fighting a fire
Larger Vessels	As you walk through the vessel, make yourself aware of **potentially hazardous areas**: □ Identify watertight doors, both interior and exterior–can they be secured in heavy weather or other emergencies? □ Are any hatches or passageways blocked or difficult to access? □ Ask the skipper what the general alarm sounds like, and if he will test it.

5.3 U.S. COAST GUARD Safety Requirements

5.3.1 State-Registered ***Commercial Fishing Vessels*** Inside Three Miles

- □ Immersion Suit: One CG approved proper size for each person onboard (If following an immersion suit exemption, must wear a PFD at all times on the vessel, have a VHF radio, and exemption letter. Check with local USCG for specific area exemptions).
- □ Personal Marker Light: Affixed to immersion suit and/or Personal Floatation Device (PFD) (strobe)
- □ Throwable Cushion
    - For vessels < 26' one CG approved.
    - For vessels greater then 26' one ring life buoy.
- □ Visual Distress Signals: 3 CG approved, day and night visual distress signals or an electric distress light series 46 CFR 161.013 and a day distress flag series 46 CFR 160.072.
- □ Fire Extinguishers
    - For vessels < 26' if explosive gases can't be trapped as when there are portable fuel tanks and they are uncovered, no fire extinguisher is required.
    - For vessels <26' if explosive gases can be trapped as when tanks are installed or portable fuel tanks are covered one B-I CG approved portable fire extinguisher is required.
    - For vessels greater then 26' one B-I Coast Guard approved portable fire extinguisher is required.
- □ Navigation Lights - If vessels operate at any time from sunset to sunrise.
- □ Portable sound producing device (air/mouth horn)
- □ Injury Placard - Posted in highly visible location.
- □ State Registration - Valid original onboard, state numbers displayed on both sides of the bow, minimum 3 inch block style numbers and letters of contrasting color to the vessel's hull with current year dated decal.

5.3.2 Recommended Additional Safety Equipment

- □ VHF radio (If following an immersion suit exemption, must wear a PFD at all times on the vessel, have a VHF radio, and exemption letter. Check with local USCG for specific area exemptions)
- □ Anchor and sufficient line/chain
- □ First aid kit with manual and trained person onboard
- □ Oars

5.4 AMMOP Float Plan Requirements

5.4.0 Introduction

Float plans are the means through which the risk undertaken by of people and vessels deployed on the water or to remote areas may be minimized. It is a safety net to ensure response to possible emergency situations. The following protocols may be supplemented with additional protocols or requirements by Saltwater, Inc. as detailed in instructions provided to observers and work boat operators.

The float plan protocols ensure that any person placed in charge of a float plan understands:

1) Purpose of the float plan;
2) Responsibilities while in charge of the float plan;
3) How to determine if and when to initiate a search and rescue effort;
4) How to initiate a search and rescue effort when needed;
5) How to respond to a search and rescue effort that has been reported to them regarding a vessel whose float plan is in their custody.

5.4.1 Definitions

Float Plan

A written statement, completed by the skipper, of the details of an intended voyage usually filed with a friend, neighbor and/or marina operator. This document specifically describes the vessel, equipment, crew, and itinerary of a planned voyage.

AMMOP Float Plans will be submitted prior to each deployment of a work boat Operator/Observer team in any of the main areas of the AMMOP project. **These deployments may occur via vessel, ATV, or small airplane to a remote site.** All items in the AMMOP Float Plan must be filled out completely. The Float Plan may cover more than one day, depending on the deployment.

This document may be used to initiate a search and rescue or to aid first responders in the event that the vessel and crew are lost or injured. The more accurate the details, the more likely that the float plan could aid in saving a life. The Float Plan will be filled out by the Vessel/vehicle Operator and their assigned Observer, and submitted to the Lead Observer prior to the scheduled deployment. Additional details will be provided in the work boat and observer's information books provided by Saltwater, Inc.

Vessel Operator	The person authorized to operate the vessel/vehicle in one of the main areas of the AMMOP in SE Alaska. The operator will always be paired with an Observer. They may operate a skiff, ATV or both during a deployment. **They are the person responsible for submitting the Float Plans prior to each deployment and closing it at the end of the deployment.**
Observer	An observer deployed to observe a permit holder in any of the ADFG statistical areas in Management Districts 6, 8, and 7A during the AMMOP project.
Custodian	The Float Plan custodian will be the Lead Observer or someone appointed by the lead and will be the main point of contact with the vessel operator. The custodian will take action in the event that the vessel listed in the float plan does not return at the designated time, or is involved in an incident requiring immediate emergency response.
Lead Observer	The Lead Observer in charge of each main camp operating for AMMOP.
SAR	Search and Rescue
First Responder	Person or persons who are the first individuals to respond to an accident or injury. They may be formally trained or simply the first people to be present after the initial event.
RCC	Rescue Coordination Center
Check-In	Regularly scheduled radio or Satellite phone check-ins will be annotated in the Float Plan. Vessel Operators will call in at each scheduled check-in. The Custodian will mark off check-ins in the appropriate box as they occur. **Radio check can more or less frequent as conditions require; however, check-ins should occur at a minimum of each six hours.**
Opening a Float Plan	Opening a Float Plan is a separate act from submitting a Float Plan to the custodian. A Float Plan is opened when the Vessel Operator makes their first check-in to the Custodian. This

should occur as soon as the vessel gets underway. The Operator will state that the Float Plan is Open at that time.

Closing a Float Plan

Closing a Float Plan occurs when the Operator has made the final check-in to the Custodian. For the AMMOP this will occur when the vessel operator and observer have returned to their final destination designated on the Float Plan. The Operator will state that the Float Plan is Closed at that time.

5.4.2 Duties and Responsibilities

5.4.2.1 Lead Observer

- The Lead Observer is responsible for ensuring that all work boat operator/observer teams deployed to the field have properly completed and submitted a Float Plan.
- The Lead Observer may choose to be the Float Plan Custodian or to assign another individual who has been trained as a Float Plan Custodian. Regardless of whom they assign as Custodian, the Lead will make sure that all Float Plans have been closed out at the end of the deployment.
- Lead observers should fully brief all Float Plan Custodians regarding their duties and responsibilities. They are the first link in an emergency and must have all of the training and information they need to carry out their duties, as lives could be at stake.
- The Lead will ensure that the Custodian is properly relieved of duties in the event of a prolonged Rescue effort in which the Custodian has been involved.
- The Lead will keep current and post copies of all Emergency Contact numbers near the radio stations at their main camp or field site, and make sure all other members are aware of their existence and purpose.

5.4.2.2 Observer

- The observer will work directly with the work boat operator to whom they are assigned to ensure that all items listed on the Float Plan's Mandatory Safety Equipment Checklist are on the vessel and in good working order, including vessel and handheld radios.
- The observer will ensure the work boat operator has submitted the Float Plan prior to deployment to a permit holders site.

- No deployments are authorized unless a Float Plan has been properly submitted to and approved by the Lead Observer.

5.4.2.3 Vessel Operator

- The Vessel Operator will completely fill out, sign, and submit a Float Plan to the Lead Observer in charge of their sampling area before each deployment.
- The Vessel Operator will work with their assigned Observer to fill out the Float Plan form.
- The Vessel Operator's signature must be on the bottom of the second page where it lists Signature of Vessel Operator.
- The Vessel Operator will make sure that all communication devices to be used during the deployment are properly charged and turned on at all times.
- The Vessel Operator will formally open the Float Plan as soon as the vessel is underway.
- The Vessel Operator will be the point of contact during scheduled check-ins, unless otherwise noted on the Float Plan.
- Vessel Operator must call in during scheduled check-ins.
- The Vessel Operator will close out the Float Plan as soon as the vessel has safely reached its final destination, as specified on the Float Plan.

5.4.2.4 Float Plan Custodian

- The Custodian must be on-call **at all times** during an active Float Plan to respond to an emergency. When an emergency is identified, the Custodian must do all that is reasonably possible to locate and assist the vessel and individuals listed in a float plan, including but not limited to, contacting the proper authorities who may best be able to respond to a possible Search and Rescue mission (SAR).
- The Custodian must be available with a working, fully charged radio or satellite phone or landline at all times during the activation of a Float Plan. He or she will make sure that all radios and satellite phones are turned on **at all times**.
- The Custodian must carry a copy of the Float Plan, and a copy of Emergency Contact information with them at all times while they are Custodian of an active Float Plan.
- The Custodian's signature must be on the bottom of the first page of the Float Plan where it lists Custodian Signature.

- The Custodian must remain on duty until either the Float Plan is closed out, the vessel and occupants have been located and assisted, and/or the Lead has briefed another individual to take over Custodial/SAR coordination efforts.

5.4.3 Open Float Plan Scenarios

5.4.3.1 Scenario 1.

Someone from a Search and Rescue organization (Parks Service, Public Health, Coast Guard, State Troopers, etc) contacts the Custodian to report a suspected or actual accident, or the suspected disappearance of a Saltwater skiff.

These are Recommended Steps to Take or Consider:

- Attempt to verify that the skiff or individuals in question is/are AMMOP skiff or personnel.

- If the accident/disappearance involves one of the skiffs with an open Float Plan, use the back of the Float Plan to take notes. This ensures that the information will be in one place and easily accessed.
  - If no open Float plan, keep all notes in a central location. Sticky notes are BAD.
  - Always repeat what you have heard back to the person who gave you the information to confirm accuracy

- During any interview collect and write down the following information:
  - Name of person reporting the accident and organization with which they are associated (if any).
  - The person's phone number or radio call sign.
  - Date and time and place where accident occurred.
  - The method with which the accident was reported (phone, radio, etc).
  - Location of accident or last known location (GPS locations are best, but include as accurate a description of the area as possible – remember you may have to relay this information to another SAR coordinator).
  - Date and time accident was reported to you.
  - A contact number for the person reporting the accident to you.

- Because the SAR organization is reporting the accident to the Float Plan Custodian, they will be asking for any information to help them locate and recover the victims during a SAR operation:

- Give them whatever information you have listed on the Float Plan (this is why descriptions are so important)
- Make sure you give them your name and all contact information they need to contact you.
- Establish check-in times with SAR personnel, if possible. You want information, but you don't want to interfere with SAR operations
- Be prepared to provide them with whatever critical information they may need including authorized medical records (they should be kept in the main office) or "Authorization to Release Medical Records."
- Finally, contact a lead observer who will then contact Saltwater as outlined in the EAP.
- Coordinate efforts between the SAR teams and the office.

5.4.3.2 Scenario 2.

Someone who is NOT from a SAR organization calls to report a suspected or actual accident or disappearance involving one of the Saltwater skiffs.

These Are Recommended Steps to Take or Consider:

- Attempt to verify that the skiff or individual is/are AMMOP vessel /personnel.
- Follow the same steps as in Scenario 1, however…
- The Float Plan Custodian is now the **primary person** who will begin efforts to locate the missing skiff, or provide rescue support to an injured person(s).
- If this is an accident involving injuries:
  - Call the appropriate trained First Responder to get first aid to the injured persons as soon as possible.
  - Immediately report the accident to a lead observer who will then report to SWI as outlined in the EAP.
- If the incident involves a missing skiff, contact the Rescue Coordination Center (RCC), and:
  - Give them information listed on the Float Plan (this is why descriptions are so important)
  - Make sure you provide your name and all contact information they need to contact you.
  - Establish check-in times with RCC, if possible. You want information, but you don't want to interfere with SAR operations
  - Be prepared to provide whatever critical information they may need including authorized medical records (they should be kept

in the main office) or "Authorization to Release Medical Records."
- Finally, contact a lead observer who will then contact Saltwater as outlined in the EAP.
- Coordinate efforts between the SAR teams and the office.

5.4.3.3 Scenario 3.

> The person who submitted the Float Plan has not contacted the custodian during a regularly scheduled check-in or to close it out at the scheduled time.

These Are Recommended Steps to Take or Consider:

- As quickly as possible, try to rule out the possibility that the person just forgot to close out the plan.
  - For a missed check in:
    - Follow proper radio protocol when attempting to reach the Vessel Operator by radio.
    - Contact other individuals in listed on the Emergency Contact List as potential radio contacts, and find out where the person was last sited. Sometimes radios malfunction.
    - Once you have exhausted all contact possibilities including contacting National Forest Service and Park Service if possible, initiate a SAR as outlined above.
    - If you locate the person, counsel them regarding the importance of making all scheduled check-ins listed on the Float Plan on time, make note of the incident on the back of the Float Plan, and report the incident to a lead.
  - If the Vessel Operator has not closed out their Float Plan on time:
    - Check with the lead observer, known friends, and local hangouts. Recruit other people to help as needed.
    - If the Float Plan belongs to a skiff located in a remote area, contact National Park Service office in the area, and see if they can check around to locate the skiff. Call the fish processing plants as well.
    - If you locate the person, counsel them regarding the importance of closing out a Float Plan, make note of the incident on the back of the Float Plan, close it out, then report the incident to a lead.

- If you cannot verify the safe return of the person and vessel, begin SAR efforts as outlined above.

NOTE: Search & Rescue organizations will respond faster to a possible emergency if they are convinced that all reasonable efforts to locate a missing skiff and occupants have been exhausted. Do not spend any more time than is absolutely necessary to locate the missing skiff, but be prepared to give the SAR organization accurate information.

NOAA Fisheries
AMMOP Float Plan

Float Plan Submitted By: _____ Date Submitted: _____

Vessel/Vehicle Description

Skiff Name:_____ Registration #: _____

Manufacturer/Model: _____ Color: _____
Hull Material: _____ Beam: _____
Hull Length: _____ Draft: _____

Engine Type/Make/Model/HP: _____
Fuel Capacity: _____

Tow Vehicle
Make: _____ Model: _____ Color: _____License: _____

Vessel/Vehicle Operator Information

Operator Name: _____ Phone # _____
Call Sign: _____
Experience Level (years) Boat_____ Area_____ Health_____

Authorized Person(s) Aboard				
Name	**Age**	**M/F**	**Swim Yes/No**	**Medical Condition(s)**

Mandatory Safety Equipment Checklist			
VHF radio		Anchor/Rode/Line	
PLB(s) #(s)		3 Hand Held Flares	
PFD(s)		3 Floating Smoke Canisters	
PFD Strobe & Whistle		3 Star Flares and Gun	
Immersion Suit(s)		1 Orange Signal Flag	
Imm. Suit Strobe & Whistle		1 Signal Mirror	
First Aid Kit		Flashlight	
Fire Extinguisher, ABC		Emergency Contact List	
Compass, Handheld		Navigation Lights	
Charts of Area		Stern Light	
SOS Kit(s)		Emergency Starter Cord	
Water/Food Rations (3 days mi		Keel Plug	
Oars, Set		Weight/Balance Checked	

Float Plan Custodian Information

The custodian shall have all Search and Rescue (SAR) contact numbers readily available should a SAR be initiated.

Custodian Name: _____ **Phone/Call Sign**: _____

Custodian Signature: _____

1

NOAA Fisheries
AMMOP Float Plan

The Custodian listed above shall be responsible for initiating SAR operations for this vessel if this vessel has not closed out this float plan by:

Date _____ **Time** _____

Float Plan Itinerary

Purpose of Trip _____
_____

Depart From _____
_____

Destination (permit holder #, GPS position if known or best description of area)
_____
_____
_____
_____

Route Description
_____
_____
_____
_____

Frequency of Radio Check-Ins (maximum time between calls 6 hours) _____

Vessel/Vehicle Operator will contact Float Plan Custodian at:

Time: _____ ☐
Time: _____ ☐
Time: _____ ☐
Time: _____ ☐

Communication Plan _____
_____
_____

Float Plan Activated	Date _____	Time _____
Float Plan Closed	Date _____	Time _____

Signature of Skiff Operator _____

2

5.5 Small Boat Safety

In this observer program, you will be deployed aboard 23' aluminum work boats with a small cabin and powered by outboard engines. These boats have been leased by Saltwater, Inc. for the purposes of conducting observers to the fishing grounds and as a data collection platform. Saltwater, Inc. has also hired boat operators to drive the vessels. You should not be operating these boats except under extreme emergencies where the normal boat operator is not able to do so. Following is a brief introduction to general small boat safety and operation (in the unlikely event that you are required to operate the boat.)

5.5.1 Preparing for a Safe Trip

Before getting in a skiff or boat, consider six critical factors. You will file a Float Plan (see Section 5.4) with some of this information, but consider all the following items prior to each trip.

1) Your Boat. Know what the boat can and cannot do. Sometimes the best decision is to not make that crossing (when in doubt, chicken out!). Think about what could go wrong and what you would do if it did go wrong (for example, a fouled spark plug, debris in the propeller, a dead battery) Have a plan for these events.

2) How Many People are Aboard? Are there enough PFDs USCG approved Personal flotation devices (PFD) are required all times! Some flotation jackets (like Stormy Seas jackets) are not USCG approved PFDs.

3) Where are You Going? Discuss the plan for the day, including an agreed upon series of steps to follow if plans go awry, and help the skiff operator complete the float plan. The skiff operator is responsible for filing the float plan with the lead observer. Know the nearest, best shelter from any point you may be in your travel, and those places should be known by all. If you are stranded, do you have enough gear to stay dry and warm?

4) The Environment. Listen to weather forecasts and know the tides and currents. In most of Alaska, there are no published current tables, and you will rely almost solely on local knowledge. Tides tables are published and you should have a copy (or two). Winds are likely to change quickly without prediction. Get advice from anyone that knows the area, treacherous places, routes, and weather. Make notes and share information with others.

5) Equipment. Personal survival kits in a small waterproof container can save your life.

6) Dress for the Conditions. Wear synthetics like polypropylene and polar fleece, or wool; which retain heat when wet--essential for cold water boating. Avoid cotton. You will lose body heat quickly to wet cotton. Sitting still for hours can get cold, but standing or moving around may not be safe in a small skiff. You need to dress warmer than the fishers, who are more active while picking nets. For added safety, wear bright colors so you are as visible as possible.

5.5.2 Boating Procedures

5.5.2.1 Essential Knowledge

You will be briefed on the following skills in case of emergency that may require you to perform one or more of these skills.

- □ How to start, stop and steer the boat.
- □ How to shut off the fuel supply.
- □ How to use the anchor.
- □ Where the fire extinguishers are.
- □ Where the first aid kit is.
- □ How to use the EPIRB/PLB.
- □ How to recover on overboard person.

5.5.2.2 Preventative Maintenance

Skiff operators are responsible for the following, but it would be wise for observers to be aware of these as well:

- □ Fuel: 1/3 to get there, 1/3 to get back, 1/3 to spare.
  - Check the fuel tank, lines, and shutoffs for leaks test them.
  - Secure portable fuel tanks.
  - Give the boat a "smell test" for fuel odors. If you smell fuel, find the problem.

- □ Battery: secured and in place with no loose connections.
  - Check for corrosion.

- □ Wiring: The most common cause of breakdowns is electrical problems.

- See that wiring is secure and in place.
- Keep electrical connections free of corrosion
- Test the bilge pump, all gauges, and visually check lights.

- Engine: visual inspection for leaks; check fuel lines, wiring, steering, and propeller

- Hull: Check for plugs, lighting, scratches and dents, and water under the floor.

5.5.2.3 Boarding

Before leaving dock, have an disembarking plan that you discuss with the boat operator. You should consider the direction of wind and current and the depth of the water. Do not assume that everyone onboard has the same boating experience that you have.

Follow these guidelines:

- Never walk around on a boat without holding on.
- Enter a small boat by stepping into the center.
- Hand equipment into the boat, do not try to carry it aboard as you enter.
- Distribute the load evenly fore and aft and from side to side.
- Check the boat's capacity plate.
- Don't overload the boat; it will reduce stability and make capsizing more likely.
- Maintain a proper lookout. A proper lookout can avoid surprises. Assign a person to act as a lookout.

To comply with Federal law, every boat has a capacity plate that displays the maximum weight of persons aboard in pounds, the maximum carrying weight of the boats in pounds, and the maximum horsepower recommended for the boat. They are the limits during normal operating conditions. In rough weather, a lighter load may be needed.

Overloading will cause the boat to be unstable. Balance the load for proper trim. Overloading the side will cause a list. Too much bow weight will make the boat plow, too much in the stern will show by making a large wake. In any case, the boat will be unstable and difficult to handle.

Make sure that your engines have run for a few minutes and that they are warmed up before casting off lines. (Long idle periods are not recommended.) Also, check

other items on your pre-departure check list prior to leaving the dock. Check to see if your outboard engine's cooling system is functioning. Most outboards circulate water through the exhaust system and have an outlet stream above the water line.

5.5.2.4 While Underway

You have a responsibility to know all you can about any boat used by the program. This applies to riders as well as drivers. Practice maneuvers and plan for emergencies before they happen.

- In a motorized vessel, you must give way to non-motorized vessels; vessels that are actively fishing, and vessels with limited maneuverability (tugs and barges).

- If you meet a motorized vessel head on, pass port to port if possible. One short blast of a signaling device shows this intent, and the signal should be returned. If not, two short blasts request that you will pass starboard to starboard.

- If vessels meet at right angles, the vessel to the right (stand-on vessel) continues course and-peed. The other vessel gives way (give-way vessel), and should take action to pass the stand-on vessel on the stern.

- Navigation lights show green to a vessel on your starboard side, indicating it is the stand-on vessel. You will see the red lights of the port side of the stand-on vessel--give way.

- During restricted visibility, such as fog, a sound signal should be given as one prolonged blast every two minutes. All boats must carry a sound device such as a horn or whistle.

- Have a chart and GPS receiver available so you always know where you are. Plan for changes in wind and weather, and consider the tides and currents. Wind against current will produce standing waves, slowing your progress and giving a rough ride.

- Leeway is when wind or currents push you off course, although your bow is pointing to a specific heading. You can tell is you are experiencing leeway if your wake is off to the side, not directly behind. Compensate by steering into the wind or current.

- Channels are marked with red and green buoys or fixed devices. A rule to remember is "Red, Right, Return": red channel markers are on the starboard when returning from sea.

- Navigation aids are shown on charts. For example, a notation on a chart such as G ?9? Fl G 4s describes a buoy (the lettering is in italics) that is green (G), marked ?9?, that flashes a green light every four seconds (G FL 4s). NOAA chart number 1 is the legend for nautical charts, and can be obtained for free (also on the internet).

Anchoring

Slowly release anchor while facing into wind (anchor is on bow, never on the stern). Make sure that it is releasing tangle free while allowing vessel to drift downwind with the motor in neutral. When about 1/3 is out, tie it off and allow the anchor to dig in. Release more line to achieve the desired scope (rope 10 times the minimum water depth, chain 5 - 7 times the minimum depth). Raise the outboard so that it doesn't tangle with the anchor line. Check for a dragging anchor.

Docking

Practice docking so that your first time is not under adverse conditions. Have a re-docking checklist. Prepare the lines, fenders, and gear well before reaching the dock, and then approach low angle. Shift to reverse to slow quickly, if necessary.

Man (or Woman) Overboard!!

Whoever first sees or hears someone go overboard should shout "man overboard [port or starboard]." This person should become the spotter and continually point to the person in the water until the boat is safely alongside. Try not to lose sight of the person overboard.

Turn quickly toward the side the person fell over and stop the boat. Turning toward the person will push the stern and propeller away. Immediately throw a life saving device toward the person so they will have some assistance in keeping afloat. Your type IV throwable flotation device should always be immediately accessible and within reach of the helm.

- Slowly turn the boat and make a gentle turn keeping the person in view.

- Approach the person slowly into the wind or current.

- When the person is alongside turn off the engine.
- Get the victim on board as soon as possible.
- Treat them for hypothermia; assume hypothermia and treat for it.

CPR may be necessary, followed by treatment for hypothermia. Reduce further heat loss, treat the victim gently, and apply heat to the core of the body.

First Rule of Recovery: Do not become a victim yourself! Stay in the boat and reach for the victim (Reach, Throw, Don't Go!). It will be very difficult to get the victim back in the boat. You may have to signal for help and try to keep the victim as much out of the water as possible while others come to help in the recovery. Don't let the victim pull you in the water; it is recommended that you use line, throwable items, or other implements to decrease the chance that a panicked victim pulls you in. If the victim is between two vessels, keep the vessels apart.

Adjust the weight to keep the boat trimmed and help the person aboard. You may have to pull them over the stern. It may be possible to recover an overboard victim by grabbing their clothing under the arms, bouncing them down into the water (don't submerge the head), then pulling aboard by stepping or leaning back in the boat.

If there two rescuers in the boat, one should grab the wrists of the victim and guide their hands to the boat, then grasp them under the arms and raise their torso to the boat. The other person can then grasp the knee, getting it over the rail and roll the victim into the boat.

5.5.2.5 Safety at Shore Sites

- Use caution boarding small boats, which can shift unexpectedly from loading and waves. Stay clear of propellers (even if the engine isn't running).
- Be cautious near lines and around nets that lead to anchors or land. Always tie off the boat.
- Keep gear well above the high tide line, and secure it if unattended.
- Be aware of the tides and don't attempt to cross mud flats.

5.5.2.6 Emergency Procedures

Drills and safety instruction will be conducted at least once a month. You should get a safety orientation on any boat that you board, no matter what size. Use the checklist and find the listed required equipment. You should ask about, and take every opportunity to learn or review safety and survival procedures.

Abandon Ship

Never give up your best shelter unless it not as good as your alternative. Boats have been abandoned too soon, costing unnecessary loss of lives. If you do abandon, stay near the boat as long as possible. It is your last reported position, a bigger search target, and it may be possible to re-board if it doesn't sink. Keep the raft tied to the boat and be prepared to cut it (there is a knife in a sleeve by the entrance). Of course, a boat on fire may be a threat to a raft, and you should try stay near using the paddles from the emergency kit. In an immersion suit, hang on to the boat, maybe climb up on the hull if it is overturned. If it sinks, make sure you are safe from any entanglement with the boat. It is a myth that a sinking boat will pull you down in its wake.

Fire

It often takes more than one fire extinguisher to put out a fire. Know where all fire extinguishers are, and get them at the first sign of fire. Be ready to back up another person who is using a fire extinguisher. Aim low and use a sweeping motion. Keep your head low to avoid smoke.

Fire extinguishers have several classes. An ABC fire extinguisher is appropriate for most fires. Resist the urge to abandon ship in a fire. Get out the immersion suits and raft, stay upwind and out of the smoke if possible, and be prepared to abandon.

Flooding

Your role in a flooding emergency is probably limited to standing by, with an immersion suit. Consider that anything that can at least slow down, if not stop, water from coming in, it will be to your advantage. The USCG can deliver pumps by aircraft to vessels in trouble.

Grounding

Mistakes are made, and grounding doesn’t usually result in injuries or fatalities. Injuries can occur due to a sudden, unexpected stop. Before you pull off the obstruction, check for hull and propeller damage. If on bottom, check the tides --

you may get lucky and float off. Stay in shallow water until you are confident in the boat's integrity.

5.5.3 Emergency Equipment

5.5.3.1 Personal Floatation Devices

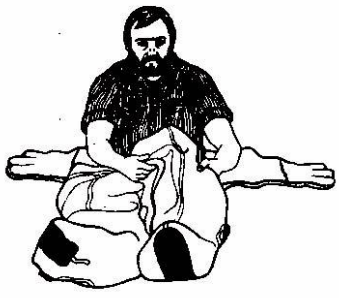
A common element of the majority of boating fatalities is the lack of a Personal Floatation Device (PFD). They are designed to provide flotation and keep your head and neck high out of the water, reducing the exposure of heat loss areas to water. A USCG approved PFD is required for all aboard, and is required of observers in any skiff or during transfers. A type V PFD meets the requirement only if worn. Look for the USCG certification on your PFD. Some PFDs, such as Stormy Seas brand inflatable's, are not USCG approved. There are several brands of inflatable PFDs available that are USCG approved. You will be provided with a Type III PFD, which MUST be worn at ALL times aboard any vessel while you are deployed.

5.5.3.2 Immersion Suits

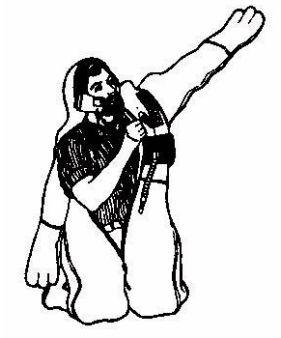
An immersion suit is required for everyone aboard a vessel that operates in cold water. There are different brands and styles, but most are made of neoprene. There is a "universal" size, with larger and smaller sizes available. You will be provided one by the program for assignments where they are required, and can take one where they are not required if you choose to. Be sure that you can find your suit and put it on in less than a minute, even in the dark. They should be stored in an easily accessible place that you can get to in the dark. The suits should have a working zipper (add some wax to lubricate), a whistle, and a signal device such as a strobe light attached. You may also consider attaching your PLB.

Donning an Immersion Suit

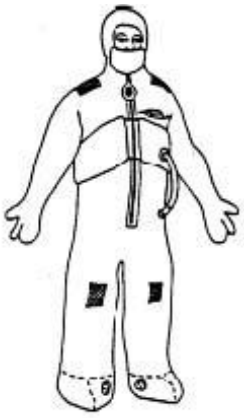
Sit on deck and work your legs into the suit. You may have to remove your boots to do so, but plastic bags over them may help your legs slide in easier.



Place your weak arm in first, then pull the hood over your head (or hood first, then weak arm). If you have long hair, make sure that it is safely tucked in the hood. Then place your stronger arm in the sleeve.

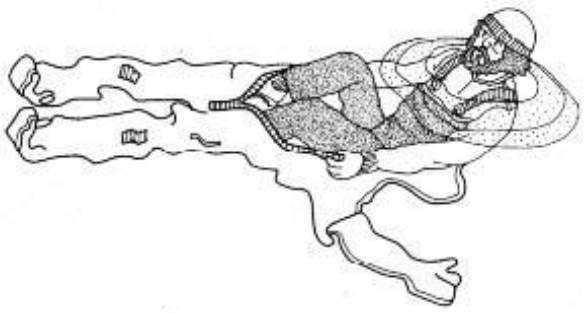


Holding the zipper below the slide with one hand, lean back to straighten the zipper and pull the lanyard with the other hand. Secure the face flap. Do not inflate the air bladder until you are in the water.



Jumping in the water is the last resort. Ease yourself into the water if possible. If jumping, protect your head and keep your feet together to protect from floating debris.

If you are already in the water, it is much more difficult to put on an immersion suit. In cold water, it may not be possible to get in the suit before hypothermia sets in. The general technique is to lay on or straddle the suit, then move quickly to get both legs in at once, with the feet all the way to the bottom. Once the legs are in, arms and head will be a little easier.



Loss of body heat will quickly make your hands nonfunctional, and you will be mentally slow and disoriented. You should use the "HELP" position if there is any chance of being rescued quickly and avoid the increased risk of hypothermia.

The "HELP" (Heat Escape Lessening Position) Position

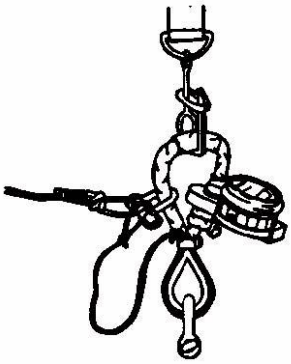
5.5.3.3 Life Rafts

Any vessel that operates offshore will have enough life raft capacity for all aboard. Many salmon fishing vessels are not required to have them. If present, life rafts are stored in canisters that allow them to float free and automatically inflate if the vessel sinks. It is much better to manually launch and inflate the raft if there is time. Know where the rafts are stored, how to remove them from the cradle, where to launch them, and how to inflate them.

Pay special attention to the hydrostatic releases that are often used to secure the life raft canister to the cradle. They are not required if the raft is not attached to the cradle and it can float free. You should determine how to release the canister manually, and if the hydrostatic release is correctly mounted. It should be dated, and not expired.

The release should let the canister free. The painter line (goes in the canister and is attached to the inflation trigger) should stay attached to the boat by a weak link. The weak link is a low breaking strength material, such as a plastic ring, a red cord, or soft metal, that will break and prevent the sinking boat from pulling the

raft under. If the function of the hydrostatic release and raft is not clear to you, ask for guidance. You may be doing everyone a favor by finding a dangerous mistake.



Hydrostatic Release

5.5.3.4 EPIRBs and PLBs

EPIRB (Emergency Position Indicating Radio Beacon)

A vessel that operates outside of 3 miles will have at least one EPIRB mounted in a float-free bracket that will be automatically activated in case of sinking. The signal is received by satellite, and in 406 mHz models, will identify the sender. It is important to know where the EPIRB is mounted and how to activate it manually. In case of an abandon ship emergency it is an item you want to take with you. Someone will be assigned that duty on the station bill. Be sure to locate the EPIRB(S) on your vessel and read the directions on how to activate them. An EPIRB should be tested, and the test logged, on a monthly basis.

PLBs (Personal Locator Beacons)

In addition to the EPIRBS owned by vessels, you will be issued a PLB or personal locator beacon, which also operates on the 406 mHz frequency. Be sure to know how to test and operate the PLB. Instructions will be handed out in training.

5.6 The Seven Steps to Survival

The Seven Steps to Survival were developed by the U.S. Coast Guard from personal accounts of those who survived emergencies. Committing the seven steps to survival to memory should be one of your goals in learning how to survive the marine environment.

1. RECOGNITION

This step should be taken the moment you board a vessel--an inherently dangerous environment. Become familiar with normal operations on a vessel, and then reassess anytime the situation changes. In the event of an emergency, you must quickly recognize the seriousness of the situation and that your life is in danger. Hesitation or denial may cost your life, especially in the harsh environment of Alaska. When the situation changes (boarding a raft or reaching shore, for example), the "Seven Steps" begin again with recognition of new dangers and things that may help protect you against them.

In shore survival, recognition of the dangers you face is an important first step. You need to prepare for the unexpected, and the worst case scenario. Although you are probably better of than on the water, being on land adds another set of dangers to consider. Water is still your enemy and will cause hypothermia. Rain, fog, and waves can contribute to how wet you are, and prolong your exposure by impeding your rescue. Wind, tides, and animals are some of the possible immediate threats that you should consider.

2. INVENTORY

Stop and assess the situation. Decide what will help you and what will hurt you. Take inventory of equipment, weather, your skills, injuries, and your mental condition. Doing so will help you to make good decisions that will help you survive. Inventory should be reassessed each time you recognize a change of situation.

On shore, take inventory injuries and the health of all individuals. Inventory what is available in the area. Everything you have is important. What may have been trash before is now a possible contributor to your survival. Something as simple as a piece of plastic may make the difference to save lives! The Inventory step builds confidence by showing that you have the means and desire to survive. Find out where you are, consider where to make effective signals (a high rocky outcrop, a wide beach, on top of a hill) and collect anything that may be useful for shelters and signals. Look along the shoreline for man-made debris and inventory what kinds of natural items are present. Never let anyone travel alone – you cannot risk additional victims, and two persons are much less likely to encounter tragedy than one.

Survival Kits

A personal survival kit can take up very little space in an immersion suit while greatly enhancing your ability to survive. The items to include in your kit should enhance your ability to address the issues of shelter, signals, fire and personal medical needs. Items such as a knife, dental floss (a strong multi-purpose line), plastic garbage bags, matches, signal mirrors, a compass, small flares, or a space blanket are small items that fit in a zip-lock bag and could save your life.

Comfort Kits

A comfort kit contains a more extensive inventory than a personal survival kit. The items in it should more broadly cover issues raised in the Seven Steps to Survival such as emergency water and food supplies, a first aid kit or a radio. Vessels may have an emergency bag stored and a person named in the station bill to bring it.

3. SHELTER

Your biggest enemy in Alaska is the cold. Your primary shelter is your clothing. Secondary shelter is anything that further protects you against the loss of your body heat such as an immersion suit, a raft, or an overturned vessel. Water can take heat away from your body much quicker than air, so shelter also helps you keep as dry as possible. High heat areas, including the head and neck, need to be protected most.

In clothing, the air spaces between cloth fibers provide insulation. When cotton cloth absorbs water, it is held in the interstitial spaces between the fibers, rendering it useless as insulation. Therefore cotton, although very comfortable, offers little protection in a damp environment. In contrast, when wool or polyfiber clothes absorb water, the fibers hold the water. This leaves the interstitial spaces, which provide the clothing's insulation, intact. Consider wearing clothes made of wool, polar fleece, or polypropylene. Wool pants and sweaters that cost about $5 in a thrift store could make the difference between life and death. If they are too warm to wear for work, keep them with your immersion suit. Polar fleece, polypropylene, and similar synthetics cost more, but dry quickly and are well suited for many outdoor pursuits beyond your work as an observer.

On shore, shelter is your first priority. You need to start building shelter as soon as you reach shore (maybe some crude signals can be made first). The shelter needs to be small to be warm, as watertight as possible, and close to your signals so that you can tend them. It is usually best to try and take advantage of naturally occurring items, such as downed logs, rocks, or cliffs. These offer some protection from wind and weather immediately, and have some inherent strength to build upon. Cut green evergreen boughs can provide you with insulation from the ground as padding, and can be piled enough to make effective rain shelter by leaning against objects. Look for water runoff patterns and avoid depressions that

may collect water. You may never be totally dry, but you will be warmer and drier than outside! Look around the shore and beach for manmade materials that may improve your shelter, your signals, or to collect water.

4. SIGNALS

Anything that attracts attention and conveys a message is a signal. Radios, EPIRBS, and flares are signals carried by vessels.

Radios:
The emergency frequencies are Channel 16 on VHF radios and 2182 kHz or 4125 kHz on single side band radios (SSB). VHF radios are short range and SSB radios are for long range communications. Near the radios, there will be a placard posted that describes MAYDAY calls. Be familiar with what constitutes a proper MAYDAY call. Vessels are required to monitor the emergency frequencies at all times. If you hear a MAYDAY call on the radio, listen carefully and take notes. Inform the person on watch and be ready to respond to the call if the Coast Guard does not. Additional information about radio use will provided in training.

Flares:
The vessel will have flares and/or smoke signals stored in the life raft and other locations on the vessel (most likely the wheelhouse). Each type, either hand held, rocket, smoke flares, etc. will have instructions for use printed on its canister. If you see a flare launched at sea, inform the person on watch immediately.

Other Signals:
Anything that makes you bigger or brighter is a signal. Immersion suits have lights attached. You may have a signal mirror in your personal survival kit. If abandoning ship, anything that can be tossed overboard may help an aircraft spot your position.

In a shore survival situation, three of anything (fires, buoys, immersions suits on the beach) is an internationally recognized distress signal to show distress. Three fires, three piles of trash, or three immersion suits laid out are some examples of effective signal they need to be seen, and they need to convey a message. If you make an SOS on the beach, use a large (16:1) ratio of the letter height to width so that it can be read from low angles by aircraft. Gathering man-made debris, especially brightly colored plastics, make your search target bigger and brighter for a party that is searching for you. If passing boats or planes see piles of debris, three fires, or overturned boat on the beach hopefully they will recognize that this is out of the ordinary and investigate.

Fire starting is an art they may be critical to your survival. Waterproof matches and disposable lighters should be in everyones' personal survival kit. A 9 volt

battery and steel wool makes a hot fire starter. Steel scraped on magnesium strips makes sparks, and several types of fire starters are commercially available. In high rainfall areas look for standing dead wood as opposed to downed wood that may not burn well. Dry driftwood usually burns well. Practice making fires when you have spare time and know the local items that easily burn. Try rubbing sticks and making fires with sparks= an interesting contest when it is for play, and a skill that could save you life!

5. WATER

It is recommended that humans drink two liters of water per day to stay healthy. You can live without water for only a few days, and will suffer dehydration from the onset of any abandon ship emergency. Life rafts have limited rations of water, but it is advised to gather as much as possible before abandoning ship, if time permits. Have a strategy for gathering extra water in an emergency. Never drink seawater or urine. Water from most surface sources in Alaska is reasonably safe to drink. It is always best to treat water for Giardia, the most common problem in Alaska, if possible. Boil, or have water purification tablets or gear in your personal survival kit. A one minute boil will kill Giardia cysts; 20 minutes will kill viruses and bacteria. Rainwater is always safe. Devise means of collecting it and be prepared in Alaska, it will likely rain soon!

6. FOOD

A person can go without food much longer than without water. Never eat food without water – your body will rob itself of water to digest food. Life rafts are supplied with limited food rations. In a shore survival situation, many types of edibles can be found near shore. Almost any animals or leafy green plants in the inter-tidal zone are edible (Desmarestia ligulata is brown and not recommended). Learn some of the edibles in your areas. Avoid mussels or clams, they may cause paralytic shellfish poisoning; and snails may contain toxins as a natural defense mechanism. You should familiarize yourself with edible wild foods in the area that you will be working. Almost any type of berry (salmonberry, blueberry), chickweed, goosetongue, beach asparagus, and seaweeds (ribbon, brown, fucus, bull kelp) are edible pants you should learn to identify. A good source of information is Surviving on the Foods and Water from Alaska's Southern Shores, by Dolly Garcia, UAF Marine Advisory Bulletin 38.

7. PLAY

Studies have shown that mental attitude makes a positive difference in a survival situation. Play is anything that keeps you occupied and prevents your mind from dwelling on the difficulties you are facing. Play could be reading, telling jokes or stories, completing a task, improving your shelter and signals, finding food and

water--anything that keeps your mind active and focused on life. The will to survive has been shown to be a major contributor to surviving incredible circumstances.

5.7 Personal Health and Safety

5.7.1 Fatigue

The potential for fatigue is high in this job. You will be sitting for long hours watching nets, and be fairly inactive. Warm, sunny weather and rocking and back and forth in a boat will make you sleepy. This is certainly an issue about getting your job done, but is also a safety issue. Both you and the crew may be tired and more careless, less attentive, and a liability to themselves and others.

"Boater's hypnosis" is the fatigue from exposure to noise, vibration, sun, glare, wind, and motion that occurs while on the water. Another factor is sleep loss. Most people have reduced alertness and stamina between 2 a.m. and 6 a.m., the time in which they are usually sleeping. Disruptions in your sleep cycle have a large effect on your mood. We become more irritable, depressed, and unable to concentrate and make decisions. These effects tend to be more sporadic than continuous. Reaction times are also slowed-- a dangerous thing around moving gear and boats.

The best solution is to sleep. Five to twelve hours of uninterrupted sleep will recover most people from sleep deprivation. Rest up before an extended work period. Have your gear and supplies prepared well in advance so you have the last 12 hours free to rest and sleep. Naps can be beneficial (especially during what is usually your sleep time). Eat well, and include food high in protein, carbohydrates, and fat. Avoid foods high with high sugar content which cause a quick rise in blood sugar, then a rapid fall that makes you feel tired.

To increase productivity:

- Exercise to increase your circulation and oxygen supply.
- Listen to music (but do not compromise your safety by drowning out sounds).
- Splash cold water in your face, chew gum, drink soda, stand, change your position.
- Drink plenty of water and eat well.

5.7.2 Sea Sickness

You may need to use seasickness medication. Be aware that you will be on smaller boats than you may have experienced in other observer programs, and there will limited opportunities to buy medications in town. A small investment in over-the-counter motion sickness is well worth the expense. Purchase the non-drowsy formulas. Dramamine II and Bonine are two brands available.

5.7.3 Animal Safety

Wildlife interactions can be dangerous. Do not approach or feed wildlife. Do not leave soap, food, toothpaste or other tasty items in tents or campsites. Stow these items appropriately--away from where you sleep.

BEARS

THE ESSENTIALS FOR TRAVELING IN BEAR COUNTRY
(Source: Alaska Department of Fish and Game)

Bear Behavior
One of the things that makes Alaska so special is that all three species of North American bears flourish here. There is a chance that you may be lucky enough to see a bear. But even if you don't, you will never be far from one, because Alaska is bear country. Brown/grizzly bears are found from the islands of southeastern Alaska to the arctic. Black bears inhabit most of Alaska's forests. Polar bears frequent the pack ice and tundra of extreme northern and western Alaska.

Bears are curious, intelligent and potentially dangerous animals, but undue fear of bears can endanger both bears and people. Many bears are killed each year by people who are afraid of them. Respecting bears and learning proper behavior in their territory will help so that if you encounter a bear, neither of you will suffer needlessly from the experience.

Most bears tend to avoid people. In most cases, if you give a bear the opportunity to do the right thing, it will. Many bears live in Alaska and many people enjoy the outdoors, but surprisingly few people even see bears. Only a tiny percentage of those few are ever threatened by a bear. A study by the state epidemiologist showed that during the first 85 years of this century, only 20 people died in bear attacks in Alaska. In the 10 years 1975-85, 19 people in Alaska were killed by dogs.

Most people who see a bear in the wild consider it the highlight of their trip. The presence of these majestic creatures is a reminder of how privileged we are to share some of the country's dwindling wilderness.

Bears and People
Bears Don't Like Surprises! If you are hiking through bear country, make your presence known-- especially where the terrain or vegetation makes it hard to see. Make noise, sing, talk loudly or tie a bell to your pack. If possible, travel with a group. Groups are noisier and easier for bears to detect. Avoid thick brush. If you can't, try to walk with the wind at your back so your scent will warn bears of your presence. Contrary to popular belief, bears can see almost as well as people, but trust their noses much more than their eyes or ears. Always let bears know you are there.

Bears, like humans, use trails and roads. Don't set up camp close to a trail they might use. Detour around areas where you see or smell carcasses of fish or animals, or see scavengers congregated. A bear's food may be there and if the bear is nearby, it may defend the cache aggressively.

Don't Crowd Bears!
Give bears plenty of room. Some bears are more tolerant than others, but every bear has a personal "space" - the distance within which a bear feels threatened. If you stray within that zone, a bear may react aggressively. When photographing bears, use long lenses; getting close for a great shot could put you inside the danger zone.

THE ESSENTIALS FOR TRAVELING IN BEAR COUNTRY *con't*

Bears Are Always Looking for Something to Eat!
Bears have only about six months to build up fat reserves for their long winter hibernation. Don't let them learn human food or garbage is an easy meal. It is both foolish and illegal to feed bears, either on purpose or by leaving food or garbage that attracts them.

out the remains. Food and garbage are equally attractive to a bear so treat them with equal care. Burying garbage is a waste of time. Bears have keen noses and are great diggers.

If a bear approaches while you are fishing, stop fishing. If you have a fish on your line, don't let it splash. If that is not possible, cut your line. If a bear learns it can obtain fish just by approaching fishermen, it will return for more.

Cook away from your tent. Store all food away from your campsite. Hang food out of reach of bears if possible. If no trees are available, store your food in airtight or specially designed bear-proof containers. Remember, pets and their food may also attract bears.

Keep a clean camp. Wash your dishes. Avoid smelly food like bacon and smoked fish. Keep food smells off your clothing. Burn garbage completely in a hot fire and pack out the remains. Food and garbage are equally attractive to a bear so treat them with equal care. Burying garbage is a waste of time. Bears have keen noses and are great diggers.

If a bear approaches while you are fishing, stop fishing. If you have a fish on your line, don't let it splash. If that is not possible, cut your line. If a bear learns it can obtain fish just by approaching fishermen, it will return for more.

Bear Close Encounters: What to do
If you see a bear, avoid it if you can. Give the bear every opportunity to avoid you. If you do encounter a bear at close distance, remain calm. Attacks are rare. Chances are, you are not in danger. Most bears are interested only in protecting food, cubs, or their personal space. Once the threat is removed, they will move on.

Remember the following:

Identify Yourself

Let the bear know you are human. Talk to the bear in a normal voice. Wave your arms. Help the bear recognize you. If a bear cannot tell what you are, it may come closer or stand on its hind legs to get a better look or smell. A standing bear is usually curious, not threatening. You may try to back away slowly diagonally, but if the bear follows, stop and hold your ground.

Don't Run

You can't outrun a bear. They have been clocked at speeds up to 35 mph, and like dogs, they will chase fleeing animals. Bears often make bluff charges, sometimes to within 10 feet of their adversary, without making contact. Continue waving your arms and talking to the bear. If the bear gets too close, raise your voice and be more aggressive. Bang pots and pans. Use noisemakers. Never imitate bear sounds or make a high-pitched squeal.

THE ESSENTIALS FOR TRAVELING IN BEAR COUNTRY *con't*

If Attacked

If a bear actually makes contact, surrender! Fall to the ground and play dead. Lie flat on your stomach, or curl up in a ball with your hands behind your neck. Typically, a bear will break off its attack once it feels the threat has been eliminated. Remain motionless for as long as possible. If you move, and the bear sees or hears you, it may return and renew its attack. In rare instances, particularly with black bears, an attacking bear may perceive a person as food. If the bear continues biting you long after you assume a defensive posture, it likely is a predatory attack. Fight back vigorously.

Protection

Firearms should never be used as an alternative to common-sense approaches to bear encounters. If you are inexperienced with a firearm in emergency situations, you are more likely to be injured by a gun than a bear. It is illegal to carry firearms in some of Alaska's national parks, so check before you go.

Defensive aerosol sprays which contain capsicum (red pepper extract) have been used with some success for protection against bears. These sprays may be effective at a range of 6-8 yards. If discharged upwind or in a vehicle, they can disable the user. Take appropriate precautions. If you carry a spray can, keep it handy and know how to use it.

In Summary

□ Avoid surprising bears at close distance; look for signs of bears and make plenty of noise.
□ Avoid crowding bears; respect their personal space.
□ Avoid attracting bears through improper handling of food or garbage.
□ Plan ahead, stay calm, identify yourself, don't run.

In most cases, bears are not a threat, but they do deserve your respect and attention.

FISH

Be careful handling fish. Fish slime has a high bacterial content. Any open wounds or punctures need to be washed and treated with antiseptic to reduce the possibility of "fish poisoning." If a wound becomes infected, you may need antibiotics. Gloves, raingear, and boots will protect from most of the spines, teeth, or stingers you encounter. Goggles and shields may be necessary to avoid contact with jellyfish--especially when nets are power-washed. Vinegar or other weak acids can reduce the discomfort of jellyfish stings.

MARINE MAMMALS AND BIRDS

Live marine mammals and birds should be handled as little as possible for your protection and theirs. Stressed, injured, or sick animals can be dangerous. Regardless of their condition, heavier gloves and protective gear may be necessary before handling animals. Diseases can be transferred to you from other warm-blooded animals. Using knives to collect samples adds to the danger. See Section 4 of this manual for detailed sampling and handling instructions.

5.7.4 Weather

The weather will affect your work every day. The Petersburg and Wrangell areas experience extreme and dangerous weather conditions at times. You must be prepared to judge the weather conditions relative to your personal safety and take appropriate actions accordingly. You will be provided with supplementary materials about weather that you can carry with you to help in your weather observations and predictions. Consult with lead observers and boat operators, locals and the National Weather Service about local weather patterns and predictions. Daily consultations between leads, boat operators and observers are required prior to deploying to the fishing grounds. Leads should provide weather updates during daily radio checks.

Here are a few general definitions and guidelines:

- Radiation fog occurs in clear, calm weather; and is formed by heat radiating off the earth's surface. The air cools and condenses as it rises. The fog clears at low elevations first, but is slow to clear over water.

- Advection fog occurs when warmer air moves over cooler surfaces. It is common in coastal areas, and is the most common type of fog at sea. It is slow to clear, and usually does so by a change in wind direction or increase in speed.

- In the Northern hemisphere, air circulates counter-clockwise around a low pressure system, clockwise around a high pressure. Weather systems usually approach from the west; and local geography, such as mountains or bodies of water, affect its progress. A strong high pressure can often fend off low pressure systems by diverting them or stalling them until they lose their strength.

- Falling barometric pressure indicates worsening conditions. Rising pressure indicates that the worst weather is over. Barometric pressure affects tides--a high pressure lowers tide predictions, low pressure causes higher tides than predicted.

- Clouds that are becoming lower and thicker may indicate worsening weather. If cloud bases are rising in mountains, fair weather will generally continue. High, thin clouds are an early sign of approaching poor weather.

- In coastal areas, onshore (towards shore) breezes often occur in the morning, switching to offshore in the afternoon. In mountainous areas, these down-slope, offshore breezes can cause localized high winds (sometimes called williwaws); and can be magnified by glaciers, valleys, and steep slopes. Be prepared for wind conditions to change quickly in Alaska's steep coastlines.

- VHF radios have several weather channels. Listen to forecasts two or three times and be familiar with the geographic references. Have a map or chart to refer to as you hear the forecast and make notes — your memory can make mistakes, and your VHF radio might not work next time!

- Larger vessels receive weather faxes from the National Weather Service. If you have access to larger vessels, ask to see the latest forecast and synopsis.

5.7.5 Natural Cataclysms

5.7.5.1 Earthquakes

The Coastal Gulf of Alaska area is on the Pacific Rim's active earthquake arena. Earthquakes are common in Alaska and can range from mild to cataclysmic. Know what to do if you experience an earthquake.

1. If you are indoors, duck or drop down to the floor. Take cover under a sturdy desk, table or other furniture. Hold on to it and be prepared to move with it. Hold the position until the ground stops shaking and it is safe to move. Stay clear of windows, fireplaces, wood-stoves, and heavy furniture or appliances that may fall over. Stay inside to avoid being injured by falling glass or building parts. Stay calm and encourage others to do likewise.

2. If you are outside, get into the open, away from buildings and power lines.

3. If you are in a mountainous area, or near unstable slopes or cliffs, be alert for falling rock and other debris that could be loosened by the earthquake.

4. If you are at the beach, move quickly to higher ground or several hundred yards inland. Tsunamis may follow.

5. Expect aftershocks. Most of these are smaller than the main earthquake. Some may be large enough to do additional damage to weakened structures.

Following an earthquake, initiate your role as specified in the AMMOP / Saltwater Emergency Action Plan.

5.7.5.2 Tsunamis

When you feel a strong earthquake, or hear a tsunami warning, you should assume a dangerous wave is on its way.

- A strong earthquake felt in a low-lying coastal area is a natural warning of possible immediate danger. Keep calm and quickly move to higher ground, away from the coast.

- Not all large earthquakes cause tsunamis, but many do. If the quake is located near or directly under the ocean, the probability of a tsunami increases. If you have trouble standing, the earthquake last 15 seconds or more, or you hear that an earthquake has occurred in the ocean or coastline region, prepare for a tsunami emergency.

- A tsunami is not a single wave, but a series of waves. The first wave is not necessarily the largest. Stay out of danger until an "all clear" is issued by a competent authority

- Approaching tsunamis are sometimes heralded by a noticeable rise *or fall* of coastal water. This is nature's tsunami warning and should be heeded.

- Approaching large tsunamis are usually accompanied by a loud roar that sounds like a train or aircraft.

- A small tsunami at one beach can be a giant a few miles away. Don't let the modest size of one make you lose respect for all.

- Never go down to the beach to watch for a tsunami. When you can see the wave you are too close to escape.

- **If you are on a boat or ship *and there is time*, move your vessel to deeper water (at least 100 fathoms). If it is the case that there is concurrent severe weather, it may be safer to leave the boat at the pier and physically move to higher ground.**

- Stay tuned to your radio, marine radio, NOAA Weather Radio, or television stations during a tsunami emergency.

5.7.5.3 Volcanic Eruptions

Alaska is home to more than 40 volcanoes that have erupted in the last 200 years, and more than half of the state's population lives within 100 miles of an active volcano. The single greatest hazard from an explosive volcanic eruption is ash, fine fragments of rock blown into the atmosphere during volcanic eruption. Ash is carried downwind where the coarser particles fall to the ground and fine ash forms a cloud that is carried with the air currents. Ash is extremely abrasive, does not dissolve in water, and is heavy and slippery when wet. Inhaling ash can be dangerous, especially for those with breathing problems, for children, and the elderly.

What to do during a volcanic ash fall:

- Stay indoors if possible.
- Minimize activity to keep inhalation of fine ash to a minimum.
- Close windows, doors, and dampers; do not run clothes dryers or exhaust fans.
- Place damp towels at door thresholds and other drafty areas.
- Remove ash from flat or low-pitched roofs and gutters to prevent their collapse.
- Shut down and cover sensitive equipment, like computers, TVs, and stereos.
- Listen to radio or TV for further information and instructions.

5.8 Safety Summary

Ultimately, you are responsible for your own safety. Take the time to learn as much as you can, and consider what your actions will be in emergencies. This manual and your training serves only as an introduction to observer safety.

Here are some steps you should take:

1) Pay close attention to safety related materials presented and made available to you by NMFS, and your employer.

2) Take the recommended clothing and safety equipment specified by NMFS, and your employer.

3) Before you leave port, ensure your float plan has been filed, find the vessel's safety and survival equipment, and ensure you know the vessel's safety procedures.

4) Participate in any drills conducted by the vessel and discuss the safety procedures with crew.

5) Read all safety material available.